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Environmental & Social Consultants

MACKA'S SAND PTY LTD

MACKA'S SAND, SALT ASH, NSW

Environmental Noise Monitoring 2024

DRAFT

August 2024

MACKA'S SAND, SALT ASH, NSW

Environmental Noise Monitoring 2024

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Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Macka's Sand Pty Ltd

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Report No.	R006
Date:	August 2024

Environmental & Social Consultants

This report was prepared using Umwelt's ISO 9001 certified Quality Management System.

Acknowledgement of Country

Umwelt would like to acknowledge the traditional custodians of the country on which we work and pay respect to their cultural heritage, beliefs, and continuing relationship with the land. We pay our respect to the Elders – past, present, and future.

Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
V1	Tim Procter	10/09/2024	Luke Bettridge	10/09/2024

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1.0 Introduction

1.1 Project Background

Macka's Sand Pty Ltd (Macka's Sand) was granted Project Approval 08_0142 (PA 08_142) in September 2009 by the Minister for Planning under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to operate sand extraction operations at Salt Ash, approximately 25 kilometres (km) north-east of Newcastle, in the Port Stephens Local Government Area (LGA) of New South Wales (NSW).

Macka's Sand has approval to extract and process sand from Lot 218 and Lot 220 as shown on **Figure 1.1**.

The noise criteria for all stages of the operations are outlined in the Macka's Sand Project Approval 08_0142 and Environment Protection Licence (EPL) 13218.

It is noted that Lot 220 and Lot 218 are located in close proximity to the Williamtown Royal Australian Air Force (RAAF) Base, which also includes the Newcastle Airport commercial operations, and the area is occasionally subject to noise impacts from overhead aircraft. Noise impacts from these aircraft movements have been taken into consideration for the current assessment and are not considered to significantly influence the monitoring assessment.

1.2 Scope

This Noise Monitoring Report has been prepared by Umwelt on behalf of Macka's Sand. The noise monitoring and reporting requirements for Macka's Sand are outlined in the Project Approval 08_0142 (as modified), EPL 13218 and the Macka's Sand Noise Management Plan (Umwelt, 2018).

As noted in previous Noise Monitoring Reports, three dwellings have been constructed on land owned by the licensee in proximity to the alternate access road entrance to Lot 218 as shown in **Figure 1.1**. As the dwellings are owned by the operator of Macka's Sand, they have not been considered as sensitive receptors for the purposes of this assessment.

This report presents the results of attended noise monitoring undertaken in August 2024 as part of the ongoing noise monitoring program for Macka's Sand.

The compliance assessment methodology is described in **Appendix 1**.

The noise monitoring program is described in **Appendix 2**.

A glossary of terms and abbreviations used in this report is provided in **Appendix 3**.

Source: Department of Lands (2003), Google Earth (2016)

Legend

- Lot Boundaries (218 & 220)
- Approval Area
- Approved Site Access
- Noise Monitoring Location
- Residential Receiver

FIGURE 1.1

Monitoring Locations

File Name (A4): R01/21376_001.dgn

2.0 Summary of Noise Monitoring

Attended noise monitoring was undertaken between 15 and 21 August 2024. Macka's Sand advised that operations during the monitoring period were typical of normal activities in Lot 218, with operations at Lot 220 largely involving rehabilitation and landform establishment. However, these operations were not being conducted at Lot 220 at the time of monitoring.

Table 2.1, **Table 2.2** and **Table 2.3** summarise the operational noise monitoring results for the day, evening and night-time periods for the August 2024 monitoring round. **Table 2.4** summarises the Macka's Sand truck noise levels along the Alternate Access Road to Lot 218 for day, evening and night-time monitoring periods.

Table 2.5 and **Table 2.6** summarise the Nelson Bay Road truck traffic noise monitoring results for Site 4 and Site 6 during the day and night-time periods for the August 2024 monitoring round.

Each table includes:

- the noise criteria for each monitoring location;
- the estimated noise contribution from Macka's Sand operations;
- whether applicable meteorological conditions were present; and
- whether Macka's Sand is complying with the noise criteria at the time of monitoring.

No assessment of noise from Macka's Sand trucks on Lavis Lane is required as no Macka's Sand truck movements occur on Lavis Lane.

The meteorological conditions experienced during each noise monitoring period were recorded at the Bureau of Meteorology (BoM) AWS weather station at Williamtown, Station ID 061078 and are presented in **Table 2.7**.

The atmospheric stability category data is not available from BoM Williamtown AWS weather station, Station ID 061078. However, for assessment purposes the atmospheric stability category was assumed to be compliant at all monitoring locations and periods.

Further details (i.e. run charts) of the noise levels recorded at each monitoring location during August 2024 can be found in **Appendix 4**. Calibration certificates for the sound and vibration analyser and sound level calibrator used are provided in **Appendix 5**.

Table 2.1 Summary of Attended Day Period Monitoring in dB(A)

Location	Monitoring Time and Dates	Criteria (PA/ EPL) $L_{Aeq,15min}$	Estimated Contribution from Macka's Sand ($L_{Aeq,15min}$)	Meteorological Exclusion (Yes/No)	Compliant with EPL and PA (Yes/No)
Site 1 (R27)	17:08 to 17:23, 15/08/2024	36/36	Inaudible	No	Yes
Site 2 (R26)	16:26 to 16:41, 15/08/2024	36/-	Inaudible	No	Yes
Site 4 (R17)	7:00 to 7:15, 20/08/2024	35/-	Inaudible	No	Yes
Site 5 (R14)	Monitoring not required as Site 6 is representative of Site 5 and if compliance is measured at Site 6 then compliance is achieved at Site 5.				
Site 6 (R13)	7:00 to 7:15, 21/08/2024	35/-	Inaudible	No	Yes

Table 2.2 Summary of Attended Evening Period Monitoring in dB(A)

Location	Monitoring Time and Dates	Criteria (PA/ EPL) $L_{Aeq,15min}$	Estimated Contribution from Macka's Sand ($L_{Aeq,15min}$)	Meteorological Exclusion (Yes/No)	Compliant with EPL and PA (Yes/No)
Site 1 (R27)	18:00 to 18:15, 19/08/2024	35/36	Inaudible	No	Yes
Site 2 (R26)	18:22 to 18:37, 19/08/2024	36/36	Inaudible	No	Yes
Site 4 (R17)	18:40 to 18:55, 19/08/2024	35/36	Inaudible	No	Yes
Site 5 (R14)	Monitoring not required as Site 6 is representative of Site 5 and if compliance is measured at Site 6 then compliance is achieved at Site 5.				
Site 6 (R13)	19:06 to 19:21, 19/08/2024	35/36	Inaudible	No	Yes

Table 2.3 Summary of Attended Night Period Monitoring in dB(A)

Location	Monitoring Time and Dates	Criteria (PA/ EPL) $L_{Aeq,15min}$/$L_{A1,1min}$	Estimated Contribution from Macka's Sand ($L_{Aeq,15min}$/ $L_{A1,1min}$)	Meteorological Exclusion (Yes/No)	Compliant with EPL and PA (Yes/No)
Site 1 (R27)	5:15 to 5:30, 20/08/2024	35/45 / 35/45	Inaudible	No	Yes
Site 2 (R26)	5:39 to 5:54, 20/08/2024	35/45 / 35/45	Inaudible	No	Yes
Site 4 (R17)	6:00 to 6:15, 20/08/2024	36/45 / 35/45	Inaudible	No	Yes
Site 5 (R14)	Monitoring not required as Site 6 is representative of Site 5 and if compliance is measured at Site 6 then compliance is achieved at Site 5.				
Site 6 (R13)	6:00 to 6:15, 21/08/2024	35/45 / 34/45	Inaudible	No	Yes

Table 2.4 Summary of Truck Noise Levels along the Alternate Access Road to Lot 218, in dB(A), for Day, Evening and Night Period Monitoring

Period	Location	Start Time and Date	Noise Criteria ($L_{Aeq,15min}$)	Estimated Macka's Sand Truck Noise Level Contribution	Meteorological Exclusion (Yes/No)	Compliant with EPL and PA (Yes/No)
Day	Site 5[1]	-	41	-	-	-
Day	Site 6	7:00 to 7:15, 21/08/2024	40	39	No	Yes
Evening	Site 5[1]	-	41	-	-	-
Evening	Site 6	19:06 to 19:21, 19/08/2024	40	Inaudible	No	Yes
Night	Site 5[1]	-	39	-	-	-
Night	Site 6	6:00 to 6:15, 21/08/2024	38	32	No	Yes

[1] *Monitoring not required as Site 6 is representative of Site 5 and if compliance is measured at Site 6 then compliance is achieved at Site 5.*

Table 2.5 Road Traffic Noise Level Contributions for Noise Monitoring at Site 4 (Oakvale Road)

Day/Night period	Start of Assessed Period	End of Assessed Period	Noise Criteria $L_{Aeq,1hour}$	Site 4 Total Measured Traffic Noise Level $L_{Aeq,1hour}$	Estimated Macka's Sand Heavy Vehicle Noise Level Contribution $L_{Aeq,1hour}$	Meteorological Exclusion (Yes/No)	Compliant with EPL and PA (Yes/No)
Night	06:00 20/08/2024	07:00 20/08/2024	55	58	Inaudible	No	Yes
Day	07:00 20/08/2024	08:00 20/08/2024	60	60	Inaudible	No	Yes

Table 2.6 Road Traffic Noise Level Contributions for Noise Monitoring at Site 6 (Nelson Bay Road)

Day/Night period	Start of Assessed Period	End of Assessed Period	Noise Criteria $L_{Aeq,1hour}$	Site 6 Total Measured Traffic Noise Level $L_{Aeq,1hour}$	Estimated Macka's Sand Heavy Vehicle Noise Level Contribution $L_{Aeq,1hour}$	Meteorological Exclusion (Yes/No)	Compliant with EPL and PA (Yes/No)
Night	06:00 21/08/2024	07:00 21/08/2024	55	62	47	No	Yes
Day	07:00 21/08/2024	08:00 21/08/2024	60	62	47	No	Yes

Table 2.7 Summary of Meteorological Conditions for Day, Evening and Night Period Monitoring

Location	Start Time and Date	Meteorological Assessment During Monitoring Period[1]			
		Rain/Hail (mm)	Avg. Wind Speed @ Microphone (m/s)	Avg. Wind Speed @ 10m (m/s)	Meteorological Exclusion (Yes/No)
Complying meteorological conditions:	-	Nil[3]	≤ 5 m/s[3]	≤ 3 m/s[4]	
Day					
Site 1	17:08 to 17:23, 15/08/2024	Nil	<5	2.6	No
Site 2	16:26 to 16:41, 15/08/2024	Nil	<5	2.6	No
Site 4	7:00 to 7:15, 20/08/2024	Nil	<5	0.7	No
Site 6 (and Site 5)[2]	7:00 to 7:15, 21/08/2024	Nil	<5	1.6	No
Evening					
Site 1	18:00 to 18:15, 19/08/2024	Nil	<5	2.3	No
Site 2	18:22 to 18:37, 19/08/2024	Nil	<5	2.3	No
Site 4	18:40 to 18:55, 19/08/2024	Nil	<5	1.2	No
Site 6 (and Site 5)[2]	19:06 to 19:21, 19/08/2024	Nil	<5	1.2	No
Night					
Site 1	5:15 to 5:30, 20/08/2024	Nil	<5	0.0	No
Site 2	5:39 to 5:54, 20/08/2024	Nil	<5	0.0	No
Site 4	6:00 to 6:15, 20/08/2024	Nil	<5	0.0	No
Site 6 (and Site 5)[2]	6:00 to 6:15, 21/08/2024	Nil	<5	0.0	No

Note:

[1] Meteorological conditions were measured at Bureau of Meteorology (BoM) AWS weather station at Williamtown, Station ID 061078.

