

## MOUNT PLEASANT OPERATION

### NOISE MANAGEMENT PLAN

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## 1 INTRODUCTION

The Mount Pleasant Operation (MPO) area is located in the Upper Hunter Valley of New South Wales (NSW), north-west of Muswellbrook and approximately 50 kilometres (km) north-west of Singleton (Figure 1). The villages of Aberdeen and Kayuga are located approximately 5 km north-northeast and 1 km north of the MPO boundary, respectively.

The development application for the MPO was made in 1997. This was supported by an Environmental Impact Statement (EIS) prepared by Environmental Resources Management (ERM) Mitchell McCotter (ERM Mitchell McCotter, 1997). On 22 December 1999, the then Minister for Urban Affairs and Planning granted Development Consent DA 92/97 to Coal & Allied Operations Pty Ltd. This allowed for the “Construction and operation of an open cut coal mine, coal preparation plant, transport and rail loading facilities and associated facilities” at Mount Pleasant. The consent allowed for the extraction of 197 million tonnes of run of mine (ROM) coal over a 21 year period, at a rate of up to 10.5 million tonnes of ROM coal per year.

The MPO Modification (MOD 1) was submitted for approval on 19 May 2010 with a supporting Environmental Assessment (EA) prepared by EMGA Mitchell McLennan (EMGA Mitchell McLennan, 2010), with the following changes proposed:

- The provision of an infrastructure envelope for siting the mine infrastructure.
- The provision of an optional conveyor/service corridor linking the MPO facilities with the Muswellbrook-Ulan Rail Line.
- Modification of the existing development consent boundaries to accommodate the optional conveyor/service corridor and minor administrative boundary changes.

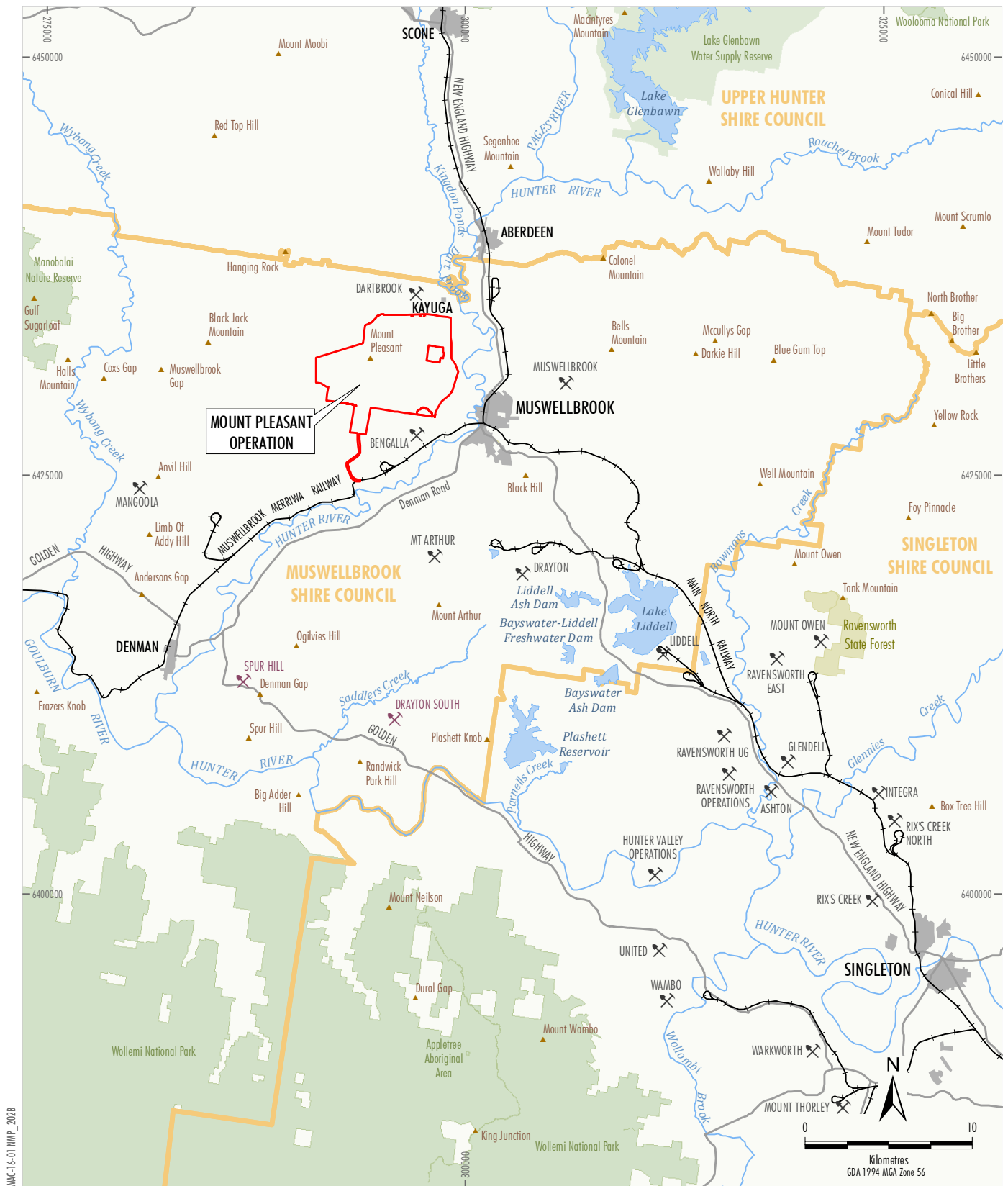
MOD 1 was approved on 19 September 2011.

The MPO South Pit Haul Road Modification (MOD 2) was submitted for approval on 30 January 2017 with a supporting EA prepared by MACH Energy Australia Pty Ltd (MACH Energy) (MACH Energy, 2017).

MOD 2 proposed to realign an indicative internal haul road to enable more efficient access to the South Pit open cut, with no other material changes to the approved MPO.

MOD 2 was approved on 29 March 2017.

The proponent of the MPO is MACH Energy, who purchased the MPO from Coal & Allied Operations Pty Ltd on 26 January 2016 and the acquisition was completed in August 2016.



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Project Location

Figure 1

## 2 PURPOSE AND SCOPE

This Noise Management Plan (NMP) has been prepared by MACH Energy to satisfy the requirements of Condition 9, Schedule 3 of Development Consent DA 92/97 (as modified) (Table 1).

**Table 1**  
**Specific Development Consent Conditions**

MPO Development Consent DA 92/97 Schedule 3	Section Where Addressed in this NMP
<p>9. The Applicant must prepare a Noise Management Plan for the development to the satisfaction of the Secretary. The plan must:</p> <p>(a) be submitted to the Secretary for approval prior to carrying out any development on site;</p> <p>(b) describe the noise mitigation measures that would be implemented to ensure compliance with the relevant conditions of this consent, including a real-time noise management system that employs both reactive and proactive mitigation measures;</p> <p>(c) include a noise monitoring program that:</p> <ul style="list-style-type: none"> <li>• uses a combination of real-time and supplementary attended monitoring to evaluate the performance of the development;</li> <li>• includes a protocol for determining exceedances of the relevant conditions of this consent; and</li> </ul> <p>(d) include a protocol that has been prepared in consultation with the owners of the nearby mines (including the Bengalla mine) to minimise the cumulative noise impacts of the mines.</p> <p>The Applicant must implement the approved management plan as approved from time to time by the Secretary.</p>	<p>This document</p> <p>This document is to be approved by the Department of Planning and Environment (DP&amp;E)</p> <p>Sections 7, 8, 9 and 10</p> <p>Section 9</p> <p>Sections 9.2 and 9.3</p> <p>Section 9.2.5</p> <p>Section 8.6</p>

This NMP describes the management of noise associated with construction and operation of the MPO, in accordance with Development Consent DA 92/97.

The NMP applies to the life of the MPO, including (but not limited to) the period of mining operations specified in Development Consent DA 92/97, which currently permits mining until 22 December 2020. As required by Condition 5, Schedule 2 of Development Consent DA 92/97, the NMP will continue to apply (excluding mining operations) beyond 22 December 2020, as required, until the rehabilitation and any additional undertakings (required by the Secretary of the NSW DP&E, or the Resources and Mining Division within the DPE) have been carried out satisfactorily.

### 2.1 PREVIOUS VERSIONS

A previous version of the NMP was submitted by Coal & Allied as a Construction Noise Management Plan (CNMP) and was approved in 2012. The CNMP was submitted as a staged plan limited to the construction stage of the project, excluding any coal handling and processing.

A revised version of the CNMP was submitted by Coal & Allied in 2015 and approved on 2 December 2015. As per the previous version of the CNMP, this plan was limited to construction activities at the MPO, excluding the development of the box-cut and any activities related to the extraction of coal.

## **2.2 CURRENT VERSION**

This version of the NMP has been prepared to replace the CNMP described in Section 2.1. Accordingly, and consistent with Condition 9, Schedule 3 of Development Consent DA 92/97, this version of the NMP has been prepared to allow for both construction and operation of the MPO.



### **3      FORMAT OF THE PLAN**

This NMP consists of the following sections:

- Section 1:      Introduction.
- Section 2:      Purpose and Scope – describes particular components of this NMP as specified in the development consent conditions.
- Section 3:      Format of the Plan.
- Section 4:      Statutory Obligations – MACH Energy's statutory requirements and other obligations applicable to this NMP.
- Section 5:      Existing Environment – outlines the existing environment including baseline data and sensitive receptors in the vicinity of the MPO.
- Section 6:      Noise Criteria – outlines the relevant noise criteria applicable to the MPO.
- Section 7:      Performance Indicators – outlines the specific performance indicators that MACH Energy proposes to use to guide the implementation of the noise management measures and judge their performance.
- Section 8:      Noise Management and Control Measures – describes the noise management and control measures to be implemented for the MPO.
- Section 9:      Noise Monitoring Program – outlines the noise monitoring program components including nominal locations, frequency and parameters.
- Section 10:     Contingency Plan – provides a contingency plan to manage unprecedented impacts and their consequences.
- Section 11:     Review and Improvement of Environmental Performance – provides details of the review process (through the Annual Review and revisions of this NMP) and improvement of the environmental performance of the MPO (through the Independent Environmental Audit and revisions of this NMP).
- Section 12:     Reporting Procedures – describes the management and reporting of incidents, complaints and non-compliances.
- Section 13:     References – provides references cited in this NMP.

## 4 STATUTORY OBLIGATIONS

MACH Energy's statutory obligations are contained in:

- the conditions of Development Consent DA 92/97 (as modified);
- the conditions of the Commonwealth Approval (EPBC 2011/5795);
- relevant licences (including Environment Protection Licence [EPL] 20850), permits and mining leases (MLs) (ML 1645, ML 1708, ML 1709 and ML 1713); and
- other relevant legislation.

Obligations relevant to this NMP are described below.

### 4.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT DEVELOPMENT CONSENT

The conditions of Development Consent DA 92/97 relevant to the content and structure of this NMP are described below. A comprehensive list of all conditions in Development Consent DA 92/97 relevant to noise is provided in Appendix A.

#### 4.1.1 Noise Management Plan Requirements

Condition 9, Schedule 3 of Development Consent DA 92/97 requires the preparation of a NMP (refer Table 1).

#### 4.1.2 Management Plan (General) Requirements

Condition 2, Schedule 5 of Development Consent DA 92/97 outlines the general management plan requirements that are also applicable to the preparation of this NMP. Table 2 presents these requirements and indicates where each is addressed within this NMP.

**Table 2**  
**General Development Consent Conditions**

MPO Development Consent DA 92/97 Schedule 5	NMP Section
2. The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:	
(a) detailed baseline data;	Section 5
(b) a description of:	
• the relevant statutory requirements (including any relevant consent, licence or lease conditions);	Section 4
• any relevant limits or performance measures/criteria;	Section 6
• 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;	Section 7
(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Sections 7, 8, 9 and 10

**Table 2 (Continued)**  
**General Development Consent Conditions**

MPO Development Consent DA 92/97 Schedule 5	NMP Section
(d) a program to monitor and report on the: <ul style="list-style-type: none"> <li>• impacts and environmental performance of the development;</li> <li>• effectiveness of any management measures (see c above);</li> </ul>	Section 11
(e) a contingency plan to manage any unpredicted impacts and their consequences;	Section 10
(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 11
(g) a protocol for managing and reporting any: <ul style="list-style-type: none"> <li>• incidents;</li> <li>• complaints;</li> <li>• non-compliances with statutory requirements; and</li> <li>• exceedances of the impact assessment criteria and/or performance criteria; and</li> </ul>	Section 12 Section 12.1 Section 12.2 Section 12.3 Section 12.3
(h) a protocol for periodic review of the plan.	Section 11.2
<i>Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</i>	

## 4.2 LICENCES, PERMITS AND LEASES

Activities at the MPO will be managed in accordance with a number of licences, permits and leases which have been issued or are pending issue.

Key licences, permits and leases pertaining to noise at the MPO include:

- EPL 20850 issued under Part 3 of the *NSW Protection of the Environment Operations Act, 1997* (POEO Act) by the NSW Environment Protection Authority (EPA).
- Mining Operations Plan.

## 4.3 OTHER LEGISLATION

Other NSW Acts and Regulations that may be applicable to noise at the MPO include, but are not limited to, the:

- *Roads Act, 1993*;
- *Work Health and Safety Act, 2011*;
- *Work Health and Safety Regulation, 2011*;
- *Work Health and Safety (Mines) Act, 2013*; and
- *Work Health and Safety (Mines) Regulation, 2014*.

Other guidelines and standards that were considered during the preparation of this NMP include:

- *NSW Industrial Noise Policy (INP) (EPA, 2000);*
- *Application Notes – INP (EPA, 2013);*
- *Interim Construction Noise Guideline (ICNG) (EPA, 2009);*
- *Draft Industrial Noise Guideline (EPA, 2015);*
- *Voluntary Land Acquisition and Mitigation Policy (DPE, 2014).*
- *Australian Standard (AS) 2659.1-1998 Guide to the use of sound measuring equipment – Portable sound level meters;*
- *AS 1259.2-1990 Acoustics – Sound level meters Integrating – Averaging;*
- *AS 2012.1-1990 Acoustics – Measurement of airborne noise emitted by earth-moving machinery and agricultural tractors – Stationary test condition Determination of compliance with limits for exterior noise; and*
- *AS 1055.1-1997 Acoustics – Description and measurement of environmental noise General procedures.*

## 5 EXISTING ENVIRONMENT

### 5.1 BASELINE DATA

#### 5.1.1 1997 Environmental Impact Statement Representative Background Noise Levels

The EIS prepared in 1997 (ERM Mitchell McCotter, 1997) included long term noise monitoring data at seven representative residential locations. Section 12.1 of the EIS describes the surrounding environment and details the baseline noise survey undertaken at that time. Representative background noise levels were then determined for the EIS using the 90<sup>th</sup> percentile of measured L<sub>A90</sub> noise levels. While the levels were not determined consistent with the INP (as the EIS predated the INP), the background noise levels adopted in the EIS are provided in Table 3.

**Table 3**  
**Representative Background Noise Levels Adopted for the**  
**Environmental Impact Statement – 1997**

Location		90 <sup>th</sup> Percentile L <sub>A90</sub> , dB(A)	
Name	Relative to Site	Day (7.00 am to 10.00 pm)	Night (10.00 pm to 7.00 am)
Location 1	North-east (Kayuga)	30	30
Location 2	East (Kayuga Rd)	30	29
Location 3	East (Wybong Rd)	30	32
Location 4	East (Muswellbrook)	38	30
Location 5	South-east (Muswellbrook)	34	32
Location 6	North-east (Kayuga)	32	34
Location 7	South-east (Muswellbrook)	42	41

Source: ERM Mitchell McCotter, 1997.

dB(A) = A weighted decibels.

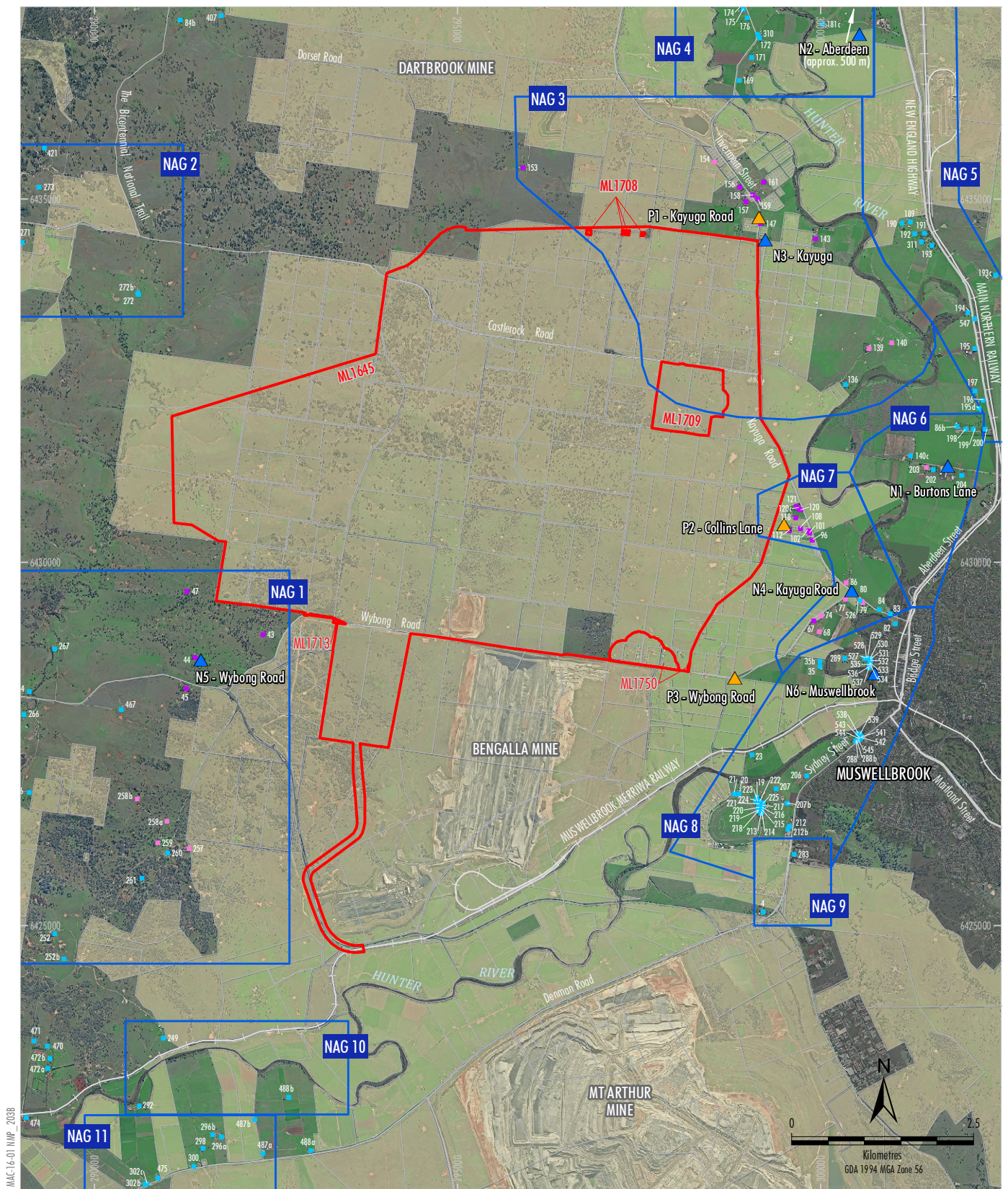
#### 5.1.2 2010 Environmental Assessment Report Rating Background Levels

In 2000, the EPA (the then Department of Environment, Climate Change and Water) released the INP, which provides guidelines for determining the rating background level (RBL).

The MOD 1 EA prepared in 2010 (EMGA Mitchell McLennan, 2010) utilised unattended noise monitoring results from ongoing MPO baseline surveys. The MOD 1 EA utilised monitoring data collected in 2009 at locations considered representative of groupings of private receivers based on background noise levels, described as Noise Assessment Groups (NAGs) (Figure 2).

The RBLs measured for the MOD 1 EA were generally comparable to the representative background levels determined for the EIS (EMGA Mitchell McLennan, 2010). The RBLs measured for the MOD 1 EA are detailed in Table 4.





