Mannering Colliery

Monthly attended noise monitoring - May 2025

Prepared for Delta Power & Energy (Chain Valley) Pty Ltd (trading as Delta Coal)

May 2025

Mannering Colliery

Monthly attended noise monitoring - May 2025

Delta Power & Energy (Chain Valley) Pty Ltd (trading as Delta Coal)

E241225 RP1

May 2025

Version	Date	Prepared by	Reviewed by	Comments
V1	23/05/2025	Kirsten Garlick	Teanuanua Villierme	Draft
V2	27/05/2025	Kirsten Garlick	Teanuanua Villierme	Final

Approved by

Teanuanua Villierme
Associate Acoustics Consultant, Team Leader
27 May 2025

Level 3 175 Scott Street
Newcastle NSW 2300
ABN: 28 141 736 558

TABLE OF CONTENTS

Appendices

Tables

Figures

1 Introduction

1.1 Background

EMM Consulting Pty Limited (EMM) was engaged by Delta Power & Energy (Chain Valley) Pty Ltd (trading as Delta Coal) to conduct a monthly noise survey of operations at Mannering Colliery (MC, the site) located at Ruttleys Road, Mannering Park NSW. The survey purpose was to quantify the acoustic environment and compare site noise levels against specified limits.

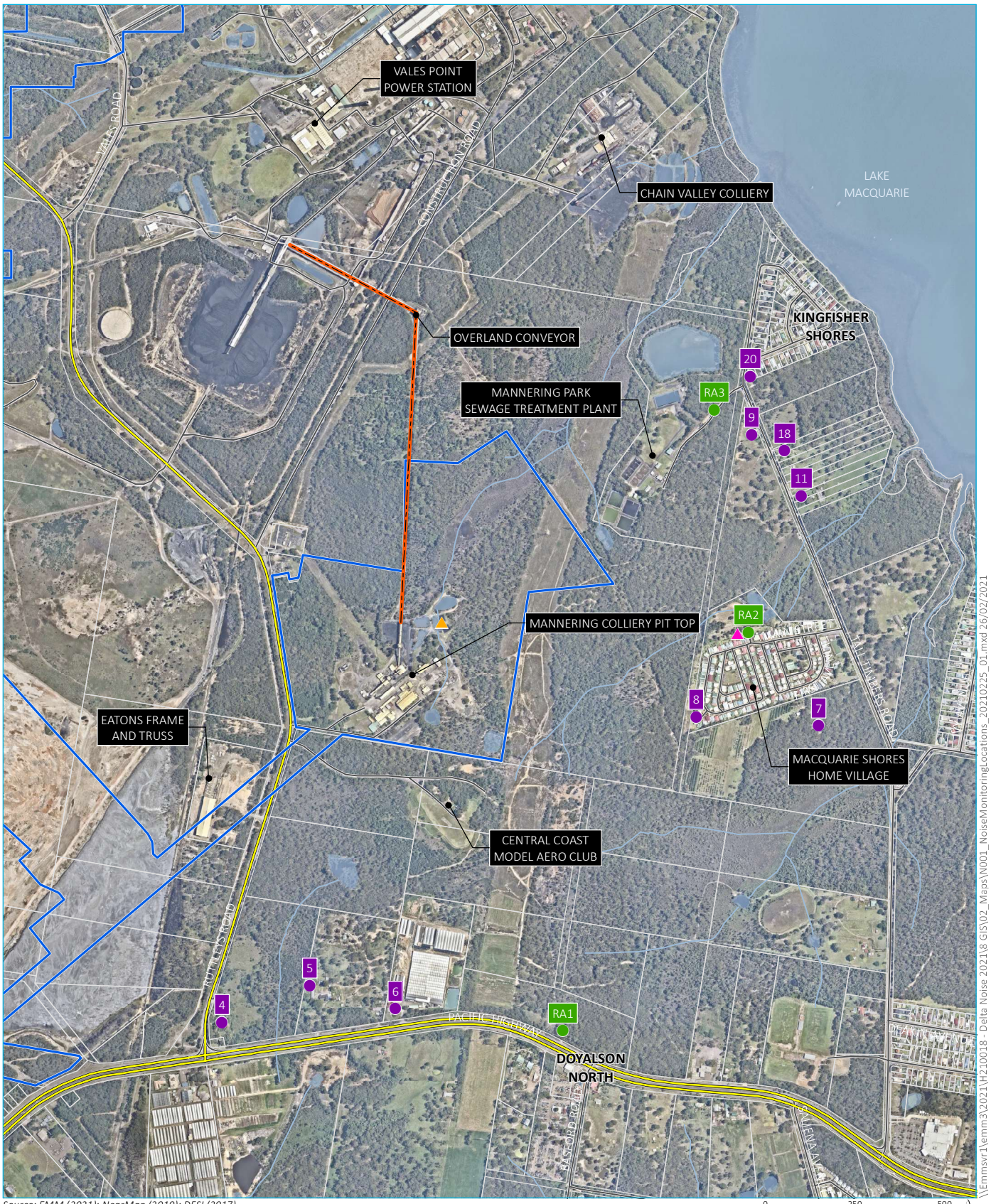
Attended environmental noise monitoring described in this report was done during the evening and night periods on 14 May 2025 at three monitoring locations.

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
RA1	Pacific Highway, Doyalson North	364646	6327221
RA2	Macquarie Shores Home Village, Doyalson North	365164	6328332
RA3	Tall Timbers Road (northern end), Kingfisher Shores	365069	6328953



\\Emmsvr1\emm3\2021\H210018 - Delta Noise 2021\8 GIS\02_Maps\N001_NoiseMonitoringLocations_20210225_01.mxd 26/02/2021

Source: EMM (2021); NearMap (2019); DFSI (2017)

0 250 500 m

GDA 1994 MGA Zone 56

N

KEY

- Mannering Colliery project approval boundary
- Alignment of overland conveyor to VPPS
- Main road
- Local road
- Watercourse/drainage line
- Waterbody
- Cadastral boundary
- Assessment location
- Attended monitoring location
- Continuous monitoring location
- Meteorological station

Attended noise monitoring and assessment locations

Mannering Colliery
Figure 1.1

EMM
creating opportunities

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	Noise level measurement unit is the decibel (dB).
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 1% of the time.
$L_{A1,1minute}$	The A-weighted noise level which is exceeded for 1% of the specified time period of 1 minute.
L_{A10}	The A-weighted noise level which is exceeded for 10% of the time.
L_{Aeq}	The energy average A-weighted noise level.
$L_{Aeq,15minute}$	The energy average A-weighted noise level over the specified time period of 15 minutes.
L_{A50}	The A-weighted noise level which is exceeded for 50% of the time, also the median noise level during a measurement period.
L_{A90}	The A-weighted noise level exceeded for 90% 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 measured as 10 times a logarithmic scale, with the reference pressure being 20 micropascals.
Hz	Hertz (Hz) is 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
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.
NPfI	NSW EPA Noise Policy for Industry (2017)
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 Project approval

Mannering Colliery noise limits are provided in Table 1, Condition 2 of Schedule 3 of the current project approval (PA) PA MP06_0311 dated 5 June 2020. Relevant sections of the PA are reproduced in Appendix B.1.

