



Bengalla Mining Company Pty Limited

Noise Management Plan

Revision	Date Submitted	Date Approved	Description	Author	Reviewer	Approved
1	24/10/14	-	Approved DA211/93 Noise Management Plan	C. Kavanagh BMC	C. White BMC	C. White BMC
2	01/09/15	-	Updated for SSD-5170	D Munro Hansen Bailey	C Annandale Hansen Bailey	C White BMC
3	02/02/16	-	NMP Update with comments from DP&E and EPA	N Dobbins Hansen Bailey	D Munro Hansen Bailey	C White BMC
4	13/07/16	-	Update for SSD-5170 MOD 1 & MOD 2	J Martin Hansen Bailey	D Munro Hansen Bailey	C White BMC
5	12/05/17	18/08/17	Update for SSD-5170 (as modified) MOD 3	N Dobbins Hansen Bailey	D Munro Hansen Bailey	C White BMC
6	19/03/19	27/05/19	Updated for SSD-5170 (as modified) MOD 4	L McGinnity BMC	P Madden BMC	C White BMC
7	22/06/2023	10/08/23	Update for SSD-5170 (as modified) MOD 5	B Simpson BMC	L Webster JBA	C White BMC

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Background	1
1.2	History of Operations	1
1.3	Scope and Objectives.....	7
1.4	Environmental Management System	7
1.5	Document Structure	8
2.0	STATUTORY REQUIREMENTS.....	9
3.0	STAKEHOLDER ENGAGEMENT	11
3.1	2015 NMP	11
3.2	2016 NMP	11
3.3	2017 NMP	11
3.4	2019 NMP	11
3.5	2023 NMP	11
3.6	Community Consultation.....	11
4.0	NOISE CONTEXT	15
4.1	Background	15
4.2	Site Characterisation.....	15
4.3	Noise Generating Activities	16
5.0	NOISE MANAGEMENT MEASURES.....	18
5.1	Noise Criteria.....	18
5.2	Background Monitoring Data	18
5.3	Management System.....	19
5.4	Noise Control Measures	19
6.0	NOISE MONITORING PROGRAM	23
6.1	Introduction	23
6.2	Compliance Attended Monitoring	23

6.3	Supplementary Attended Monitoring.....	28
6.4	Unattended (Real Time) Monitoring.....	29
6.5	Cumulative Impacts	33
6.6	Monitor Calibration and Validation	33
7.0	LANDHOLDER NOTIFICATIONS, MITIGATION & ACQUISITION.....	34
7.1	Notifications to Landholders and Tenants.....	34
7.2	Future Tenancy Agreements	34
7.3	Acquisition upon Request.....	34
7.4	Mitigation upon Request.....	35
7.5	Independent Monitoring Results Review	35
8.0	REPORTING & AUDITING	36
8.1	Annual Review	36
8.2	Auditing	36
8.3	Noise Management Plan Review	36
8.4	Protocol for Determining Exceedances.....	37
8.5	Contingency Plan	37
8.6	Non-Compliance and Complaints Management	37
8.7	Public Access to Information	38
8.8	Continuous Improvement	39
9.0	RESPONSIBILITIES.....	40
10.0	REFERENCES	41

LIST OF TABLES

Table 1	Noise Management Plan Requirements	9
Table 2	Land Ownership & Summary of Receivers' Rights under SSD-5170	12
Table 3	Indicative Mobile Equipment Fleet	17
Table 4	Noise Criteria (dBA).....	18
Table 5	Background Noise Levels (dBA)	18
Table 6	Bengalla Noise Control Measures Summary.....	20
Table 7	Bengalla Indicative Engineering Noise Controls Summary.....	21
Table 8	Compliance Attended Monitoring Locations and Criteria.....	25
Table 9	Real Time Monitor Locations and Trigger Levels.....	30
Table 10	Responsibilities Summary	40

LIST OF FIGURES

Figure 1	Regional Locality	5
Figure 2	Development Layout	6
Figure 3	Land Ownership	14
Figure 4	Noise Monitoring Network.....	24
Figure 5	Real Time Noise Monitoring (Reactive) Response Protocol.....	32

LIST OF APPENDICES

Appendix A	SSD-5170 (as modified) Noise Requirements and BMC Commitments
	Table A-1 - Noise Management Performance Measures (MOD 5)
	Table A2 - EPL 6538 Noise Commitments
	Table A-3 - EIS Noise Commitments
Appendix B	Regulatory Correspondence
Appendix C	Mine Owned Properties Noise Predictions and List
	Table C1 – Predicted Operational Noise Levels at Mine Owned Residences
	Table C2 –Mine Owned Properties List and Location

1.0 INTRODUCTION

This section provides background information on the Bengalla Mine, describes Bengalla and its history, and outlines the objectives of this Noise Management Plan.

1.1 Background

Bengalla Mining Company Pty Limited (BMC) operates the Bengalla Mine (Bengalla) which is located approximately 4 km west of Muswellbrook in the Upper Hunter Valley, New South Wales (NSW) (see **Figure 1**).

BMC was granted Development Consent for State Significant Development (SSD) 5170 on 3 March 2015 by the Secretary of the Department of Planning and Environment (DPE) for the Continuation of Bengalla Mine. BMC commenced under SSD-5170 on 1 October 2015.

This Noise Management Plan (NMP) has been developed in accordance with the requirements of Schedule 3, Condition 7 of SSD-5170 (as modified) to provide a framework for noise management associated with the operation of Bengalla (see **Section 2.0**).

1.2 History of Operations

1.2.1 Introduction

BMC was originally granted development consent Development Application (DA) 211/93 in 1996 to construct and operate an open cut coal mine and associated activities. Mining operations at Bengalla commenced in 1998. DA211/93 was surrendered on 22 December 2016.

SSD-5170 (as modified) is now the applicable development consent for Bengalla.

1.2.2 State Significant Development 5170

In September 2013, BMC sought a new development consent under Division 4.1 of Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to enable continued mining operations at Bengalla. The application was supported by the '*Continuation of Bengalla Mine Environmental Impact Statement*' (Bengalla EIS) (Hansen Bailey, 2013) as modified by the '*Continuation of Bengalla Mine Response to Submissions*' (RTS) (Hansen Bailey, 2014).

SSD-5170 provides approval for development including but not limited to the following:

- Open cut mining towards the west at a rate of up to 15 Million tonnes per annual (Mtpa) Run of Mine (ROM) coal for 24 years to a total of 316 Mt;
- Continued use of the existing dragline, truck fleet and excavator fleet (with progressive replacement or substitution with equivalent);
- An out of pit Overburden Emplacement Area (OEA) to the west of Dry Creek which may be utilised for excess spoil material until it is intercepted by mining;

- Continued use, extension or relocation to existing and new infrastructure, including administration and parking facilities, in-mining area facilities (including dragline shut down and erection pad), helipad, tyre laydown area, explosives and reload storage facility, core shed workshop, roads, reject bin, ROM hopper, stockpiles, conveyors, water management infrastructure, bioremediation area, supporting power infrastructure, rail and rail loading infrastructure and ancillary infrastructure;
- Construction and use of various items of new infrastructure (including radio tower, extensions to the Mine Infrastructure Area (MIA), additional raw coal stockpile and upgrade to the ROM coal stockpile (along with associated conveyor network) generally as shown on the infrastructure plans and construction of the Mount Pleasant Staged Discharge Dam and associated water reticulation infrastructure;
- Processing, handling and transportation of coal via the (upgraded) Coal Handling and Preparation Plant (CHPP) and rail loop for export and domestic sale;
- Continued rejects and tailings co-disposal in the Main OEA and in the temporary in-mining area reject emplacement;
- Relocation of a 6 km section of Bengalla Link Road at approximately Year 15 near the existing mine access road to facilitate coal extraction;
- The diversion of Dry Creek via dams and pipe work with a later permanent alignment of Dry Creek through rehabilitation areas when emplacement areas are suitably advanced;
- Relocation of water storage infrastructure as mining progresses through existing dams (including the Staged Discharge Dam (SDD) and raw water dam); and
- A workforce of up to 900 full time equivalent personnel (plus contractors) at peak production.

1.2.1 SSD-5170 Modification 1

SSD-5170 was modified on 16 December 2015 (MOD1) by the Executive Director – Resource Assessments and Compliance for the DPE as delegate of the Minister for Planning for the activities described in the '*Bengalla Mine Development Consent Modification Statement of Environmental Effects*' (Hansen Bailey, 2015a) (MOD1 SEE) including the '*Bengalla Mine Development Consent Modification Response to Submissions*' (Hansen Bailey, 2015b).

The MOD1 provides approval for the following:

- Alterations to various water management infrastructure components including:
 - Utilisation of the Satellite Pit as a temporary dirty water catchment dam;
 - Relocation of the Staged Discharge Dam and the Hunter River Salinity Trading Scheme (HRSTS) staged discharge release point;
 - Construction of clean water diversion levees in locations other than those already approved; and
 - Revised locations for the proposed relocation of the Hunter River and Washery Dams.
- Additional locations for the siting of the Explosives Storage Facility; and

- The placement of fill from the excavation of the Clean Water Dam1 (CW1) adjacent to it.

1.2.2 SSD-5170 Modification 2

SSD-5170 was modified on 1 July 2016 by the Director – Resource Assessments for the DPE (as delegate of the Minister for Planning) for the activities largely described in the ‘Bengalla Mine Development Consent Modification 2 Statement of Environmental Effects’ (Hansen Bailey, 2016) (MOD 2 SEE). The MOD 2 SEE provides approval for the following:

- Alterations to the approved height of the Main OEA to improve visual amenity from primary viewing locations in and surrounding the township of Muswellbrook and Denman Road, in two selected locations (Visual Relief Areas):
 - The Northern Relief Area constructed to a maximum height of Reduced Level (RL) 300; and
 - The Southern Relief Area constructed to a maximum height of RL 290.
- Establishment of a new gravel access road from Wybong Road to the Dry Creek Diversion Project Construction Site Office being a former homestead (Homestead Access).

No additional conditions pertaining to noise management were included in SSD-5170 as a result of the MOD 2 SEE.

1.2.3 SSD-5170 – Modification 3

SSD-5170 was modified on 23 December 2016 (MOD 3) by the Director – Resource Assessments for the DPE as delegate of the Minister for Planning for the activities largely described in the ‘Bengalla Mine Development Consent Modification 3 Statement of Environmental Effects’ (Hansen Bailey, 2016) (MOD 3 SEE).

The MOD 3 SEE provides approval for the repositioning of the following approved activities:

- The construction and operation of an explosives facility and reload facility, which may be relocated to another location(s) within the Approved Disturbance Boundary at a later time;
- The alignment of the Hunter River pipeline; and
- The emplacement and use of temporary topsoil stockpiles during the mining process.

No additional mitigation and management measures to that within SSD-5170 (as modified) are required to manage any potential noise impacts to resulting from MOD 3. As such, no additional conditions pertaining to noise impacts were included in SSD-5170 (as modified) as a result of the MOD 3 SEE.

1.2.4 SSD-5170 – Modification 4

SSD-5170 was modified on 19 December 2018 (MOD 4) by the Director – Resource Assessments as delegate of the Minister for Planning for the activities described in the ‘Bengalla Mine Development Consent Modification 4 Statement of Environmental Effects’ dated December 2017 and prepared by

Hansen Bailey including the Response to Submissions document dated May 2018 and additional information provided in July 2018 and August 2018 (MOD 4 SEE). The MOD 4 SEE provides approval for the following:

- Changes to the approved water management system to reflect operations at Bengalla including proposed enlargement of the approved SDD (ED1), and construction and use of the Dry Creek East Dam;
- Temporary storage of approximately 2,500 m³ of excess materials from the construction of ED1;
- Increase in the capacity and additional locations of ROM coal stockpiles;
- Additional storage locations for temporary emplacement of coal processing reject material, prior to permanent emplacement; and
- Temporary clay emplacement within the Main OEA or to the west of this for later use in the reinstatement of Dry Creek.

1.2.5 SSD-5170 – Modification 5

SSD-5170 was modified by DPE as the delegate for the Minister for Planning for the activities in accordance with activities described in the '*Bengalla Mine Development Consent SSD-5170 Modification 5 Modification Report*' (James Bailey Associates, 2021), Submissions Response and '*Response to Request For Additional Information*' (James Bailey Associates, 2022) (MOD 5) . The MOD 5 Report provides approval for the following:

- Operation of a mobile rock crushing facility and ancillary equipment, and the use of that crushed rock at Bengalla;
- Geotechnical investigations in connection with any activities approved under SSD-5170 from time to time;
- Prospecting operations (including exploration drilling) in accordance with BMC's mining leases issued under the *Mining Act 1992* (Mining Act);
- Realignment of the Western Diversion Levee within the approved Disturbance Boundary;
- Enlargement of the ROM coal stockpile located adjacent to the ROM dump hopper from 40 kt to 150 kt approximate maximum capacity;
- Upgrade/widening of an existing haul road (Southern Endwall Road) adjacent to the Southern visual bund, which may require removal of part of the visual bund (to be replaced by an equivalent measure);
- Disposal of tyres in pit; and
- Minor administrative changes to conditions of SSD-5170.

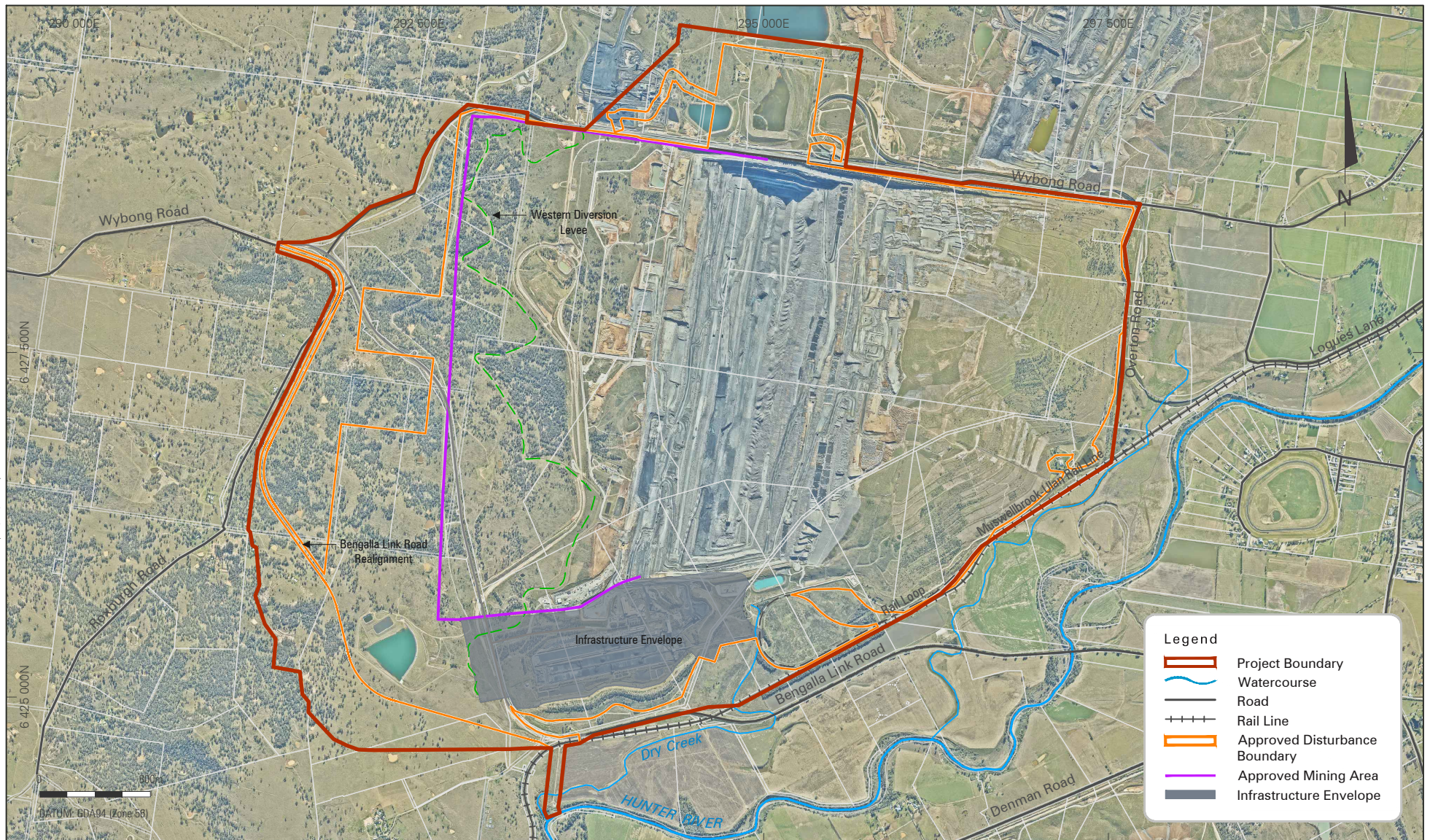
The development layout is presented in **Figure 2**.



BENGALLA MINE

Regional Locality

FIGURE 1



BENGALLA MINE

Approved Development Layout

FIGURE 2

1.3 Scope and Objectives

This NMP sets out the procedures for the management of noise at Bengalla. This NMP has been developed in accordance with the requirements of Schedule 3, Condition 7 of SSD-5170 (as modified). Specifically, the objectives of this NMP are to:

- Describe the measures that would be implemented to maintain compliance with noise criteria and operating conditions;
- Describe the noise management system;
- Include a noise monitoring program that:
 - Uses a combination of attended and real-time monitoring to evaluate the performance of the development;
 - Adequately supports the proactive and reactive noise management system;
 - Evaluates and reports on:
 - The effectiveness of the noise management system;
 - Compliance with the noise criteria and operating conditions;
 - Defines what constitutes a noise incident and includes a protocol for identifying and notifying the DPE and relevant stakeholders of any noise incidents; and
- Maintain an effective response mechanism for dealing with issues and complaints related to noise issues.

This NMP has been developed generally consistent with activities described within the Bengalla EIS.

