

Noise Monitoring Assessment

Austen Quarry, Hartley, NSW
August 2023



Document Information

Noise Monitoring Assessment

Austen Quarry, Hartley, NSW

August 2023

Prepared for: RW Corkery & Co Pty Limited (on behalf of Hy-Tec Pty Ltd)



Prepared by: Muller Acoustic Consulting Pty Ltd

PO Box 678, Kotara NSW 2289

ABN: 36 602 225 132

P: +61 2 4920 1833

www.mulleracoustic.com

Document ID	Date	Prepared By	Signed	Reviewed By	Signed
MAC170523RP14	30 August 2023	Nicholas Shipman		Oliver Muller	

DISCLAIMER

All documents produced by Muller Acoustic Consulting Pty Ltd (MAC) are prepared for a particular client's requirements and are based on a specific scope, circumstances and limitations derived between MAC and the client. Information and/or report(s) prepared by MAC may not be suitable for uses other than the original intended objective. No parties other than the client should use or reproduce any information and/or report(s) without obtaining permission from MAC. Any information and/or documents prepared by MAC is not to be reproduced, presented or reviewed except in full.

CONTENTS

1	INTRODUCTION	5
2	NOISE CRITERIA	7
2.1	ENVIRONMENTAL PROTECTION LICENSE NOISE LIMITS.....	7
2.2	STATE SIGNIFICANT DEVELOPMENT CONSENT NOISE LIMITS.....	7
2.3	NOISE LIMITS SUMMARY	7
3	METHODOLOGY	9
3.1	LOCALITY	9
3.2	NOISE MONITORING LOCATIONS	9
3.3	ATTENDED MONITORING METHODOLOGY	9
3.4	UNATTENDED MONITORING METHODOLOGY.....	10
3.5	OPERATIONAL LOGS	10
4	RESULTS	13
4.1	METEOROLOGICAL CONDITIONS - LOCATION B	13
4.2	ASSESSMENT RESULTS - LOCATION A.....	14
4.3	ASSESSMENT RESULTS - LOCATION B.....	15
4.4	ASSESSMENT RESULTS - LOCATION C	16
4.5	UNATTENDED NOISE MONITORING RESULTS.....	17
5	NOISE COMPLIANCE ASSESSMENT	19
6	DISCUSSION	21
6.1	DISCUSSION OF RESULTS - LOCATION A	21
6.2	DISCUSSION OF RESULTS - LOCATION B	21
6.3	DISCUSSION OF RESULTS - LOCATION C	21
7	CONCLUSION	23
	APPENDIX A – GLOSSARY OF TERMS	
	APPENDIX B – OPERATIONAL LOGS	
	APPENDIX C – NOISE MONITORING CHARTS	

This page has been intentionally left blank

1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) has been commissioned by RW Corkery & Co Pty Limited (RWC) on behalf of Hy-Tec Industries Pty Ltd (HT) to complete a Noise Monitoring Assessment (NMA) for Austen Quarry Operations, Hartley, NSW.

The monitoring has been conducted in accordance with the approved Austen Quarry Noise Management Plan and in general accordance with Conditions L4.1 to L4.3 of EPL#12323 (EPL); at three representative monitoring locations.

The assessment was conducted in accordance with the following documents:

- NSW Environment Protection Authority (EPA), Noise Policy for Industry (NPI), 2017;
- Environment Protection Licence EPL#12323;
- NSW Environment Protection Authority (EPA's), Approved Methods for the measurement and analysis of environmental noise in NSW, 2022;
- RW Corkery & Co Pty Limited, Austen Quarry Noise Management Plan (NMP); and
- Standards Australia AS 1055:2018 - Acoustics - Description and measurement of environmental noise.

This assessment was completed on Thursday 17 August 2023, Friday 18 August 2023 and Friday 25 August 2023 and forms part of the noise monitoring program to address conditions of EPL#12323, Austen Quarry Development Consent SSD 6084 (SSD-6084) and the Noise Management Plan.

A glossary of terms, definitions and abbreviations used in this report is provided in **Appendix A**.

This page has been intentionally left blank

2 Noise Criteria

2.1 Environmental Protection License Noise Limits

Section L4 of the project's EPL (EPL #12323) outlines the applicable operational noise criteria for all privately owned receivers surrounding the mine. The criteria outlined in the EPL is reproduced below:

L4.1 Noise from the premises must not exceed 35 dB(A)LAeq (15 minute) at any time.

Where LAeq means the equivalent continuous noise level - the level of noise equivalent to the energy-average of noise levels occurring over a measurement period.

L4.2 To determine compliance with condition(s) L4.1 noise must be measured at, or computed for, any affected noise sensitive locations (such as a residence, school or hospital). A modifying factor correction must be applied for tonal, impulsive or intermittent noise in accordance with the "Environmental Noise Management - NSW Industrial Noise Policy (January 2000)".

L4.3 The noise emission limits identified in this licence apply under all meteorological conditions except:

- a) during rain and wind speeds (at 10m height) greater than 3m/s; and*
- b) under "non-significant weather conditions".*

Note: Field meteorological indicators for non-significant weather conditions are described in the NSW Industrial Noise Policy, Chapter 5 and Appendix E in relation to wind and temperature inversions.

2.2 State Significant Development Consent Noise Limits

The operating criteria specified in Schedule 3, Condition 3 of the Austen Quarry Development Consent (SSD-6084), approved and modified on 15 July 2019 aligns with criteria outlined in EPL#12323 for the quarry at all privately owned receivers, ie 35dB LAeq(15min). Furthermore, SSD-6084 specifies an LAmax criteria for site operations of 52dBA during the morning shoulder period.

2.3 Noise Limits Summary

Table 1 presents a summary of the noise criteria for privately owned residential receivers surrounding the quarry, as outlined in SSD-6084 and EPL#12323.

Table 1 Noise Criteria				
Receiver	Day dB LAeq(15min)	Evening dB LAeq(15min)	Morning Shoulder dB LAeq(15min)	Morning Shoulder dB LAmax
All privately owned residences	35	35	35	52

This page has been intentionally left blank

3 Methodology

3.1 Locality

The quarry is located on Jenolan Caves Road, Hartley, NSW, approximately 10km south of Lithgow, NSW. Receivers in the locality surrounding the quarry are primarily rural/residential. The Great Western Highway is situated to the north east of the site and Jenolan Caves Road to the west of the site.

3.2 Noise Monitoring Locations

Three monitoring locations have been selected as part of the NMA in accordance with the Noise Management Plan (NMP) and are summarised below:

- Location A (residence identifier R24A as per NMP), is located at 200 Jenolan Caves Road, Hartley, NSW, approximately 2.5km north of the project;
- Location B (residence identifier R31 as per NMP), is located at 781 Jenolan Caves Road, Good Forest, NSW, approximately 1km south west of the project site; and
- Location C (residential identifier R48 as per NMP) is located at 64 Carroll Drive, Hartley, NSW, approximately 2.5km north east of the quarry.

The monitoring locations with respect to quarry are presented in the locality plan shown in **Figure 1**.

3.3 Attended Monitoring Methodology

The attended noise surveys were conducted in general accordance with the procedures described in Standards Australia AS 1055:2018, "Acoustics - Description and Measurement of Environmental Noise" and EPL#12323. The measurements were carried out using a Svantek Type 1, 971 noise analyser on Thursday 17 August 2023, Friday 18 August 2023 and Friday 25 August 2023. The acoustic instrumentation used carries appropriate and current NATA (or manufacturer) calibration certificates with records of all calibrations maintained by MAC as per Approved Methods for the measurement and analysis of environmental noise in NSW (EPA, 2022) and complies with AS/NZS IEC 61672.1-2019- Electroacoustics - Sound level meters - Specifications. Calibration of all instrumentation was checked prior to and following measurements. Drift in calibration did not exceed ± 0.5 dBA.

Noise measurements were of 15-minutes in duration and where possible, throughout each survey, the operator quantified the contribution of each significant noise source. One measurement was conducted at each of the monitoring locations during the day, evening and morning shoulder monitoring periods to quantify the noise sources in the ambient noise environment.

3.4 Unattended Monitoring Methodology

The unattended noise survey, completed at Location B - 791 Jenolan Caves Road, Good Forest was conducted in general accordance with the procedures described in Standards Australia AS 1055:2018, "Acoustics - Description and Measurement of Environmental Noise". The measurements were carried out using a Svantek Type 1, 977 noise analyser. Monitoring was conducted between Thursday 17 August 2023 and Friday 25 August 2023. The acoustic instrumentation used carries current NATA calibration and complies with AS/NZS IEC 61672:2019-Electroacoustics - Sound level meters - Specifications. Calibration of all instrumentation was checked prior to and following measurements. Drift in calibration did not exceed ± 0.5 dBA. Data affected by adverse meteorological conditions (ie winds greater than 10m/s at 10m elevation and rain periods) have been excluded from the results.

3.5 Operational Logs

Operational logs for the primary and secondary crushers have been provided by Austen Quarry management. It is noted that processing equipment commences at 6am. Daily pre-shift meetings and safety checks often delay commencement of onsite operations until closer to 7am. Morning shoulder measurements were conducted from 6am to 7am on Friday 18 August 2023 and Friday 25 August 2023 to capture the onsite operations at the nominated monitoring locations.

Table 2 presents a summary of the hours of operation of the primary and secondary crushers with the quarry operational logs which are reproduced **Appendix B**.