2.2 Environment protection licence

The current Environment Protection Licence (EPL) 191 dated 9 April 2025 references the PA with respect to noise limits. Relevant sections of the EPL are reproduced in Appendix B.2.

2.3 Noise management plan

The approved Noise Management Plan (NMP) (dated 20 April 2022) was prepared in line with the Mod 5 approval and in accordance with the NSW EPA 'Noise Policy for Industry' (NPfI) issued in October 2017. Three attended noise monitoring locations representative of the PA noise assessment locations have been adopted in the NMP for the purpose of determining compliance with relevant noise limits. Relevant sections of the NMP are reproduced in Appendix B.3.

2.4 Noise limits

Noise limits consistent with the PA, EPL and approved NMP are as shown in Table 2.1.

Table 2.1 Noise limits, dB

Location	Day $L_{Aeq,15minute}$	Evening $L_{Aeq,15minute}$	Night $L_{Aeq,15minute}$	Night $L_{A1,1minute}$
RA1	40	36	36	46
RA2	40	40	40	45
RA3	40	39	39	49

2.5 Meteorological conditions

The PA (Mod 5) states the following:

> Noise generated by the development must be monitored and measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Noise Policy for Industry (EPA 2017).

Section 5.2 of the NPfI states that noise limits applicable under 'very noise-enhancing' conditions should be the limits that apply under 'standard' or 'noise-enhancing' conditions plus 5 dB.

As per the PA (Mod 5) and in accordance with the NPfI, limits are adjusted when monitoring is undertaken during the following 'very noise-enhancing' conditions:

- wind speeds greater than 3 m/s at 10 m above ground level
- stability category F temperature inversion conditions with wind speeds greater than 2 m/s at 10 m above ground level
- stability category G temperature inversion conditions.

Therefore, if monthly noise monitoring occurs during 'very noise-enhancing' conditions, this assessment adopts a +5 dB adjustment to the limits shown in Table 2.1. This is indicated in Table 4.3, where relevant. It is noted that monthly noise monitoring for the site is always scheduled to occur during appropriate forecasted meteorological conditions in accordance with the 'Approved methods for the measurement and analysis of environmental noise in NSW' (EPA 2022) (the approved methods).

2.6 Additional considerations

Monitoring and reporting have been done in accordance with the NSW EPA's NPfI and the approved methods.

3 Methodology

3.1 Overview

Attended environmental noise monitoring was done in general accordance with Australian Standard AS1055:2018 'Acoustics – Description and Measurement of Environmental Noise' and relevant EPA requirements. Meteorological data was obtained from the Mannering Colliery on-site automatic weather station (AWS) which allowed correlation of atmospheric parameters with measured noise levels.

3.2 Attended noise monitoring

During this survey, attended noise monitoring was done during the evening and night periods at each location in accordance with the NMP. 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. For example, frequency filtering and observations when extraneous noise is low are some of the techniques used to isolate site noise contribution.

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 other, more dominant, noise 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 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 of site noise may be provided. These are 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

This assessment determined stability categories throughout attended monitoring periods using the sigma-theta method as per Fact Sheet D of the NPfI. This data was sourced from the site AWS, in accordance with PA requirements.

3.4 Modifying factors

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

Low-frequency modifying factor penalties have only been applied if 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 acoustical consultant Kirsten Garlick. Qualifications, experience and competency are in accordance with the approved methods and demonstration of this 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
Rion NA28 sound level meter	0107590	27/05/2026	IEC 61672-1:2002
Pulsar 105 acoustic calibrator	96080	04/03/2026	IEC 60942:2003

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.

Table 4.1 Total measured noise levels[1], dB – May 2025

Location	Start date and time	L_{Amax}	L_{A1}	L_{A10}	L_{Aeq}	L_{A50}	L_{A90}	L_{Amin}
RA1	14/05/2025 20:53	80	73	68	64	57	49	39
RA1	14/05/2025 22:54	81	76	69	64	51	41	37
RA2	14/05/2025 21:45	53	46	41	39	38	37	35
RA2	14/05/2025 22:00	45	43	41	40	40	38	35
RA3	14/05/2025 21:16	47	44	43	41	41	39	38
RA3	14/05/2025 22:25	51	45	44	43	43	42	41

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

Meteorological 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 m above ground. Attended noise monitoring is not done during rain, hail, or wind speeds above 5 m/s at microphone height.

Table 4.2 Measured atmospheric conditions – May 2025

Location	Start date and time	Temperature °C	Wind speed m/s	Wind direction ° Magnetic north[1]	Cloud cover 1/8s
RA1	14/05/2025 20:53	19	<0.5	270	3
RA1	14/05/2025 22:54	17	<0.5	250	7
RA2	14/05/2025 21:45	17	<0.5	-	4
RA2	14/05/2025 22:00	15	<0.5	-	3
RA3	14/05/2025 21:16	17	<0.5	220	4
RA3	14/05/2025 22:25	17	<0.5	-	6

Notes: 1. "-" indicates calm conditions (wind speed <0.5 m/s) at monitoring location.

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.

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. Noise limits are applicable under all weather conditions but have been adjusted, where relevant, during very noise-enhancing weather conditions as defined by the NPfI (refer to Section 2.5).

Table 4.3 Site noise levels and limits – May 2025

Location	Start date and time	Wind		Stability class	Standard limits apply?[1]	Limit, dB		Site level, dB[2, 5]		Exceedance, dB[5]	
		Speed (m/s)	Direction[3]			$L_{Aeq,15minute}$	$L_{A1,1minute}$	$L_{Aeq,15minute}$	L_{Amax}	$L_{Aeq,15minute}$	L_{Amax}
RA1	14/05/2025 20:53	0.4	189	F	Yes	36	NA	IA	IA	Nil	NA
RA1	14/05/2025 22:54	0.7	204	F	Yes	36	46	NM	NM	Nil	Nil
RA2	14/05/2025 21:45	1.1	241	F	Yes	40	NA	IA	IA	Nil	NA
RA2	14/05/2025 22:00	0.8	238	F	Yes	40	45	31	35	Nil	Nil
RA3	14/05/2025 21:16	0.6	203	F	Yes	39	NA	IA	IA	Nil	NA
RA3	14/05/2025 22:25	0.4	197	F	Yes	39	49	IA	IA	Nil	Nil

Notes:
1. If "No", adjusted noise limits (standard limit + 5 dB) apply during 'very noise-enhancing' meteorological conditions as stated in Section 2.5.
2. Site-only $L_{Aeq,15minute}$ include modifying factor adjustments if applicable.
3. Degrees magnetic north, "-" indicates calm conditions
4. NA means "Not applicable". The $L_{A1,1minute}$ and L_{Amax} only apply during the night period.
5. Site-only $L_{A1,1minute}$ based on measured site-only L_{Amax} as detailed in Section 3.2.