#### LEGEND

- Mining Lease Boundary
- Mine Owned
- Privately-owned Residence - MPO Acquisition on Request
- Privately-owned Residence - MPO Mitigation on Request
- Other Privately-owned Residence
- Noise Assessment Group (NAG) (DA 92/97)
- Previous Noise Monitoring Site
- ▲ Q1, 2006 - Q1, 2007
- ▲ Q3, 2007 - Q3, 2014

Source: NSW Land & Property Information (2017); NSW Department Resources & Energy (2017); MACH Energy (2017)  
 Orthophoto: MACH Energy (Aug 2016)

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 Previous Noise Monitoring Sites

Figure 2



**Table 4**  
**Rating Background Levels Measured for the Environmental Assessment – 2010**

Location		Measured RBL, dB(A) <sup>1</sup>		
Name	Relative to Site	Day	Evening	Night
Burtens Lane	Far east (north of Muswellbrook), near the New England Highway	32	37	32
Aberdeen	North-east	32	34	31
Kayuga	North north-east	30	30	30
Kayuga Road	North-east	35	38	32
Wybong Road	South-west, conveyor area	30	30	30
Muswellbrook	South-east	36	40	34
Racecourse Road	South-east	38	37	36
Yammanie	South-east (south-east of Racecourse)	34	33	32
East Antiene, New England Highway	South-east (applies to residences near New England Highway east of site)	36	35	34

Source: EMGA Mitchell McLennan, 2010.

Notes:

<sup>1</sup> Where RBL values below 30 dB(A) were measured, the INP's minimum recommended background of 30 dB(A) was adopted.

### 5.1.3 Operator-attended Monitoring

Operator-attended noise monitoring has been conducted quarterly around the site to quantify and characterise the existing noise environment prior to the mine being established.

Operator-attended monitoring was conducted in accordance with the INP (EPA, 2000) and AS 1055 'Acoustics, Description and Measurement of Environmental Noise'. Meteorological parameters were also measured at the time of monitoring.

Operator-attended monitoring was undertaken quarterly throughout 2006 and in Quarter 1 of 2007 at three locations around the site. The historical operator-attended monitoring locations were (Figure 2):

- P1 – Little Acres, Kayuga Road, Kayuga;
- P2 – Collins Lane; and
- P3 – Wybong Road near the intersection with Logues Lane.

Operator-attended monitoring locations were revised and expanded in the second half of 2007 (i.e. Quarter 3 onwards) and operator-attended monitoring was conducted at these locations quarterly (until Quarter 3, 2014). The revised historical operator-attended monitoring locations were (Figure 2):

- N1 – Burtens Lane, Muswellbrook (Burtens Lane);
- N2 – Gordon Street, Aberdeen (Aberdeen);
- N3 – Little Acres, Kayuga Road, Kayuga (Kayuga);
- N4 – Corner of Kayuga and Wybong Roads, Muswellbrook (Kayuga Road);
- N5 – 1232 Wybong Road (Wybong Road); and
- N6 – Corner of Brooks and Scott Streets, Muswellbrook (Muswellbrook).

The duration for each measurement was 15 minutes. Monitoring was carried out once at each monitoring site during the night period. A combination of road noise, rail movements, mine noise from active mining operations and rural noise sources including insects and frogs generally dominated the acoustic environment at most locations.

Noise monitoring was not undertaken during the period Quarter 4 of 2014 to Quarter 4 of 2016. Regular operator-attended noise monitoring re-commenced in Quarter 4 of 2016.

### ***Summary of Attended Monitoring Results***

Detailed results for the operator-attended monitoring conducted from Quarter 1 of 2006 until Quarter 1 of 2007 (including  $L_{A10}$ ,  $L_{Aeq}$  and  $L_{A90}$ ) are provided in Tables B1 to B3 (Appendix B) (Coal & Allied, 2007; 2008). Detailed results for the operator-attended monitoring conducted from Quarter 3 of 2007 until Quarter 3 of 2014 (including  $L_{A1}$ ,  $L_{A10}$ ,  $L_{Aeq}$  and  $L_{A90}$ ) are provided in Tables B4 to B9 and Figures B1 to B6 (Appendix B) (Coal & Allied, 2008, 2009; 2010; 2011; 2012; 2013; 2014; 2015).

Monitoring undertaken at N1 (Burtons Lane) indicated noise levels ( $L_{Aeq}$ ) varied throughout the monitoring period, ranging from approximately 26 decibels (dB) to 57 dB. Results typically ranged between 40 and 50 dB although noise levels dropped significantly in 2014 compared to previously recorded levels (see Appendix B, Table B4 and Figure B1).

Monitoring undertaken at N2 (Aberdeen) indicated noise levels ( $L_{Aeq}$ ) were relatively consistent throughout the monitoring period, ranging from approximately 35 dB to 49 dB (typically around 42 dB), with a slow decline evident throughout the monitoring period (see Appendix B, Table B5 and Figure B2).

Monitoring undertaken at N3 (Kayuga) indicated noise levels ( $L_{Aeq}$ ) were relatively consistent throughout the monitoring period, ranging from approximately 31 dB to 42 dB (typically around 37 dB) (see Appendix B, Table B6 and Figure B3).

Monitoring undertaken at N4 (Kayuga Road) indicated noise levels ( $L_{Aeq}$ ) were relatively consistent throughout the monitoring period, ranging from approximately 32 dB to 48 dB (typically around 39 dB) (see Appendix B, Table B7 and Figure B4).

Monitoring undertaken at N5 (Wybong Road) indicated noise levels ( $L_{Aeq}$ ) fluctuated throughout the monitoring period, ranging from approximately 19 dB to 49 dB (see Appendix B, Table B8 and Figure B5).

Monitoring undertaken at N6 (Muswellbrook) indicated noise levels ( $L_{Aeq}$ ) were relatively consistent throughout the monitoring period, ranging from approximately 32 dB to 56 dB (typically around 41 dB), with recorded levels generally increasing over time (see Appendix B, Table B9 and Figure B6).

## **5.2 SENSITIVE RECEPTORS AND NOISE ASSESSMENT GROUPS**

Subsequent to the issue of the Modified Development Consent DA 92/97 in September 2011, land ownership in the vicinity of the MPO has changed. For example, a number of formerly privately-owned residences have been acquired by various mining operations.

An expanded list of noise sensitive residences (compared to that assessed in the MOD 1 EA), based on contemporary land ownership and site validation by MACH Energy, is provided in Appendix C. It is noted that this validation has identified some additional private receptors that are not currently included in Development Consent DA 92/97.



As such, the NAGs described in Development Consent DA 92/97 do not account for current knowledge of land ownership in the vicinity of the MPO. If Development Consent DA 92/97 is to be modified in the future, MACH Energy would request that the NSW DP&E update the NAGs to reflect contemporary land ownership.

The receptors sensitive to noise impacts from activities associated with the MPO are shown on Figure 3.

### **5.3 NOISE GENERATING ACTIVITIES**

#### **5.3.1 Construction**

The key noise generating activities/equipment from the construction of the MPO will be as follows:

- the realignment of Wybong Road;
- the rail spur and loop construction;
- the Mine Infrastructure Area; and
- the 66 kilovolt power line realignment.

Operations at the MPO are approved for 24 hours per day, 7 days per week. The ICNG (EPA, 2009) refers to standard construction hours as being 7.00 am to 6.00 pm Monday to Friday, 8.00 am to 1.00 pm Saturdays and no work on Sundays or public holidays.

MACH Energy will conduct construction activities during ICNG standard construction hours with no restrictions on the type of activities conducted or the location of works (as long as the relevant Development Consent DA 92/97 noise criteria are not exceeded).

However, in order to reduce the duration of construction activities on-site, construction activities would also occur outside of the ICNG standard construction hours (i.e. during the afternoon on Saturday, on Sunday and during the evening and night) (out of hours construction activities).

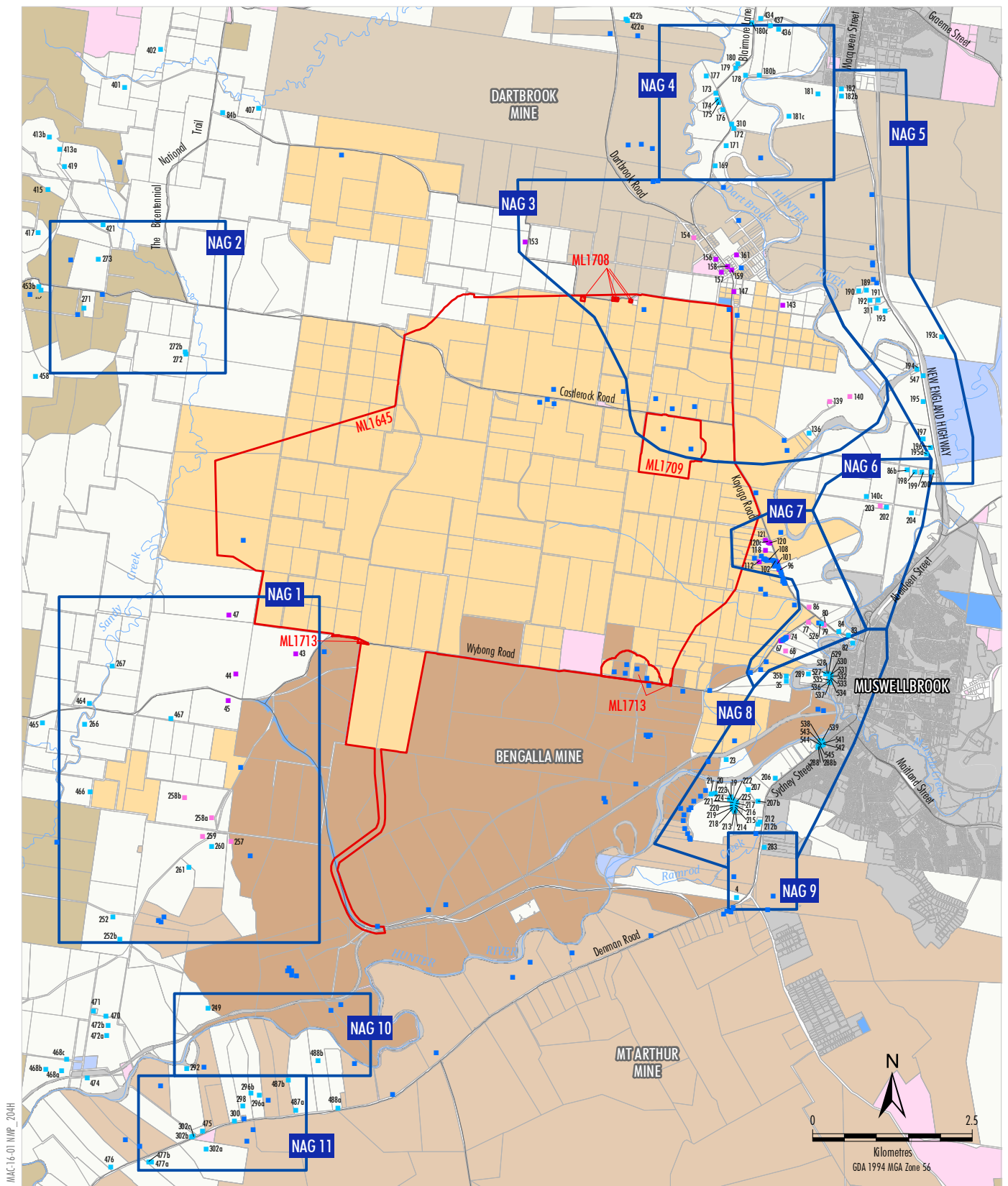
Out of hours construction activities will be constrained according to the nature of the activities and the proximity to privately-owned receivers as described in Table 5.

Out of hours construction activities would be undertaken initially for a three month period. During this period, monthly reports will be provided to the DP&E that summarise:

- construction noise-related complaints received within the period, if any;
- the Category A and B (Table 5) equipment used for out of hours construction activities;
- the frequency of Category A and B (Table 5) out of hours construction activities; and
- monitoring results from additional attended monitoring conducted specifically to assess noise levels during Category A and B (Table 5) out of hours construction activities.

The additional attended monitoring will be undertaken on at least six occasions during the initial three month period, when out of hours construction activities are occurring.

Additional out of hours construction periods, i.e. following the initial three month period, will be subject to DP&E approval via written notification.



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- LEGEND**
- Mining Lease Boundary
  - Mine-owned Dwelling
  - Privately-owned Residence - MPO Acquisition on Request
  - Privately-owned Residence - MPO Mitigation on Request
  - Other Privately-owned Residence
  - Noise Assessment Group (NAG) (DA 92/97)

- Muswellbrook and Upper Hunter LEPs Zones B2, B5, IN1, SP2, R2, R5, RE1, RE2 and W1
- Crown
- The State of NSW
- Muswellbrook Shire Council
- Mount Pleasant Controlled
- Bengalla Controlled
- Dartbrook Controlled
- Mt Arthur Controlled
- Other Mining/Resource Company Controlled
- Privately Owned Land

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); MACH Energy (2017)

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Relevant Sensitive Receivers  
and Noise Assessment Groups

Figure 3

**Table 5**  
**Out of Hours Construction Activities Constraints**

Construction Activity Category	Audibility at Nearest Privately-owned Receivers	Out of Hours Period	Indicative Construction Activities	Example Noise Sources	Minimum Out of Hours Setback Distance
A	Potentially audible – may potentially be considered intrusive	<b>Daytime:</b> Saturday afternoon (1.00 pm to 6.00 pm)  Sunday (8.00 am to 4.00 pm)	<ul style="list-style-type: none"> <li>• Use of tracked mobile equipment (e.g. vegetation clearance)</li> <li>• Drilling and piling</li> </ul>	<ul style="list-style-type: none"> <li>• Tracked dozer</li> <li>• Drill rig</li> <li>• Piling rig</li> </ul>	1.5 km from privately-owned receivers
B	Potentially audible – unlikely to be considered intrusive	<b>Daytime:</b> Saturday afternoon (1.00 pm to 6.00 pm)  Sunday (8.00 am to 4.00 pm)	<ul style="list-style-type: none"> <li>• Rail track laying activities</li> <li>• Development of site infrastructure (e.g. buildings, roads, rail bridge)</li> <li>• General building construction</li> </ul>	<ul style="list-style-type: none"> <li>• Tamping machine</li> <li>• Grader</li> <li>• Wheeled front end loader</li> <li>• Crane</li> <li>• Crusher</li> <li>• Delivery truck</li> </ul>	1 km from privately-owned receivers
C	Typically not audible	<b>Daytime:</b> Any out of hours periods  <b>Evening/Night:</b> Any out of hours periods	<ul style="list-style-type: none"> <li>• Activities requiring the use of hand-held tools (e.g. welding, electrical work)</li> <li>• Maintenance activities</li> <li>• Work/plant inside CHPP buildings</li> <li>• Receiving/unloading deliveries</li> </ul>	<ul style="list-style-type: none"> <li>• Hand tools</li> <li>• Light vehicles</li> <li>• Generator</li> <li>• Lighting plant</li> <li>• Pumps</li> <li>• Road trucks</li> </ul>	Not applicable

It is noted that MACH Energy will not rely on the ICNG noise management levels for construction activities and will instead apply Development Consent DA 92/97 noise criteria to all construction and operational activities.

Subject to the minimum out of hours setback distances described in Table 5, out of hours daytime construction activities would be the same as those to be conducted during ICNG standard construction hours, such as relatively noisier activities involving mobile plant (e.g. bulk earthworks).

The constraints described in this section would be adopted until open cut mining commences. Once open cut mining commences, the MPO will be considered in the operational phase and the restrictions on construction activities presented in this section would no longer apply and Development Consent DA 92/97 would be used to regulate all on-site noise generating activities.

### 5.3.2 Operation

The key noise generating activities/equipment from the operation of the MPO will be as follows:

- drills;
- excavators;
- loaders;
- haul trucks;
- dozers;
- scrapers;
- other mobile fleet;
- fixed plant (e.g. CHPP); and
- rail loading facilities.

The approved hours of operation for these activities are shown in Table 6.

**Table 6**  
**Hours of Operation**

Operation	Description	Currently Approved
On-site	Mine maintenance, operation, coal handling	24 hours a day, 7 days a week
Off-site	Rail traffic	
	Road traffic	

Blasting related noise is addressed in the Blast Management Plan.

## 6 NOISE CRITERIA

### 6.1 DEVELOPMENT CONSENT DA 92/97

#### 6.1.1 Noise Criteria

Condition 3, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to ensure the noise generated by the MPO does not exceed the criteria in Table 7 at any residence on privately-owned land or on more than 25% of any privately-owned land.

The criteria specified in Table 7 do not apply to the noise-affected land subject to acquisition upon request conditions (Section 6.1.3). It is noted that the nearest private receivers to the MPO fall within this category (Figure 3). These criteria also do not apply if MACH Energy has a written agreement with the relevant landowner to exceed the criteria, and MACH Energy has advised the DP&E in writing of the terms of this agreement.

**Table 7**  
**Noise Criteria (dBA)**

Location		Day	Evening	Night	
		L <sub>Aeq</sub> (15min)	L <sub>Aeq</sub> (15min)	L <sub>Aeq</sub> (15min)	L <sub>A1</sub> (1min)
NAG 1 <sup>1</sup>	260, 261	37	37	37	45
	258 <sup>2</sup>	40	40	40	45
	259	39	39	39	45
	All other privately-owned land	35	35	35	45
NAG 2	272	36	36	36	45
	All other privately-owned land	35	35	35	45
NAG 3 <sup>1</sup>	139, 154, 240 <sup>2</sup>	40	40	40	45
	241 <sup>2</sup>	39	39	39	45
	All other privately-owned land	35	35	35	45
NAG 4	169	36	36	36	45
	All other privately-owned land	35	35	35	45
NAG 5	All privately-owned land	41	40	39	45
NAG 6 <sup>1</sup>	205 <sup>2</sup>	41	41	41	45
	203, 242 <sup>2</sup>	40	40	40	45
	202	39	39	39	45
	204	38	38	38	45
	All other privately-owned land	37	37	37	45
NAG 7 <sup>1</sup>	68, 74, 279 <sup>2</sup>	43	42	42	45
	86, 290 <sup>2</sup>	42	42	42	45
	77	42	41	41	45
	79, 80, 231 <sup>3</sup>	41	41	41	45
	78 <sup>2</sup>	41	40	40	45
	All other privately-owned land	40	37	37	45

**Table 7 (Continued)**  
**Noise Criteria (dBA)**

Location		Day	Evening	Night	
		L <sub>Aeq</sub> (15min)	L <sub>Aeq</sub> (15min)	L <sub>Aeq</sub> (15min)	L <sub>A1</sub> (1min)
NAG 8	35	42	41	41	45
	289	41	40	40	45
	23, 84	40	40	40	45
	All other privately-owned land	41	39	39	45
NAG 9	All privately-owned land	39	38	37	45
NAG 10	All privately-owned land	35	35	35	45
NAG 11	All privately-owned land	37	36	35	45
All other privately-owned land		35	35	35	45

Source: Development Consent DA 92/97.

Notes:

- <sup>1</sup> The MOD 1 EA predicted maximum noise levels of 40 dBA at Receiver 257 (located in NAG 1), 39 dBA at Receiver 140 (located in NAG 3), 38 dBA at Receiver 198 (located in NAG 6) and 42 dBA at Receiver 83 (located in NAG 7). While these MOD 1 EA predictions are not reflected in Table 7, Receivers 257 and 140 are entitled to noise mitigation upon request under Development Consent DA 92/97.
  - <sup>2</sup> Following a detailed investigation conducted during the preparation of this NMP, it was established that these Receivers are no longer present/inhabited.
  - <sup>3</sup> Following a detailed investigation conducted during the preparation of this NMP, it was established that Receiver 231 is now an uninhabited mine-owned property.
- To identify the locations referred to in Table 7, see Figure 2; and
  - Noise generated by the development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW INP.

### 6.1.2 Cumulative Noise Criteria

Condition 5, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to implement all reasonable and feasible measures to ensure the noise generated by the MPO combined with the noise generated by other mines in the area does not exceed the criteria in Table 8 at any residence on privately-owned land or on more than 25% of privately-owned land. These criteria do not apply to the noise-affected land subject to acquisition upon request conditions (Section 6.1.3)

**Table 8**  
**Cumulative Noise Criteria (dBA)**

Location	Day	Evening	Night
	L <sub>Aeq</sub> (period)	L <sub>Aeq</sub> (period)	L <sub>Aeq</sub> (period)
NAG 8, 9	55	45	40
All other privately-owned land	50	45	40

Source: Development Consent DA 92/97.

