Noise Monitoring Assessment

Northparkes Mines

Quarter 4, 2019

Prepared for: CMOC Mining Services Pty Ltd
November 2019
MAC190810RP3

Muller Acoustic Consulting

Document Information

Noise Monitoring Assessment

Northparkes Mines

Prepared for: CMOC Mining Services Pty Limited

PO Box 995

Parkes NSW 2870

Prepared by: Muller Acoustic Consulting Pty Ltd
PO Box 262, Newcastle NSW 2300
ABN: 36 602 225 132
P: +61 2 4920 1833
www.mulleracoustic.com

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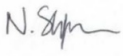
MAC190810RP3	Final	20 November 2019	Nicholas Shipman		Rod Linnett	

CONTENTS

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1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) has been commissioned by CMOC Mining Services Pty Limited (CMOC) to complete a Noise Monitoring Assessment (NMA) for Northparkes Mines (NPM), 27km North West of Parkes, NSW. The NMA has been completed to quantify operational noise emissions as per Conditions 1 to 5 of Schedule 3 of the Project Approval Conditions (PA11_110060) and the Northparkes Noise Management Plan (NMP, 2019).

The assessment has been conducted in accordance with the following documents:

- NSW Environment Protection Authority (EPA) 2017, Noise Policy for Industry (NPI); and
- Australian Standard AS 1055:2018 - Acoustics - Description and measurement of environmental noise - General Procedures.

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

2 Noise Criteria

2.1 Operational Noise Criteria

This assessment has adopted criteria as per Conditions 1 to 5 of Schedule 3 of the Project Approval Conditions (PA11_110060) and the Northparkes Noise Management Plan (NMP, 2019) (see **Appendix B**) and is summarised below in **Table 1**.

Table 1 Noise Criteria

Location	Day	Evening	Night	
	dB $L_{Aeq(15min)}$	dB $L_{Aeq(15min)}$	dB $L_{Aeq(15min)}$	dB $L_{A1(1min)}$
All privately-owned land	35	35	35	45

Additionally, the conditions state:

Operational Noise generated by the project will be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy.

These limits apply under all meteorological conditions except the following:

- *during periods of rain or hail;*
- *average wind speeds at microphone height exceeds 5 m/s;*
- *wind speeds greater than 3 m/s at 10 metres above ground level; or*
- *temperature inversion conditions of up to 3 °C/100m or alternatively a stability class of G.*

Except for wind speed at the microphone height, the data to be used for determining meteorological conditions will be that recorded by the meteorological station located onsite. Operational noise generated by the project is to be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy. Appendix 5 sets out the meteorological conditions under which these criteria apply, and the requirements for evaluating compliance with these criteria.

These limits do not apply if NPM have an agreement with the relevant owner/s of the residences or land to generate higher noise levels, and NPM has advised the Department in writing of the terms of the agreement.

3 Assessment Methodology

All attended noise monitoring surveys for this assessment were conducted in general accordance with the procedures described in Australian Standard AS 1055:2018, "Acoustics - Description and Measurement of Environmental Noise" and the NMP.

The acoustic instrumentation used carries appropriate and current NATA (or manufacturer) calibration certificates 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 ±0.5dBA.

3.1 Operational Noise Measurement Methodology

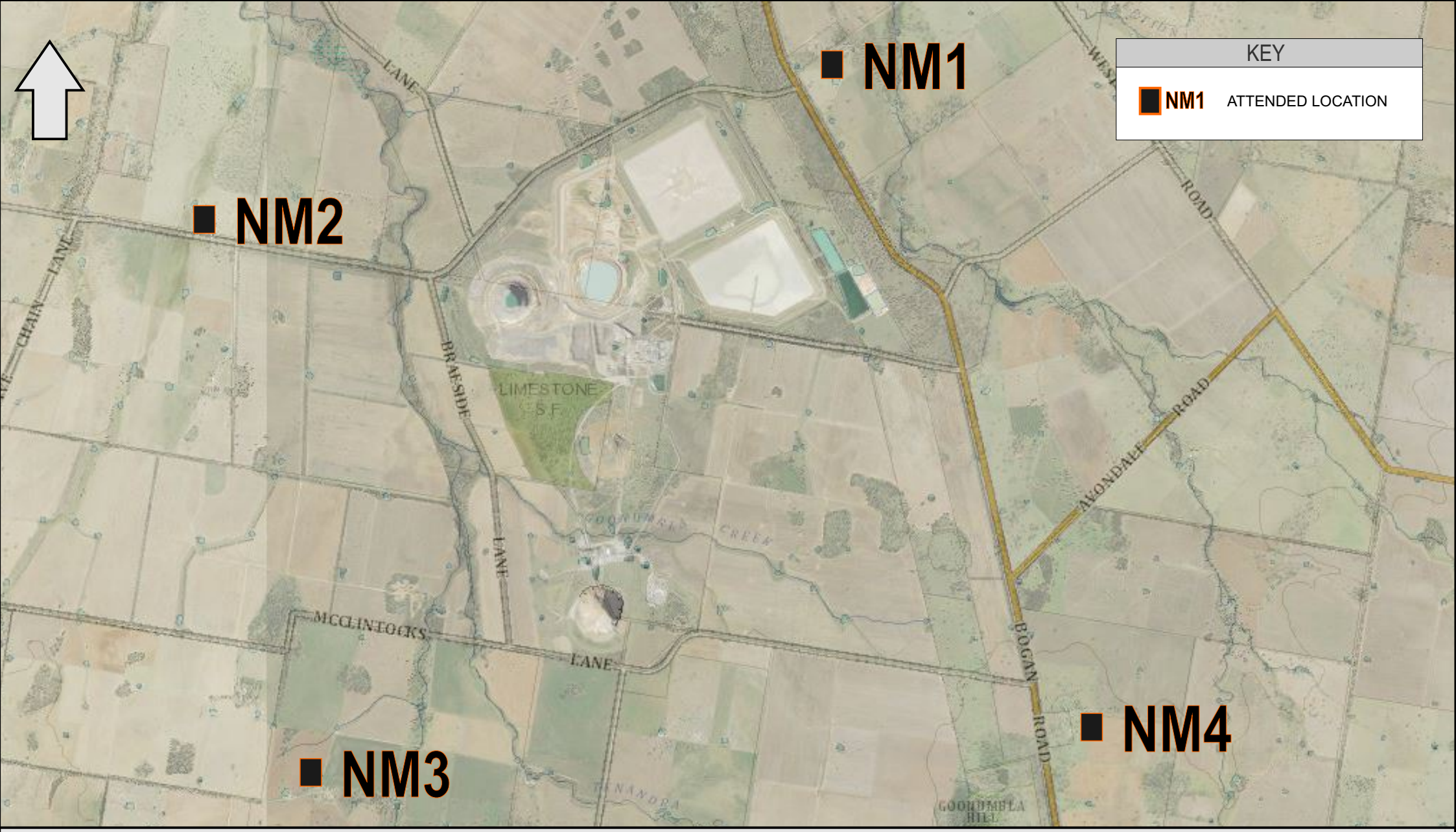
The locality surrounding the mine is primarily rural/residential. In accordance with the NMP, four representative receivers were selected for this assessment and are presented in **Table 2.**

Table 2 Noise Monitoring Locations

ID	Location	Coordinate Locations, MGA55	
		Easting (m)	Northing (m)
NM1	Hubberstone	600687	6360754
NM2	Lone Pine	593669	6358933
NM3	Milpose	594827	6352971
NM4	Hillview	602993	6353469

Monitoring locations with respect to the mine site are shown visually in **Figure 1**.

Measurements were carried out using a Svantek Type 1, 971 noise analyser from Tuesday 5 November 2019 to Wednesday 6 November 2019. The monitoring regime consisted of three 15-minute measurements during the daytime, evening and night time periods at each monitoring location. Throughout each survey, the operator quantified the contribution of significant noise sources where possible.



MAC
Muller Acoustic Consulting

*Imagery Source : sixmaps

FIGURE 1
LOCALITY PLAN
REF: MAC190810

0 2km

4 Results

4.1 Operational Noise Results

The monitoring and assessment results for each location are presented in **Table 3** to **Table 6**. Each table contains results for the daytime, evening and night-time periods for each location.

Table 3 Operator-Attended Noise Survey Results – Location NM1, Hubberstone

Date/Time (hrs)	Noise Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
	L_{Amax}	L_{Aeq}	L_{A90}		
Day					
06/11/2019 13:52	57	40	31	WS: 2.5m/s WD: NW Stability Class: C	Livestock 34-55 Aircraft 35-39 Birds 32-46 Traffic 36-45 Dog Bark 35-38 Wind 34-42 NPM Inaudible
06/11/2019 14:07	63	46	32		
06/11/2019 14:22	57	40	32		
Site $L_{Aeq(15min)}$ Contribution					<30
Site $L_{A1(1min)}$ Contribution					<40
Evening					
06/11/2019 18:56	70	44	34	WS: 2.5m/s WD: NW Stability Class: D	Wind 28-40 Livestock 32-43 Birds 32-51 Traffic 34-44 Dog Bark <36 Aircraft 32-36 NPM Inaudible
06/11/2019 19:11	60	39	33		
06/11/2019 19:26	55	37	28		
Site $L_{Aeq(15min)}$ Contribution					<30
Site $L_{A1(1min)}$ Contribution					<40
Night					
06/11/2019 00:08	51	30	22	WS: Calm Stability Class: F	Livestock 22-34 Birds 22-28 Insects <22 Traffic 22-43 Gunshot 44-51 NPM Hum 20-26
06/11/2019 00:23	69	34	23		
06/11/2019 00:38	45	29	24		
Site $L_{Aeq(15min)}$ Contribution					23
Site $L_{A1(1min)}$ Contribution					<35

Table 4 Operator-Attended Noise Survey Results – Location NM2, Lone Pine					
Date/Time (hrs	Noise Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
	L_{Amax}	L_{Aeq}	L_{A90}		
Day					
06/11/2019 14:52	64	46	35	WS: 2.5m/s WD: NW Stability Class: B	Wind 36-52 Birds 36-58 Local Residential Noise 36-62 Aircraft 28-42 Traffic 34-71 Insects 34-36 NPM Inaudible
06/11/2019 15:07	58	46	35		
06/11/2019 15:22	72	49	35		
Site $L_{Aeq(15min)}$ Contribution					<30
Site $L_{A1(1min)}$ Contribution					<40
Evening					
06/11/2019 19:55	65	53	39	WS: 0.5m/s WD: NW Stability Class: B	Dog Bark 34-56 Birds 34-54 Insects 34-38 Aircraft 34-42 NPM Inaudible
06/11/2019 20:10	53	38	33		
06/11/2019 20:25	54	37	29		
Site $L_{Aeq(15min)}$ Contribution					<30
Site $L_{A1(1min)}$ Contribution					<40
Night					
05/11/2019 23:06	46	26	18	WS: Calm Stability Class: D	Dog Bark 16-36 Birds 18-36 Insects 16-20 Gunshot 36-50 NPM Hum <20
05/11/2019 23:21	45	30	15		
05/11/2019 23:36	50	20	14		
Site $L_{Aeq(15min)}$ Contribution					<25
Site $L_{A1(1min)}$ Contribution					<40

Table 5 Operator-Attended Noise Survey Results – Location NM3, Milpose					
Date/Time (hrs	Noise Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
	L_{Amax}	L_{Aeq}	L_{A90}		
Day					
06/11/2019 15:54	76	50	28	WS: 2.5m/s WD: NW Stability Class: C	Local Residential Noise <34 Birds 34-38 Wind 36-59 Aircraft 34-41 NPM Inaudible
06/11/2019 16:16	65	47	29		
06/11/2019 16:31	71	51	32		
Site $L_{Aeq(15min)}$ Contribution					<30
Site $L_{A1(1min)}$ Contribution					<40
Evening					
06/11/2019 20:59	58	30	26	WS: 1m/s WD: NW Stability Class: E	Insects 23-28 Dog Bark 32-44 Birds 22-28 Wind <26 NPM Hum <24
06/11/2019 21:14	32	26	21		
06/11/2019 21:29	51	27	22		
Site $L_{Aeq(15min)}$ Contribution					<30
Site $L_{A1(1min)}$ Contribution					<30
Night					
05/11/2019 22:00	44	15	13	WS: Calm Stability Class: E	Livestock 13-24 Insects <13 Birds 13-26 Dog Bark 13-18 Aircraft 13-39 NPM Inaudible
05/11/2019 22:15	45	25	13		
05/11/2019 22:30	46	28	13		
Site $L_{Aeq(15min)}$ Contribution					<30
Site $L_{A1(1min)}$ Contribution					<40

Table 6 Operator-Attended Noise Survey Results – Location NM4, Hillview					
Date/Time (hrs)	Noise Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
	L_{Amax}	L_{Aeq}	L_{A90}		
Day					
06/11/2019 12:28	68	42	29	WS: 2.5m/s WD: NW Stability Class: A	Wind 26-42 Traffic 32-80 Birds 34-53 Aircraft 32-53 Insects 35-46 NPM Inaudible
06/11/2019 12:43	55	41	30		
06/11/2019 12:58	81	57	30		
Site $L_{Aeq(15min)}$ Contribution					<30
Site $L_{A1(1min)}$ Contribution					<40
Evening					
06/11/2019 18:00	55	43	35	WS: 2.5m/s WD: NW Stability Class: D	Traffic 34-64 Wind 32-47 Birds 36-53 Aircraft 36-46 NPM Inaudible
06/11/2019 18:15	66	50	37		
06/11/2019 18:30	59	44	35		
Site $L_{Aeq(15min)}$ Contribution					<30
Site $L_{A1(1min)}$ Contribution					<40
Night					
06/11/2019 01:08	64	45	16	WS: Calm Stability Class: F	Insects 17-25 Birds 32-38 Traffic 24-55 Wind 17-24 NPM Inaudible
06/11/2019 01:23	40	18	13		
06/11/2019 01:38	43	17	13		
Site $L_{Aeq(15min)}$ Contribution					<25
Site $L_{A1(1min)}$ Contribution					<35

4.2 Road Noise Results

As an additional initiative to operational attended noise monitoring, NPM include two 1-hour attended noise monitoring measurements at the Hillview monitoring location (NM4) to quantify NPM road noise levels associated concentrate trucks movements and shift change traffic flows. **Table 7** presents the results of the road traffic noise measurements with a comparison against the road noise criteria outlined in the NMP which is consistent with the NSW Road Noise Policy (DECCW 2011).

Table 7 Operator-Attended Road Noise Survey Results – Location NM4, Hillview

Time (hrs)	Noise Descriptor (re 20 µPa) dB LA_{eq}	Meteorology	Criteria dB $LA_{eq(1hr)}$	Description and SPL dBA
(Day) 06/11/2019 12:28	51	WS: 2.5m/s WD: NW Stability Class: A	55	Wind 26-42 Traffic 32-80 Birds 34-53 Aircraft 32-53 Insects 35-46 NPM Container Truck 30-64
(Evening) 06/11/2019 17:45	47	WS: 2.5m/s WD: NW Stability Class: D	55	Traffic 34-59 Wind 32-47 Birds 36-53 Aircraft 36-46 NPM Container Truck 38-64

Results of the road noise survey have been processed for a duration adjustment to identify the $LA_{eq(1hr)}$ noise contribution at NM4. Therefore, the contribution was measured to be <40dB $LA_{eq(1hr)}$ for both measurements, and hence satisfies the relevant road noise criteria as outlined in the NMP and the RNP.

4.3 Unattended Noise Results

Unattended noise monitors are installed at the four attended monitoring locations. Data from the unattended monitors provide a real time method for monitoring noise events, although it is noted that the results include all noise sources (ie project noise and extraneous noise sources). The results are used as a management tool for the project site.

It is noted for this quarter unattended results for NM3 - Milpose are likely to be representative of the units noise floor of the unit and has been included in **Appendix C** for completeness.

Averaged results of the $LA_{eq(15min)}$ and $LA_{1(1min)}$ metrics from Tuesday 22 October 2019 to Monday 28 October 2019 for NM1, NM2, NM3 and NM4 are summarised in **Table 8**. **Appendix C** presents the unattended results in chart format.

Table 8 Unattended Noise Survey Results

Period [1]	Noise Descriptor (dBA re 20 µPa)	
	Weekly Average $LA_{eq(15min)}$[2]	Weekly Average $LA_{1(1min)}$[2]
Location NM1, Hubberstone		
Day	58	63
Evening	47	51
Night	45	45
Location NM2, Lone Pine		
Day	56	62
Evening	51	50
Night	45	43
Location NM3, Milpose		
Day	41	43
Evening	38	36
Night	37	35
Location NM4, Hillview		
Day	51	59
Evening	44	52
Night	46	48

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Note 2: Arithmetic average.

5 Discussion

5.1 Operational Noise Discussion

5.1.1 Discussion of Results – Location NM1, Hubberstone

Attended measurement results for monitoring conducted at NM1, Hubberstone, for the November 2019 noise survey identified that NPM remained inaudible during all day and evening measurements, and although audible during the night-time measurement, the NPM noise level contribution was below the relevant noise criteria. Generally, livestock, aircraft, birds, traffic, dog bark, wind insects and local residential noise were all audible during the monitoring period.

In summary, the noise contribution from NPM satisfied the relevant noise criteria for all monitored assessment periods at Location NM1.