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 (non-site related) is provided as Figure 5.1, where frogs and insects are seen to be generating noise at frequencies above 1,000 Hz, while industrial noise is generally observed at frequencies less than 1,000 Hz.

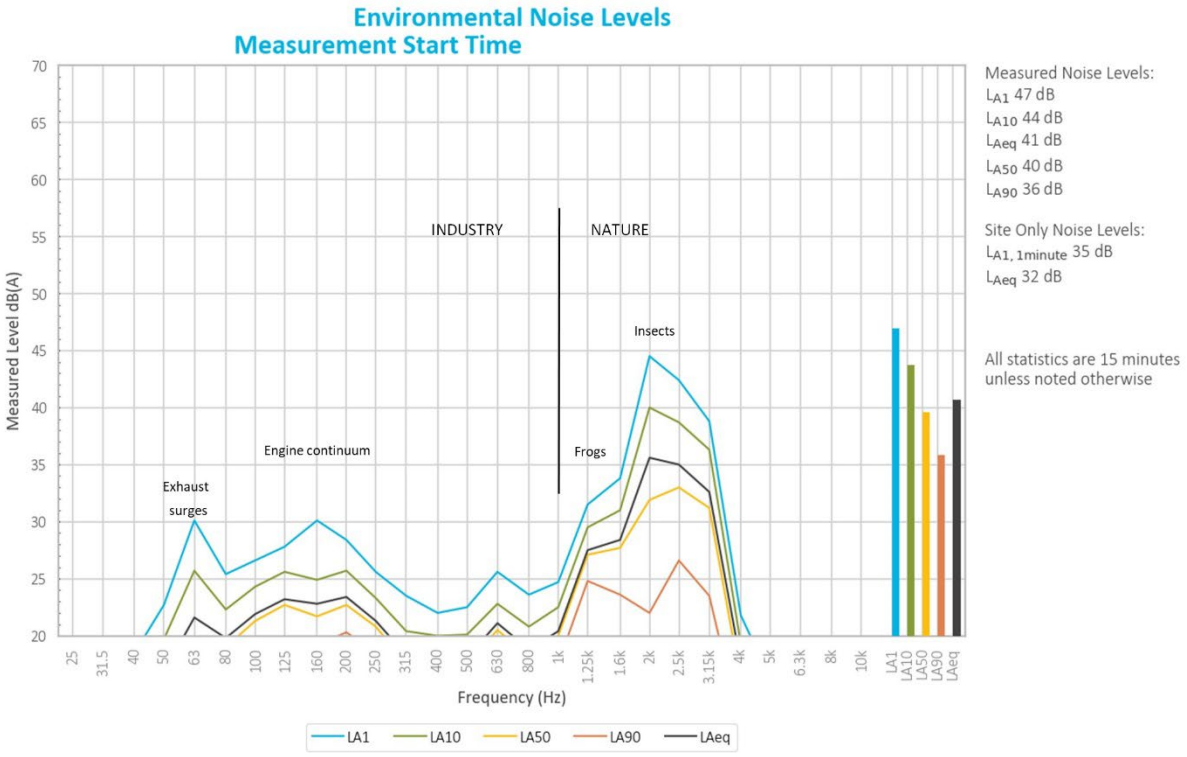


Figure 5.1 Example graph (refer to Section 5.1 for explanatory note)

5.2 RA1 – Evening

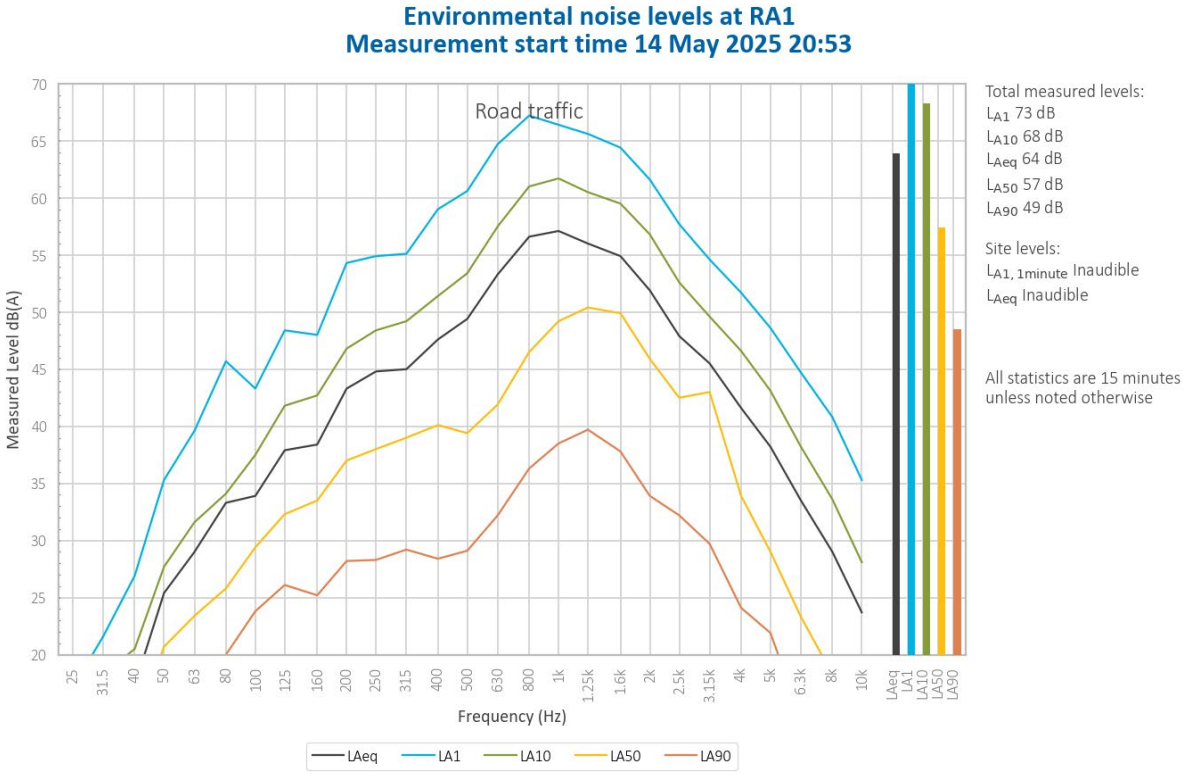


Figure 5.2 Environmental noise levels – RA1 (Pacific Highway) – Evening

MC operations were inaudible during the entire measurement.

