

# **Ashton Coal**

## **Monthly attended noise monitoring - April 2024**

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Prepared for Ashton Coal Operations Pty Ltd

April 2024

# Ashton Coal

## Monthly attended noise monitoring - April 2024

Ashton Coal Operations Pty Ltd

E231043 RP4

April 2024

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Approved by



**Tony Welbourne**

Associate Director

22 April 2024

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# 1 Introduction

## 1.1 Background

EMM Consulting Pty Ltd (EMM) was engaged by Ashton Coal Operations Pty Ltd to conduct a monthly noise survey of operations at Ashton Coal Operations (Ashton Coal, the site) located at Glennies Creek Road, Camberwell NSW. The survey purpose was to quantify the acoustic environment and compare site noise levels against specified limits.

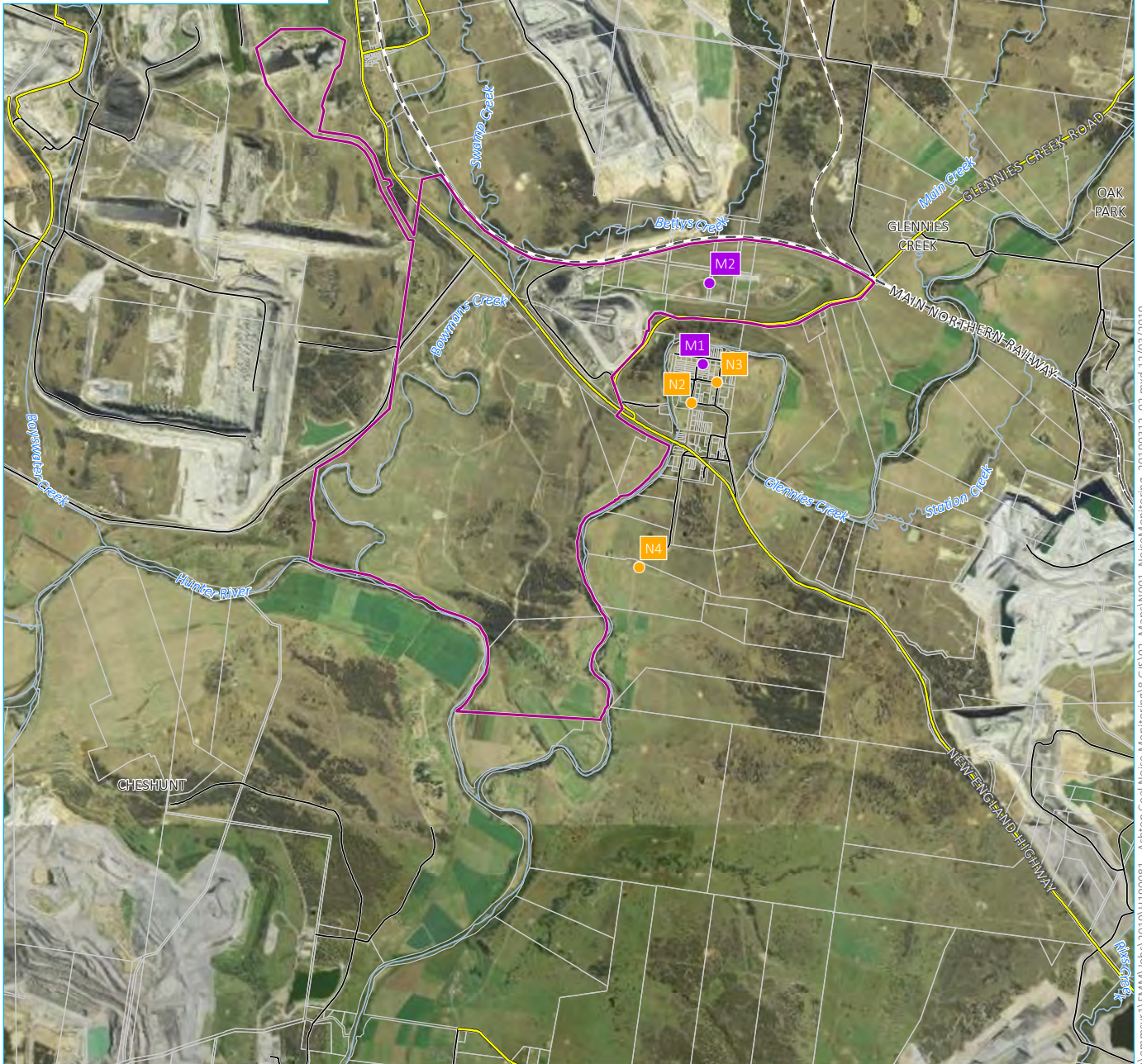
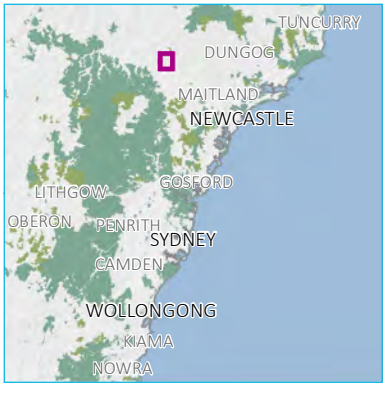
Attended environmental noise monitoring described in this report was done during the night period of Monday 15 April 2024 at three monitoring locations.

## 1.2 Attended monitoring locations

Site monitoring locations are detailed in Table 1.1 and shown on Figure 1.1. It should be noted that Figure 1.1 shows actual monitoring positions, not necessarily the location of residences.

**Table 1.1** Attended noise monitoring locations

| Location descriptor/ID | Description/address             | Coordinates (MGA56) |          |
|------------------------|---------------------------------|---------------------|----------|
|                        |                                 | Easting             | Northing |
| N2                     | Camberwell Village (west)       | 320297              | 6405670  |
| N3                     | Camberwell Village (north-east) | 320554              | 6405839  |
| N4                     | South of New England Highway    | 319776              | 6404101  |



Source: EMM (2019); DFSI (2017); GA (2011)



**KEY**

- Site boundary
- Noise monitoring location
- Meteorological station
- Rail line
- Main road
- Local road
- Watercourse/drainage line
- Cadastral boundary

Noise monitoring locations and Ashton colliery boundary

Ashton Coal  
Monthly attended noise monitoring  
Figure 1.1

\\emmsvr1\EMM\Jobs\2019\H190081 - Ashton Coal Noise Monitoring\GIS\02\_Maps\N001\_NoiseMonitoring\_20190312\_02.mxd 12/03/2019

## 1.3 Terminology and abbreviations

Some definitions of terms and abbreviations which may be used in this report are provided in Table 1.2.