5.1.2 Discussion of Results – Location NM2, Lone Pine

Attended measurement results for monitoring conducted at NM2, Lone Pine, for the November 2019 noise survey identified that NPM remained inaudible during all day and evening measurements, and although audible during the night-time measurement, the NPM noise level contribution was below the relevant noise criteria. Generally, wind in trees, birds, local residential noise, aircraft, traffic, insects and dog bark were all audible during the monitoring period.

In summary, the noise contribution from NPM satisfied the relevant noise criteria for all monitored assessment periods at Location NM2.

5.1.3 Discussion of Results – Location NM3, Milpose

Attended measurement results for monitoring conducted at NM3, Milpose, for the November 2019 noise survey identified that NPM remained inaudible during all day and night measurements, and although audible during the evening measurement, the NPM noise level contribution was below the relevant noise criteria. Generally, local residential noise, birds, wind in trees, aircraft, livestock, insects and dog bark were all audible during the monitoring period.

In summary, the noise contribution from NPM satisfied the relevant noise criteria for all monitored assessment periods at Location NM3.

5.1.4 Discussion of Results – Location NM4, Hillview

Attended measurement results for monitoring conducted at NM4, Hillview, for the November 2019 noise survey identified that NPM remained inaudible during all day, evening and night-time measurements. Generally, wind in trees, traffic, birds, aircraft and insects were all audible during the monitoring period.

In summary, the noise contribution from NPM satisfied the relevant noise criteria for all monitored assessment periods at Location NM4.

6 Conclusion

Muller Acoustic Consulting Pty Ltd (MAC) has completed a Noise Monitoring Assessment (NMA) on behalf of CMOC Mining Services Pty Limited (CMOC). The assessment was completed to quantify site noise emissions against relevant noise criteria pertaining to NPM operations in accordance with Conditions 1 to 5 of Schedule 3 of the Project Approval Conditions (PA11_110060) and the Northparkes Noise Management Plan (NMP, 2019) for Quarter 4, ending December 2019.

Road noise monitoring identified that concentrate trucks and light vehicle movements associated with shift change generate levels below the relevant road noise criteria specified in the RNP and NMP.

Attended monitoring has identified that operational emissions generated by NPM comply with relevant statutory noise criteria at all monitoring locations for all assessment periods. Furthermore, project related noise emissions are generally inaudible at monitoring locations. Extraneous non-mining sources such as traffic, wind in trees, livestock, birds, aircraft, dog bark, insects and local residential noise were audible during the monitoring period.

Appendix A – Glossary of Terms

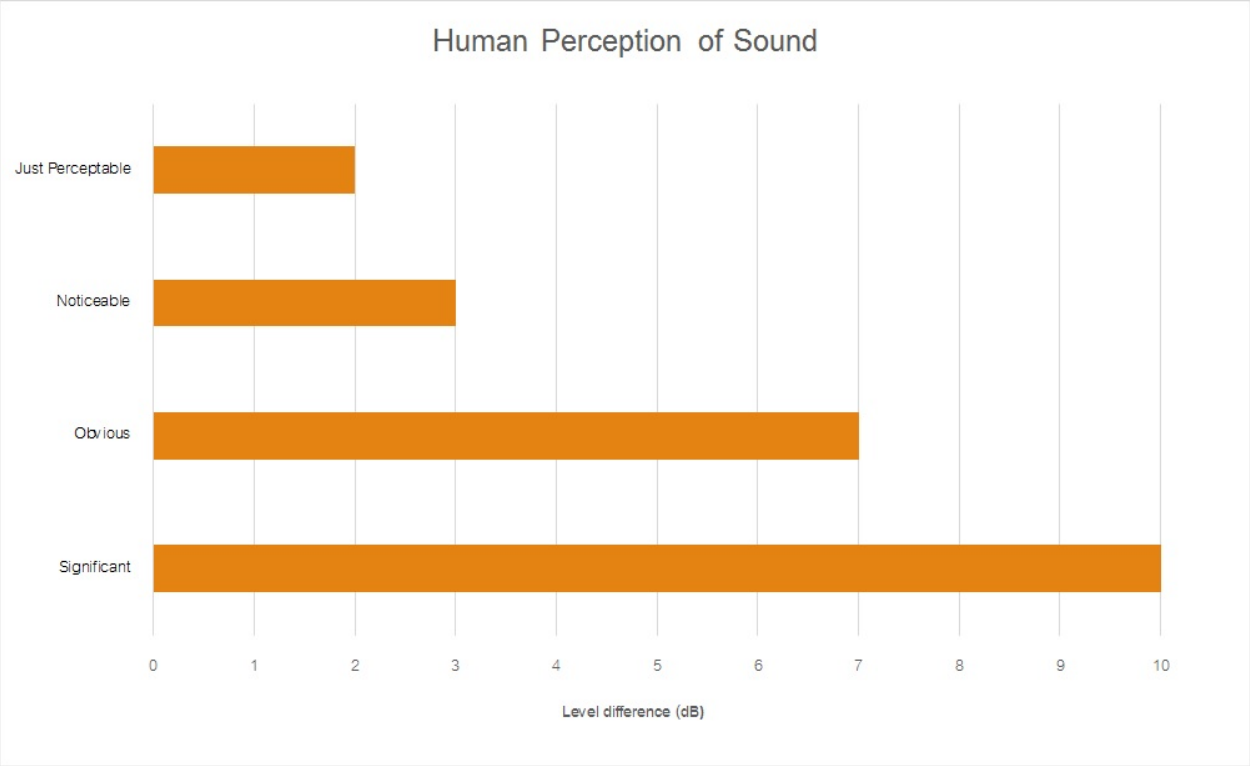
Table A1 provides a number of technical terms have been used in this report.

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.
LAmax	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.log10 (W/Wo) Where : W is the sound power in watts and Wo 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



Appendix B – Regulatory Noise Limits

Table 1 NSW Development Consent Conditions – Schedule 3

<table>
<tr><th>Condition</th><th>Related Section in NMP</th></tr>
<tr><td colspan="2">Noise Criteria</td></tr>
<tr><td>1. The Proponent shall ensure that the noise generated by the project does not exceed the criteria in Table 1 at any residence on privately-owned land.

Table 2 Noise impact assessment criteria dB(A)
<table>
<tr><th rowspan="2">Property</th><th>Day</th><th>Evening</th><th colspan="2">Night</th></tr>
<tr><th>$L_{Aeq(15min)}$</th><th>$L_{Aeq(15min)}$</th><th>$L_{Aeq(15min)}$</th><th>$L_{A1(1min)}$</th></tr>
<tr><td>All privately-owned land</td><td>35</td><td>35</td><td>35</td><td>45</td></tr>
</table>
Note: To interpret the land referred to in Table 1, see the applicable figures in Appendix 4.

Operational noise generated by the project is to be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy. Appendix 5 sets out the meteorological conditions under which these criteria apply, and the requirements for evaluating compliance with these criteria.</td><td>Section 5.4.1</td></tr>
<tr><td>2. The Proponent shall only carry out the construction works associated with the upgrade of McClintocks Lane, the construction of the McClintocks Lane access road and the upgrade of the intersection of McClintocks Lane and Bogan Road during the day.</td><td>Section 5.4.1</td></tr>
<tr><td>3. During construction of the works referred to in condition 2 of schedule 3, the noise criteria in Table 1 do not apply to the residences located in the vicinity of the works. The Proponent shall implement all reasonable and feasible measures to minimise construction noise impacts on the residences in the vicinity of these works.</td><td>Section 6</td></tr>
<tr><td>4. The Proponent shall:
a) implement best management practice to minimise the construction, operational and road noise of the project;
b) operate a comprehensive noise management system that uses a combination of predictive meteorological forecasting and real-time noise monitoring data to guide the day to day planning, and the implementation of both proactive and reactive noise mitigation measures to ensure compliance with the relevant conditions of this approval;
c) minimise the noise impacts of the project during meteorological conditions when the noise limits in this approval do not apply (see Appendix 5); and
d) carry out regular monitoring to determine whether the project is complying with the relevant conditions of this approval,
To the satisfaction of the Secretary.</td><td>Section 6 & Section 7</td></tr>
<tr><td>5. The Proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Secretary. This plan must:
a) be prepared in consultation with the EPA, and submitted to the Secretary prior to the commencement of construction;
b) describe the measures that would be implemented to ensure compliance with the noise criteria and operating conditions in this approval;
c) describe the proposed noise management system in detail; and
d) include a monitoring program that:
• evaluates and reports on:
– the effectiveness of the noise management system;
– compliance against the noise criteria in this approval; and
– compliance against the noise operating conditions;
• includes a program to calibrate and validate the real-time noise monitoring results with the attended monitoring results over time (so the real-time noise monitoring program can be used as a better indicator of compliance with the noise criteria in this approval and trigger for further attended monitoring); and
• defines what constitutes a noise incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any noise incidents</td><td>Section 6 & Section 7

