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25 May 2023

Ben Crawford
Independent Cement & Lime Group
750 Lorimer St, Port Melbourne
Victoria 3207

E | bcrawford@indcem.com.au

Dear Ben

**Re: Quarterly Environmental Noise Monitoring – Building Product Services,
Quarter 1 2023**

Umwelt has completed Quarter 1 2023 Environmental Attended Noise Monitoring for Building Product Services (BPS), Kembla Grange to satisfy BPS's Environment Protection Licence (EPL) 20747 requirements.

This report presents the results of noise monitoring carried out on 27 and 28 April 2023. The purpose of attended noise surveys is to quantify and describe the ambient noise environment in the region surrounding BPS and to estimate the BPS contribution to the ambient noise levels. Meteorological conditions present at the time of monitoring and the measured BPS noise levels are compared to criteria outlined in EPL20747.

Noise monitoring methodology

The compliance assessment methodology includes the following activities:

- Attended noise monitoring measurements, of fifteen-minute duration, at monitoring locations to measure the ambient noise levels in the surrounding region and to assess the BPS contribution (reported as an LAeq, 15 minute measurement) to the measured noise levels.
- Comparison of the BPS LAeq, 15 minute contribution with the relevant EPL LAeq, 15 minute noise criteria to assess compliance of BPS operations.
- Comparison of the BPS LAF,Max night-time attended noise monitoring results with the night-time LAF,Max criteria outlined in the EPL.

Attended noise monitoring for BPS was conducted in accordance with the NSW Environment Protection Authority (EPA) *Noise Policy for Industry* (NPfI, 2017), *Approved methods for the measurement and analysis of environmental noise in NSW* (EPA, 2022) and the Australian Standard *AS1055:2018, Acoustics – Description and Measurement of Environmental Noise*.

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During the attended monitoring sessions, noise measurements were taken with a SVAN 958A Precision Integrating Sound Level Meter (Serial Number 59839) which was calibrated on-site using a Type SV-36, Svantek Sound Level Calibrators (Serial Number 90131). The noise meter was run using three measurement profiles, Z Weighting (linear), C Weighting and A Weighting and records A-weighted 1/3 octave noise levels at 10th of a second intervals over a 15-minute measurement period.

During the attended monitoring sessions, the operator maintained a log of noise-related events that occurred and contributed to the ambient noise environment. Particular attention and note were made for contributions associated with BPS operations.

Attended noise monitoring data and results recorded include:

- the LAeq,15minute, LA10,15minute and LA90,15minute noise levels of the ambient acoustic environment for each 15-minute measurement period
- the recorded A-weighted 1/3 octave noise levels at 10th of a second intervals over each 15-minute measurement period
- the results of a 1000 Hz low pass filter at 10th of a second intervals over each 15-minute measurement period
- an assessment of the maximum LAFmax noise level recorded over each 15-minute measurement period
- operator comments regarding any extraneous noise sources contributing to the ambient noise levels.

The October 2021 version of EPL20747 identifies three noise monitoring locations, which are shown in **Figure 1**. EPL20747 calls for monitoring to be carried out during the day, evening and night period as defined in the Noise Policy for Industry for a minimum of two (2) of the residential locations and one (1) near-field location.

The noise criteria specified in EPL20747 for three residential locations, NML1, NML2 and NML3 are described in **Table 1**.

Table 1 – Noise Criteria, dB(A)

Time of day		Parameter	Noise Level
Day	7 am-6 pm Monday -Saturday	LAeq(15minute)	46
	8 am-6 pm Sunday & Public Holidays)		
Evening	6 pm – 10 pm	LAeq(15minute)	43
Night	10 pm to commencement of day period	LAeq(15minute)	40
		LAFmax	52

Source: EPL20747



Figure 1 Location figure showing the BPS site and noise monitoring locations

The noise criteria in **Table 1** apply under the following meteorological conditions:

- Day – Stability categories A, B, C, D with wind speeds up to and including 3 m/s at 10 m above ground level.
- Evening – Stability categories A, B, C, D with wind speeds up to and including 3 m/s at 10 m above ground level.
- Night – Stability categories A, B, C, D with wind speeds up to and including 3 m/s at 10 m above ground level; or
- Stability Category E and F with wind speeds up to and including 2 m/s at 10 m above ground level.

For those meteorological conditions not referred to above the noise limits include a plus 5dB allowance.

Identification of suitable meteorological conditions

Umwelt aims to conduct compliance monitoring during meteorological conditions where criteria will apply. Publicly available weather forecasts, such as Weatherzone and the Bureau of Meteorology's (BOM's) synoptic charts and Meteye forecasts are reviewed and periods of low wind speeds and no rain are selected for monitoring. It is noted that inversion conditions can occur during periods of low wind speeds. Therefore, preferentially targeting calm periods may inadvertently result in the monitoring being undertaken during inversion conditions. During strong inversion conditions, the noise criteria include a 5 dB allowance and the value of the noise monitoring process is potentially diminished. The 5 dB allowance also applies to periods when the wind speed exceeds those nominated above (as per EPL20747).

Additionally, local radars may be checked immediately prior to monitoring to confirm the absence of rain or storms during summer months. Based on the forecast prevailing meteorological conditions, monitoring was conducted at NM1 and NM2 as well as an additional near-field location on Sylvester Avenue, Unanderra.