Table 2 Primary and Secondary Crushers Hours of Operation				
Date	Primary Crusher		Secondary Crusher	
	Commenced Crushing	Ceased Crushing	Commenced Crushing	Ceased Crushing
	(hrs)	(hrs)	(hrs)	(hrs)
17/08/2023	07:45	16:35	07:26	19:30
18/08/2023	07:20	11:00	19:52	21:17
25/08/2023	07:35	19:36	06:12	20:35

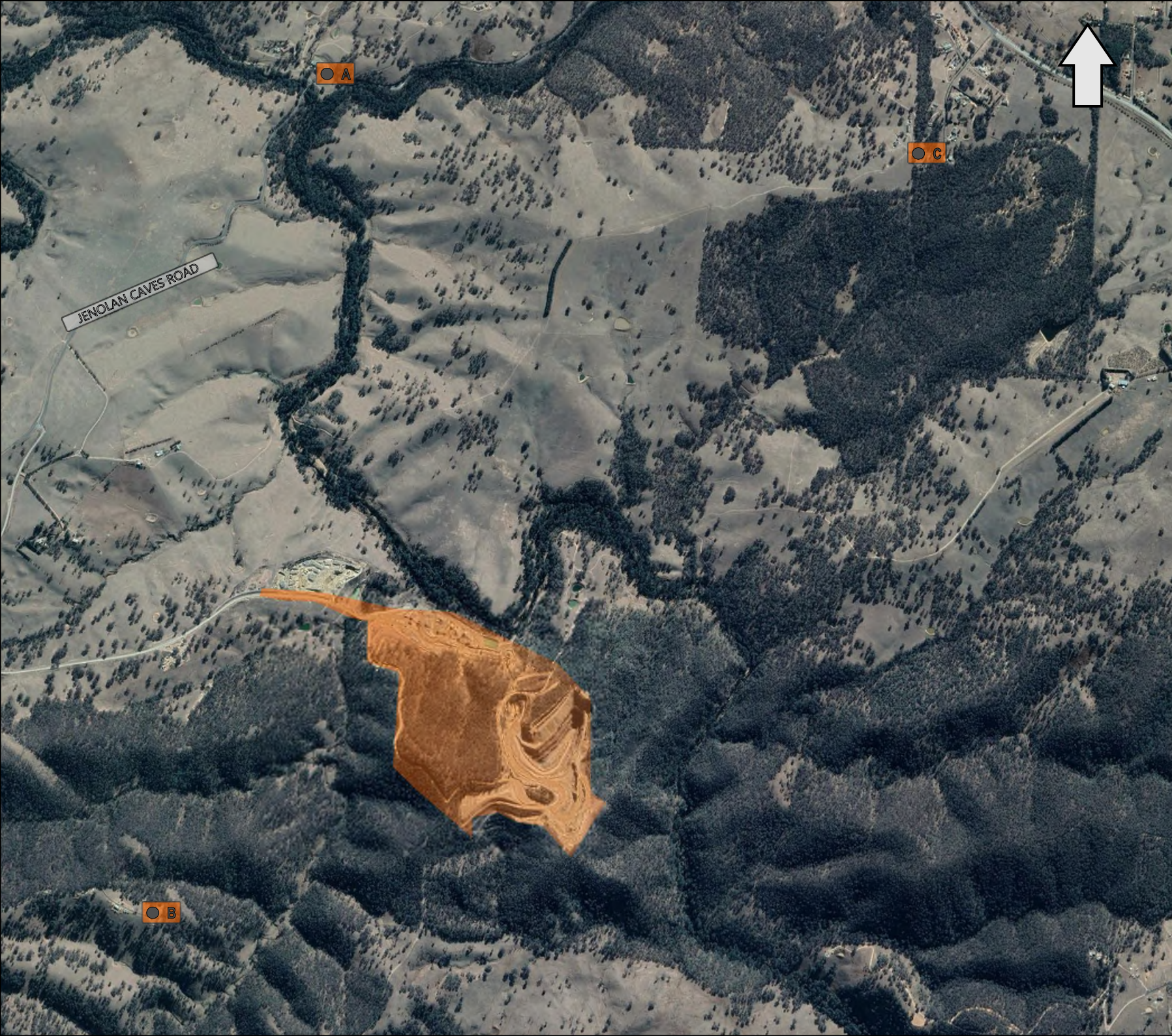




FIGURE 1
LOCALITY PLAN
REF: MAC170523



KEY	
	MONITORING LOCATION
	SITE LOCATION



*Imagery Source : reamaps

This page has been intentionally left blank

4 Results

4.1 Meteorological Conditions – Location B

As prescribed in Condition L3.2 of the EPL (EPL #12323) weather data for the noise assessment period was sourced from the onsite weather station (station #3490) as well as operator measured conditions on site of EPL nominated receiver Location B to determine prevailing meteorological conditions at the time of the attended measurements and are presented in **Table 3**.

Table 3 Prevailing Meteorological Conditions

Date & Time	Onsite Weather Station Station #3490 (10mAGL)		Operator Measured Weather EPL Monitoring Location (1.8m AGL)	
	Wind Direction	Wind (m/s)	Wind Direction	Wind (m/s)
	17/08/2023 16:42	W	1.1	W
17/08/2023 17:07	W	1.1	W	0.2
17/08/2023 17:28	W	0.9	W	0.1
17/08/2023 18:01	SW	0.3	W	0.1
17/08/2023 18:28	SW	0.9	W	0.1
17/08/2023 19:51	NW	1.6	W	0.1
18/08/2023 6:01	SSW	0.8	W	2.0
25/08/2023 6:00	SW	0.6	W	0.3
25/08/2023 6:27	W	1.1	NW	0.2

Location B was selected as the nearest monitoring location to weather station #3490

4.2 Assessment Results - Location A

Operational attended noise monitoring was completed in each assessment period at Location A, 200 Jenolan Caves Road on Thursday 17 August 2023, Friday 18 August 2023 and Friday 25 August 2023. **Table 4** presents the monitored noise level contributions and observed meteorological conditions for each measurement.

Table 4 Operator-Attended Noise Survey Results – Location A						
Date	Time (hrs)	Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}		
17/08/2023	17:07 (Day)	84	61	39	WD: W WS: 0.2m/s Rain: Nil	Creek flow 39-40
						Birds 40-48
						Traffic 40-84
						Gunshots 68-76
						Quarry inaudible
Austen Quarry Contribution ¹						<29 dB L _{Aeq} (15min)
17/08/2023	18:28 (Evening)	76	55	42	WD: W WS: 0.1m/s Rain: Nil	Insects 41-43
						Creek flow 41-43
						Traffic 41-76
						Quarry inaudible
						Austen Quarry Contribution ¹
25/08/2023	6:27 (Morning Shoulder)	85	66	44	WD: WS: m/s Rain: Nil	Traffic 45-85
						Creek flow 40-46
						Birds 40-48
						Quarry inaudible
						Austen Quarry Contribution ¹

Note 1: Estimated quarry noise contribution.

4.3 Assessment Results - Location B

Operational attended noise monitoring was completed in each assessment period at Location B, 781 Jenolan Caves Road on Thursday 17 August 2023, Friday 18 August 2023 and Friday 25 August 2023. **Table 5** presents the monitored noise level contributions and observed meteorological conditions for each measurement.

Table 5 Operator-Attended Noise Survey Results – Location B						
Date	Time (hrs)	Descriptor (dBA re 20 μ Pa)			Meteorology	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}		
17/08/2023	16:42 (Day)	61	42	28	WD: W WS: 1.8m/s Rain: Nil	Traffic 27-40
						Wind in vegetation 27-36
						Birds 42-48
						Aircraft 40-61
						Quarry reverse alarm <28
Austen Quarry Contribution ¹					<28 dB L _{Aeq} (15min)	
17/08/2023	18:01 (Evening)	49	29	24	WD: W WS: 0.1m/s Rain: Nil	Traffic 26-49
						Site mobile plant 26-34
						Austen Quarry Contribution ¹
25/08/2023	6:00 (Morning Shoulder)	65	44	33	WD: WS: m/s Rain: Nil	Birds 35-65
						Aircraft 40-48
						Traffic 37-42
						Dog 33-45
						Residential noise 32
						Site mobile plant 30-33
Austen Quarry Contribution ¹					<32 dB L _{Aeq} (15min)	
					<32 dB L _{Amax}	

Note 1: Estimated quarry noise contribution.

4.4 Assessment Results - Location C

Operational attended noise monitoring was completed in each assessment period at Location C, 64 Carroll Drive on Thursday 17 August 2023 and Friday 18 August 2023. **Table 6** presents the monitored noise level contributions and observed meteorological conditions for each measurement.

Table 6 Operator-Attended Noise Survey Results – Location C						
Date	Time (hrs)	Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}		
17/8/2023	17:28 (Day)	63	41	35	WD: WS: m/s Rain: Nil	Local residential noise 40-63
						Birds 39-48
						Traffic 33-40
						Dog barking 58
						Aircraft 38-45
Insect <33						
Austen Quarry Contribution ¹						Quarry inaudible
Austen Quarry Contribution ¹						<25 dB L _{Aeq} (15min)
17/8/2023	18:51 (Evening)	55	37	34	WD: W WS: 0.1m/s Rain: Nil	Traffic 38-46
						Insects 34-38
						Dog barking 50-55
						Quarry inaudible
Austen Quarry Contribution ¹						<24 dB L _{Aeq} (15min)
18/8/2023	6:01 (Morning Shoulder)	59	43	37	WD: NW WS: 1.5m/s Rain: Nil	Traffic 34-46
						Birds 40-59
						Quarry inaudible
Austen Quarry Contribution ¹						<27 dB L _{Aeq} (15min)
Austen Quarry Contribution ¹						<27 dB L _{Amax}

Note 1: Estimated quarry noise contribution.

4.5 Unattended Noise Monitoring Results

Unattended noise monitoring was conducted at Location B from Thursday 17 August 2023 to Friday 25 August 2023 while the quarry was operational. A comparison of attended and unattended noise monitoring data has been completed. **Table 7** presents the result of this comparison, focusing on the 15-minute statistics for the corresponding measurement times.