Notes:

- To identify the locations referred to in Table 8, see Figure 2; and
- Cumulative noise is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW INP.

### 6.1.3 Acquisition Criteria

Condition 1, Schedule 3 of Development Consent DA 92/97 requires MACH Energy, upon receiving a written request for acquisition from the owner of the land listed in Table 9, to acquire the land in accordance with the procedures in Condition 6 and Condition 7, Schedule 4 of Development Consent DA 92/97.

**Table 9**  
**Land Subject to Acquisition Upon Request**

Receiver	Receiver
43, 44 – J. B. Moore	143, 161, 237 <sup>3</sup> – J.S. & N.M. Lonergan
45 – B.A. & T.E. Strachan	147 – M.J. & R.G. Adnum
47 – B.L. & M.L. Bates	156 – J.E. & J.L. Lonergan
67 – J.M. Simpson	158 – J.M. Hoath
96 – R.P. Grey	159, 236 <sup>3</sup> – J.E. & M.S. Ducey
101 – C. Austin <sup>1</sup> (J.R. & G.P. Mitchell)	129 – R.M. & S.D. Fanell <sup>2</sup> (MACH Energy)
102 – A. Mather	130 – M.J. Farrell <sup>2</sup> (MACH Energy)
107 – B.L. Wilton <sup>2</sup> (MACH Energy)	135, 309 – K.J. & G.M. Yore <sup>2</sup> (MACH Energy)
108 – J.S. Gibson	146 – C.R. & N.J. Hoath <sup>3</sup>
112 – B.D. Barry	153 – G.M. Casey
118 – J. & C. Hayes	157 – R.B. Parkinson & S.A. Peberdy
120, 308 – D.L. & P.A. Moore	229 – C. Horne <sup>3</sup>
121 – C & J.M. Moore	263 – R.R. & J.M. Hamilton <sup>2</sup> (MACH Energy)
137, 138 A – D.H. MacIntyre <sup>3</sup>	C – P.M. Yore <sup>2</sup> (MACH Energy)
D – S. Yore <sup>2</sup> (MACH Energy)	

Source: Development Consent DA 92/97.

Notes:

- To identify the locations referred to in Table 9, see Figure 2; and
  - All land is noise affected, except Receiver 67 which is air quality affected.
- <sup>1</sup> It is noted that Receiver 101 is now owned by JR & GP Mitchell.
- <sup>2</sup> It is noted that these receivers are now owned by MACH Energy.
- <sup>3</sup> It is noted that following investigation, no dwellings appear to be present at the locations of these previously identified receivers (e.g. habitable building not present, building abandoned, or building used for commercial purposes).

Condition 4, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to acquire the relevant land in Table 10 in accordance with the procedures in Condition 6 and Condition 7, Schedule 4 of Development Consent DA 92/97, if:

- the noise generated by the MPO exceeds the criteria in Table 10 at any residence on privately-owned land or on more than 25 percent of any privately-owned land; and
- MACH Energy receives a written request for acquisition from the landowner.

**Table 10**  
**Noise Acquisition Criteria (dBA)**

Location	Day	Evening	Night
	L <sub>Aeq</sub> (15min)	L <sub>Aeq</sub> (15min)	L <sub>Aeq</sub> (15min)
All privately-owned land in NAG 1, NAG 2, NAG 3, NAG 4, and NAG 10	40	40	40
All privately-owned land in NAG 5	46	45	44
All privately-owned land in NAG 6	42	42	42
All privately-owned land in NAG 7	45	42	42
All privately-owned land in NAG 8	46	44	44
All privately-owned land in NAG 9	44	43	42
All privately-owned land in NAG 11	42	41	40
All other privately-owned land	40	40	40

Source: Development Consent DA 92/97.

Notes:

- To identify the locations referred to in Table 10, see Figure 2;
- Noise generated by the development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW INP; and
- For this condition to apply, the exceedances of the criteria must be systematic.

Condition 6, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to acquire the land in Table 11 on as equitable a basis as possible with the relevant mines in accordance with the procedures in Condition 6 and Condition 7, Schedule 4 of Development Consent DA 92/97, if:

- the noise generated by the MPO combined with the noise generated by other mines in the area exceeds the criteria in Table 11 at any residence on privately-owned land or on more than 25% of privately-owned land; and
- MACH Energy receives a written request for acquisition from the landowner.

**Table 11**  
**Cumulative Noise Acquisition Criteria (dBA)**

Location	Day	Evening	Night
	L <sub>Aeq</sub> (period)	L <sub>Aeq</sub> (period)	L <sub>Aeq</sub> (period)
NAG 8, 9	60	50	45
All other privately-owned land	55	50	45

Source: Development Consent DA 92/97.

Notes:

- To identify the locations referred to in Table 11, see Figure 2;
- Cumulative noise is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW INP; and
- For this condition to apply, the exceedances of the criteria must be systemic.



### 6.1.4 Additional Mitigation Criteria

Condition 2, Schedule 3 of Development Consent DA 92/97 requires MACH Energy, upon receiving a written request from the owner of any residence on the land listed in Table 9 or Table 12, to implement additional noise and/or dust mitigation measures (such as double-glazing, insulation, air filters, first flush roof water drainage system and/or air conditioning) at the residence in consultation with the landowner. These measures must be reasonable and feasible<sup>1</sup> and related to the noise and/or dust impacts on the residence.

**Table 12**  
**Land Where Additional Noise Mitigation Measures are Available on Request**

Receiver	Receiver
68 <sup>1</sup> – Googe	203 – Millard
74 – Sormaz	205 – Dapkos Pty Ltd <sup>3</sup>
77 – Purser	231 – Wicks <sup>2</sup> (MACH Energy)
78 <sup>3</sup> , 80 – W.J. Adnum	240 – MacIntyre <sup>3</sup>
79 – W.J. & D.W. Adnum	242 – Raphael <sup>3</sup>
86, 290 <sup>3</sup> – Cowtime Investments Pty Ltd	257 – Lane
139 – Upton	258 – Ellis
140 – Dapkos Pty Limited	259 – Peel
154 – Standing	279 – Parkinson <sup>3</sup>

Source: Development Consent DA 92/97.

Note: To identify the locations referred to in Table 12, see Figure 2.

<sup>1</sup> At the time of writing, this receiver has submitted a written request for acquisition to MACH Energy.

<sup>2</sup> It is noted that this receiver is now owned by MACH Energy.

<sup>3</sup> It is noted that following investigation, no dwellings appear to be present at the locations of these previously identified receivers (e.g. habitable building not present, building abandoned, or building used for commercial purposes).

If MACH Energy and the owner cannot agree on the measures to be implemented within three months of receiving this request from the owner, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary of the DP&E for resolution.

### 6.1.5 Construction Noise

The ICNG provides Noise Management Levels (NMLs) of background plus 10 dB for standard ICNG hours (i.e. 7.00 am to 6.00 pm Monday to Friday, 8.00 am to 1.00 pm Saturdays and no work on Sundays or public holidays). As the NMLs would in some cases provide less stringent criteria than those provided in the Development Consent DA 92/97, MACH Energy will manage noise from construction activities in accordance with the noise criteria provided in Table 7.

### 6.1.6 Rail Noise

Condition 7, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to ensure that its rail spur is only accessed by locomotives that are approved to operate on the NSW rail network in accordance with the noise limits in RailCorp's EPL (No. 12208) and Australian Rail Track Corporation's (ARTC's) EPL (No. 3142).

<sup>1</sup> As per Condition 2, Schedule 3 of Development Consent DA 92/97.

### 6.1.7 Operating Conditions

Condition 8, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to:

- (a) *implement best practice noise management, including all reasonable and feasible noise mitigation measures to minimise the construction, operational, low frequency, and rail noise generated by the development;*
  - (b) *minimise the noise impacts of the development during temperature inversions;*
  - (c) *regularly assess the real-time noise monitoring and meteorological forecasting data and relocate, modify, and/or stop operations on site to ensure compliance with the relevant conditions of this consent; and*
  - (d) *co-ordinate the noise management on site with the noise management at nearby mines (including the Bengalla mine) to minimise the cumulative noise impacts of the mines;*
- to the satisfaction of the Secretary.*

*Note: Monitoring under this consent is not required at all residences and the use of representative monitoring locations can be used to demonstrate compliance with criteria, if agreed to by the Secretary.*

### 6.1.8 Notifications

Condition 2, Schedule 4 of Development Consent DA 92/97 requires MACH Energy, as soon as practicable after obtaining monitoring results showing an exceedance of the relevant criteria in Schedule 3, to notify the affected landowner and tenants in writing of the exceedance, and provide regular monitoring results to each of these parties until the development is complying with the relevant criteria again.

## 6.2 OTHER LICENCE CONDITIONS

Noise criteria and other noise related conditions stipulated in EPL 20850 are generally consistent with those prescribed in Development Consent DA 92/97.

## **7 PERFORMANCE INDICATORS**

The following noise related performance indicators will be used to judge the performance of the MPO:

- effective implementation of the Real-time Response Protocol for noise (Section 8.5);
- results of attended noise monitoring (Section 9.2), conducted and assessed in accordance with the INP, are compliant with the noise criteria in Table 7; and
- complaints are minimised and appropriate management actions are implemented following receipt of a complaint (Section 12.2).

Section 10 details the Contingency Plan that will be implemented to manage any unpredicted impacts. Section 12 details the reporting that will be undertaken by MACH Energy against the above performance indicators.

## **8 NOISE MANAGEMENT AND CONTROL MEASURES**

MACH Energy will implement best management practice to minimise the noise generated by the MPO to achieve the levels required by Development Consent DA 92/97 and EPL 20850. Noise management and control measures include:

- Planning controls.
- Construction and operational controls.

The effectiveness of noise management and control measures at the MPO will be continually assessed, and where relevant improved, through real-time and attended noise monitoring (Section 9).

### **8.1 PLANNING CONTROLS**

The following planning controls will be implemented at the MPO:

- Sound power testing of new operational mobile fleet, and, on an annual basis, a sample of mobile equipment and fixed plant operating under dynamic conditions to check on noise performance.
- Procurement of new and/or best available technology plant where it is reasonable and feasible<sup>2</sup> to do so.
- Periodically refining the MPO noise model by using noise monitoring data to assist with model calibration over the life of the mine.
- Predicted meteorological conditions and potential implications for noise levels will be made available to the shift managers at the start of each shift (Section 8.4).
- Negotiating with select nearby landowners regarding possible land acquisition or entering into a written negotiated agreement, where it is mutually agreeable to do so.
- Developing an awareness and understanding of potential noise issues through site inductions for staff, contractors and visitors.
- Coordinating noise management on-site with the noise management at nearby mines (including the Bengalla, Dartbrook and Mt Arthur Mines) to minimise the cumulative noise impacts of the mines (Section 8.6).
- Confirming with RailCorp and/or ARTC that locomotives and rolling stock are approved to operate on the NSW rail network in accordance with the noise limits in RailCorp and ARTC's EPLs (EPL No. 12208 and EPL No. 3142, respectively).

### **8.2 CONSTRUCTION AND OPERATIONAL CONTROLS**

The following construction and operational noise management measures and controls will be implemented at the MPO where it is reasonable and feasible<sup>2</sup> to do so:

- Plant will operate in less exposed areas during the more sensitive evening/night period.
- If the conveyor/services corridor is constructed, a cover and a shield on the western side of the conveyor will be constructed where the conveyor is at ground level. Where the conveyor is elevated, it will be enclosed.

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<sup>2</sup> As per Condition 8, Schedule 3 of Development Consent DA 92/97.

- Lesser noise generating construction activities (e.g. welding and electrical works) will be conducted during the evening/night-time period.
- Vegetation clearance will be limited to daytime hours (as described in Section 5.3).
- “Quackers” will be used in place of reverse beepers.
- Noise suppression will be provided on major operational mobile plant.
- Temporary cessation of work within an area, or from a particularly noisy piece of equipment, will be considered when adverse weather conditions are present.
- All plant and machinery used on-site will be maintained regularly to minimise noise generation.
- All plant and machinery used on site will be operated in a proper and efficient manner (e.g. at correct speed) to minimise noise generation.
- Regular communication and updates will be provided to local residents on the status and nature of site construction and operational activities.
- At least 48 hours prior to the commencement of any out of hours construction activities, MACH Energy will notify the Muswellbrook Shire Council and local residents of the timing and expected duration of the associated construction works. After the initial notification, MACH Energy will provide local residents with regular updates throughout the duration of the construction (e.g. via community newsletters or information updates on MACH Energy’s website [machenergyaustralia.com.au]).
- In the event of a complaint from a local resident, MACH Energy will implement the complaints response process.

Additional construction and operational noise management measures and controls may be identified during construction and operational activities (e.g. as an outcome of the real-time or attended noise monitoring and associated review mechanisms).

In accordance with Condition 1, Schedule 3 of Development Consent DA 92/97, upon receipt of a written request for acquisition from the owner of the land listed in Table 9, MACH Energy will acquire the land in accordance with Conditions 6 and 7, Schedule 4 of Development Consent DA 92/97.

If the noise generated by the MPO exceeds the criteria in Table 10 at any residence on privately-owned land or on more than 25 percent of any privately-owned land, then upon receiving a written request for acquisition from the landowner, MACH Energy shall acquire the land in accordance with Conditions 6 and 7, Schedule 4 of the Development Consent DA 92/97.

If the noise generated by the MPO combined with the noise generated by other mines in the area exceeds the criteria in Table 11 at any residence on privately-owned land or on more than 25 percent of privately-owned land, then upon receiving a written request for acquisition from the landowner, MACH Energy shall acquire the land on as equitable basis as possible with the relevant mines in accordance with Conditions 6 and 7, Schedule 4 of the Development Consent DA 92/97.

### **8.3 AT-RECEIVER NOISE CONTROLS**

In accordance with Condition 2, Schedule 3 of Development Consent DA 92/97, upon receiving a written request from the owner of any residence on the land listed in Table 9 or Table 12, MACH Energy will implement additional reasonable and feasible mitigation measures (such as double-glazing, insulation, and/or air conditioning) at the residence in consultation with the landowner.

## 8.4 PREDICTIVE MODELLING

MACH Energy will operate two predictive models which will be used in conjunction with the real-time response protocols (Section 8.5) as part of the comprehensive noise management system at the MPO:

- Predictive meteorological forecasting – which will predict the presence of favourable or unfavourable noise conditions based on meteorological data; and
- Predictive noise level forecasting – which will predict operational noise levels at nearby receivers based on meteorological conditions, operating locations and equipment information.

Predictive forecasting information will be available at the start of every operational shift to inform the need for any control of the locations of major mobile equipment (i.e. to maintain compliance with Development Consent DA 92/97 noise criteria).

## 8.5 REAL-TIME RESPONSE PROTOCOLS

Real-time response triggers will be implemented to assist with the management of noise from the MPO. The real-time response triggers will evolve over time as a result of gaining a greater understanding of the local weather patterns and operational conditions as well as validation against attended monitoring data. The real-time response triggers are based on noise modelling conducted for the EIS, MOD 1 EA and noise levels and meteorological parameters recorded in the years following the MOD 1 EA.

The real-time response trigger levels are shown in Table 13. In the event that the real-time response trigger level is exceeded, SMS alarms will be directed to key staff/operational personnel. The adequacy of these alarms will be reviewed on an annual basis with any changes reported in the Annual Review and subsequent revisions of this NMP.

**Table 13**  
**Real-time Response Trigger Levels<sup>1</sup> for All Periods (Day, Evening and Night)**

Monitor	Green	Amber	Red
N-BO1	Low pass noise $L_{Aeq}$ >39 dBA for two consecutive 15 minute periods	Low pass noise $L_{Aeq}$ >41 dBA for two consecutive 15 minute periods	Low pass noise $L_{Aeq}$ >43 dBA for a 15 minute period
N-BO2	Low pass noise $L_{Aeq}$ >41 dBA for two consecutive 15 minute periods	Low pass noise $L_{Aeq}$ >43 dBA for two consecutive 15 minute periods	Low pass noise $L_{Aeq}$ >45 dBA for a 15 minute period
N-BO4	Low pass noise $L_{Aeq}$ >40 dBA for two consecutive 15 minute periods	Low pass noise $L_{Aeq}$ >42 dBA for two consecutive 15 minute periods	Low pass noise $L_{Aeq}$ >44 dBA for a 15 minute period

Note: Low pass noise refers to noise that has been filtered to remove higher frequencies that are generally not attributable to mining related noise sources (e.g. insect noise).

<sup>1</sup> Trigger levels subject to applicable meteorological conditions as described in Table 14.

In the event that a real-time response trigger is exceeded, MACH Energy will implement the real-time response protocol as detailed in Figure 4 and implement the real-time response management actions listed in Table 14 (dependent upon the trigger level determined).

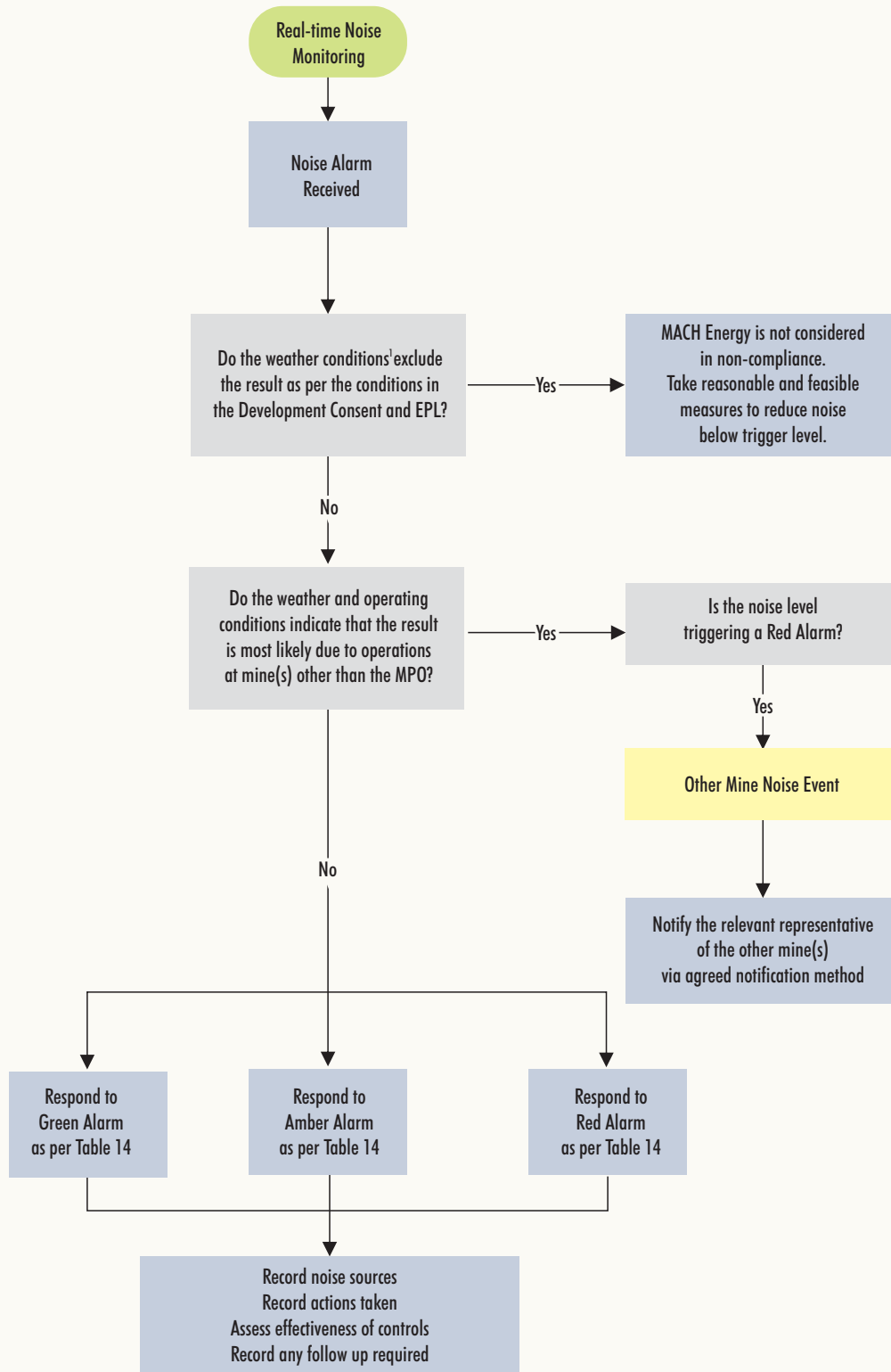
At the end of every month, the occurrence of real-time triggers will be reviewed. If a monitor shows a trend of increasing frequency of consecutive red alarms, additional attended monitoring will be arranged in the next month to confirm the real-time monitoring results are reflective of MPO-generated noise and that the management measures being implemented on-site are appropriate.