1.4 Environmental Management System

Operations at Bengalla are conducted in accordance with SSD-5170 (as modified), Environment Protection Licence (EPL) 6538 and BMC's environmental management plans and procedures. This NMP will form part of this management regime.

1.5 Document Structure

This NMP is structured as follows:

- **Section 1.0** provides background information on Bengalla, describes Bengalla and its history, outlines the objectives of this NMP and describes the environmental management regime for Bengalla;
- **Section 2.0** describes the regulatory requirements relevant to noise management and Bengalla and outlines the development consent conditions and where these are addressed in the plan;
- **Section 3.0** describes the stakeholder consultation undertaken during the development of this NMP;
- **Section 4.0** describes the characteristics of mining noise within the Hunter Valley and at Bengalla;
- **Section 5.0** outlines the noise management measures employed at Bengalla including noise criteria, monitoring and management systems;
- **Section 6.0** describes the noise monitoring program including real-time and predictive systems;
- **Section 7.0** provides detail on landholder notifications, mitigation and acquisition;
- **Section 8.0** discusses reporting and auditing in relation to this NMP; and
- **Section 9.0** provides a summary of responsibilities relevant to this NMP.

2.0 STATUTORY REQUIREMENTS

2.1.1 SSD-5170 Performance Measures

Appendix A (Table A-1) outlines the noise management performance measures in accordance with various conditions in the development consent (SSD-5170 (as modified)) and where each is addressed in the NMP.

The specific NMP requirements under Schedule 3, Condition 7 of SSD-5170 (as modified) are listed in **Table 1**, as is where each is addressed within this NMP.

Table 1
Noise Management Plan Requirements

Ref	Requirement	NMP Section
Schedule 3, Condition 7	The Applicant must prepare a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must:	This document Appendix B
	(a) be prepared in consultation with the EPA, and submitted to the Secretary for approval within 6 months of the date of this consent;	
	(b) describe the measures that would be implemented to ensure compliance with the relevant conditions of this consent;	5.0
	(c) describe the proposed noise management system in detail; and	5.3
	(d) include a noise monitoring program that: <ul style="list-style-type: none"> evaluates and reports on: <ul style="list-style-type: none"> the effectiveness of the noise management system; compliance against the noise criteria in this consent; and compliance against the noise operating conditions; 	6.0
	<ul style="list-style-type: none"> includes a program to calibrate and validate the real-time noise monitoring results with the attended monitoring results over time (so the real-time noise monitoring program can be used as a trigger for further attended monitoring where there is a risk of non-compliance with the noise criteria in this consent); and 	6.3 8.0
	<ul style="list-style-type: none"> defines what constitutes a noise incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any noise incidents. 	8.4
	The Applicant must implement the management plan as approved by the Secretary	8.2

2.1.2 EIS Commitments

Appendix A (Table A-2) lists the noise management commitments from the Bengalla EIS and indicates where each is addressed in this NMP.

2.1.3 Noise Guidelines and Standards

Guidelines and standards applying to noise at Bengalla include:

- Noise Policy for Industry (NPI)(EPA,2017);
- NSW Industrial Noise Policy (INP) (EPA, 2000); for Industry;
- *Interim Construction Noise Guideline* (ICNG) (DECCW, 2009);
- *NSW Road Noise Policy* (EPA, 2011); and
- *NSW Draft Guideline: Mining – Noise Monitoring Application Note* (Draft Application Note) (DP&E, undated).

3.0 STAKEHOLDER ENGAGEMENT

This section provides a summary of regulatory consultation undertaken as part of the development of this NMP.

3.1 2015 NMP

Schedule 3, Condition 7 of SSD-5170 (as modified) states that the NMP must be developed in consultation with the Environment Protection Authority (EPA) to the satisfaction of the Secretary of DPE. A discussion in relation to the consultation completed with each agency is provided below.

All regulatory correspondence is provided in **Appendix B**.

3.2 2016 NMP

A copy of this 2016 NMP was provided to DPE on 13 July 2016 for review and approval.

A copy of all relevant regulatory correspondence associated with the preparation of the 2016 NMP is provided in **Appendix B**.

3.3 2017 NMP

This review was undertaken to address MOD 3 and the construction activities associated with the MTP Project. A copy of all relevant regulatory correspondence associated with the preparation of this NMP is provided in **Appendix B**.

3.4 2019 NMP

The 2019 NMP has been prepared following the approval of MOD 4 as required by SSD-5170 Schedule 5, Condition 5. It updates the noise criteria and the properties with rights to acquisition and mitigation.

A copy of this NMP was provided to EPA and the DP&E for comment on 19 March 2019. All regulatory correspondence is provided in **Appendix B**.

3.5 2023 NMP

The 2023 NMP has been prepared following the approval of MOD 5 in accordance with SSD-5170 Schedule 5, Condition 5. This review has been undertaken to address Schedule 2, Condition 14A (operation of a mobile rock crushing facility on site), updates to landownership and general administrative changes.

All regulatory correspondence is provided in **Appendix B**.

3.6 Community Consultation

3.6.1 Notifications

SSD-5170 has various requirements for noise-related notifications to near neighbours as listed in **Table 2. Section 7.1** discusses actions undertaken by BMC in relation to meeting its requirements under Schedule 3, Conditions 1-3; and Schedule 4, Conditions 1-6 of SSD-5170 (as modified).

3.6.2 Private Landownership

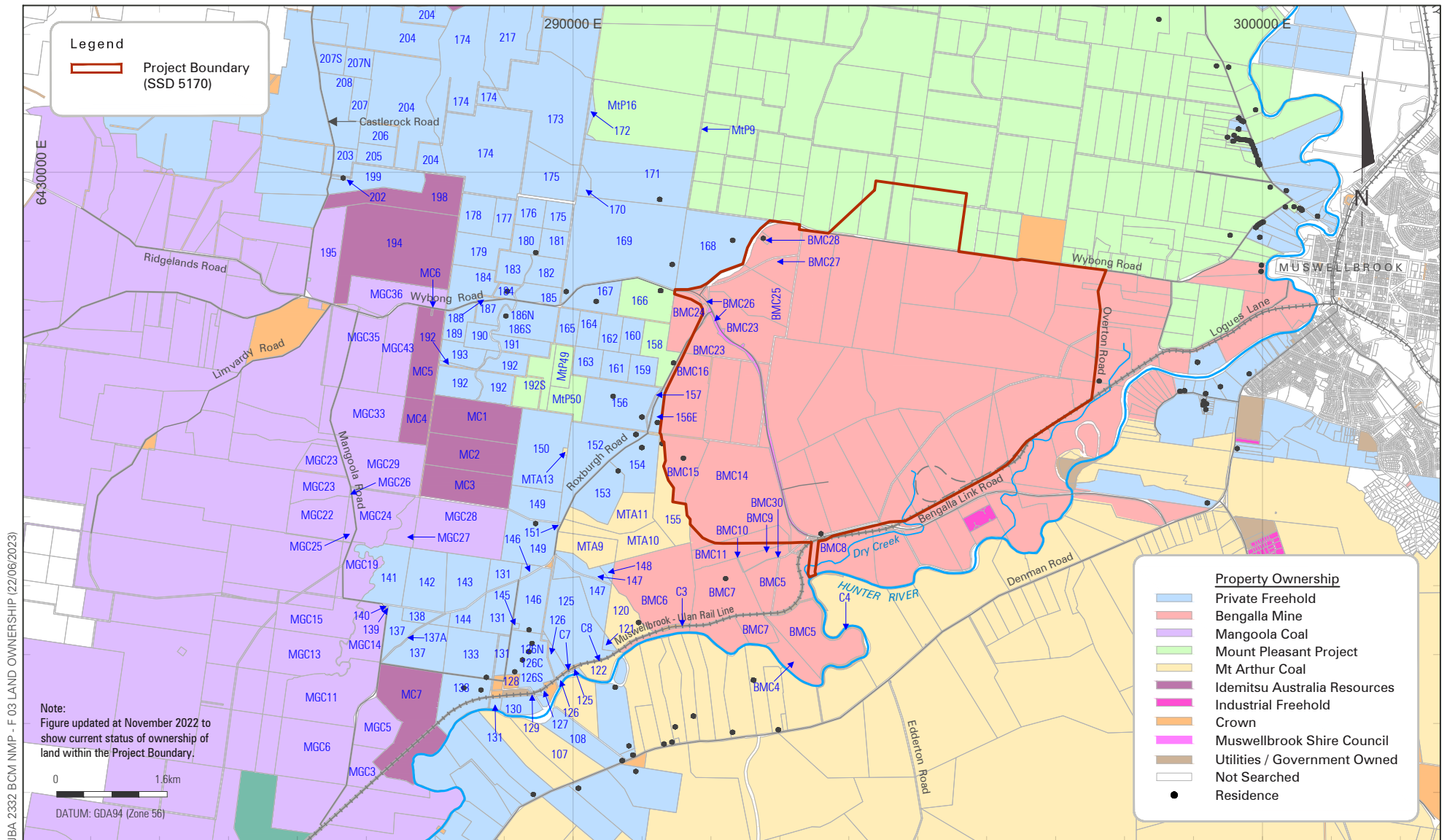
Table 2 includes an updated land ownership for private properties with rights to acquisition or mitigation upon request as described in Schedule 3, Conditions 1-3 of SSD-5170 (as modified). Impact criteria do not apply to properties in the acquisition zone identified in Schedule 3, Conditions 1 and 2 of SSD-5170 at 24 February 2023 (being the date of approval of MOD 5). **Figure 3** shows the land ownership surrounding Bengalla and includes individual numbers for private residences which correlate to the Receiver IDs in **Table 2**.

Blue shading indicates rights to acquisition or mitigation by BMC but only if the rights are no longer available under Mt Arthur Coal's (MAC) Development Approval. Orange shading indicates rights to acquisition or mitigation by BMC if the rights are no longer available under Mt Pleasant Project's (MTP) Development Approval (as described in in Schedule 3, Conditions 1-3 of SSD-5170 as at 24 February 2023)).

Table 2
Land Ownership & Summary of Receivers' Rights under SSD-5170

ID	Acquisition	Mitigation
105		✓
106		✓
108		✓
109		✓
110		✓
112	✓	
113	✓	
114	✓	
117	✓	
118	✓	
119	✓	
120	✓	
126N		✓
152	✓	
153	✓	
154	✓	
155	✓	
156E	✓	
156S	✓	
166	✓	
167		✓
168	✓	
169		✓

ID	Acquisition	Mitigation
171	✓	
180		✓
184		✓



BENGALLA MINE

Landownership

FIGURE 3

4.0 NOISE CONTEXT

This section describes the characteristics of mining noise within the Hunter Valley and at Bengalla.

4.1 Background

Specific characteristics of mining noise in the Hunter Valley, include:

- Most receptors are located a considerable distance from mine sites with regard to noise propagation;
- Mining noise is typically inaudible during the day period – this is supported by the Draft Application Note, which states *“Extensive experience has shown that daytime or evening criteria is rarely, if ever exceeded and that night time criteria is the limiting criterion”*;
- Received levels of mining noise usually differ greatly from one night to the next at any receiver location due to the variability of meteorological conditions;
- Noise from a large open cut mining operation is typically a continuum with minor event noises that are usually not very emergent;
- The received mining noise spectrum generally does not have any significant content (if any) above 1,000 Hertz (Hz); and
- Other noise sources at a receiver can often be considerably louder than received mining noise. This is particularly true for noise events (dogs, cows, cars, birds, etc.) which influence the total LAeq (A-weighted equivalent continuous noise level – the level of noise equivalent to the energy average of noise levels occurring over a measurement period).

4.2 Site Characterisation

Section 2.3 of the INP identifies that certain meteorological conditions, in particular wind speed and temperature inversions, have the potential to increase noise levels during the sensitive night period in winter (June, July and August). During this period, Bengalla and surrounding areas are subject to:

- Variable wind speeds with maximum speeds generally greater in summer than in winter;
- Prevailing north-west wind; and
- Strong temperature inversions (G-class, $4^{\circ}\text{C}/100\text{ m} \leq$ – represents the upper limit of inversion conditions).

Such meteorological conditions are considered in the management and monitoring of noise at Bengalla as described in **Sections 5.0** and **6.0**.

4.3 Noise Generating Activities

Bengalla operates 24 hours per day, seven days per week and comprises the following operating areas and infrastructure:

- Open cut mining area;
- ROM pad and Coal Handling and Preparation Plant (CHPP); and
- Rail load-out facility.

Noise can be emitted from mobile or fixed plant. These noise emissions have the potential to affect the acoustic environment within and surrounding Bengalla.

Product coal is loaded onto trains with the majority transported to the Port of Newcastle for export. A lesser amount is supplied for use in the local power stations. Noise from trains on the loading loop is regulated through the Australian Rail Track Corporation's EPL.

4.3.1 Mobile Plant

Open cut mining of coal is undertaken using large earthmoving machinery. These machines can operate at various locations in and around the mining area. Mobile plant, particularly rear dump trucks and dozers, can at times be at elevated or exposed locations relative to private receivers.

MOD 5 allows for the operation of a mobile rock crushing plant and ancillary equipment. Operation of this equipment may include the following noise generating processes:

- Hauling of raw material from the mining area to the crushing facility;
- Feeding the crusher using an excavator;
- Crushing;
- Screening;
- Loading of crushed rock onto trucks; and
- Hauling of crushed material to the end use location.

An indicative list of plant types approved to be operated on site is provided in **Table 3**.

4.3.2 Fixed Plant

Fixed infrastructure on site that generates noise includes:

- CHPP, associated conveyors and reclaimers;
- ROM hopper; and
- Rail load-out facility.

Table 3
Indicative Mobile Equipment Fleet

Equipment Type		Indicative No*
Dragline	P&H 9020	1
Crusher	Powerscreen Maxtrak 1300 cone crusher	1
Screening Plant	Powerscreen Warrior 2400AF three-way screening plant	1
Excavators / Loaders	Hitachi EX5500 (or equivalent)	7
	Hitachi EX3600 (or equivalent)	2
	LeTourneau 1800 Loader (or equivalent)	2
Haul Trucks	Komatsu 830 E AC (240 t) (or equivalent)	53
	Hitachi EH4500 (253 t) (or equivalent)	
	Cat 789 (190 t) (or equivalent)	
Dozers	Caterpillar D11 (or equivalent)	14
	Caterpillar D10 (or equivalent)	2
	Cat 854G (Rubber Tyred Dozer) (or equivalent)	3
Drills	SK50 (or equivalent)	7
Graders	Cat 16 M (or equivalent)	6
	Cat 24 M (or equivalent)	2
Water carts	Euclid R 90 (80 KL) (or equivalent)	7
Other ancillary equipment (e.g. water pumps, lighting plants, mobile cranes, etc.)	Various	Various

* Source: Table 11 Bengalla EIS (2013) Volume 1.

Mobile Equipment Fleet may be updated from time to time.

5.0 NOISE MANAGEMENT MEASURES

This section presents noise criteria and noise acquisition criteria relevant to operations at Bengalla. It provides a brief discussion on relevant background noise monitoring data. Further, it provides a discussion on the management system and controls employed by BMC to minimise noise.

5.1 Noise Criteria

Noise criteria is stipulated in Schedule 3, Condition 4 of SSD-5170 (as modified) are reproduced in **Table 4**. **Section 4.2** sets out the meteorological conditions under which these criteria apply while **Section 7.4.1** outlines the protocol for determining exceedances of these criteria.

The criteria in **Table 4** do not apply if the Applicant has a written agreement with the relevant landowner to exceed the noise criteria, and the Applicant has advised the Department in writing of the terms of this agreement (as shown in **Table 2**).

Table 4
Noise Criteria (dBA)

Location	Day	Evening	Night	
	L _{Aeq} (15 min)	L _{Aeq} (15 min)	L _{Aeq} (15 min)	L _{A1} (1 min)
108, 109, 110	40	40	40	45
106	39	39	39	45
169	39	39	36	45
105, 126N	38	38	38	45
167, 180, 184	38	38	35	45
102, 126C, 146	37	37	37	45
186N	37	37	35	45
43, 44, 130, 145, 126S	36	36	36	45
186S, 189	36	36	35	45
All other privately-owned residences	35	35	35	45

5.2 Background Monitoring Data

Background noise levels were established for the Bengalla EIS as shown in **Table 5**.

Table 5
Background Noise Levels (dBA)

Receptor Area	Background Level, L _{A90,15min}		
	Day	Evening	Night
East (Racecourse Road)	33	32	31
West (Hamilton)	30	30	30

5.3 Management System

BMC is committed to minimising the environmental impacts from its operations, where reasonable and feasible, using proactive and reactive control measures and monitoring tools, and (see **Section 5.4**). to coordinate and minimise cumulative noise impacts within the vicinity of Bengalla and neighbouring mines.

5.3.1 Predictive Forecasting

A predictive forecast meteorology report is emailed generally daily to certain BMC personnel with forecast conditions for the next 48 hours to assist in planning upcoming operations.

5.3.2 Monitoring

BMC has a noise monitoring regime comprising of compliance attended, supplementary attended and real-time noise monitoring. **Section 6.0** provides further details regarding the noise monitoring regime.

5.3.3 Reactive Noise Controls to Operations

Where noise monitoring (see **Section 6.2**) identifies noise exceeding the noise criterion or trigger levels, BMC will implement appropriate, reasonable and feasible noise mitigation measures.

5.3.4 Noise Attenuation

BMC operates and maintains mobile plant which has been commissioned as sound suppressed units or retro-fitted where required.

BMC also designed and constructed the ROM hopper with best practice modifications (see **Table 7**).

5.4 Noise Control Measures

5.4.1 Construction

Whilst undertaking construction activities, BMC will implement the following:

- Construction activities will require reasonable and feasible controls to be put in place;
- Identification of any required evening and night construction work with time restrictions imposed for particularly noisy activities such as rock hammering or concrete cutting; and
- Communication and response protocols will be developed to minimise the potential for nuisance noise.