Table 7 Unattended Logging versus Operator-Attended Noise Survey – Location B							
Date	Time (hrs)	Attended descriptors (dBA re 20 µPa)			Unattended descriptors (dBA re 20 µPa)		
		dB LA _{max}	dB LA _{eq}	dB LA ₉₀	dB LA _{max}	dB LA _{eq}	dB LA ₉₀
17/08/2023	16:42	61	42	28	95	65	30
17/08/2023	18:01	49	29	24	52	35	26
25/08/2023	06:00	65	44	33	65	42	30

Results of the comparison identify that the unattended results are generally lower due to the offset to the road, although results remain relatively consistent during the measurement periods.

Attended noise monitoring identified that quarry noise remained inaudible during the monitoring period. Accordingly, it is deemed that the monitored unattended noise levels are not representative of the quarry emissions but rather representative of the ambient local environment. A summary of daily metrics for the assessment period from Thursday 17 August 2023 to Friday 25 August 2023 is presented in **Table 8**. **Appendix C** presents the logger charts of the results of the unattended monitoring survey.

Table 8 Unattended Noise Logging Summary – Location B			
Date	Unattended descriptors (dBA re 20 µPa)		
	dB LA _{eq}		
	Day	Evening	Night
Thursday, 17 August 2023	38	41	45
Friday, 18 August 2023	57	57	42
Saturday, 19 August 2023	48	38	36
Sunday, 20 August 2023	38	27	39
Monday, 21 August 2023	40	33	37
Tuesday, 22 August 2023	43	41	36
Wednesday, 23 August 2023	37	30	43
Thursday, 24 August 2023	39	32	36
Friday, 25 August 2023	38	N/A	N/A

This page has been intentionally left blank

5 Noise Compliance Assessment

The compliance assessment for the nominated monitoring locations are presented in **Table 9** to **Table 12** for day, evening and morning shoulder assessment periods.

Table 9 Daytime LAeq(15min) Noise Compliance Assessment

Receiver No.	Quarry Noise Contribution	Quarrying Noise Criteria	Compliant
	dB LAeq(15min)	dB LAeq(15min)	
A	<29	35	✓
B	<28	35	✓
C	<25	35	✓

Table 10 Evening LAeq(15min) Noise Compliance Assessment

Receiver No.	Quarry Noise Contribution	Quarrying Noise Criteria	Compliant
	dB LAeq(15min)	dB LAeq(15min)	
A	<32	35	✓
B	30	35	✓
C	<24	35	✓

Table 11 Morning Shoulder LAeq(15min) Noise Compliance Assessment

Receiver No.	Quarry Noise Contribution	Quarrying Noise Criteria	Compliant
	dB LAeq(15min)	dB LAeq(15min)	
A	<34	35	✓
B	<32	35	✓
C	<27	35	✓

Table 12 Morning Shoulder LAmax Noise Compliance Assessment

Receiver No.	Quarry Noise Contribution	Quarrying Noise Criteria	Compliant
	dB LAmax	dB LAmax	
A	<34	52	✓
B	<32	52	✓
C	<27	52	✓

This page has been intentionally left blank

6 Discussion

6.1 Discussion of Results - Location A

Monitoring conducted at Location A, 200 Jenolan Caves Road, Hartley, NSW, was dominated by passing traffic. Traffic included trucks from Austen Quarry, adjacent (non-project) quarries and several transport firms. Local light vehicle traffic also contributed to the overall ambient environment. Quarry noise emissions were inaudible during all three monitoring periods for the August 2023 survey. Other extraneous noise sources audible during the three attended surveys included insects, birds, traffic, gunshots and creek flow.

The measured quarry day, evening and morning shoulder noise contribution for Location A are consistent with the noise levels predicted in the Noise and Blasting Impact Assessment (NBIA) (Ref: MAC170511RP1, Muller Acoustic Consulting Pty Ltd, 2018) prepared for the Stage 2 extension of the quarry.

6.2 Discussion of Results - Location B

Monitoring results at Location B, 781 Jenolan Caves Road, Good Forest, NSW, identified that the quarry was audible during all three assessment periods. Quarry sources included site mobile plant and reverse alarms. Notwithstanding, emissions from the quarry remained below applicable noise criteria for all measurements. Extraneous noise sources dominated the noise environment which included insects, traffic, wind in vegetation, aircraft, local residential noise, birds, dogs barking livestock and aircraft.

The measured quarry day, evening and morning shoulder noise contribution for Location B are consistent with the noise levels predicted in the NBIA.

6.3 Discussion of Results - Location C

Monitoring results at Location C, 64 Carroll Drive, Hartley, NSW, identified that the quarry remained inaudible during all three assessment periods for the August 2023 survey. Extraneous noise sources dominated the noise environment which included local residential noise, aircraft, wind, traffic, insects, birds and dogs barking.

The measured quarry day, evening and morning shoulder noise contribution for Location C are consistent with the noise levels predicted in the NBIA.

This page has been intentionally left blank

7 Conclusion

Muller Acoustic Consulting Pty Ltd (MAC) has completed a Noise Monitoring Assessment for RW Corkery & Co Pty Limited on behalf of Hy-Tec Industries Pty Ltd for Austen Quarry, Hartley, NSW. The assessment was completed to assess the quarry's compliance with the relevant criteria outlined in EPL#12323 and SSD-6084 for three nominated residential receivers surrounding the quarry.

Operator attended noise monitoring was undertaken on Thursday 17 August 2023, Friday 18 August 2023 and Friday 25 August 2023 at the nominated monitoring locations with quarry noise contributions compared against the relevant criteria.

The assessment has identified that noise emissions generated by Austen Quarry comply with relevant noise criteria specified in EPL#12323 and SSD-6084 at all assessed locations for the three relevant assessment periods.

This page has been intentionally left blank

Appendix A – Glossary of Terms

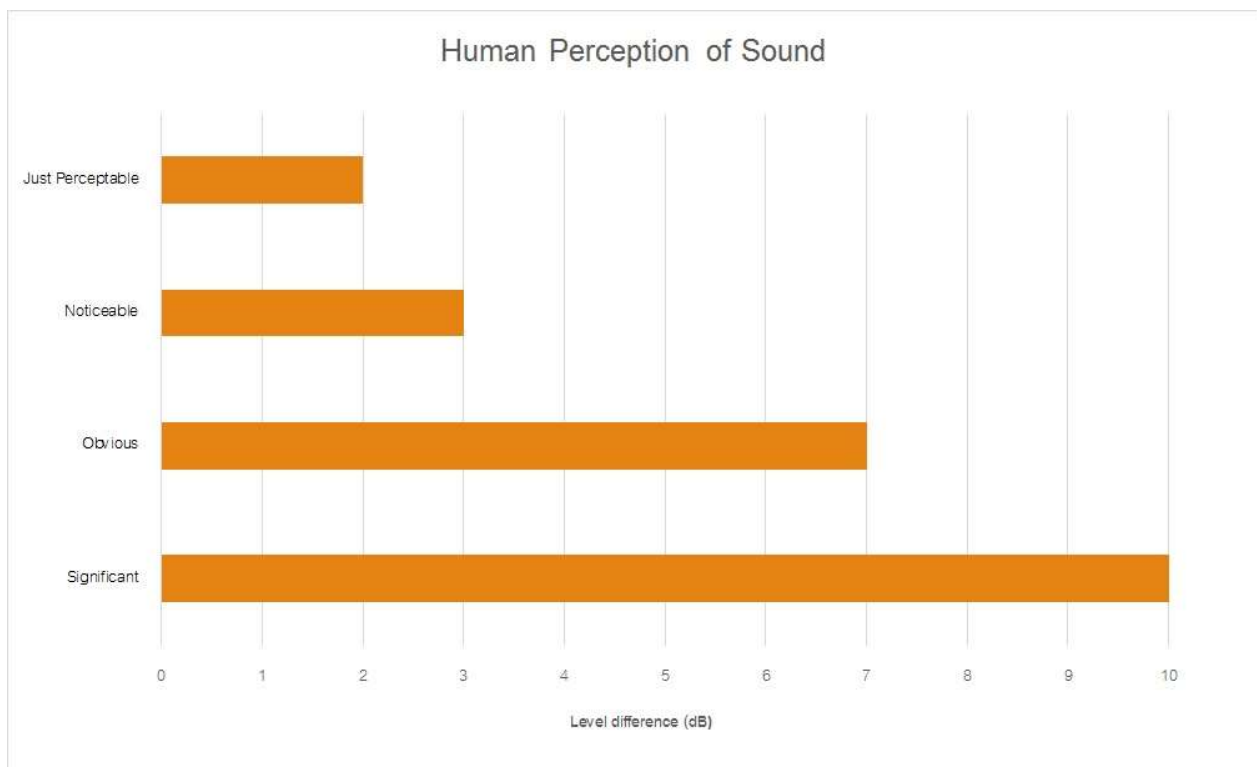
Table A1 provides a number of technical terms have been used in this report.