Meteorological conditions during monitoring were determined from meteorological data obtained from the EPA Kembla Grange Air Quality Monitoring Station (Station ID 526). Averaged data was available in one-hour intervals. Stability categories present during monitoring were determined using the method from Fact Sheet D of the NPfI using the sigma theta data to estimate the Pasquill-Gifford stability category, as outlined in Section D1 of the NPfI, as specified in EPL20747.

The Quarter 1 2023 attended noise monitoring results in **Table 2** and **Table 3** for NML1 and NML2 respectively include:

- the noise criteria for each monitoring location (for the period when the measurement was taken)
- the estimated noise contribution from BPS
- whether the meteorological conditions include a plus 5 dB allowance
- whether BPS is complying with the noise criteria at the time of monitoring.

At times, the contribution of BPS to total measured noise levels can only be estimated due to the presence of other more dominant noise sources. In these circumstances, the estimated contribution of BPS is determined during lulls of extraneous noise, such as wind or road traffic noise. Additionally, the near field monitoring conducted at Sylvester Avenue assists in determining the contribution of BPS noise levels in the acoustic environment.

Night period results in **Table 2** for NML1, Orana Parade, include a range of observed BPS sound pressure levels as well as the estimated BPS only LAeq,15minute. This approach was taken as the BPS contribution was fluctuating during night measurements in periods of differing meteorological enhancement. The meteorological conditions during the night period resulted in a plus 5 dB allowance being applicable to all four measurements due to the presence of inversions. NML1 night period BPS only contributions were estimated due to the masking presence of road traffic noise.

Further details on the operator comments regarding any extraneous noise sources contributing to the ambient noise levels during the evening and night time monitoring period can be found in **Appendix A** for NML1 and in **Appendix B** for NML2 as notated run charts. Noise levels over the fifteen-minute period are presented in terms of an overall all pass noise level and the low pass level showing the noise level up to and including 1000 Hz is also shown.

The meteorological conditions present during each measurement interval are presented in **Table 4**.

Calibration certificates for the sound and vibration analyser and sound level calibrator used are provided in **Appendix C**.

Table 2 Quarter 1 2023 Attended Noise Monitoring Results – NML1 Orana Parade

Period	Start Date and Time of 15 min period	Ambient Noise Levels		Estimated ¹ BPS Contribution and Criteria, dB(A)						Comments
		LA90, 15min	LAeq, 15min	EPL criteria LAeq,15min	BPS LAeq,15min ¹	EPL criteria LAFmax	BPS LAFmax ¹	Met ^{2,3,4} Allowance (0dB/+5dB)	BPS Complies (Yes/No)	
Day	27/04/2023 14:06	55	59	46	Inaudible	-	-	+ 5 dB	Yes	The ambient noise environment was dominated by road traffic noise from the Princes Highway (Highway). BPS was inaudible during the measurement. Other sources included wind in foliage, noise from a nearby industrial area, construction activity and train noise.
Day	27/04/2023 14:21	56	60	46	Inaudible	-	-	+ 5 dB	Yes	The ambient noise environment was dominated by road traffic noise from the Highway. BPS was inaudible during the measurement. Other sources included train noise, construction activity, wind in foliage and noise from a nearby industrial area.
Day	27/04/2023 14:36	56	60	46	Inaudible	-	-	+ 5 dB	Yes	The ambient noise environment was dominated by road traffic noise from the Highway. BPS was inaudible during the measurement. Other sources included noise from a nearby industrial area, local traffic, construction activity and wind in foliage
Day	27/04/2023 14:51	57	60	46	Inaudible	-	-	+ 5 dB	Yes	The ambient noise environment was dominated by road traffic noise from the Highway. BPS was inaudible during the measurement. Other sources included construction activity, noise from a nearby industrial area, local traffic and train noise.
Day	27/04/2023 15:06	57	61	46	Inaudible	-	-	+ 5 dB	Yes	The ambient noise environment was dominated by road traffic noise from the Highway. BPS was inaudible during the measurement. Other sources included local traffic, wind in foliage and construction activity.

Period	Start Date and Time of 15 min period	Ambient Noise Levels		Estimated ¹ BPS Contribution and Criteria, dB(A)						Comments
		LA90, 15min	LAeq, 15min	EPL criteria LAeq, 15min	BPS LAeq, 15min ¹	EPL criteria LAFmax	BPS LAFmax ¹	Met ^{2,3,4} Allowance (0dB/+5dB)	BPS Complies (Yes/No)	
Day	27/04/2023 15:21	57	61	46	Inaudible	-	-	+ 5 dB	Yes	The ambient noise environment was dominated by road traffic noise from the Highway. BPS was inaudible during the measurement. Other sources included construction activity, wind in foliage, train noise and local traffic.
Evening	27/04/2023 19:59	49	57	43	<40	-	-	+ 5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. BPS was audible in the background of the measurement as dust collector fan discharge continuum. Other sources noted during the measurement included industrial noise to the north of the monitoring location (not associated with BPS), emergency vehicles and sirens, local traffic, dogs, birds and insects.
Evening	27/04/2023 20:14	51	56	43	Inaudible	-	-	+ 5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. BPS was inaudible during the measurement period. Other sources noted during the measurement included local traffic, industrial noise to the north of the monitoring location (not associated with BPS), birds, dogs, insects and train noise.