**Table 1.2 Terminology and abbreviations**

| Term/descriptor       | Definition  |
|-----------------------|---|
| dB(A)                 | Noise level measurement units are decibels (dB). The “A” weighting scale is used to approximate how humans hear noise.  |
| $L_{Amax}$            | The maximum root mean squared A-weighted noise level over a time period.  |
| $L_{A1}$              | The A-weighted noise level which is exceeded for one per cent of the time.  |
| $L_{A1,1minute}$      | The A-weighted noise level which is exceeded for one per cent of the specified time period of one minute.   |
| $L_{A10}$             | The A-weighted noise level which is exceeded for 10 per cent of the time.   |
| $L_{Aeq}$             | The energy average A-weighted noise level.  |
| $L_{A50}$             | The A-weighted noise level which is exceeded for 50 per cent of the time, and is also the median noise level during a measurement period.   |
| $L_{A90}$             | The A-weighted noise level exceeded for 90 percent of the time, also referred to as the “background” noise level and commonly used to derive noise limits.  |
| $L_{Amin}$            | The minimum A-weighted noise level over a time period.  |
| $L_{Ceq}$             | The energy average C-weighted noise energy during a measurement period. The “C” weighting scale is used to take into account low-frequency components of noise within the audibility range of humans. |
| SPL                   | Sound pressure level. Fluctuations in pressure are measured as 10 times a logarithmic scale, with the reference pressure being 20 micropascals.   |
| Hertz (Hz)            | The frequency of fluctuations in pressure, measured in cycles per second. Most sounds are a combination of many frequencies together.   |
| AWS                   | Automatic weather station used to collect meteorological data, typically at an altitude of 10 metres  |
| VTG                   | The vertical temperature gradient in degrees Celsius per 100 metres altitude.   |
| Sigma-theta           | The standard deviation of the horizontal wind direction over a period of time.  |
| IA                    | Inaudible. When site noise is noted as IA then there was no site noise at the monitoring location.  |
| NM                    | Not Measurable. If site noise is noted as NM, this means some noise was audible but could not be quantified.  |
| Day                   | Monday – Saturday: 7 am to 6 pm, on Sundays and Public Holidays: 8 am to 6 pm.  |
| Evening               | Monday – Saturday: 6 pm to 10 pm, on Sundays and Public Holidays: 6 pm to 10 pm.  |
| Night                 | Monday – Saturday: 10 pm to 7 am, on Sundays and Public Holidays: 10 pm to 8 am.  |
| Temperature inversion | A meteorological condition where the atmospheric temperature increases with altitude.   |

Appendix A provides further information that gives an indication as to how an average person perceives changes in noise level, and examples of common noise levels.

## 2 Noise limits

### 2.1 Development consent

Ashton Coal noise limits are provided in Table 1, Condition 2 of Appendix 6 of the current development consent 309-11-2001-i (DC) dated 6 July 2022. Relevant sections of the DC are reproduced in Appendix B.1.

### 2.2 Environment protection licence

Ashton Coal noise limits are provided in Condition L4.1 of the current EPL 11879 (EPL) dated 3 November 2022. Relevant sections of the EPL are reproduced in Appendix B.2.

### 2.3 Noise management plan

The approved current NMP (dated April 2023) adopts three attended noise monitoring locations that are representative of residences outlined in the DC and EPL. Relevant sections of the NMP are reproduced in Appendix B.3.

### 2.4 Noise limits

Noise limits based on the NMP and consistent with the DC and EPL are as shown in Table 2.1.

**Table 2.1** Noise impact limits, dB

| Location | Day<br>$L_{Aeq,15minute}$ | Evening<br>$L_{Aeq,15minute}$ | Night<br>$L_{Aeq,15minute}$ | Night<br>$L_{A1,1minute}$ |
|----------|---------------------------|-------------------------------|-----------------------------|---------------------------|
| N2       | 38                        | 38                            | 36                          | 46                        |
| N3       | 38                        | 38                            | 36                          | 46                        |
| N4       | 38                        | 38                            | 36                          | 46                        |

### 2.5 Meteorological conditions

The DC and EPL specify the following meteorological conditions under which noise limits do not apply:

- during periods of rain or hail
- average wind speed at microphone height exceeds 5 metres per second (m/s)
- wind speeds greater than 3 m/s at 10 metres above ground level
- temperature inversion conditions greater than 3°C/100 m.

### 2.6 Additional considerations

Monitoring and reporting have been done in general accordance with the NSW EPA 'Noise Policy for Industry' (NPfI) issued in October 2017 and the 'Approved methods for the measurement and analysis of environmental noise in NSW' (Approved Methods) issued in January 2022.



## 3 Methodology

### 3.1 Overview

Attended environmental noise monitoring was done in general accordance with Australian Standard AS1055 'Acoustics, Description and Measurement of Environmental Noise' and relevant EPA requirements.

Meteorological data was obtained from the Ashton Coal on-site weather station (AWS) which allowed the correlation of atmospheric parameters with measured noise levels.

### 3.2 Attended noise monitoring

During this survey, attended noise monitoring was done during the night period at each location. The duration of each measurement was 15 minutes. Atmospheric conditions were measured at each monitoring location.

Measured sound levels from various sources were noted during each measurement, and particular attention was paid to the extent of site contribution (if any) to measured levels. At each monitoring location, the site-only  $L_{Aeq,15minute}$  and  $L_{Amax}$  were measured directly or determined by other methods detailed in Section 7.1 of the NPfI.

The terms 'Inaudible' (IA) or 'Not Measurable' (NM) may be used in this report. When site noise is noted as IA, it was inaudible at the monitoring location. When site noise is noted as NM, this means it was audible but could not be quantified. All results noted as IA or NM in this report were due to one or more of the following:

- Site noise levels were very low, typically more than 10 dB below the measured background ( $L_{A90}$ ), and unlikely to be noticed.
- Site noise levels were masked by more dominant sources that are characteristic of the environment (such as breeze in foliage or continuous road traffic noise) that cannot be eliminated by monitoring at an alternate or intermediate location.
- It was not feasible or reasonable to employ methods, such as to move closer and back calculate. Cases may include rough terrain preventing closer measurement, addition/removal of significant source to receiver shielding caused by moving closer, and meteorological conditions where back calculation may not be accurate.

If exact noise levels from site could not be established due to masking by other noise sources in a similar frequency range but were determined to be at least 5 dB lower than relevant limits, then a maximum estimate may be provided. This is expressed as a 'less than' quantity, such as <20 dB or <30 dB.

For this assessment, the measured  $L_{Amax}$  has been used as a conservative estimate of  $L_{A1,1minute}$ . The EPA accepts sleep disturbance analysis based on either the  $L_{A1,1minute}$  or  $L_{Amax}$  metrics, with the  $L_{Amax}$  representing a more conservative assessment of site noise emissions.

### 3.3 Meteorological data

As per EPL Condition L4.4, this assessment determined stability categories for the attended monitoring period using the direct measurement method as per Fact Sheet D of the Noise Policy for Industry (2017).

The temperature lapse rate was calculated using data from two weather stations; Sentinex Unit 40 weather station (M1) located in Camberwell Village and Ashton Coal 'repeater' weather station (M2 – the site AWS) located in the north-eastern open cut area as shown in Figure 1.1. This was calculated for each 15-minute measurement using the following formula:

$$\text{Temperature lapse rate} = (\Delta T) \times (100/(\Delta H))$$

Where:

- $\Delta T$  = temperature measured at M2 (at 10 metres above ground level) minus temperature measured at M1 (at 10 metres above ground level); and
- $\Delta H$  = the vertical height difference between M2 and M1 (equal to 73 metres).