5.4.2 Operations

Table 6 summarises the primary noise mitigation measures committed to in the Bengalla EIS (Volume 1, Section 8.3.4) which are utilised to control noise generated by specific mining related activities.

Table 7 indicates current feasible and reasonable best practice equipment modifications, a combination of which will continue to be employed at Bengalla.

Table 6
Bengalla Noise Control Measures Summary

Area	Control Measure
General	<ul style="list-style-type: none"> Operation and maintenance of a real-time noise monitoring system which provides feedback regarding Bengalla's acoustic performance and allows equipment to be positioned to avoid excessive noise at receivers
	<ul style="list-style-type: none"> Review of local forecasted meteorology to predict potential noise enhancing conditions and to allow planning of operations
	<ul style="list-style-type: none"> Maintain the existing data link from the weather monitoring station to allow informed decisions to be made regarding appropriate equipment operating locations
	<ul style="list-style-type: none"> Consideration of noise impacts during risk assessments and change in management procedures
	<ul style="list-style-type: none"> Provision of noise awareness training to employees
	<ul style="list-style-type: none"> Regular independent, compliance attended noise monitoring surveys at representative private receiver locations
	<ul style="list-style-type: none"> Only operate the mobile rock crushing facility between the hours of 7 am to 6 pm, Monday to Saturday; and Ensure no crushed rock is transported off site.
Mobile Equipment	<ul style="list-style-type: none"> Mobile equipment, including trucks, dozers, graders and water carts generally operate on elevated and exposed sections of the OEA during the day and evening periods and on lower and more shielded sections of the OEA, as required, during the night period
	<ul style="list-style-type: none"> Continue to work closely with suppliers to develop a three phase approach to continuous improvement of the sound power performance in order to achieve best practice noise attenuation on haul trucks
	<ul style="list-style-type: none"> Dozers operating in elevated areas to use low gear only
	<ul style="list-style-type: none"> Regular maintenance of all mobile plant to manufacturer's specification
	<ul style="list-style-type: none"> Installation of noise attenuation units on mobile and some fixed plant
Mine Plan	<ul style="list-style-type: none"> The north-south alignment of the mining area also results in some acoustic shielding for receptors located east and west of the Project, with receptors to the east shielded by the OEA and receptors to the west shielded from some equipment operating in deeper mining areas
	<ul style="list-style-type: none"> Mine planning for night time operations will consider utilising dump areas and haul roads that are located away from private receivers
Drilling	<ul style="list-style-type: none"> During the evening and night drilling and drill pad preparation generally occurs at least 6 m below the natural surface
	<ul style="list-style-type: none"> Maintenance of the existing bund (approximately 24 m high) adjacent the southern boundary of the CHPP
	<ul style="list-style-type: none"> Construction of noise and visual bunds and tree screens surrounding the operation
	<ul style="list-style-type: none"> Design and construction of the ROM hopper with best practice modifications
CHPP	<ul style="list-style-type: none"> Feasible and reasonable noise mitigation measures have been incorporated into the existing CHPP and will be continued in proposed infrastructure modifications associated with the Project, including: <ul style="list-style-type: none"> The proposed relocated ROM hopper will include an equivalent level of noise control as the existing hopper, which was designed and constructed following best practice procedures Best practice modifications will continue to be implemented at the CHPP, which currently produces a sound power level of 115 dBA (2013)

Area	Control Measure
	<ul style="list-style-type: none"> ○ Conveyors will continue to be limited to a sound power level of no more than 76 dBA per metre for sections of conveyor that cannot be enclosed ○ The rail load out facility, stackers and reclaimers will continue to be managed and modified following best practice control measures

Table 7
Bengalla Indicative Engineering Noise Controls Summary

Aspect	Noise Controls
Mobile Equipment	Excavators <ul style="list-style-type: none"> • Sound attenuated exhaust system (including covers) • Hornless horn (notification of load completed to truck operator without using the machine horn) • Cooler splitters • Rear sound attenuation • Module linings (including sound attenuated engine bay doors) Haul Trucks <ul style="list-style-type: none"> • Engine side panels • Engine belly pan cover • Radiator silencer • Exhaust system silencers • Rear engine compartment enclosure • Centre deck Lining • Front panel assembly below radiator attenuator • Grill and hood seals • Alternator air intake silencer • Retarding grid attenuation package • Upper horse collar panels • Blower duct cover and hoses • Covers over openings that are not fitted with louvers Dozers, Water carts and Graders <ul style="list-style-type: none"> • Fitted with factory supplied sound attenuated options • Modifications to dozer tracks Drills <ul style="list-style-type: none"> • Acoustic panels fitted • Drills • Hornless horn • Engine bay panelling • Sound attenuated exhaust system • Sound attenuated radiators
	CHPP Equipment <ul style="list-style-type: none"> • ROM hopper is located within a box cut to maximise shielding • ROM hopper is fitted with a hood • ROM hopper consists of double-steel skin walls, with the steel layers separated by sand to reduce vibration • CHPP has been designed to minimise roof, wall and floor vibration

Aspect	Noise Controls
	<ul style="list-style-type: none"> • Number of vibration screens and centrifuges has been minimised • CHPP clad with steel sheeting • Elevated conveyors have been enclosed wherever possible • Conveyor frames and idlers have been designed to minimise vibration • Transfer chutes optimise material flow paths to reduce impact noise • Reclaimers utilise optimum chain sprocket profiles and bucket guides to minimise impact noise
Rail Load out Facility	<ul style="list-style-type: none"> • Rail loop is at an optimal gradient to control locomotive noise and wagon coupling noise • Rail loop uses large radius bends to minimise wheel and flange noise • Train loading system is entirely enclosed • Rails have been continuously welded instead of jointed • Points and cross-overs have been designed to minimise wheel impact noise
ROM Hopper	<ul style="list-style-type: none"> • Location of the hopper within a box-cut to maximise shielding towards receivers • Installation of hooding to control noise emitted from the inside surface of the hopper • Construction of the hopper with a double steel skin. The space between the skins is filled with sand to dampen vibration in the hopper walls, reducing noise produced during operations

6.0 NOISE MONITORING PROGRAM

This section describes the noise monitoring program including real time system, predictive and other monitoring tools.

6.1 Introduction

The noise monitoring program for Bengalla consists of compliance attended, supplementary attended and real-time monitoring. The monitoring program is undertaken in accordance with the conditions of SSD-5170, the INP, AS 1055, and the Draft Application Note. **Figure 4** illustrates noise monitoring locations with a description provided below.

6.2 Compliance Attended Monitoring

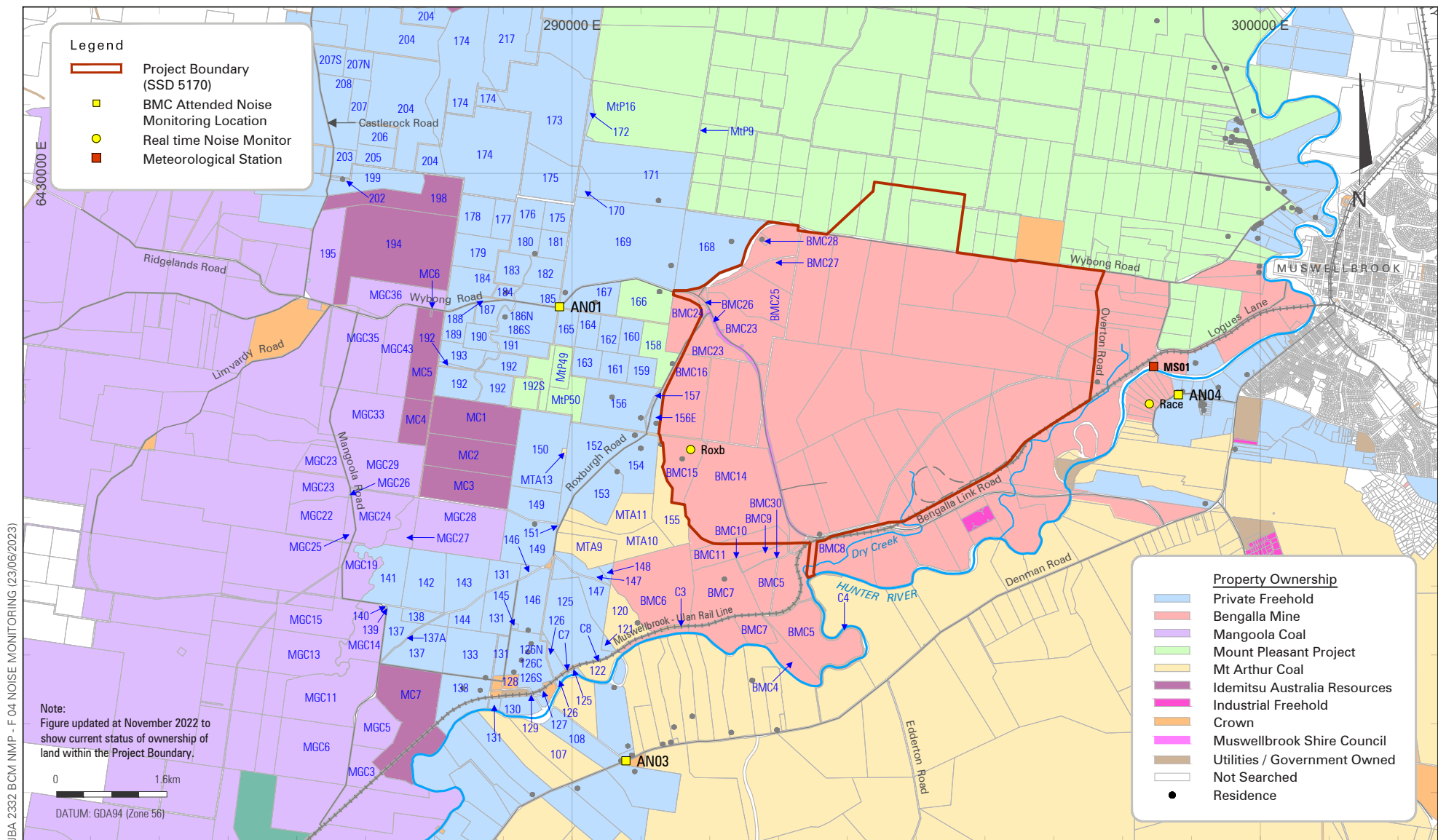
As provided in the Draft Application Note, operator-attended monitoring is the currently accepted method for determining compliance with criteria for operational and cumulative noise. It allows an accurate determination of the contribution from a site, if any, to overall noise levels.

6.2.1 Frequency and Monitoring Period

Consistent with the Draft Application Note, compliance attended monitoring is undertaken by an appropriately qualified acoustic consultant nominally once per calendar month (but at least two weeks apart). Monitoring is undertaken during the night period (10 pm to 7 am) at locations representative of the nearest private receivers. The requirements for day and evening monitoring are suspended, as per the Draft Application Note, given “extensive experience has shown that daytime or evening criteria is rarely, if ever exceeded and that night time criteria is the limiting criterion”. In this regard, BMC will continue to focus on monitoring of noise during the night period.

At least two weeks after the previous monitoring event, the acoustic consultant selects a random night period for monitoring. Monitoring should only proceed if the forecasted meteorology is predicted to result in a valid noise measurement as stipulated in the INP (i.e. not monitoring during exemption conditions – see **Section 6.2.4**) under normal operating conditions at Bengalla.

Forecasting meteorological conditions for a specific 15 minute period has limitations and is also subject to variability. As such, the precise meteorological conditions when each noise measurement is recorded may vary from the forecasted prediction. This may affect the application of the noise criteria when applying the methods of the INP (see **Section 6.2.4**).



BENGALLA MINE

Noise Monitoring Network

FIGURE 4

6.2.2 Monitoring Locations and Criteria

Compliance attended monitoring will be conducted at three locations representative of the nearest private receivers, excluding those private receivers within a zone of acquisition (by BMC or another mining operation as shown on **Figure 3**).

Compliance attended monitoring locations were reviewed in late 2015. AN02 (which was previously at 1140 Wybong Road) has been excluded as it is no longer representative of private receivers; and AN01 and AN03 have been moved west to represent the closest private receivers.

The monitoring locations have been selected based on the following considerations:

- Coverage for the nearest potentially affected private receivers;
- Acoustic equivalence to private receivers represented by each monitoring location;
- Accessibility by personnel; and
- Minimal disturbance to residents.

The monitoring locations are regularly reviewed and, where necessary, modified as a result of changes to the operation or land ownership.

The criterion for each monitoring location is provided in **Table 8**. These criteria represent the acoustic equivalent noise levels as stipulated by SSD-5170 (see **Table 4**).

Where the monitoring location is closer to the mining operations than the closest private receiver, and as such receives a higher equivalent noise level, a correction factor has been applied based on noise modelling for the Bengalla EIS.

Table 8
Compliance Attended Monitoring Locations and Criteria

Location ID	Location Name	Night Criterion (dB)
AN01	1431 Wybong Road	35
AN03	1312 Denman Road	40
AN04	Opposite 9 Racecourse Road	35

Note: Monitoring location AN02 no longer required and superseded by updated location of site AN01

6.2.3 Operational Noise Measurements

Consistent with the Draft Application Note, noise data is collected over a 15-minute period at each monitoring location, including:

- dBA (A-weighting), an adjusted sound-level measurement to approximate the response of the human ear; and
- dBC (C-weighting), an adjusted sound-level measurement which takes account of low-frequency components of noise within the audibility range of humans.

If C-weighted noise cannot be simultaneously collected or calculated from the 15 minute data then a separate measurement of no less than five minutes is taken and the measurement recorded.

Low pass filtering (generally less than 1,000 Hz) is applied to each measurement and is deemed acceptable to remove extraneous insect noise and more accurately record noise levels representative of mining (see **Section 4.0**). Other extraneous noise is paused from the data set or excluded by other means.

An analysis of monitoring data indicated that noise levels from mining operations, particularly those levels measured at significant distances from the source are relatively continuous. Given this, noise levels at the monitoring locations are unlikely to be intermittent or impulsive. However, tonality and frequency characteristics are to be assessed by analysis of the measured A and C-weighted spectrum (see **Section 6.2.5**).

If the compliance attended monitoring reading is below the noise criterion in **Table 8**, then the result will be recorded as being compliant and monitoring can progress to the next location. If mining noise levels exceed the applicable noise criterion then the following steps will be implemented:

1. The acoustic consultant is to record the noise reading and advise the Open Cut Examiner (OCE) that the noise level has exceeded the criterion. If the acoustic consultant is unable to contact the OCE the Mine Monitoring and Control personnel (MMC) will be contacted. The MMC will then pass the message onto the OCE as soon as possible. Where possible, the acoustic consultant is to describe the cause and/or source of the noise to the OCE or the MMC so that the operations can be modified where required. Proceed to Step 2;
2. The OCE will modify or cease the relevant operations where reasonable and feasible, the operational changes are to be actioned prior to a second compliance attended noise reading being taken. All actions taken in response to any exceedance shall be recorded by the OCE. Proceed to Step 3;
3. Within 75 minutes after the first reading the acoustic consultant is to take a second 15-minute reading. If this reading is compliant with the noise criterion the acoustic consultant is to record the reading and notify the OCE or MMC and no further action is required. If this reading exceeds the noise criterion, then proceed to Step 4;
4. If the second reading exceeds the noise criterion and is attributable to site activities, the acoustic consultant is to record the reading and contact the MMC to confirm if the reading was taken in valid meteorological conditions. If the reading was taken in valid meteorological conditions, then it is deemed to be a "noise affected night" at that monitoring location. Proceed to Step 5;
5. The acoustic consultant is to notify the OCE or MMC of the result and is to describe the cause and/or source of the noise, where possible, so that the operations can be modified where required. No further compliance attended monitoring is required to be undertaken at that location that night. Proceed to Step 6;
6. The OCE will modify or cease the relevant operations and record the actions taken. Proceed to Step 7;

7. The monitoring that results in a night deemed a “noise affected night” will be investigated as per **Section 8.4** and reported as per **Section 8.5**. Proceed to Step 8; and
8. A follow up compliance attended monitoring measurement will be scheduled at the monitoring location within one week of the noise affected night.

6.2.4 Exceptions

The noise criteria in SSD-5170 (as modified) will apply under all meteorological conditions except during:

- a) wind speeds greater than 3 m/s measured at 10 m above ground level; or
- b) temperature inversion conditions between 1.5°C and 3°C/100 m and wind speeds greater than 2 m/s at 10 m above ground level; or
- c) temperature inversion conditions greater than 3°C/100 m.

6.2.5 Low Frequency Noise

Low frequency noise is assessed in accordance with the INP . The INP recommends that a 5 dB modifying factor be added to the A-weighted measured sound pressure level when the C-weighted sound pressure level minus the A-weighted sound pressure level (C-A difference) is 15 dB or greater. However, it is recommended that a minimum C-A difference of at least 20 dB is necessary to indicate the possible presence of a low frequency issue (Broner, 2011).

The C-A difference is only an appropriate starting metric for indicating when a potential low frequency noise problem may become a significant source of annoyance to the public. Therefore with fluctuations, spectral balance and modulation, this value becomes a limiting factor (Broner, 2011). Given this limitation, industry specialists and regulators are recommending the application of the method in ‘A Simple Method for Low Frequency Noise Emission Assessment’ (Broner, 2010) (Broner Method). This shift in approach is further evidenced by the requirements of the Draft Application Note, which stipulates C-weighted noise criteria consistent with the Broner Method for day and evening (65 dB) and night (60 dB).

In accordance with best practice, BMC will measure and assess low frequency noise in accordance with the Draft Application Note and the Broner Method.

As described in **Section 6.2.1** and in accordance with the Draft Application Note, BMC will focus its assessment of noise during the night period.

As described in **Section 6.2.2**, A and C-weighted data is collected simultaneously for a 15 minute period at each monitoring location. If the C-weighted reading is below the applicable criterion (60 dB) during compliance attended monitoring then the result will be recorded as being in compliance and monitoring can progress to the next location.