[2] Site 6 is representative of Site 5 for the day, evening and night-time periods.

[3] The wind speed at microphone height was measured using a Kestrel weather monitor positioned within 5 m and of the noise monitoring microphone.

[4] Meteorological conditions under which the noise exceedance criteria apply are defined in the relevant licences and approvals for Macka's Sand (EPL 13218 and Project Approval 08_0142). These are atmospheric stability categories A to E where the wind speeds are less than or equal to 3 m/s and atmospheric stability category F where the wind speeds are less than or equal to 2 m/s.

3.0 Statement of Compliance

The August 2024 noise monitoring program has been undertaken in accordance with the approved Noise Management Plan. The results of the August 2024 Macka's Sand noise monitoring program have been assessed against the noise criteria and the meteorological conditions as applicable.

Attended noise monitoring was undertaken between 15 and 21 August 2023. Macka's Sand advised that operations during the monitoring period were typical of normal activities in Lot 218, with operations at Lot 220 largely involving rehabilitation and landform establishment. However, these operations were not being conducted at Lot 220 at the time of monitoring.

3.1 Operational Noise

The August 2024 attended compliance noise monitoring results indicate that the Macka's Sand extraction operation was compliant with the noise criteria for $L_{Aeq,15minute}$ and $L_{A1,1minute}$ noise levels for all monitoring locations and periods, for the meteorological conditions experienced at the time of monitoring.

3.2 Alternate Access Road to Lot 218

The August 2024 attended compliance noise monitoring results indicate that the Macka's Sand use of the alternate access road was compliant with the noise criteria for $L_{Aeq,15minute}$ noise levels for all monitoring locations and periods, for the meteorological conditions experienced at the time of monitoring.

3.3 Road Traffic Noise Criteria

The August 2024 attended compliance noise monitoring results indicate that the estimated noise level generated from trucks using Oakvale Road and Nelson Bay Road to access the Macka's Sand site was compliant with the noise criteria for $L_{Aeq,1hour}$ criteria for all monitoring locations and periods, for the meteorological conditions experienced at the time of monitoring.

3.4 Land Acquisition Criteria

Given the approach to setting operational noise limits and its relationship to the noise acquisition criteria (i.e. acquisition criteria are higher than operational limits), if noise monitoring demonstrates compliance with the operational noise limit, it therefore, by definition, demonstrates compliance with acquisition criteria and indicates potential compliance with the cumulative noise criteria.

As the August 2024 noise monitoring program indicates, Macka's Sand was compliant with its operational project specific noise criteria for all locations, it is therefore, as described above, compliant with the noise acquisition criteria, for the meteorological conditions experienced at the time of monitoring at all locations.

4.0 References

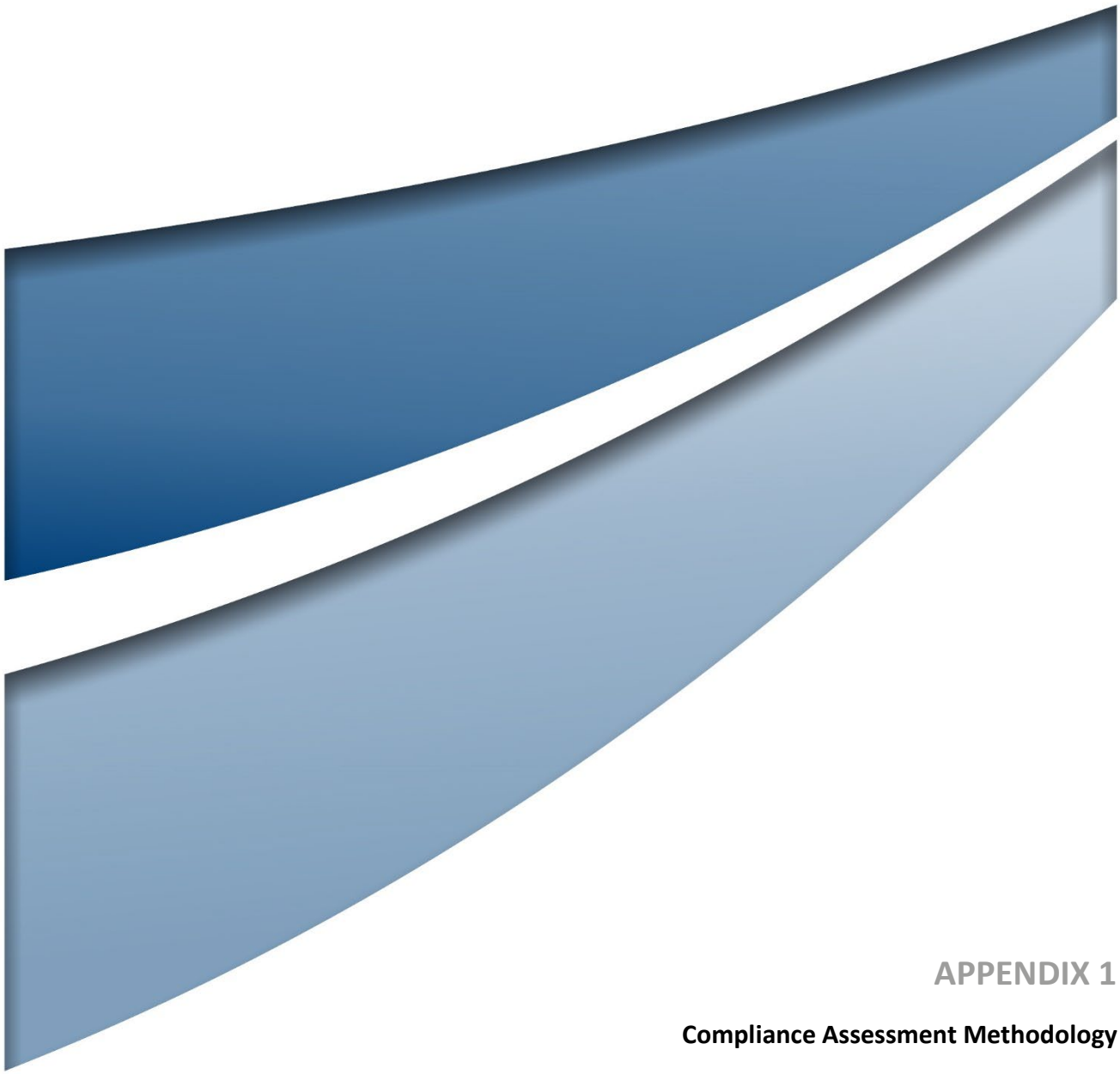
Australian Standard AS1055-1997. 'Acoustics – Description and Measurement of Environmental Noise.

Australian Standard AS1055-2018. 'Acoustics – Description and Measurement of Environmental Noise.

NSW Environment Protection Authority 2000. New South Wales Industrial Noise Policy.

NSW Environment Protection Authority 2017. New South Wales Noise Policy for Industry.

Umwelt (Australia) Pty Limited, 2018. Noise Management Plan for Sand Extraction Operations.



APPENDIX 1

Compliance Assessment Methodology

1.1 Compliance Assessment Methodology

The compliance assessment methodology for Macka's Sand involved the following activities:

- Attended noise monitoring surveys to measure the ambient noise levels in the surrounding region and to assess the operation's contribution to measured noise levels; and
- Comparison of the attended noise monitoring results against the relevant noise criteria to assess compliance of the operation with the relevant Project Approval and EPL criteria.

In accordance with the Noise Management Plan, compliance with the Project Approval and EPL noise criteria is assessed by undertaking noise monitoring at the locations shown in **Table A1.1.**

Table A1.1 Noise Monitoring Locations

Monitoring Location*	Description
Site 1 (R27)	Private residence (Hufnagl residence, 10 Janet Parade, Salt Ash) MGA N = 6370639, MGA E = 399542
Site 2 (R26)	Private residence (6 Oakvale Drive, Salt Ash) MGA N = 6370830, MGA E = 397906
Site 4 (R17)	Private residence, Lot 2, DP 818198, 2642 Nelson Bay Road, Salt Ash (situated on the corner of Oakvale Drive and Nelson Bay Road) MGA N = 6371455, MGA E = 398102
Site 5 (R14)	Private residence (2353 Nelson Bay Road, Williamtown) MGA N = 395687, MGA E = 6370072)
Site 6 (R13)	Private residence (2344 Nelson Bay Road, Williamtown) MGA N = 395656, MGA E = 6370035)

*Note Monitoring at Site 3 was discontinued following discussions with DPE during 2014.

The locations where noise monitoring was undertaken were chosen to demonstrate compliance at all locations. If compliance with the criteria is measured at the noise monitoring location which is closest to the operation, then by extrapolation it is assumed that compliance at locations further away is also achieved and therefore monitoring at the more distant monitoring locations is not required.