**Table 14**  
**Real-time Response Management Actions**

Colour	Management/Control Action	Responsible
Green	<ul style="list-style-type: none"> <li>Review the audio to determine noise source. Record observations.</li> <li>If MPO noise is audible and a significant contributor to total noise levels: <ul style="list-style-type: none"> <li>Review predicted weather conditions<sup>1</sup> to identify if noise enhancing conditions are forecast or likely to occur for the rest of the shift.</li> <li>Review predicted noise impacts for the shift<sup>1</sup> against observations.</li> </ul> </li> <li>Prepare a priority list of operating equipment in order of proximity to the monitor.</li> <li>Monitor the changes in noise levels until noise levels drop below the alarm trigger.</li> <li>Record management strategies. This includes details of investigation, type of response (if any required), real-time monitoring results and actions taken.</li> </ul>	Control Room Operator (or delegate)
Amber	<ul style="list-style-type: none"> <li>Review the audio to determine noise source. Record observations.</li> <li>If MPO noise is audible and a significant contributor to total noise levels: <ul style="list-style-type: none"> <li>Prepare a priority list of operating equipment in order of proximity to the monitor (if amber alarm is triggered without a prior green alarm).</li> <li>Relocate or shut down 'high priority' operating equipment as per the priority list generated.</li> <li>Review predicted weather conditions<sup>1</sup> to identify if noise enhancing conditions are forecast or likely to occur for the rest of the shift.</li> <li>Review predicted noise impacts for the shift<sup>1</sup> against observations.</li> </ul> </li> <li>Monitor the changes in noise levels until noise levels drop below the alarm trigger.</li> <li>Monitor changes in weather conditions and noise levels and progressively reinstate equipment once noise levels have dropped below the alarm trigger.</li> <li>Record management strategies. This includes details of investigation, type of response (if any required), real-time monitoring results and actions taken.</li> </ul>	Control Room Operator (or delegate)
Red	<ul style="list-style-type: none"> <li>Review the audio to determine noise source. Record observations.</li> <li>If MPO noise is audible and a significant contributor to total noise levels: <ul style="list-style-type: none"> <li>Prepare a priority list of operating equipment in order of proximity to the monitor (if red alarm is triggered without a prior green or amber alarm).</li> <li>Progressively relocate or shutdown 'high priority' and then 'lower priority' operating equipment as per the priority list.</li> <li>Review predicted weather conditions<sup>1</sup> to identify if noise enhancing conditions are forecast or likely to occur for the rest of the shift.</li> <li>Review predicted noise impacts for the shift<sup>1</sup> against observations.</li> </ul> </li> <li>Monitor changes in noise levels against operational changes.</li> <li>Monitor the changes in noise levels until noise levels drop below the alarm trigger.</li> <li>Monitor changes in weather conditions and noise levels and progressively reinstate equipment once noise levels have dropped below the alarm trigger.</li> <li>Record management strategies and their effectiveness. This includes details of investigation, type of response (if any required), real-time monitoring results and actions taken.</li> </ul>	Control Room Operator (or delegate)

Notes: <sup>1</sup> Predictive meteorological/noise level forecasting as described in Section 8.4.

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Notes: 1. Applicable meteorological conditions in accordance with EPL 20850.



Conditions 3, 4, 5 and 6, Schedule 3 of Development Consent DA 92/97 require that noise generated by the MPO is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW INP. Of relevance to certain meteorological conditions, the NSW INP states:

*To ensure that the consent or licence condition applies under typical meteorological conditions relevant to the site (that is, the condition determined from Section 5) a consent or licence condition may be based on the following:*

- *For developments where F-class inversions (normally associated with non-arid areas such as the Hunter Valley and coastal areas) were found to be a feature of the area (that is, using the procedure outlined in Section 5.2) the following statement could accompany the noise limits in the condition:*
  - *'The noise limits apply under all meteorological conditions except*
    - *during rain and wind speeds greater than 3 m/s; and*
    - *from 6 pm to 7 am during intense inversions, which are indicated by cloud cover less than 40 per cent and wind speeds less than 1.0 m/s.'*

*Note: Wind data should be collected at 10 m height.*

*The latter point above excludes non-standard inversions (which are intense inversions—G-class inversions in this case), and is based on parameters specified in the Turner methodology for determining temperature inversions (described in Appendix E).*

Condition L2.3 of EPL 20850 states:

*L2.3 The noise limits set out in this licence apply under all meteorological conditions except for the following:*

- a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or*
- b) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or*
- c) Stability category G temperature inversion conditions.*

*For the purposes of this condition:*

- i) Data recorded by the meteorological station within the licensed premises must be used to determine meteorological conditions; and*
- ii) Temperature inversion conditions (stability category) are to be determined by the sigma-theta method referred to in Part E4 of Appendix E to the NSW Industrial Noise Policy.*

The meteorological condition exclusions detailed in EPL 20850 are generally consistent with the generic text provided in the NSW INP, however includes more site-specific detail regarding temperature inversions. As such, the exclusions from EPL 20850 would be applied to noise monitoring.

Notwithstanding the above, weather conditions will be monitored (Section 9.4) and where adverse conditions are experienced or predicted, operational changes will be implemented to avoid or reduce noise impacts.

## 8.6 CUMULATIVE NOISE MANAGEMENT

Condition 8(d), Schedule 3 of Development Consent DA 92/97 states:

8. *The Applicant must:*

...

*(d) co-ordinate the noise management on site with the noise management at nearby mines (including the Bengalla mine) to minimise the cumulative noise impacts of the mines, to the satisfaction of the Secretary.*

Condition 9(d), Schedule 3 of Development Consent DA 92/97 states the following in regard to this NMP:

9. *The Applicant must prepare a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must:*

...

*(d) include a protocol that has been prepared in consultation with the owners of the nearby mines (including the Bengalla mine) to minimise the cumulative noise impacts of the mines.*

The following mines have been identified nearby the MPO (Figure 1) and have been consulted with respect to cumulative noise management:

- Bengalla Mine (immediately south);
- Mt Arthur Coal Mine (further south);
- Dartbrook Mine (immediately north)
- Mangoola Coal (south-west); and
- Muswellbrook Coal Mine (east).

An overall Master Cooperation Agreement has been developed between MACH Energy and the Bengalla Mine.

The cumulative noise management protocol prepared in consultation with the above mines is described in Section 8.6.1.

### 8.6.1 Cumulative Noise Management Protocol

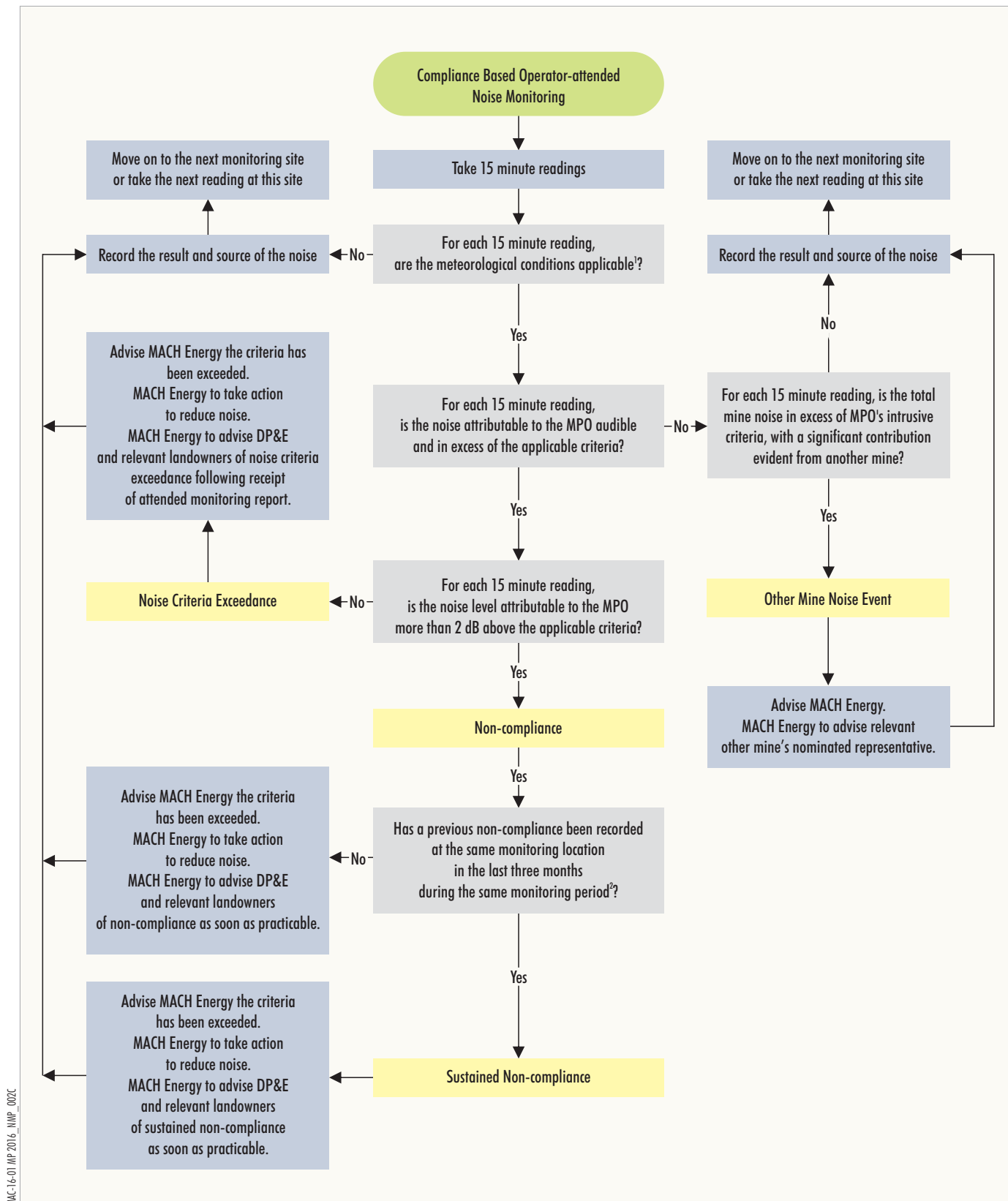
In the event that real-time or attended monitoring identifies an 'Other Mine Noise Event', the Environmental Superintendent (or delegate) will (subject to agreement by the other mine) immediately notify the nominated representative of the relevant other mine(s). A representative of another mine will only be contacted once per monitoring period (i.e. day, evening or night).

An 'Other Mine Noise Event' is defined for real-time monitoring as presented on Figure 4, whereby:

- a real-time monitoring "Red Alarm" is triggered;
- the weather conditions at the time are applicable conditions in accordance with EPL 20850; and
- review of the observed source of the noise and forecast/observed weather conditions indicates that the source of excessive noise is likely to be another mine.

An 'Other Mine Noise Event' is defined for operator-attended monitoring as presented on Figure 5, whereby:

- the weather conditions at the time of a 15 minute reading are applicable conditions in accordance with EPL 20850;
- review of the observed source of the noise and forecast/observed weather conditions indicates that noise attributable to the MPO is not in exceedance of the MPO's intrusive criteria; and
- the total mine noise recorded is in excess of the MPO's intrusive noise criteria at the monitoring location, with a significant contribution from another mine.



## 9 NOISE MONITORING PROGRAM

### 9.1 GENERAL REQUIREMENTS

As per the requirements of Development Consent DA 92/97, the MPO noise monitoring program will comprise both attended (Section 9.2) and real-time (Section 9.3) noise monitoring.

The results of attended monitoring will be used to assess compliance with relevant noise impact assessment criteria. Real-time monitoring will be used as a management tool to assist MACH Energy to take pre-emptive actions to avoid potential non-compliances.

Meteorological monitoring will also be conducted (Section 9.4).

### 9.2 ATTENDED NOISE MONITORING

#### 9.2.1 Purpose

Attended noise monitoring will be undertaken to determine compliance with the noise criteria in Development Consent DA 92/97.

#### 9.2.2 Monitoring Locations

Attended noise monitoring will initially be undertaken at the nominal locations described in Table 15 and shown on Figure 6.

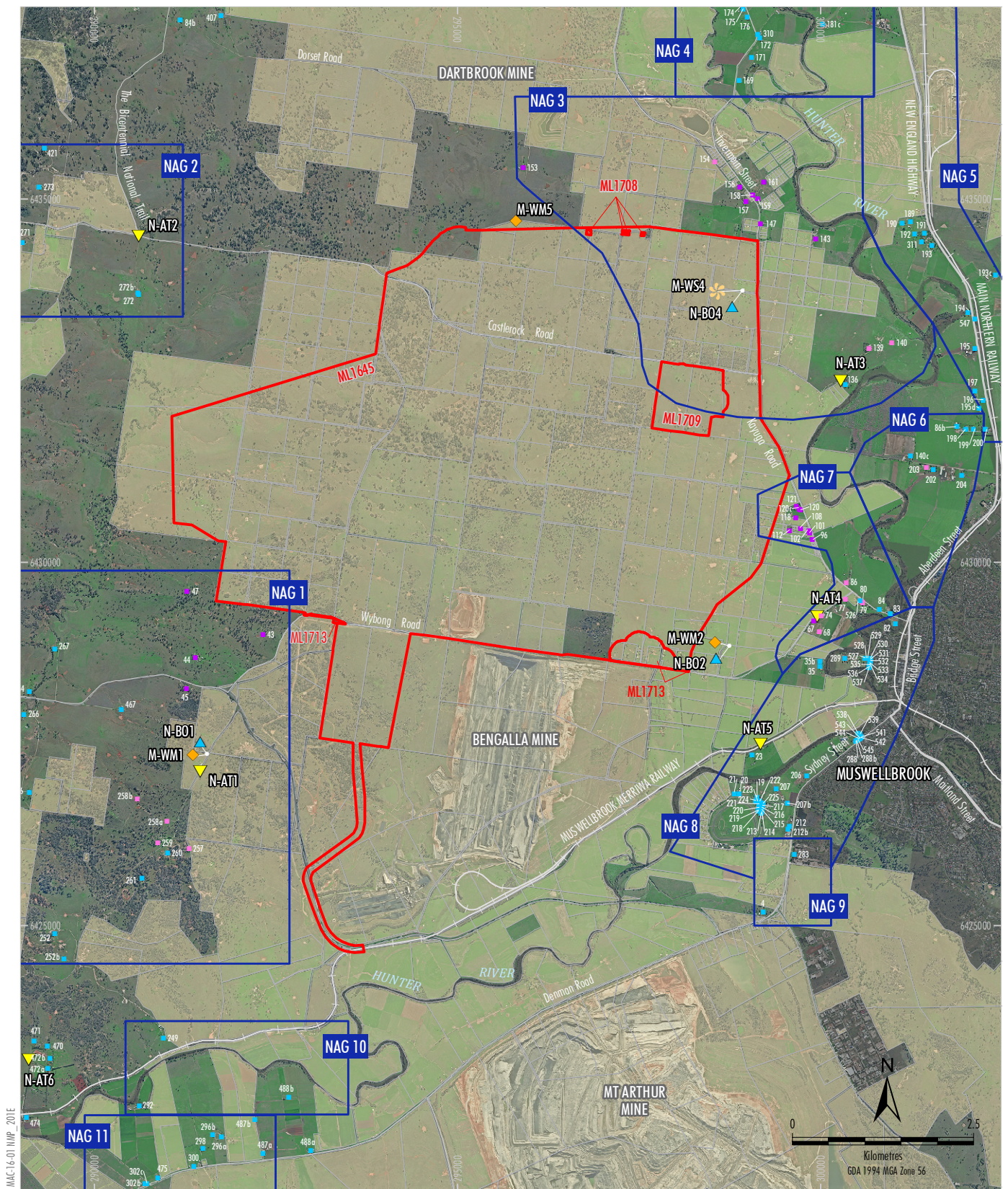
**Table 15**  
**Indicative Operator-attended Noise Monitoring Locations**

Location				Frequency <sup>1</sup>	Justification
Site ID	Description	Easting	Northing		
N-AT1	South-west of the MPO	291465	6427182	Quarterly	Representative of dwellings to the south-west (i.e. NAG 1)
N-AT2	North-west of the MPO	290608	6434490	Quarterly	Representative of dwellings to the north-west (i.e. NAG 2)
N-AT3	East of the MPO	300270	6432503	Quarterly	Representative of dwellings to the north-east and east (i.e. NAGs 3, 4 and 5)
N-AT4	South-east of the MPO	299947	6429264	Quarterly	Representative of dwellings to the east (i.e. NAGs 6 and 7)
N-AT5	South-east of the MPO	299161	6427503	Quarterly	Representative of dwellings to the south-east (i.e. NAGs 8 and 9)
N-AT6	South-west of the MPO	289092	6423155	Quarterly	Representative of dwellings to the south-west (i.e. NAGs 10 and 11)

<sup>1</sup> Operator-attended noise monitoring will be undertaken quarterly at each monitoring location in accordance with Condition M4.1 of EPL 20850, however, more frequent monitoring may be conducted at a subset of sites (e.g. those in close proximity to operations) as required.

Monitoring locations have been selected as being representative of residential and other sensitive receivers in the vicinity of mining at the MPO. Locations were also selected based on prevailing weather conditions and with consideration given to the privacy of residents. These nominal locations will be periodically updated based on noise monitoring results and review of applicable EPL 20850 requirements that may be updated by the EPA from time to time.





#### LEGEND

- Mining Lease Boundary
- Mine Owned
- Privately-owned Residence - MPO Acquisition on Request
- Privately-owned Residence - MPO Mitigation on Request
- Other Privately-owned Residence
- Noise Assessment Group (NAG) (DA 92/97)
- Monitoring Site
- ▼ Attended Noise
- ▲ Real-Time Noise
- ◆ Weather Mast
- ✿ Weather Station

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); MACH Energy (2017)  
Orthophoto: MACH Energy (August 2016)

**MACHEnergy**  
MOUNT PLEASANT OPERATION  
Nominal Noise and Meteorological  
Monitoring Sites

**Figure 6**



### 9.2.3 Methodology

The operator-attended noise monitoring will be conducted on a quarterly basis in accordance with Condition M4.1 of EPL 20850. More frequent monitoring may be conducted at a subset of sites (e.g. those in close proximity to operations). Monitoring would be conducted in accordance with AS 1055:1997 *Acoustics – Description and Measurement of Environmental Noise and the INP*.

In accordance with Condition 3, Schedule 5 of Development Consent DA 92/97, the results of the attended monitoring will be compared with the noise criteria (Section 6).

Monitoring reports will be made publicly available on the MACH Energy website in accordance with Condition 11, Schedule 5 of Development Consent DA 92/97. A summary of all monitoring results for each year will be reported in the MPO Annual Review at the end of that year, in accordance with Condition 3, Schedule 5 of Development Consent DA 92/97.

#### **Timing**

In accordance with EPL 20850, attended noise monitoring will be undertaken in each quarter for a minimum of:

- 90 minutes during the day (i.e. 7.00 am to 6.00 pm);
- 30 minutes during the evening (i.e. 6.00 pm to 10.00 pm); and
- 60 minutes during the night (i.e. 10.00 pm to 7.00 am);

for three consecutive operating days.

#### **Measurement**

Measurement will be undertaken by a suitably experienced and capable person.

Acoustic instrumentation used in attended monitoring will comply with AS 1259.2:1990 Sound Level Meters and carry current National Association of Testing Authorities or manufacturer calibration certificates. Instrument calibration will be conducted before and after each survey, with the variation in calibrated levels not to exceed  $\pm 0.5$  dB(A).

Wind direction, wind speed, air temperature and relative humidity will all be recorded as part of the attended noise monitoring. Notes will be taken if there are changes in wind speed/direction at the various monitoring locations or if other relevant changes occur. While this information is gathered, the site data (wind speed/direction) will be included in compliance reports as this is taken at the required 10 m above ground level.