Table A1 Glossary of Terms	
Term	Description
1/3 Octave	Single octave bands divided into three parts
Octave	A division of the frequency range into bands, the upper frequency limit of each band being twice the lower frequency limit.
ABL	Assessment Background Level (ABL) is defined in the NPI as a single figure background level for each assessment period (day, evening and night). It is the tenth percentile of the measured LA90 statistical noise levels.
Adverse Weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient Noise	The noise associated with a given environment. Typically a composite of sounds from many sources located both near and far where no particular sound is dominant.
A Weighting	A standard weighting of the audible frequencies designed to reflect the response of the human ear to noise.
dBA	Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear.
dB(Z), dB(L)	Decibels Linear or decibels Z-weighted.
Hertz (Hz)	The measure of frequency of sound wave oscillations per second - 1 oscillation per second equals 1 hertz.
LA10	A noise level which is exceeded 10 % of the time. It is approximately equivalent to the average of maximum noise levels.
LA90	Commonly referred to as the background noise, this is the level exceeded 90 % of the time.
LAeq	The summation of noise over a selected period of time. It is the energy average noise from a source, and is the equivalent continuous sound pressure level over a given period.
LAm _{ax}	The maximum root mean squared (rms) sound pressure level received at the microphone during a measuring interval.
RBL	The Rating Background Level (RBL) is an overall single figure background level representing each assessment period over the whole monitoring period. The RBL is used to determine the intrusiveness criteria for noise assessment purposes and is the median of the ABL's.
Sound power level (LW)	This is a measure of the total power radiated by a source. The sound power of a source is a fundamental location of the source and is independent of the surrounding environment. Or a measure of the energy emitted from a source as sound and is given by : $= 10 \cdot \log_{10} (W/W_0)$ Where : W is the sound power in watts and W ₀ is the sound reference power at 10-12 watts.

Table A2 provides a list of common noise sources and their typical sound level.

Table A2 Common Noise Sources and Their Typical Sound Pressure Levels (SPL), dBA	
Source	Typical Sound Level
Threshold of pain	140
Jet engine	130
Hydraulic hammer	120
Chainsaw	110
Industrial workshop	100
Lawn-mower (operator position)	90
Heavy traffic (footpath)	80
Elevated speech	70
Typical conversation	60
Ambient suburban environment	40
Ambient rural environment	30
Bedroom (night with windows closed)	20
Threshold of hearing	0

Figure A1 – Human Perception of Sound



This page has been intentionally left blank

Appendix B – Operational Logs



DAILY PRODUCTION LOG & CHECKLIST - PRIMARY

Date: 17/8/23 Operator: A AETT

Weather Conditions: FINE FAOST Quarry Bench ID: 775

Shift Start Time	<u>6 AM</u>	Shift Finish Time	<u>5 PM</u>
Crusher Start Time	<u>7.45</u>	End of day Crusher stopped	<u>4.35</u>

Belt Weightometer Reading - Daily

Conveyor 1 Start	Conveyor 1 Finish	Total Tonnes Crushed
		<u>3498</u>

Cartage of Raw Feed from Face to Boot – Number of loads

DU4 Loads to Boot	<u>44</u>	DU1 Loads to Boot	
DU6 Loads to Boot	<u>42</u>	Contractor Loads to Boot	<u>231</u>

Stoppages due to Trucks	Stoppages due to Jaw

Plant Stopped	Plant Started	Downtime (Hrs/Min)	Reason
	<u>5:25</u>		
	<u>7.45</u>	<u>1.45</u>	<u>FAOST ON CV3</u>
<u>4.35</u>		<u>.25</u>	<u>shutdown</u>

Pre start checks;

Generator hours: 36514 Generator oil level:

Plant Visual Pilot hours

COMMENTS

CV3 lanyard tripped

DAILY PRODUCTION LOG & CHECKLIST - SECONDARY



Date: 17/8/23 Operator: NETL

Weather Conditions: Frost

Shift Start Time	<u>6am</u>	Shift Finish Time	
Crusher Start Time	<u>7:26</u>	End of day Crusher stopped	

Weightometer Reading; Start: 6592466 Finish: 6897783

Plant Stopped	Plant Started	Downtime (Hrs/Min)	Reason
	<u>4:40</u>		
	<u>6:30</u>	<u>.5</u>	<u>CV4 slipping in frost CV2 slipping</u>
	6:40		<u>450 crusher - unblock 450 shout</u>
			<u>PRC longhaul trip</u>
	<u>7:47</u>	<u>1.17</u>	<u>PRC start frost</u>
<u>11.07</u>	<u>11.09</u>	<u>.2</u>	<u>PRC off clean w/ shoot</u>
<u>11.02</u>	<u>11.19</u>	<u>.17</u>	<u>crusher inspection</u>
<u>1.00</u>	<u>1.23</u>	<u>.23</u>	<u>crusher oils - screen clean - Head Box hose 10-7</u>
<u>1.35</u>	<u>2.05</u>	<u>.30</u>	<u>450 Lube Fault</u>
<u>4.50</u>	<u>4.51</u>	<u>.1</u>	<u>450 + 550 Adj</u>
<u>6.06</u>	<u>6.04</u>	<u>.1</u>	<u>550 Adj</u>
<u>7:30</u>		<u>2.5</u>	<u>Shutdown - CV4 Belt</u>

PRODUCTION SUMMARY

Belts	Size	Description	Total Tonnes	Comments
CV 8	20 mm	Concrete Aggregate	<u>1300</u>	
CV 20	Course Sand 4-0mm	Manufactured Sand	<u>950</u>	
CV 20	Old Man Sand	Man sand By-Pass Air-Sep		
CV 21	Super Fine -50micron	Super Fine Sand	<u>350</u>	
CV19*	10-7mm Blend*	Concrete Blend	<u>1100</u>	
CV19	7mm	Concrete Aggregate		
CV17	10mm	Concrete Aggregate		
CV15	14mm	Concrete Aggregate	<u>250</u>	
CV5	Ballast/40mm	Non Spec Aggregate		

3950



DAILY PRODUCTION LOG & CHECKLIST - PRIMARY

Date: 18/8/23 Operator: BRET

Weather Conditions; WET Quarry Bench ID. 175

Shift Start Time	<u>6 AM</u>	Shift Finish Time	<u>3.30 PM</u>
Crusher Start Time	<u>7.20</u>	End of day Crusher stopped	<u>11 AM</u>

Belt Weightometer Reading - Daily

Conveyor 1 Start	Conveyor 1 Finish	Total Tonnes Crushed
		<u>1390</u>

Cartage of Raw Feed from Face to Boot – Number of loads

DU4 Loads to Boot	DU1 Loads to Boot
DU6 Loads to Boot	Contractor Loads to Boot

Stoppages due to Trucks	Stoppages due to Jaw
-------------------------	----------------------

Plant Stopped	Plant Started	Downtime (Hrs/Min)	Reason
<u>9.30</u>	<u>10.00</u>	<u>30</u>	<u>SMOKE</u>
<u>11.00</u>			<u>CV 5 SPLIT</u>

Pre start checks;

Generator hours. 36526 Generator oil level.

Plant Visual Pilot hours

COMMENTS

DAILY PRODUCTION LOG & CHECKLIST - SECONDARY



Date: 16/8/23

Operator: Boerlin

Weather Conditions: wet

Shift Start Time	100pm	Shift Finish Time	930pm
Crusher Start Time	752pm	End of day Crusher stopped	917pm

Weightometer Reading; Start: 68917783 Finish: 68943016 = 6.13

Plant Stopped	Plant Started	Downtime (Hrs/Min)	Reason
	752pm		late start CV4 change out
814	815		450 + 550 m/s

PRODUCTION SUMMARY

Belts	Size	Description	Total Tonnes	Comments
CV 8	20 mm	Concrete Aggregate	150	
CV 20	Course Sand 4-0mm	Manufactured Sand	180	
CV 20	Old Man Sand	Man sand By-Pass Air-Sep		
CV 21	Super Fine -50micron	Super Fine Sand	30	
CV19*	10-7mm Blend*	Concrete Blend	150	
CV19	7mm	Concrete Aggregate		
CV17	10mm	Concrete Aggregate		
CV15	14mm	Concrete Aggregate	25	
CV5	Ballast/40mm	Non Spec Aggregate		

505



DAILY PRODUCTION LOG & CHECKLIST - PRIMARY

Date: 25.8.23 Operator: AAETT

Weather Conditions: FINE & FROST Quarry Bench ID. 775

Shift Start Time	<u>6 AM</u>	Shift Finish Time	<u>9:30 PM</u>
Crusher Start Time	<u>7:35</u>	End of day Crusher stopped	<u>7:36</u>

Belt Weightometer Reading - Daily

Conveyor 1 Start	Conveyor 1 Finish	Total Tonnes Crushed
		<u>4317</u>

Cartage of Raw Feed from Face to Boot - Number of loads

DU4 Loads to Boot	<u>27</u>	DU1 Loads to Boot	
DU6 Loads to Boot	<u>28</u>	Contractor Loads to Boot	<u>518</u>

CAT 769 19

Stoppages due to Trucks	Stoppages due to Jaw

Plant Stopped	Plant Started	Downtime (Hrs/Min)	Reason
			<u>FROST ON CV 8</u>
<u>11:10</u>	<u>11:30</u>	<u>20</u>	<u>ROCK IN CV2 CHUTE</u>
<u>7:05</u>			
<u>6:57</u>	<u>7:18</u>	<u>21 Mins</u>	<u>ROCK IN CV2 CHUTE</u>

Pre start checks;

Generator hours. 36596 Generator oil level. /

Plant Visual Pilot hours

COMMENTS

Loader 1 1033 Jones into bin

DAILY PRODUCTION LOG & CHECKLIST - SECONDARY



Date: 25-8-23 Operator: NEEL

Weather Conditions: Frost - Fine ☺

Shift Start Time	<u>5 AM</u>	Shift Finish Time	<u>9:00 pm</u>
Crusher Start Time	<u>6:12 am</u>	End of day Crusher stopped	<u>8:35 pm</u>