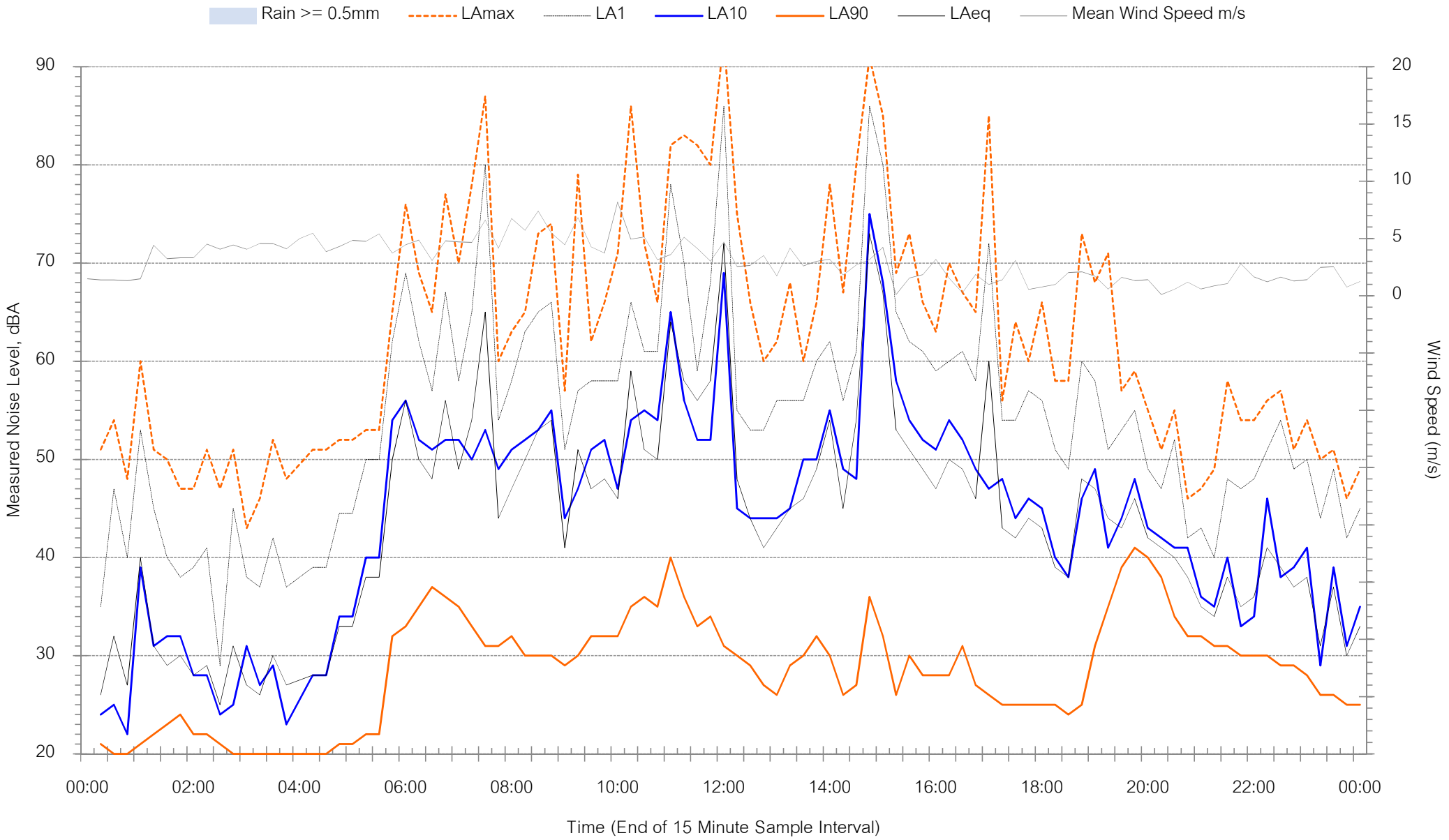
Section 7

Section 7.1</td></tr>
</table>

Appendix C – Unattended Monitoring Charts

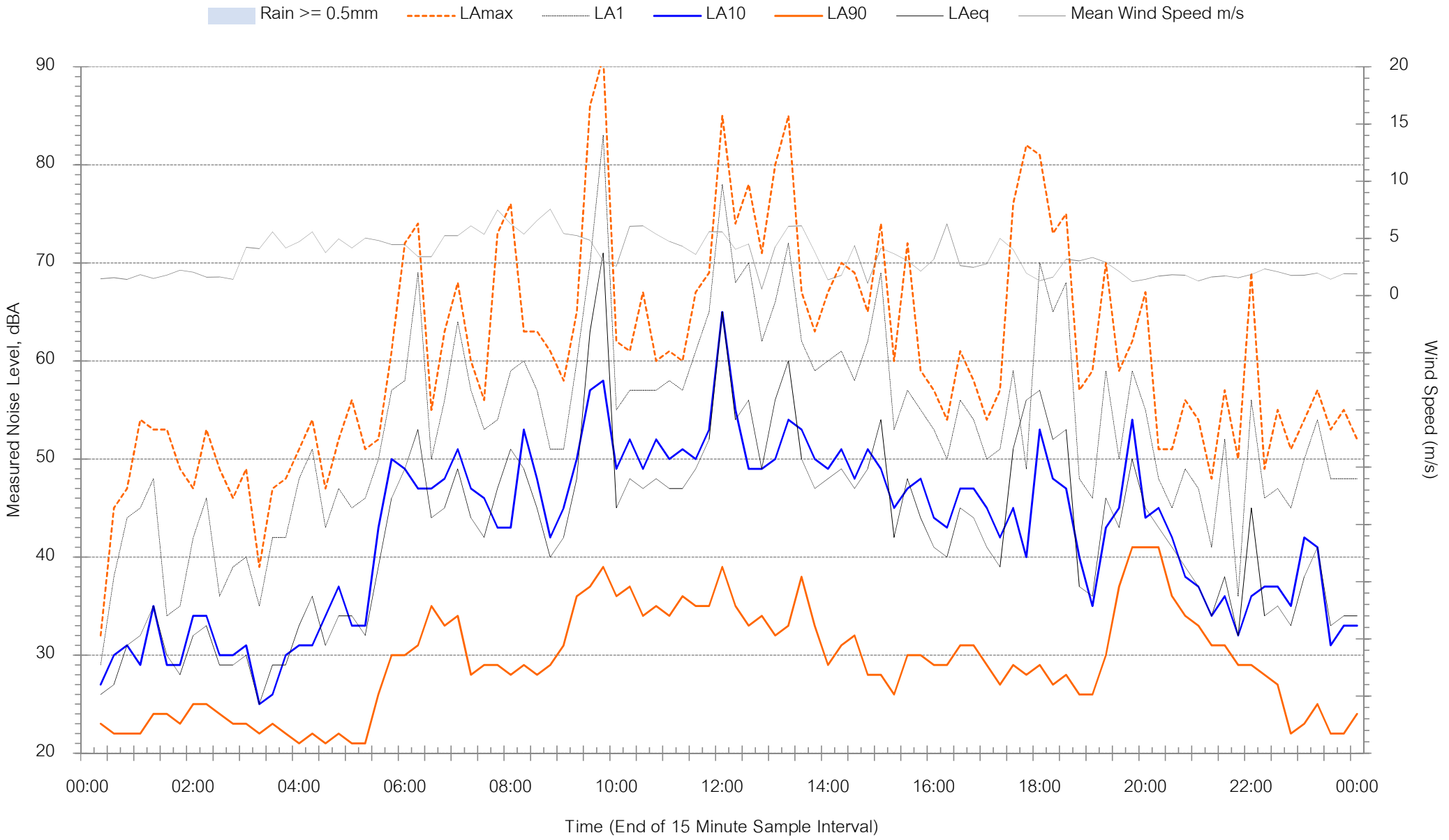
Background Noise Levels

L1 (Hubberstone) - Q4 - Tuesday 22 October 2019



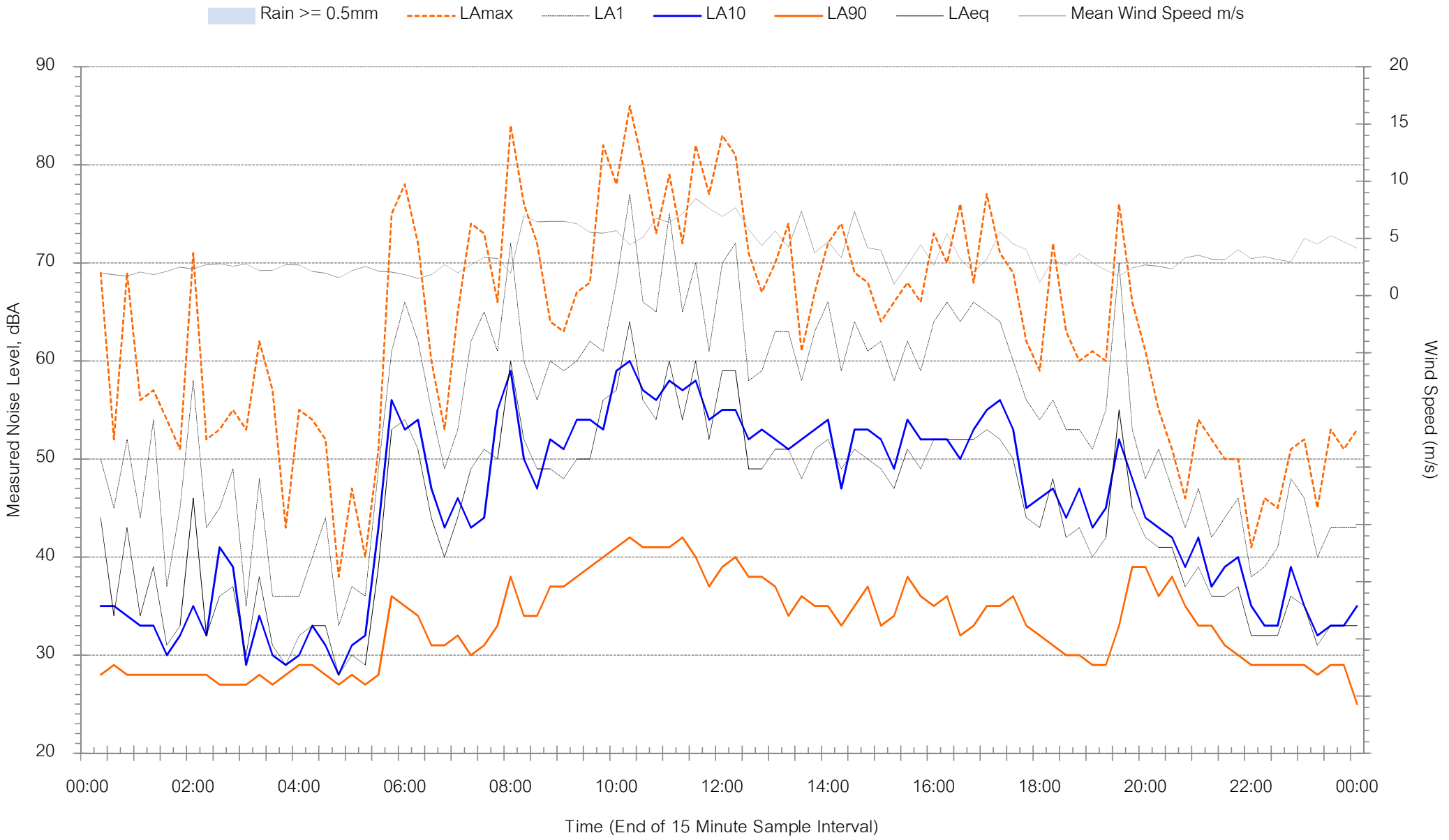
Background Noise Levels

L1 (Hubberstone) - Q4 - Wednesday 23 October 2019



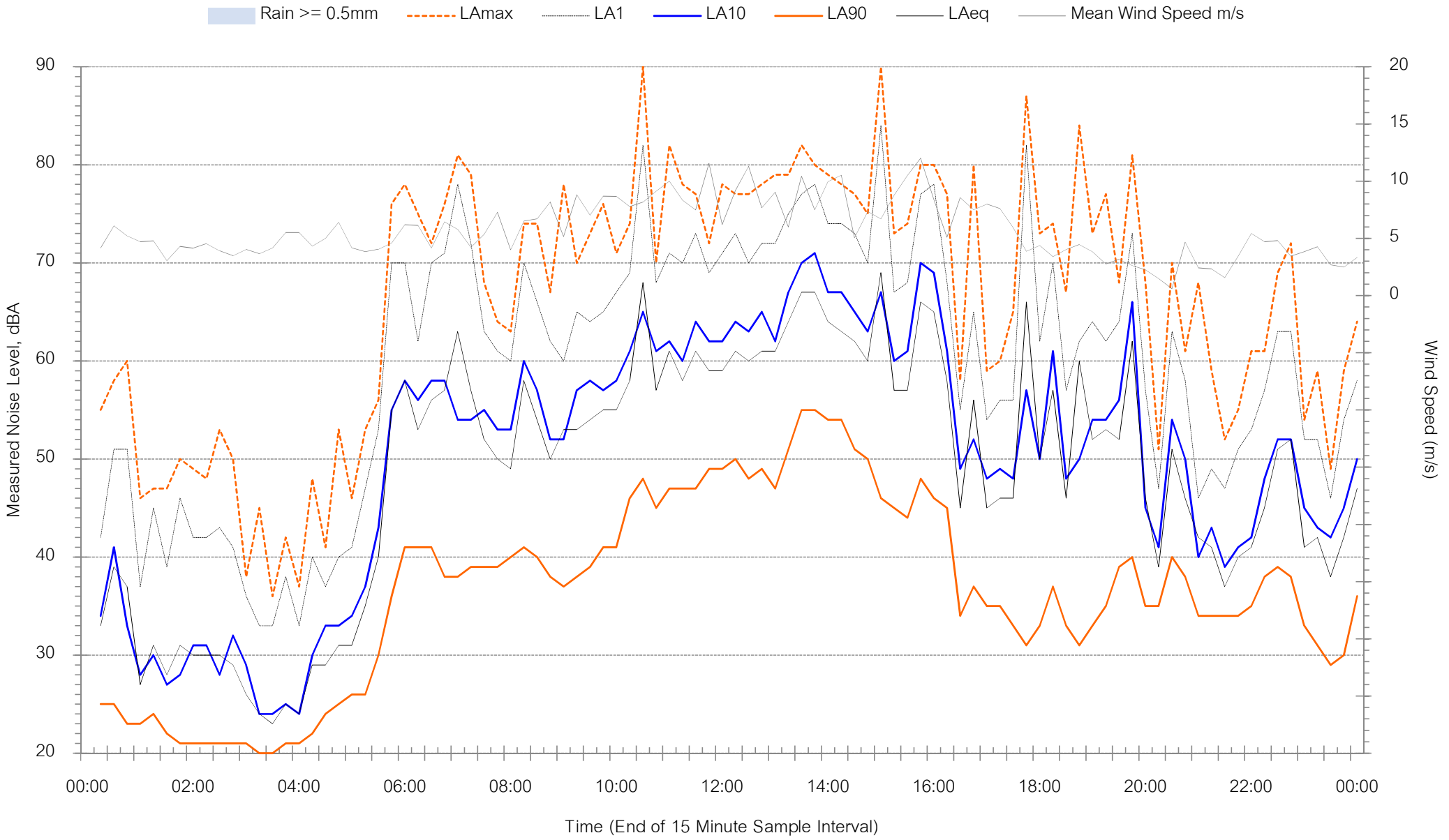
Background Noise Levels

L1 (Hubberstone) - Q4 - Thursday 24 October 2019



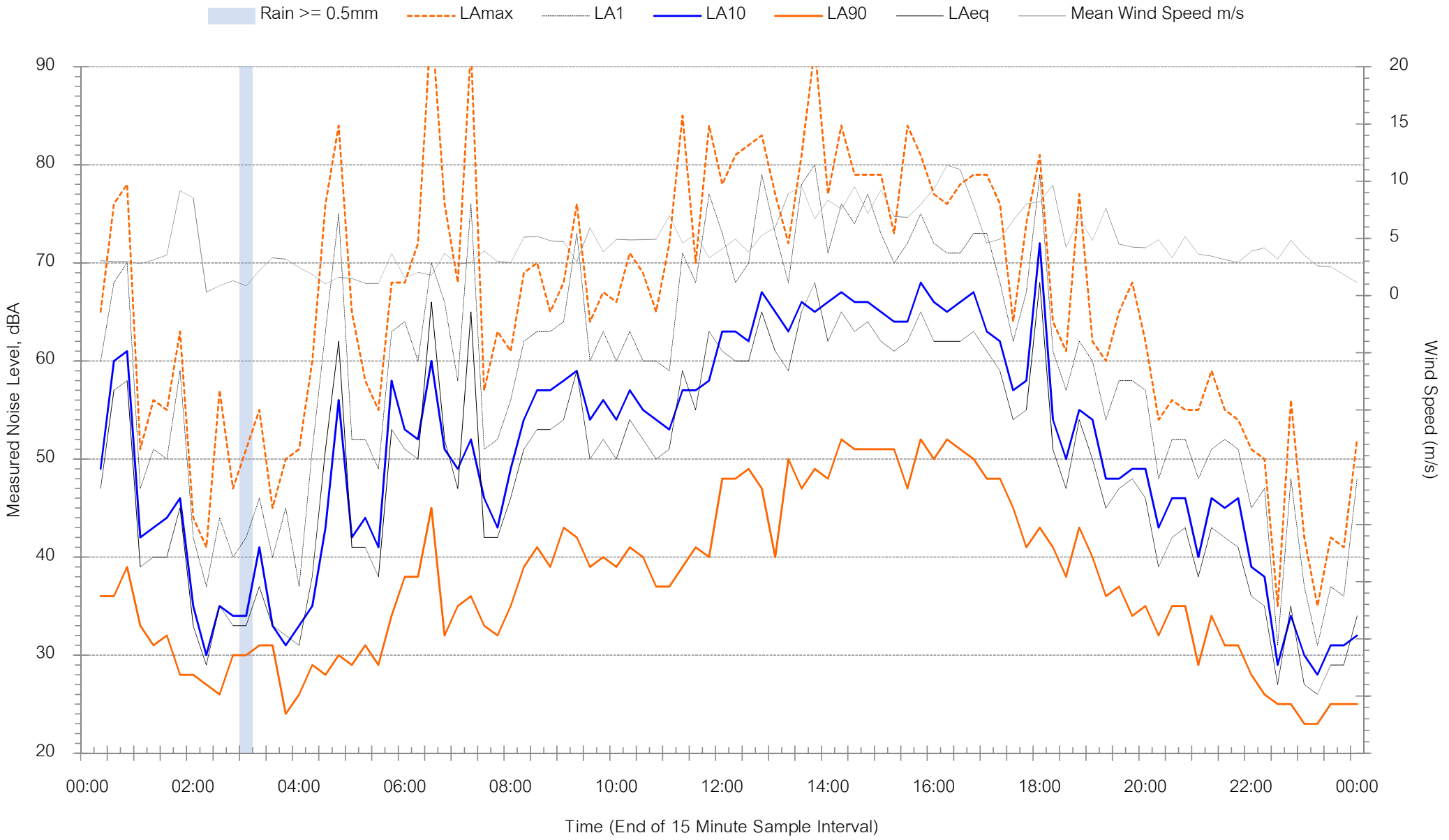
Background Noise Levels

L1 (Hubberstone) - Q4 - Friday 25 October 2019