Period	Start Date and Time of 15 min period	Ambient Noise Levels		Estimated ¹ BPS Contribution and Criteria, dB(A)						Comments
		LA90, 15min	LAeq, 15min	EPL criteria LAeq,15min	BPS LAeq,15min ¹	EPL criteria LAFmax	BPS LAFmax ¹	Met ^{2,3,4} Allowance (0dB/+5dB)	BPS Complies (Yes/No)	
Night	27/04/2023 22:15	47	52	40	<40	52	53 (BPS FEL bucket impact)	0 dB	Yes – LAeq No - LAMax	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. BPS was audible in the background of the measurement as dust collector fan discharge continuum. BPS front end loader (FEL) bucket noise (as it made contact with the concrete pad) was also noted on one occasion. Discussion with site indicated that it was a trainee driver, who would receive additional advice about night time operation of the FEL. Other sources noted during the measurement included insect noise, local traffic, train noise, birds, aircraft and railway crossing alarms.
Night	27/04/2023 22:30	46	52	40	<40	52	<52 No specific event noise noted	0 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. BPS was audible in the background of the measurement as dust collector discharge continuum. Other sources noted during the measurement included local traffic, birds, insects and train noise.
Night	27/04/2023 22:45	45	50	40	<40	52	<52 No specific event noise noted	0 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. BPS was audible in the background of the measurement as dust collector discharge and plant continuum. Other sources noted during the measurement included train noise, local traffic, insects and birds.

Period	Start Date and Time of 15 min period	Ambient Noise Levels		Estimated ¹ BPS Contribution and Criteria, dB(A)						Comments
		LA90, 15min	LAeq, 15min	EPL criteria LAeq, 15min	BPS LAeq, 15min ¹	EPL criteria LAFmax	BPS LAFmax ¹	Met ^{2,3,4} Allowance (0dB/+5dB)	BPS Complies (Yes/No)	
Night	27/04/2023 23:00	45	52	40	<40	52	<50 FEL engine noise	+ 5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the Highway. BPS was audible in the background of the measurement as dust collector discharge and plant continuum. The BPS FEL was audible briefly and at low levels as engine revving noise. BPS pulse lines were also noted on one occasion. Other sources noted during the measurement included breeze in foliage, aircraft, insects, birds and train noise.

Notes:

1. Assessed by the operator during the monitoring session. Exceedances of EPL limits are shown in bold.
2. Meteorological conditions under which the noise criteria apply are defined in EPL20747 condition L2.3(a).
3. See **Table 4** for specific meteorological data during the monitoring period.
4. For those meteorological conditions not referred to in EPL20747 condition L2.3(a), the noise limits that apply are the noise limits in condition L2.1 plus 5dB.

Table 3 Quarter 1 2023 Attended Noise Monitoring Results – NML2 Farmborough Road

Period	Start Date and Time of 15 min period	Ambient Noise Levels		Estimated ¹ BPS Contribution and Criteria, dB(A)						Comments
		LA90, 15min	LAeq, 15min	EPL criteria LAeq,15min	BPS LAeq,15min ¹	EPL criteria LAFmax	BPS LAFmax ¹	Met ^{2,3,4} Allowance (0dB/+5dB)	BPS Complies (Yes/No)	
Day	28/04/2023 10:30	47	52	46	Inaudible	-	-	0 dB	Yes	The ambient noise environment at the monitoring location was dominated by birds, and nearby construction noise. BPS was inaudible during the measurement. Other sources included road traffic noise from the Highway, train noise, building activity, aircraft, wind in foliage and local traffic.
Day	28/04/2023 10:45	46	49	46	Inaudible	-	-	0 dB	Yes	The ambient noise environment at the monitoring location was largely dominated by birds and nearby construction noise. BPS was inaudible during the measurement. Other sources included road traffic noise from the Highway, building activity, local traffic, wind in foliage, train noise and aircraft noise.
Day	28/04/2023 11:00	45	56	46	Inaudible	-	-	0 dB	Yes	The ambient noise environment at the monitoring location was dominated by birds and nearby construction noise. A coal train dominated the noise environment at the start of the measurement. BPS was inaudible during the measurement. Other sources included road traffic noise from the Highway, building activity, dogs, noise from a nearby industrial area and train noise.

Period	Start Date and Time of 15 min period	Ambient Noise Levels		Estimated ¹ BPS Contribution and Criteria, dB(A)						Comments
		LA90, 15min	LAeq, 15min	EPL criteria LAeq,15min	BPS LAeq,15min ¹	EPL criteria LAFmax	BPS LAFmax ¹	Met ^{2,3,4} Allowance (0dB/+5dB)	BPS Complies (Yes/No)	
Day	28/04/2023 11:15	44	47	46	Inaudible	-	-	0 dB	Yes	The ambient noise environment at the monitoring location was dominated by nearby construction noise and road traffic noise from the Highway. BPS was inaudible during the measurement. Other sources included building activity, an emergency vehicle, local traffic, residential noise, aircraft and birds.
Day	28/04/2023 11:30	45	48	46	Inaudible	-	-	0 dB	Yes	The ambient noise environment at the monitoring location was dominated by nearby construction noise and road traffic noise from the Highway. BPS was inaudible during the measurement. Other sources included local traffic, train noise, building activity, birds, aircraft and noise from a nearby industrial area.
Day	28/04/2023 11:45	47	52	46	Inaudible	-	-	0 dB	Yes	The ambient noise environment at the monitoring location was dominated by dogs and train noise for the majority of the measurement period. BPS was inaudible during the measurement. Other sources included birds, building activity, nearby construction noise, building noise, road traffic noise from the Highway and local traffic.
Evening	27/04/2023 18:44	45	55	43	Not audible	-	-	+ 5 dB	Yes	The ambient noise environment at the monitoring location was dominated by train noise when present, and at other times by local road traffic noise. BPS was inaudible during the measurement. Other sources included distant industrial noise, road traffic noise from the Highway, insects, residential noise and dogs.