If the C-weighted noise level exceeds the relevant criterion, a 5 dB penalty (or modifying factor) is applied to the measured LAeq noise level for the site's contributions and compared against SSD-5170 criterion. Where mining noise levels exceed any criterion and are taken in valid meteorological conditions then the steps in **Section 6.2.2** are implemented.

6.2.6 INP Non-Compliance

Section 11 of the INP states that a development will be deemed to be in non-compliance with its consent if the noise level recorded during compliance attended monitoring is more than 2 dB above the applicable criteria. This may occur for two reasons:

- The noise from Bengalla is excessive, in which case Bengalla is truly not complying with its consent; or
- The noise was increased by extreme, non-standard weather effects, in which case the development is considered compliant with its consent (SSD-5170) given that it has taken measures to minimise the noise impacts during temperature inversions.

In the event that a non-compliance is found to be caused by excessive noise generated from Bengalla, measures for the mitigation of noise will be considered and implemented (see **Section 5.0**). In the event of non-compliance, the non-compliance will be reported to the DPE and other relevant regulators at the earliest opportunity as per the notification requirements in **Section 8.6.1**.

6.3 Supplementary Attended Monitoring

Supplementary attended monitoring provides data that can be used:

- To identify trends;
- When responding to complaints (see **Section 8.6.2**); and
- For continuous improvement, planning and decision-making related to noise control.

Supplementary attended monitoring is undertaken in addition to the compliance attended monitoring described in **Section 6.2**. Since the noise levels recorded during supplementary monitoring do not represent noise from Bengalla alone, the results from the supplementary monitoring are not used to determine compliance.

6.3.1 Frequency and Monitoring Period

As described in **Section 6.2.1**, BMC will focus its assessment of noise during the night period. In this regard, supplementary attended monitoring is undertaken during the night period.

6.3.2 Monitoring Locations and Criteria

Measurements are recorded by trained BMC personnel generally at the same locations as the compliance attended monitoring as shown in **Figure 4**. The criteria for each monitoring location (AN01, AN03 and AN04) are provided in **Table 8**. These criteria represent the acoustic equivalent noise levels as stipulated by SSD-5170 (see **Table 4**).

In the case of complaints, measurements will be recorded at the closest attended monitoring location and/or at the closest point to the complainant's residence, subject to privacy considerations.

6.3.3 Operational Noise Measurements

During supplementary attended monitoring, noise is recorded for a continuous 5-minute period. Monitoring is undertaken using a hand held monitor which has the ability to filter noise frequencies less than 1,000 Hz so that mining related noise is registered. Should supplementary attended monitoring read below the applicable criterion (see **Table 8**), no further action is taken and monitoring can progress to the next location.

If mining noise levels exceed the applicable criterion the following steps will be implemented:

1. The person undertaking the supplementary monitoring is to record the noise reading and contact the MMC. Where possible, the person undertaking the monitoring is to describe the cause and/or source of the noise to the MMC. Proceed to Step 2;
2. The MMC reviews the location of equipment and meteorological conditions to determine if the source of the noise is likely to have been from Bengalla. Proceed to Step 3;
3. If the source of the noise appears to have been from Bengalla then the MMC will notify the OCE of a potentially elevated level of noise. Proceed to Step 4;
4. From the operational area, the OCE identifies the potential noise sources by personal audible observation. Proceed to Step 5;
5. If the OCE identifies a dominant noise source from Bengalla, then the OCE will implement appropriate, reasonable and feasible noise mitigation measures until such time as the supplementary attended monitoring reads a result below the applicable criterion. Proceed to Step 6;
6. Once the monitoring results read below the applicable criterion the person undertaking the monitoring is to record the noise reading and notify the OCE. If the person undertaking the monitoring is unable to contact the OCE the MMC should be contacted. The MMC will then pass the message onto the OCE as soon as possible.

6.4 Unattended (Real Time) Monitoring

BMC operates two continuous unattended real-time noise monitoring units as a management tool (see **Table 9** and **Figure 4**). Since the noise levels recorded at the real-time environmental monitoring system (RTEMS) do not represent noise from Bengalla alone, the results from the RTEMS are not used to determine compliance.

6.4.1 Frequency and Monitoring Period

As described in **Section 6.2.1**, BMC will focus its assessment of noise during the night period. RTEMS noise data (LAeq (Total) and LAeq (less than 1,000 Hz)) will be recorded over a 24-hour period with trigger levels active between 9 pm and 7am.

6.4.2 Monitoring Locations and (Reactive) Trigger Levels

Trigger levels for the RTEMS have been developed with assistance from Bridges Acoustics and are based on predicted modelling completed for the Bengalla EIS. The trigger levels will be periodically reviewed against calibrated and validated monitoring results and adjusted if necessary. The trigger levels were reviewed in 2015 by Bridges Acoustics.

Two trigger levels (amber and red) have been developed for both the Roxburgh Road and Racecourse Road real-time noise monitors (see **Table 9**). They reflect the impact criterion at the nearest private residences as presented in SSD-5170 (see **Table 4**).

When two consecutive 15 minute averages recorded by the real-time noise monitoring unit are greater than or equal to a trigger level, the MMC are notified via an electronic alert in the Supervisory Control and Data Acquisition (SCADA) system. The trigger levels are set to align and consequently alarm with the LAeq (less than 1,000 Hz) data set generated from the real-time monitoring units.

Amber and Red trigger levels apply from 9 pm to 5 am and from 9 pm to 7 am respectively (see **Table 9**).

Table 9
Real Time Monitor Locations and Trigger Levels

Location ID	Location Name	Area Represented	Trigger Level (dB) Night	
			Amber (9 pm – 5 am)	Red (9 pm – 7 am)
Race	Racecourse	East	35	37
Roxb	Roxburgh Road (Wyndham Arms Right of Way)	West	48	50

6.4.3 Operational Implementation of Real Time Monitoring

The following actions are typically undertaken to reduce noise within 75 minutes of the amber trigger:

1. The MMC Supervisor reviews the location of equipment and meteorological conditions to determine if the source of the noise is likely to have been from Bengalla;
2. If the source of the noise appears to have been from Bengalla then the MMC will inform the OCE of a potentially elevated level of noise;
3. From the operational area, the OCE identifies the potential noise sources by personal audible observation;
4. If the OCE identifies a dominant noise source from Bengalla, then the OCE will implement appropriate, reasonable and feasible noise mitigation measures until such time as the RTEMS readings are below the amber trigger level;

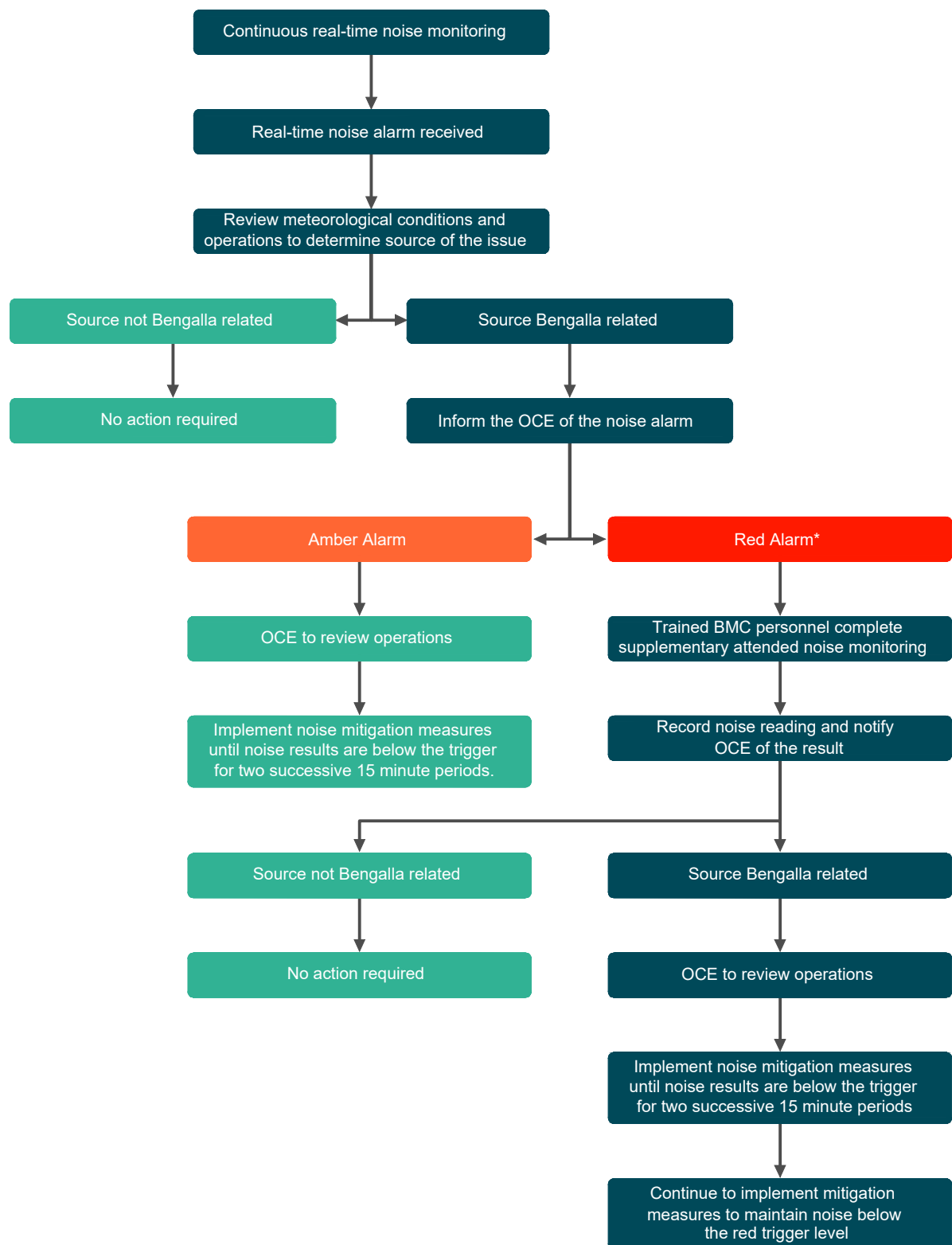
The following actions are typically undertaken to reduce noise within 75 minutes of the red trigger:

1. Steps 1 to Step 4 from the amber trigger notification are undertaken;
2. The OCE and/or MMC may request trained BMC personnel to complete supplementary attended noise monitoring at the attended noise monitoring site closest to the RTEMS that has been triggered;
3. The person undertaking the supplementary monitoring is to record the noise reading and notify the OCE of the result. Where possible, the person undertaking the monitoring is to describe the cause and/or source of the noise; and
4. If the source of the noise appears to have been from Bengalla then the OCE will implement appropriate, reasonable and feasible noise mitigation measures until the RTEMS results are below the red trigger for two successive 15 minute periods.
5. The mitigation measures will continue to be implemented under the equivalent meteorological conditions to maintain noise below the red trigger level.

The following parameters are trended in real time and displayed in the RTEMS as a management tool:

- LAeq (Total) and LAeq (less than 1,000 Hz);
- Wind speed;
- Wind direction;
- Atmospheric stability class to measure inversion strength to allow correlation of atmospheric parameters and measured noise levels; and
- The relevant impact criterion.

The RTEMS data will be recorded and stored on site to allow for data trend analysis as required.



*Response actions are typically undertaken within 75 minutes of the red noise trigger

BENGALLA MINE

6.5 Cumulative Impacts

BMC obtains cumulative noise level data from the two real-time noise monitors. If the real-time monitors identify excessive mining noise being generated by Bengalla or other noise sources, the Environmental Superintendent (or delegate) will contact the relevant site(s) to discuss the situation.

In addition, a copy of the final NMP will be provided to Mt Arthur Coal Mine and Mt Pleasant Project personnel.

6.6 Monitor Calibration and Validation

BMC calibrates the real-time and supplementary attended noise monitors.

When responding to noise complaints and/or undertaking incident investigations relevant to noise, where available, real-time and attended noise monitoring data is compared in order to validate the results (where available). Results from the real-time noise monitors, attended noise monitoring and other relevant parameters will be used to refine RTEMS noise trigger levels as required. This will allow the continued use of the real-time noise monitors as a prompt for further attended monitoring where there is a risk of non-compliance with the noise criteria.

7.0 LANDHOLDER NOTIFICATIONS, MITIGATION & ACQUISITION

This section stipulates BMC's notification, mitigation and acquisition requirements as per SSD-5170 (as modified).

7.1 Notifications to Landholders and Tenants

Under Schedule 4, Condition 1 of SSD-5170 (as modified), BMC were required to notify landowners and tenants of their mitigation or acquisition rights by 4 April 2015.

The required notification actions were undertaken by BMC on 2 April 2015, with letters provided to 20 landholders and/or tenants located within 3 km of the approved open cut mining areas. Additionally, under Schedule 4, Condition 3 of SSD-5170 (as modified), as soon as practicable after obtaining monitoring results showing an exceedance of the relevant noise criteria in **Table 4**, BMC must notify the affected landowners in writing of the exceedance. BMC must also provide regular monitoring results to these landowners until the development is again complying with the relevant criteria.

7.2 Future Tenancy Agreements

Prior to entering into any future tenancy agreement for BMC owned land that is predicted to experience exceedances of the recommended dust and/or noise criteria, or for any of the land listed in Schedule 3, Condition 1 and Condition 2 of SSD-5170 that is subsequently purchased, BMC will:

- Advise the prospective tenants of the potential impacts associated with living on the land and give them a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time); and
- Advise the prospective tenants of the rights they would have under SSD-5170.

7.3 Acquisition upon Request

Upon receipt of a written request from the owner of the land, BMC will follow the procedures in SSD-5170 Schedule 4, Conditions 5 and 6 to acquire any property stipulated in SSD-5170 Schedule 3, Condition 1 (summarised in **Appendix A, Table A-1**). Upon receipt of a written request from the owner of the land, BMC will follow the procedures in SSD-5170 Schedule 4, Conditions 5 and 6 to acquire any property stipulated in SSD-5170 Schedule 3, Condition 2 (summarised in **Appendix A, Table A-1**), but only if that land is no longer subject to acquisition upon request under a relevant development consent or project approval for Mt Arthur Coal or the Mt Pleasant Project.

Within three months of receiving a written request from a landowner with acquisition rights, BMC will make a binding written offer to the landowner in accordance with Schedule 4, Condition 5 of SSD-5170 (reproduced in Appendix A).

7.4 Mitigation upon Request

Upon receiving a written request from the owner of any residence on the land listed in SSD-5170 (as modified) Table 1 (unless the landowner of that land has requested acquisition), SSD-5170 (as modified) Table 2 (if acquisition or additional mitigation by the mine listed in Table 2 is no longer available for the landowner of that land) and on the land listed in SSD-5170 Table 3 (summarised in **Appendix A, Table A-1**), BMC shall implement additional mitigation measures. In consultation with the owner of the residence, BMC may implement the following:

- Noise mitigation measures (such as double-glazing, insulation and/or air conditioning); and/or
- Air quality mitigation measures (such as air filters, a first flush roof water drainage system and/or air conditioning).

These measures must be reasonable and feasible and directed towards reducing the noise and/or air quality impacts of Bengalla on any residence. BMC shall also be responsible for the reasonable costs of ongoing maintenance of these additional mitigation measures until the cessation of mining. If within three months of receiving a request for mitigation from the land owner, BMC and the owner cannot agree on the measures to be implemented, or if there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

7.5 Independent Monitoring Results Review

If an owner of privately-owned land considers Bengalla to be exceeding the relevant criteria in SSD-5170 Schedule 3 (as stipulated in **Table 4**), then they may ask the Secretary in writing for an independent review of the impacts of the development on their land. BMC will progress this review in accordance with Schedule 4, Condition 4 of SSD-5170 (reproduced in **Appendix A, Table A-1**) if such a review is required.

8.0 REPORTING & AUDITING

This section outlines the reporting, auditing and complaints management requirements relevant to this NMP.

8.1 Annual Review

By the end of March each year, BMC will provide an Annual Review to the Secretary of DPE, which will review the environmental performance of the mine for the previous calendar year. The Annual Review will include the presentation and analysis of the results of any impact monitoring, discussion on any exceedances, complaints and any management actions implemented at Bengalla over the reporting period. The Annual Review will also compare the results of monitoring to the predictions contained in the Bengalla EIS and include evaluation and reporting on the effectiveness of the noise management system.

The Annual Review will be made publicly available on BMC's website and will be provided to the Bengalla CCC.

8.2 Auditing

Within one year of the commencement of development under SSD-5170 (i.e. 1 October 2016) and every three years thereafter, unless the Secretary directs otherwise, BMC will commission and pay the full cost of an Independent Environmental Audit of Bengalla.

8.3 Noise Management Plan Review

Schedule 5, Condition 5 of SSD-5170 (as modified) requires that within three months of the submission of the following documents, BMC shall review, and if necessary, revise the NMP in consultation with the EPA and MSC to the satisfaction of the Secretary of DPE:

- Annual review in accordance with Schedule 5, Condition 4;
- Incident report under Schedule 5, Condition 7;
- Audit report under Schedule 5, Condition 9; or
- Modification to the conditions of SSD-5170 (unless the conditions require otherwise).

When a BMC review leads to revision in the NMP, then within four weeks of the review, unless the Secretary agrees otherwise, the revised NMP shall be submitted to the Secretary for approval.

This NMP may also be reviewed and, if necessary, revised to the satisfaction of the Secretary of DPE where there are changes to the monitoring program as a result in changes in mine development, noise management practices or incident investigations.

8.4 Protocol for Determining Exceedances

Where monitoring results are below the SSD-5170 (as modified) noise criteria (see **Section 5.1**), no further action is required and results are recorded with no additional analysis. Where results are above the noise criterion, the following analysis will be used to determine if Bengalla exceeded or contributed to an exceedance of the criteria:

- Investigate the meteorological data for the relevant period. Determine if the reading was taken in valid meteorological conditions (see **Section 4.2**);
- Compare the upwind, downwind and regional monitoring data for the same period;
- Obtain operational information for the elevated shift to determine what activities were occurring; and
- On the basis of wind speed, direction and the upwind and downwind results, determine the likelihood of Bengalla causing or contributing to elevated levels above the relevant criteria.