Road traffic generated the total measured noise levels.

Noise from insects and frogs were also audible, however they did not contribute to measured levels.

5.3 RA1 – Night

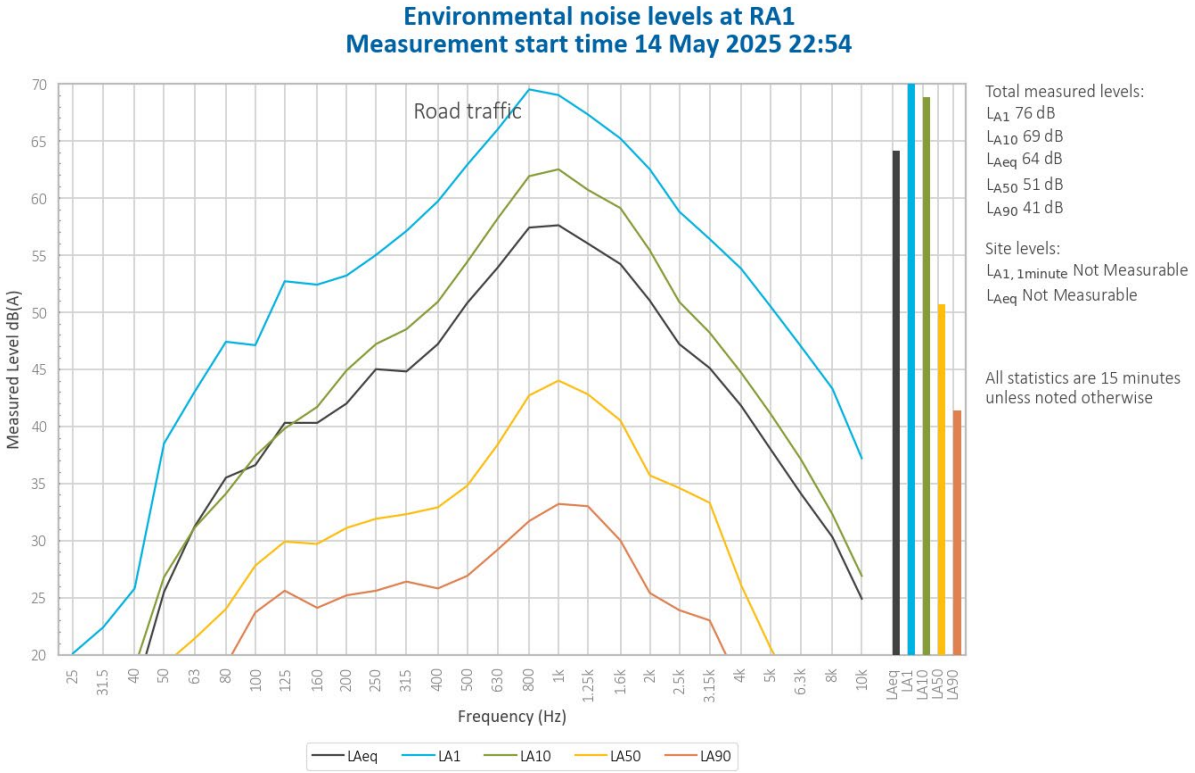


Figure 5.5 Environmental noise levels – RA1 (Pacific Highway) – Night

MC operations were occasionally audible at very low levels during the measurement but the contribution to overall noise levels was not measurable.

Road traffic generated the total measured noise levels.

Noise from Vales Point Power Station (VPPS), insects and frogs were also audible, however they did not contribute to measured levels.

5.4 RA2 – Evening

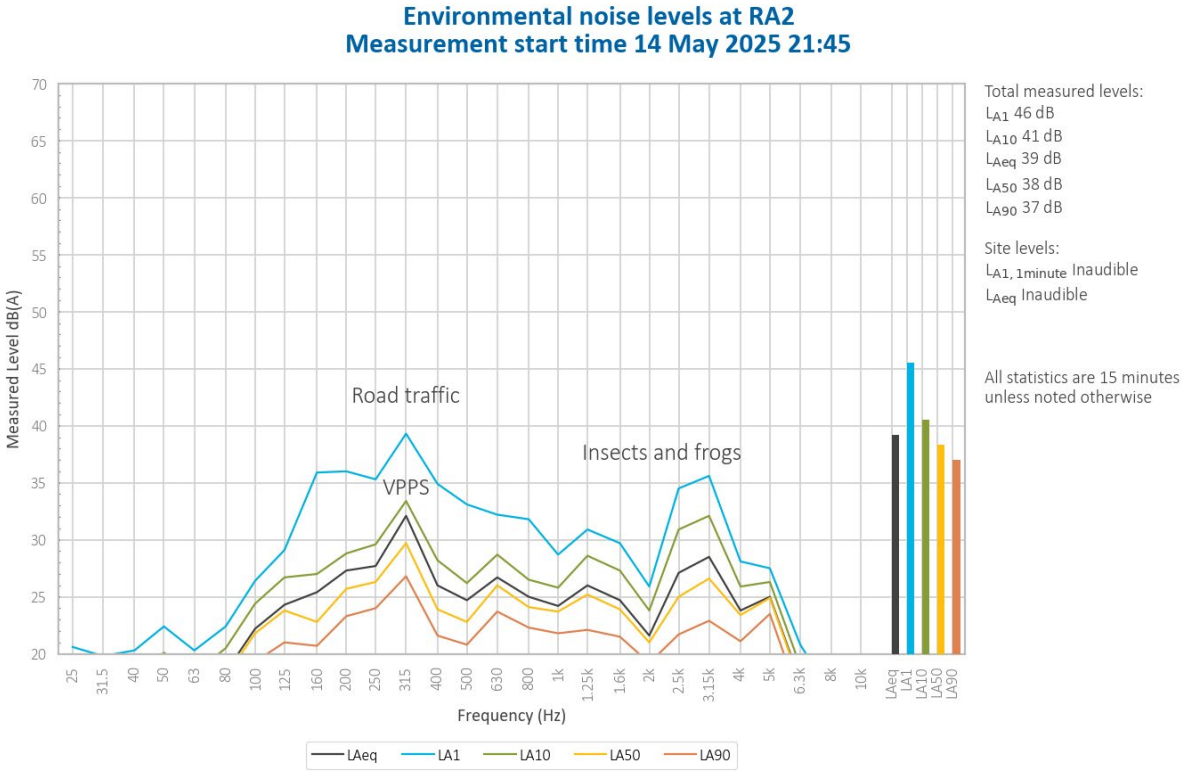


Figure 5.3 Environmental noise levels – RA2 (Macquarie Shores) – Evening

MC operations were inaudible during the entire measurement.