Period	Start Date and Time of 15 min period	Ambient Noise Levels		Estimated ¹ BPS Contribution and Criteria, dB(A)						Comments
		LA90, 15min	LAeq, 15min	EPL criteria LAeq,15min	BPS LAeq,15min ¹	EPL criteria LAFmax	BPS LAFmax ¹	Met ^{2,3,4} Allowance (0dB/+5dB)	BPS Complies (Yes/No)	
Evening	27/04/2023 18:59	44	55	43	Not audible	-	-	+ 5 dB	Yes	BPS was inaudible during the measurement. Other sources noted included distant industrial noise, road traffic noise, insects, train noise and aircraft noise. The raw data for this measurement was unavailable due to a data transfer error.
Night	27/04/2023 23:30	39	50	40	<40	52	< 40 No specific event noted	+ 5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the local area as well as the Highway. BPS was audible at times in the background of the measurement as dust collector fan continuum. Other sources included distant industrial noise, road traffic noise from the Motorway, insects, dogs and train noise.
Night	27/04/2023 23:45	38	52	40	<40	52	< 40 No specific event noted	+5 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the local area as well as the Highway and Motorway at times. BPS was audible at times in the background of the measurement as dust collector fan continuum. Other sources included distant industrial noise, road traffic noise from the Motorway and insects.

Period	Start Date and Time of 15 min period	Ambient Noise Levels		Estimated ¹ BPS Contribution and Criteria, dB(A)						Comments
		LA90, 15min	LAeq, 15min	EPL criteria LAeq,15min	BPS LAeq,15min ¹	EPL criteria LAFmax	BPS LAFmax ¹	Met ^{2,3,4} Allowance (0dB/+5dB)	BPS Complies (Yes/No)	
Night	28/04/2023 0:00	38	47	40	<40	52	< 40 No specific event noted	0 dB	Yes	The ambient noise environment at the monitoring location was dominated by road traffic noise from the local area as well as the Highway and Motorway at times. BPS was audible at times in the background of the measurement as dust collector fan continuum. Other sources included distant industrial noise, train noise and insects.
Night	28/04/2023 0:15	39	42	40	<40	52	52 Vibro feeder	0 dB	Yes	The ambient noise environment at the monitoring location was dominated most often by road traffic noise from the local area as well as the Highway and Motorway at times. BPS was audible briefly as vibro feeder continuum and on another occasion when the FEL was manoeuvring. Other sources included distant industrial noise, insects, dogs, aircraft and train noise.

Notes:

1. Assessed by the operator during the monitoring session. Exceedances of EPL limits are shown in bold.
2. Meteorological conditions under which the noise criteria apply are defined in EPL20747 condition L2.3(a).
3. See **Table 4** for specific meteorological data during the monitoring period.
4. For those meteorological conditions not referred to in EPL20747 condition L2.3(a), the noise limits that apply are the noise limits in condition L2.1 plus 5dB.

Table 4 Meteorological Conditions During Attended Monitoring

EPL Id	Start Date and Time of 15 min period	Meteorological Assessment during Monitoring Period ^{1,2}				Includes Meteorological Allowance ⁴ (0dB/+5dB)
		Rain (mm)	Avg. Wind Speed @ Mic. ³ (m/s)	Avg. Wind Speed @ 10m (m/s)	Atmospheric Stability Category (ASC)	
NML1	27/04/2023 14:06	0	< 5	7.1	D	+ 5 dB
NML1	27/04/2023 14:21	0	< 5	7.1	D	+ 5 dB
NML1	27/04/2023 14:36	0	< 5	7.1	D	+ 5 dB
NML1	27/04/2023 14:51	0	< 5	7.1	D	+ 5 dB
NML1	27/04/2023 15:06	0	< 5	7.3	D	+ 5 dB
NML1	27/04/2023 15:21	0	< 5	7.3	D	+ 5 dB
NML1	27/04/2023 19:59	0	< 5	0.8	F	+ 5 dB
NML1	27/04/2023 20:14	0	< 5	0.8	F	+ 5 dB
NML1	27/04/2023 22:15	0	< 5	1.1	F	0 dB
NML1	27/04/2023 22:30	0	< 5	1.1	F	0 dB
NML1	27/04/2023 22:45	0	< 5	1.1	F	0 dB
NML1	27/04/2023 23:00	0	< 5	2.3	F	+ 5 dB
NML2	28/04/2023 10:30	0	< 5	2.5	A	0 dB
NML2	28/04/2023 10:45	0	< 5	2.5	A	0 dB
NML2	28/04/2023 11:00	0	< 5	0.9	A	0 dB
NML2	28/04/2023 11:15	0	< 5	0.9	A	0 dB
NML2	28/04/2023 11:30	0	< 5	0.9	A	0 dB
NML2	28/04/2023 11:45	0	< 5	0.9	A	0 dB
NML2	27/04/2023 18:44	0	< 5	1.1	F	+ 5 dB
NML2	27/04/2023 18:59	0	< 5	0.8	F	+ 5 dB
NML2	27/04/2023 23:30	0	< 5	2.3	F	+ 5 dB
NML2	27/04/2023 23:45	0	< 5	2.3	F	+5 dB
NML2	28/04/2023 0:00	0	< 5	0.5	F	0 dB
NML2	28/04/2023 0:15	0	< 5	0.5	F	0 dB

Notes:

1. Assessed by the operator during the monitoring session. Exceedances of EPL limits are shown in bold.
2. Meteorological conditions under which the noise criteria apply are defined in EPL20747 condition L2.3(a).
3. Wind speed at microphone height was determined by the operator.
4. For those meteorological conditions not referred to in EPL20747 condition L2.3(a), the noise limits that apply are the noise limits in condition L2.1 plus 5dB.