Any confirmed exceedances are documented as an incident in BMC's incident database.

8.5 Contingency Plan

If monitoring indicates that noise levels are approaching or exceeding the noise criteria or triggers then the relevant process outlined in **Section 5.3.3**, **Section 5.4.2** and/or **Section 6.0** will be undertaken. Elevated noise levels will be investigated as per **Section 8.4** and reported as discussed in **Section 8.6**.

If noise emissions consistently approach or exceed the relevant noise criteria, noise mitigation measures are implemented and trigger levels and additional control measures are investigated.

The following contingency plan will be implemented if any unpredicted impacts occur which are inconsistent with Condition 4 of Schedule 3 of SSD-5170:

- BMC will commission as required a suitably qualified and experienced expert to investigate the cause of the unpredicted impact;
- If the investigation determines that Bengalla is a material cause of the impact, BMC will notify the DPE of the impact;
- BMC will investigate the impact and any reasonable and feasible response actions to be implemented; and
- If necessary, this NMP will be updated to include the response actions.

8.6 Non-Compliance and Complaints Management

This section outlines the non-compliance and complaints management procedures relevant to this NMP.

8.6.1 Non Compliance

In accordance with Schedule 5, Conditions 7 and 7A of SSD-5170 BMC are required to report any Incidents or Non-compliances.

Within seven days of becoming aware of a non-compliance BMC will notify the Department of the non-compliance. The notification must be in writing via the Department's Major Projects Website and identify the development (including the development application number and name), set out the condition of SSD-5170 that the development is non-compliant with, why it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

8.6.2 Complaints

BMC will keep a record of all community complaints and subsequent actions. At least the following details are recorded:

- Complainant details (where provided);
- The nature of the complaint;
- How the complaint was made;
- Actions (if appropriate); and
- Consultation undertaken.

Complaints and enquiries regarding noise issues and any other environmental matters should be directed to the 24-hour complaints hotline: 1800 656 892. A complaints summary will be published monthly on BMC's website in accordance with Schedule 5, Condition 11 of SSD-5170 (as modified).

8.7 Public Access to Information

In accordance with Schedule 5, Conditions 8 and 11 of SSD-5170 (as modified) BMC will make summaries of monitoring results, this NMP and Annual Review's (for the last 5 years) publicly available on the Bengalla website.

8.8 Continuous Improvement

Environmental performance in relation to noise impacts is evaluated through:

- Review and investigation of any exceedances;
- Independent environmental audits;
- Feedback from stakeholder consultation or complaints; and
- Annual Review process.

9.0 RESPONSIBILITIES

Table 10 summarises the responsibilities as stipulated in this NMP. Responsibilities may be delegated as required.

Table 10 Responsibilities Summary

Ref	Task	Responsibility	Timing
1	Provide adequate resources to implement the commitments in this NMP.	General Manager	Ongoing
2	Provide training to relevant personnel in accordance with this NMP.	BMC Environmental Superintendent	Ongoing
3	Maintain the noise monitoring program as described in Section 6.0 .	BMC Environmental Superintendent	Ongoing
4	Implement operational noise control measures as described in Section 5.0 .	BMC Mine Manager	Ongoing
5	Include a program to calibrate and validate the real time noise monitoring results with the attended monitoring results as described in Section 6.6 .	BMC Environmental Superintendent	Ongoing
6	Undertake notifications to near neighbours as indicated in Section 7.0 .	BMC Environmental Superintendent	As required
7	Provide notification to other landholders in accordance with Section 7.0 .	BMC Environmental Superintendent	Ongoing
8	Undertake auditing and reporting (including complaints, exceedances and incidents) as per Section 8.0 .	BMC Environmental Superintendent	As required
9	Ensure the monitoring results presented in the Annual Review provide comparison to the predictions contained in the Bengalla EIS and include an evaluation of the effectiveness of the noise management system (refer to Section 8.1).	BMC Environmental Superintendent	Annually

10.0 REFERENCES

- *Department of Planning and Environment (Undated). NSW Draft Guideline: Mining – Noise Monitoring Application Note.*
- *Hansen Bailey (2013). Continuation of Bengalla Mine Environmental Impact Statement*
- *Hansen Bailey (2014) Continuation of Bengalla Mine Response to Submissions*
- *Hansen Bailey (2015a), Bengalla Mine Development Consent Modification 1 Statement of Environmental Effects.*
- *Hansen Bailey (2015b), Bengalla Mine Development Consent Modification 1 Response to Submissions.*
- *Hansen Bailey (2016a), Bengalla Mine Development Consent Modification 2 Statement of Environmental Effects.*
- *Hansen Bailey (2016b), Bengalla Mine Development Consent Modification 2 Response to Submissions.*
- *Hansen Bailey (2016c), Bengalla Mine Development Consent Modification 3 Statement of Environmental Effects (SSD-5170 Modification 4).*
- *Hansen Bailey (2016d), Bengalla Mine Development Consent Modification 3 Response to Submissions.*
- *Hansen Bailey (2017), Bengalla Mine Development Consent Modification 4 Statement of Environmental Effects.*
- *Hansen Bailey (2018), Bengalla Mine Development Consent Modification 4 Response to Submissions.*
- *James Bailey Associates (2021) Bengalla Mine MOD 5 Modification Report.*
- *James Bailey Associates (2021) Bengalla Mine MOD 5 Submissions Report.*
- *NSW Environment Protection Authority (2000). NSW Industrial Noise Policy.*
- *NSW Environment Protection Authority (2017). Noise Policy for Industry.*

APPENDIX A
SSD-5170 NOISE REQUIREMENTS &
BMC COMMITMENTS

Table A-1
Noise Management Performance Measures (MOD 5)

Ref	Performance Measure	NMP Section													
Schedule 2 Condition 14A	The Applicant may operate a mobile rock crushing facility on site as described in Modification Report (Mod 5). The Applicant must: (a) only operate the mobile rock crushing facility between the hours of 7 am to 6 pm, Monday to Saturday; and (b) ensure no crushed rock is transported off site.	4.3.1 and 5.4.2													
Schedule 3, Condition 1	ACQUISITION UPON REQUEST Upon receiving a written request for acquisition from the owner of the land listed in Table 1, the Applicant must acquire the land in accordance with the procedures in conditions 5 and 6 of schedule 4. <i>Table 1: Land subject to acquisition upon request</i> <table><tr><th>Acquisition Basis</th><th>Receiver No</th></tr><tr><td>Noise</td><td>152, 153, 156E, 156S</td></tr><tr><td>Noise and Air Quality</td><td>154</td></tr></table> <i>Note: To interpret the land referred to in Table 1, see the applicable figure in Appendix 4.</i>	Acquisition Basis	Receiver No	Noise	152, 153, 156E, 156S	Noise and Air Quality	154	7.3							
Acquisition Basis	Receiver No														
Noise	152, 153, 156E, 156S														
Noise and Air Quality	154														
Schedule 3, Condition 2	If the Applicant receives a written request for acquisition from the owner of the land listed in Table 2 and if that land is no longer subject to acquisition upon request under the relevant development consent or project approval shown in Table 2, then the Applicant must acquire the land in accordance with the procedures in conditions 5 and 6 of schedule 4. <i>Table 2: Land subject to acquisition upon request</i> <table><tr><th>Acquisition Basis</th><th>Receiver No</th><th>Mine</th></tr><tr><td>Noise</td><td>120</td><td rowspan="2">Mt Arthur</td></tr><tr><td>Noise and Air Quality</td><td>112, 113, 114, 117, 118, 119, 155</td></tr><tr><td>Noise</td><td>166</td><td rowspan="2">Mt Pleasant</td></tr><tr><td>Noise and Air Quality</td><td>168, 171</td></tr></table> <i>Notes: To interpret the land referred to in Table 2, see the applicable figure in Appendix 4.</i>	Acquisition Basis	Receiver No	Mine	Noise	120	Mt Arthur	Noise and Air Quality	112, 113, 114, 117, 118, 119, 155	Noise	166	Mt Pleasant	Noise and Air Quality	168, 171	7.3
Acquisition Basis	Receiver No	Mine													
Noise	120	Mt Arthur													
Noise and Air Quality	112, 113, 114, 117, 118, 119, 155														
Noise	166	Mt Pleasant													
Noise and Air Quality	168, 171														
Schedule 3, Condition 3	ADDITIONAL MITIGATION UPON REQUEST Upon receiving a written request from the owner of any residence on the land listed in Table 1 (unless the landowner of that land has requested acquisition), Table 2 (if acquisition or additional mitigation by the mine listed in Table 2 is no longer available for the landowner of that land) and on the land listed in Table 3, the Applicant must implement additional: (a) noise mitigation measures (such as double-glazing, insulation and/or air conditioning); and/or (b) air quality mitigation measures (such as air filters, a first flush roof water drainage system and/or air conditioning), at any residence in consultation with the owner. These measures must be reasonable and feasible, and directed towards reducing the noise and/or air quality impacts of the development on any residence. The Applicant must also be responsible for the reasonable costs of ongoing maintenance of these additional mitigation measures until the cessation of mining operations. If within 3 months of receiving this request from the owner, the Applicant and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.	7.4													

Ref	Performance Measure	NMP Section																																																											
	<p>Table 3: Land subject to additional noise and/or air quality mitigation upon request</p> <table><tr><th>Mitigation Basis</th><th>Receiver</th></tr><tr><td>Noise and Air Quality</td><td>109³</td></tr><tr><td>Noise</td><td>105, 106³, 108, 110³, 126N, 167, 169², 180, 184</td></tr><tr><td>Air Quality</td><td>66³, 120³, 152, 156E, 156S</td></tr></table> <p>Notes:</p> <ol style="list-style-type: none">To interpret the land referred to in Table 3, see the applicable figure in Appendix 4.The Applicant is only required to provide additional mitigation for this property if these rights are no longer available under the development consent for the Mt Pleasant mine.The Applicant is only required to provide additional mitigation for this property if these rights are no longer available under the project approval for the Mt Arthur mine.	Mitigation Basis	Receiver	Noise and Air Quality	109 ³	Noise	105, 106 ³ , 108, 110 ³ , 126N, 167, 169 ² , 180, 184	Air Quality	66 ³ , 120 ³ , 152, 156E, 156S																																																				
Mitigation Basis	Receiver																																																												
Noise and Air Quality	109 ³																																																												
Noise	105, 106 ³ , 108, 110 ³ , 126N, 167, 169 ² , 180, 184																																																												
Air Quality	66 ³ , 120 ³ , 152, 156E, 156S																																																												
Schedule 3, Condition 4	<p>NOISE</p> <p>Noise Criteria</p> <p>Except for the noise-affected land in Tables 1 and 2, the Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 4 at any residence on privately-owned land.</p> <p>Table 4: Noise Criteria dB(A)</p> <table><tr><th rowspan="2">Location</th><th>Day</th><th>Evening</th><th colspan="2">Night</th></tr><tr><th>LAeq (15 min)</th><th>LAeq (15 min)</th><th>LAeq (15 min)</th><th>LA1 (15 min)</th></tr><tr><td>108,109, 110</td><td>40</td><td>40</td><td>40</td><td>45</td></tr><tr><td>106</td><td>39</td><td>39</td><td>39</td><td>45</td></tr><tr><td>169</td><td>39</td><td>39</td><td>36</td><td>45</td></tr><tr><td>105, 126N</td><td>38</td><td>38</td><td>38</td><td>45</td></tr><tr><td>167, 180, 184,</td><td>38</td><td>38</td><td>35</td><td>45</td></tr><tr><td>102,126C, 146</td><td>37</td><td>37</td><td>37</td><td>45</td></tr><tr><td>186N</td><td>37</td><td>37</td><td>35</td><td>45</td></tr><tr><td>43, 44, 130, 145, 126S</td><td>36</td><td>36</td><td>36</td><td>45</td></tr><tr><td>186S,189</td><td>36</td><td>36</td><td>35</td><td>45</td></tr><tr><td>All other privately-owned residences</td><td>35</td><td>35</td><td>35</td><td>45</td></tr></table> <p>Note: To interpret the land referred to in Table 4, see the applicable figure in Appendix 4.</p> <p>However, these criteria do not apply if the Applicant has a written agreement with the relevant landowner to exceed the noise criteria, and the Applicant has advised the Department in writing of the terms of this agreement.</p> <p>Noise generated by the development is to be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy.</p> <p>Appendix 5 sets out the meteorological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria.</p>	Location	Day	Evening	Night		LAeq (15 min)	LAeq (15 min)	LAeq (15 min)	LA1 (15 min)	108,109, 110	40	40	40	45	106	39	39	39	45	169	39	39	36	45	105, 126N	38	38	38	45	167, 180, 184,	38	38	35	45	102,126C, 146	37	37	37	45	186N	37	37	35	45	43, 44, 130, 145, 126S	36	36	36	45	186S,189	36	36	35	45	All other privately-owned residences	35	35	35	45	5.1 and 6.2
Location	Day		Evening	Night																																																									
	LAeq (15 min)	LAeq (15 min)	LAeq (15 min)	LA1 (15 min)																																																									
108,109, 110	40	40	40	45																																																									
106	39	39	39	45																																																									
169	39	39	36	45																																																									
105, 126N	38	38	38	45																																																									
167, 180, 184,	38	38	35	45																																																									
102,126C, 146	37	37	37	45																																																									
186N	37	37	35	45																																																									
43, 44, 130, 145, 126S	36	36	36	45																																																									
186S,189	36	36	35	45																																																									
All other privately-owned residences	35	35	35	45																																																									
Schedule 3, Condition 5	<p>Construction Noise</p> <p>The Applicant must manage the noise associated with the construction of the Bengalla Road realignment and the Homestead Access Road in accordance with the noise management levels in Table 2 of the Interim Construction Noise Guideline.</p>	5.4.1																																																											
Schedule 3, Condition 6	<p>Operating Conditions</p> <p>The Applicant must:</p> <ol style="list-style-type: none">implement best noise management practice, which includes implementing all reasonable and feasible noise mitigation measures to minimise the construction, operational, road and rail noise of the development;operate a comprehensive noise management system on site that uses a combination of predictive meteorological forecasting and real-time noise monitoring data to guide the day-to-day planning of mining operations and the implementation of both proactive and reactive noise mitigation measures to ensure compliance with the relevant conditions of this consent:	5.0																																																											

Ref	Performance Measure	NMP Section
	<p>(c) minimise the noise impacts of the development during meteorological conditions when the noise criteria in this consent do not apply (see Appendix 5); (d) co-ordinate noise management at the Bengalla mine with the noise management at the Mt Arthur and Mount Pleasant mines to minimise cumulative noise impacts; and</p> <p>(e) carry out regular attended monitoring in accordance with Appendix 5 (unless otherwise agreed with the Secretary), to determine whether the development is complying with the relevant conditions of this consent, to the satisfaction of the Secretary.</p>	
Schedule 3, Condition 7	<p>Noise Management Plan</p> <p>The Applicant must prepare and implement a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must:</p> <p>(a) be prepared in consultation with the EPA, and submitted to the Secretary for approval within 6 months of the date of this consent;</p> <p>(b) describe the measures that would be implemented to ensure compliance with the relevant conditions of this consent;</p> <p>(c) describe the proposed noise management system in detail; and</p> <p>(d) include a noise monitoring program that:</p> <ul style="list-style-type: none"> evaluates and reports on: <ul style="list-style-type: none"> the effectiveness of the noise management system; compliance against the noise criteria in this consent; and compliance against the noise operating conditions; includes a program to calibrate and validate the real-time noise monitoring results with the attended monitoring results over time (so the real-time noise monitoring program can be used as a trigger for further attended monitoring where there is a risk of non-compliance with the noise criteria in this consent); and defines what constitutes a noise incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any noise incidents. <p>The Applicant must implement the management plan as approved by the Secretary.</p>	This document
Schedule 3, Condition 21	<p>METEOROLOGICAL MONITORING</p> <p>During the life of the development, the Applicant must ensure that there is a suitable meteorological station operating in the vicinity of the site that:</p> <p>(a) complies with the requirements in the <i>Approved Methods for Sampling of Air Pollutants in New South Wales</i> guideline; and</p> <p>(b) is capable of continuous real-time measurement of temperature lapse rate in accordance with the <i>NSW Industrial Noise Policy</i>, unless a suitable alternative is approved by the Secretary following consultation with the EPA.</p>	4.2
Schedule 4, Condition 1	<p>NOTIFICATION OF LANDOWNERS/TENANTS</p> <p>Within 1 month of the date of this consent, the Applicant must:</p> <p>(a) notify in writing the owners of:</p> <ul style="list-style-type: none"> the land listed in Table 1 of schedule 3 that they have the right to require the Applicant to acquire their land at any stage during the development and/or request the Applicant to ask for additional noise and/or air quality mitigation measures (whichever is relevant) to be installed at their residence at any stage during the development (if they have not requested acquisition); the land listed in Table 2 of schedule 3 that, if they no longer have an acquisition right for that land under the mining approval of the mine listed in Table 2, they have the right to require the Applicant to acquire their land at any stage during the development and/or request the Applicant to ask for additional noise and/or air quality mitigation measures (whichever is relevant) to be installed at their 	7.0