VPPS, insects and frogs were primarily responsible for the measured L_{Aeq}, L_{A50} and L_{A90}. Road traffic (motorbike) generated the measured L_{A1} and was primarily responsible for the measured L_{A10}.

Noise from birds and bats were also audible, however did not contribute to measured levels.

5.5 RA2 – Night

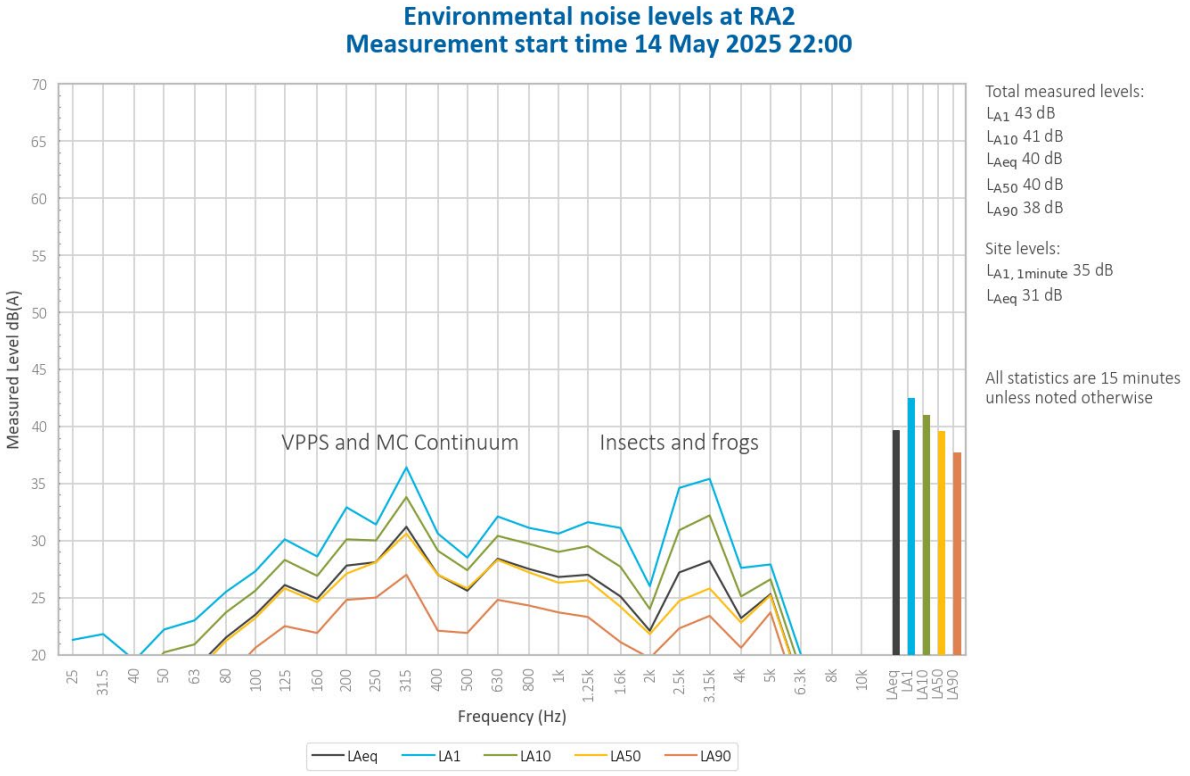


Figure 5.6 Environmental noise levels – RA2 (Macquarie Shores) – Night

MC operations were audible during the measurement, generating the site-only L_{Aeq} of 31 dB and $L_{A1,1minute}$ of 35 dB.

VPPS, MC operations, insects and frogs were responsible for the total measured levels.

Noise from birds, bats, residents and road traffic was also audible, however did not contribute to measured levels.

5.6 RA3 – Evening

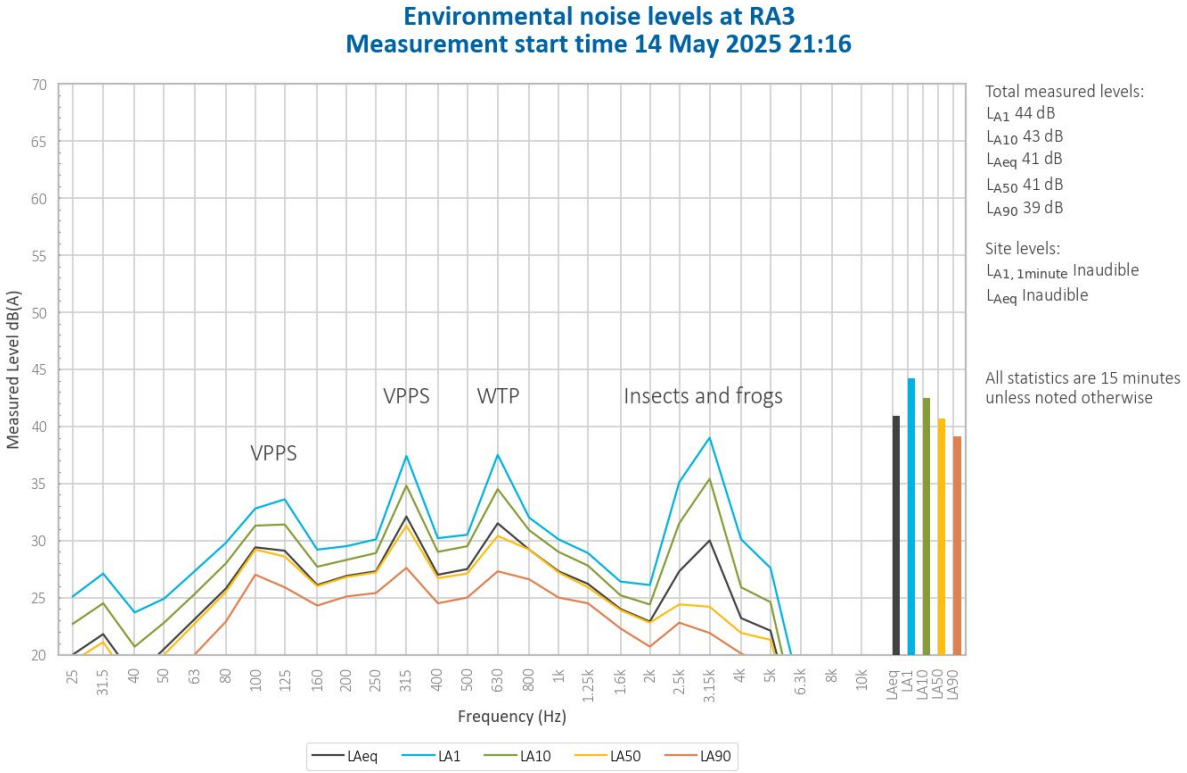


Figure 5.4 Environmental noise levels – RA3 (Kingfisher Shores) – Evening

MC operations were inaudible during the entire measurement.