Near-field Monitoring

It was noted during the evening attended monitoring at NML1 and NML2 that the BPS dust collector system was audible at times at approximately 400 Hz.

To further investigate the contribution of BPS noise levels to the acoustic environment at the monitoring locations, near-field monitoring was undertaken to the north of BPS, at Sylvester Avenue following the night period measurements at NML1 and NML2.

Figure 2 shows the one-third octave noise levels of the acoustic environment at Sylvester Avenue which includes the overall LAeq,15minute (period analysis) for overall context, and selected snapshots from the measurement demonstrating the contributions of individual sources when they were dominant. The snapshots include:

- the BPS pulse lines
- the BPS FEL manoeuvring on site
- the BPS dust collector system, and
- a truck on the Highway.

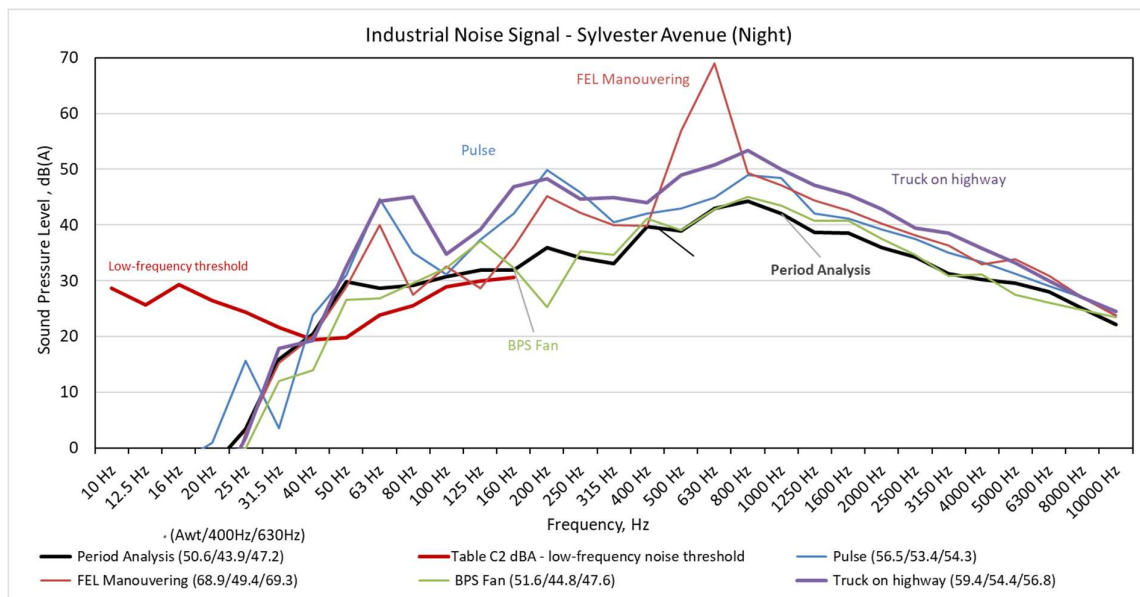


Figure 2 - One-third octave noise levels monitored at a near-field location in Sylvester Avenue

Figure 2 shows one-third octave noise levels of the BPS duct collector at 400 Hz. Figure 2 also shows the masking effects of others noise sources such as a truck on the highway.

Ongoing improvements being implemented at BPS Kembla Grange

BPS have undertaken investigations into the ongoing maintenance of the dust collector system. Additionally, a program of works to address the issues identified has commenced. This has included seeking specialist advice relating to design changes to the system, including adjustments to the fan speed, replacement of the silencer and changing the physical dimensions of the silencer and ductwork.

Proposed changes to the fan/ silencer system aim to address the 400 Hz noise signature that has been observed to be associated with dust collector fan. Feasible solutions are being implemented in Q2 2023, and their effect will be determined during the next quarterly monitoring round.

Statement of Compliance

The results of the Quarter 1 2023 noise monitoring program have been assessed against the EPL 20747 noise criteria and the meteorological conditions identified in the license for BPS.

The Quarter 1 2023 attended noise monitoring results show that BPS was compliant with the BPS EPL 20747 noise criteria for LAeq,15minute noise levels for all monitoring locations. BPS was also compliant with LAFmax noise levels at NML2 Farmborough Road. A 1 dB(A) LAFmax exceedance was measured at NML1 Orana Parade and was attributed to an impact noise from the bucket of the front end loader. Discussion with site indicated that it was a trainee driver, who would receive additional advice about night time operation of the FEL to prevent re-occurrence of this noise event.

We trust this information meets with your current requirements. Please do not hesitate to contact the undersigned on 1300 793 267 should you require clarification or further details of the noise monitoring parameters recorded during this monitoring round.