In accordance with EPL requirements,  $L_{Aeq(15 \text{ minute})}$  noise monitoring for compliance purposes at a specific residence will be undertaken approximately on the property boundary (where any dwelling is situated 30 m or less from the property boundary closest the premises), or within 30 m of the dwelling (where the dwelling is more than 30 m from the boundary, if previously agreed with the landowner). However, if monitoring is being undertaken at a representative location for a general NAG, this requirement will not apply.

Comprehensive field notes will be taken to indicate mine sources (haul truck, dozer tracks, etc.) and other sources (birds, insects, dogs, passing cars, etc.) and when they occurred during the measurement to the nearest second. The recorded time-trace (at one second intervals) and wavefile will be analysed to quantify the noise contribution from each source. Notes about maximum mine noise levels (source and times) will also be taken. Where practicable, the data would be recorded using a sound level meter or noise logger with the capability to record time-traces and wavefiles.

The intrusive noise level contribution from MPO activities will be quantified over a 15 minute measurement period. In addition, measurements will be made in both A-weighting and C-weighting. Only parameters relevant to noise criteria will be reported.

Modifying factors from Section 4 of the INP will be used where applicable. Tonality and low frequency will be assessed by analysis of the measured  $L_{Aeq}$  spectrum<sup>3</sup>. Analysis should be conducted on a spectrum representative of potential MPO noise. The use of smaller sampling periods may be necessary to assess the applicability of modifying factors.

Details of corrective actions taken to address any noise criteria exceedances, and confirmation of their successful implementation, will be recorded by MACH Energy.

### **Recording**

The following information will be recorded for each monitoring survey:

- operator's name;
- time and date;
- locations of attended or unattended noise instruments;
- recording intervals;
- meteorological conditions for each measurement location (as collected by a hand held meter) and also a combination of graphs and tables presenting the weather conditions for the entire survey period;
- statistical noise level descriptors together with notes identifying the principal noise sources;
- notes of recorded mine-related noise sources, including approximate start and finishing times;
- project operating conditions including train loading times together with mobile and ancillary equipment operation and predominant location; and
- instrument calibration details.

#### **9.2.4 Applicable Meteorological Conditions**

As described in Section 8.5, the noise limits set out in Development Consent DA 92/97 and in EPL 20850 do not apply under the following meteorological conditions:

- rain; or
- wind speeds greater than 3 metres/second (m/s) at 10 m above ground level; or
- stability category F temperature inversion conditions and wind speeds greater than 2 m/s at 10 m above ground level; or
- stability category G temperature inversion conditions.

Notwithstanding the above, weather conditions will be monitored (Section 9.4) and, where adverse conditions are experienced or predicted, operational changes will be implemented to avoid or reduce noise impacts.

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<sup>3</sup> In the event that the measured dBC-dBA level is greater than 15 dB, the 1/3 octave levels would be compared to the modified DEFRA criteria in the *Draft Industrial Noise Guideline* (EPA, 2015) to determine the appropriate modifying factor.



### 9.2.5 Compliance Assessment Protocol

Attended noise surveys are the primary method for describing the acoustic environment and determining compliance against the relevant noise criteria. Attended noise monitoring is the method for determining sustained compliance with the noise criteria (Table 7), the noise acquisition criteria (Table 10) and the cumulative noise acquisition criteria (Table 11) as this allows for an accurate determination of the MPO's contribution to the measured ambient noise levels.

To determine compliance with the  $L_{Aeq(15 \text{ minute})}$  noise limits, attended noise surveys will measure  $L_{Aeq(15 \text{ minute})}$  noise levels at representative monitoring locations<sup>4</sup>. Recorded results (rounded to the nearest decibel) will be compared with the noise criteria in Table 16.

**Table 16**  
**Operator-attended Noise Monitoring Criteria**

Location		Operator-attended Noise Criteria			
Site ID	Description	Day	Evening	Night	Night
		$L_{Aeq(15 \text{ minute})}$			$L_{A1(1 \text{ minute})}$
N-AT1	South-west (representative of land in NAG 1)	43	43	43	45
N-AT2	North-west (representative of land in NAG 2)	36	36	36	45
N-AT3	East/north-east (representative of land in NAGs 3, 4 and 5)	35	35	35	45
N-AT4	East (representative of land in NAGs 6 and 7)	43	42	42	45
N-AT5	South-east (representative of land in NAGs 8 and 9)	40	40	40	45
N-AT6	South-west (representative of land in NAGs 10 and 11)	35	35	35	45

To determine compliance with the  $L_{A1(1 \text{ minute})}$  noise levels generated by the MPO, attended noise surveys will measure  $L_{A1(1 \text{ minute})}$  noise levels at the representative monitoring locations and then compare the recorded result (rounded to the nearest decibel) with the noise criteria in Section 6. A minimum of one  $L_{A1(1 \text{ minute})}$  survey will be conducted during each  $L_{Aeq(15 \text{ minute})}$  survey. If it is evident that the  $L_{A1(1 \text{ minute})}$  criterion may be approached or exceeded due to MPO noise, arrangements will be made with the landowner to identify the potentially most impacted area of the residence and to conduct future measurements at 1 m from that area where access has been agreed with the landowner.

For the purposes of determining the noise generated at the MPO, the modification factors in Section 4 of the INP will be applied, as appropriate, to the noise levels measured by the noise monitoring equipment. In the event that the measured dBC-dBA level is greater than 15 dB, the 1/3 octave levels would be compared to the modified DEFRA criteria in the *Draft Industrial Noise Guideline* (EPA, 2015) to determine the appropriate modifying factor.

The operator-attended monitoring and noise compliance review process is illustrated in Figure 5.

In determining the noise emission contribution from the MPO, an assessment of the following factors will be undertaken:

- the applicability of the prevailing meteorological conditions (Sections 8.5 and 9.2.4);
- neighbouring mining activities;
- other non-mine related activities, such as:

<sup>4</sup> In accordance with Condition L2.6 of EPL 20850, a non-compliance will still occur where noise generated from the MPO, in excess of the appropriate limit, is measured at a location other than specified in Section 9.2.2.

- adjacent non-mining related construction activities;
- adjacent agricultural activities;
- traffic on the local road network; and
- adjacent residential activities (e.g. mowing lawns);
- intermittent, tonal or low frequency sound modification factors; and
- reasonableness of data.

In the event of a potential noise criteria exceedance, an assessment will be conducted to determine whether the exceedance is valid. This assessment will include:

- The timing of the exceedance.
- The location of the exceedance.
- The exclusion of non-mine related noise and noise from non-MPO mining activities (e.g. can the exceedance be attributed directly to the MPO). This will include consideration of:
  - the methods and type of equipment being used at the MPO at the time of the exceedance and proximity to the locations at which the exceedance was recorded;
  - the location of non-MPO mining activities or agricultural activities and proximity to the locations at which the exceedance was recorded.
  - the meteorological conditions at the time of the exceedance, including confirmation that meteorological conditions are relevant in accordance with Development Consent DA 92/97 and EPL 20850 and the noise criteria apply (see Section 9.2.4).

If the above assessment determines that a potential noise criteria exceedance is due to MPO-related noise during applicable meteorological conditions, then:

- the exceedance will be reported as soon as practicable to the DP&E, any affected landowners and any other relevant agencies as a noise incident in accordance with Section 12 of this NMP; and
- the noise criteria exceedance will be reported in the Environmental Monitoring Reports and the Annual Review.

Table 3 of Development Consent DA 92/97 specifies the use of the INP for measuring noise generated by the development. It is noted that Section 11.1.3 of the INP includes allowance for the materiality of a noise exceedance, stating:

*A development will be deemed to be in non-compliance with a noise consent or licence condition if the monitored noise level is more than 2 dB above the statutory noise limit specified in the consent or licence condition.*

Therefore, while an exceedance of the criteria in Table 3 of Development Consent DA 92/97 (i.e. Table 7 of this NMP) of 1 to 2 dB will be considered a noise incident, the DP&E would determine if the exceedance is considered a non-compliance with Development Consent DA 92/97.

If the above determines that a potential noise criteria exceedance is due to MPO-related noise during applicable meteorological conditions and is a non-compliance, then:

- the non-compliance will be reported as soon as practicable to the DP&E, any affected landowners and any other relevant agencies in accordance with Section 12 of this NMP, and in consideration of Section 11.1.3 of the INP; and
- the non-compliance will be reported in the Environmental Monitoring Reports and Annual Review.

If two non-compliant  $L_{Aeq(15 \text{ minute})}$  readings (e.g. during applicable meteorological conditions and attributable to the MPO) are taken in the same monitoring period within three months of each other, then the non-compliance would be considered to be sustained and would be reported as such to the DP&E, any affected landowners and any other relevant agencies.

Section 11.1.3 of the INP states the following in relation to when a development is in breach of a noise condition:

*A development will be in breach of a noise consent or licence condition if sustained non-compliances are not addressed and rectified.*

If a sustained non-compliance with the noise criteria is deemed to have occurred, MACH Energy will report the sustained non-compliance to the DP&E and any other relevant agencies in accordance with Section 12 of this NMP, and in consideration of Section 11.1.3 of the INP.

Where a landowner considers the MPO to be exceeding the noise criteria (Table 7), the noise acquisition criteria (Table 10), or the cumulative noise acquisition criteria (Table 11), the landowner may request an independent review of the impacts in accordance with Condition 3, Schedule 4 of Development Consent DA 92/97.

In accordance with Condition 7, Schedule 5 of Development Consent DA 92/97, as soon as MACH Energy becomes aware of any incident associated with the MPO, MACH Energy will immediately notify the Secretary of the DP&E and any other relevant agencies of the incident. Within seven days of the incident, MACH Energy shall provide the Secretary of the DP&E and any other relevant agencies with a detailed report on the incident, and such further reports as may be requested.

#### **9.2.6 Cumulative Noise Protocol**

Attended noise monitoring results will include identification of noise from all industrial sources, as well as all traffic and environmental sources.

Where analysis of the short-term (i.e. 15-minute) attended monitoring results indicates that noise from the nearby mines may contribute to a potential exceedance of the MPO cumulative noise criteria, then MACH Energy will use its best endeavours to coordinate noise management with the relevant mines to minimise cumulative noise impacts.

If each of the mines in the area is complying with its intrusive noise criteria, the cumulative noise criteria are unlikely to be exceeded. Notwithstanding, MACH Energy has developed a process to identify “Other Mine Noise Events” (Figures 4 and 5), whereby noise from another mine(s) contributes significantly to total mine noise levels in excess of the MPO intrusive noise criteria and the MPO contribution is less than the intrusive noise criteria.

In the event that cumulative noise levels become an issue at a particular location once the MPO is operating at maximum approved production levels, MACH Energy would engage with the DP&E and other relevant mine operator(s) to address the concern at that time and update this NMP accordingly.

### 9.3 REAL-TIME NOISE MONITORING

#### 9.3.1 Purpose

Real-time noise monitoring will be used as a noise management tool, and will not be used to assess compliance with noise criteria. This will involve the use of the real-time response protocol (Section 8.5) for ongoing performance assessment and will assist in the implementation of pre-emptive management actions to avoid potential non-compliances.

#### 9.3.2 Monitoring Locations

The approximate real-time monitoring locations are shown in Table 17 and Figure 6.

**Table 17**  
**Indicative Real-time Noise Monitoring Locations**

Location				Frequency	Justification
Site ID	Description	Easting	Northing		
N-B01	South-west	291465	6427182	Continuous	Proximal to private dwellings to the south-west.
N-B02	South-east	298739	6428854	Continuous	Proximal to private dwellings in the direction of Muswellbrook.
N-B04	North-east	298922	6433746	Continuous	Proximal to private dwellings in the direction of Kayuga.

#### 9.3.3 Methodology

The real-time noise monitors will include the following general specifications:

- recording of 15 minute statistical noise data (including  $L_{A1}$ ,  $L_{A10}$ , and  $L_{A90}$ );
- $L_{Aeq(15 \text{ minute})}$  and  $L_{Aeq(\text{period})}$  noise levels;
- $L_{Aeq(15 \text{ minute})}$  for a selected direction;
- $L_{Aeq(15 \text{ minute})}$  in a selectable low frequency range ( $L_{Aeq,LF}$ );
- back to back audio file capture; and
- access to local meteorological data (e.g. wind direction, wind speed, temperature, humidity and rainfall).

Each monitor will be set up to record noise levels 24 hours per day, seven days per week. A graphical summary of the previous 24 hours of noise levels will be emailed to mine staff on a daily basis. The recorded audio information can be downloaded so the listener can determine whether the noise source is mine-related. There are numerous other potential noise sources apart from mine noise, such as wind, traffic, machinery, animals and general non-mining anthropogenic activities which may influence noise monitoring results.

Noise data will be processed to exclude data recorded during meteorological conditions that are not relevant to the noise criteria in accordance with Sections 8.5 and 9.2.4. The temperature lapse rate data and wind speed data from the Automatic Weather Station (AWS) will be used to determine these conditions. Consistent with EPL 20850, temperature inversion classes will be determined using the sigma-theta method.

### Noise Investigation Triggers

The system also enables remote triggering to start or stop recording  $L_{A1(1 \text{ minute})}$  statistical noise levels to assist in the assessment of sleep disturbance. Real-time data from the system will be able to be received at predetermined intervals or will be able to be accessed remotely as required. The system will be programmed to provide SMS alerts to relevant staff/operators where noise levels reach predetermined triggers.

## 9.4 METEOROLOGICAL MONITORING

Meteorological data will be collected by the AWS and Weather Masts at the MPO (locations described in Table 18 and shown on Figure 6) in accordance with the requirements in the Approved Methods for Sampling of Air Pollutants in NSW. The AWS will continuously measure the temperature lapse rate in accordance with the INP. Meteorological forecasting (Section 8.4) will be undertaken as part of the noise management system.

**Table 18**  
**Meteorological Monitoring Locations**

Location				Frequency
Site ID	General Description	Easting	Northing	
M-WM1	Weather mast, located to the south-west	291465	6427182	Continuous
M-WM2	Weather mast, located to the south-east	298739	6428854	Continuous
M-WS4	AWS, located to the north-east	298922	6433746	Continuous
M-WM5	Weather mast, located to the south-east	295811	6434714	Continuous

## 9.5 PLANT AND EQUIPMENT SOUND POWER LEVEL MONITORING

A program will be implemented to test the sound power levels (SWLs) of new major operational mobile fleet, and on an annual basis, a sample of mobile equipment and fixed plant operating under dynamic conditions. The results of this testing will be maintained by MACH Energy in their monitoring database and will be used to inform ongoing servicing and maintenance of mobile equipment. The results from the SWL testing will be incorporated into any future updates of the noise model. The results of this modelling will be used to inform any additional reasonable and feasible<sup>5</sup> mobile plant attenuation or mine planning controls (if required).

The mobile equipment and fixed plant SWL monitoring will be conducted in accordance with a testing methodology based on the following standards:

- AS 2012.1-1990 “Acoustics - Measurement of airborne noise emitted by earth-moving machinery and agricultural tractors – Stationary test condition - Determination of Compliance With Limits for External Noise”;
- International Organization for Standardization (ISO) 3744-2010 “Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure – Engineering methods for an essentially free field over a reflecting plane”;

<sup>5</sup> As per Condition 8, Schedule 3 of Development Consent DA 92/97.

- ISO 3746-2010 “*Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure — Survey method for an essentially free field over a reflecting plane*”;
- ISO 6393-2008(E) “*Earth-moving machinery – Determination of sound power level - Stationary test conditions*”; and
- ISO 6395-2008(E) “*Earth-moving machinery – Determination of sound power level noise emissions – Dynamic test conditions*”.

The following information will be recorded for each SWL survey:

- operator’s name, time and date;
- equipment ID, type, make and model;
- location and operating mode of the equipment (e.g. haul road, waste, loaded, upgrade);
- meteorological conditions during the survey period;
- $L_{Aeq}$  and  $L_{Amax}$  noise level descriptors together with notes identifying the principal noise sources;
- details of any extraneous noise; and
- instrument calibration details.

MACH Energy will maintain a register of all measured SWLs and, in the event that any mobile equipment or fixed plant has a material degradation in noise performance under comparable noise conditions (e.g records a SWL >3 dB higher than that measured once the equipment was commissioned on-site), will schedule appropriate maintenance of the mobile equipment/fixed plant.

## **10 CONTINGENCY PLAN**

In the event that a non-compliance related to noise is considered to have occurred, as per the compliance assessment protocol described in Section 9.2.5, MACH Energy will implement the following Contingency Plan:

- The Environmental Superintendent will report the potential noise non-compliance or noise incident in accordance with Section 12.
- MACH Energy will identify the appropriate course of action with respect to the identified impact(s), in consultation with technical specialists, DP&E and any other relevant agencies, as necessary. For example, contingency measures, such as, but not limited to, those described in Section 10.1.
- MACH Energy will, in the event there is a dispute over the proposed remedial course of action or if the actions conflict with current approvals, submit the appropriate course of action to the DP&E for approval.
- MACH Energy will implement the appropriate course of action to the satisfaction of the DP&E.

### **10.1 POTENTIAL CONTINGENCY MEASURES**

Potential contingency measures will be reviewed during revisions of this NMP. Key potential contingency measures to be implemented (following non-compliances and completion of the compliance assessment protocol as described in Section 9.2.5) may include the following:

- MACH Energy will notify (in writing) the affected landowners and tenants of the exceedance as soon as practicable and provide them with regular noise monitoring results, until the results show that noise at the MPO is complying with the noise criteria.
- MACH Energy will, on request, implement reasonable and feasible at-receiver noise controls in accordance with Condition 2, Schedule 3 of the Development Consent DA 92/97, where a breach of the relevant criteria has occurred.
- MACH Energy will investigate further operational noise controls, if noise monitoring results indicate this is required.
- MACH Energy will, on request, acquire noise-affected properties in accordance with Conditions 1, 4 and 6, Schedule 3 of Development Consent DA 92/97, where a sustained and systemic breach of the relevant criteria has occurred.

## **11 REVIEW AND IMPROVEMENT OF ENVIRONMENTAL PERFORMANCE**

### **11.1 ANNUAL REVIEW**

In accordance with Condition 3, Schedule 5 of Development Consent DA 92/97 MACH Energy will review and evaluate the environmental performance of the MPO by the end of March each year (for the preceding calendar year) or other such timing as agreed by the Secretary of the DP&E.

In relation to noise, the Annual Review will:

- include a comprehensive review of the attended noise monitoring results and noise related complaints records relating to the MPO over the past year, which includes a comparison of these results to evaluate compliance against the:
  - relevant statutory requirements, limits or performance measures/criteria (refer Sections 4 and 6);
  - monitoring results of the previous years; and
  - relevant predictions in the EIS;
- identify any noise related non-compliance over the past year, and describe what actions were (or are being) taken to ensure compliance;
- identify any trends in the noise monitoring data over the life of the MPO;
- identify any discrepancies between the predicted and actual noise impacts of the MPO, and analyse the potential cause of any significant discrepancies; and
- describe what noise-related measures will be implemented over the next year to improve the environmental performance of the MPO where it is reasonable and feasible<sup>6</sup> to do so.

The Annual Review will be made publicly available on the MACH Energy website in accordance with Condition 11, Schedule 5 of Development Consent DA 92/97.

### **11.2 NOISE MANAGEMENT PLAN REVISION**

In accordance with Condition 4, Schedule 5 of Development Consent DA 92/97, this NMP will be reviewed, and if necessary revised (to the satisfaction of the Secretary of the DP&E), within three months of the submission of:

- an Annual Review (Condition 3, Schedule 5);
- an incident report (Condition 7, Schedule 5);
- an Independent Environmental Audit (Condition 9, Schedule 5); and/or
- any modification to the conditions of Development Consent DA 92/97.

Within 4 weeks of conducting a review of this NMP, MACH Energy will advise the Secretary of the DP&E of the outcomes of the review, and submit any revised documents for the approval of the Secretary.

In accordance with Condition 4A, Schedule 5 of Development Consent DA 92/97, MACH Energy may submit a revised NMP for the approval of the Secretary at any time, and may also submit any revision to this NMP required under Development Consent DA 92/97 on a staged basis.

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<sup>6</sup> As per Condition 8, Schedule 3 of Development Consent DA 92/97.



If agreed with the Secretary of the DP&E, a revision to this NMP required under Development Consent DA 92/97 may be prepared without undertaking consultation with all parties nominated under the relevant Condition of Development Consent DA 92/97.