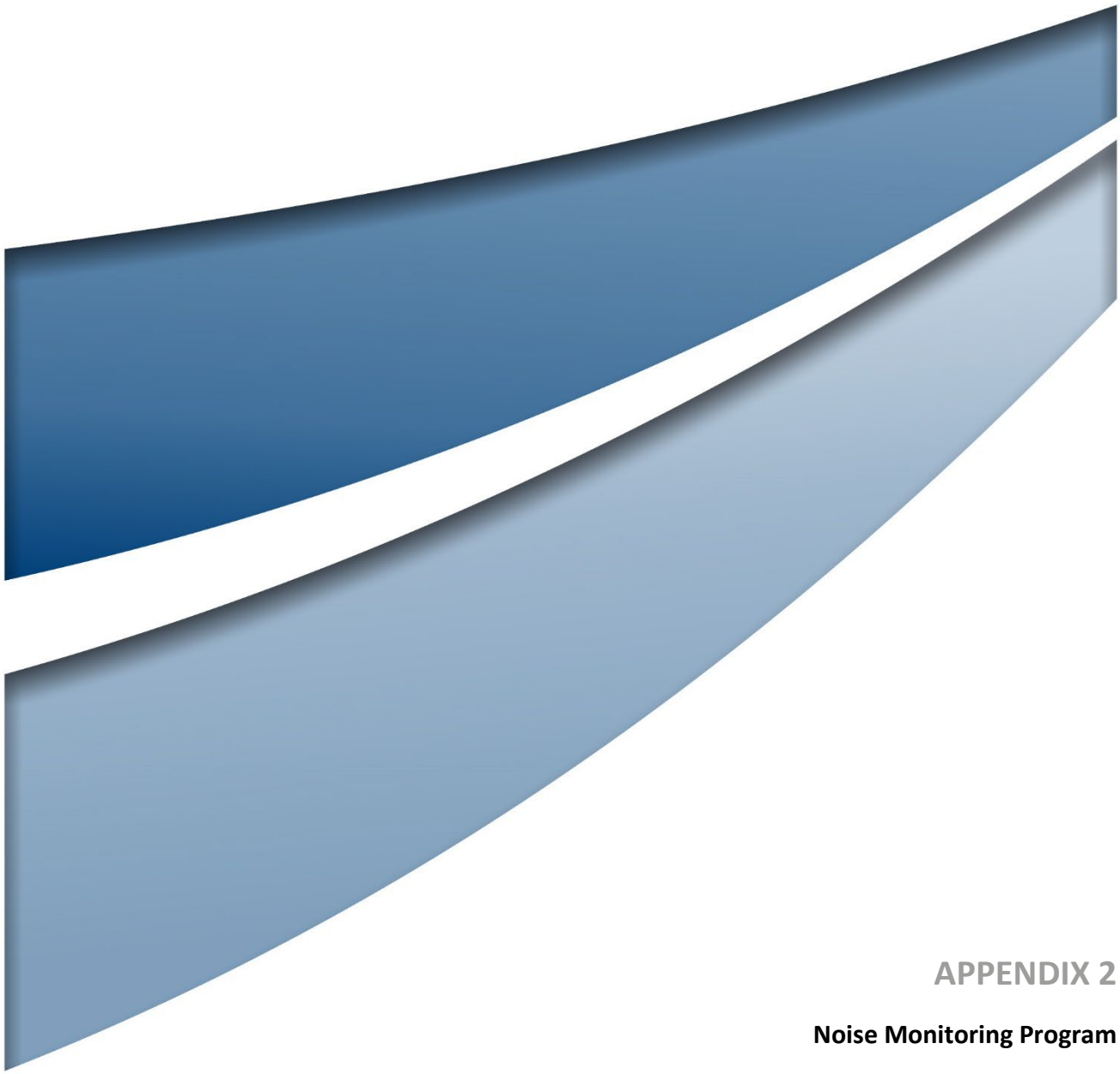
Project Approval 08_0142 (as modified) notes that 'the noise limits do not apply if the Proponent has an agreement with the relevant owner/s of these residences/land to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.' Macka's Sand has written agreements with property owners and residents at 2344, 2353, 2367 and 2368 Nelson Bay Road and provided these to the Department in August 2015.

Compliance monitoring of the road traffic noise contribution from the trucks associated with the Lot 220 operations was undertaken at Noise Monitoring Site 4 (Lot 2 DP 818198). Noise Monitoring Site 4 is considered to represent the worst-case monitoring location for Lot 220 operations.

Compliance monitoring of the road traffic noise contribution from the trucks associated with the Lot 218 extraction operations was undertaken at Noise Monitoring Site 6 (2344 Nelson Bay Road, Williamtown). The results of the monitoring undertaken at Noise Monitoring Site 6 are considered to be representative and also be the worst-case monitoring location (i.e. closest to the road and next to the acceleration lane for trucks exiting the site). The monitoring results from Noise Monitoring Site 6 are considered to provide the most conservative result for the assessment of road traffic noise at all potentially affected receivers. Therefore, if the noise from truck movements on the Alternate Access Road to Lot 218 comply at Noise Monitoring Site 6, it also confirms compliance at all other locations nominated in PA 09_0142 (as modified).

Road truck movements along Oakvale Drive past Noise Monitoring Site 4 can include vehicles servicing not only Macka's Sand but the adjoining businesses of Macka's Sand and Soil Supplies, Oakvale Farm and Sibelco Australia. The weighbridge heavy vehicle data log and attended truck logging during the traffic noise monitoring program is typically used to identify the heavy vehicle (i.e. truck) activity along Oakvale Drive that is associated with the transport of product from Macka's Sand Lot 220. Operations were not being conducted at Lot 220 at the time of monitoring, therefore there were no Macka's Sand trucks on Oakvale Road during monitoring at Site 4.

The Macka's Sand generated $L_{Aeq,1hour}$ road traffic noise contribution was determined as the equivalent continuous noise level from all truck movements on public roads relevant to Macka's Sand from Lot 220 at Noise Monitoring Site 4 and from Lot 218 at Noise Monitoring Site 6, occurring per hour of the assessment period. The calculated noise levels at the façade of the residence of Noise Monitoring Site 4, as well as at the façade of Noise Monitoring Site 6 resulting from hourly traffic movements on public roads associated with the extraction operations during the night and day period were then assessed against relevant road traffic criteria. For this assessment, the measured traffic noise levels at Site 6 were taken to be representative of the noise levels received at Site 5 due to the similar offset distances from Nelson Bay Road.



APPENDIX 2

Noise Monitoring Program

2.1 Noise Monitoring Program

Attended noise surveys are used to quantify and describe the acoustic environment around a site. Typically, the results are compared with the noise criteria defined in the Project Approval and EPL to assess compliance. Attended noise monitoring is often considered the preferred method for determining compliance with prescribed limits because it allows for an accurate assessment of the contribution, if any, from an industrial noise source to measured ambient noise levels.

Industrial Noise

The purpose of the attended noise monitoring program was to quantify and describe the ambient noise environment in the region surrounding Lot 220 and Lot 218 and to interpret the results to account for the contribution of Macka's Sand operations to the surrounding noise environment. During the attended noise monitoring program, the noise sources contributing to the ambient noise environment were recorded, with particular attention focussed on the contribution from extraction operations undertaken at Lot 220 and Lot 218. The weather conditions over the monitoring period were also recorded.

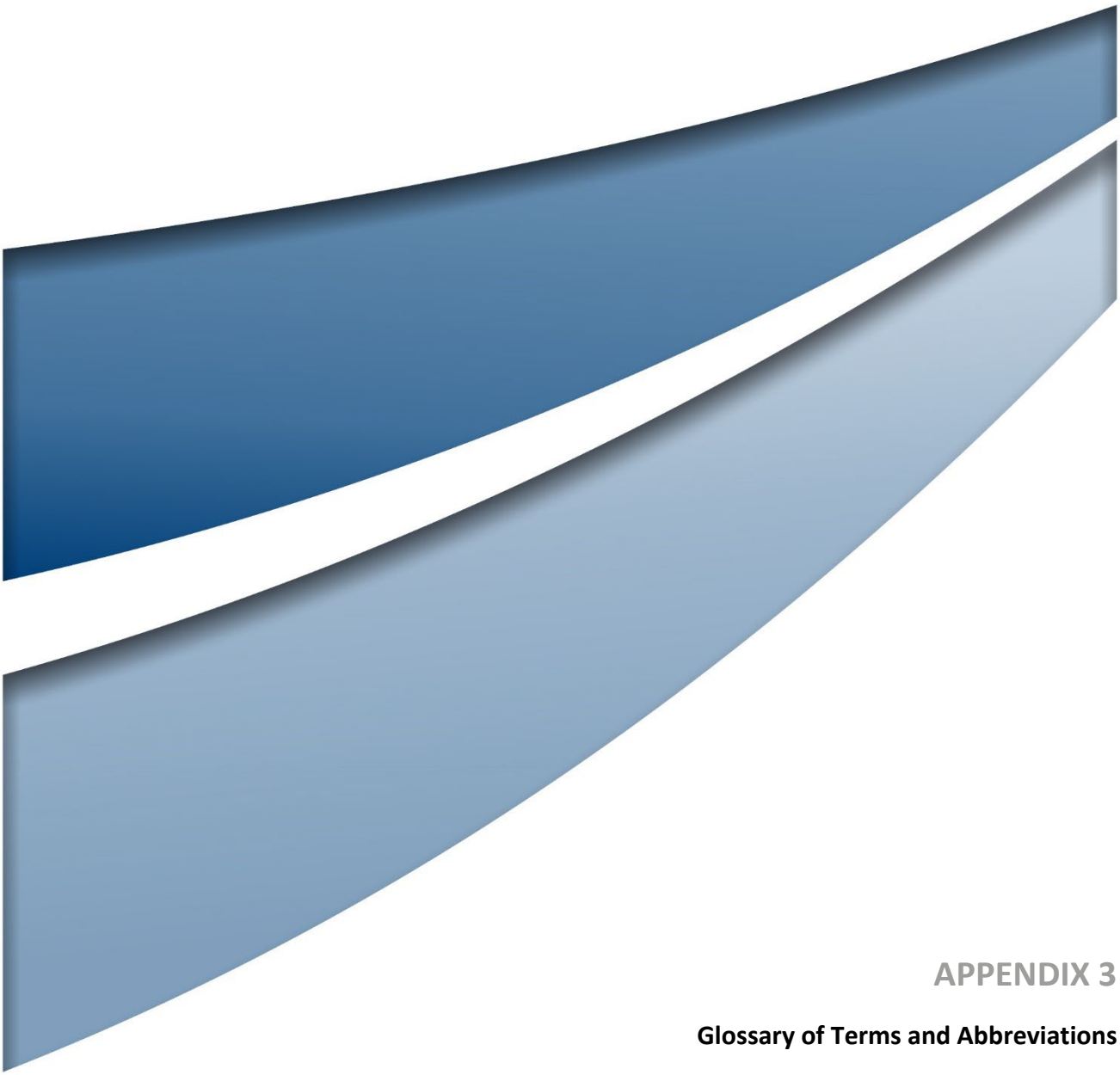
Attended noise measurements were undertaken with a Type 1, Svantek 958A Noise and Vibration Analyser, under current NATA calibration. During the attended noise surveys, the noise monitor was calibrated using a Type SV-36, Svantek Sound Level Calibrator, under current NATA calibration. Calibration certificates can be found in **Appendix 5**. The noise monitor was run using three measurement profiles (Z- (Linear), C- and A- Weighting) and recorded A-weighted 1/3 octave noise levels at 1-second intervals over a 15-minute measurement period. Meteorological data was determined during each of the attended monitoring periods using a Kestrel 5500 weather monitor, Serial Number 665400 positioned within 5 m and at a corresponding height to the noise monitoring microphone.

Traffic Noise

The purpose of the road traffic noise monitoring program was to determine the contribution of Macka's Sand related road truck movements to the surrounding noise environment. During the road traffic monitoring program, attended logging of truck pass-bys was undertaken at Noise Monitoring Site 4 to allow for the identification of heavy vehicle truck movements along Oakvale Drive with the Macka's Sand weighbridge heavy vehicle data log. As only heavy vehicles related to Macka's Sand extraction operation utilise the Alternate Access Road to Lot 218, for Noise Monitoring Site 6 it was assumed that all vehicles entering and leaving the intersection of the Alternate Access Road and Nelson Bay Road were attributable to Macka's Sand operations.

The Site 6 monitoring location was in the free field at approximately the same offset distance from Nelson Bay Road as the residential façade which is most affected by Macka's Sand generated road traffic noise and at an approximate height of 1.2 m above the ground level of the residence.

Trucks passing the Site 4 monitoring location were observed and the pass-by time was logged to assist in distinguishing noise generated by Macka's Sand heavy vehicles from those servicing Macka's Sand and Soil, Oakvale Farm and Sibelco Australia.