Ref	Performance Measure	NMP Section
	<p>residence at any stage during the development (if they have not requested acquisition from any mine, or the installation of mitigation measures by another mine);</p> <ul style="list-style-type: none"> any residence on the land listed in Table 3 of schedule 3 that they have the right to request the Applicant to ask for additional noise and/or air quality mitigation measures (whichever is relevant) to be installed at their residence at any stage during the development (if they have not requested the installation of mitigation measures by another mine); and any privately-owned land within 3 kilometres of the approved open cut mining pit/s that they are entitled to ask for an inspection to establish the baseline condition of any buildings or structures on their land, or to have a previous property inspection report updated; <p>(b) notify the tenants of any mine-owned land of their rights under this consent (see condition 18 of schedule 3); and</p> <p>(c) send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the owners and/or existing tenants of any land (including mine-owned land) where the predictions in the EIS identify that dust emissions generated by the development are likely to be greater than the relevant air quality criteria in schedule 3 at any time during the life of the development.</p>	
Schedule 4, Condition 2	<p>Prior to entering into any tenancy agreement for any land owned by the Applicant that is predicted to experience exceedances of the recommended dust and/or noise criteria, or for any of the land listed in condition 1 that is subsequently purchased by the Applicant, the Applicant must:</p> <p>(a) advise the prospective tenants of the potential health and amenity impacts associated with living on the land, and give them a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time); and</p> <p>(b) advise the prospective tenants of the rights they would have under this consent.</p>	7.1 and 7.2
Schedule 4, Condition 3	<p>As soon as practicable after obtaining monitoring results showing:</p> <p>(a) an exceedance of any relevant criteria in schedule 3, the Applicant must notify the affected landowners in writing of the exceedance, and provide regular monitoring results to these landowners until the development is again complying with the relevant criteria; and</p> <p>(b) an exceedance of any relevant air quality criteria in schedule 3, the Applicant must send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and/or existing tenants of the land (including the tenants of any mine-owned land).</p>	7.0
Schedule 4, Condition 4	<p>INDEPENDENT REVIEW</p> <p>If an owner of privately-owned land considers the development to be exceeding the relevant criteria in schedule 3, then he/she may ask the Secretary in writing for an independent review of the impacts of the development on his/her land. If the Secretary is satisfied that an independent review is warranted, then within 2 months of the Secretary's decision the Applicant must:</p> <p>(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary, to:</p> <ul style="list-style-type: none"> consult with the landowner to determine his/her concerns; conduct monitoring to determine whether the development is complying with the relevant criteria in schedule 3; if the development is not complying with these criteria then identify the measures that could be implemented to ensure compliance with the relevant criteria; and 	8.0

Ref	Performance Measure	NMP Section
	<ul style="list-style-type: none"> in cases where there is an exceedance of any air quality criteria, and more than one mine is responsible for the exceedance, determine the relative share of each mine regarding the impact of the development; <p>(b) give the Secretary and landowner a copy of the independent review with a plan which details the proposed measures to be implemented in response to the independent review; and</p> <p>(c) implement the necessary measures as directed by the Secretary.</p>	
Schedule 4, Condition 5	<p>LAND ACQUISITION</p> <p>Within 3 months of receiving a written request from a landowner with acquisition rights, the Applicant must make a binding written offer to the landowner based on:</p> <p>(a) the current market value of the landowner's interest in the land at the date of this written request, as if the land was unaffected by the development, having regard to the:</p> <ul style="list-style-type: none"> existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and presence of improvements on the land and/or any approved building or structure which has been physically commenced at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of the additional noise and/or air quality mitigation measures in condition 2 of schedule 3; <p>(b) the reasonable costs associated with:</p> <ul style="list-style-type: none"> relocating within the Muswellbrook, Cessnock or Singleton local government area, or to any other local government area determined by the Secretary; and obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and <p>(c) reasonable compensation for any disturbance caused by the land acquisition process.</p> <p>However, if at the end of this period, the Applicant and landowner cannot agree on the acquisition price of the land and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Secretary for resolution.</p> <p>Upon receiving such a request, the Secretary will request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer to:</p> <ul style="list-style-type: none"> consider submissions from both parties; determine a fair and reasonable acquisition price for the land and/or the terms upon which the land is to be acquired, having regard to the matters referred to in paragraphs (a)-(c) above; prepare a detailed report setting out the reasons for any determination; and provide a copy of the report to both parties. <p>Within 14 days of receiving the independent valuer's report, the Applicant must make a binding written offer to the landowner to purchase the land at a price not less than the independent valuer's determination.</p> <p>However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, they may refer the matter to the Secretary for review.</p> <p>Any request for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination.</p> <p>Following consultation with the independent valuer and both parties, the</p>	7.3

Ref	Performance Measure	NMP Section
	Secretary will determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (a)-(c) above, the independent valuer's report, the detailed report of the party that disputes the independent valuer's determination and any other relevant submissions. Within 14 days of this determination, the Applicant must make a binding written offer to the landowner to purchase the land at a price not less than the Secretary's determination. If the landowner refuses to accept the Applicant's binding written offer under this condition within 6 months of the offer being made, then the Applicant's obligations to acquire the land shall cease, unless the Secretary determines otherwise.	
Schedule 4, Condition 6	The Applicant must pay all reasonable costs associated with the land acquisition process described in condition 5 above, including the costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of this plan at the Office of the Registrar-General.	7.3
Schedule 5, Condition 3	Management Plan Requirements The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:	Appendix A
	(a) a summary of baseline data;	4.0
	(b) a description of: <ul style="list-style-type: none"> the relevant statutory requirements (including any relevant approval, licence or lease conditions); any relevant limits or performance measures/criteria; the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; 	5.1 and this table
	(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	5.0
	(d) a program to monitor and report on the: <ul style="list-style-type: none"> impacts and environmental performance of the development; effectiveness of any management measures (see c above); 	6.0
	(e) a contingency plan to manage any unpredicted impacts and their consequences;	8.5
	(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	8.8
	(g) a protocol for managing and reporting any: <ul style="list-style-type: none"> Incidents; Complaints; Non-compliances with statutory requirements; and Exceedances of the impact assessment criteria and/or performance criteria; and 	8.0
	(h) a protocol for periodic review of the plan. <i>Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</i>	8.3
Schedule 5, Condition 7	Incident Notification 7. The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing via the Department's Major Projects Website and identify the development (including the development application number and name) and set out the location and nature of the incident. 7A. Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing via the Department's Major Projects Website and identify	8.0

Ref	Performance Measure	NMP Section
	<p>the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, why it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.</p> <p>Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.</p>	
Appendix 5, Condition 1	<p>Applicable Meteorological Conditions</p> <p>The noise criteria in Table 4 of schedule 3 are to apply under all meteorological conditions except the following:</p> <ul style="list-style-type: none"> (a) wind speeds greater than 3 m/s measured at 10 m above ground level; or (b) temperature inversion conditions between 1.5°C and 3°C/100 m and wind speeds greater than 2 m/s at 10 m above ground level; or (c) temperature inversion conditions greater than 3°C/100 m. 	5.1 and 6.2.4
Appendix 5, Condition 2	<p>Determination of Meteorological Conditions</p> <p>Except for wind speed at microphone height, the data to be used for determining meteorological conditions shall be that recorded by the meteorological station located on the site.</p>	5.1 and 6.2.4
Appendix 5, Conditions 3-5	<p>Compliance Monitoring</p> <ul style="list-style-type: none"> 3. Attended monitoring is to be used to evaluate compliance with the relevant conditions of this consent. 4. This monitoring must be carried out at least once a month (but at least two weeks apart) unless the Secretary directs otherwise. 5. Unless otherwise agreed with the Secretary, this monitoring is to be carried out in accordance with the relevant requirements for reviewing performance set out in the NSW Industrial Noise Policy (as amended from time to time), in particular the requirements relating to: <ul style="list-style-type: none"> (a) monitoring locations for the collection of representative noise data; (b) meteorological conditions during which collection of noise data is not appropriate; (c) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment; and (d) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration. 	6.2

Table A2
EPL 6538 Noise Commitments

Ref	Action	NMP Section								
L4 Noise Limits										
L4.1	<p>Noise generated at the premises that is measured at each noise monitoring point established under this licence must not exceed the noise levels specified in Column 4 of the table below for that point during the corresponding time periods specified in Column 1 when measured using the corresponding measurement parameters listed in Column 2.</p> <p>POINT 7.9</p> <table><tr><th>Time period</th><th>Measurement parameter</th><th>Measurement frequency</th><th>Noise level dB(A)</th></tr><tr><td>Night</td><td>Night-LAeq (15 minute)</td><td>Monthly</td><td>35</td></tr></table>	Time period	Measurement parameter	Measurement frequency	Noise level dB(A)	Night	Night-LAeq (15 minute)	Monthly	35	6.2
Time period	Measurement parameter	Measurement frequency	Noise level dB(A)							
Night	Night-LAeq (15 minute)	Monthly	35							

Ref	Action	NMP Section																																																												
	<div>POINT 8</div> <table><tr><th>Time period</th><th>Measurement parameter</th><th>Measurement frequency</th><th>Noise level dB(A)</th></tr><tr><td>Night</td><td>L_{Aeq} (15 minute)</td><td>Monthly</td><td>40</td></tr></table>	Time period	Measurement parameter	Measurement frequency	Noise level dB(A)	Night	L _{Aeq} (15 minute)	Monthly	40																																																					
Time period	Measurement parameter	Measurement frequency	Noise level dB(A)																																																											
Night	L _{Aeq} (15 minute)	Monthly	40																																																											
L4.2	<p>Noise generated at the premises that is measured at each noise monitoring point established under this licence must not exceed the noise levels specified in Column 4 of the table below for that point during the corresponding time periods specified in Column 1 when measured using the corresponding measurement parameters listed in Column 2.</p> <table><tr><th>Location</th><th>Day L_{Aeq}(15min)</th><th>Evening L_{Aeq}(15min)</th><th>Night L_{Aeq} (15min)</th><th>Night LA1 (1min)</th></tr><tr><td>109,110,156,161</td><td>40</td><td>40</td><td>40</td><td>45</td></tr><tr><td>106,108</td><td>39</td><td>39</td><td>39</td><td>45</td></tr><tr><td>27,169</td><td>39</td><td>39</td><td>36</td><td>45</td></tr><tr><td>105,126</td><td>38</td><td>38</td><td>38</td><td>45</td></tr><tr><td>22,23,24,25,29,43,44</td><td>38</td><td>38</td><td>36</td><td>45</td></tr><tr><td>167</td><td>38</td><td>38</td><td>35</td><td>45</td></tr><tr><td>19,64,66</td><td>38</td><td>37</td><td>36</td><td>45</td></tr><tr><td>180,184,186</td><td>37</td><td>37</td><td>35</td><td>45</td></tr><tr><td>146</td><td>37</td><td>37</td><td>37</td><td>45</td></tr><tr><td>102,130,145,189</td><td>36</td><td>36</td><td>36</td><td>45</td></tr><tr><td>All other privately-owned residences</td><td>35</td><td>35</td><td>35</td><td>45</td></tr></table> <p>Note: The locations referred to in the table above are identified in the plan titled 'Bengalla Mine - Bengalla Compliance Acoustic Monitoring Network - Figure 1' version 09/09/2016, EPA reference DOC16/456893. The limits in the noise table above do not apply if the licensee has an approved written agreement with the relevant land owner(s) of these residences to generated high noise levels. The limits do not apply to residences owned by the proponent.</p>	Location	Day L _{Aeq} (15min)	Evening L _{Aeq} (15min)	Night L _{Aeq} (15min)	Night LA1 (1min)	109,110,156,161	40	40	40	45	106,108	39	39	39	45	27,169	39	39	36	45	105,126	38	38	38	45	22,23,24,25,29,43,44	38	38	36	45	167	38	38	35	45	19,64,66	38	37	36	45	180,184,186	37	37	35	45	146	37	37	37	45	102,130,145,189	36	36	36	45	All other privately-owned residences	35	35	35	45	6.2
Location	Day L _{Aeq} (15min)	Evening L _{Aeq} (15min)	Night L _{Aeq} (15min)	Night LA1 (1min)																																																										
109,110,156,161	40	40	40	45																																																										
106,108	39	39	39	45																																																										
27,169	39	39	36	45																																																										
105,126	38	38	38	45																																																										
22,23,24,25,29,43,44	38	38	36	45																																																										
167	38	38	35	45																																																										
19,64,66	38	37	36	45																																																										
180,184,186	37	37	35	45																																																										
146	37	37	37	45																																																										
102,130,145,189	36	36	36	45																																																										
All other privately-owned residences	35	35	35	45																																																										
L4.3	<p>For the purpose of Conditions L4.1 and L4.2:</p> <p>a) Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays,</p> <p>b) Evening is defined as the period from 6pm to 10pm</p> <p>c) Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays</p> <p>d) L_{Aeq}(15minute) is defined as the equivalent continuous ‘A’ weighted sound pressure level- the energy average of the noise measured over a 15 minute period. e) LA1 (1 minute) is defined as the sound pressure level exceeded for one percent of a 1-minute measurement period.</p>	6.0																																																												
L4.4	<p>The noise emission limits identified in this licence apply under all meteorological conditions except for the following:</p> <p>a) Wind speeds greater than 3m/s at 10 metres above ground level; or</p> <p>b) Temperature inversion conditions between 1.5 degrees celcius and 3 degrees celcius/100m and wind speeds greater than 2m/s at 10m above ground level; or</p> <p>c) Temperature inversion conditions greater than 3 degrees celcius/100m.</p>	6.2.4																																																												
L4.5	<p>For the purpose of condition L4.4:</p> <p>a) Data recorded from the meteorological station and inversion tower identified as EPA Licence Point 6 and 21 must be used to determine the meteorological conditions; and</p> <p>b) Temperature inversion conditions (vertical temperature gradient in degrees celcius are to be determined by direct measurement over a minimum 50m height interval as referred to in Part E2 of Appendix E to the NSW Industrial Noise Policy.</p>	6.0																																																												
L4.6	<p>For the purposes of the noise limits in this licence the 'night' period is defined as 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holiday.</p>	6.0																																																												

Ref	Action	NMP Section								
	however night time noise monitoring can be conducted from 9pm onwards but must be assessed against the night time criteria provided in this licence.									
M10 Noise Monitoring										
M10.1	<p>To assess compliance with the noise limits specified within this licence, the licensee must undertake operator attended noise monitoring at each specified noise monitoring point in accordance with the table below.</p> <p>POINT 7,8,9</p> <table><tr><th>Assessment period</th><th>Minimum frequency in a reporting period</th><th>Minimum duration within assessment period</th><th>Minimum number of assessment period</th></tr><tr><td>Night</td><td>Monthly</td><td>15 minutes</td><td>1 operation day</td></tr></table>	Assessment period	Minimum frequency in a reporting period	Minimum duration within assessment period	Minimum number of assessment period	Night	Monthly	15 minutes	1 operation day	6.0
Assessment period	Minimum frequency in a reporting period	Minimum duration within assessment period	Minimum number of assessment period							
Night	Monthly	15 minutes	1 operation day							
R4 Other Reporting Conditions										
R4.3	<p>Noise Monitoring Report</p> <p>a) A report containing the monitoring results of noise compliance monitoring specified in this licence must be submitted annually with the Annual Return as set out in Condition R1.</p> <p>b) The report must include an explanation of any exceedences of noise limits and what management and mitigation measures were put in place to prevent further exceedences.</p>	8.0								

Table A-3
EIS Noise Commitments

Ref	Action	NMP Section
Response to Submissions (RTS) Mitigation & Monitoring Summary		
7.	<p>The existing Noise Management Plan will be revised for the Project in consideration of the management and mitigation measures described in this EIS and will incorporate the following:</p> <ul style="list-style-type: none"> Continued use of all feasible and reasonable mitigation measures; Proactive management of mobile equipment to operate on elevated and exposed sections of the OEA during the day/ evening and on lower and (where required on) more shielded sections of the OEA during the night period; and Mining machinery to generally work below the surface during the sensitive night period, undertaking surface work during the day where practical. 	This document 8.3
8.	BMC will upgrade the existing noise monitoring system with a contemporary real time noise management system at representative receptors to facilitate ongoing and proactive noise management.	8.3
EIS Noise Mitigation		
EIS Section 8.3.4	<p>Existing Noise Control Strategies</p> <p>An active noise management strategy has been implemented, including the following management measures:</p> <ul style="list-style-type: none"> Mobile equipment, including trucks, dozers, graders and water carts generally operate on elevated and exposed sections of the OEA during the day and early evening and on lower and more shielded sections of the OEA during the sensitive night period; Mining machinery generally work below the surface during the sensitive night period, undertaking surface work (including clearing, topsoil stripping, stockpiling and rehabilitation) is completed during the day; Drilling and drill pad preparation generally occurs at least 6 m below the natural surface during the evening and night; and 	5.0