This NMP will be made publicly available on the MACH Energy website, in accordance with Condition 11, Schedule 5 of Development Consent DA 92/97.

### **11.3 INDEPENDENT ENVIRONMENTAL AUDIT**

In accordance with Condition 9, Schedule 5 of Development Consent DA 92/97, an independent environmental audit of the MPO will be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary of the DP&E.

The independent environmental audit will assess the environmental performance of the MPO and review the adequacy of this NMP. If necessary, appropriate measures or actions to improve the environmental performance of the MPO or this NMP will be recommended.

## **12 REPORTING PROCEDURES**

In accordance with Condition 2, Schedule 5 of Development Consent DA 92/97, MACH Energy has developed protocols for managing and reporting the following:

- incidents;
- complaints;
- non-compliances with statutory requirements; and
- exceedances of the impact assessment criteria and/or performance criteria.

These protocols are described in detail in the Environmental Management Strategy.

In accordance with Condition 8, Schedule 5 of Development Consent DA 92/97, MACH Energy will provide regular reporting on the environmental performance of the MPO on the MACH Energy website.

### **12.1 INCIDENT REPORTING**

An incident is defined as a set of circumstances that causes or threatens to cause material harm to the environment, and/or breaches or exceeds the limits or performance measures/criteria in the Development Consent DA 92/97.

In the event that operator-attended monitoring indicates that an exceedance of the relevant noise criteria has occurred (i.e. a noise incident), the event will be reported to the DP&E and any other relevant agencies immediately after identifying the exceedance (Figure 5).

The reporting of incidents will be conducted in accordance with Condition 7, Schedule 5 of Development Consent DA 92/97 and in accordance with the protocol for industry notification of pollution incidents under Part 5.7 of the POEO Act. MACH Energy will notify the Secretary of the DP&E and any other relevant agencies, in accordance with the Pollution Incident Response Management Plan, immediately after the authorised person becomes aware of the incident which causes or threatens to cause material harm to the environment. MACH Energy's Pollution Incident Response Flowchart is provided in Appendix D.

Within seven days of the date of the incident, MACH Energy will provide the Secretary of the DP&E and any other relevant agencies with a detailed report on the incident. The report will:

- describe the date, time and nature of the exceedance/incident;
- identify the cause (or likely cause) of the exceedance/incident;
- describe what action has been taken to date; and
- describe the proposed measures to address the exceedance/incident.

MACH Energy will also provide regular monitoring results to the affected landowners and tenants until the results show that the MPO is complying with the relevant criteria.

## 12.2 COMPLAINTS

MACH Energy will maintain a Community Hotline (1800 886 889) that is dedicated to the receipt of community complaints, enquiries or information. The Community Hotline will be publicly advertised in a variety of MACH Energy's public communication tools and will be available during construction and operating hours, to receive any complaints or enquiries from neighbouring residents or other stakeholders.

MACH Energy has developed a procedure that outlines its commitment to receiving, responding to and maintaining a record of phone calls from the community. This procedure is supported by a Community and Stakeholder Engagement Database.

The following details will be recorded in the Community and Stakeholder Engagement Database:

- the date and time of the contact;
- the method by which engagement was made;
- any personal details provided or, if no such details were provided, a note to that effect;
- the nature of the contact;
- relevant monitoring results and meteorological data at the time of the contact;
- the actions taken by MACH Energy in relation to the contact, including any follow-up that is required with the person contacting the MPO; and
- if no action was taken by MACH Energy, the reasons why no action was taken.

In the event of a noise complaint, investigations will commence within 24 hours of contact to ensure the likely cause of the complaint is determined (e.g. considering meteorological conditions and nature of mining activities) and, where practical and/or required, mitigating actions will be executed. This investigation will be used to develop appropriate mitigation measures (if relevant) that will be presented to the party who contacted the MPO. Consideration will also be given to how adjustments to existing management/operational approaches could be applied across the MPO, if appropriate.

In accordance with Condition 11, Schedule 5 of NSW Development Consent DA 92/97, the Community and Stakeholder Engagement Database will be updated monthly and made available on the MACH Energy website.

## 12.3 NON-COMPLIANCES

Compliance with all approvals, plans and procedures will be the responsibility of all personnel (staff and contractors) employed on or in association with the MPO.

The Environmental Superintendent will undertake regular inspections, internal audits and initiate directions identifying any remediation/rectification work required, and areas of actual or potential non-compliance.

MACH Energy will notify the Secretary of the DP&E and any other relevant agencies of any incident associated with the MPO that causes or threatens to cause material harm to the environment immediately after MACH Energy becomes aware of the incident. Within seven days of the date of the incident, MACH Energy will provide the Secretary of the DP&E and any other relevant agencies with a detailed report on the incident.

In addition, within two weeks of obtaining monitoring results showing an exceedance of the criteria detailed in Development Consent DA 92/97 and completion of the protocol for determining if an exceedance is a non-compliance, MACH Energy shall, in accordance with Condition 2, Schedule 4 of Development Consent DA 92/97, notify affected landowners and tenants in writing of the exceedance, and provide regular monitoring results to each of these parties until the MPO is complying with the relevant criteria.

A review of the MPO compliance with all conditions in Development Consent DA 92/97, MLs and all other approvals and licences will be undertaken prior to (and included within) each Annual Review. The Annual Review will be made publicly available on the MACH Energy website in accordance with Condition 11, Schedule 5 of Development Consent DA 92/97.

## 13 REFERENCES

- Coal & Allied (2007) *Mount Pleasant – Annual Environmental Management Report 2006*.
- Coal & Allied (2008) *Mount Pleasant – Annual Environmental Management Report 2007*.
- Coal & Allied (2009) *Mount Pleasant Project – Annual Environmental Management Report 2008*.
- Coal & Allied (2010) *Mount Pleasant Project – Annual Environmental Management Report 2009*.
- Coal & Allied (2011) *Mount Pleasant Project – Annual Environmental Management Report 2010*.
- Coal & Allied (2012) *Mount Pleasant Project – Annual Environmental Management Report 2011*.
- Coal & Allied (2013) *Mount Pleasant Project – Annual Environmental Management Report 2012*.
- Coal & Allied (2014) *Mount Pleasant Project – Annual Review 2013*.
- Coal & Allied (2015) *Mount Pleasant Project – Annual Review 2014*.
- Department of Planning and Environment (2014) *Voluntary Land Acquisition and Mitigation Policy*.
- EMGA Mitchell McLennan (2010) *Mount Pleasant Project Modification Environmental Assessment*.
- Environment Protection Authority (2000) *New South Wales Industrial Noise Policy*.
- Environment Protection Authority (2009) *New South Wales Interim Construction Noise Guideline*.
- Environment Protection Authority (2013) *Application Notes – Industrial Noise Policy*.
- Environment Protection Authority (2015) *Draft Industrial Noise Guideline*.
- Environmental Resources Management Mitchell McCotter (1997) *Mount Pleasant Mine Environmental Impact Statement*.
- HLA – Envirosciences (2002) *Muswellbrook Coal Company No.1 Open Cut Extension Environmental Impact Statement – Noise and Vibration Assessment*
- MACH Energy (2017) *Mount Pleasant Operation (DA 92/97) – South Pit Haul Road Modification*.

**APPENDIX A**

**NOISE RELATED CONDITIONS  
DEVELOPMENT CONSENT DA 92/97**

**Table A1**  
**Noise Related Development Consent DA 92/97 Conditions**

Development Consent DA 92/97		NMP Section
Schedule 3		
<b>ACQUISITION UPON REQUEST</b>		Section 6
1. Upon receiving a written request from the owner of the land listed in Table 1, the Applicant must acquire the land in accordance with the procedures in conditions 6-7 of Schedule 4.		
Table 1: Land subject to acquisition upon request		
Receiver	Receiver	
43, 44 – J. B. Moore	143, 161, 237 – J.S. & N.M. Lonergan	
45 – B.A. & T.E. Strachan	147 –M.J. & R.G. Adnum	
47 – B.L. & M.L. Bates	156 – J.E. & J.L. Lonergan	
67 – J.M. Simpson	158 – J.M. Hoath	
96 – R.P. Grey	159, 236 – J.E. & M.S. Ducey	
101 – C. Austin	129 – R.M. & S.D. Fanell	
102 – A. Mather	130 – M.J. Farrell	
107 – B.L. Wilton	135, 309 – K.J. & G.M. Yore	
108 – J.S. Gibson	146 – C.R & N.J. Hoath	
112 – B.D. Barry	153 – G.M. Casey	
118 – J. & C. Hayes	157 – R.B. Parkinson & S.A. Peberdy	
120, 308 – D.L. & P.A. Moore	229 – C. Horne	
121 – C & J.M. Moore	263 – R.R. & J.M. Hamilton	
137, 138 A – D.H. MacIntyre	C – P.M. Yore	
D – S. Yore		
Notes:		
<ul style="list-style-type: none"><li>To identify the locations referred to in Table 1, see the figures in Appendix 5; and</li><li>All land is noise affected, except receiver 67 which is air quality affected.</li></ul>		
<b>ADDITIONAL NOISE AND DUST MITIGATION UPON REQUEST</b>		Section 6
2. Upon receiving a written request from the owner of any residence on the land listed in Table 1 or Table 2, the Applicant must implement additional noise and/or dust mitigation measures (such as double-glazing, insulation, air filters, first flush roof water drainage system and/or air conditioning) at the residence in consultation with the landowner. These measures must be reasonable and feasible and related to the noise and/or dust impacts on the residence.		
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.		
Table 2: Land where additional noise mitigation measures are available on request		
Receiver	Receiver	
68 – Googe	203 – Millard	
74 – Sormaz	205 – Dapkos Pty Ltd	
77 – Purser	231 – Wicks	
78, 80 – W.J. Adnum	240 – MacIntyre	
79 – W.J. & D.W. Adnum	242 – Raphael	
86, 290 – Cowtime Investments Pty Ltd	257 – Lane	
139 – Upton	258 – Ellis	
140 – Dapkos Ptv Limiteid	259 – Peel	



Development Consent DA 92/97						NMP Section
154 – Standing			279 – Parkinson			
Note: To identify the locations referred to in Table 2, see the figures in Appendix 5.						
NOISE						
Noise Criteria						
3. Except for the noise-affected land referred to in Table 1, the Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 3 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.						Section 6
Table 3: Noise criteria dB(A)						
Location		Day	Evening	Night		
		L <sub>Aeq</sub> (15min)	L <sub>Aeq</sub> (15min)	L <sub>Aeq</sub> (15min)	L <sub>A1</sub> (1min)	
NAG 1	260, 261	37	37	37	45	
	258	40	40	40	45	
	259	39	39	39	45	
	All other privately-owned land	35	35	35	45	
NAG 2	272	36	36	36	45	
	All other privately-owned land	35	35	35	45	
NAG 3	139, 154, 240	40	40	40	45	
	241	39	39	39	45	
	All other privately-owned land	35	35	35	45	
NAG 4	169	36	36	36	45	
	All other privately-owned land	35	35	35	45	
NAG 5	All privately-owned land	41	40	39	45	
NAG 6	205	41	41	41	45	
	203, 242	40	40	40	45	
	202	39	39	39	45	
	204	38	38	38	45	
	All other privately-owned land	37	37	37	45	
NAG 7	68, 74, 279	43	42	42	45	
	86, 290	42	42	42	45	
	77	42	41	41	45	
	79, 80, 231	41	41	41	45	
	78	41	40	40	45	
	All other privately-owned land	40	37	37	45	
NAG 8	35	42	41	41	45	
	289	41	40	40	45	
	23, 84	40	40	40	45	
	All other privately-owned land	41	39	39	45	
NAG 9	All privately-owned land	39	38	37	45	
NAG 10	All privately-owned land	35	35	35	45	
NAG 11	All privately-owned land	37	36	35	45	
All other privately-owned land		35	35	35	45	
Notes:						
<ul style="list-style-type: none"><li>To identify the locations referred to in Table 3, see the figures in Appendices 5 and 6.</li><li>Noise generated by the development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.</li></ul>						
However, these criteria do not apply if the Applicant has a written agreement with the						

Development Consent DA 92/97				NMP Section	
relevant landowner to exceed the criteria, and the Applicant has advised the Department in writing of the terms of this agreement.					
<b>Noise Acquisition Criteria</b>				Section 6	
4. If the noise generated by the development exceeds the criteria in Table 4 at any residence on privately-owned land or on more than 25 percent of any privately-owned land, then upon receiving a written request for acquisition from the landowner, the Applicant must acquire the land in accordance with the procedures in conditions 6-7 of Schedule 4.					
Table 4: Noise acquisition criteria dB(A)					
Location	Day	Evening	Night		
	L <sub>Aeq</sub> (15min)	L <sub>Aeq</sub> (15min)	L <sub>Aeq</sub> (15min)		
All privately-owned land in NAG 1, NAG 2, NAG 3, NAG 4, and NAG 10	40	40	40		
All privately-owned land in NAG 5	46	45	44		
All privately-owned land in NAG 6	42	42	42		
All privately-owned land in NAG 7	45	42	42		
All privately-owned land in NAG 8	46	44	44		
All privately-owned land in NAG 9	44	43	42		
All privately-owned land in NAG 11	42	41	40		
All other privately-owned land	40	40	40		
Notes:					
<ul style="list-style-type: none"><li>To identify the locations referred to in Table 4, see the figures in Appendices 5 and 6;</li><li>Noise generated by the development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy; and</li><li>For this condition to apply, the exceedances of the criteria must be systematic.</li></ul>					
<b>Cumulative Noise Criteria</b>				Section 6	
5. Except for the noise-affected land referred to in Table 1, the Applicant must implement all reasonable and feasible measures to ensure that the noise generated by the development combined with the noise generated by other mines in the area does not exceed the criteria in Table 5 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.					
Table 5: Cumulative noise criteria dB(A) L <sub>Aeq</sub> (period)					
Location	Day	Evening	Night		
NAG 8, 9	55	45	40		
All other privately-owned land	50	45	40		
Notes:					
<ul style="list-style-type: none"><li>To identify the locations referred to in Table 5, see the figures in Appendices 5 and 6; and</li><li>Cumulative noise is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.</li></ul>					
<b>Cumulative Noise Acquisition Criteria</b>					Section 6
6. If the noise generated by the development combined with the noise generated by other mines in the area exceeds the criteria in Table 6 at any residence on privately-owned land or on more than 25 percent of privately-owned land, then upon receiving a written request for acquisition from the landowner, the Applicant must acquire the land on as equitable basis as possible with the relevant mines in accordance with the procedures in conditions 6-7 of Schedule 4.					
Table 6: Cumulative noise acquisition criteria dB(A) L <sub>Aeq</sub> (period)					
Location	Day	Evening	Night		
NAG 8, 9	60	50	45		
All other privately-owned land	55	50	45		
Notes:					

Development Consent DA 92/97	NMP Section
<ul style="list-style-type: none"> <li>To identify the locations referred to in Table 6, see the figures in Appendices 5 and 6;</li> <li>Cumulative noise is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy; and</li> <li>For this condition to apply, the exceedances of the criteria must be systematic.</li> </ul>	
<b>Rail Noise</b> 7. The Applicant must ensure that its rail spur is only accessed by locomotives that are approved to operate on the NSW rail network in accordance with the noise limits in RailCorp's EPL (No. 12208) and ARTC's EPL (No. 3142).	Section 6
<b>Noise Operating Conditions</b> 8. The Applicant must: <ul style="list-style-type: none"> <li>(a) implement best practice noise management, including all reasonable and feasible noise mitigation measures to minimise the construction, operational, low frequency, and rail noise generated by the development;</li> <li>(b) minimise the noise impacts of the development during temperature inversions;</li> <li>(c) regularly assess the real-time noise monitoring and meteorological forecasting data and relocate, modify, and/or stop operations on site to ensure compliance with the relevant conditions of this consent; and</li> <li>(d) co-ordinate the noise management on site with the noise management at nearby mines (including the Bengalla mine) to minimise the cumulative noise impacts of the mines,</li> </ul> to the satisfaction of the Secretary. <i>Note: Monitoring under this consent is not required at all residences and the use of representative monitoring locations can be used to demonstrate compliance with criteria, if agreed to by the Secretary.</i>	Section 8  Section 8 Sections 8.4 and 8.5  Section 8.6
<b>Noise Management Plan</b> 9. The Applicant must prepare a Noise Management Plan for the development to the satisfaction of the Secretary. The plan must: <ul style="list-style-type: none"> <li>(a) be submitted to the Secretary for approval prior to carrying out any development on site;</li> <li>(b) describe the noise mitigation measures that would be implemented to ensure compliance with the relevant conditions of this consent, including a real-time noise management system that employs both reactive and proactive mitigation measures;</li> <li>(c) include a noise monitoring program that:               <ul style="list-style-type: none"> <li>uses a combination of real-time and supplementary attended monitoring to evaluate the performance of the development;</li> <li>includes a protocol for determining exceedances of the relevant conditions of this consent; and</li> </ul> </li> <li>(d) include a protocol that has been prepared in consultation with the owners of the nearby mines (including the Bengalla mine) to minimise the cumulative noise impacts of the mines.</li> </ul> The Applicant must implement the approved management plan as approved from time to time by the Secretary.	Sections 7, 8, 9 and 10  Section 9 Sections 9.2 and 9.3 Section 9.2.5  Section 8.6
<b>METEOROLOGICAL MONITORING</b> 24. For the life of the development, the Applicant must ensure that there is a meteorological station operating in the vicinity of the site that: <ul style="list-style-type: none"> <li>(a) complies with the requirements in the Approved Methods for Sampling of Air Pollutants in NSW guideline; and</li> <li>(b) is capable of continuous real-time measurement of temperature lapse rate in accordance with the NSW Industrial Noise Policy, or as otherwise approved by the Secretary.</li> </ul>	Section 9.4  Section 9.4

Development Consent DA 92/97	NMP Section
<b>Schedule 5</b>	
<p>2. The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:</p> <p>(a) detailed baseline data;</p> <p>(b) a description of:</p> <ul style="list-style-type: none"> <li>the relevant statutory requirements (including any relevant consent, licence or lease conditions);</li> <li>any relevant limits or performance measures/criteria;</li> <li>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;</li> </ul> <p>(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;</p> <p>(d) a program to monitor and report on the:</p> <ul style="list-style-type: none"> <li>impacts and environmental performance of the development;</li> <li>effectiveness of any management measures (see c above);</li> </ul> <p>(e) a contingency plan to manage any unpredicted impacts and their consequences;</p> <p>(f) a program to investigate and implement ways to improve the environmental performance of the development over time;</p> <p>(g) a protocol for managing and reporting any:</p> <ul style="list-style-type: none"> <li>incidents;</li> <li>complaints;</li> <li>non-compliances with statutory requirements; and</li> <li>exceedances of the impact assessment criteria and/or performance criteria; and</li> </ul> <p>(h) a protocol for periodic review of the plan.</p> <p><i>Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</i></p>	<p>Section 5</p> <p>Section 4</p> <p>Section 6</p> <p>Section 7</p> <p>Sections 7, 8, 9 and 10</p> <p>Section 11</p> <p>Section 10</p> <p>Section 11</p> <p>Section 12</p> <p>Section 12.1</p> <p>Section 12.2</p> <p>Section 12.3</p> <p>Section 12.3</p> <p>Section 11.2</p>

**APPENDIX B**

**BASELINE OPERATOR-ATTENDED MONITORING RESULTS**  
**(2006 to 2014)**

**Table B1**  
**Operator-attended Monitoring Results at P1 (Kayuga Road) (2006 – 2007)**

Date	L <sub>A10</sub> (dB)	L <sub>Aeq</sub> (dB)	L <sub>A90</sub> (dB)
Q1, 2006	43	41	37
Q2, 2006	40	37	33
Q3, 2006	29	29	26
Q4, 2006	37	36	34
Q1, 2007	46	46	44

Source: Coal & Allied, 2007; 2008.

**Table B2**  
**Operator-attended Monitoring Results at P2 (Collins Lane) (2006 – 2007)**

Date	L <sub>A10</sub> (dB)	L <sub>Aeq</sub> (dB)	L <sub>A90</sub> (dB)
Q1, 2006	35	33	31
Q2, 2006	35	33	31
Q3, 2006	33	33	29
Q4, 2006	36	34	31
Q1, 2007	35	33	29

Source: Coal & Allied, 2007; 2008.