Insects, frogs, VPPS and water treatment plant (WTP) were responsible for the total measured levels.

Noise from birds was also audible on occasion, however, did not contribute to measured levels.

5.7 RA3 – Night

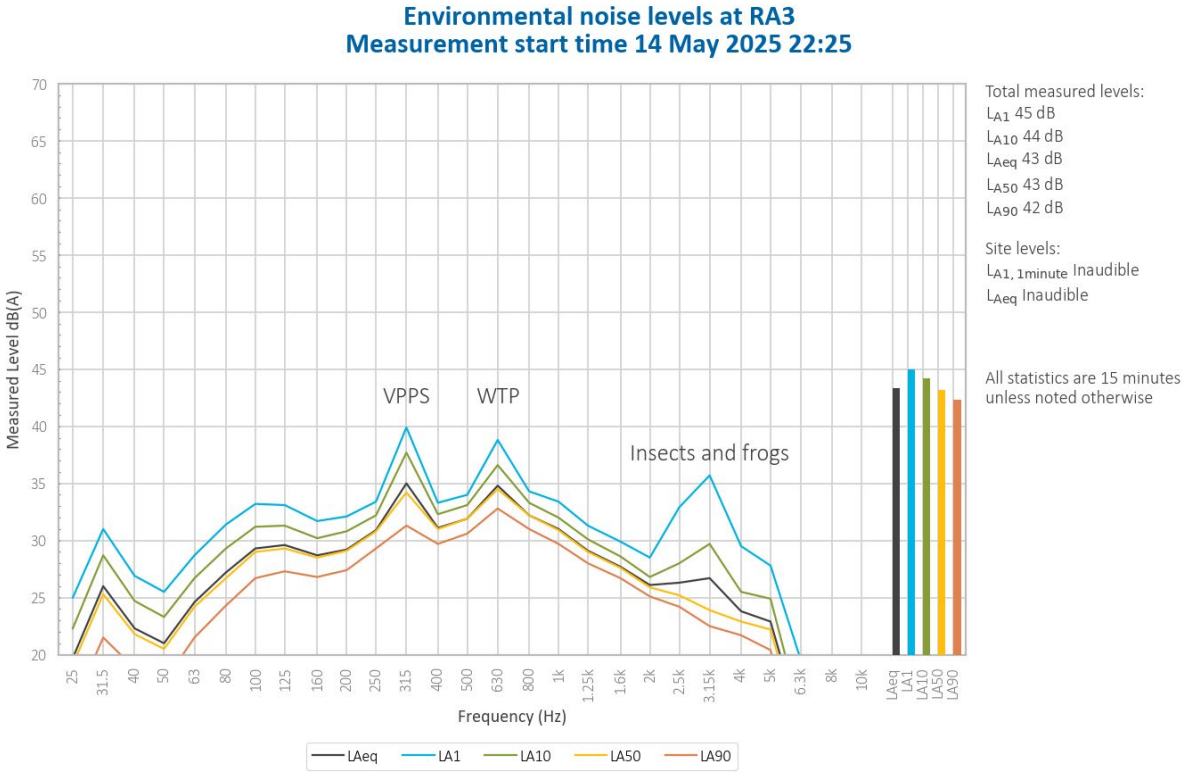


Figure 5.7 Environmental noise levels – RA3 (Kingfisher Shores) – Night

MC operations were inaudible during the entire measurement.

VPPS and WTP were the main contributors to the total measured levels. Insects and frogs also contributed to the total measured levels.

Noise from road traffic was also audible on occasion, however, did not contribute to measured levels.

6 Summary

EMM was engaged by Delta Power & Energy (Chain Valley) Pty Ltd (trading as Delta Coal) to complete a monthly noise survey of operations conducted at Mannering Colliery. 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 evening and night periods on 14 May 2025 at three monitoring locations.

Noise levels from site complied with relevant limits at all monitoring locations during the May 2025 survey.