Yours sincerely

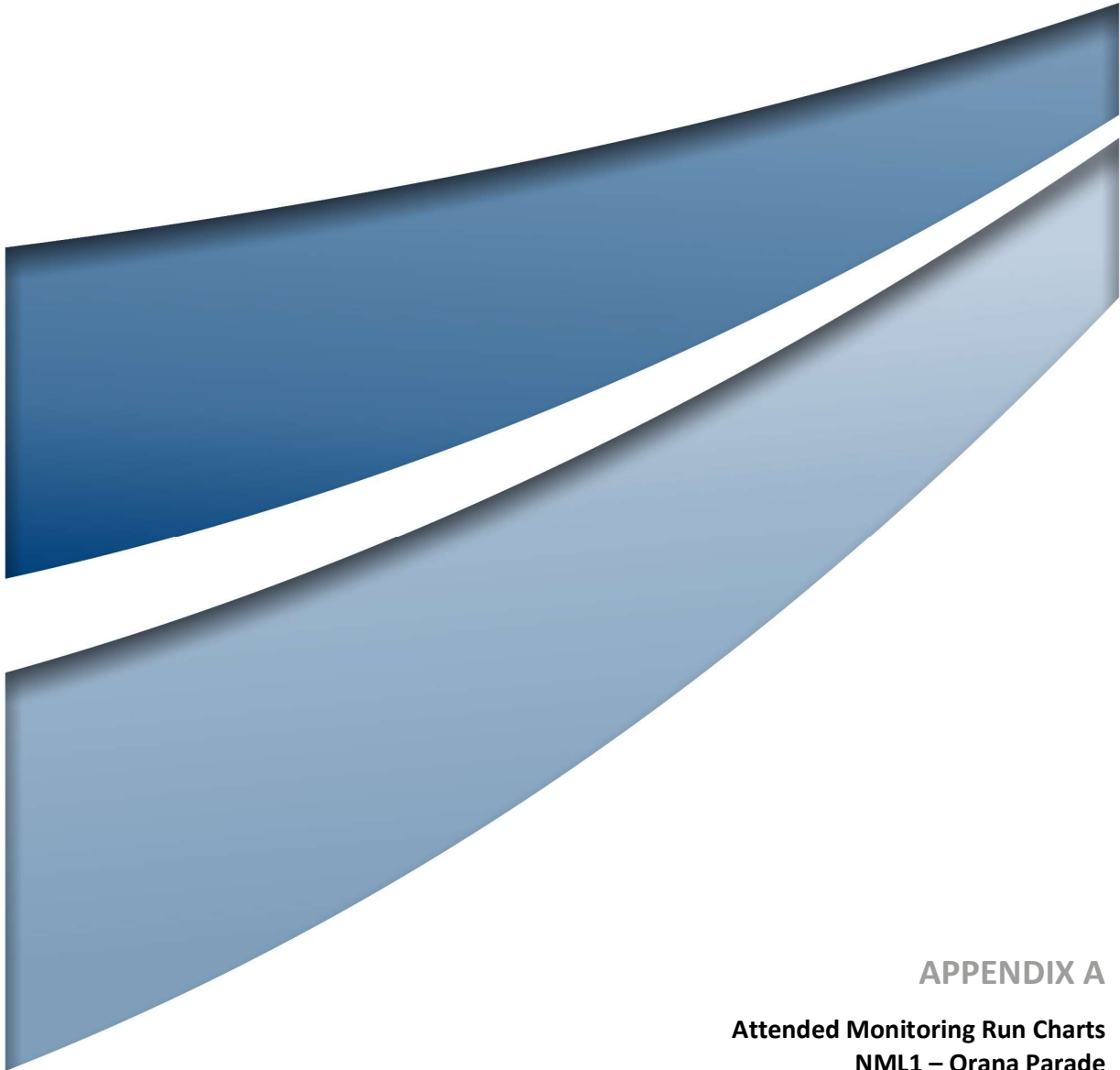
A handwritten signature in black ink, appearing to read 'Tim Procter', is positioned above the printed name.