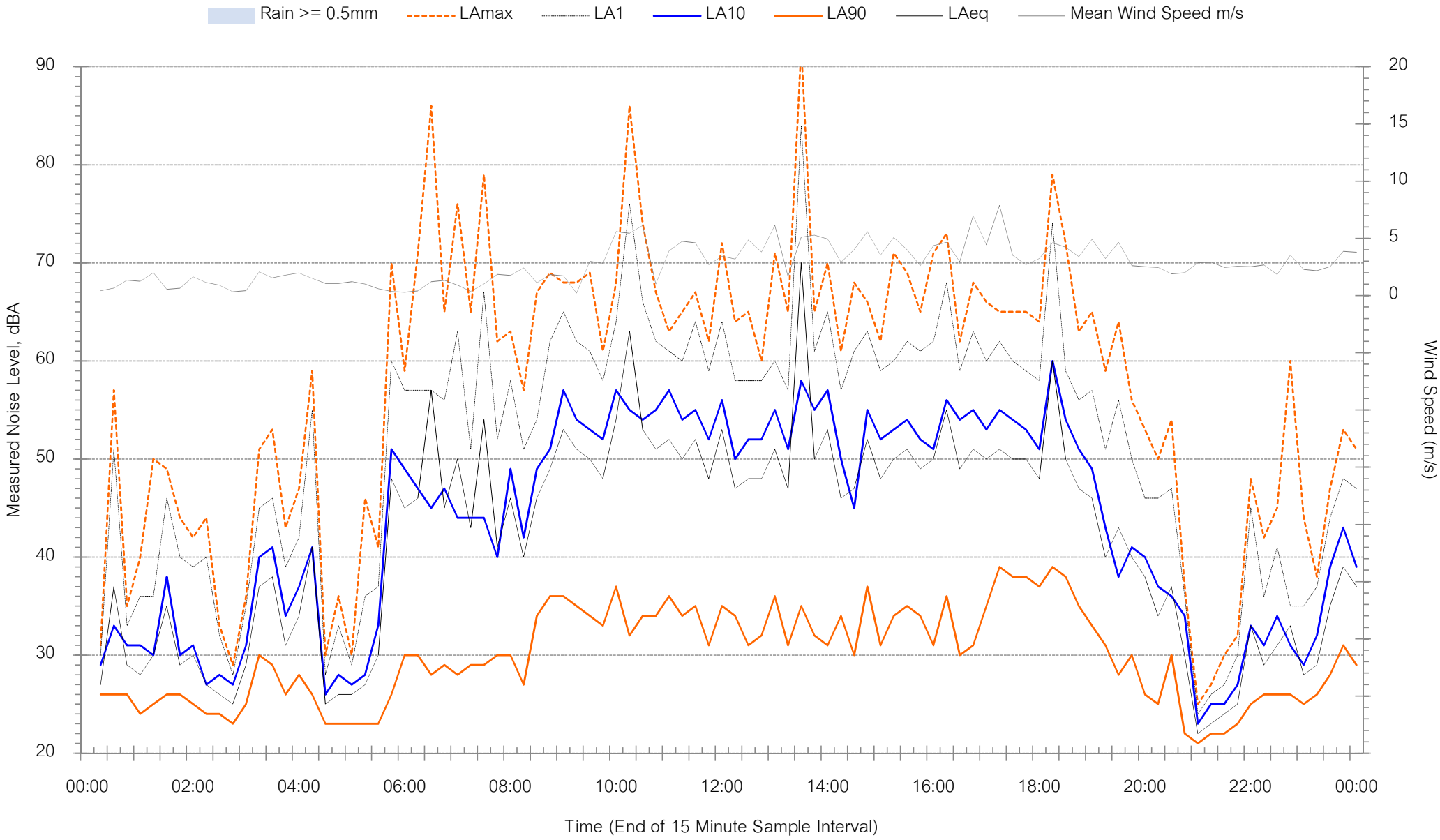
Background Noise Levels

L1 (Hubberstone) - Q4 - Saturday 26 October 2019



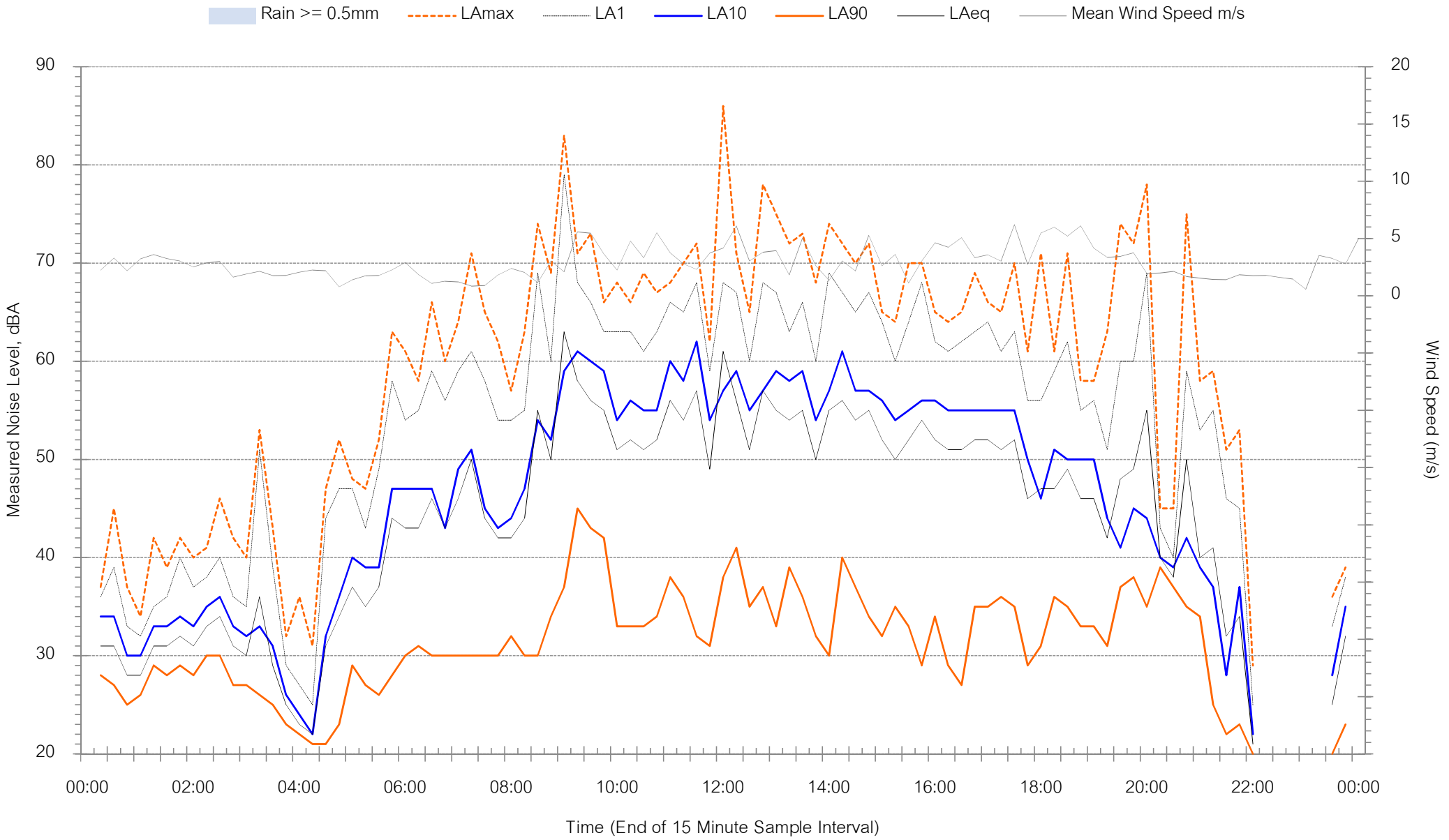
Background Noise Levels

L1 (Hubberstone) - Q4 - Sunday 27 October 2019



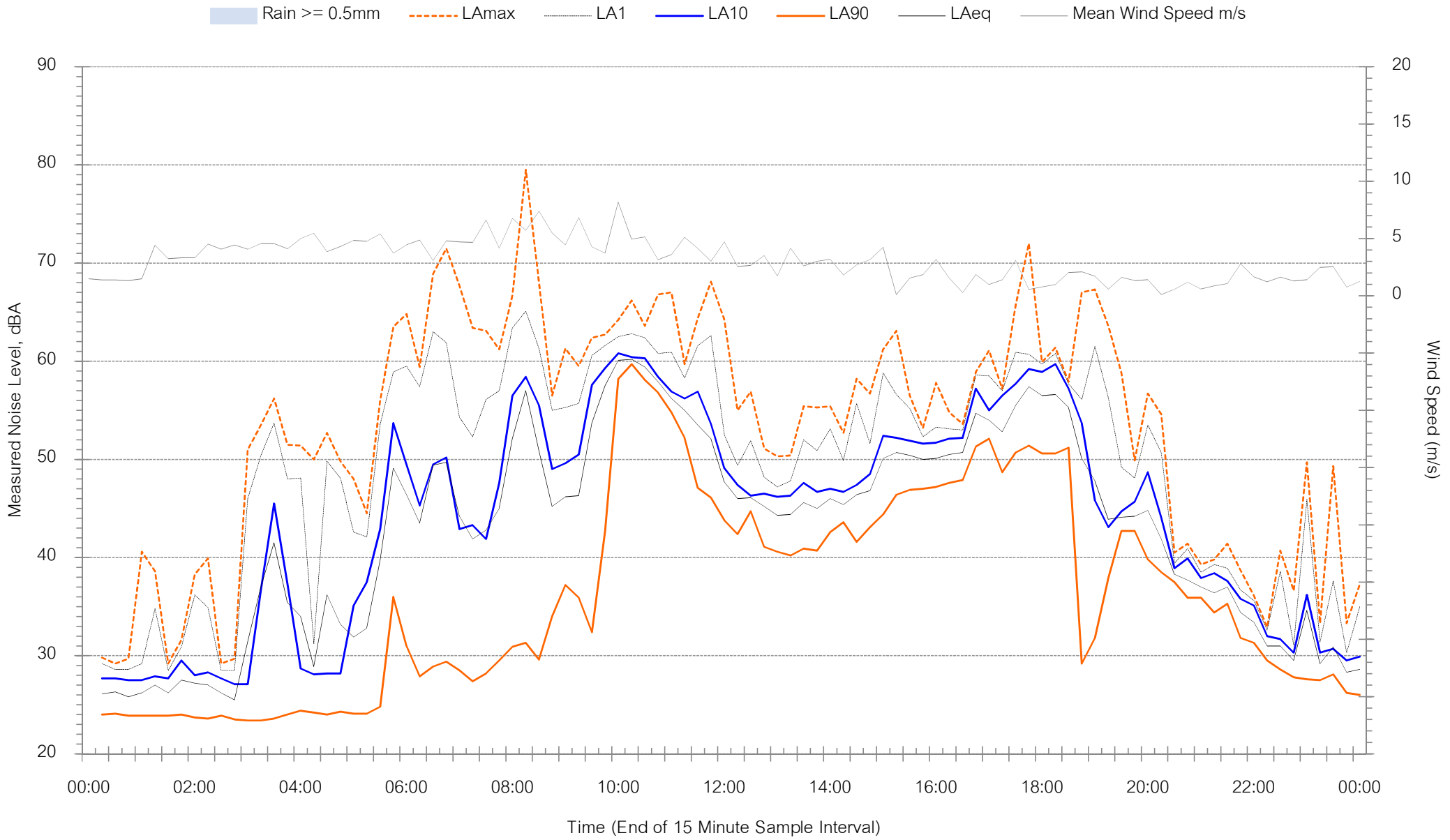
Background Noise Levels

L1 (Hubberstone) - Q4 - Monday 28 October 2019



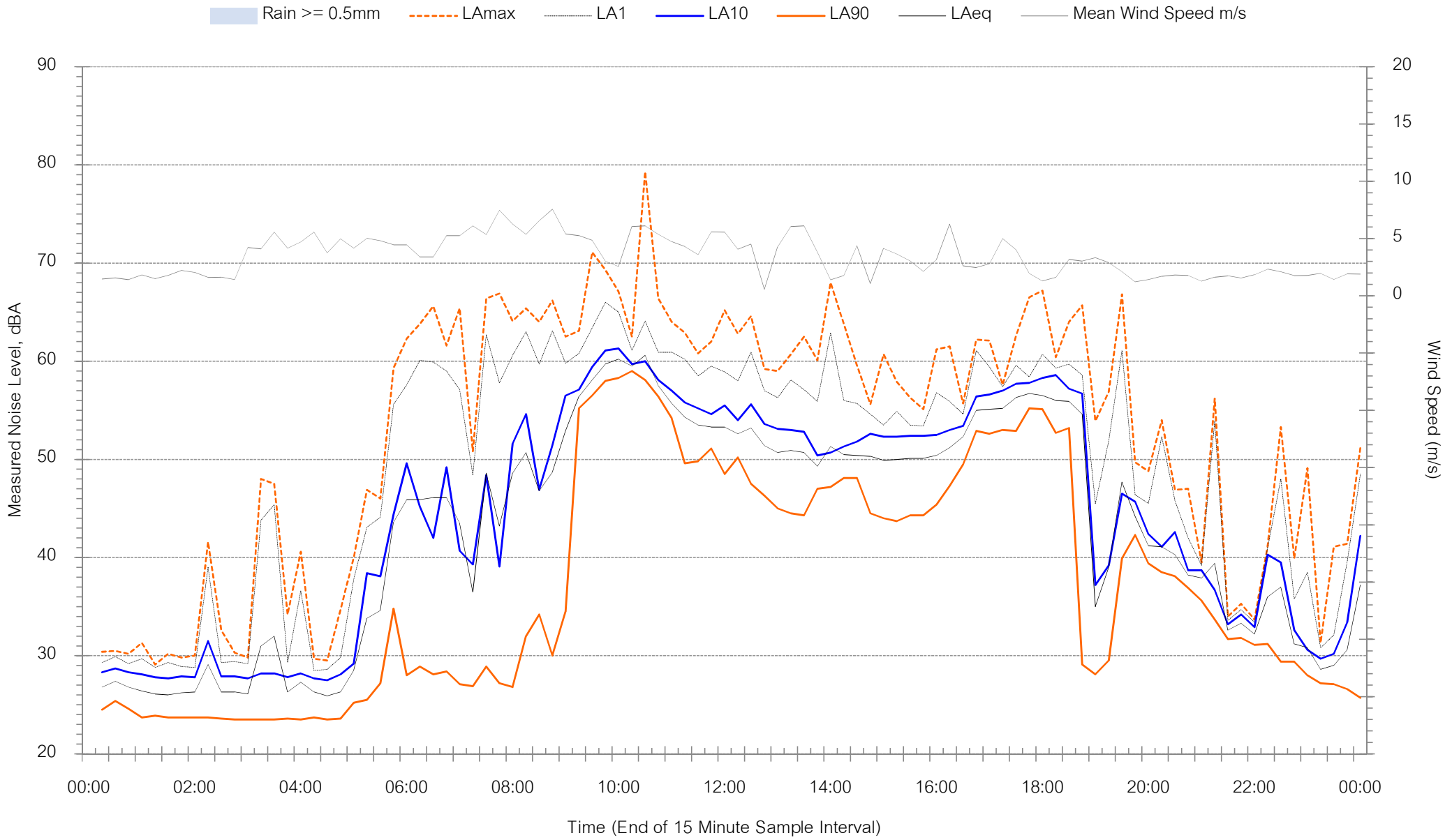
Background Noise Levels

L2 (Lone Pine) - Q4 - Tuesday 22 October 2019



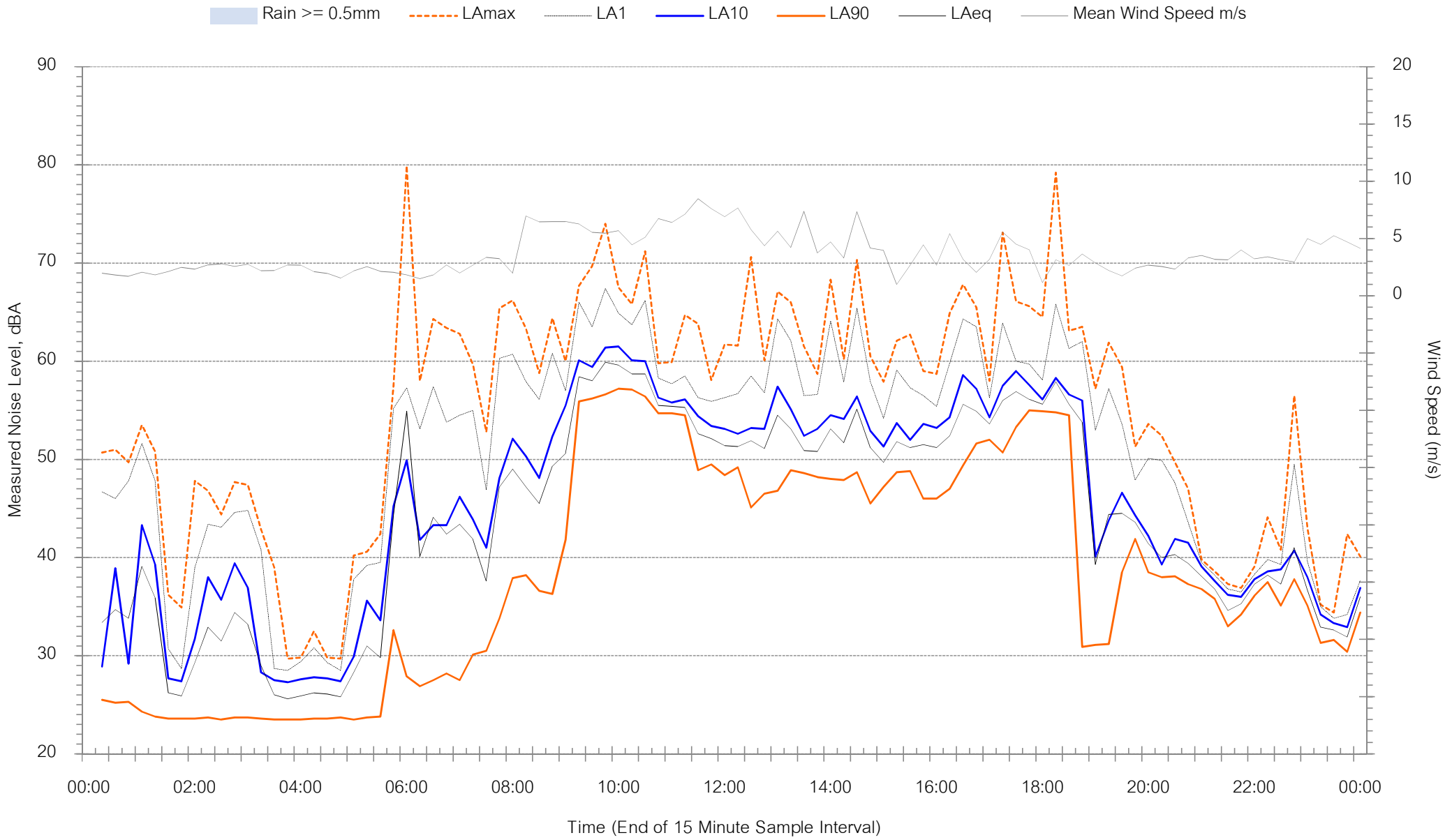
Background Noise Levels

L2 (Lone Pine) - Q4 - Wednesday 23 October 2019