### 3.4 Modifying factors

All measurements were evaluated for potential modifying factors in accordance with the NPfI. If applicable, modifying factor penalties have been reported and added to the measured site only  $L_{Aeq}$  noise levels.

Low-frequency modifying factor penalties have only been applied to site-only  $L_{Aeq}$  if the site was the only contributing low-frequency noise source. Specific methodology for assessment of each modifying factor is outlined in Fact Sheet C of the NPfI.

### 3.5 Instrumentation and personnel

Attended noise monitoring was conducted by Lucas Adamson. Qualifications, experience, and/or demonstration of competence is in accordance with the Approved methods and supportive documentation is available upon request.

Equipment used to measure environmental noise levels is detailed in Table 3.1. Calibration certificates are provided in Appendix C.

**Table 3.1** Attended noise monitoring equipment

| Item                                | Serial number | Calibration due date | Relevant standard |
|-------------------------------------|---------------|----------------------|-------------------|
| Brüel & Kjær 2250 sound level meter | 3029363       | 3/11/2024            | IEC 61672-1:2013  |
| Svantek SV-36 calibrator            | 79952         | 27/9/2025            | IEC 60942:2017    |

## 4 Results

### 4.1 Total measured noise levels and atmospheric conditions

Overall noise levels measured at each location during attended measurements are provided in Table 4.1. Discussion as to the sources responsible for measured levels is provided in Section 5 of this report.

**Table 4.1** Total measured noise levels, dB – April 2024<sup>1</sup>

| Location | Start date | Time  | L <sub>Amax</sub> | L <sub>A1</sub> | L <sub>A10</sub> | L <sub>Aeq</sub> | L <sub>A50</sub> | L <sub>A90</sub> | L <sub>Amin</sub> |
|----------|------------|-------|-------------------|-----------------|------------------|------------------|------------------|------------------|-------------------|
| N2       | 15/4/2024  | 22:00 | 64                | 55              | 50               | 46               | 41               | 33               | 31                |
| N3       | 15/4/2024  | 22:18 | 59                | 48              | 43               | 40               | 37               | 34               | 32                |
| N4       | 15/4/2024  | 22:40 | 64                | 45              | 42               | 41               | 40               | 38               | 35                |

Notes: 1. Levels in this table are not necessarily the result of activity at the site.

Atmospheric condition data measured by the operator during each measurement using a hand-held weather meter is shown in Table 4.2. The wind speed, direction and temperature were measured at approximately 1.5 metres above ground. Attended noise monitoring is not done during rain, hail, or wind speeds above 5 m/s at microphone height.

**Table 4.2** Atmospheric conditions measured at microphone height – April 2024

| Location | Date      | Time  | Temperature °C | Wind speed m/s | Wind direction ° Magnetic north | Cloud cover 1/8s |
|----------|-----------|-------|----------------|----------------|---------------------------------|------------------|
| N2       | 15/4/2024 | 22:00 | 20.2           | <0.5           | -                               | 7                |
| N3       | 15/4/2024 | 22:18 | 19.8           | <0.5           | -                               | 7                |
| N4       | 15/4/2024 | 22:40 | 19.5           | <0.5           | -                               | 7                |

### 4.2 Site only noise levels

#### 4.2.1 Modifying factors

There were no modifying factors, as defined in the NPfI, applicable during the survey.

## 4.2.2 Monitoring results

Table 4.3 provides site noise levels in the absence of other sources, where possible, and includes weather data from the site AWS. Limits are applicable if weather conditions were within specified parameters during each measurement.

**Table 4.3 Site noise levels and limits – April 2024**

| Location | Start Date | Time  | Wind      |                         | Stability Class | VTG °C/100m | Limits apply? <sup>1</sup> | Limit, dB                 |                         | Site level, dB <sup>2</sup> |                   | Exceedance, dB            |                   |
|----------|------------|-------|-----------|-------------------------|-----------------|-------------|----------------------------|---------------------------|-------------------------|-----------------------------|-------------------|---------------------------|-------------------|
|          |            |       | Speed m/s | Direction° <sup>3</sup> |                 |             |                            | L <sub>Aeq,15minute</sub> | L <sub>A1,1minute</sub> | L <sub>Aeq,15minute</sub>   | L <sub>Amax</sub> | L <sub>Aeq,15minute</sub> | L <sub>Amax</sub> |
| N2       | 15/4/2024  | 22:00 | 1.1       | 174                     | E               | 1.0         | Yes                        | 36                        | 46                      | 31                          | 34                | Nil                       | Nil               |
| N3       | 15/4/2024  | 22:18 | 1.3       | 203                     | F               | 1.6         | Yes                        | 36                        | 46                      | 32                          | 34                | Nil                       | Nil               |
| N4       | 15/4/2024  | 22:40 | 1.2       | 212                     | F               | 1.8         | Yes                        | 36                        | 46                      | IA                          | IA                | Nil                       | Nil               |

- Notes:
1. Noise emission limits are applicable if weather conditions were within parameters specified in Section 2.5. N/A in exceedance column indicates that limits were not applicable due to weather conditions.
  2. Site-only L<sub>Aeq,15minute</sub>, includes modifying factor penalties if applicable.
  3. Degrees magnetic north, “-” indicates calm conditions.
  4. IA in the site level column means that the site was deemed inaudible at that location.
  5. NM (not measurable) in the site level column means that the site was audible but could not be quantified.

# 5 Discussion

## 5.1 Noted noise sources

During attended monitoring, the time variations (temporal characteristics) of noise sources are considered in each measurement via statistical descriptors. From these observations, summaries have been derived for the location and provided in this chapter. Statistical 1/3 octave-band analysis of environmental noise was undertaken, and the following figures display frequency ranges of various noise sources at each location for  $L_{A1}$ ,  $L_{A10}$ ,  $L_{Aeq}$ ,  $L_{A50}$ , and  $L_{A90}$  descriptors. These figures also provide, graphically, statistical information for these noise levels.

An example is provided as Figure 5.1, where frogs and insects are seen to be generating noise at frequencies above 1000 Hz, while industrial noise is observed at frequencies less than 1000 Hz.