**Table B3**  
**Operator-attended Monitoring Results at P3 (Wybong Road) (2006 – 2007)**

Date	L <sub>A10</sub> (dB)	L <sub>Aeq</sub> (dB)	L <sub>A90</sub> (dB)
Q1, 2006	39	36	31
Q2, 2006	39	36	34
Q3, 2006	40	38	35
Q4, 2006	32	29	24
Q1, 2007	38	37	35

Source: Coal & Allied, 2007; 2008.

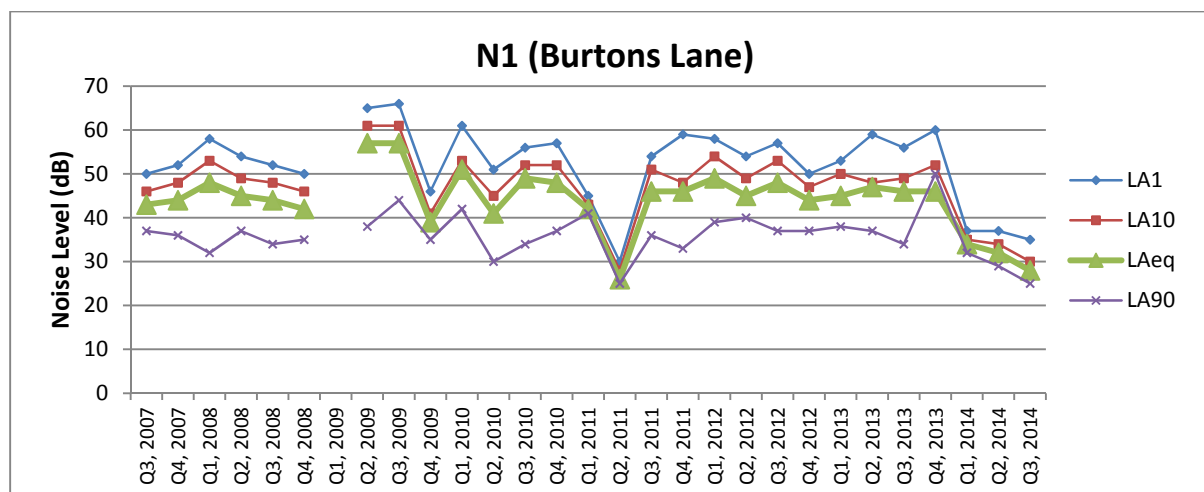
**Table B4**  
**Operator-attended Monitoring Results at N1 (Burtons Lane) (2007 – 2014)**

Date	L <sub>A1</sub> (dB)	L <sub>A10</sub> (dB)	L <sub>Aeq</sub> (dB)	L <sub>A90</sub> (dB)
Q3, 2007	50	46	43	37
Q4, 2007	52	48	44	36
Q1, 2008	58	53	48	32
Q2, 2008	54	49	45	37
Q3, 2008	52	48	44	34
Q4, 2008	50	46	42	35
Q1, 2009*	N/A	N/A	N/A	N/A
Q2, 2009	65	61	57	38
Q3, 2009	66	61	57	44
Q4, 2009	46	41	39	35
Q1, 2010	61	53	51	42
Q2, 2010	51	45	41	30
Q3, 2010	56	52	49	34
Q4, 2010	57	52	48	37
Q1, 2011	45	43	42	41
Q2, 2011	30	28	26	25
Q3, 2011	54	51	46	36
Q4, 2011	59	48	46	33
Q1, 2012	58	54	49	39
Q2, 2012	54	49	45	40
Q3, 2012	57	53	48	37
Q4, 2012	50	47	44	37
Q1, 2013	53	50	45	38
Q2, 2013	59	48	47	37
Q3, 2013	56	49	46	34
Q4, 2013	60	52	46	50
Q1, 2014	37	35	34	32
Q2, 2014	37	34	32	29
Q3, 2014	35	30	28	25

Source: Coal & Allied, 2008; 2009; 2010; 2011; 2012; 2013; 2014; 2015.

\* Monitoring was only conducted at three sites during Quarter 1, 2009 (N3, N4 and N5).

**Figure B1**  
**Operator-attended Monitoring Results at N1 (Burtons Lane) (2007 – 2014)**





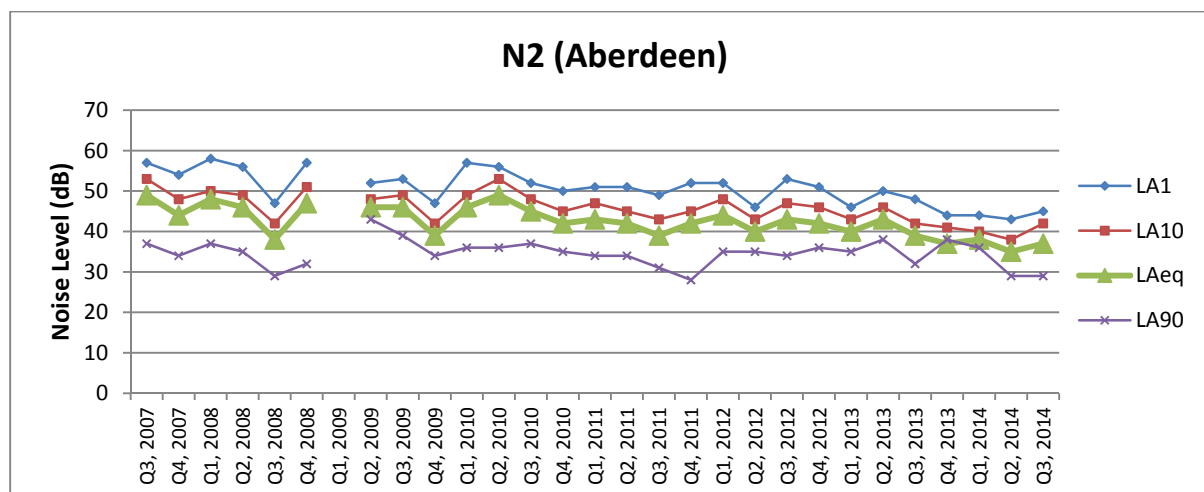
**Table B5**  
**Operator-attended Monitoring Results at N2 (Aberdeen) (2007 – 2014)**

Date	L <sub>A1</sub> (dB)	L <sub>A10</sub> (dB)	L <sub>Aeq</sub> (dB)	L <sub>A90</sub> (dB)
Q3, 2007	57	53	49	37
Q4, 2007	54	48	44	34
Q1, 2008	58	50	48	37
Q2, 2008	56	49	46	35
Q3, 2008	47	42	38	29
Q4, 2008	57	51	47	32
Q1, 2009*	N/A	N/A	N/A	N/A
Q2, 2009	52	48	46	43
Q3, 2009	53	49	46	39
Q4, 2009	47	42	39	34
Q1, 2010	57	49	46	36
Q2, 2010	56	53	49	36
Q3, 2010	52	48	45	37
Q4, 2010	50	45	42	35
Q1, 2011	51	47	43	34
Q2, 2011	51	45	42	34
Q3, 2011	49	43	39	31
Q4, 2011	52	45	42	28
Q1, 2012	52	48	44	35
Q2, 2012	46	43	40	35
Q3, 2012	53	47	43	34
Q4, 2012	51	46	42	36
Q1, 2013	46	43	40	35
Q2, 2013	50	46	43	38
Q3, 2013	48	42	39	32
Q4, 2013	44	41	37	38
Q1, 2014	44	40	38	36
Q2, 2014	43	38	35	29
Q3, 2014	45	42	37	29

Source: Coal & Allied, 2008; 2009; 2010; 2011; 2012; 2013; 2014; 2015.

\* Monitoring was only conducted at three sites during Quarter 1, 2009 (N3, N4 and N5).

**Figure B2**  
**Operator-attended Monitoring Results at N2 (Aberdeen) (2007 – 2014)**

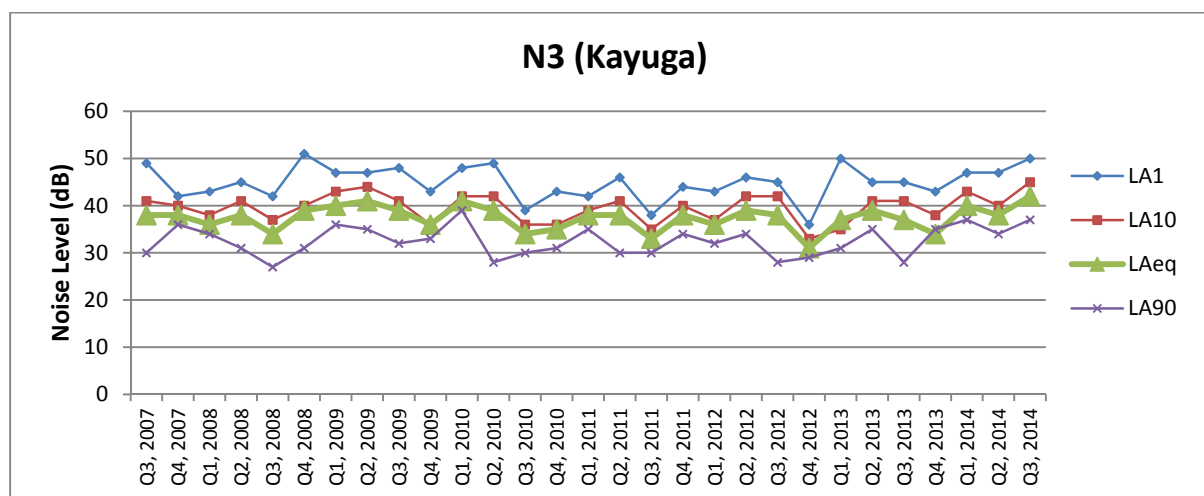


**Table B6**  
**Operator-attended Monitoring Results at N3 (Kayuga) (2007 – 2014)**

Date	L <sub>A1</sub> (dB)	L <sub>A10</sub> (dB)	L <sub>Aeq</sub> (dB)	L <sub>A90</sub> (dB)
Q3, 2007	49	41	38	30
Q4, 2007	42	40	38	36
Q1, 2008	43	38	36	34
Q2, 2008	45	41	38	31
Q3, 2008	42	37	34	27
Q4, 2008	51	40	39	31
Q1, 2009	47	43	40	36
Q2, 2009	47	44	41	35
Q3, 2009	48	41	39	32
Q4, 2009	43	36	36	33
Q1, 2010	48	42	41	39
Q2, 2010	49	42	39	28
Q3, 2010	39	36	34	30
Q4, 2010	43	36	35	31
Q1, 2011	42	39	38	35
Q2, 2011	46	41	38	30
Q3, 2011	38	35	33	30
Q4, 2011	44	40	38	34
Q1, 2012	43	37	36	32
Q2, 2012	46	42	39	34
Q3, 2012	45	42	38	28
Q4, 2012	36	33	31	29
Q1, 2013	50	35	37	31
Q2, 2013	45	41	39	35
Q3, 2013	45	41	37	28
Q4, 2013	43	38	34	35
Q1, 2014	47	43	40	37
Q2, 2014	47	40	38	34
Q3, 2014	50	45	42	37

Source: Coal & Allied, 2008; 2009; 2010; 2011; 2012; 2013; 2014; 2015.

**Figure B3**  
**Operator-attended Monitoring Results at N3 (Kayuga) (2007 – 2014)**

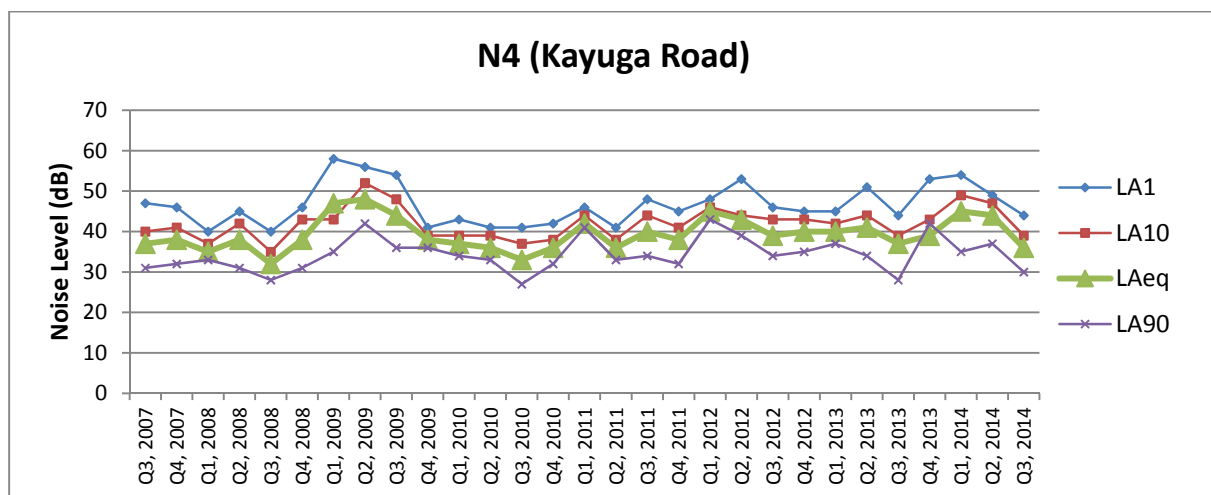


**Table B7**  
**Operator-attended Monitoring Results at N4 (Kayuga Road) (2007 – 2014)**

Date	L <sub>A1</sub> (dB)	L <sub>A10</sub> (dB)	L <sub>Aeq</sub> (dB)	L <sub>A90</sub> (dB)
Q3, 2007	47	40	37	31
Q4, 2007	46	41	38	32
Q1, 2008	40	37	35	33
Q2, 2008	45	42	38	31
Q3, 2008	40	35	32	28
Q4, 2008	46	43	38	31
Q1, 2009	58	43	47	35
Q2, 2009	56	52	48	42
Q3, 2009	54	48	44	36
Q4, 2009	41	39	38	36
Q1, 2010	43	39	37	34
Q2, 2010	41	39	36	33
Q3, 2010	41	37	33	27
Q4, 2010	42	38	36	32
Q1, 2011	46	44	42	41
Q2, 2011	41	38	36	33
Q3, 2011	48	44	40	34
Q4, 2011	45	41	38	32
Q1, 2012	48	46	45	43
Q2, 2012	53	44	43	39
Q3, 2012	46	43	39	34
Q4, 2012	45	43	40	35
Q1, 2013	45	42	40	37
Q2, 2013	51	44	41	34
Q3, 2013	44	39	37	28
Q4, 2013	53	43	39	42
Q1, 2014	54	49	45	35
Q2, 2014	49	47	44	37
Q3, 2014	44	39	36	30

Source: Coal & Allied, 2008; 2009; 2010; 2011; 2012; 2013; 2014; 2015.

**Figure B4**  
**Operator-attended Monitoring Results at N4 (Kayuga Road) (2007 – 2014)**

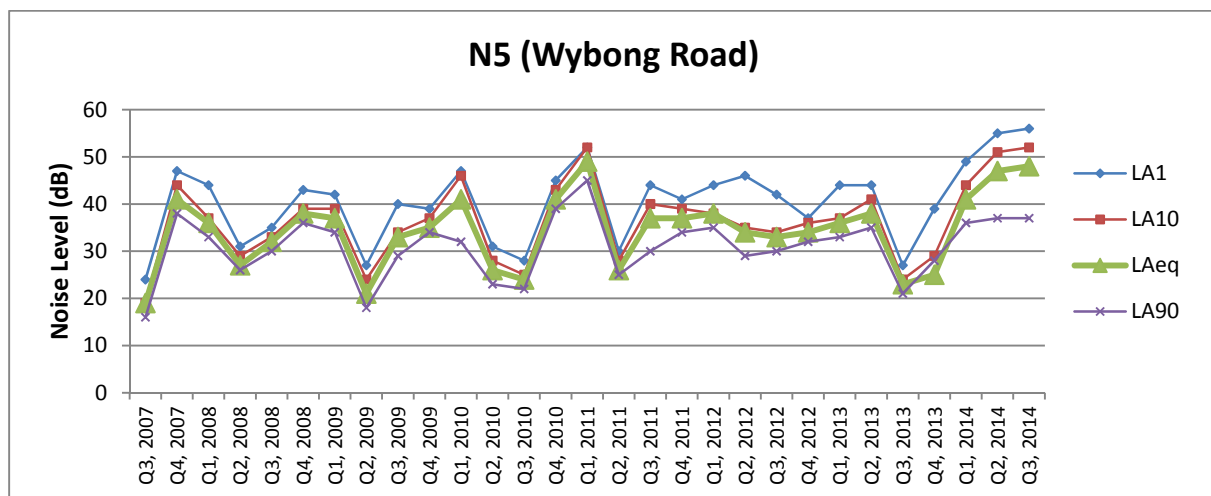


**Table B8**  
**Operator-attended Monitoring Results at N5 (Wybong Road) (2007 – 2014)**

Date	L <sub>A1</sub> (dB)	L <sub>A10</sub> (dB)	L <sub>Aeq</sub> (dB)	L <sub>A90</sub> (dB)
Q3, 2007	24	19	19	16
Q4, 2007	47	44	41	38
Q1, 2008	44	37	36	33
Q2, 2008	31	29	27	26
Q3, 2008	35	33	32	30
Q4, 2008	43	39	38	36
Q1, 2009	42	39	37	34
Q2, 2009	27	24	21	18
Q3, 2009	40	34	33	29
Q4, 2009	39	37	35	34
Q1, 2010	47	46	41	32
Q2, 2010	31	28	26	23
Q3, 2010	28	25	24	22
Q4, 2010	45	43	41	39
Q1, 2011	52	52	49	45
Q2, 2011	30	28	26	25
Q3, 2011	44	40	37	30
Q4, 2011	41	39	37	34
Q1, 2012	44	38	38	35
Q2, 2012	46	35	34	29
Q3, 2012	42	34	33	30
Q4, 2012	37	36	34	32
Q1, 2013	44	37	36	33
Q2, 2013	44	41	38	35
Q3, 2013	27	24	23	21
Q4, 2013	39	29	25	28
Q1, 2014	49	44	41	36
Q2, 2014	55	51	47	37
Q3, 2014	56	52	48	37

Source: Coal & Allied, 2008; 2009; 2010; 2011; 2012; 2013; 2014; 2015.

**Figure B5**  
**Operator-attended Monitoring Results at N5 (Wybong Road) (2007 – 2014)**



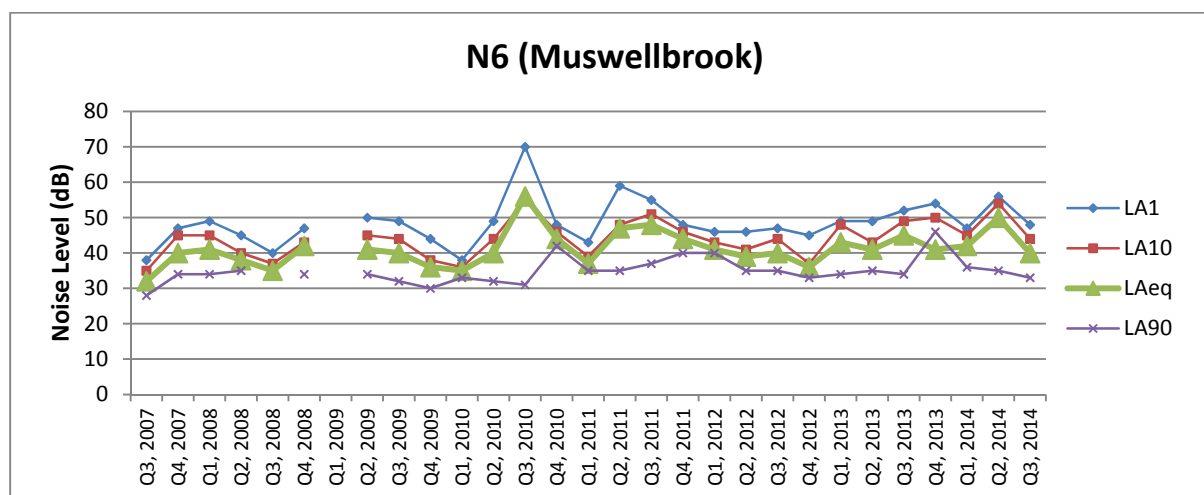
**Table B9**  
**Operator-attended Monitoring Results at N6 (Muswellbrook) (2007 – 2014)**

Date	L <sub>A1</sub> (dB)	L <sub>A10</sub> (dB)	L <sub>Aeq</sub> (dB)	L <sub>A90</sub> (dB)
Q3, 2007	38	35	32	28
Q4, 2007	47	45	40	34
Q1, 2008	49	45	41	34
Q2, 2008	45	40	38	35
Q3, 2008	40	37	35	N/A
Q4, 2008	47	43	42	34
Q1, 2009*	N/A	N/A	N/A	N/A
Q2, 2009	50	45	41	34
Q3, 2009	49	44	40	32
Q4, 2009	44	38	36	30
Q1, 2010	38	36	35	33
Q2, 2010	49	44	40	32
Q3, 2010	70	55	56	31
Q4, 2010	48	46	44	42
Q1, 2011	43	39	37	35
Q2, 2011	59	48	47	35
Q3, 2011	55	51	48	37
Q4, 2011	48	46	44	40
Q1, 2012	46	43	41	40
Q2, 2012	46	41	39	35
Q3, 2012	47	44	40	35
Q4, 2012	45	37	36	33
Q1, 2013	49	48	43	34
Q2, 2013	49	43	41	35
Q3, 2013	52	49	45	34
Q4, 2013	54	50	41	46
Q1, 2014	47	45	42	36
Q2, 2014	56	54	50	35
Q3, 2014	48	44	40	33

Source: Coal & Allied, 2008; 2009; 2010; 2011; 2012; 2013; 2014; 2015.