Weightometer Reading; Start: 6924256 Finish: ~~5888~~ 6930144=5888

Plant Stopped	Plant Started	Downtime (Hrs/Min)	Reason
			450 Hydraulic Fault
	<u>612</u>	<u>.12</u>	40 crusher start
			CV4 slipping CV2 slipping
<u>647</u>	<u>648</u>	<u>.1</u>	550 Adj (5 teeth)
<u>657</u>	<u>658</u>	<u>.1</u>	450 Adj (5 teeth)
<u>9:58</u>	<u>9:59</u>	<u>.1</u>	550 Adj (5 teeth)
<u>10:50</u>	<u>10:51</u>	<u>.1</u>	450 Adj
<u>12:55</u>	<u>12:1</u>	<u>.26</u>	crusher oils - screen clean 10/7 H/Bgx clean
<u>1:51</u>	<u>1:52</u>	<u>.1</u>	450 Adj
<u>1:52</u>	<u>1:54</u>	<u>.7</u>	metal detector
<u>2:11</u>	<u>3:15</u>	<u>1:04</u>	Check Conica Plates
<u>4:11</u>	<u>4:12</u>	<u>.1</u>	450 Adj
<u>5:06</u>	<u>5:15</u>	<u>.9</u>	metal detector
<u>6:16</u>	<u>6:17</u>	<u>.1</u>	450 + 550 Adj
<u>8:15</u>	<u>8:21</u>	<u>.6</u>	metal detector

PRODUCTION SUMMARY

Belts	Size	Description	Total Tonnes	Comments
CV 8	20 mm	Concrete Aggregate	<u>1300</u>	
CV 20	Course Sand 4-0mm	Manufactured Sand	<u>1000</u>	
CV 20	Old Man Sand	Man sand By-Pass Air-Sep		
CV 21	Super Fine -50micron	Super Fine Sand	<u>300</u>	
CV19*	10-7mm Blend*	Concrete Blend	<u>1200</u>	
CV19	7mm	Concrete Aggregate		
CV17	10mm	Concrete Aggregate		
CV15	14mm	Concrete Aggregate	<u>300</u>	
CV5	Ballast/40mm	Non Spec Aggregate		

4100

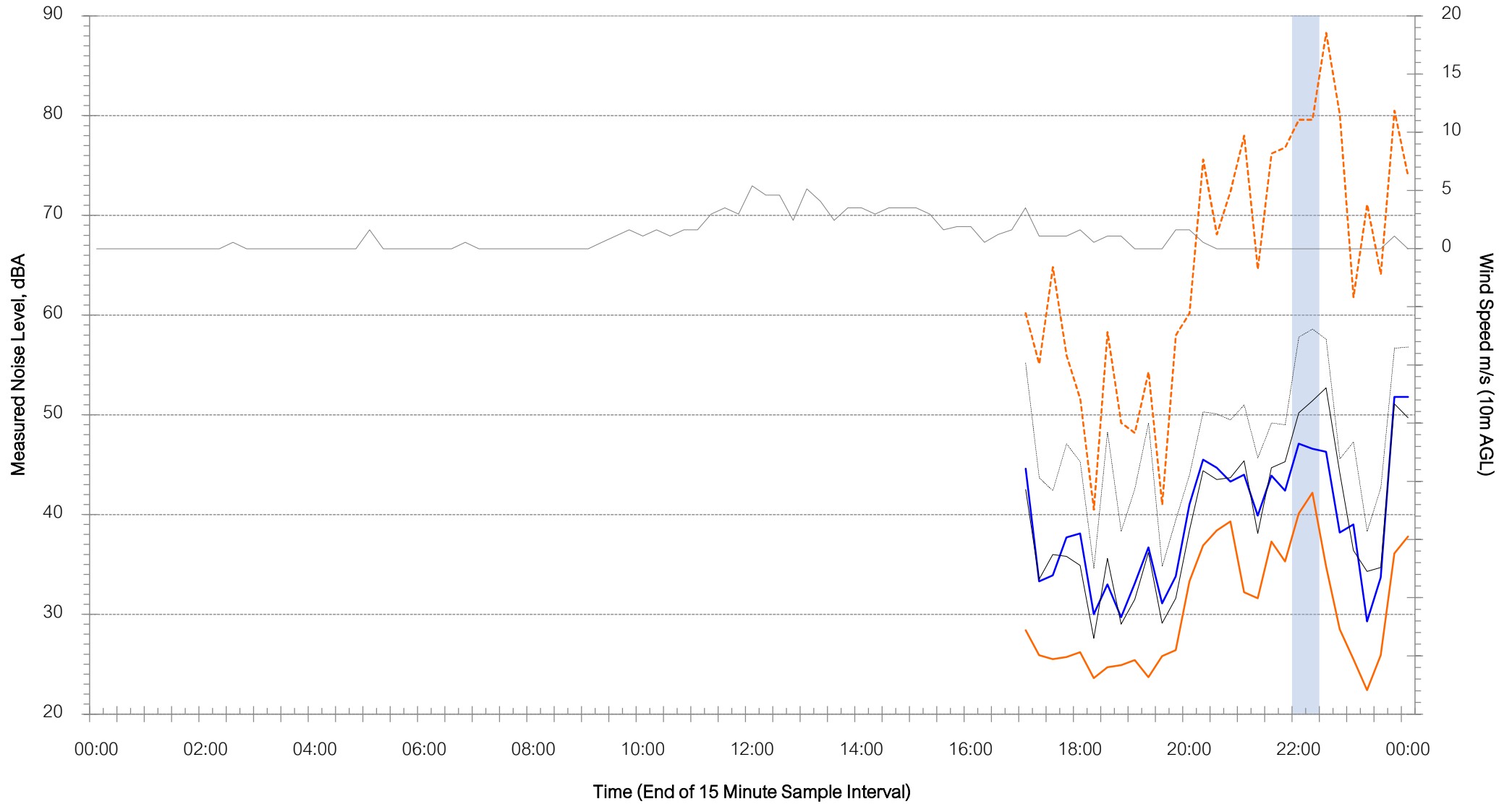
Appendix C – Noise Monitoring Charts



Background Noise Levels

Location B, 791 Jenolan Caves Road, Good Forest - Thursday 17 August 2023

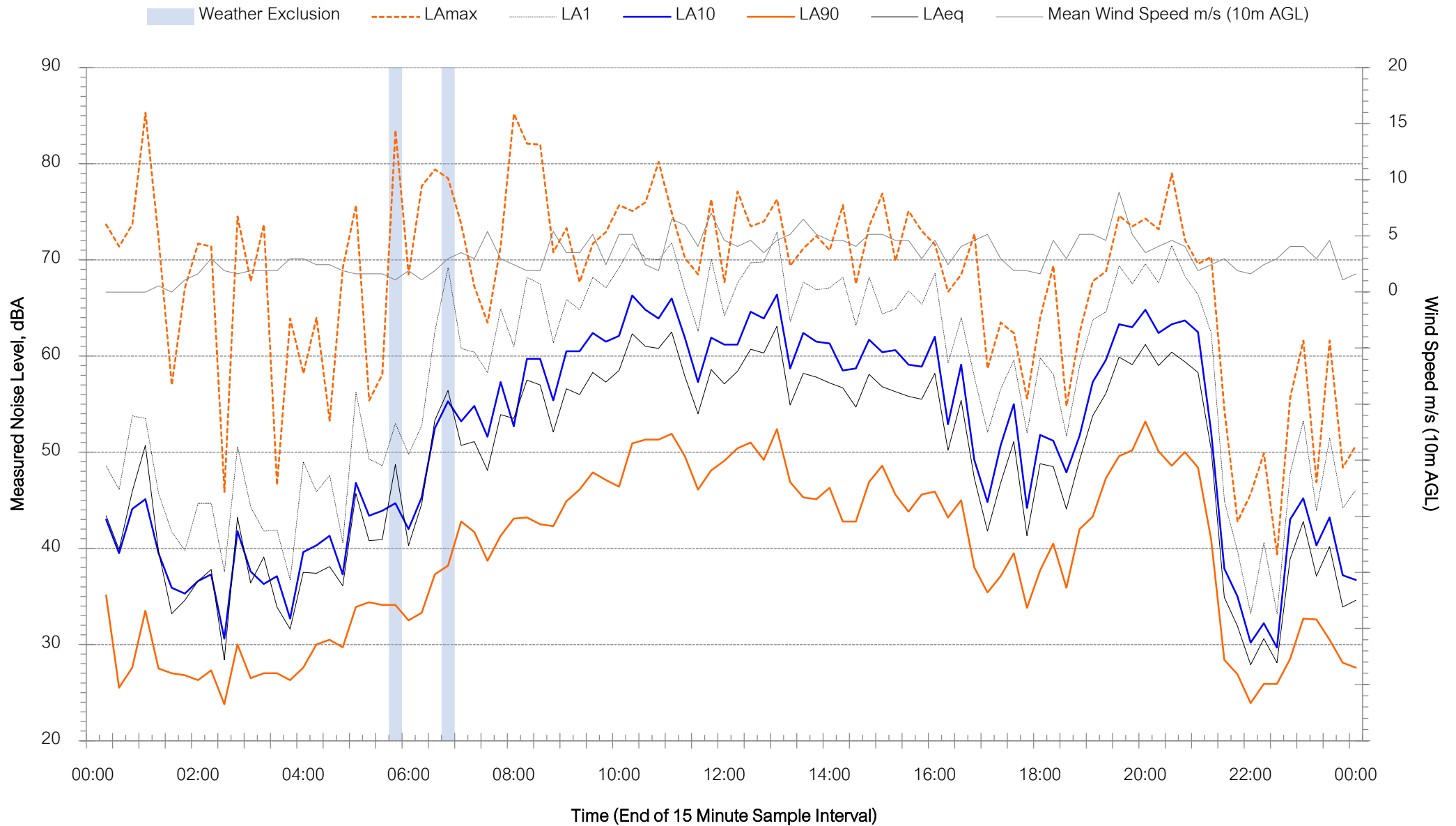
Weather Exclusion LAmix LA1 LA10 LA90 LAeq Mean Wind Speed m/s (10m AGL)