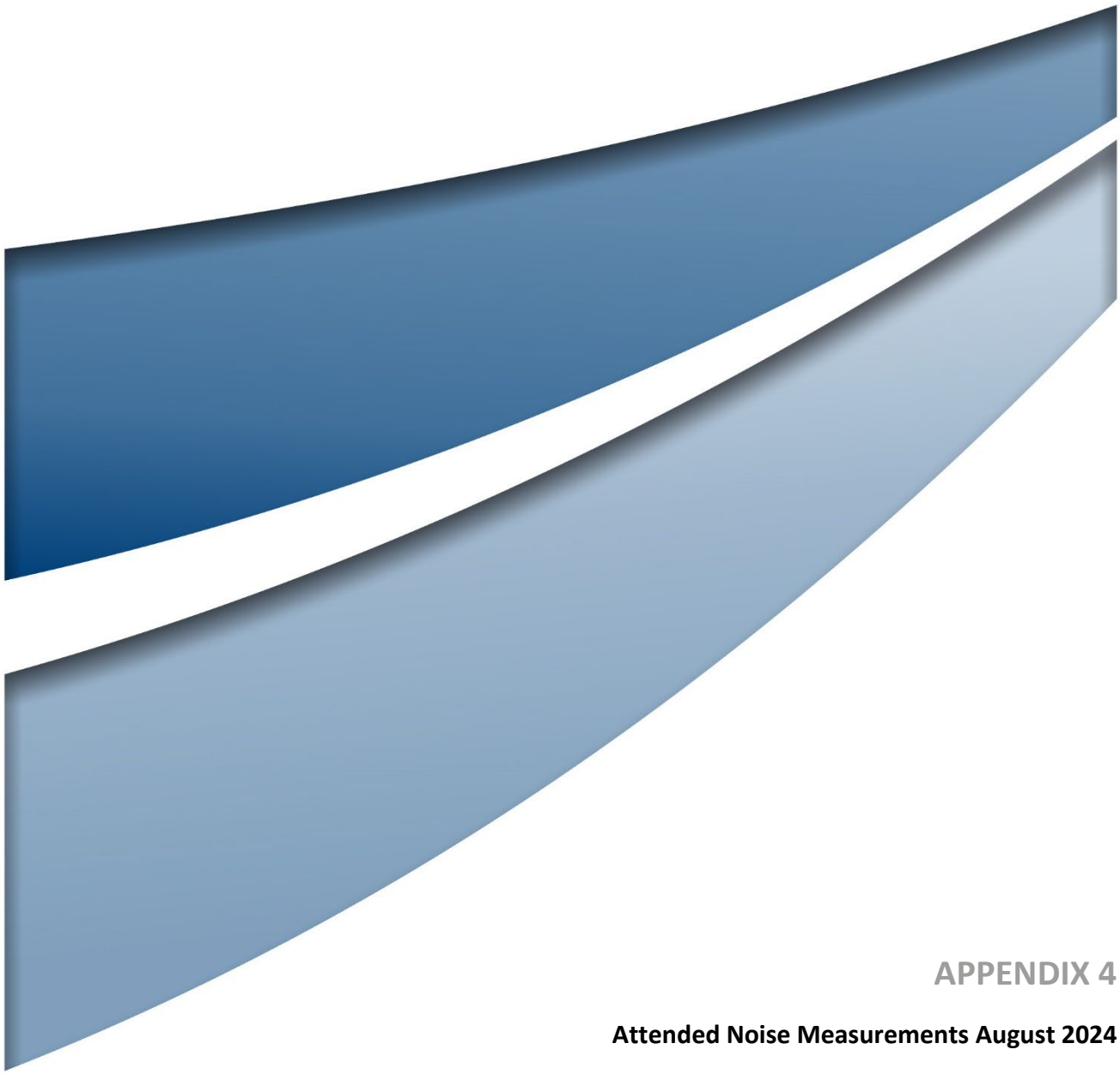


APPENDIX 3

Glossary of Terms and Abbreviations

Appendix 3 - Glossary and Abbreviations

1/3 Octave	Single octave bands divided into three (3) 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 – A single-figure background noise level representing each assessment period – day, evening and night (that is, three assessment background levels are determined for each 24 hour period of the monitoring period). It is determined by taking the lowest 10^{th} percentile of the L90 level for each assessment period.
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.
dB(A), dBA	Decibels A-weighted.
dB(L), dB(Lin)	Decibels Linear or decibels Z-weighted.
Decibel (dB)	The units of sound level and noise exposure measurement where a step of 10 dB is a ten-fold increase in intensity or sound energy and actually sounds a little more than twice as loud.
Hertz (Hz)	The measure of frequency of sound wave oscillations per second – one oscillation per second equals 1 hertz.
LA10	The percentile sound pressure level exceeded for 10 per cent of the measurement period with 'A' frequency weighting calculated by statistical analysis. Typically used to assess the impact of an existing operation on a receiver area and is referred to as the cumulative noise levels at the receiver attributable to the noise source.
LA90	Background Noise Level. The percentile sound pressure level exceeded for 90 per cent of the measurement period with 'A' frequency weighting calculated by statistical analysis.
LAmax	The maximum of the sound pressure levels recorded over an interval of one second.
LA1,1minute	The measure of the short duration high-level noises that cause sleep arousal. The noise level is measured as the percentile sound pressure level that is exceeded one per cent of measurement period with 'A' frequency weighting calculated by statistical analysis during a measurement time interval of one minute.
LAeq,t	Equivalent continuous sound pressure level – The value of the sound pressure level of a continuous steady noise that, a measurement interval of time (t), has the same mean square sound pressure as the sound under consideration whose level varies with time. Usually measured in dB with 'A' weighting.
LAn	Percentile level – A measure of the fluctuation of the sound pressure level which is exceeded 'n' per cent of the observation time.
RBL	Rating background level – The overall single figure background level representing each assessment period over the whole monitoring period determined by taking the median of the ABLs found for each assessment period.
SPL (dBA)	Noise: Sound pressure level – The basic measure of noise loudness. The level of the root-mean-square sound pressure in decibels given by: $SPL = 10 \cdot \log_{10} (p/p_0)^2$ where p is the rms sound pressure in pascals and p_0 is the sound reference pressure at 20 µPa. Decibels.
SWL	Sound power level – a measure of the energy emitted from a source as sound and is given by: $SWL = 10 \cdot \log_{10} (W/W_0)$ where W is the sound power in watts and W_0 is the sound reference power at 10^{-12} watts. Decibels.



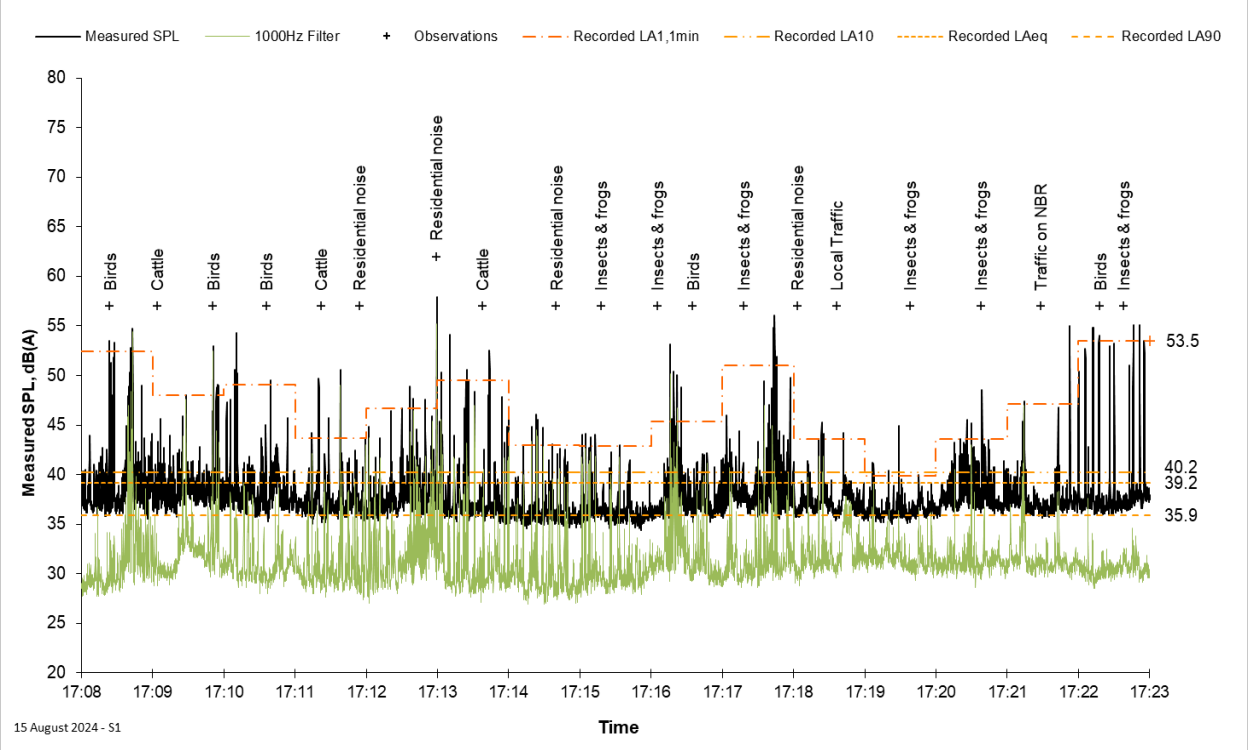
APPENDIX 4

Attended Noise Measurements August 2024

Day Attended Monitoring – Site 1, 15 August 2024, 17:08 to 17:23

Operator Comments: The ambient noise environment at the monitoring location was dominated by local environmental noises (insects, frogs, birds and cattle). Residential noise and local traffic were also noted.