Appendix A
Noise perception and examples

EMM
creating opportunities

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 quarter) as loud

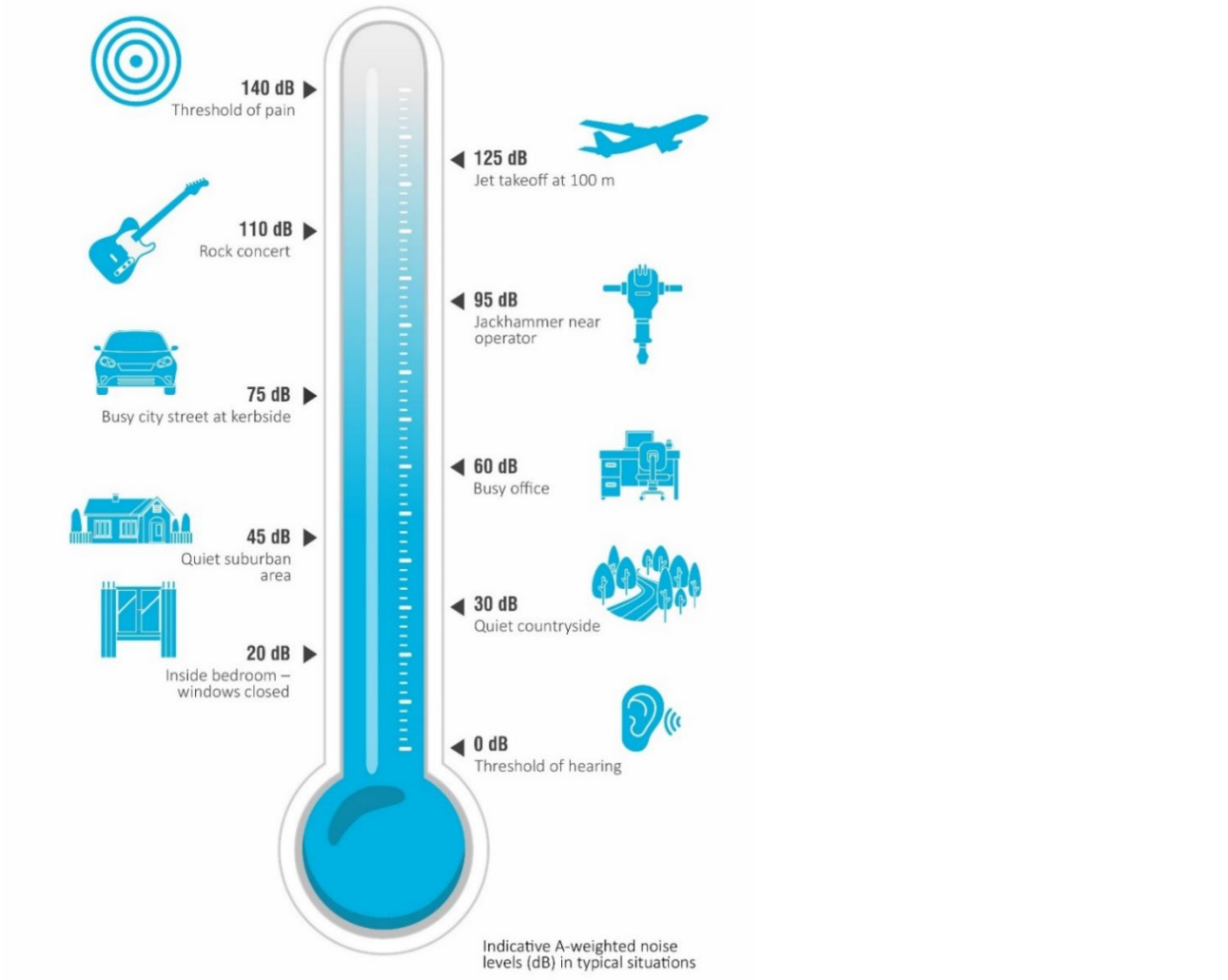


Figure A.1 Common noise levels

Appendix B
Regulator documents

EMM
creating opportunities

B.1 Project approval

SCHEDULE 3
SPECIFIC ENVIRONMENTAL CONDITIONS

NOISE

Construction Noise

1. The Applicant must ensure that the noise generated by any construction work is managed in accordance with the requirements outlined in the *Interim Construction Noise Guideline* (DECC, 2009).

Operational Noise Criteria

2. Except for the carrying out of construction works, the Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 1 at any residence[a] on privately-owned land.

***Table 1**: Operational noise criteria dB(A)*

Noise Assessment Location	***Day*** $L_{Aeq\ (15\ min)}$	***Evening*** $L_{Aeq\ (15\ min)}$	***Night*** $L_{Aeq\ (15\ min)}$	***Night*** $L_{A1\ (1\ min)}$
4 – di Rocco	40	36	36	46
5 - Keighran	40	39	39	49
6 – Swan	40	37	37	47
7 – Druitt	40	35	35	45
8 – Macquarie Shores Home Village	42	42	42	47
9 - Jeans	40	37	37	47
11 - Jeans	40	36	36	46
18 - Jeans	40	36	36	46
20 – Knight and all other privately-owned residences	40	36	36	46

[a] *The Noise Assessment Locations referred to in Table 1 are shown in Appendix 4.*

Noise generated by the development must be monitored and measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the *NSW Noise Policy for Industry* (EPA, 2017).

3. The noise criteria in Table 1 do not apply if the Applicant has an agreement with the owner/s of the relevant residence or land to exceed the noise criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

Noise Operating Conditions

3A. The Applicant must:

(a) take all reasonable steps to minimise noise from construction and operational activities, including low frequency noise and other audible characteristics, associated with the development;

(b) implement reasonable and feasible noise attenuation measures on all plant and equipment that will operate in noise sensitive areas;

(c) operate a comprehensive noise management system commensurate with the risk of impact;

(d) take all reasonable steps to minimise the noise impacts of the development during noise-enhancing meteorological conditions when the noise criteria in this consent do not apply (see NPfI);

(e) carry out regular attended noise monitoring (at least once a month, unless otherwise agreed by the Planning Secretary) to determine whether the development is complying with the relevant conditions of this consent;

(f) regularly assess the noise monitoring data and modify or stop operations on the site to ensure compliance with the relevant conditions of this consent; and
(g) implement reasonable and feasible measures to further enclose the structure housing the coal crusher in order to further mitigate noise from operational activites.

3B. The Applicant must decommission the surface rotary breaker identified in the Statement of Commitments at Appendix 3, within 3 months of approval of Modification 5.

Noise Management Plan

3C. The Applicant must prepare a Noise Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:
(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;
(b) describe the measures to be implemented to ensure:
i. compliance with the noise criteria and operating conditions in this consent;
ii. best practice management is being employed; and
iii. noise impacts of the development are minimised during noise-enhancing meteorological conditions when the noise criteria in this consent do not apply (see NPfI);
(c) describe the noise management system in detail; and
(d) include a monitoring program that:
i. uses a combination of real-time and supplementary attended monitoring to evaluate the performance of the development;
ii. monitors noise at the nearest and/or most affected residences;
iii. includes a program to calibrate and validate the real-time noise monitoring results with the attended monitoring results over time;
iv. adequately supports the noise management system;
v. includes a protocol for distinguishing noise emissions of the development from any neighbouring developments; and
vi. includes a protocol for identifying any noise-related exceedance, incident or non-compliance and for notifying the Department and relevant stakeholders of any such event.

The Applicant must implement the Noise Management Plan as approved by the Planning Secretary.

SUBSIDENCE

4. The Applicant must limit its coal extraction methods on the site to first workings only, and must not undertake second workings.

5. Deleted.

SOIL AND WATER

Discharge

6. The Applicant must only discharge water from the site as expressly provided for by its EPL.

7. The Applicant must investigate, assess and report on the ecological interactions of minewater discharged from the site with the aquatic ecology of the unnamed creek and wetlands (and associated vegetation) between the minewater discharge point/s and Lake Macquarie. This report must:
(a) be prepared in consultation with EPA by suitably qualified expert/s whose appointment/s have been approved by the Planning Secretary;
(b) be submitted to the Planning Secretary by the end of March 2009; and
(c) assess the probable alterations in the local ecology attributable to previous and proposed minewater discharges and any future cessation of minewater discharge flows.

Water Management Plan

8. The Applicant must prepare a Water Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:
(a) be prepared in consultation with DPIE Water by suitably qualified expert/s whose appointment/s have been approved by the Planning Secretary;
(b) be submitted the Planning Secretary by the end of March 2009; and
(c) include a:
- Site Water Balance;

B.2 Environment Protection Licence

Environment Protection Licence

L4 Waste

L4.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled “Waste” and meeting the definition, if any, in the column titled “Description” in the table below.
Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled “Activity” in the table below.
Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled “Other Limits” in the table below.
This condition does not limit any other conditions in this licence.

Code	Waste	Description	Activity	Other Limits
NA	Waste	Any other waste received on the premises for storage, treatment, processing, sorting or disposal and which receipt is not a scheduled activity under Schedule 1 of the POEO Act, as in force from time to time.		
NA	General or Specific exempted waste	Waste that meets all the conditions of a resource recovery exemption under Clause 51A of the Protection of the Environment Operations (Waste) Regulation 2014	As specified in each particular resource recovery exemption	N/A

L4.2 The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.

L4.3 This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the premises if it requires an environment protection licence.

L5 Noise limits

Note: Noise limits are not specified as a condition of this licence. Noise limits are prescribed with the conditions of Project Approval 06_0311 granted under the *Environmental Planning and Assessment Act 1979.* Under the *Environmental Planning and Assessment Act 1979* the Department of Planning is the appropriate authority in respect of the administration and regulation of the Project Approval.