Ref	Action	NMP Section												
	<ul style="list-style-type: none">Operation of an upgraded real time noise monitoring system to provide feedback regarding Bengalla’s acoustic performance allowing equipment to be carefully positioned to avoid excessive noise at receptors.													
EIS Section 8.3.4	<p>Reasonable and Feasible Noise Controls</p> <p>Table 43 indicates current feasible and reasonable best practice equipment modifications, a combination of which will continue to be employed for the Project.</p> <p>In order to achieve lower SPLs, BMC and its supplier developed a retrofit of the haul truck’s countermeasure kit.</p> <p>Further work at BMC’s supplier’s proving ground has also been undertaken including mobilising Australian sound testing service providers to establish “like for like” testing during further development of the countermeasure.</p> <p>BMC remains committed to a best practice achievable noise attenuated fleet through ongoing and continual improvement.</p> <p>The SPLs adopted for the Project noise modelling are practically achievable and represent all reasonable and feasible noise mitigation available at the present time to minimise mining noise.</p> <p>Table 43 Indicative Engineering and Operational Noise Controls Summary</p> <table><tr><th>Aspect of Operations</th><th>Noise Controls</th></tr><tr><td rowspan="3">Mobile Equipment</td><td>Separators<ul style="list-style-type: none">Sound attenuated exhaust system (including covers)Hornless horn modification of load completed to track operator without using the machine horn</td></tr><tr><td>Cooler Splitters<ul style="list-style-type: none">Rear Sound attenuationMobile Linings (including Sound attenuated engine bay doors)</td></tr><tr><td>Rear Tracks<ul style="list-style-type: none">Engine side panelsEngine Belly Pan coverRadiator SilencerExhaust system silencersRear engine compartment enclosureCentre deck LiningFront Panel Assembly below radiator alternatorGrill and Hood wallsAlternator air intake silencerRetarding grid attenuation packageUpper Horse collar panelsBlower duct cover and hoodsCovers over openings that are not fitted with louvers</td></tr><tr><td rowspan="3">Dozers, Water carts and Graders</td><td><ul style="list-style-type: none">Fitted with factory supplied sound attenuated optionsModifications to dozer tracks</td></tr><tr><td>Drills<ul style="list-style-type: none">Acoustic panels fittedHornless hornEngine bay parawallingSound attenuated exhaust system</td></tr><tr><td>CHPP Equipment<ul style="list-style-type: none">ROM hopper is located within a box cut to maximise shieldingROM hopper consists of double steel skin walls, with the steel layers separated by sand to reduce vibrationCHPP has been designed to minimise roof, wall and floor vibrationNumber of vibration screens and centrifuges has been minimisedCHPP clad with steel sheetingDivided conveyors have been enclosed wherever possibleConveyor frames and idlers have been designed to minimise vibrationTransfer chutes optimise material flow paths to reduce impact noiseReclaimers utilise optimum chain sprocket profiles and bucket guides to minimise impact noise</td></tr><tr><td>Rail Load out Facility</td><td><ul style="list-style-type: none">Rail loop is at an optimal gradient to control locomotive noise and wagon coupling noiseRail loop uses large radius bends to minimise wheel and flange noiseRail loading system is entirely enclosedRails have been continuously welded instead of jointedPoints and cross-overs have been designed to minimise wheel impact noise</td></tr></table>	Aspect of Operations	Noise Controls	Mobile Equipment	Separators <ul style="list-style-type: none">Sound attenuated exhaust system (including covers)Hornless horn modification of load completed to track operator without using the machine horn	Cooler Splitters <ul style="list-style-type: none">Rear Sound attenuationMobile Linings (including Sound attenuated engine bay doors)	Rear Tracks <ul style="list-style-type: none">Engine side panelsEngine Belly Pan coverRadiator SilencerExhaust system silencersRear engine compartment enclosureCentre deck LiningFront Panel Assembly below radiator alternatorGrill and Hood wallsAlternator air intake silencerRetarding grid attenuation packageUpper Horse collar panelsBlower duct cover and hoodsCovers over openings that are not fitted with louvers	Dozers, Water carts and Graders	<ul style="list-style-type: none">Fitted with factory supplied sound attenuated optionsModifications to dozer tracks	Drills <ul style="list-style-type: none">Acoustic panels fittedHornless hornEngine bay parawallingSound attenuated exhaust system	CHPP Equipment <ul style="list-style-type: none">ROM hopper is located within a box cut to maximise shieldingROM hopper consists of double steel skin walls, with the steel layers separated by sand to reduce vibrationCHPP has been designed to minimise roof, wall and floor vibrationNumber of vibration screens and centrifuges has been minimisedCHPP clad with steel sheetingDivided conveyors have been enclosed wherever possibleConveyor frames and idlers have been designed to minimise vibrationTransfer chutes optimise material flow paths to reduce impact noiseReclaimers utilise optimum chain sprocket profiles and bucket guides to minimise impact noise	Rail Load out Facility	<ul style="list-style-type: none">Rail loop is at an optimal gradient to control locomotive noise and wagon coupling noiseRail loop uses large radius bends to minimise wheel and flange noiseRail loading system is entirely enclosedRails have been continuously welded instead of jointedPoints and cross-overs have been designed to minimise wheel impact noise	5.4
Aspect of Operations	Noise Controls													
Mobile Equipment	Separators <ul style="list-style-type: none">Sound attenuated exhaust system (including covers)Hornless horn modification of load completed to track operator without using the machine horn													
	Cooler Splitters <ul style="list-style-type: none">Rear Sound attenuationMobile Linings (including Sound attenuated engine bay doors)													
	Rear Tracks <ul style="list-style-type: none">Engine side panelsEngine Belly Pan coverRadiator SilencerExhaust system silencersRear engine compartment enclosureCentre deck LiningFront Panel Assembly below radiator alternatorGrill and Hood wallsAlternator air intake silencerRetarding grid attenuation packageUpper Horse collar panelsBlower duct cover and hoodsCovers over openings that are not fitted with louvers													
Dozers, Water carts and Graders	<ul style="list-style-type: none">Fitted with factory supplied sound attenuated optionsModifications to dozer tracks													
	Drills <ul style="list-style-type: none">Acoustic panels fittedHornless hornEngine bay parawallingSound attenuated exhaust system													
	CHPP Equipment <ul style="list-style-type: none">ROM hopper is located within a box cut to maximise shieldingROM hopper consists of double steel skin walls, with the steel layers separated by sand to reduce vibrationCHPP has been designed to minimise roof, wall and floor vibrationNumber of vibration screens and centrifuges has been minimisedCHPP clad with steel sheetingDivided conveyors have been enclosed wherever possibleConveyor frames and idlers have been designed to minimise vibrationTransfer chutes optimise material flow paths to reduce impact noiseReclaimers utilise optimum chain sprocket profiles and bucket guides to minimise impact noise													
Rail Load out Facility	<ul style="list-style-type: none">Rail loop is at an optimal gradient to control locomotive noise and wagon coupling noiseRail loop uses large radius bends to minimise wheel and flange noiseRail loading system is entirely enclosedRails have been continuously welded instead of jointedPoints and cross-overs have been designed to minimise wheel impact noise													
EIS Section 8.3.4	<p>BMC has also committed to continuing to implement the existing proactive noise management strategy for the Project, which includes the following management measures:</p> <ul style="list-style-type: none">Mobile machines including trucks, dozers, graders and water carts generally operate on elevated and exposed sections of the OEA during the day and early evening and on lower and more shielded sections of the OEA during the sensitive night period;Mining machines generally work below the surface during the sensitive night period. Surface work including clearing, topsoil stripping, stockpiling and rehabilitation is completed during the day;Drilling and drill pad preparation generally occurs at least 6 m below the natural surface during the evening and night;Use of wheeled dozers instead of tracked dozers on exposed areas;A continuous data link from the weather monitoring station was established to allow informed decisions to be made regarding appropriate equipment operating locations; and	5.0												

Ref	Action	NMP Section
	<ul style="list-style-type: none"> A real time noise monitoring system was established to provide feedback regarding Bengalla's acoustic performance and to allow equipment operating locations to be fine-tuned to avoid excessive noise at receivers. 	
EIS Section 8.3.4	<p>All feasible and reasonable noise mitigation measures have also been incorporated into the existing CHPP and will continue to be implemented for all of the proposed infrastructure modifications and the additional mobile equipment associated with the Project.</p> <p>This may vary to encompass engineering developments over time. A large bund approximately 24 m high has been constructed along the southern boundary of the CHPP area and will be maintained for the Project.</p> <p>The north-south alignment of the mining area also results in some acoustic shielding for receptors located east and west of the Project, with receptors to the east shielded by the OEA and receptors to the west shielded from some equipment operating in deeper mining areas.</p> <p>The north-south alignment of the mining area provides shielding for receptors to the east and west. Receptors to the east are shielded by the OEA whereas receptors to the west are shielded from equipment operating in deeper mining areas.</p>	5.0
EIS Section 8.3.4	<p>Additional Noise Control Strategies - Construction</p> <p>BMC will revise the existing Noise Management Plan to consider all feasible and reasonable noise management measures to minimise construction noise levels, particularly during prevailing weather conditions including:</p> <ul style="list-style-type: none"> The construction activities associated with the Project, including timing, equipment and activities that could produce audible noise at any privately owned residence and, where possible, to avoid or reduce noise levels at identified receptors; Identification of any required evening and night construction work with time restrictions imposed for particularly noisy activities such as rock hammering or concrete cutting; and Communication and response protocols will be developed to minimise the potential for nuisance noise. 	5.4.1
EIS Section 8.3.4	<p>Additional Noise Control Strategies – Operations</p> <p>Feasible and reasonable noise mitigation measures have been incorporated into the existing CHPP and will be continued in all proposed infrastructure modifications associated with the Project, including:</p> <ul style="list-style-type: none"> The proposed relocated ROM hopper will include an equivalent level of noise control as the existing hopper, which was designed and constructed following best practice procedures; Best practice modifications will continue to be implemented at the CHPP building, which currently produces a sound power level of 115 dBA; Conveyors will continue to be limited to a sound power level of no more than 76 dBA per metre for sections of conveyor that cannot be enclosed; and The rail load out facility, stackers and reclaimers will continue to be managed and modified following best practice control measures. 	5.4.2
EIS Section 8.3.4	<p>Noise Management Plan</p> <p>BMC will update the existing Noise Management Plan which incorporates a combination of engineering controls and mitigation measures employed to manage and control noise impacts associated with the existing Bengalla operations.</p> <p>Existing noise control and management measures will continue to be implemented as part of the Project to ensure best practice controls are maintained.</p> <p>Real time noise monitoring will be undertaken at representative receptors to facilitate ongoing noise management.</p>	This document

Ref	Action	NMP Section
	Data from these monitors will be transmitted to an onsite office or control room, where operators will be able to respond to and avoid noise exceedances.	
SEE Modification 1		
Section 6.4.2	Existing BMC noise management techniques consistent with Bengalla Noise Management Plan will be applied to the Modification...	5.0
SEE Modification 2		
Section 7.3.2	The Noise Management Plan (as Modified) will be applied to this Modification to include the proactive management of mobile and mining equipment to operate on elevated or exposed sections of the overburden emplacement area (including surface work) during the day/evening periods and on more shielded sections (where required) of the overburden emplacement area during the night period.	5.0
SEE Modification 3		
Section 6.2	As such, no additional mitigation and management measures to that within SSD-5170 (as modified) are required to manage any potential visual, air quality or noise impacts resulting from MOD 3. Potential amenity impacts including visual, air quality and noise will continue to be managed in accordance with the approved management plans and onsite procedures.	5.0
SEE Modification 4		
Section 6.3	Existing BMC noise management techniques consistent with 'Bengalla Noise Management Plan' (BMC, 2016d) will be applied to MOD 4.	5.0

APPENDIX B
REGULATORY
CORRESPONDENCE

Craig White
Environment Superintendent
Bengalla Mining Company Pty Limited
Bengalla Road
Muswellbrook NSW 2333

10/08/2023

Subject: Approval of Noise Management Plan

Dear Mr White

I refer to the revised Noise Management Plan submitted in accordance with Condition 7 of Schedule 3 of the development consent for the Bengalla Continuation Project (SSD-5170).

The Department has carefully reviewed the document and is satisfied that it meets the requirements of the relevant conditions in SSD-5170.

Accordingly, as nominee of the Planning Secretary, I approve the Noise Management Plan (version 7, dated June 2023).

You are reminded that if there are any inconsistencies between the Noise Management Plan and the conditions of approval, the conditions prevail.

Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Joe Fittell on (02) 4908 8696.

Yours sincerely

A handwritten signature in black ink, appearing to read "Joe Fittell".

Joe Fittell
Team Leader
Resource Assessments

As nominee of the Planning Secretary



DOC23/558100-3

BENGALLA MINING COMPANY PTY LIMITED
ABN 32 053 909 470
Bengalla Road
MUSWELLBROOK NSW 2333

By email: craig.white@bengalla.com.au

7 July 2023

Dear Craig White

**No Comment – Bengalla Coal Mine – SSD-5170-PA-99
Bengalla Blast Management Plan and Noise Management Plan**

I am writing in reply to your invitation to the Environment Protection Authority (EPA) dated 27 June 2023 to provide advice on the Blast Management Plan for Bengalla Coal Mine in accordance with Planning Approval SSD-5170-PA-99.

The EPA has not reviewed the Plans and has no comments on the Plans. The EPA's role, as a regulatory authority, is to set environmental objectives rather than being involved in the development of strategies to achieve those objectives.

The development of such plans by proponents and licensees is encouraged by the EPA, to ensure they have determined how they will meet their statutory obligations and environmental objectives.

If you have any further questions about this issue, please contact Bree Turkington on (02) 8275 1550 or info@epa.nsw.gov.au.

Yours sincerely

A handwritten signature in black ink, appearing to be 'KG' with a large loop, written over a horizontal line.

KAREN GALLAGHER
Unit Head - Regulatory Operations

APPENDIX C
MINE OWNED PROPERTIES
NOISE PREDICTIONS AND LIST

Table C-1
Operational Noise Levels at Mine-Owned Residences (LAeq,15min) (Bengalla EIS)

Scenario	Day Neutral					Day/Evening Prevailing					Night Prevailing				
Year	1	4	8	15	24	1	4	8	15	24	1	4	8	15	24
Residence	Predicted Noise Level, LAeq,15min														
M1	21.7	20.9	21.5	23.9	26.2	36.0	34.6	34.3	34.9	37.4	28.6	24.0	30.2	27.2	33.6
M2	37.3	38.7	37.8	42.8	54.4	46.8	47.2	47.2	50.9	58.5	44.4	43.1	44.3	45.9	57.6
M3	44.1	45.4	43.9	42.8	45.2	51.0	52.6	52.1	51.2	55.9	47.0	49.5	50.2	46.9	48.3
M4	41.8	39.0	39.2	35.1	36.1	51.1	50.8	48.8	44.3	47.8	46.2	44.2	46.1	41.1	42.9
M5	44.0	42.1	41.1	35.6	36.3	53.3	52.9	50.7	45.3	48.9	47.3	45.8	47.0	41.6	43.9
M6	48.1	35.1	37.9	29.5	29.7	54.5	45.7	47.0	38.7	39.6	51.9	38.4	37.5	38.2	38.8
M7	37.9	28.1	27.4	24.4	24.8	43.2	35.6	33.5	32.4	34.0	41.8	31.1	30.2	33.4	36.0
M8	24.6	22.4	22.8	19.7	19.0	36.4	36.2	35.3	33.2	32.4	31.8	30.4	32.9	29.2	30.1
M9	24.2	21.9	22.5	19.4	18.7	36.1	35.6	34.5	32.4	31.8	31.3	29.2	31.5	28.1	29.4
M10	27.2	22.6	23.1	19.9	20.2	40.2	36.8	35.0	32.2	32.1	33.9	28.7	30.1	30.0	31.7
M11	25.7	20.5	20.6	18.3	18.8	37.3	35.6	34.2	32.0	31.3	32.3	28.9	30.0	30.2	31.2
M12	32.5	26.1	24.8	21.4	22.5	38.3	32.8	30.2	29.5	29.7	37.0	28.6	27.6	29.8	32.2
M13	28.2	23.7	23.2	20.6	20.0	41.9	38.8	35.5	33.0	32.7	35.0	28.1	29.0	30.4	31.4
M14	28.5	24.1	23.5	21.0	20.2	41.3	38.5	35.7	33.2	33.2	35.0	29.0	29.6	31.3	32.1
M15	27.7	23.1	22.4	19.5	19.0	41.7	39.1	34.9	32.7	32.2	35.4	29.4	30.0	31.4	32.4
M16	25.7	23.2	21.6	18.6	18.3	40.4	39.5	34.4	31.8	31.5	34.7	28.8	29.6	31.0	32.7
M17	28.0	27.5	23.2	18.1	17.4	37.7	36.7	34.0	31.1	30.4	33.7	29.8	31.6	33.3	34.0
M18	29.9	28.1	24.1	18.5	17.7	38.1	36.6	34.1	31.1	30.2	33.4	30.4	32.1	33.2	34.1
M19	36.0	27.1	26.2	23.2	23.9	42.7	35.0	32.2	31.4	32.5	40.0	30.3	29.1	32.1	34.2
M20	33.1	26.4	25.1	21.9	23.2	38.9	33.2	30.5	29.9	30.2	37.7	29.1	28.0	30.4	32.7
M21	32.8	25.6	24.5	21.0	21.8	40.5	34.4	31.3	30.4	30.9	37.7	28.4	27.8	31.0	32.5
M22	30.3	24.9	23.3	20.4	20.8	38.1	33.9	30.1	29.8	30.5	36.1	27.7	27.4	30.3	32.0
M23	29.5	24.3	23.0	20.1	19.9	40.8	38.5	31.5	30.8	31.0	35.1	27.9	27.8	30.9	32.2
M24	27.8	24.8	22.3	19.8	20.1	33.6	31.4	27.4	27.5	27.5	31.0	27.0	26.0	26.9	29.5
M25	26.4	23.5	21.8	19.0	18.5	40.5	39.7	32.0	30.1	29.6	32.6	27.4	27.1	28.8	31.2
M26	26.0	23.6	21.6	18.7	18.2	40.2	39.5	31.7	29.6	29.1	31.4	27.0	26.5	28.1	30.8
M27	25.4	22.2	21.2	18.5	18.5	39.1	37.7	35.2	32.9	33.0	34.4	30.7	32.4	33.1	33.8
M28	25.6	23.1	21.6	18.6	18.3	40.2	39.3	34.6	32.1	31.7	35.0	29.0	30.0	31.4	32.9
M29	25.6	23.2	21.6	18.5	18.2	40.3	39.4	34.3	31.7	31.4	34.3	28.6	29.3	30.9	32.7
M30	25.4	24.8	21.7	17.5	17.4	36.2	35.9	33.6	31.0	30.8	33.6	29.6	31.9	32.6	33.7
M31	24.6	22.7	20.7	16.9	17.1	34.8	33.9	32.4	30.4	29.9	33.2	30.3	32.5	31.6	32.6
M32	25.0	23.0	20.9	16.9	17.1	34.9	34.1	32.5	30.4	29.9	33.2	30.2	32.4	31.7	32.8
M33	28.6	27.5	22.9	19.4	18.7	35.3	34.3	28.6	25.3	24.2	29.1	27.3	25.4	23.8	25.0
M34	29.8	30.5	24.7	19.1	18.2	39.9	37.7	34.5	31.0	28.9	31.4	29.9	30.3	31.2	32.6
M35	30.1	29.3	24.9	19.0	18.2	38.9	37.4	34.6	31.5	29.7	33.0	31.1	32.3	32.9	34.0
M36	35.5	35.1	27.6	21.7	21.0	38.1	38.2	33.7	31.3	30.1	31.7	31.0	30.9	30.8	31.9
M37	32.5	30.0	25.7	20.2	19.5	38.4	36.5	33.7	31.6	30.0	34.4	32.2	33.3	33.8	35.1
M38	33.4	30.7	26.2	20.6	19.9	38.7	36.2	33.6	31.8	30.1	34.6	32.5	33.2	33.9	35.3
M39	33.1	30.4	26.0	20.5	19.8	38.5	36.1	33.6	31.7	30.0	34.6	32.4	33.4	33.9	35.3
M40	33.4	30.7	26.3	20.8	20.1	38.4	35.9	33.5	31.8	30.1	34.7	32.6	33.5	34.1	35.4
M41	33.8	31.2	26.7	21.3	20.6	38.2	35.5	33.6	32.1	30.4	35.0	33.0	34.1	34.4	35.7
M42	33.9	31.4	26.9	21.5	20.8	38.1	35.4	33.6	32.2	30.5	35.1	33.1	34.4	34.6	35.8
M43	34.2	32.2	27.2	21.8	21.0	38.6	35.7	33.6	32.3	30.5	34.8	33.0	34.1	34.5	35.8
M44	34.2	31.9	27.2	22.1	21.3	38.2	35.3	33.7	32.4	30.8	35.3	33.4	34.8	34.9	36.0
M45	34.5	31.9	27.5	22.6	21.8	38.0	35.2	33.7	32.5	31.0	35.6	33.6	35.1	35.3	36.3
M46	36.8	36.7	28.6	23.4	22.8	38.9	38.4	34.0	33.2	32.3	33.7	33.2	32.5	32.9	33.2
M47	39.3	39.1	38.7	37.8	36.4	39.3	39.1	38.7	37.8	36.4	48.1	47.8	48.3	43.6	43.4