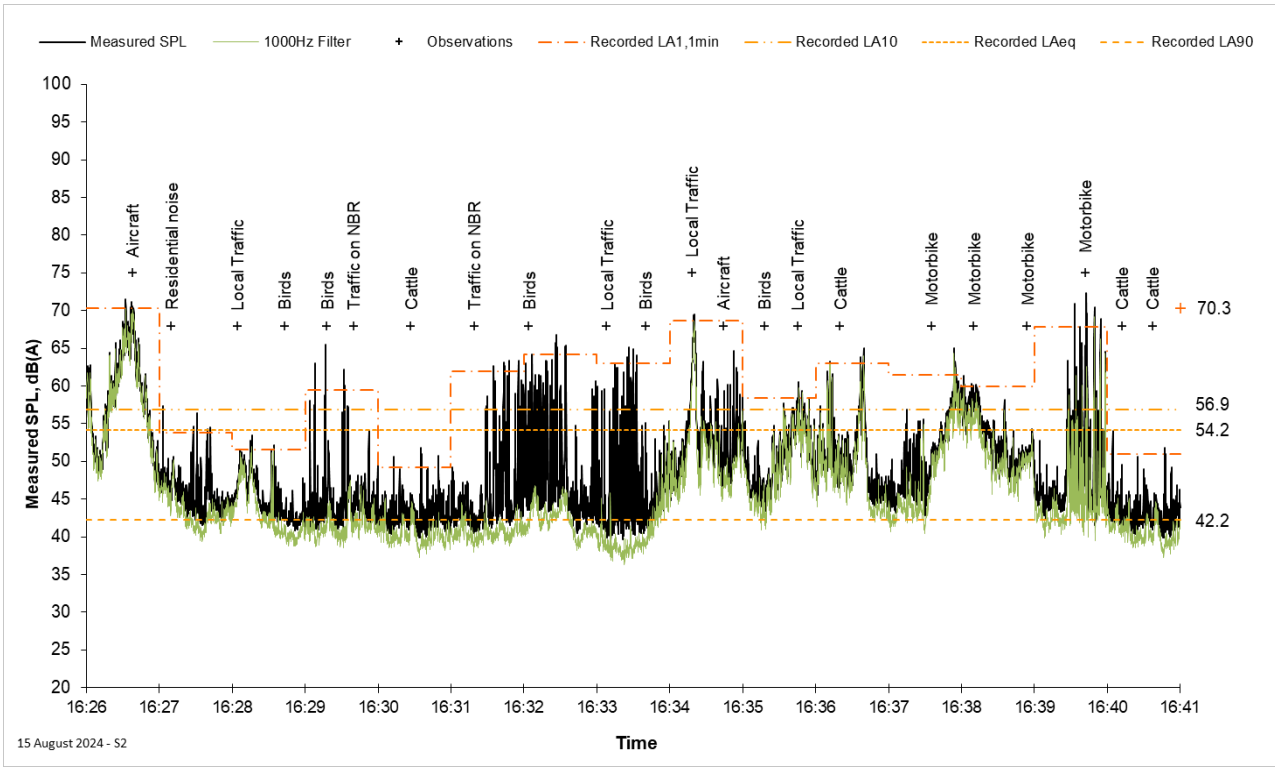
Macka's Sand extraction operations were inaudible during the measurement period.



Day Attended Monitoring – Site 2, 15 August 2024, 16:26 to 16:41

The ambient noise environment at the monitoring location was dominated by local environmental noises (birds and cattle) and traffic including a motorbike on private property. Residential noise and aircraft were also noted

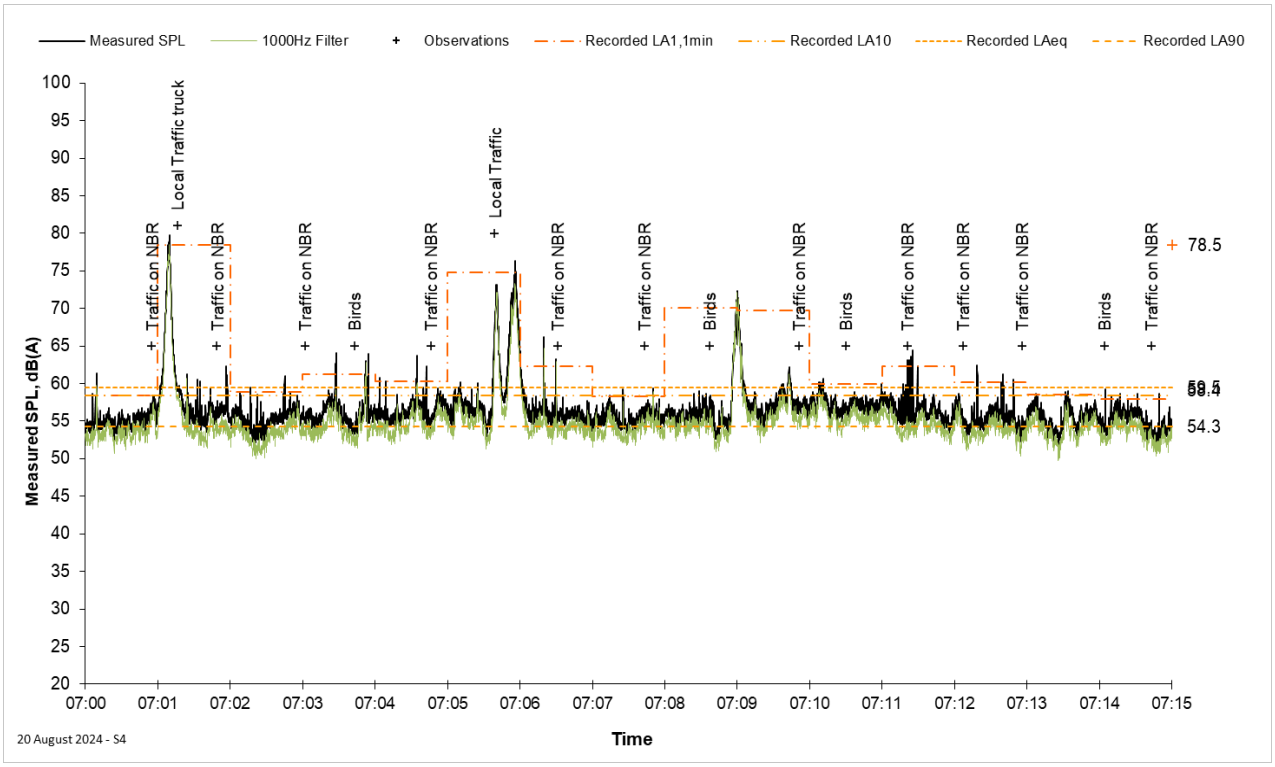
Macka's Sand extraction operations were inaudible during the measurement period.



Day Attended Monitoring – Site 4, 20 August 2024, 07:00 to 07:15

Operator Comments: The ambient noise environment at the monitoring location was dominated by traffic on Nelson Bay Road and birds. Local traffic was also noted

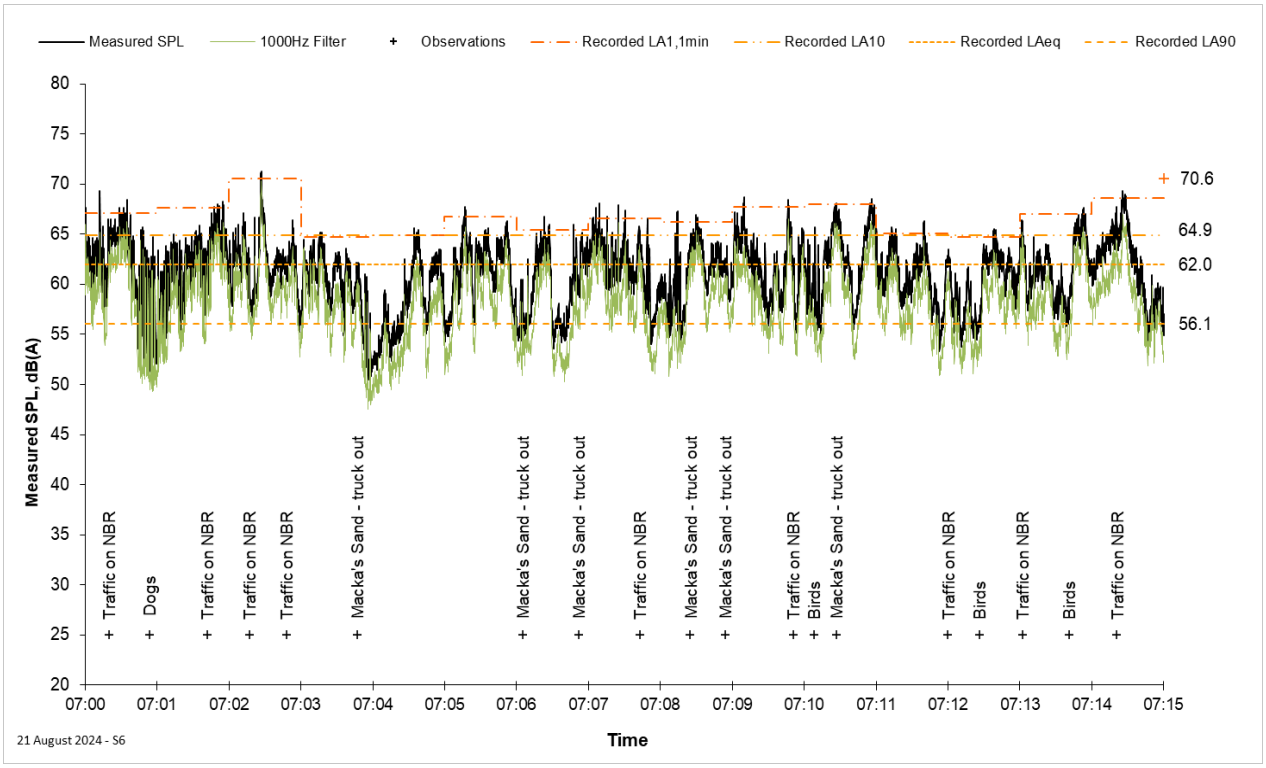
Macka's Sand extraction operations were inaudible during the measurement period.



Day Attended Monitoring – Site 6, 21 August 2024, 07:00 to 07:15

Operator Comments: The ambient noise environment at the monitoring location was dominated by road traffic noise on Nelson Bay Road. Dogs, birds and Macka's Sand trucks moving along the alternate access road to Lot 218 were also noted.

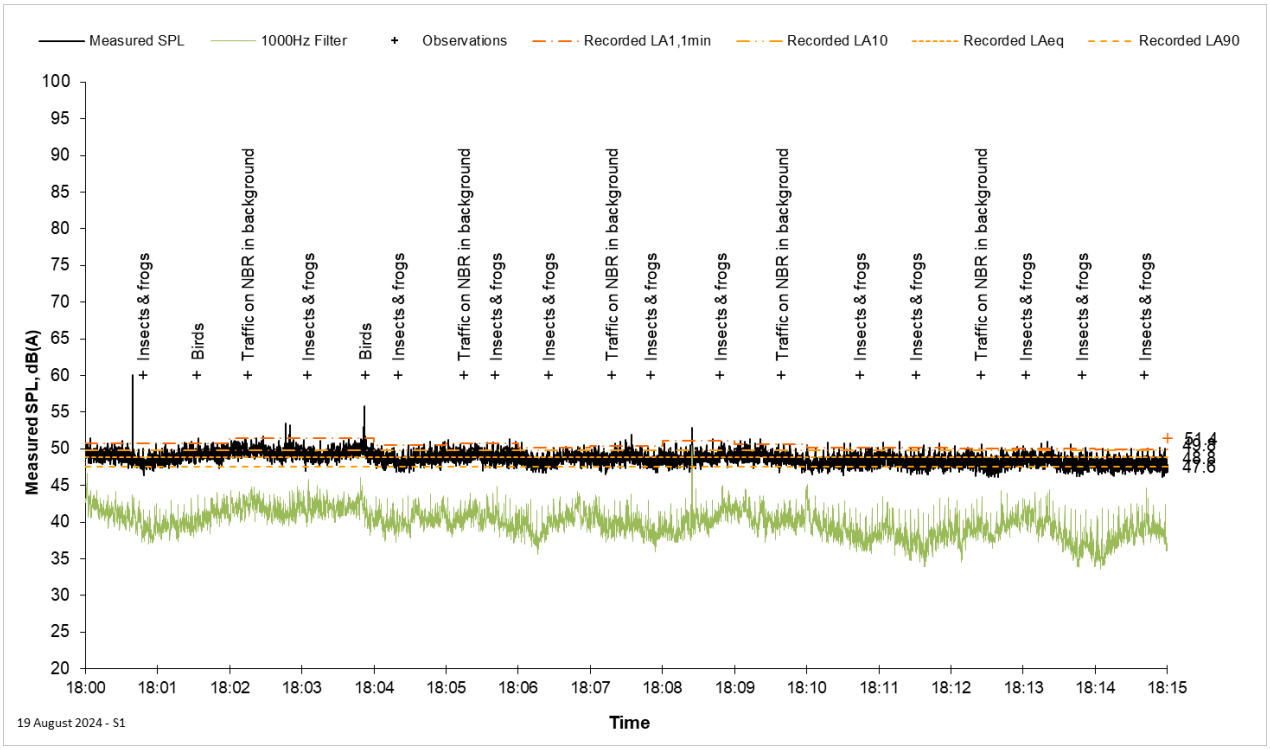
Macka's Sand extraction operations were inaudible during the measurement period.