Background Noise Levels

Location B, 791 Jenolan Caves Road, Good Forest - Friday 18 August 2023

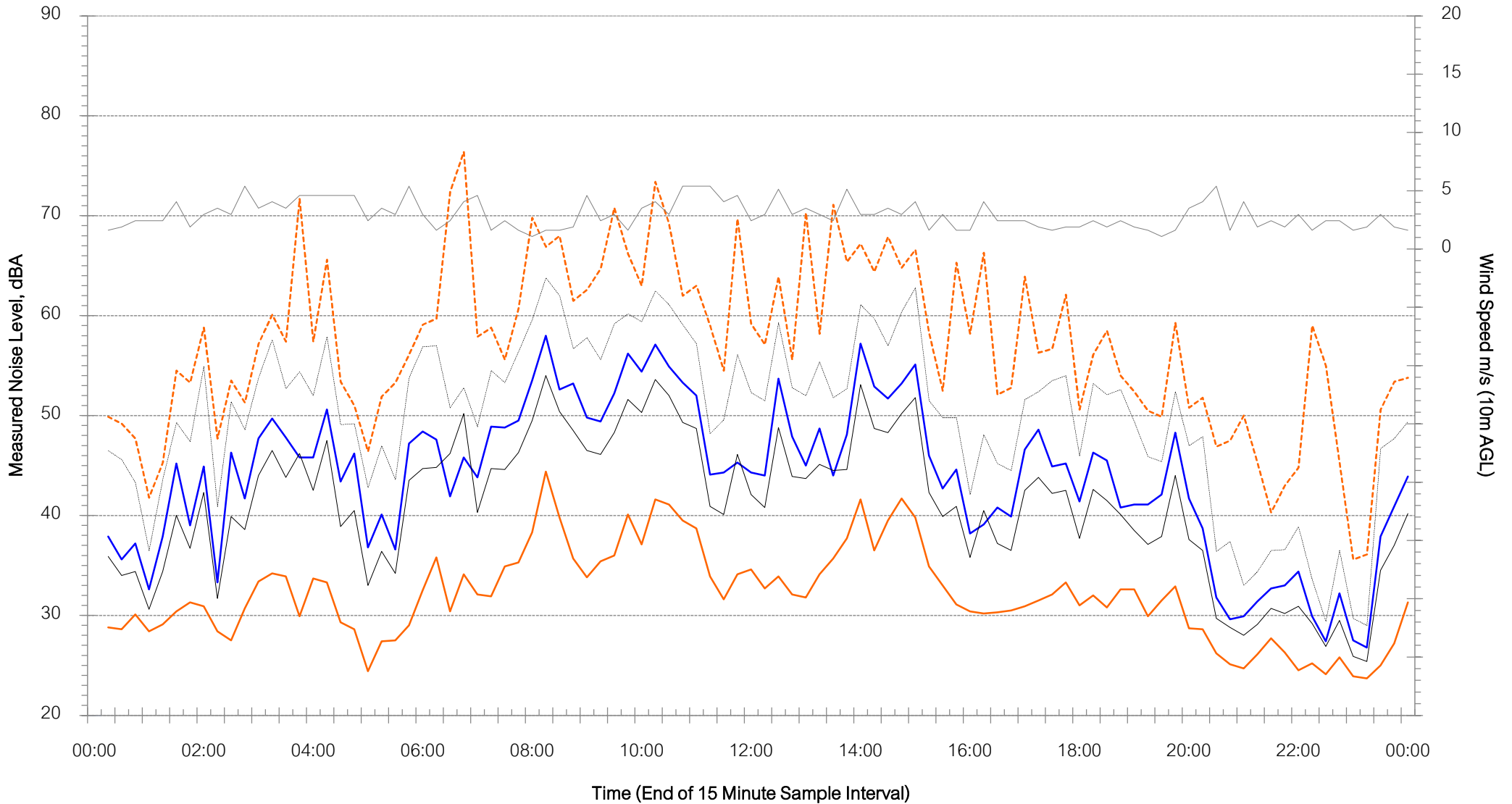




Background Noise Levels

Location B, 791 Jenolan Caves Road, Good Forest - Saturday 19 August 2023

Weather Exclusion LAmax LA1 LA10 LA90 LAeq Mean Wind Speed m/s (10m AGL)

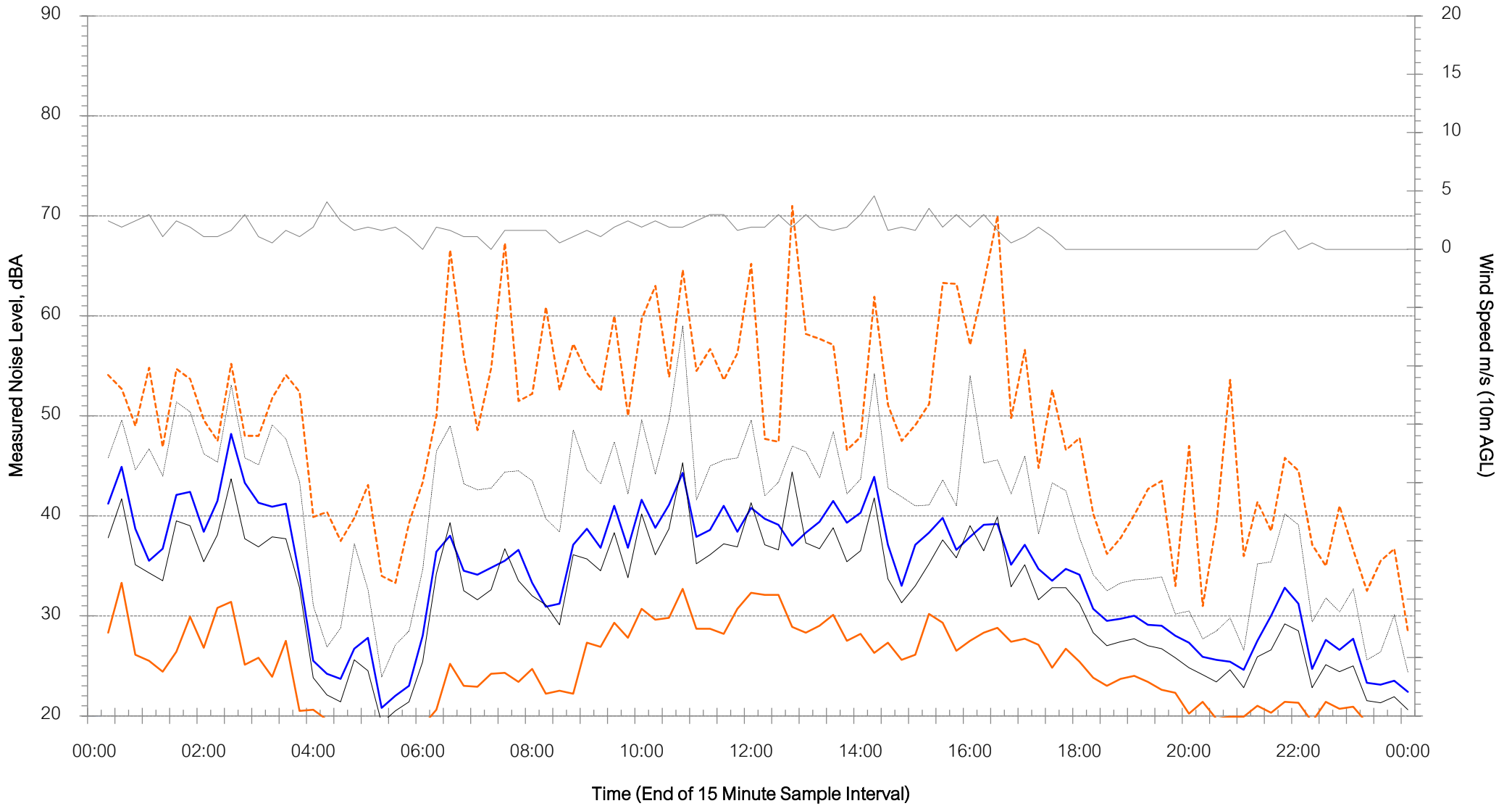




Background Noise Levels

Location B, 791 Jenolan Caves Road, Good Forest - Sunday 20 August 2023

Weather Exclusion LAmix LA1 LA10 LA90 LAeq Mean Wind Speed m/s (10m AGL)