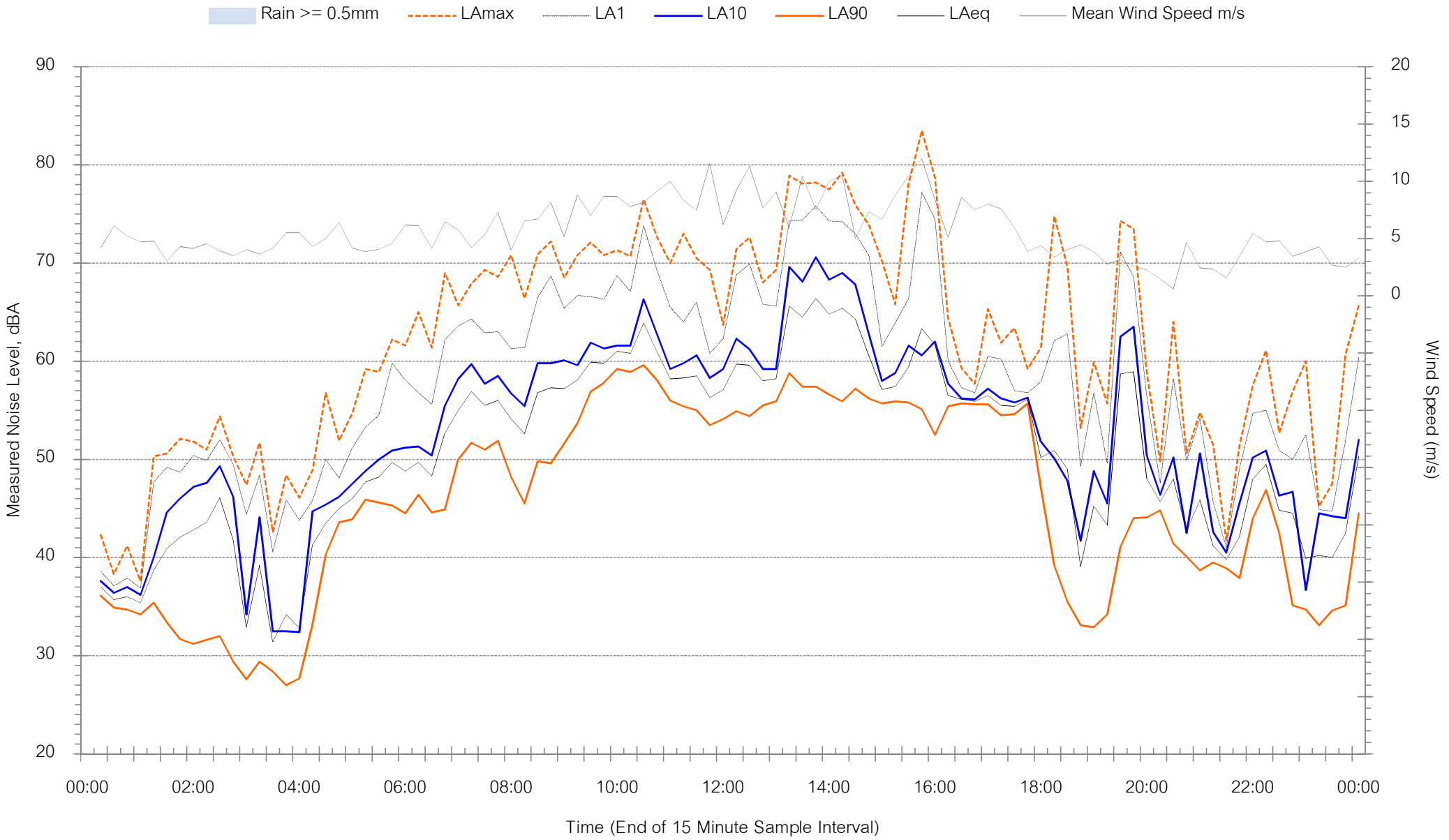
Background Noise Levels

L2 (Lone Pine) - Q4 - Thursday 24 October 2019



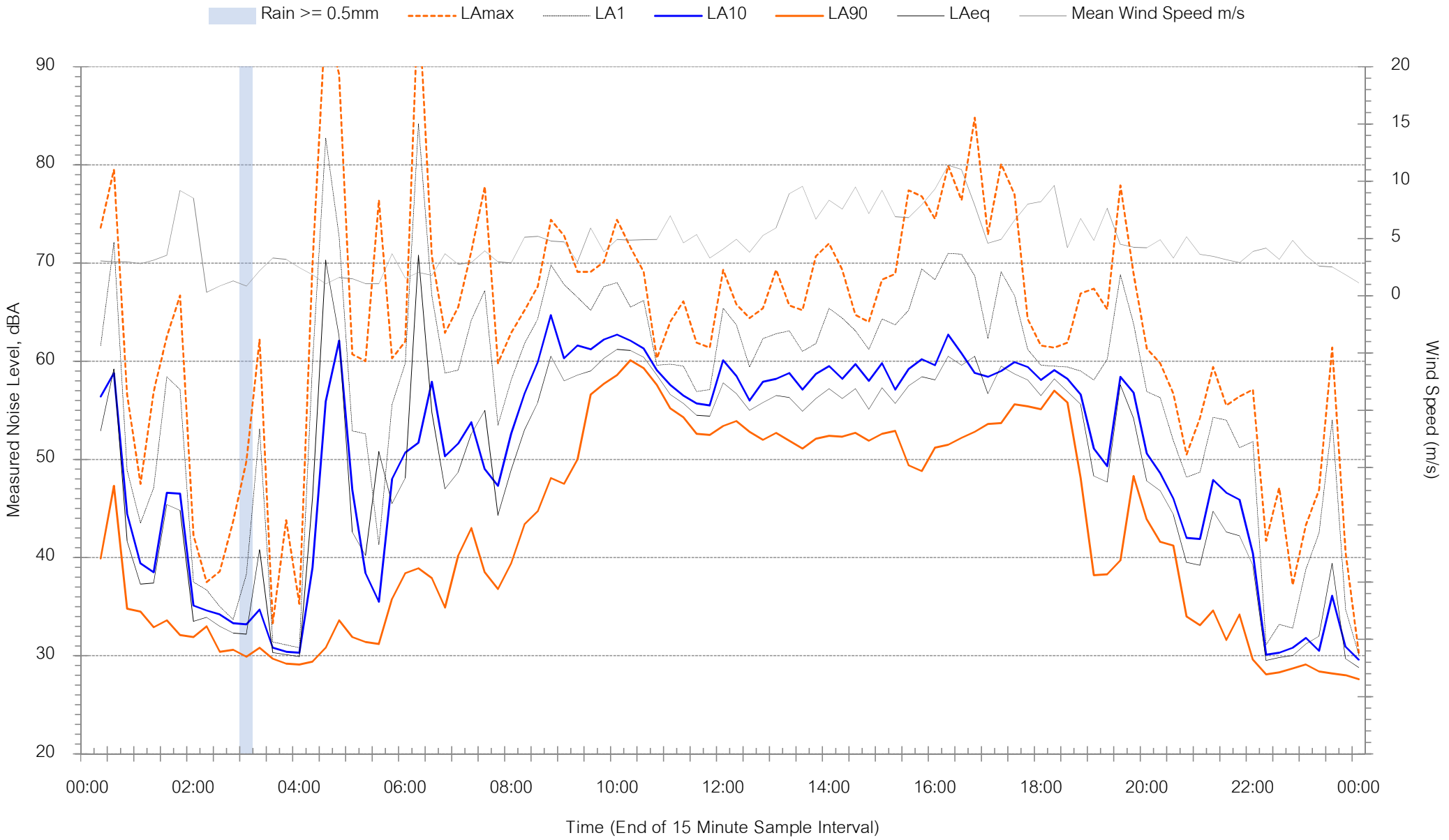
Background Noise Levels

L2 (Lone Pine) - Q4 - Friday 25 October 2019



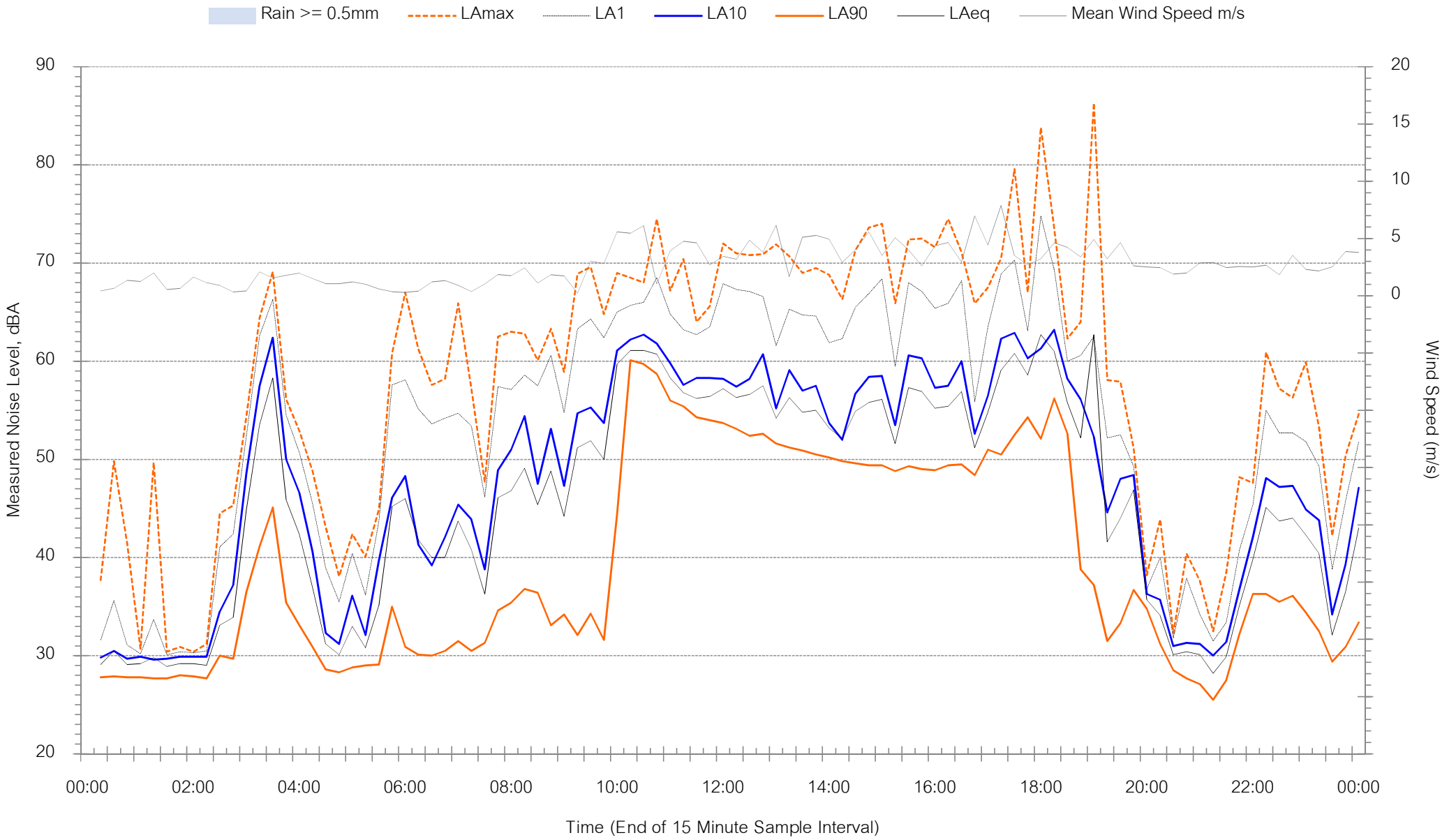
Background Noise Levels

L2 (Lone Pine) - Q4 - Saturday 26 October 2019



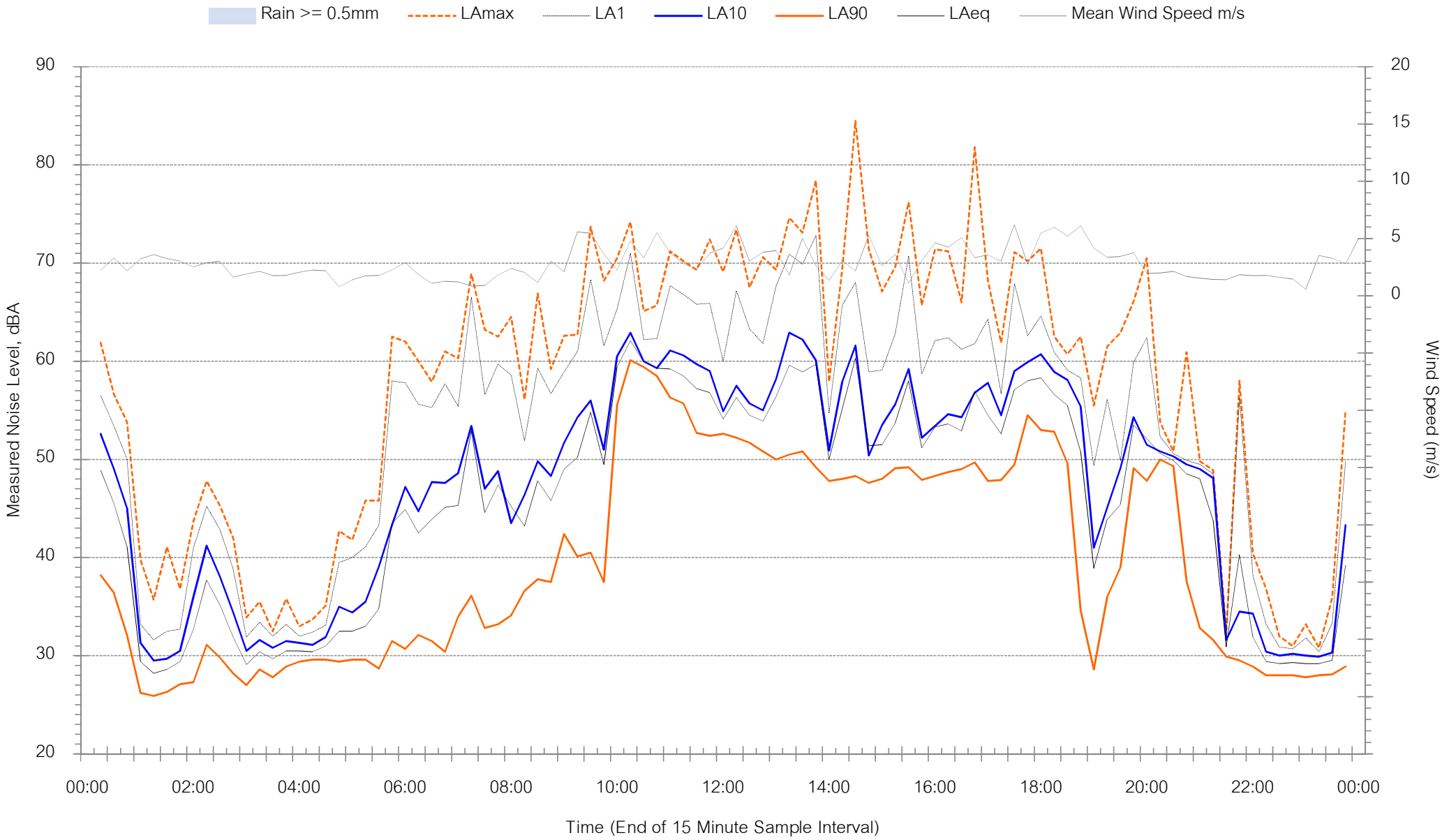
Background Noise Levels

L2 (Lone Pine) - Q4 - Sunday 27 October 2019



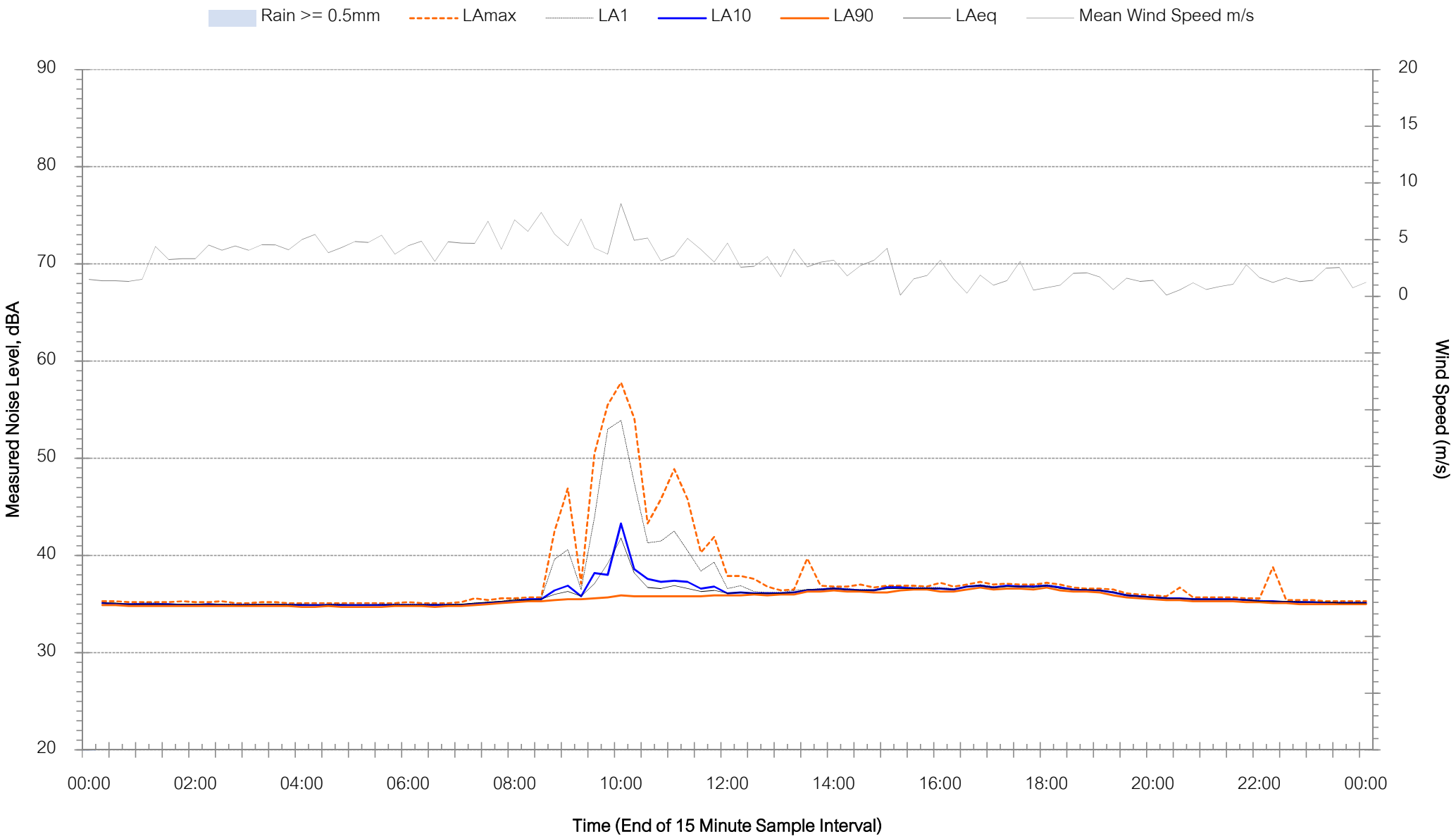
Background Noise Levels

L2 (Lone Pine) - Q4 - Monday 28 October 2019



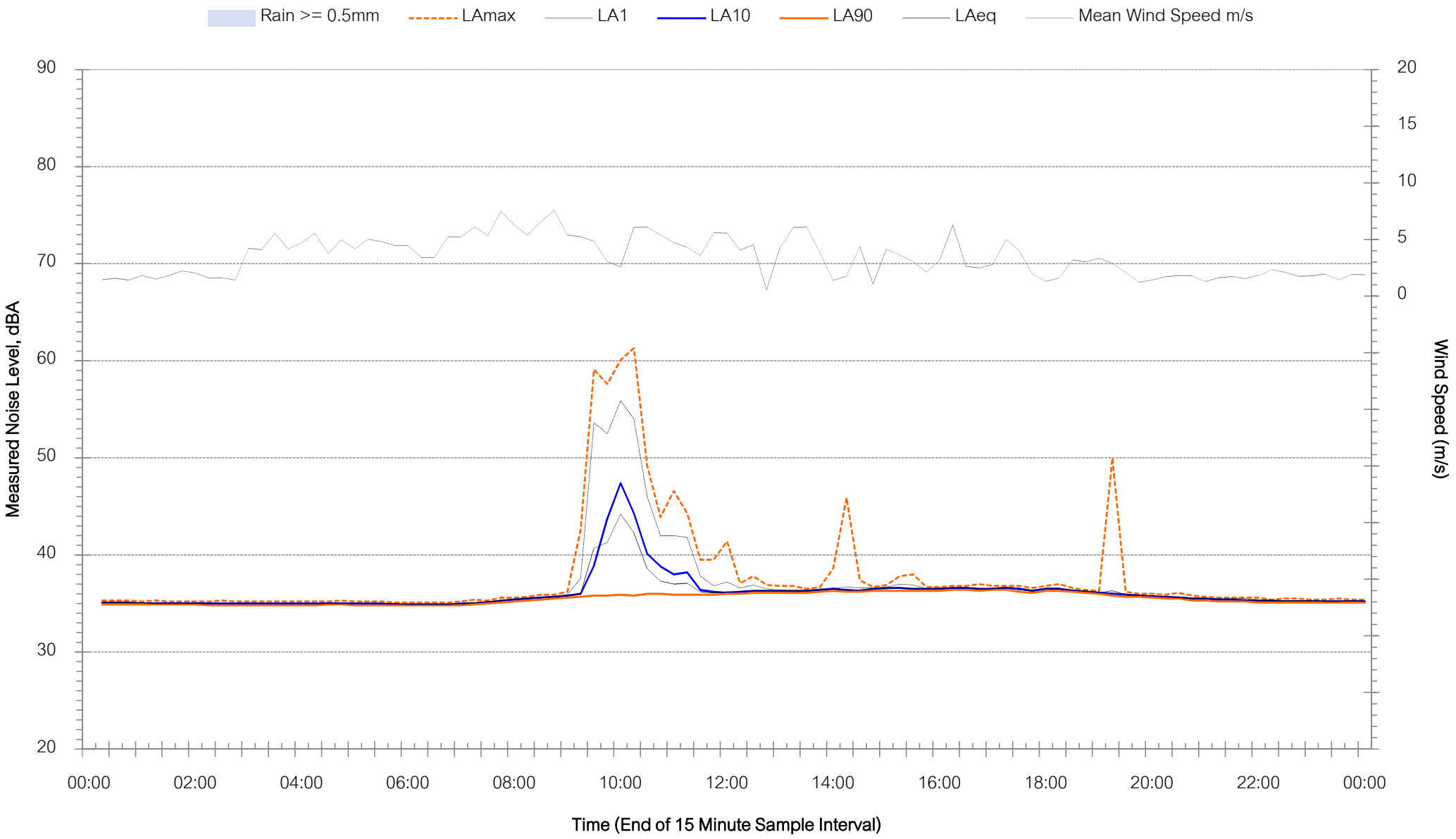