Evening Attended Monitoring – Site 1, 19 August 2024, 18:00 to 18:15

Operator Comments: The ambient noise environment at the monitoring location was dominated by local environmental noises (insects and frogs) with distant traffic in background. Birds were also noted.

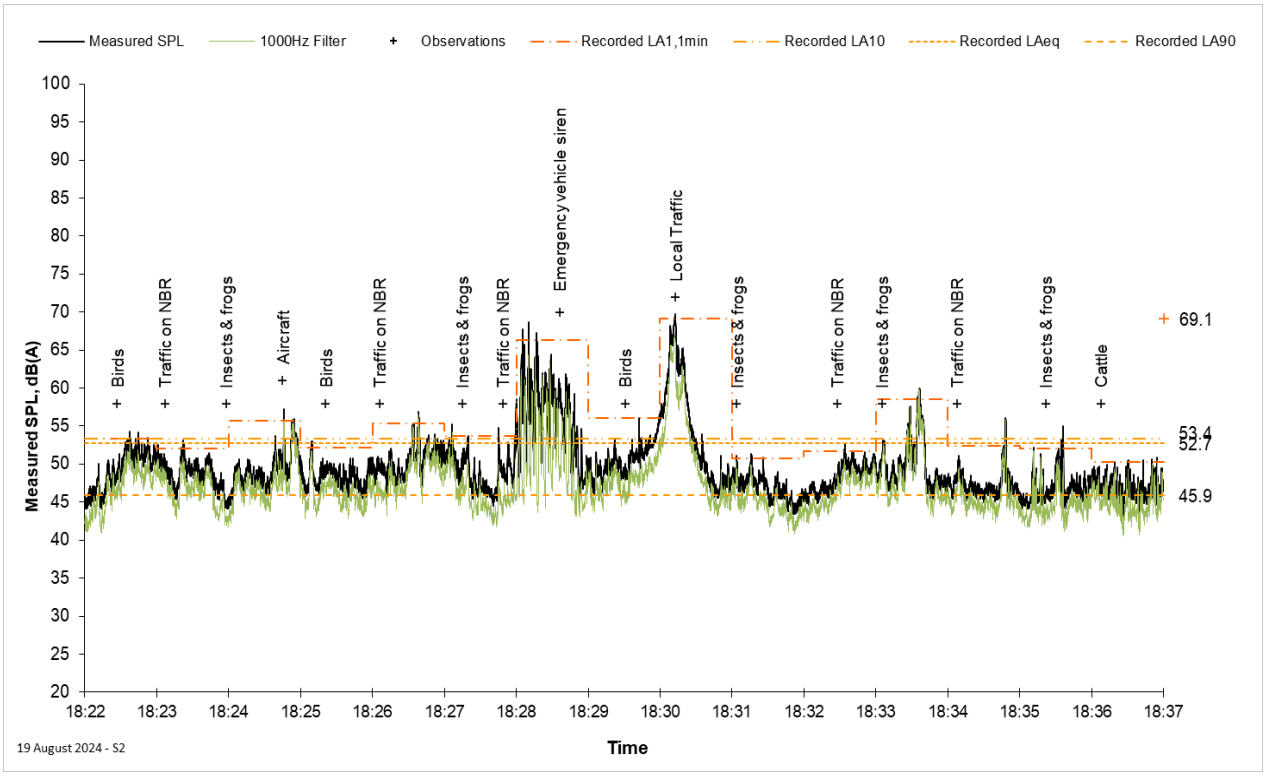
Macka's Sand extraction operations were inaudible during the measurement period.



Evening Attended Monitoring – Site 2, 19 August 2024, 18:22 to 18:37

Operator Comments: The ambient noise environment at the monitoring location was dominated by traffic on Nelson Bay Road and local environmental noises (insects and frogs). Birds, cattle and an emergency vehicle siren were also noted.

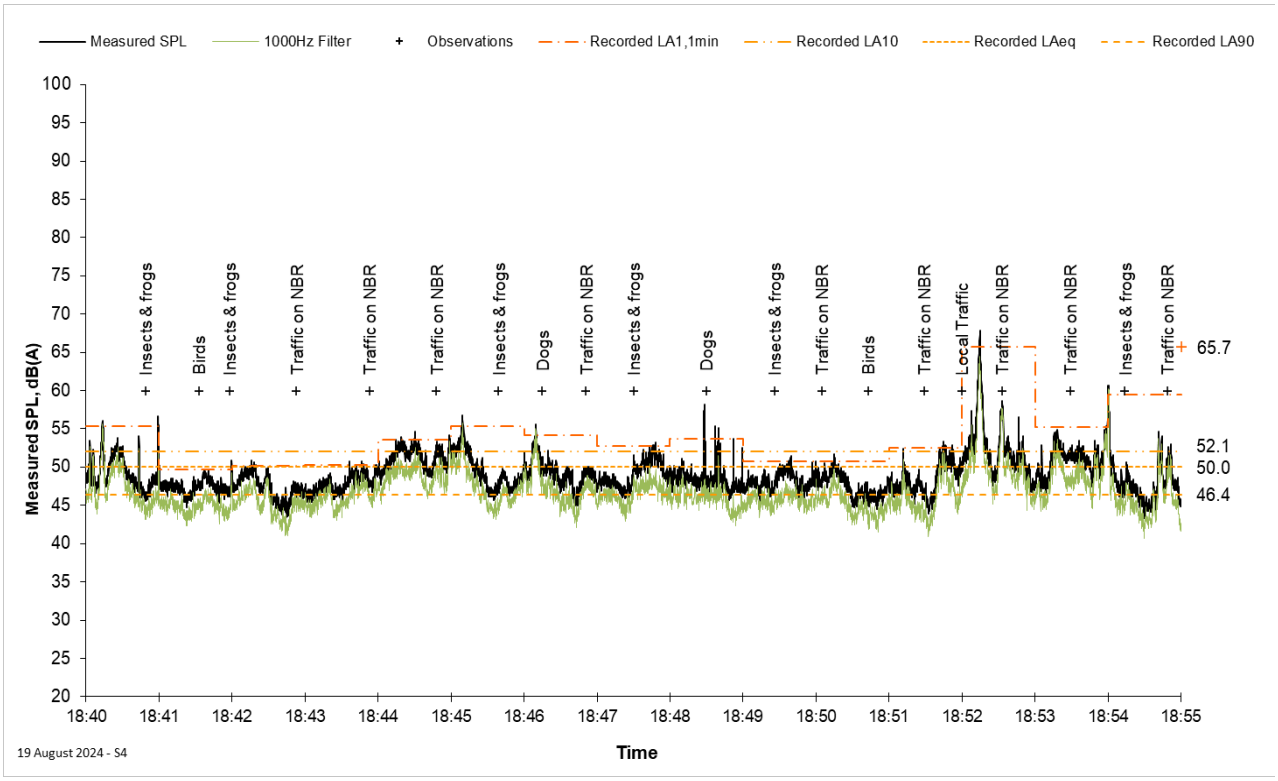
Macka's Sand extraction operations were inaudible during the measurement period.



Evening Attended Monitoring – Site 4, 19 August 2024, 18:40 to 18:55

Operator Comments: The ambient noise environment at the monitoring location was dominated by traffic on Nelson Bay Road. Insects, frogs, dogs and birds were also noted.

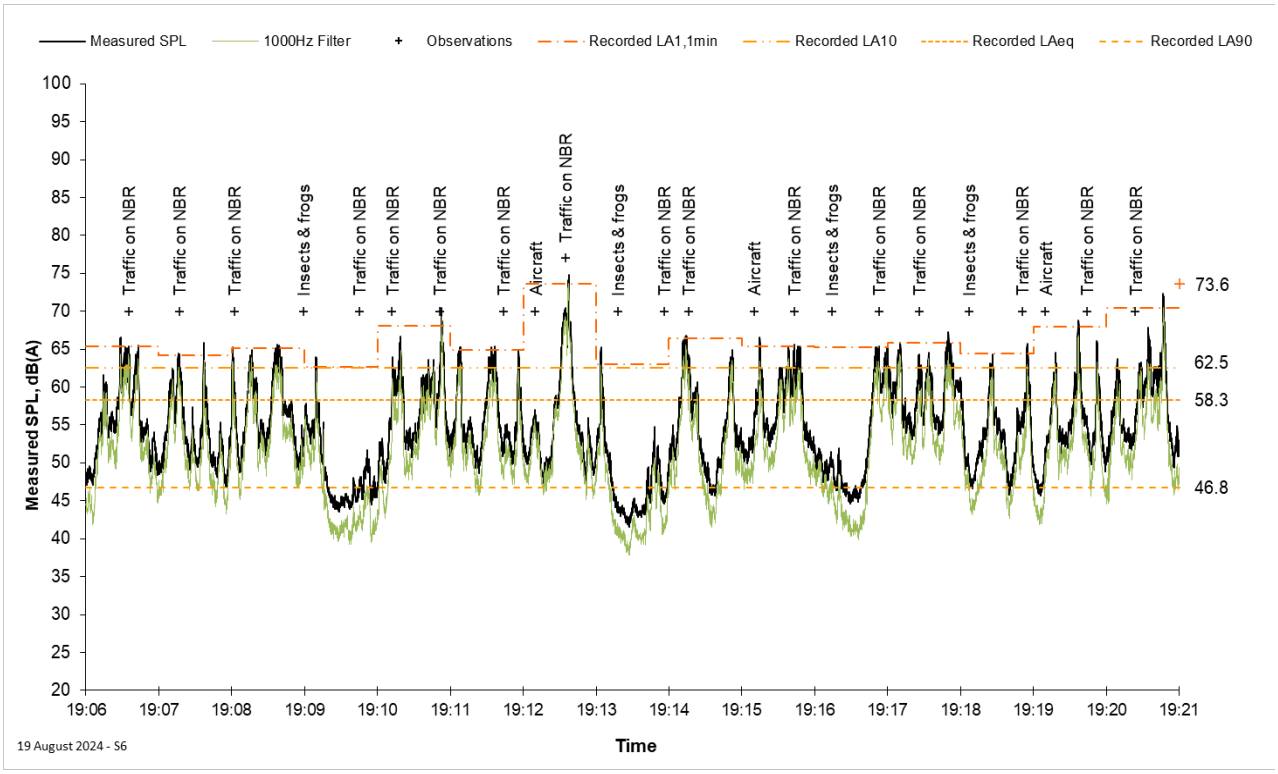
Macka's Sand operations were inaudible during the measurement period.