B.3 Approved noise management plan

The above noise monitoring locations are representative of residential receivers most likely to be affected by CVC operational noise. Adherence with the relevant noise criteria at these locations will indicate that noise criteria will be met at other surrounding noise-sensitive locations.

4.2.3 Mannering Colliery

Consistent with the Noise Impact Assessment (EMM 2019) undertaken as part of the Project Approval MP06_0311 MOD 5, rural and residential receivers have been divided into three (3) receiver areas (RA's) with similar geographical and acoustic features. The following points are considered representative of each receiver area:

- RA1, rural residential properties south of MC and fronting the Pacific Highway. The dominant noise source in this area is road traffic. Birds, insects and other industrial sources are also audible at times.
- RA2, privately-owned relocatable residences within the MSHV, east of MC. The dominant noise sources in this RA are birds, insects, traffic and other industrial sources. Activities at MC are also noted to be audible at times.
- RA3, various rural residential residences on Tall Timbers Road at Kingfisher Shores and adjacent to the Chain Valley Bay suburban area. The dominant noise sources in this RA are birds, insects, other industrial sources and traffic movements. Activities at MC are also noted to be audible at times.

The attended noise monitoring locations for MC and relevant noise criteria are identified below in **Table 6**.

Table 6: Noise Monitoring Locations and Limits for Mannering Colliery

Location	Receivers Represented MP06_0311 ID	Coordinates	Day $L_{Aeq(15\ min)}$ dB (A)	Evening $L_{Aeq(15\ min)}$ dB (A)	Night $L_{Aeq(15\ min)}$ dB (A)	Night $L_{A1(1\ min)}$ dB (A)
RA1	4, 5, 6	364646E 6327221N	40	36	36	46
RA2	7, 8	365164E 6328332N	40	40	40	45
RA3	9, 11, 18, 20	365069E 6328953N	40	39	39	49

The above noise monitoring locations are representative of residential receivers most likely to be affected by MC operational noise. Adherence with the relevant noise criteria at these locations will indicate that noise criteria will be met at other surrounding noise-sensitive locations.

Appendix C
Calibration certificates

EMM
creating opportunities

C.1 Calibration certificates

CERTIFICATE OF CALIBRATION

CERTIFICATE NO: C53022

EQUIPMENT TESTED : Acoustic Calibrator

Manufacturer: Pulsar
Type No: 105 **Serial No:** 96080
Class: 1
Owner: EMM Consulting
Level 1, 175 Scott Street
Newcastle, NSW 2300
Tests Performed: Measured Output Pressure level, Frequency & Distortion
See Details and Class Tolerance overleaf.

Comments:

CONDITION OF TEST:

Ambient Pressure	1008	hPa ±1 hPa	**Date of Receipt :**	27/02/2025
Temperature	24	°C ±1° C	**Date of Calibration :**	04/03/2025
Relative Humidity	52	% ±5%	**Date of Issue :**	04/03/2025

Acu-Vib Test Procedure: AVP02 (Calibrators)
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%.

Acu-Vib Electronics
ACOUSTICS AND VIBRATIONS
Head Office & Calibration Laboratory
Unit 14, 22 Hudson Avenue, Castle Hill NSW 2154
(02) 9680 8133
www.acu-vib.com.au

NATA
WORLD RECOGNISED ACCREDITATION
Accredited Laboratory No. 9262
Acoustic and Vibration Measurements

Acoustic Research Labs Pty Ltd
Unit 36/14 Loyalty Rd
North Rocks NSW AUSTRALIA 2151
Ph: +61 2 9484 0800 A.B.N. 65 160 399 119
www.acousticresearch.com.au

Sound Level Meter
IEC 61672-3:2013
Calibration Certificate

Calibration Number C24405

Client Details	EMM Consulting Level 3, 175 Scott Street Newcastle NSW 2300
Equipment Tested/ Model Number :	NA-28
Instrument Serial Number :	01070590
Microphone Serial Number :	08184
Pre-amplifier Serial Number :	52329
Firmware Version :	v2.0

Pre-Test Atmospheric Conditions		Post-Test Atmospheric Conditions	
Ambient Temperature :	24.4 °C	**Ambient Temperature :**	23.8 °C
Relative Humidity :	45.2 %	**Relative Humidity :**	46.7 %
Barometric Pressure :	101.3 kPa	**Barometric Pressure :**	101.26 kPa

Calibration Technician : Peter Elters
Secondary Check: Rhys Gravelle
Calibration Date : 27 May 2024
Report Issue Date : 3 Jun 2024

Approved Signatory :  Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
12: Acoustical Sig. tests of a frequency weighting	*Pass*	17: Level linearity incl. the level range control	*Pass*
13: Electrical Sig. tests of frequency weightings	*Pass*	18: Toneburst response	*Pass*
14: Frequency and time weightings at 1 kHz	*Pass*	19: C Weighted Peak Sound Level	*Pass*
15: Long Term Stability	*Pass*	20: Overload Indication	*Pass*
16: Level linearity on the reference level range	*Pass*	21: High Level Stability	*Pass*

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation test performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2013.

Uncertainties of Measurement -

Acoustic Tests		Environmental Conditions	
125Hz	*±0.13 dB*	*Temperature*	*±0.1 °C*
1kHz	*±0.13 dB*	*Relative Humidity*	*±1.9 %*
8kHz	*±0.14 dB*	*Barometric Pressure*	*±0.11 kPa*
Electrical Tests	*±0.13 dB*		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

NATA WORLD RECOGNISED ACCREDITATION

This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025 - Calibration.

The results of the tests, calibrations and/or measurements included in this document are traceable to SI units.

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.

Australia

SYDNEY
Level 10 201 Pacific Highway
St Leonards NSW 2065
T 02 9493 9500

NEWCASTLE
Level 3 175 Scott Street
Newcastle NSW 2300
T 02 4907 4800

BRISBANE
Level 1 87 Wickham Terrace
Spring Hill QLD 4000
T 07 3648 1200

CANBERRA
Suite 2.04 Level 2
15 London Circuit
Canberra City ACT 2601

ADELAIDE
Level 4 74 Pirie Street
Adelaide SA 5000
T 08 8232 2253

MELBOURNE
Suite 9.01 Level 9
454 Collins Street
Melbourne VIC 3000
T 03 9993 1900

PERTH
Suite 3.03
111 St Georges Terrace
Perth WA 6000
T 08 6430 4800

Canada

TORONTO
2345 Yonge Street Suite 300
Toronto ON M4P 2E5
T 647 467 1605

VANCOUVER
2015 Main Street
Vancouver BC V5T 3C2
T 604 999 8297

CALGARY
700 2nd Street SW Floor 19
Calgary AB T2P 2W2

linkedin.com/company/emm-consulting-pty-limited

emmconsulting.com.au