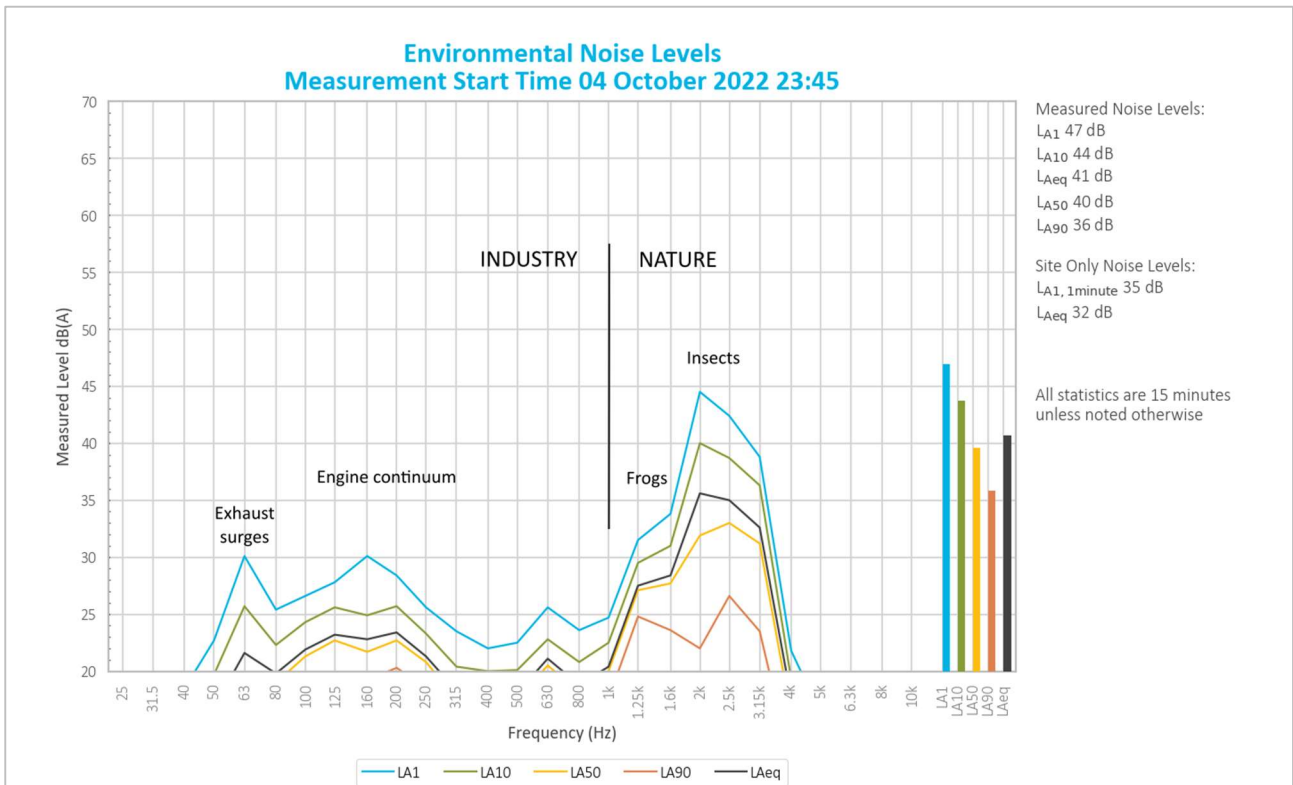
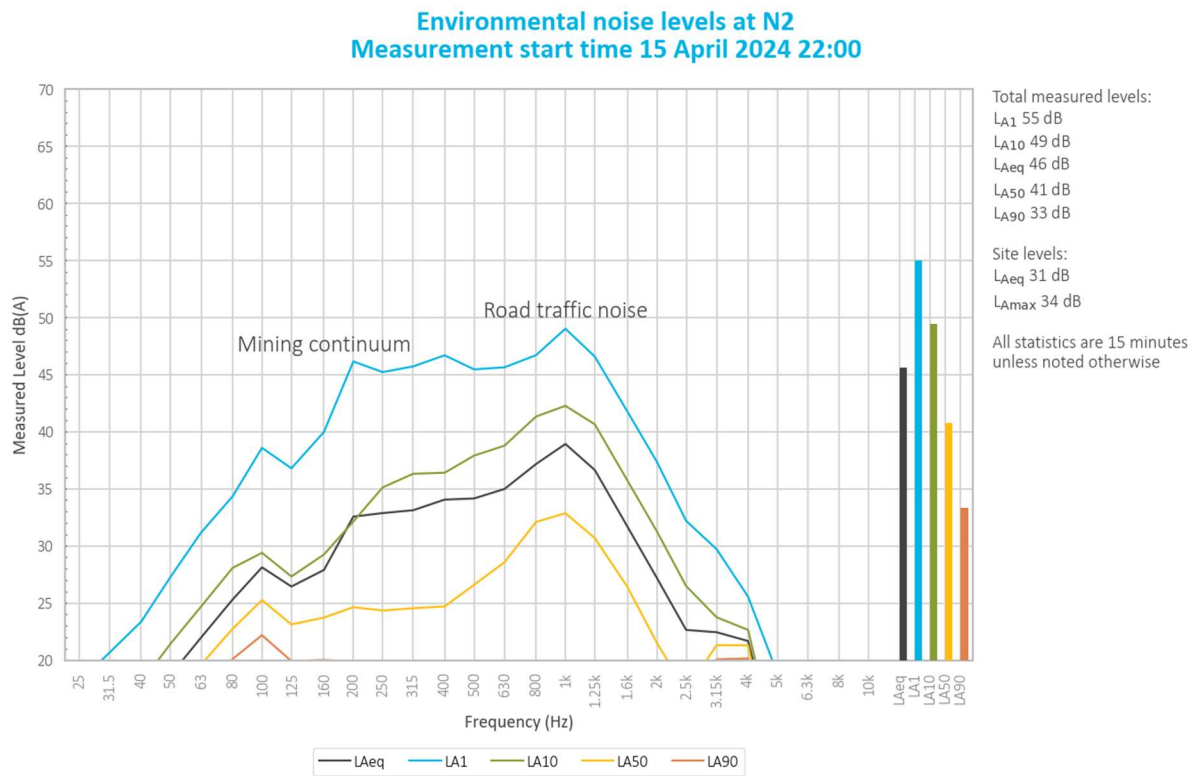


Figure 5.1 Example graph

## 5.2 N2 – Camberwell Village (west)



**Figure 5.2 Environmental noise levels - N2, Camberwell Village (West)**

Ashton Coal mine hum was consistently audible throughout the entire measurement.

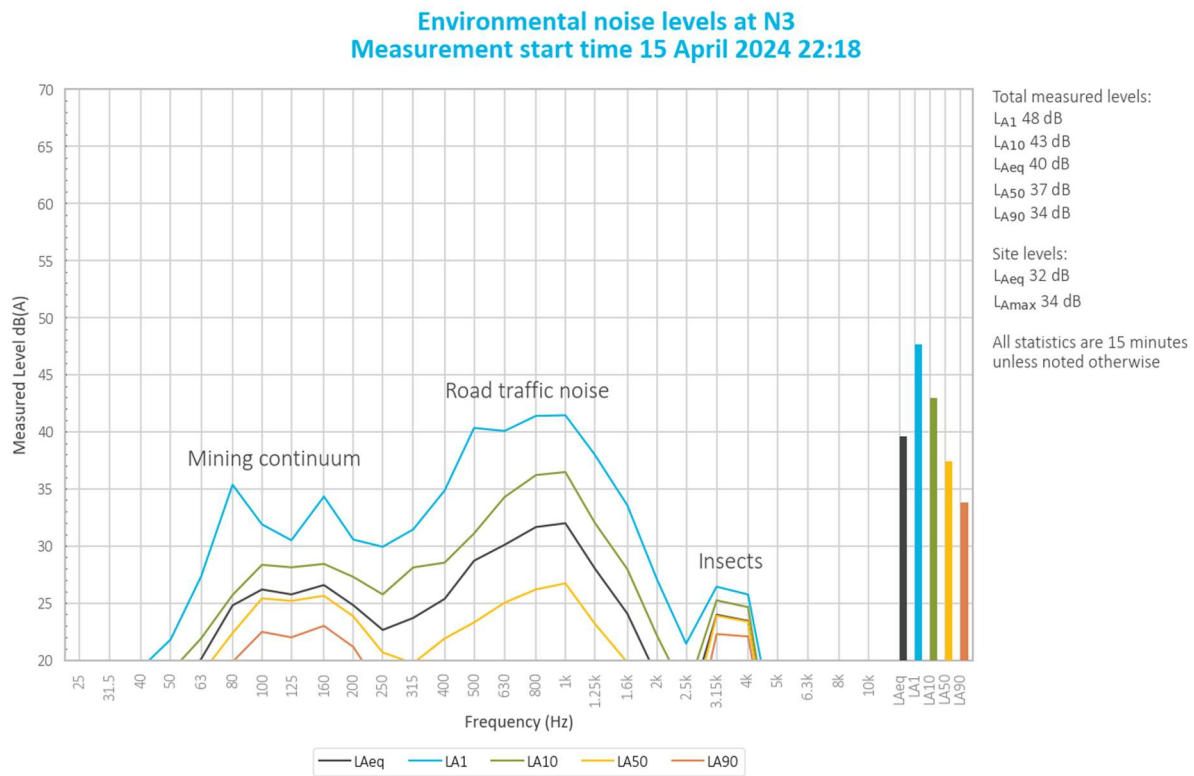
Ashton Coal mine hum and road traffic noise were the main contributors to measured levels.