Evening Attended Monitoring – Site 6, 19 August 2024, 19:06 to 19:21

Operator Comments: The ambient noise environment at the monitoring location was dominated by traffic on Nelson Bay Road along with insects and frogs during breaks of traffic. Aircraft was also noted.

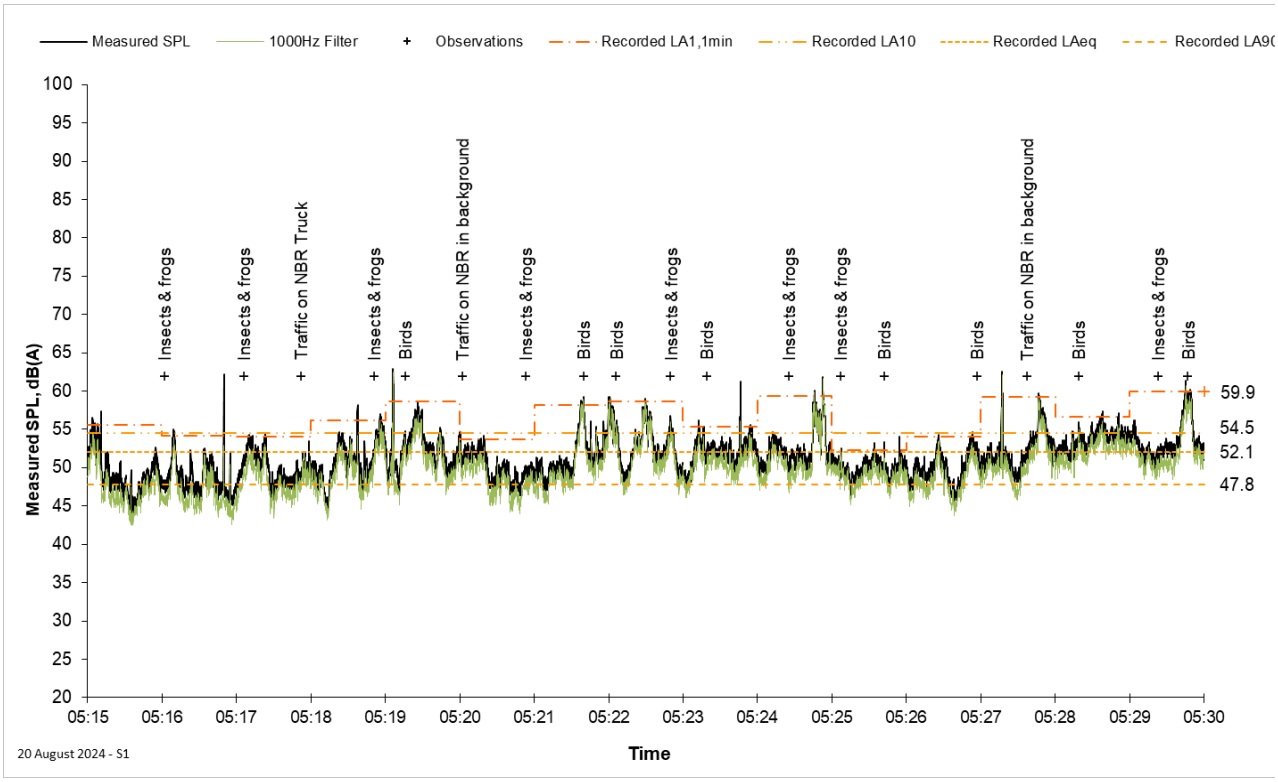
Macka's Sand operations were inaudible during the measurement period.



Night Attended Monitoring – Site 1, 20 August 2024, 05:15 to 05:30

Operator Comments: The ambient noise environment at the monitoring location was dominated by local environmental noises (insects and frogs) with distant traffic in background. Birds were also noted.

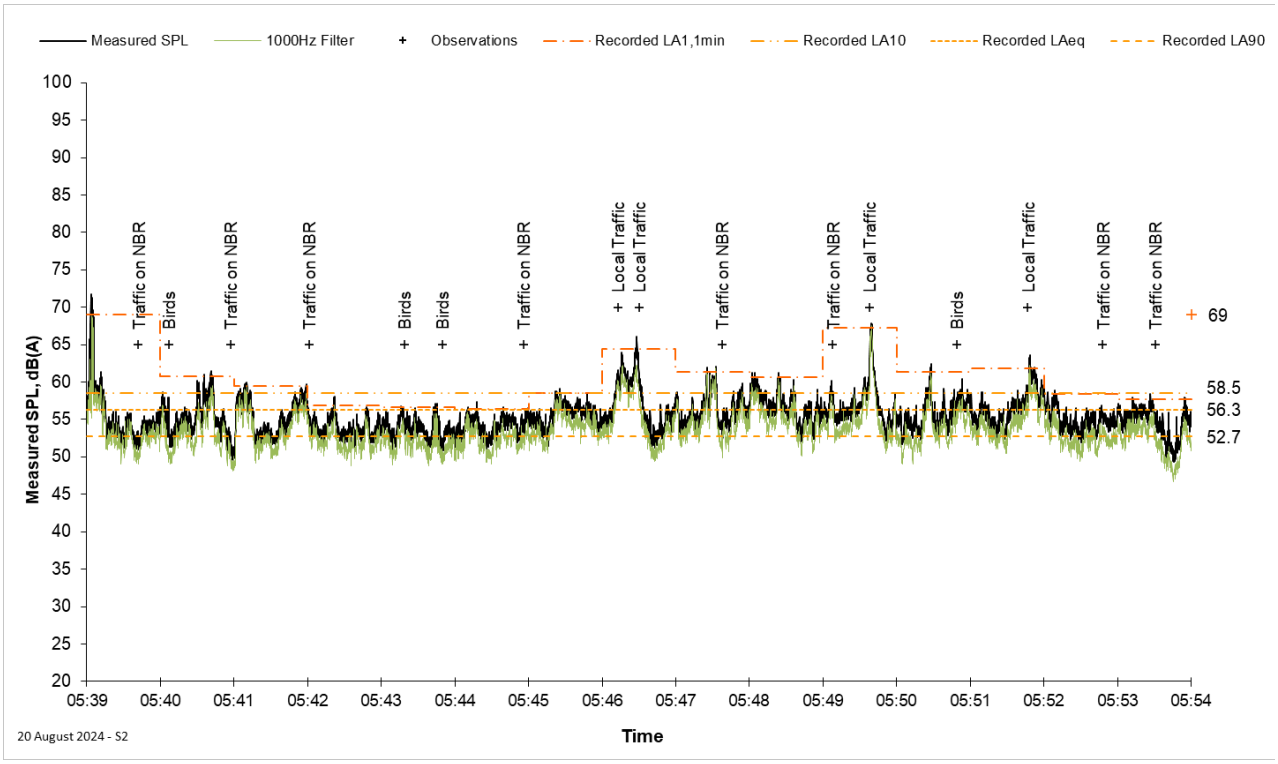
Macka's Sand extraction operations were inaudible during the measurement period.



Night Attended Monitoring – Site 2, 20 August 2024, 05:39 to 05:54

Operator Comments: The ambient noise environment at the monitoring location was dominated by traffic on Nelson Bay Road. Local traffic and birds were also noted.

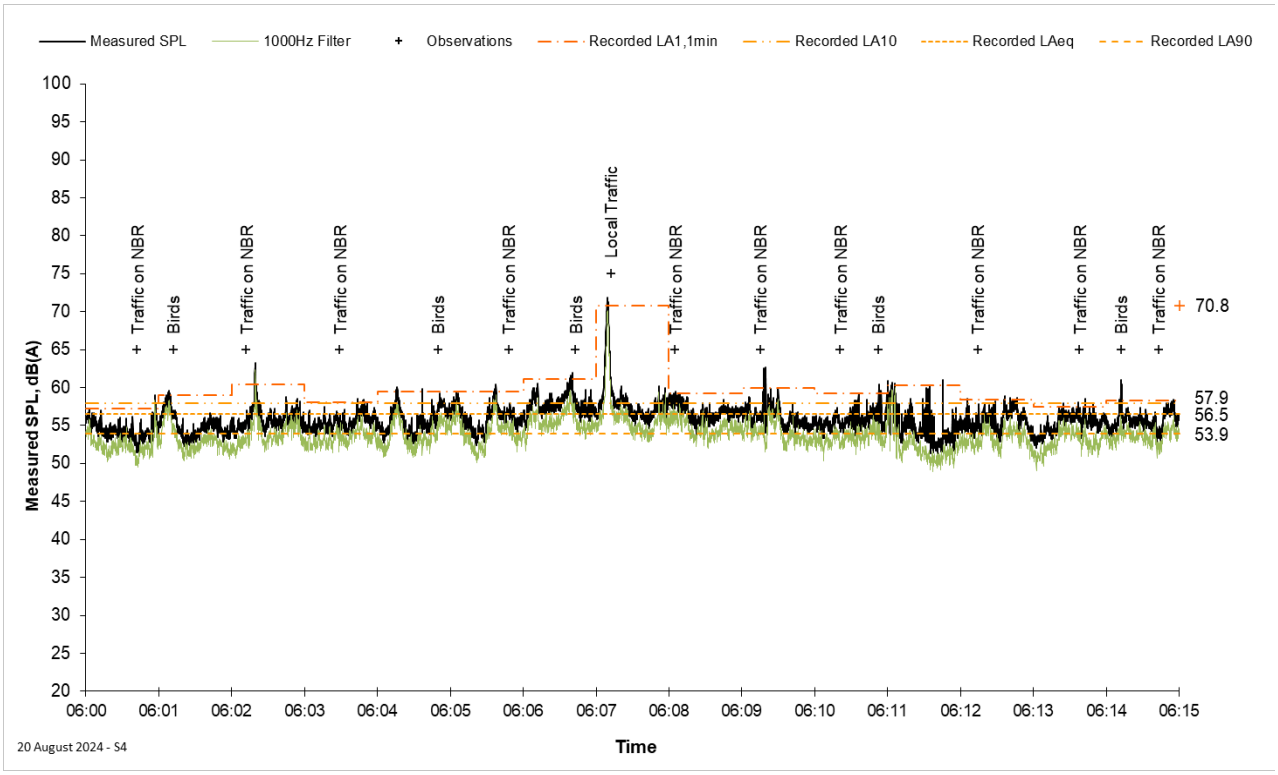
Macka's Sand extraction operations were inaudible during the measurement period.



Night Attended Monitoring – Site 4, 20 August 2024, 06:00 to 06:15

Operator Comments: The ambient noise environment at the monitoring location was dominated by traffic on Nelson Bay Road. Local traffic and birds were also noted.