Background Noise Levels

L3 (Milpose) - Q4 - Tuesday 22 October 2019



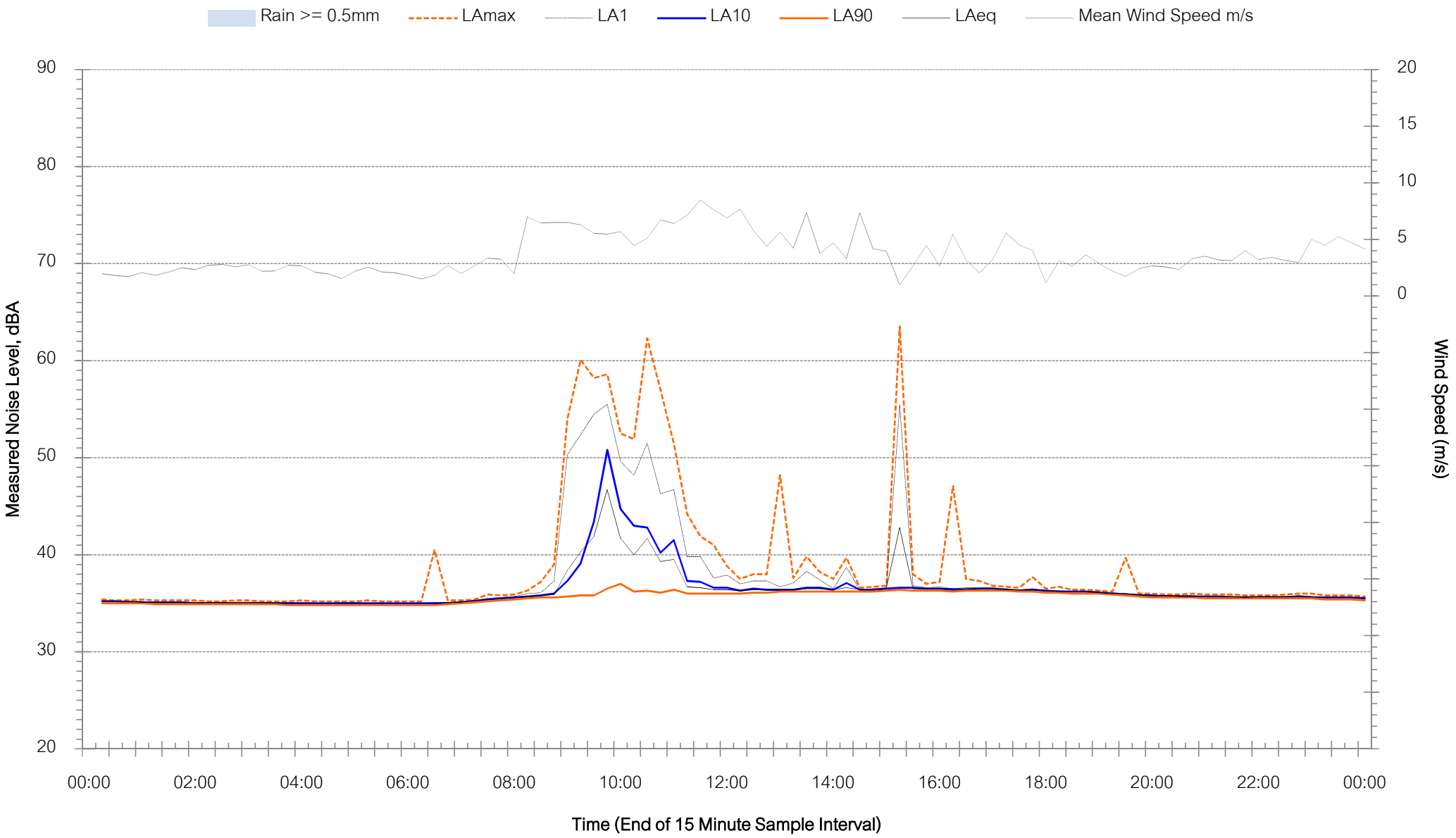
Background Noise Levels

L3 (Milpose) - Q4 - Wednesday 23 October 2019



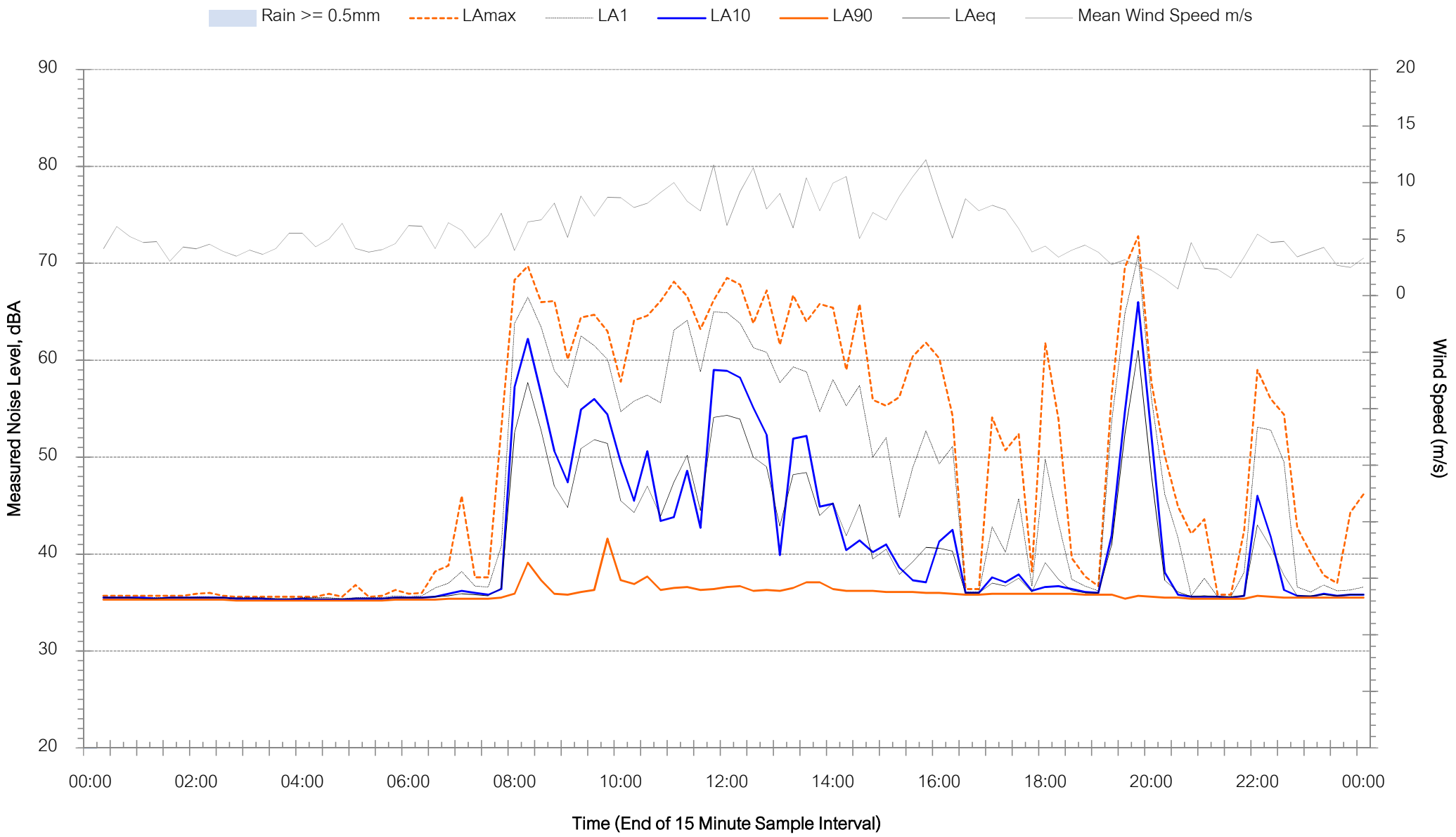
Background Noise Levels

L3 (Milpose) - Q4 - Thursday 24 October 2019



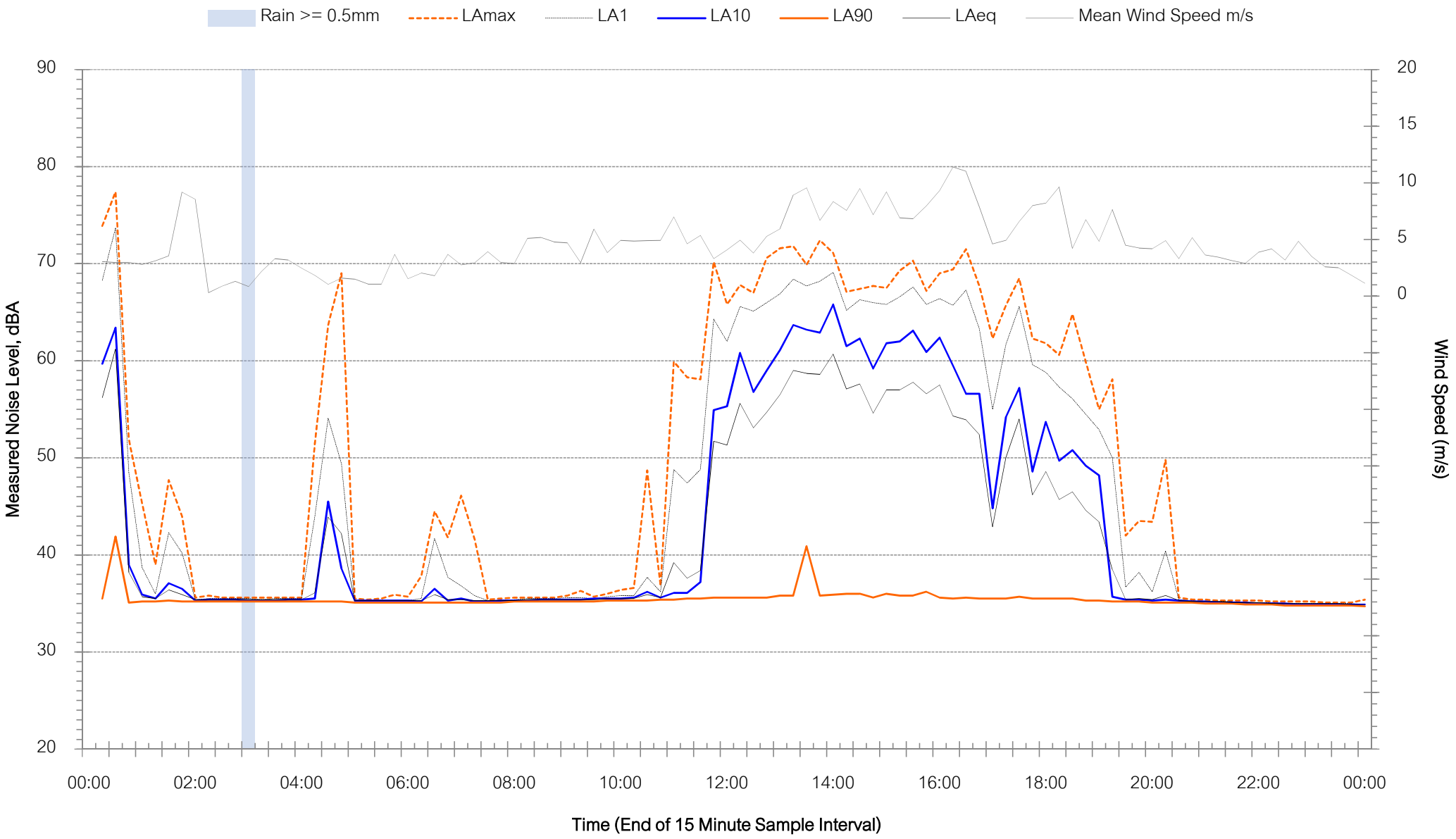
Background Noise Levels

L3 (Milpose) - Q4 - Friday 25 October 2019



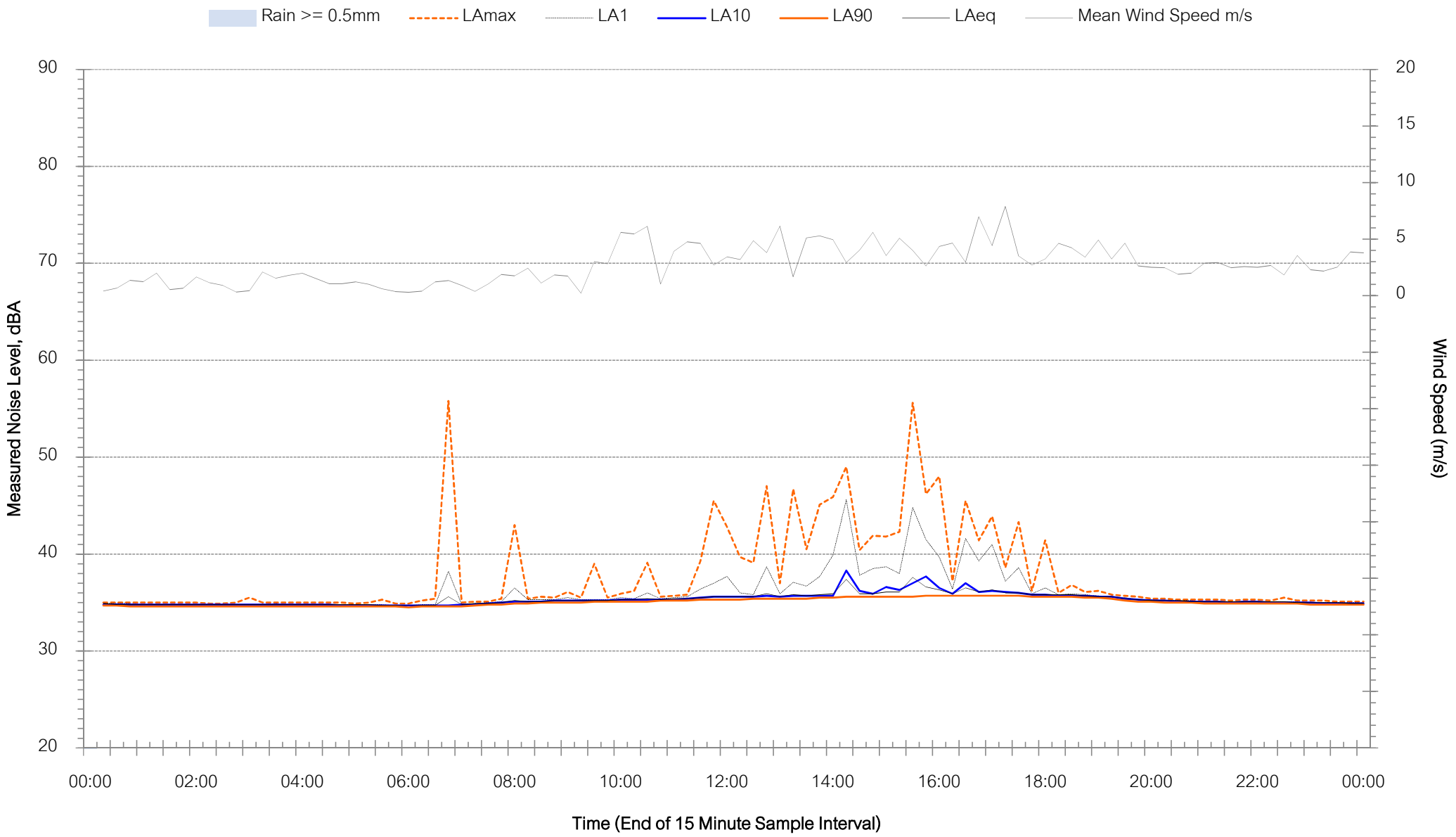
Background Noise Levels

L3 (Milpose) - Q4 - Saturday 26 October 2019



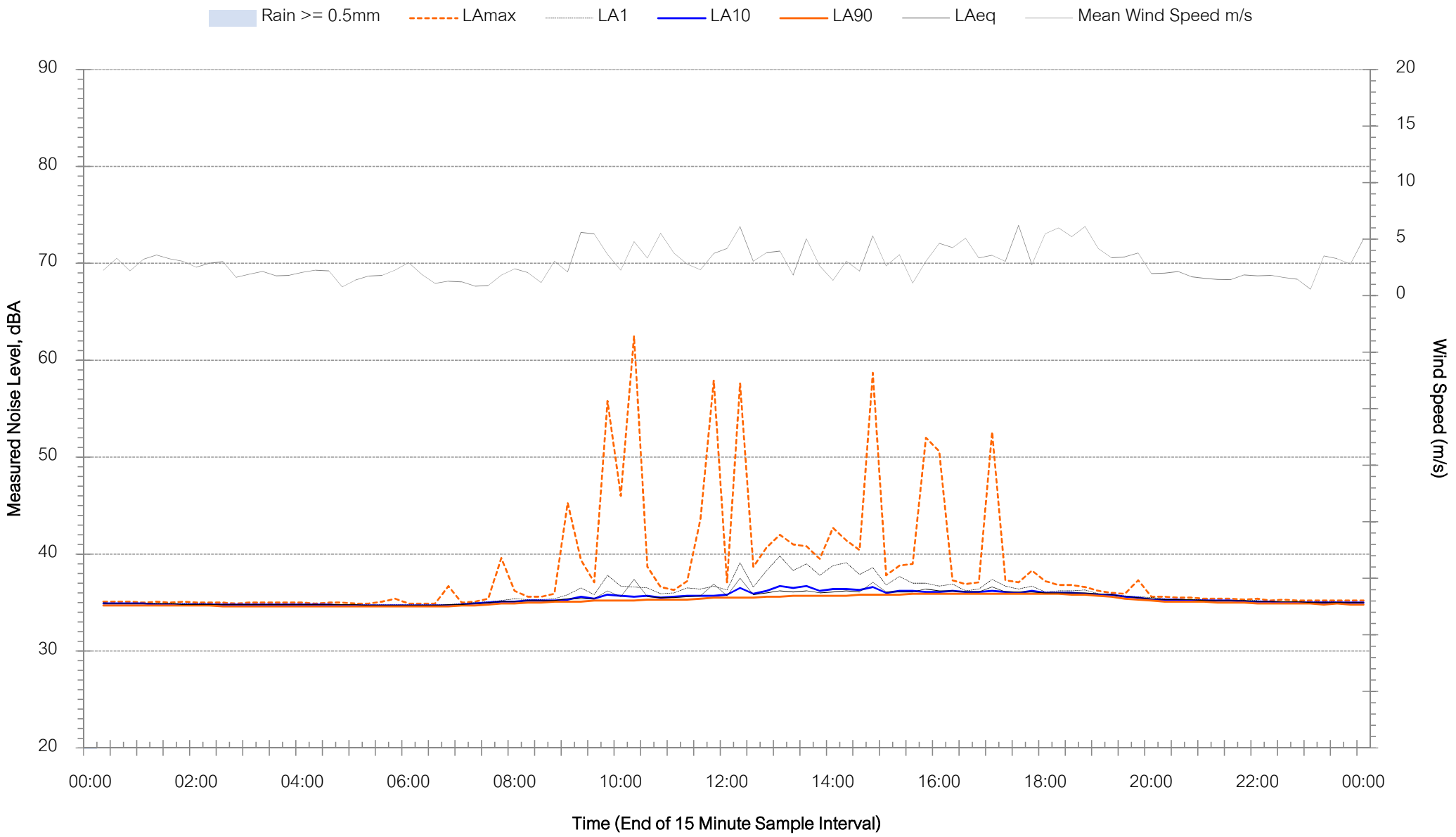
Background Noise Levels