Tim Procter

Practice Lead – Acoustic Environment

E | tprocter@umwelt.com.au

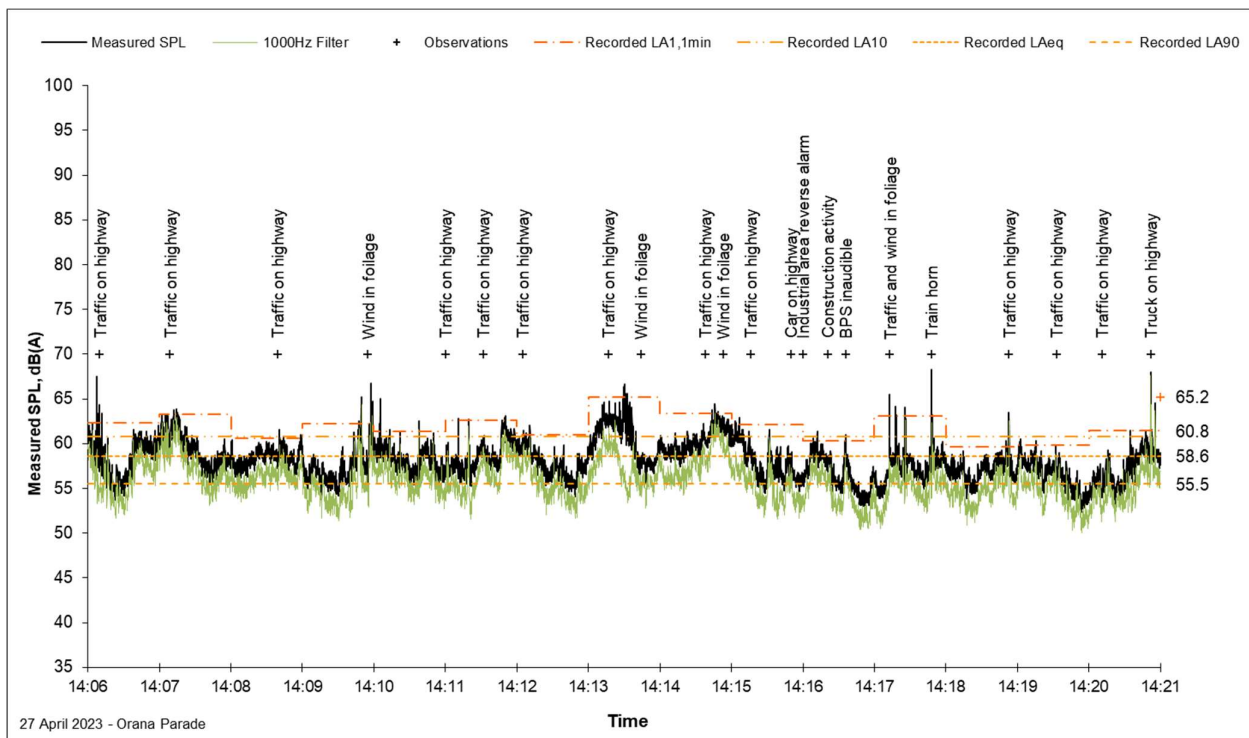
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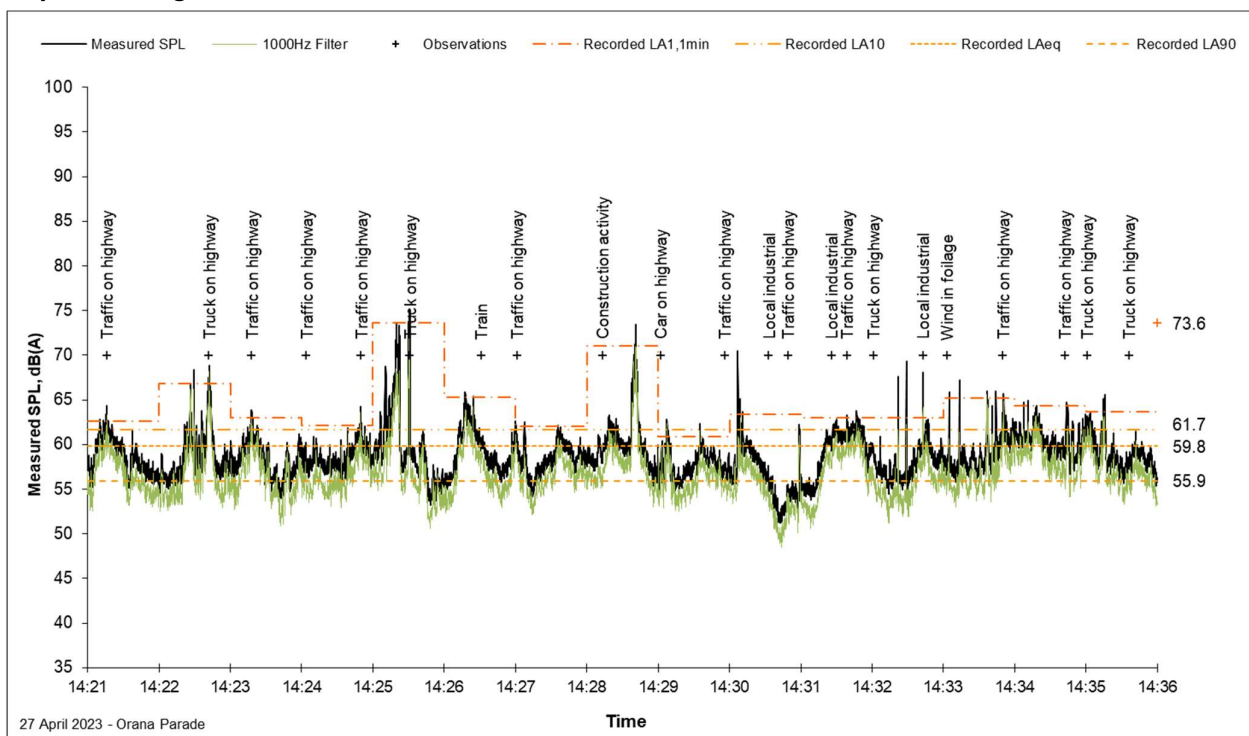
APPENDIX A