Noise from insects, residents, aircraft and livestock was also noted.

### 5.2.1 Cumulative mining noise at N2

No noise from other mines in the vicinity was noted, therefore there was no cumulative mining noise.

### 5.3 N3 – Camberwell Village (north-east)



**Figure 5.3 Environmental noise levels – N3, Camberwell Village (North-East)**

Ashton Coal mine hum was consistently audible throughout the entire measurement.

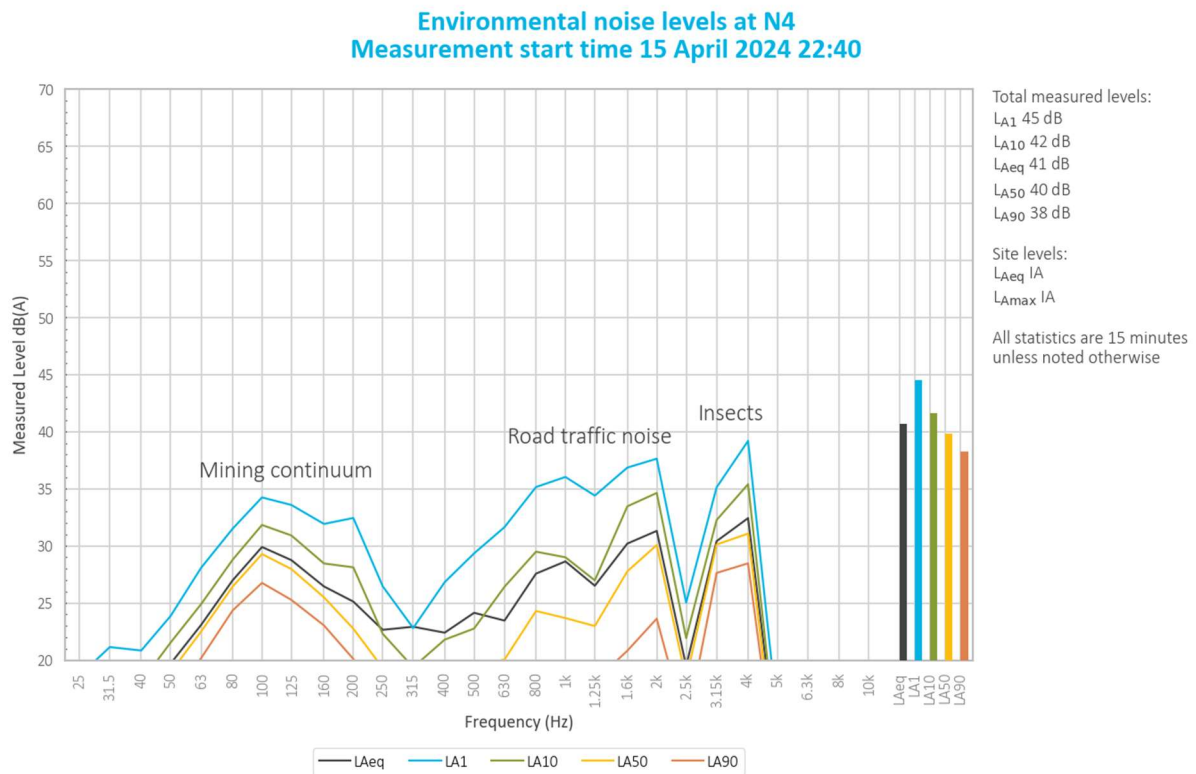
Mining continuum and road traffic noise were the main contributors to measured levels.

Noise from insects, other mines in the vicinity, livestock and a train on the main line was also noted.

#### 5.3.1 Cumulative mining noise at N3

Other mining operations in the vicinity were consistently audible during the operator-attended noise survey at monitoring location N3. The cumulative mining noise level was estimated to be  $L_{Aeq,night}$  32 dB (i.e. Ashton Coal mine noise of  $L_{Aeq,15minute}$  32 dB + other mine noise of  $L_{Aeq,15minute}$  32 dB less 3 dB as per NPfl methodology) which is below the relevant  $L_{Aeq,night}$  40 dB limit. A graph of the total noise levels measured in the one-third octave frequency bands is shown in Figure 5.3.

## 5.4 N4 – South of New England Highway



**Figure 5.4 Environmental noise levels – N4, South of New England Highway**

Ashton Coal was inaudible throughout the entire measurement.

Insects, road traffic noise and mining continuum (other mines in the vicinity) were the main contributors to measured levels.

Noise from livestock and dogs barking was also noted.

### 5.4.1 Cumulative mining noise at N4

Ashton Coal was inaudible and therefore no cumulative mining noise was associated with it.



## 6 Summary

EMM Consulting Pty Ltd (EMM) was engaged by Ashton Coal Operations Pty Ltd to conduct a monthly noise survey of operations at Ashton Coal. The survey purpose was to quantify the acoustic environment and compare site noise levels against specified noise limits.

Attended environmental noise monitoring described in this report was done during the night period of Monday 15 April 2024 at three monitoring locations as per the approved NMP.

Noise from the site complied with relevant limits at all monitoring locations during the April 2024 survey.