L3 (Milpose) - Q4 - Sunday 27 October 2019



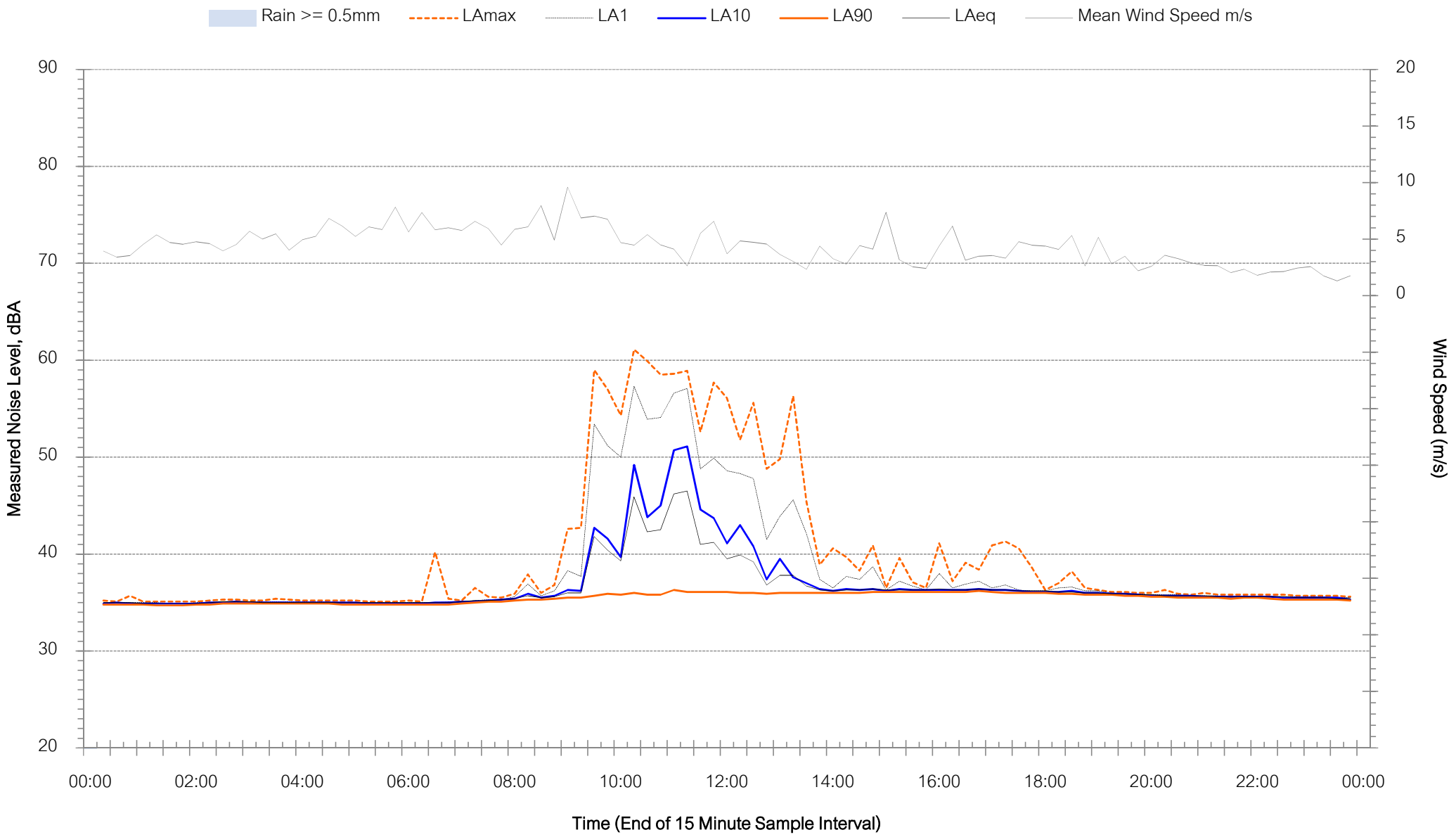
Background Noise Levels

L3 (Milpose) - Q4 - Monday 28 October 2019



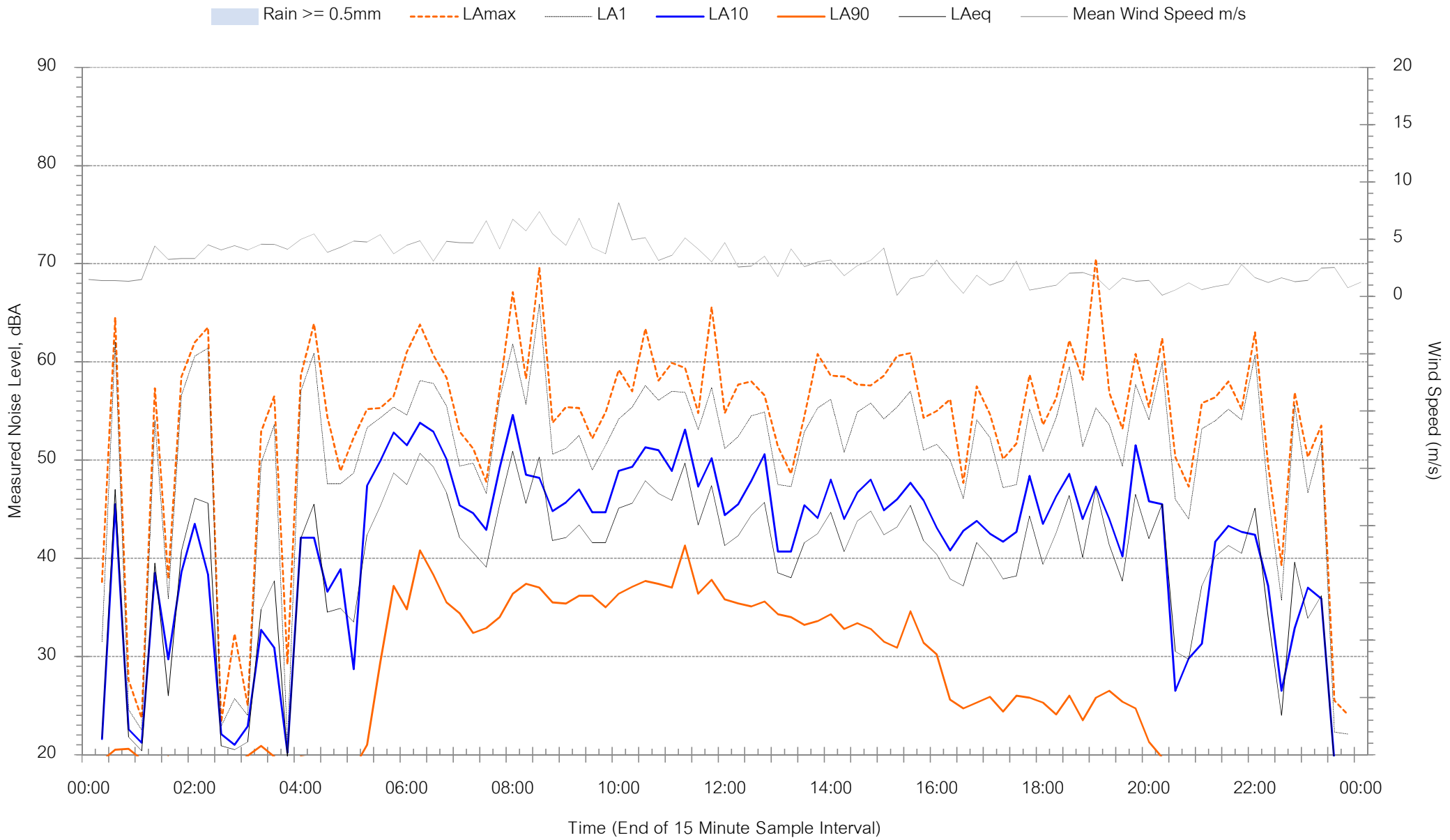
Background Noise Levels

L3 (Milpose) - Q4 - Tuesday 29 October 2019



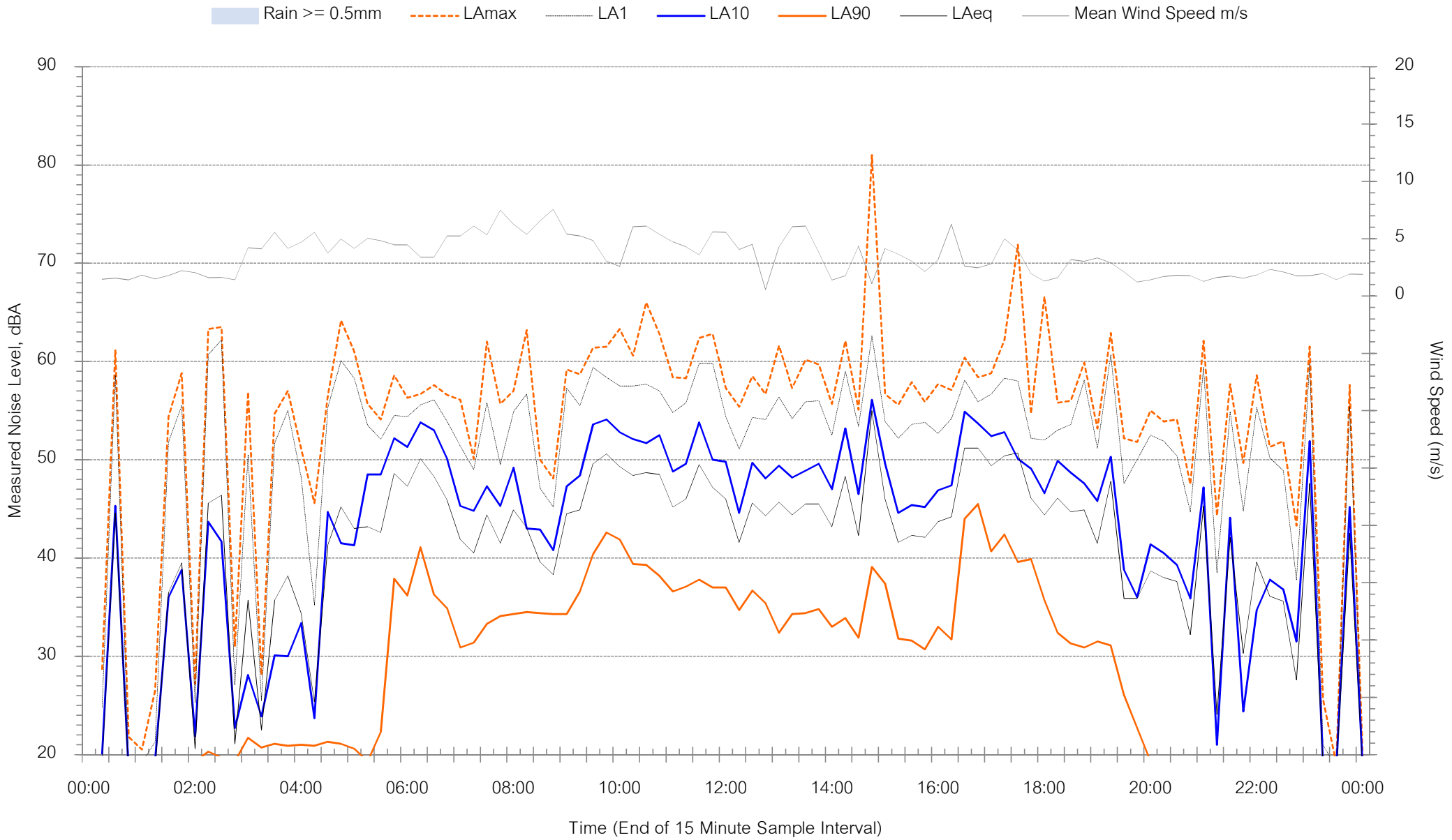
Background Noise Levels

L4 (Hillview) - Q4 - Tuesday 22 October 2019



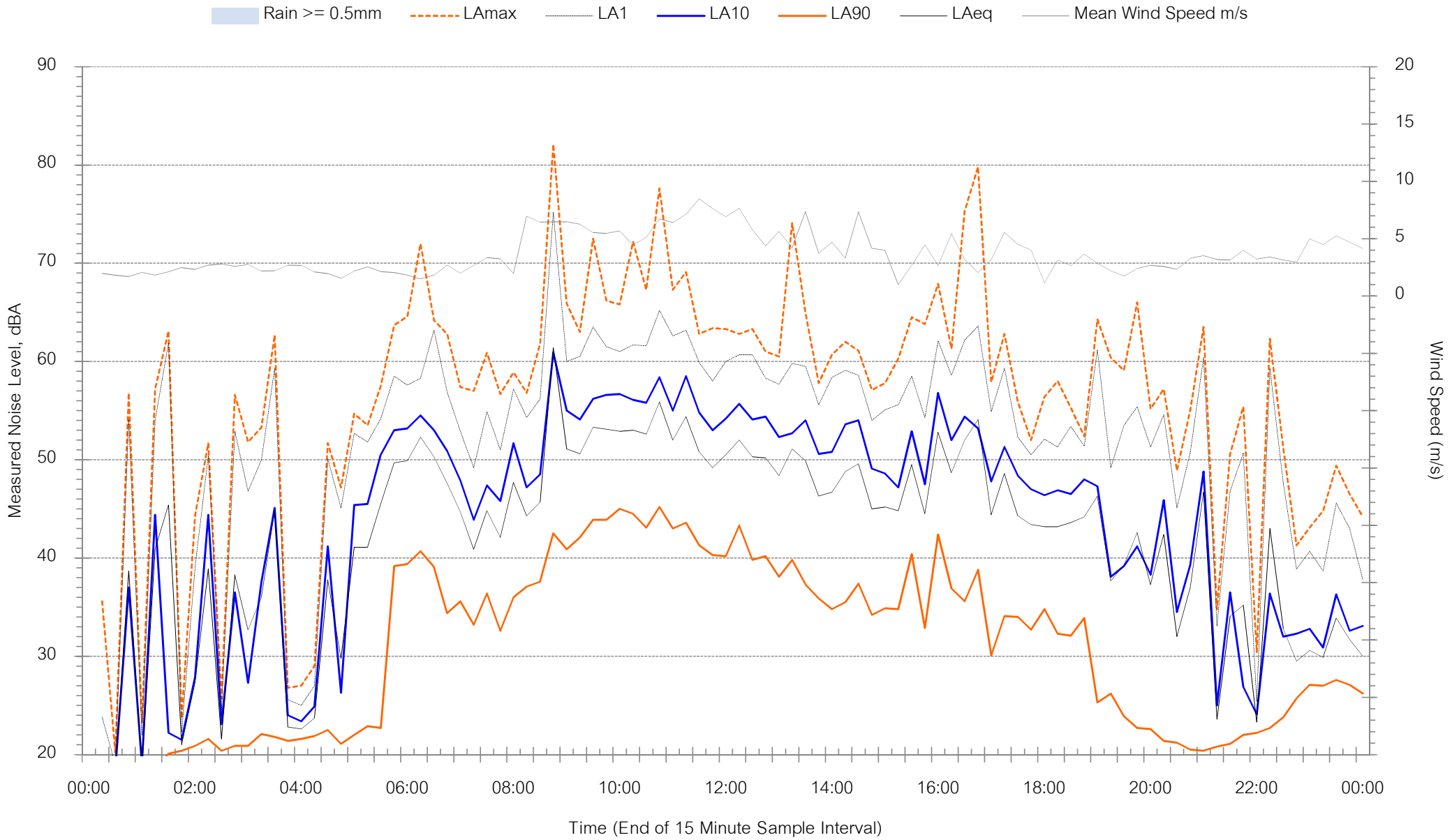
Background Noise Levels

L4 (Hillview) - Q4 - Wednesday 23 October 2019



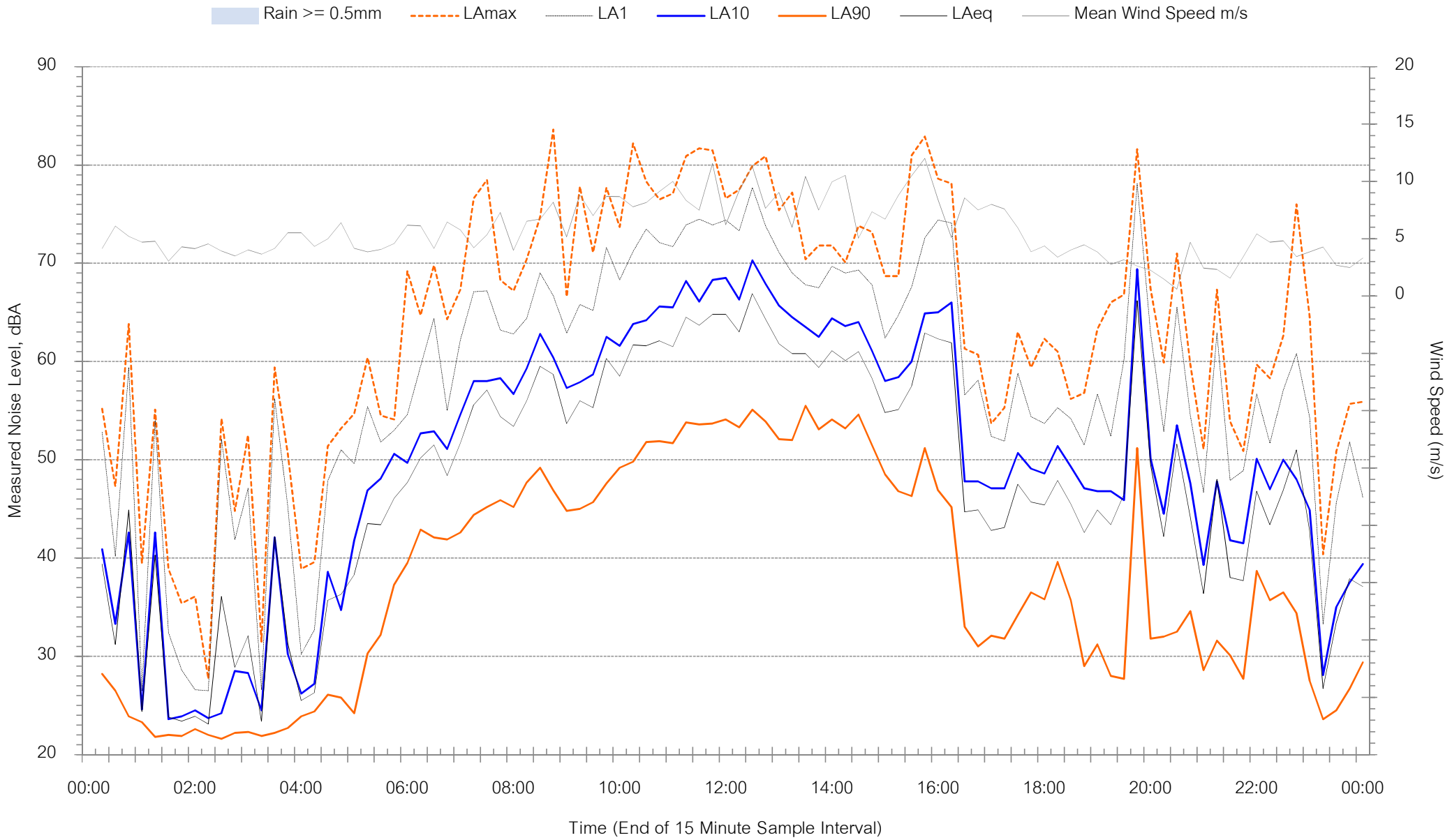
Background Noise Levels

L4 (Hillview) - Q4 - Thursday 24 October 2019