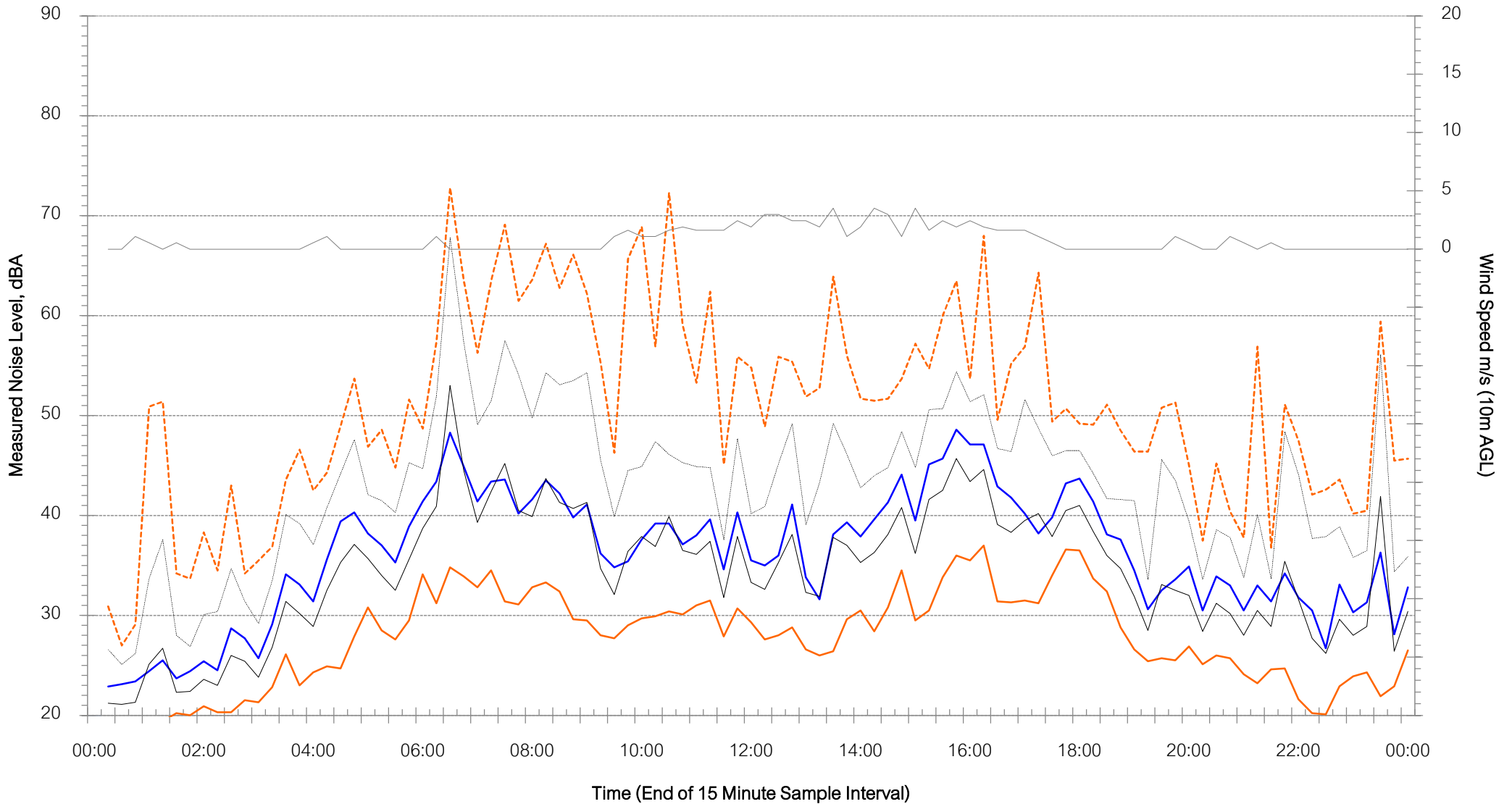




Background Noise Levels

Location B, 791 Jenolan Caves Road, Good Forest - Monday 21 August 2023

Weather Exclusion LAmix LA1 LA10 LA90 LAeq Mean Wind Speed m/s (10m AGL)

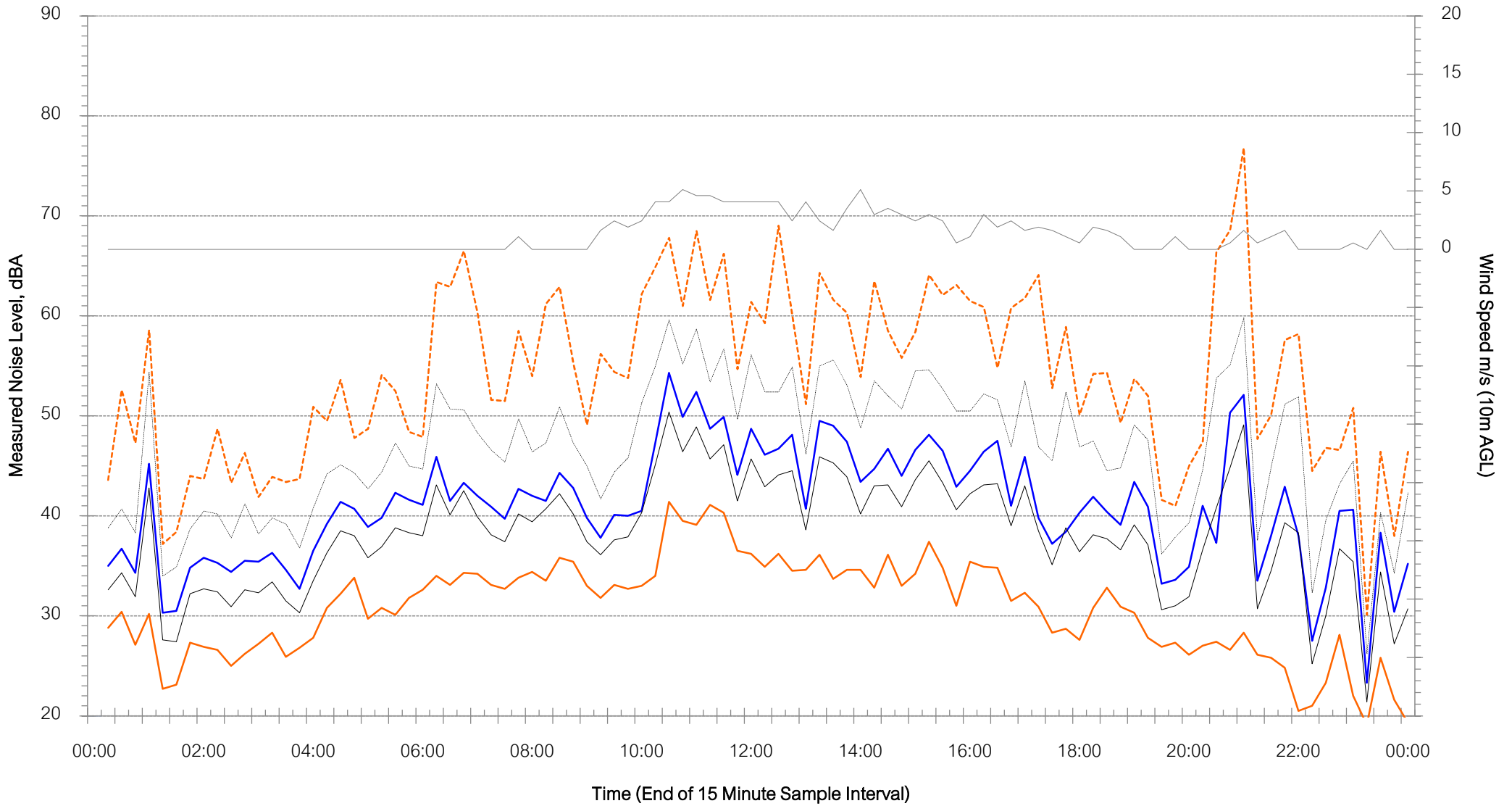




Background Noise Levels

Location B, 791 Jenolan Caves Road, Good Forest - Tuesday 22 August 2023

Weather Exclusion LAmix LA1 LA10 LA90 LAeq Mean Wind Speed m/s (10m AGL)