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# Appendix A

## Noise perception and examples

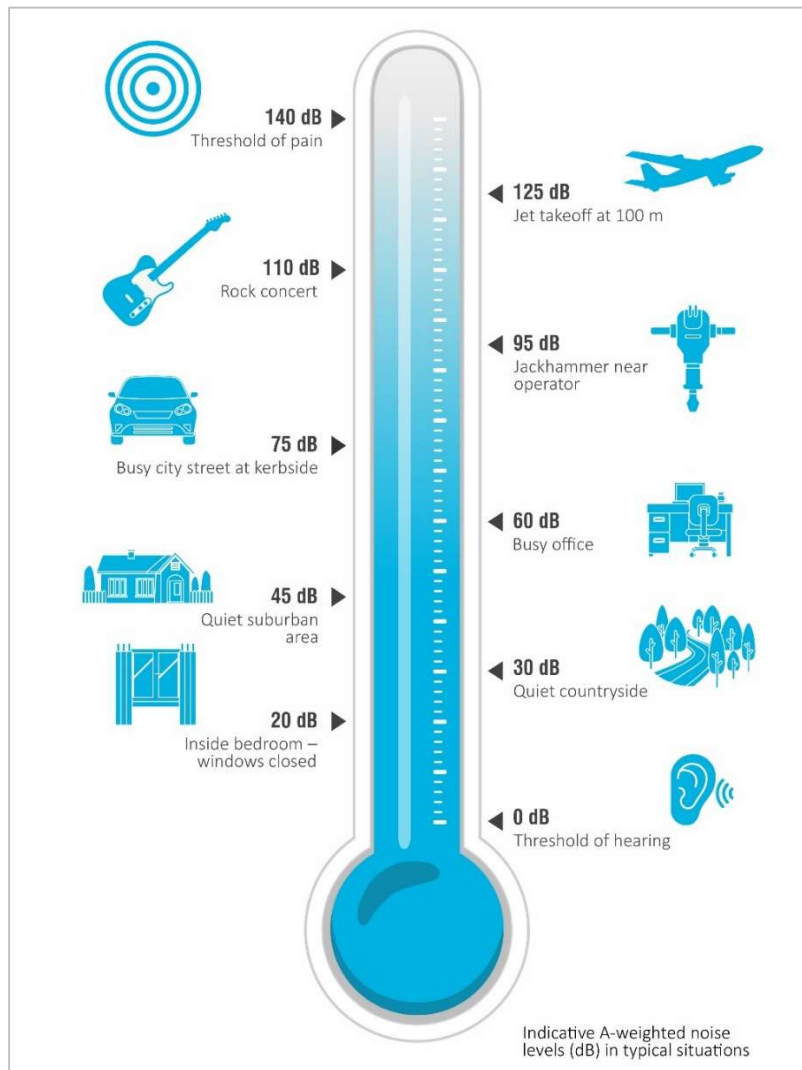
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## A.1 Noise levels

Table A.1 gives an indication as to how an average person perceives changes in noise level. Examples of common noise levels are provided in Figure A.1.

**Table A.1** Perceived change in noise

| Change in sound pressure level (dB) | Perceived change in noise         |
|-------------------------------------|-----------------------------------|
| up to 2                             | Not perceptible                   |
| 3                                   | Just perceptible                  |
| 5                                   | Noticeable difference             |
| 10                                  | Twice (or half) as loud           |
| 15                                  | Large change                      |
| 20                                  | Four times (or a quarter) as loud |



**Figure A.1** Common noise levels

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# Appendix B

## Regulator documents

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## B.1 Development consent

## APPENDIX 6 ALTERNATE NOISE CONDITIONS

### NOISE

#### Application

- Conditions 2 to 3 below have effect during times when open cut mining operations are not being undertaken at the Ashton Mine Complex, in the opinion of the [Planning](#) Secretary.

#### Noise Criteria

- Except for the noise-affected land in Table 1 of Schedule 3, the Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 1 at any residence on privately-owned land or on more than 25 per cent of any privately-owned land.

Table 1: Noise Criteria dB(A)

| Receiver No. | Receiver                 | Day<br>( $L_{Aeq}$ (15min)) | Evening<br>( $L_{Aeq}$ (15min)) | Night<br>( $L_{Aeq}$ (15min)) | Night<br>( $L_{A1}$ (1 min)) |
|--------------|--------------------------|-----------------------------|---------------------------------|-------------------------------|------------------------------|
| -            | All privately-owned land | 38                          | 38                              | 36                            | 46                           |

Noise generated by the development is to be measured in accordance with the relevant requirements of the *NSW Industrial Noise Policy*. Appendix 8 sets out the requirements for evaluating compliance with these criteria.

However, these noise criteria do not apply if the Applicant has an agreement with the relevant owner/s of the residence/land to generate higher noise levels, and the Applicant has advised the Department in writing of the terms of this agreement.

#### Additional Noise Mitigation Measures

- Upon receiving a written request from the owner of any residence on any privately-owned land where subsequent operational noise monitoring shows the noise generated by the development exceeds the noise limits in Table 2, the Applicant must implement additional reasonable and feasible noise mitigation measures (such as double glazing, insulation, and/or air conditioning) at the residence in consultation with the owner.

If within 3 months of receiving this request from the landowner, the Applicant and the landowner 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 [Planning](#) Secretary for resolution.

Table 2: Additional Noise Mitigation Criteria dB(A)  $L_{Aeq}$  (15min)

| Receiver No. | Receiver                 | Day<br>( $L_{Aeq}$ (15min)) | Evening<br>( $L_{Aeq}$ (15min)) | Night<br>( $L_{Aeq}$ (15min)) |
|--------------|--------------------------|-----------------------------|---------------------------------|-------------------------------|
| -            | All privately-owned land | 38                          | 38                              | 38                            |

#### Notes:

- Noise generated by the development is to be measured in accordance with the relevant requirements of the *NSW Industrial Noise Policy*. Appendix 8 sets out the requirements for evaluating compliance with these criteria.
- For this condition to apply, the exceedance of the criteria must be systemic.

## APPENDIX 8

### NOISE COMPLIANCE ASSESSMENT

#### Compliance Monitoring

1. Attended monitoring is to be used to evaluate compliance with the relevant conditions of this approval.
2. Data collected for the purposes of determining compliance with the relevant conditions of this approval is to be excluded under the following meteorological conditions:
  - a) during periods of rain or hail;
  - b) average wind speed at microphone height exceeds 5 m/s;
  - c) wind speeds greater than 3 m/s measures at 10 m above ground level; and
  - d) temperature inversion conditions greater than 3°C/100m.
3. Unless otherwise agreed with the **Planning** Secretary, this monitoring is to be carried out in accordance with the relevant requirements relating for reviewing performance set out in the NSW Industrial Noise Policy (as amended from time to time), in particular the requirements relating to:
  - a) monitoring locations for the collection of representative noise data;
  - b) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment; and
  - c) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration.
4. To the extent that there is any inconsistency between the Industrial Noise Policy and the requirements set out in this Appendix, the Appendix prevails to the extent of the inconsistency.

#### Determination of Meteorological Conditions

5. Except for wind speed at microphone height, the data to be used for determining meteorological conditions **must** be that recorded by the meteorological station located in the vicinity of the site (as required by condition 18 of Schedule 3).