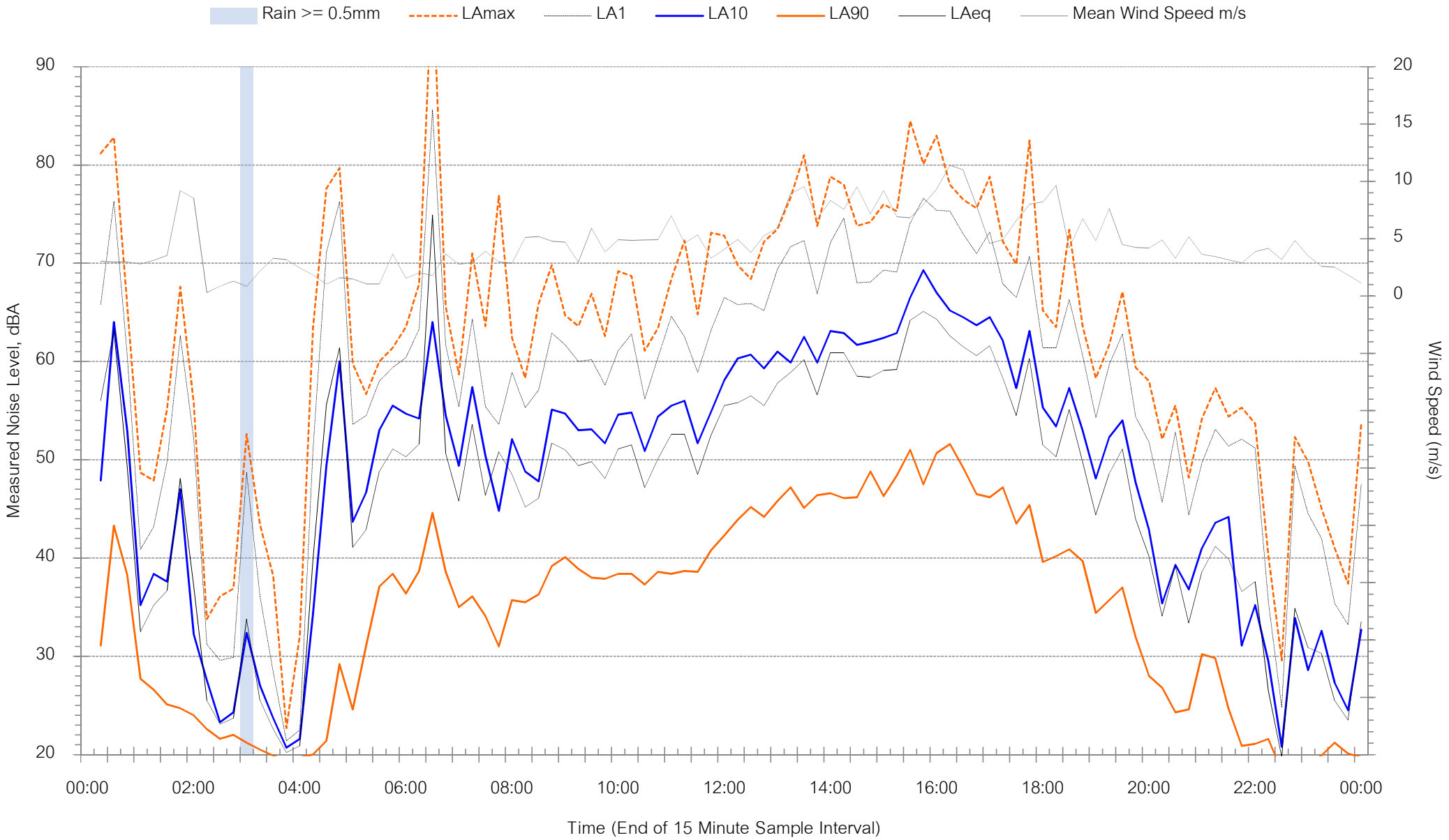
Background Noise Levels

L4 (Hillview) - Q4 - Friday 25 October 2019



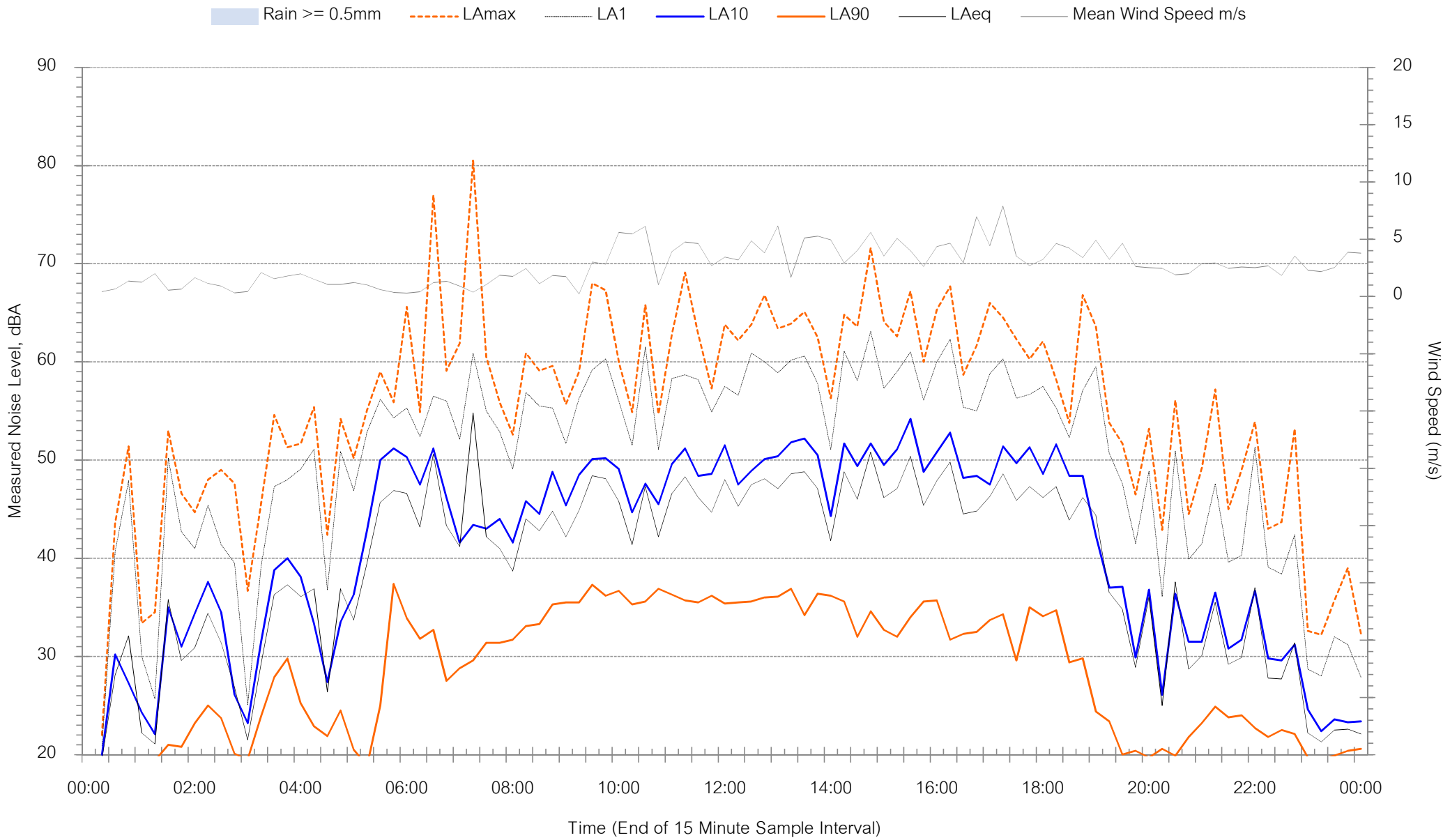
Background Noise Levels

L4 (Hillview) - Q4 - Saturday 26 October 2019



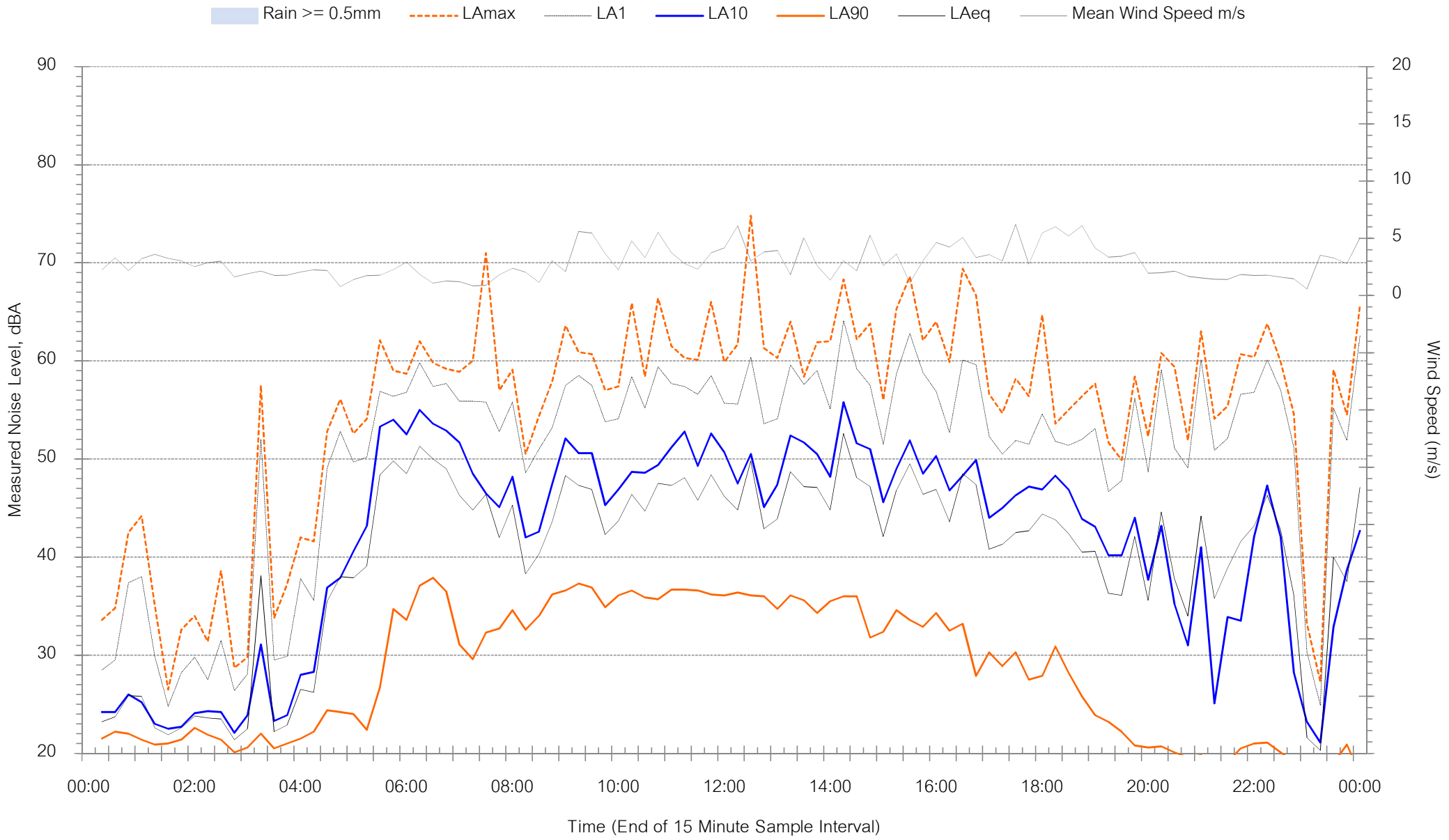
Background Noise Levels

L4 (Hillview) - Q4 - Sunday 27 October 2019



Background Noise Levels

L4 (Hillview) - Q4 - Monday 28 October 2019



Muller Acoustic Consulting Pty Ltd
PO Box 262, Newcastle NSW 2300
ABN: 36 602 225 132
P: +61 2 4920 1833
www.mulleracoustic.com

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