Scenario	Day Neutral					Day/Evening Prevailing					Night Prevailing				
Year	1	4	8	15	24	1	4	8	15	24	1	4	8	15	24
Residence	Predicted Noise Level, LAeq,15min														
M48	34.5	35.3	34.8	36.0	36.2	34.5	35.3	34.8	36.0	36.2	45.1	44.1	44.9	44.0	44.6
M49	38.8	38.8	36.3	35.9	35.5	38.8	38.8	36.3	35.9	35.5	48.9	49.2	48.8	46.5	47.1
M50	30.6	30.0	30.1	31.2	31.7	30.6	30.0	30.1	31.2	31.7	43.1	42.6	43.6	45.2	46.9
M51	29.1	28.7	28.8	30.1	30.4	29.1	28.7	28.8	30.1	30.4	42.7	42.4	43.8	44.1	46.3
M52	31.6	31.7	32.2	33.8	35.3	32.5	32.3	32.5	34.0	35.4	44.2	44.0	45.0	46.2	48.8
M53	35.0	35.0	35.1	39.9	44.3	41.1	41.4	42.0	45.5	48.9	41.3	40.7	42.7	44.4	49.4
M54	32.3	31.6	32.4	38.9	41.0	42.2	41.9	43.4	47.1	50.3	40.8	39.2	42.1	43.4	48.5
M55	31.6	30.3	30.9	34.8	37.4	40.8	40.4	40.6	43.5	45.8	38.6	35.9	38.4	39.3	44.7
M56	31.8	31.5	31.8	35.4	40.3	42.2	41.4	41.7	45.4	48.4	38.1	36.0	39.6	38.9	46.2
M57	37.5	34.5	35.6	45.3	59.7	45.4	44.8	45.1	53.0	62.1	42.7	40.2	43.0	47.2	61.0
M58	34.6	31.9	27.7	23.1	22.1	37.7	35.0	33.6	32.6	31.0	36.0	33.8	35.4	35.5	36.4
M59	34.6	31.6	27.8	23.3	22.2	37.3	34.7	33.5	32.5	30.9	36.1	33.9	35.5	35.5	36.5
M60	34.6	31.6	27.9	23.6	22.4	37.1	34.5	33.4	32.4	30.8	36.2	33.9	35.6	35.6	36.5
M61	31.5	29.0	27.6	25.9	23.7	31.8	29.9	29.6	29.6	27.7	35.7	34.8	35.9	34.7	35.8
M62	31.6	29.1	27.8	26.0	23.8	31.8	29.8	29.5	29.5	27.6	35.8	34.9	36.0	34.7	35.8
M63	31.8	29.1	27.9	26.0	23.8	32.1	29.8	29.6	29.6	27.6	35.9	35.0	36.0	34.8	35.9
M64	32.0	29.3	28.1	26.1	23.9	32.2	29.8	29.5	29.5	27.5	36.0	35.1	36.1	34.9	36.0
M65	33.0	30.8	29.4	26.3	24.7	33.1	31.0	29.8	29.3	27.5	36.6	35.1	36.8	35.6	36.8
M66	33.3	31.5	29.8	26.6	25.2	33.5	31.7	30.0	29.2	27.6	36.9	35.4	37.2	36.0	37.1
M67	34.0	32.6	30.7	27.7	26.4	34.1	32.7	30.9	29.3	28.2	37.9	36.4	38.2	36.9	38.1
M68	34.6	33.4	31.3	28.5	27.1	34.7	33.6	31.6	30.4	29.0	38.4	37.2	38.6	37.4	38.5
M69	35.1	34.2	32.5	30.0	28.6	35.1	34.2	32.6	30.7	29.5	39.4	38.5	39.4	38.0	39.1
M70	36.3	36.2	34.0	31.6	30.6	36.3	36.2	34.0	31.6	30.6	40.8	39.9	40.6	39.3	40.3
M71	37.8	37.8	35.6	33.6	33.0	37.8	37.8	35.6	33.6	33.0	43.2	42.1	42.8	41.5	42.5
M72	38.3	38.5	36.8	34.7	34.2	38.3	38.5	36.8	34.7	34.2	44.8	43.8	44.5	42.7	43.7
M73	38.7	38.9	37.3	35.4	35.0	38.7	38.9	37.3	35.4	35.0	45.6	44.3	45.0	43.2	44.1
M74	38.3	38.3	36.6	35.0	34.5	38.3	38.3	36.6	35.0	34.5	46.0	44.4	44.9	43.0	43.9
M75	38.1	37.9	36.1	34.6	33.8	38.1	37.9	36.1	34.6	33.8	46.5	45.0	44.9	42.8	43.8
M76	37.0	36.6	35.2	34.0	32.8	37.0	36.6	35.2	34.0	32.8	44.4	43.1	43.7	41.6	42.7
M77	36.9	35.3	33.3	33.3	32.2	36.9	35.3	33.3	33.3	32.2	45.5	45.3	44.1	41.7	43.0
M78	35.6	34.6	32.9	33.2	32.5	35.6	34.6	32.9	33.2	32.5	45.3	45.7	44.3	41.5	42.9
M79	34.6	33.8	32.5	33.0	32.5	34.6	33.8	32.5	33.0	32.5	44.8	45.6	44.0	41.4	42.7
M80	34.2	33.1	32.3	33.1	32.6	34.2	33.1	32.3	33.1	32.6	44.6	45.5	44.1	42.0	43.1
M81	33.6	32.6	31.8	32.6	32.2	33.6	32.6	31.8	32.6	32.2	44.0	44.8	43.4	41.4	42.4
M82	31.8	31.4	31.1	33.0	32.0	31.8	31.4	31.1	33.0	32.0	43.4	44.3	43.5	42.6	43.6
M83	31.1	30.8	30.6	31.4	31.4	31.1	30.8	30.6	31.4	31.4	43.1	43.3	43.3	43.4	44.8
M84	28.5	27.9	28.2	29.0	28.9	28.5	27.9	28.2	29.0	28.9	39.4	39.4	40.0	40.0	41.3
M85	26.4	25.9	26.5	26.9	27.0	26.4	25.9	26.5	26.9	27.0	37.7	37.9	37.9	38.7	39.9
M86	26.4	25.7	26.2	26.7	26.9	26.4	25.7	26.2	26.7	26.9	37.9	37.8	38.1	38.9	40.2
M87	26.1	25.4	25.7	26.0	26.3	26.1	25.4	25.7	26.0	26.3	38.0	37.7	38.4	38.8	40.7
M88	27.3	26.4	26.6	26.7	27.0	27.3	26.4	26.6	26.7	27.0	39.1	38.7	39.6	40.2	41.8
M89	28.1	27.4	27.2	27.5	27.8	28.1	27.4	27.2	27.5	27.8	40.2	39.8	40.6	41.2	43.2
M90	23.2	22.5	23.2	23.7	23.5	23.8	22.8	23.5	23.8	23.6	37.8	36.9	37.5	38.2	41.1
M91	21.6	21.0	21.7	22.1	21.9	22.7	21.8	22.3	22.3	22.1	35.4	34.6	35.7	36.2	38.8
M92	23.6	23.9	23.2	24.3	24.9	28.4	28.7	26.8	26.2	25.9	32.0	29.8	32.9	30.5	34.2
M93	23.5	23.6	23.3	25.9	25.9	30.9	31.2	30.7	31.6	31.3	30.8	29.2	32.9	32.6	35.8
M94	31.3	30.8	31.4	35.8	38.3	40.3	40.3	40.6	44.0	46.5	38.2	36.6	39.6	39.9	45.4
M95	15.5	15.2	15.9	17.9	19.0	30.6	30.2	30.1	30.6	32.0	29.0	26.7	29.5	27.8	32.2
M96	15.7	15.3	16.1	18.2	19.3	30.6	29.9	30.1	31.3	32.9	28.3	25.8	29.4	27.5	31.8
M97	25.9	21.5	21.0	18.6	18.8	39.2	37.5	35.8	33.4	33.4	34.5	30.4	32.6	32.6	33.4

Scenario	Day Neutral					Day/Evening Prevailing					Night Prevailing				
Year	1	4	8	15	24	1	4	8	15	24	1	4	8	15	24
Residence	Predicted Noise Level, LAeq,15min														
M98	25.1	21.7	20.9	18.4	18.5	38.4	36.9	35.3	33.2	33.5	34.2	30.8	32.6	33.0	33.7
M99	25.1	21.9	21.0	18.4	18.4	38.6	37.1	35.2	32.9	33.1	34.2	30.8	32.5	33.1	33.8
M100	26.1	20.3	20.1	18.1	18.2	37.5	36.4	35.2	32.7	32.2	33.4	30.9	32.4	31.3	32.2
M101	23.9	19.9	19.5	17.4	17.6	36.0	35.1	34.6	32.6	32.1	33.3	31.6	33.1	31.8	32.4
M102	16.6	16.4	17.0	18.7	20.1	31.5	31.4	31.8	33.0	34.3	29.2	27.5	30.0	29.6	33.1
M103	16.5	16.3	17.0	18.6	19.9	31.3	31.2	31.7	32.9	34.0	28.9	27.2	29.8	29.4	32.7
M104	24.7	19.3	19.7	17.7	17.7	35.8	35.0	33.9	31.6	30.6	31.8	29.5	30.2	29.5	30.2

Table C-2
Mine Owned Properties List and Location

ID	Lot	DP	Owner	X	Y
M1	1	998238	MT PLEASANT	291543.158	6430721.426
M2	7	821183	MT PLEASANT	293369.260	6429342.057
M3	4	801249	MT PLEASANT	294850.746	6429525.159
M4	274	750926	MT PLEASANT	295910.676	6429779.658
M5	282	750926	MT PLEASANT	295934.155	6429498.241
M6	264	750926	MT PLEASANT	296401.570	6428899.967
M7	30	137297	MT PLEASANT	297118.720	6428728.660
M8	1	791576	MT PLEASANT	298080.705	6432548.820
M9	2	791576	MT PLEASANT	298466.589	6432163.185
M10	15	1112792	MT PLEASANT	298803.543	6429893.425
M11	2	706645	MT PLEASANT	299633.619	6429982.507
M12	3	629491	MT PLEASANT	297550.232	6428683.971
M13	21	554140	MT PLEASANT	298477.305	6429216.953
M14	22	554140	MT PLEASANT	298374.916	6429111.764
M15	1	544039	MT PLEASANT	298604.934	6428777.942
M16	22	1041946	MT PLEASANT	298769.578	6428487.338
M17	2	784436	MT PLEASANT	299168.438	6427664.109
M18	2	784436	MT PLEASANT	299010.514	6427485.005
M94	1	561117	MT PLEASANT	291453.640	6427227.427
M19	29	731706	BENGALLA	297293.572	6428735.861
M20	1	213293	BENGALLA	297466.084	6428685.371
M21	27	745897	BENGALLA	297644.202	6428772.333
M22	1	744333	BENGALLA	297816.713	6428724.643
M23	25	1053537	BENGALLA	298102.828	6428735.870
M24	641	554159	BENGALLA	297836.347	6428518.465
M25	24	742543	BENGALLA	298370.710	6428512.856
M26	642	554159	BENGALLA	298395.951	6428411.866
M27	51	631169	BENGALLA	299408.491	6428725.913

ID	Lot	DP	Owner	X	Y
M28	211	1070206	BENGALLA	298838.077	6428501.234
M29	210	1070206	BENGALLA	298771.654	6428444.843
M30	45	997927	BENGALLA	299846.906	6428107.118
M31	322	997929	BENGALLA	300626.452	6428177.874
M32	322	997929	BENGALLA	300548.116	6428109.648
M33	505	711996	BENGALLA	297854.578	6427742.833
M34	506	711996	BENGALLA	298445.039	6427389.385
M35	2	997931	BENGALLA	298765.406	6427327.697
M36	1	735667	BENGALLA	297631.578	6426968.610
M37	111	244160	BENGALLA	298720.424	6426867.837
M38	113	244160	BENGALLA	298639.030	6426782.698
M39	112	244160	BENGALLA	298570.090	6426778.203
M40	114	244160	BENGALLA	298567.720	6426715.262
M41	115	244160	BENGALLA	298489.912	6426616.722
M42	116	244160	BENGALLA	298457.498	6426579.119
M43	6	30438	BENGALLA	298315.150	6426595.536
M44	5	30438	BENGALLA	298377.109	6426507.794
M45	4	30438	BENGALLA	298373.217	6426397.576
M46	22	776758	BENGALLA	297163.140	6426690.897
M47	22	1072668	BENGALLA	294386.145	6425010.599
M48	101	1148907	BENGALLA	293589.514	6424751.112
M49	22	1072668	BENGALLA	294690.727	6424227.754
M50	107	43392	BENGALLA	292845.324	6423495.847
M51	20	563495	BENGALLA	292565.694	6423537.189
M52	20	563495	BENGALLA	292203.677	6424002.514
M53	1	718834	BENGALLA	291607.642	6425854.217
M54	2	561117	BENGALLA	291713.511	6427002.253
M55	106	1148907	BENGALLA	291608.516	6427562.269
M56	43	792447	BENGALLA	292030.555	6428309.547
M57	41	792447	BENGALLA	292761.533	6429070.042
M94	1	561117	BENGALLA	291453.640	6427227.427
M58	3	30438	MT ARTHUR COAL	298393.964	6426283.460
M59	2	30438	MT ARTHUR COAL	298436.751	6426203.066
M60	11	559504	MT ARTHUR COAL	298437.664	6426149.624
M61	1	403081	MT ARTHUR COAL	299156.399	6425037.313
M62	2	515936	MT ARTHUR COAL	299129.171	6424977.665
M63	1	515936	MT ARTHUR COAL	299066.932	6424991.933
M64	4	27346	MT ARTHUR COAL	298996.908	6424936.174
M65	13	27346	MT ARTHUR COAL	298603.386	6424790.316
M66	14	27346	MT ARTHUR COAL	298478.263	6424735.618
M67	16	27346	MT ARTHUR COAL	298222.805	6424634.035

ID	Lot	DP	Owner	X	Y
M68	2	387021	MT ARTHUR COAL	298102.209	6424729.986
M69	3	387021	MT ARTHUR COAL	297867.516	6424613.280
M70	1	27346	MT ARTHUR COAL	297413.681	6424308.552
M71	142	533001	MT ARTHUR COAL	296634.383	6424344.854
M72	15	228159	MT ARTHUR COAL	296098.865	6424209.992
M73	15	228159	MT ARTHUR COAL	295969.199	6424194.435
M74	15	228159	MT ARTHUR COAL	295865.466	6424036.237
M75	15	228159	MT ARTHUR COAL	295715.054	6423945.466
M76	112	246348	MT ARTHUR COAL	296022.014	6423641.797
M77	1	601359	MT ARTHUR COAL	295206.755	6423271.163
M78	3	806149	MT ARTHUR COAL	294911.117	6423055.907
M79	3	806149	MT ARTHUR COAL	294765.891	6422876.963
M80	3	806149	MT ARTHUR COAL	294516.933	6422770.635
M81	1	806149	MT ARTHUR COAL	294560.215	6422567.196
M82	159	722249	MT ARTHUR COAL	293833.124	6422439.971
M83	11	526344	MT ARTHUR COAL	293207.295	6422617.616
M84	30	787702	MT ARTHUR COAL	292724.436	6421461.276
M85	402	791860	MT ARTHUR COAL	291692.114	6421119.844
M86	402	791860	MT ARTHUR COAL	291622.261	6421389.064
M87	77	707377	MT ARTHUR COAL	291506.000	6421741.000
M88	5	29451	MT ARTHUR COAL	291881.000	6422035.000
M89	4	29451	MT ARTHUR COAL	292164.000	6422353.000
M90	A	419740	MT ARTHUR COAL	290869.713	6422548.550
M91	C	419740	MT ARTHUR COAL	290184.127	6422278.450
M92	317	703723	MT ARTHUR COAL	290775.933	6424455.232
M93	316	703723	MT ARTHUR COAL	290243.499	6424896.072
M95	2	1089306	MUSWELLBROOK COAL	288394.023	6426075.694
M96	1	1089306	MUSWELLBROOK COAL	288683.996	6426251.226