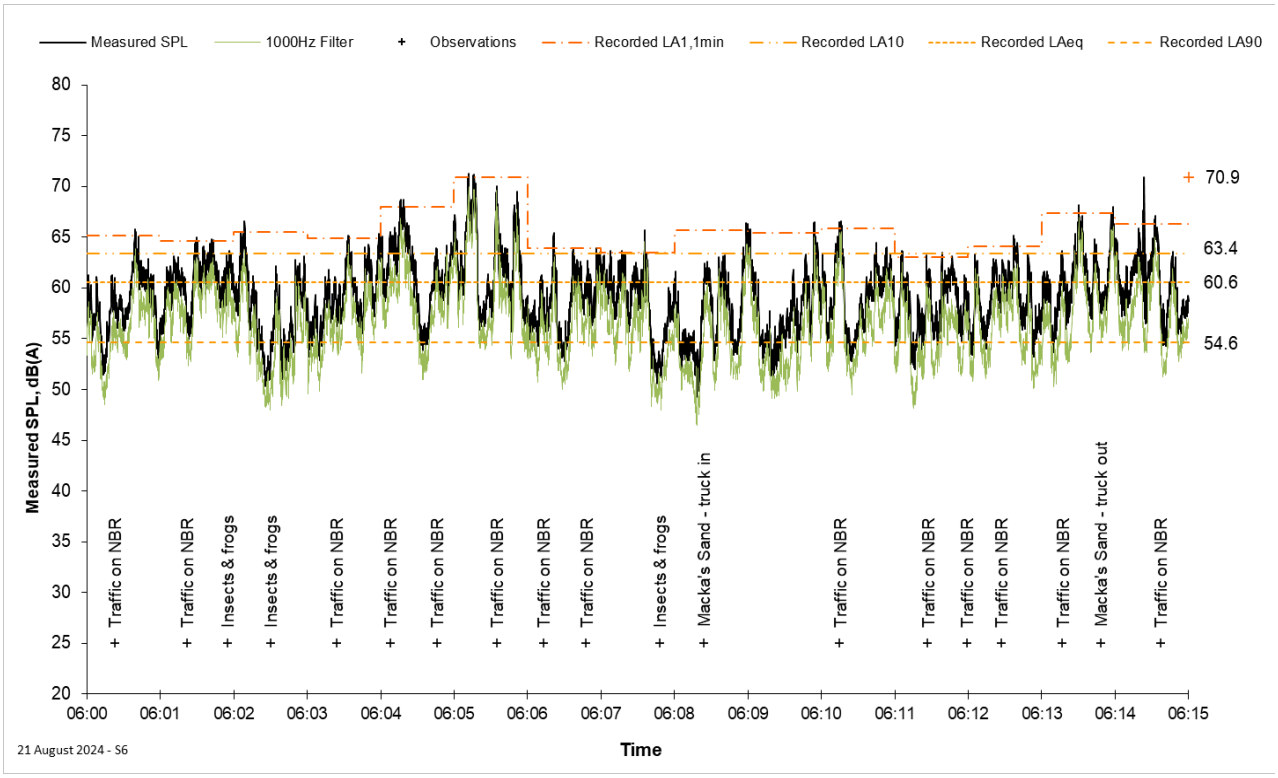
Macka's Sand extraction operations were inaudible during the measurement period.

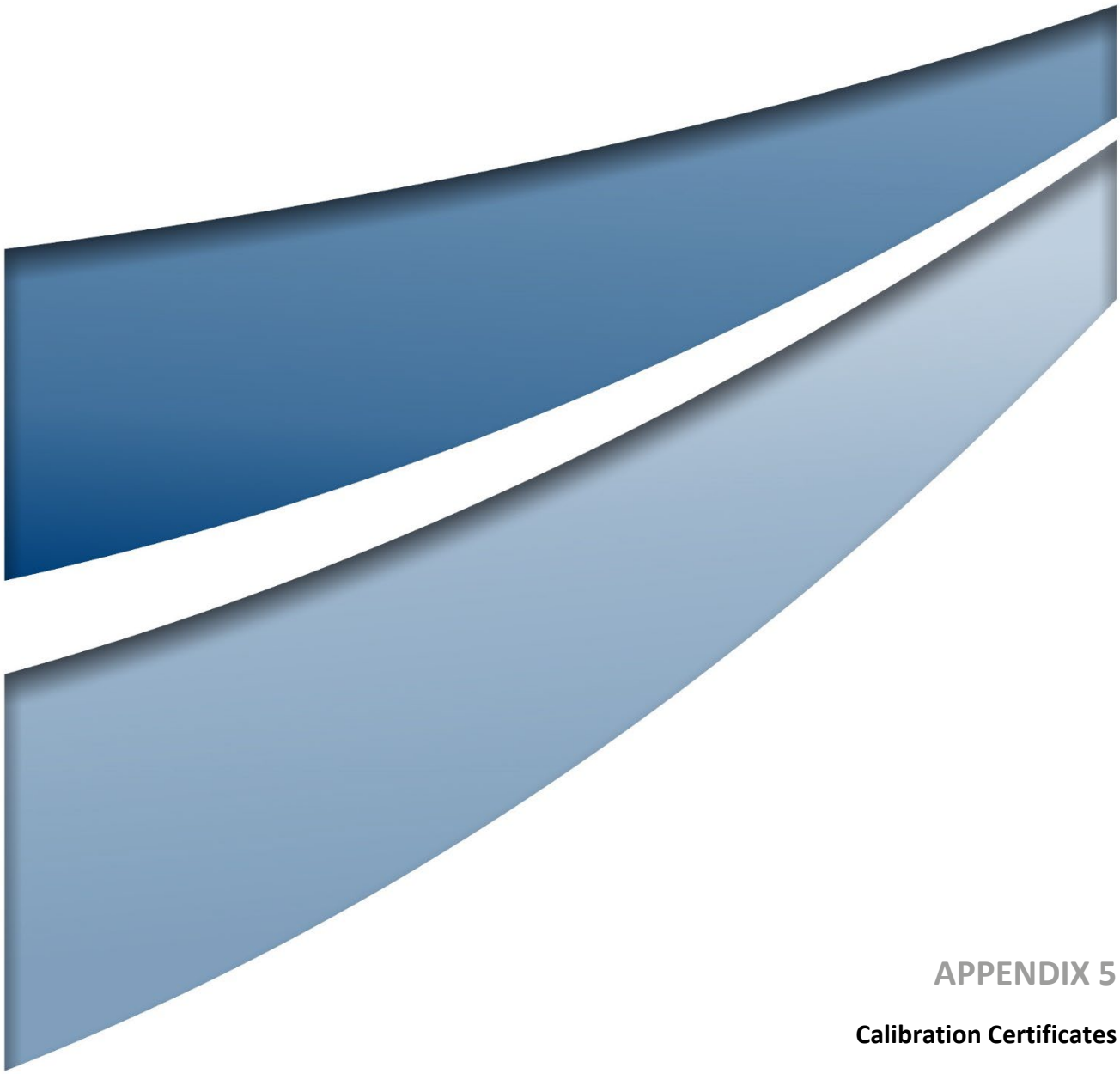


Night Attended Monitoring – Site 6, 21 August 2024, 06:00 to 06:15

Operator Comments: The ambient noise environment at the monitoring location was dominated by road traffic noise from Nelson Bay Road. Birds and Macka's Sand trucks moving along the alternate access road to Lot 218 were also noted.

Macka's Sand extraction operations were inaudible during the measurement period.





APPENDIX 5

Calibration Certificates

CERTIFICATE OF CALIBRATION

CERTIFICATE NO: SLM50638

EQUIPMENT TESTED: Sound Level Meter

Manufacturer:	Svantek		
Type No:	SVAN 958A	**Serial No:**	59838
Mic. Type:	ACO 7052E	**Serial No:**	71104
Pre-Amp. Type:	SV 12L	**Serial No:**	73585
Filter Type:	1/3 Octave	**Test No:**	F050634

Owner: Umwelt (Australia) Pty Ltd
75 York Street
Teralba, NSW 2284

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

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

CONDITIONS OF TEST:

Ambient Pressure	1007	hPa ±1 hPa	**Date of Receipt :**	16/07/2024
Temperature	24	°C ±1° C	**Date of Calibration :**	24/07/2024
Relative Humidity	39	% ±5%	**Date of Issue :**	25/07/2024

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

CHECKED BY: .....

AUTHORISED SIGNATURE: .....

Julian Kielt

Accredited for compliance with ISO/IEC 17025 - Calibration

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

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

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

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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

CERTIFICATE OF CALIBRATION

CERTIFICATE NO: C50639

EQUIPMENT TESTED : Acoustic Calibrator

Manufacturer: Svantek
Type No: SV 36 **Serial No:** 90124
Class: 1
Owner: Umwelt Australia Pty Ltd
75 York Street
Teralba, NSW 2284
Tests Performed: Measured Output Pressure level, Frequency & Distortion
Comments: See Details and Class Tolerance overleaf.

CONDITION OF TEST:

Ambient Pressure	1005	hPa ±1 hPa	**Date of Receipt :**	16/07/2024
Temperature	25	°C ±1° C	**Date of Calibration :**	25/07/2024
Relative Humidity	35	% ±5%	**Date of Issue :**	25/07/2024

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

CHECKED BY: .....

AUTHORISED SIGNATURE: .....
Julian Kielt

Accredited for compliance with ISO/IEC 17025 - Calibration

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CERTIFICATE OF CALIBRATION

CERTIFICATE NO: SLM50338

EQUIPMENT TESTED: Sound Level Meter

Manufacturer:	Svantek		
Type No:	SVAN-958A	**Serial No:**	59839
Mic. Type:	ACO 7052E	**Serial No:**	71109
Pre-Amp. Type:	SV 12L	**Serial No:**	73589
Filter Type:	1/3 Octave	**Test No:**	F050339

Owner: Umwelt (Australia) Pty Ltd
75 York Street
Teralba, NSW 2284

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

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

CONDITIONS OF TEST:

Ambient Pressure	1013	hPa ±1 hPa	**Date of Receipt :**	20/06/2024
Temperature	22	°C ±1° C	**Date of Calibration :**	28/06/2024
Relative Humidity	38	% ±5%	**Date of Issue :**	01/07/2024

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

CHECKED BY: .....

AUTHORISED SIGNATURE: .....
Hedi Soe

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CERTIFICATE OF CALIBRATION

CERTIFICATE NO: C50344

EQUIPMENT TESTED : Acoustic Calibrator

Manufacturer: Svantek
Type No: SV 36 **Serial No:** 90131
Class: 1
Owner: Umwelt (Australia) Pty Ltd
75 York Street
Teralba, NSW 2284
Tests Performed: Measured Output Pressure level, Frequency & Distortion
Comments: See Details and Class Tolerance overleaf.

CONDITION OF TEST:

Ambient Pressure	1012	hPa ±1 hPa	**Date of Receipt :**	20/06/2024
Temperature	24	°C ±1° C	**Date of Calibration :**	28/06/2024
Relative Humidity	38	% ±5%	**Date of Issue :**	01/07/2024

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

CHECKED BY: HKB

AUTHORISED SIGNATURE: Hein Soe

Accredited for compliance with ISO/IEC 17025 - Calibration
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