## B.2 Environmental protection licence



# Environment Protection Licence

Licence - 11879

|    |                        |  |
|----|------------------------|--|
| 24 | Groundwater monitoring | Monitoring up-gradient of Glennies Creek alluvium at coordinates 319294, 6404588 (Easting, Northing), identified as WML120B in Figure 1.   |
| 25 | Groundwater monitoring | Monitoring mid-gradient of Glennies Creek alluvium at coordinates 319468, 6403528 (Easting, Northing), identified as WML129 in Figure 1.   |
| 26 | Groundwater monitoring | Monitoring down-gradient of Glennies Creek alluvium at coordinates 318965, 6402842 (Easting, Northing), identified as WMLP336 in Figure 1. |
| 27 | Groundwater monitoring | Monitoring up-gradient of Barrett coal seam at coordinates 318431, 6407214 (Easting, Northing), identified as GM1 in Figure 1.             |
| 28 | Groundwater monitoring | Monitoring up-gradient of Pikes Gully coal seam at coordinates 319292, 6404580 (Easting, Northing), identified as WML120A in Figure 1.     |
| 29 | Groundwater monitoring | Monitoring mid-gradient of Pikes Gully coal seam at coordinates 319220, 6403928 (Easting, Northing), identified as WML262 in Figure 1.     |
| 30 | Groundwater monitoring | Monitoring up-gradient of Upper Liddell coal seam at coordinates 319215, 6403958 (Easting, Northing), identified as WML181 in Figure 1.    |
| 31 | Groundwater monitoring | Monitoring mid-gradient of Upper Liddell coal seam at coordinates 319188, 6404325 (Easting, Northing), identified as WML183 in Figure 1.   |

P1.4 The following points referred to in the table below are identified in this licence for the purposes of weather and/or noise monitoring and/or setting limits for the emission of noise from the premises.

### *Noise/Weather*

| EPA identification no. | Type of monitoring point   | Location description  |
|------------------------|--|---|
| 12                     | Meteorological Station – to determine meteorological conditions for noise monitoring | Meteorological monitoring at coordinates 320522, 6406815 (Easting, Northing), identified as Repeater on Figure 2.                           |
| 13                     | Noise monitoring   | Monitoring at coordinates 320554, 6405839 (Easting, Northing), identified as N3 on Figure 2 and representative of Noise Assessment Group 2. |

# Environment Protection Licence

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|    |  |   |
|----|--|---|
| 14 | Noise monitoring   | Monitoring at coordinates 320297, 6405670 (Easting, Northing), identified as N2 on Figure 2 and representative of Noise Assessment Group 1. |
| 15 | Noise monitoring   | Monitoring at coordinates 319776, 6404101 (Easting, Northing), identified as N4 on Figure 2 and representative of Noise Assessment Group 3. |
| 32 | Meteorological Station – to determine meteorological conditions for noise monitoring | Monitoring of temperature at 'M1' at coordinates 320259, 6405971 (Easting, Northing).   |

- P1.5 For the purposes of Condition P1.1, P1.2 and P1.3, Figure 1 refers to the plan titled "Ashton Underground Mine Environment Protection licence 11879 Premises Boundary, Surface Infrastructure" dated 30/08/19 (EPA reference DOC19/761196).
- P1.6 For the purpose of Condition P1.4, Figure 2 refers to the plan titled "Ashton Underground Mine Environment Protection licence 11879 Premises Boundary, Monitoring" dated 30/08/19 (EPA reference DOC19/761196).
- P1.7 The datum for grid references in this Licence is the Geodetic Datum of Australia 1994 (GDA94), Zone 56.

## 3 Limit Conditions

### L1 Pollution of waters

- L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

### L2 Concentration limits

- L2.1 Flares must be operated by the licensee such that there is no visible emission other than for a total period of no more than 5 minutes in any 2 hours, except for heat haze.

### L3 Waste

- L3.1 The licensee must not cause, permit or allow any waste to be received at the premises unless specified in this licence.
- L3.2 The Licensee must not dispose of waste on the premises unless authorised by a condition of this Licence.

### L4 Noise limits

- L4.1 Noise from the premises must not exceed the noise limits specified in the table below.

Residences referenced in this table are from the consent DA 309-11-2001-i and summarised in the EPA

# Environment Protection Licence

Licence - 11879

reference DOC19/761196.

| Location                             | Day LAeq(15 minute) | Evening LAeq(15 minute) | Night LAeq(15 minute) | Night LAeq(1 minute) |
|--------------------------------------|---------------------|-------------------------|-----------------------|----------------------|
| EPA Point 13                         | 38                  | 38                      | 36                    | 46                   |
| EPA Point 14                         | 38                  | 38                      | 36                    | 46                   |
| EPA Point 15                         | 38                  | 38                      | 36                    | 46                   |
| All other privately owned residences | 38                  | 38                      | 36                    | 46                   |

L4.2 For the purpose of Condition L4.1:

- a) Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays,
- b) Evening is defined as the period from 6pm to 10pm, and
- c) Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays

L4.3 The noise emission limits identified in condition L4.1 apply under the following meteorological conditions:

- a) wind speeds up to 3m/s at 10m above ground level; and
- b) temperature inversion conditions up to 3 degrees C/100m.

L4.4 For the purposes of condition L4.1:

- a) Data recorded by the closest and most representative meteorological station installed on the premises at EPA Identification Point 12 must be used to determine meteorological conditions; and
- b) Temperature inversion conditions (stability category) are to be determined by the methods referred to in Fact Sheet D of the Noise Policy for Industry (2017) using EPA Identification Points 12 and 32.

## 4 Operating Conditions

### O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.

This includes:

- a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
- b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

### O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:

- a) must be maintained in a proper and efficient condition; and
- b) must be operated in a proper and efficient manner.

## B.3 Noise management plan

Relevant parts of the DA have been reproduced in Appendix A along with reference to where they have been addressed in this document.

## 4.2 Applicable Criteria

Noise criteria for the ACP are divided into three categories:

- Impact assessment criteria;
- Additional noise mitigation criteria; and
- Cumulative noise acquisition criteria.

The RUM must adhere to a single set of noise criteria relating to noise generated by the RUM development.

### 4.2.1 Impact Assessment Criteria

In accordance with Condition 2, Appendix 6 of the Ashton DA and Condition L4.1 of EPL 11879, noise generated by the development within the ACP must not exceed the limits specified in **Table 3** at any privately-owned land or on more than 25 per cent of any privately-owned land. The noise limits are provided in decibels (dB).

**Table 3: Ashton Noise Impact Criteria dB(A)**

| Location  | Day              | Evening          | Night            |                |
|---|------------------|------------------|------------------|----------------|
|   | LAeq (15 minute) | LAeq (15 minute) | LAeq (15 minute) | LA1 (1 minute) |
| Any residence not owned by the Applicant or not subject to an agreement between the Applicant and the residence owner as to an alternate noise limit. | 38               | 38               | 36               | 46             |

In accordance with Condition 12, Schedule 3 of the RUM DA, noise generated by development in the ACOL-operated RUM must not exceed the limits specified in **Table 4** at any residence on privately-owned land or on more than 25 per cent of any privately-owned land.

**Table 4 RUM Noise Impact Criteria dB(A)**

| Location  | Day              | Evening          | Night            |                |
|---|------------------|------------------|------------------|----------------|
|   | LAeq (15 minute) | LAeq (15 minute) | LAeq (15 minute) | LA1 (1 minute) |
| Any residence not owned by the Applicant or not subject to an agreement between the Applicant and the residence owner as to an alternate noise limit. | 35               | 35               | 35               | 45             |

### 4.2.2 Additional Noise Mitigation Criteria

If noise emissions generated by the ACP exceed the criteria displayed in **Table 5** at any residence on privately-owned land, then, upon receiving a written request from the landowner, ACOL will implement additional reasonable and feasible noise mitigation measures (such as double glazing, insulation and/or air conditioning) at the residence in consultation with the owner.