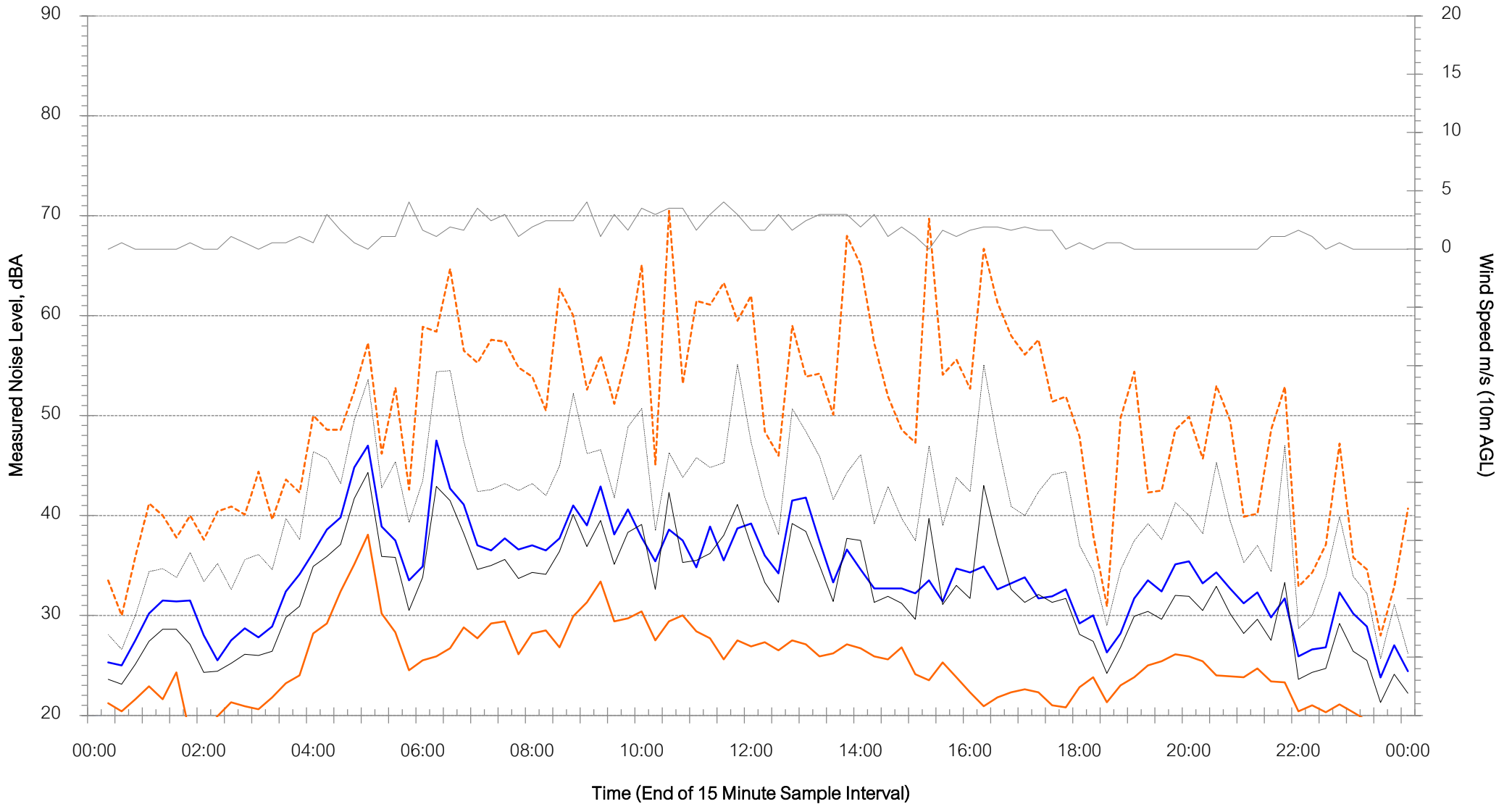




Background Noise Levels

Location B, 791 Jenolan Caves Road, Good Forest - Wednesday 23 August 2023

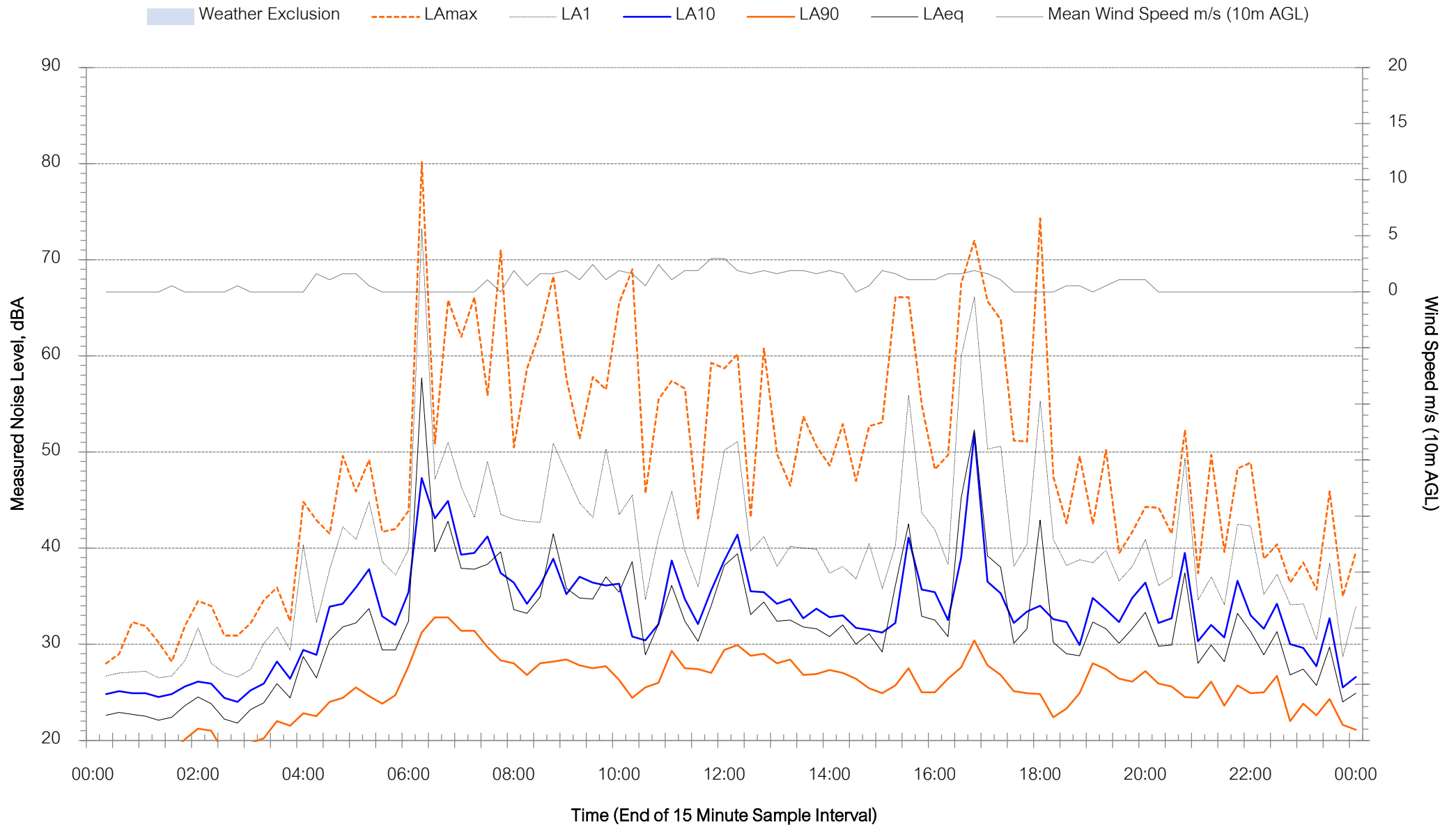
Weather Exclusion LAmax LA1 LA10 LA90 LAeq Mean Wind Speed m/s (10m AGL)





Background Noise Levels

Location B, 791 Jenolan Caves Road, Good Forest - Thursday 24 August 2023

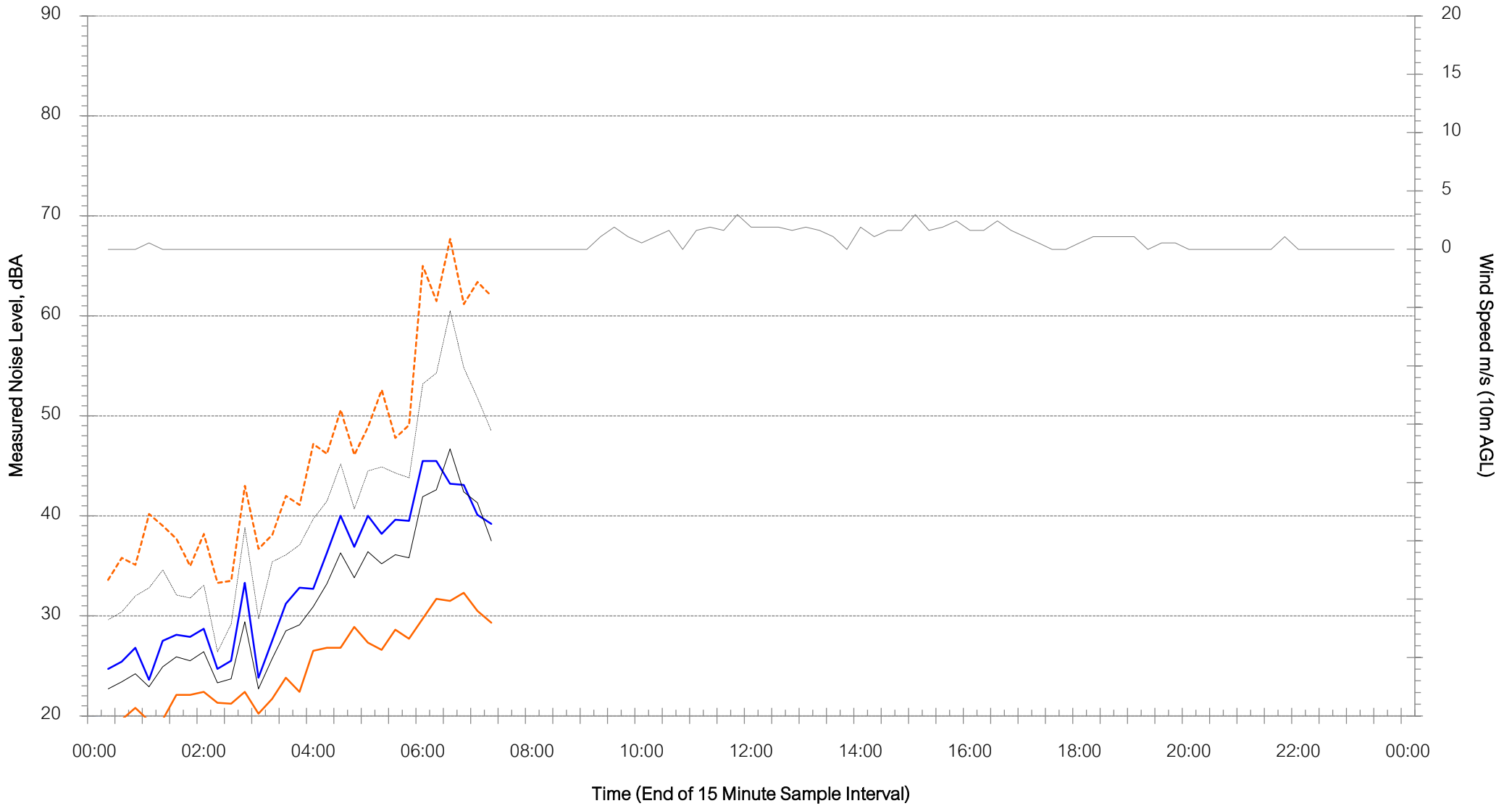




Background Noise Levels

Location B, 791 Jenolan Caves Road, Good Forest - Friday 25 August 2023

Weather Exclusion LAmx LA1 LA10 LA90 LAeq Mean Wind Speed m/s (10m AGL)



Muller Acoustic Consulting Pty Ltd

PO Box 678, Kotara NSW 2289

ABN: 36 602 225 132

Ph: +61 2 4920 1833

www.mulleracoustic.com