\* Monitoring was only conducted at three sites during Quarter 1, 2009 (N3, N4 and N5).

**Figure B6**  
**Operator-attended Monitoring Results at N6 (Muswellbrook) (2007 – 2014)**



**APPENDIX C**

**RELEVANT SENSITIVE RECEPTOR LOCATIONS**



**Table C1**  
**Relevant Sensitive Receptor Locations**

ID	Landholders	Structure Type	Easting (m)	Northing (m)
4	JR SCRIVEN	Dwelling	299202	6425195
6	MUSWELLBROOK RACE CLUB LTD	Commercial	298605	6426135
19	DP ENGLEBRECHT	Dwelling	299120	6426779
20	KB & JA BARNETT	Dwelling	298866	6426826
21	MJ MCGOLDRICK	Dwelling	298804	6426823
23	JABETIN PTY LTD	Dwelling	299047	6427361
35	C HORNE	Dwelling	299980	6428580
35b	C HORNE	Dwelling	299986	6428649
43	JB MOORE	Dwelling	292318	6429012
44	JB MOORE	Dwelling	291384	6428700
45	BA & TE STRACHAN	Dwelling	291263	6428277
47	BL & ML BATES	Dwelling	291276	6429615
67	JM SIMPSON	Dwelling	299896	6429202
68	RK & NV GOOGE	Dwelling	299976	6429057
74	N & M SORMAZ	Dwelling	300003	6429277
77	DM PURSER	Dwelling	300332	6429501
79	DW ADNUM	Dwelling	300572	6429448
80	WJ ADNUM	Dwelling	300556	6429470
82	CK BIRCH	Dwelling	301020	6429170
83	LG & CM KELMAN	Dwelling	300956	6429298
83b	LG & CM KELMAN	Commercial	300909	6429329
84	GE PITMAN	Dwelling	300800	6429358
84b	GE PITMAN	Dwelling	291180	6437472
86	COWTIME INVESTMENTS PTY LTD	Dwelling	300342	6429734
86b	COWTIME INVESTMENTS PTY LTD	Dwelling	301865	6431879
96	RP GRAY	Dwelling	299879	6430321
101	JR & GP MITCHELL	Dwelling	299841	6430413
102	AJPS MATHER	Dwelling	299829	6430440
108	JS GIBSON	Dwelling	299715	6430470
112	BD BARRY	Dwelling	299566	6430447
118	JM & CA HAYES	Dwelling	299655	6430627
120	DL & PA MOORE	Dwelling	299721	6430731
308	DL & PA MOORE	Commercial	299667	6430746
120c	DL & PA MOORE	Dwelling	299698	6430741
121	C & JM MOORE	Dwelling	299656	6430778
136	DG YORE	Dwelling	300336	6432453
139	RW & LP UPTON	Dwelling	300659	6432952
140	DAPKOS PTY LTD	Dwelling	300978	6433030
205	DAPKOS PTY LTD	Commercial	301126	6431439
140c	DAPKOS PTY LTD	Dwelling	301236	6431474
143	JS & NM LONERGAN	Dwelling	299928	6434457
161	JS & NM LONERGAN	Dwelling	299209	6435244
147	MJ & RG ADNUM	Dwelling	299165.34	6434674
153	GM CASEY	Dwelling	295898	6435444
154	PD & F STANDING	Dwelling	298537	6435520
156	JE & JL LONERGAN	Dwelling	298882	6435173
267	JE & JL LONERGAN	Dwelling	289455	6428815

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ID	Landholders	Structure Type	Easting (m)	Northing (m)
157	RB PARKINSON	Dwelling	298965	6434977
266	RB PARKINSON	Dwelling	289024	6427910
158	JM HOATH	Dwelling	299063.22	6435063
159	JE & MS DUCEY	Dwelling	299127	6435011
169	L GREENSILL and J WATTUS	Dwelling	298868	6436638
171	L GREENSILL and J WATTUS	Dwelling	299038	6436955
172	RL & CE THOMPSON	Dwelling	299157	6437224
310	RL & CE THOMPSON	Dwelling	299130	6437280
173	TL KING and JA WARD	Dwelling	298878	6437773
174	TJ & ML POWER	Dwelling	298908	6437676
175	TJ & ML POWER	Dwelling	298928	6437622
176	JAF & LA ALLAN	Dwelling	298988	6437509
177	FW & HM & SA WHEATLEY	Dwelling	298731	6438046
178	PA NEELY	Dwelling	299347	6438053
179	FW WHEATLEY	Dwelling	299191	6438159
180	F.A. WHEATLEY & SON PTY LTD	Dwelling	299230	6438233
180b	F.A. WHEATLEY & SON PTY LTD	Dwelling	299562	6438055
180c	F.A. WHEATLEY & SON PTY LTD	Dwelling	299444	6438872
181	K.L. & H.R. DAY PTY LTD	Dwelling	300474	6437756
183	K.L. & H.R. DAY PTY LTD	Commercial	300857	6437446
181c	K.L. & H.R. DAY PTY LTD	Dwelling	300023	6437409
182	JG & AJ SADLER	Dwelling	300849	6437839
182b	JG & AJ SADLER	Dwelling	300843	6437724
189	OB O'BRIEN	Dwelling	301236	6434698
190	OB O'BRIEN	Dwelling	301113	6434682
191	JA & JE FIBBINS	Dwelling	301421	6434533
192	IG & CW INGLE	Dwelling	301290	6434531
193	GM & KL SMITH	Dwelling	301529	6434365
311	GM & KL SMITH	Dwelling	301388	6434419
193c	GM & KL SMITH	Dwelling	302406	6433964
194	TC & JBA HARRIS	Dwelling	302021	6433456
195	T & RK YOUNG	Dwelling	302121	6432949
196	T & RK YOUNG	Dwelling	302234	6432240
197	T & RK YOUNG	Dwelling	302117	6432365
195d	T & RK YOUNG	Dwelling	302170	6432128
195e	T & RK YOUNG	Commercial	302034	6432899
198	TJ & NP GOLDRICK	Dwelling	301994	6431847
199	NA BURLING	Dwelling	302094	6431842
200	R EASTON	Dwelling	302258	6431847
202	DN RAPHAEL	Dwelling	301546	6431292
204	DN RAPHAEL	Dwelling	301940	6431205
203	RF & MA MILLARD	Dwelling	301451	6431324
206	WJ HARDES	Dwelling	299806	6427069
207	SW & KL BARKLEY	Dwelling	299389	6426888
207b	SW & KL BARKLEY	Dwelling	299537	6426696
208	FK & WDG ALMOND and PW HUME	Commercial	299174	6426781
315	FK & WDG ALMOND and PW HUME	Commercial	299208	6426836
212	DR & CJ TUBB	Dwelling	299568	6426381
212b	DR & CJ TUBB	Dwelling	299544	6426341

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ID	Landholders	Structure Type	Easting (m)	Northing (m)
212c	DR & CJ TUBB	Commercial	299539	6426270
213	ENGLEBRECHT RACING STABLES PTY LTD	Dwelling	299175	6426554
214	AL THOMSON-WEIR and RC WEIR	Dwelling	299183	6426574
215	WJ & CB MCINTOSH	Dwelling	299184	6426607
216	NJ KEEVERS	Dwelling	299187	6426634
217	RRA FARNSWORTH	Dwelling	299192	6426663
218	SY JOHNSON	Dwelling	299137	6426583
219	GL & KL ANDREWS	Dwelling	299139	6426600
220	RA BYRNES and MA MOLLER	Dwelling	299144	6426635
221	TD BARRON	Dwelling	299150	6426680
222	ML & EA SWEENEY	Dwelling	299154	6426716
223	MC & LJ DOBIE	Dwelling	299125	6426722
224	DL ROBINSON	Dwelling	299097	6426732
225	MR CRANFIELD and JR GLEESON	Dwelling	299204	6426692
249	TW ROOTS	Dwelling	290948	6423468
252	RM & KF MERRICK	Dwelling	289457	6424899
252b	RM & KF MERRICK	Dwelling	289575	6424546
257	PG & CM LANE	Dwelling	291302	6426071
258a	NJ & RY ELLIS	Dwelling	291000	6426441
258b	NJ & RY ELLIS	Dwelling	290584	6426756
259	MR PEEL	Dwelling	290868	6426152
260	PSJ MURRAY	Dwelling	291002	6426002
261	PR ELLIS	Dwelling	290650	6425665
271	DE KILGANNON and DS MACDOUGALL	Dwelling	289009	6434418
272	GC SPARRE	Dwelling	290603	6433696
272b	GC SPARRE	Dwelling	290597	6433720
273	IJ & CM RICHARDS	Dwelling	289237	6435180
280	MONADELPHOUS PROPERTIES PTY LTD	Commercial	299773	6426105
281	JR & JA BUCKLEY	Commercial	299691	6426050
282	JE ANDERSON and KL & J CAMPBELL and MV & DJ & SE & TP HALLETT	Commercial	299620	6425915
283	SRP & RF RAY	Dwelling	299633	6425990
285	THE NEW SOUTH WALES GREYHOUND BREEDERS OWNERS & TRAINERS ASSOCIATION LTD	Commercial	300280	6427411
285b	THE NEW SOUTH WALES GREYHOUND BREEDERS OWNERS & TRAINERS ASSOCIATION LTD	Commercial	300172	6427476
285c	THE NEW SOUTH WALES GREYHOUND BREEDERS OWNERS & TRAINERS ASSOCIATION LTD	Commercial	300136	6427524
287	TELSTRA CORPORATION LTD	Commercial	300454	6427537
288	LA & JM WEBSTER	Dwelling	300479	6427545
288b	LA & JM WEBSTER	Dwelling	300493	6427559
289	RA & EA LAWMAN	Dwelling	300328	6428692
292	GR & MK WALSH	Dwelling	290611	6422527
298	MG & LJ LATHAM	Dwelling	291487	6421945
300	MG & LJ LATHAM	Dwelling	291365	6421702
296a	JM WILD	Dwelling	291746	6422103
296b	JM WILD	Dwelling	291623	6422133
302a	MJ & MJ DUNCAN	Dwelling	290914	6421267
302b	MJ & MJ DUNCAN	Dwelling	290695	6421456
302c	MJ & MJ DUNCAN	Dwelling	290718	6421463
305	RH ENGLEBRECHT	Commercial	299173	6426508

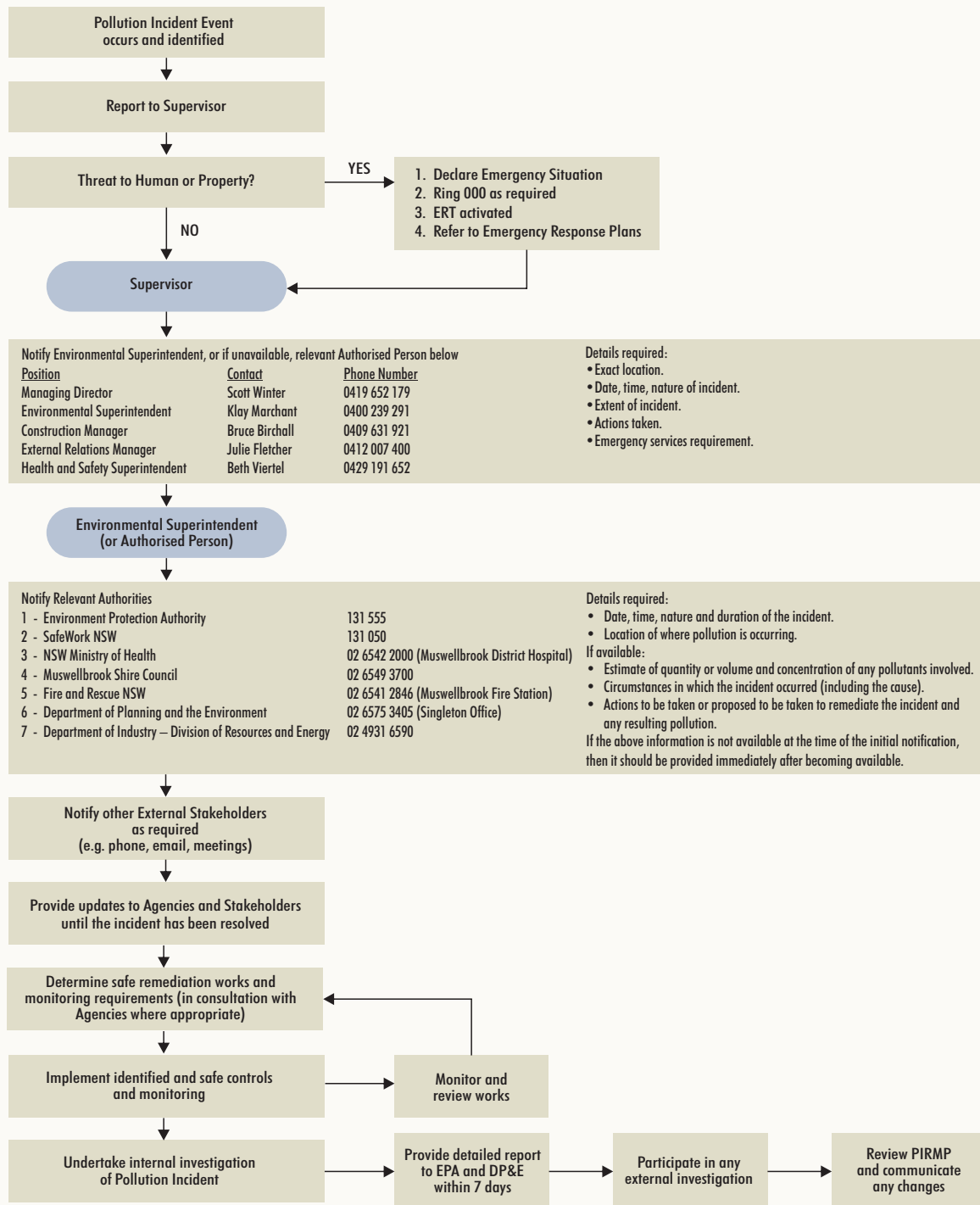
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ID	Landholders	Structure Type	Easting (m)	Northing (m)
401	JL & DG DAY	Dwelling	289649	6437858
402	PC BRITTAN	Dwelling	290201	6438459
407	AD LONERGAN	Dwelling	291736	6437533
413a	MJH LUMBY	Dwelling	288634	6436895
413b	MJH LUMBY	Dwelling	288465	6437096
415	SJ FRANKLAND	Dwelling	288448	6436265
416	RV MITCHELL	Dwelling	287602	6434882
417	M & JA CASTELLANA	Dwelling	288300	6435593
418	PB WATTS	Dwelling	287814	6435336
419	KM BATES and TG WOODS	Dwelling	288703	6436630
421	GW RICHARDS	Dwelling	289314	6435713
422a	ME DANIELS	Dwelling	297505	6438903
422b	ME DANIELS	Dwelling	297482	6438920
434	GJ & RL JONES	Dwelling	299588	6438940
436	MEDEGATE PTY LTD	Dwelling	299863	6438778
437	BG & S CANVIN	Dwelling	299729	6438830
453a	SC & ME DEVER	Dwelling	288345	6434693
453b	SC & ME DEVER	Dwelling	288307	6434751
454	AP & PE MCMANUS	Dwelling	287912	6434470
456	GT KEAST	Dwelling	286641	6434111
458	HJ WRIGHT	Dwelling	288254	6433349
462a	SH JENNAR	Dwelling	286648	6429789
462b	SH JENNAR	Dwelling	286662	6429918
463	IV & CA INGOLD	Dwelling	286574	6429559
464	KL BALMER and JL SMITH	Dwelling	289097	6428232
465	FN & WL GOOGE	Dwelling	288366	6427931
466	GT MCNEILL	Dwelling	289103	6426847
467	MWJ & LC WALTON	Dwelling	290367	6427991
468a	S.R. & J.W. LAWSON (LINDISFARNE) PTY LTD	Dwelling	288665	6422488
468b	S.R. & J.W. LAWSON (LINDISFARNE) PTY LTD	Dwelling	288416	6422514
468c	S.R. & J.W. LAWSON (LINDISFARNE) PTY LTD	Dwelling	288743	6422667
470	JI & PJ BROWN	Dwelling	289351	6423345
471	PJ BROWN	Dwelling	289165	6423423
472a	JDM MARKHAM	Dwelling	289360	6423043
472b	JDM MARKHAM	Dwelling	289390	6423191
474	AA & BT MEYER	Dwelling	289062	6422372
475	EJ & CA DENTON	Dwelling	290869	6421541
476	LA & CA MACPHERSON	Dwelling	289424	6420978
477a	MW TURNER	Dwelling	290064	6421064
477b	MW TURNER	Dwelling	290021	6421067
481	RL WILKS	Dwelling	288731	6420218
482	DJ PHILLIPS	Dwelling	288291	6420169
483	RW JONES	Dwelling	287961	6420256
484	TR & KM PAULSEN	Dwelling	288865	6419989
485a	PR & M BURGMANN	Dwelling	288070	6419004
485b	PR & M BURGMANN	Dwelling	288065	6419050
485c	PR & M BURGMANN	Dwelling	287991	6419081
485d	PR & M BURGMANN	Dwelling	287936	6419095
485e	PR & M BURGMANN	Dwelling	287940	6419101

ID	Landholders	Structure Type	Easting (m)	Northing (m)
487a	E RANKIN	Dwelling	292323	6421876
487b	E RANKIN	Dwelling	292203	6422343
488a	E & WJ RANKIN	Dwelling	292981	6421910
488b	E & WJ RANKIN	Dwelling	292667	6422644
526	DL Wicks	Dwelling	300537	6429477
527	DJ & GH CORK	Dwelling	300600	6428695
528	AS CHICK	Dwelling	300622	6428693
529	TH HAMILTON and AM SMITH	Dwelling	300641	6428693
530	SC & NJ BULLARD and JM HARRISON	Dwelling	300678	6428689
531	GJ & EA MUNZENBERGER	Dwelling	300678	6428670
532	VL ROSE	Dwelling	300677	6428649
533	MJ BROWN	Dwelling	300673	6428627
534	EE MARKS	Dwelling	300673	6428611
535	GL & DN HORTON	Dwelling	300665	6428593
536	LJ CUMMINS	Dwelling	300665	6428573
537	TJ D'HERVILLE	Dwelling	300664	6428556
538	KD POWER and T VERO	Dwelling	300511	6427651
539	PH CURTAIN and CA SINGLETON	Dwelling	300540	6427645
540	GRENTLL PTY LTD	Commercial	300569	6427621
541	JG HINDER and VG MATHEWS	Dwelling	300560	6427606
542	PE & GJ CHAPMAN	Dwelling	300550	6427597
543	KD CLOSE	Dwelling	300534	6427590
544	DS & RM NEWTON	Dwelling	300523	6427578
545	JA GREEN	Dwelling	300509	6427568
546	SJ SCOTT	Commercial	300302	6427587
547	LA & FK & G BRYANT	Dwelling	302122	6433354

## **APPENDIX D**

### **POLLUTION INCIDENT RESPONSE FLOWCHART**



MAC-16-01\_MP\_IRMP\_003A