**APPROVED DOCUMENT IS UNCONTROLLED WHEN PRINTED**

|   |                         |                    |
|---|-------------------------|--------------------|
| Title: Plan- Ashton Coal Operations Noise Management Plan |                         |                    |
| Document ID: ACO-ENVI-5016                                | Owner: Phil Brown       |                    |
| Last Review:  | Next Review: 17/05/2026 | Revision Number: 4 |

**Table 5 Additional Noise Mitigation Criteria dB(A)#**

| Location  | Day              | Evening          | Night            |
|---|------------------|------------------|------------------|
|   | LAeq (15 minute) | LAeq (15 minute) | LAeq (15 minute) |
| Any residence not owned by the Applicant or not subject to an agreement between the Applicant and the residence owner as to an alternate noise limit. | 38               | 38               | 38               |

\* Exceedance of the criteria must be systemic.

#### 4.2.3 Cumulative Noise Acquisition Criteria

If noise emissions generated by the ACP, and other mines exceed the criteria in **Table 6** at any residence on privately-owned land or on more than 25 per cent of any privately-owned land (except for noise affected residential receivers in Condition 1, Schedule 3 of the Ashton DA) then, upon receiving a written request for acquisition from the landowner, ACOL together with the relevant mines, will acquire the land in accordance with the Acquisition Process (as defined in Conditions 7 and 8, Schedule 4 of the Ashton DA).

**Table 6 Cumulative Noise Acquisition Criteria dB(A)**

| Location                       | Day           | Evening       | Night         |
|--------------------------------|---------------|---------------|---------------|
|                                | LAeq (period) | LAeq (period) | LAeq (period) |
| Camberwell Village             | 60            | 50            | 45            |
| All other privately-owned land | 55            | 50            | 45            |

### 4.3 Existing Environment

The ACP is located in the Hunter Valley region of New South Wales and is bound by the Main Northern Railway to the north, Hunter River to the south and Glennies Creek to the east with the New England Highway dividing the open cut from the underground mining areas.

Other mining operations in the area include the Ravensworth Complex, the Mount Owen Complex, Rix's Creek Open Cut, Integra Underground and Hunter Valley Operations.

The closest sensitive receivers are located in Camberwell. There are currently 13 private landholdings in the local area, 11 of these have an occupied residence.

Ambient noise levels within the village of Camberwell are influenced by the New England Highway to the south, the railway line to the northeast and surrounding mining operations. Attended noise monitoring has confirmed that the major contributing noise source is usually the New England Highway. Noise from ACP has been noted at times in Camberwell Village, historical reports show this has been infrequent and at relatively low levels.

Based on the historical meteorological data collected by ACOL's M2 (repeater) weather station the most common winds in winter are from the west-northwest and the east-southeast in summer. Prevailing winds act to enhance noise from surrounding noise sources (road, rail and mining).

**APPROVED DOCUMENT IS UNCONTROLLED WHEN PRINTED**

|   |                         |                    |
|---|-------------------------|--------------------|
| Title: Plan- Ashton Coal Operations Noise Management Plan |                         |                    |
| Document ID: ACO-ENVI-5016                                | Owner: Phil Brown       |                    |
| Last Review:  | Next Review: 17/05/2026 | Revision Number: 4 |

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# Appendix C

## Calibration certificates

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# CERTIFICATE OF CALIBRATION

CERTIFICATE No: **C37508**

EQUIPMENT TESTED : Sound Level Calibrator

**Manufacturer:** Svantek  
**Type No:** SV 36      **Serial No:** 79952  
**Class:** 1  
**Owner:** EMM Consulting Pty Ltd  
L3, 175 Scott Street  
Newcastle, NSW 2300

**Tests Performed:** Measured Output Pressure level, Frequency & Distortion  
**Comments:** See Details and Class Tolerance overleaf.

## CONDITION OF TEST:

|                          |   |                              |            |
|--------------------------|---|------------------------------|------------|
| <b>Ambient Pressure</b>  | 1005 hPa $\pm 1$ hPa                        | <b>Date of Receipt :</b>     | 26/09/2023 |
| <b>Temperature</b>       | 23 $^{\circ}\text{C} \pm 1^{\circ}\text{C}$ | <b>Date of Calibration :</b> | 27/09/2023 |
| <b>Relative Humidity</b> | 47 % $\pm 5\%$                              | <b>Date of Issue :</b>       | 28/09/2023 |

**Acu-Vib Test** AVP02 (Calibrators)  
**Procedure:** Test Method: AS IEC 60942 - 2017

**CHECKED BY:** 

**AUTHORISED SIGNATURE:** .....

  
Hein Soe

Accredited for compliance with ISO/IEC 17025 - Calibration

Results of the tests, calibration and/or measurements included in this document are traceable to SI units through reference equipment that has been calibrated by the Australian National Measurement Institute or other NATA accredited laboratories demonstrating traceability.

This report applies only to the item identified in the report and may not be reproduced in part.

The uncertainties quoted are calculated in accordance with the methods of the ISO Guide to the Uncertainty of Measurement and quoted at a coverage factor of 2 with a confidence interval of approximately 95%.



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(02) 9680 8133  
www.acu-vib.com.au

Page 1 of 2 Calibration Certificate  
AVCERT02.1 Rev.2.0 14.04.2021



# CERTIFICATE OF CALIBRATION

CERTIFICATE No: **SLM34169**

**EQUIPMENT TESTED:** Sound Level Meter

**Manufacturer:** B & K

**Type No:** 2250

**Mic. Type:** 4189

**Pre-Amp. Type:** ZC0032

**Serial No:** 3029363

**Serial No:** 3260501

**Serial No:** 30109

**Filter Type:** 1/3 Octave

**Test No:** F034175

**Owner:** EMM Consulting  
Suite 01, 20 Chandos St  
St Leonards NSW 2065

**Tests Performed:** IEC 61672-3:2013 & IEC 61260-3:2016

**Comments:** All Test passed for Class 1. (See overleaf for details)

## CONDITIONS OF TEST:

**Ambient Pressure** 1002 hPa  $\pm 1$  hPa

**Temperature** 24  $^{\circ}\text{C} \pm 1^{\circ}\text{C}$

**Relative Humidity** 35 %  $\pm 5\%$

**Date of Receipt :** 02/11/2022

**Date of Calibration :** 03/11/2022

**Date of Issue :** 04/11/2022

**Acu-Vib Test Procedure:** AVP10 (SLM) & AVP06 (Filters)

**CHECKED BY:** *[Signature]*

**AUTHORISED SIGNATURE:** *[Signature]*

*Jack Kielt*

Accredited for compliance with ISO/IEC 17025 - Calibration  
Results of the tests, calibration and/or measurements included in this document are traceable to SI units through reference equipment that has been calibrated by the Australian National Measurement Institute or other NATA accredited laboratories demonstrating traceability.

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