**Attended Monitoring Run Charts
NML1 – Orana Parade**

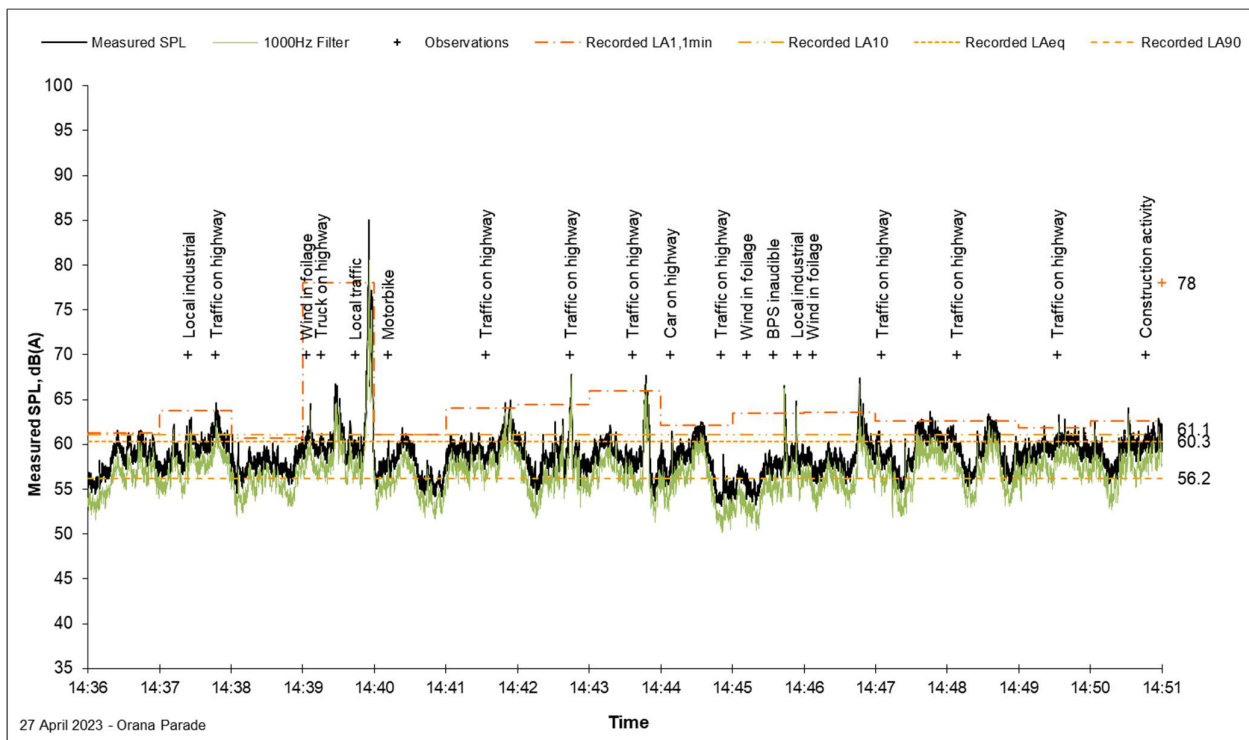
Day Monitoring Results for NML1, Orana Parade



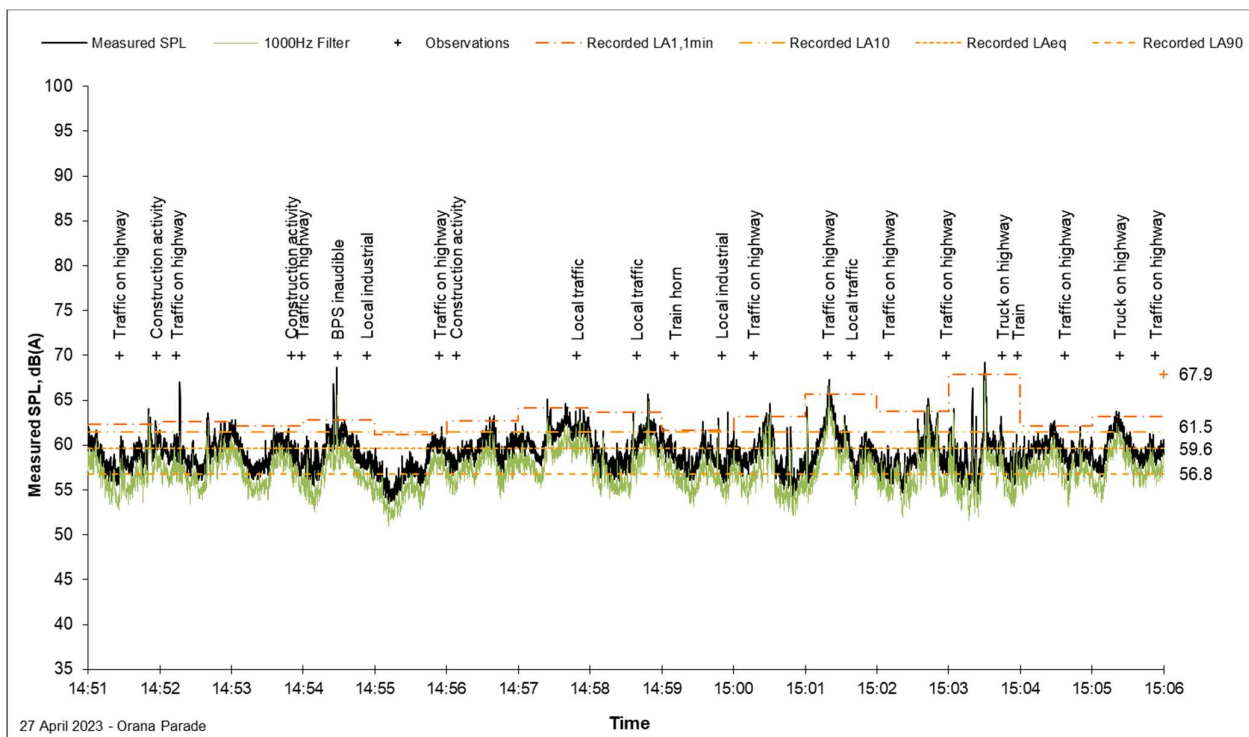
Day Monitoring Results for NML1, Orana Parade



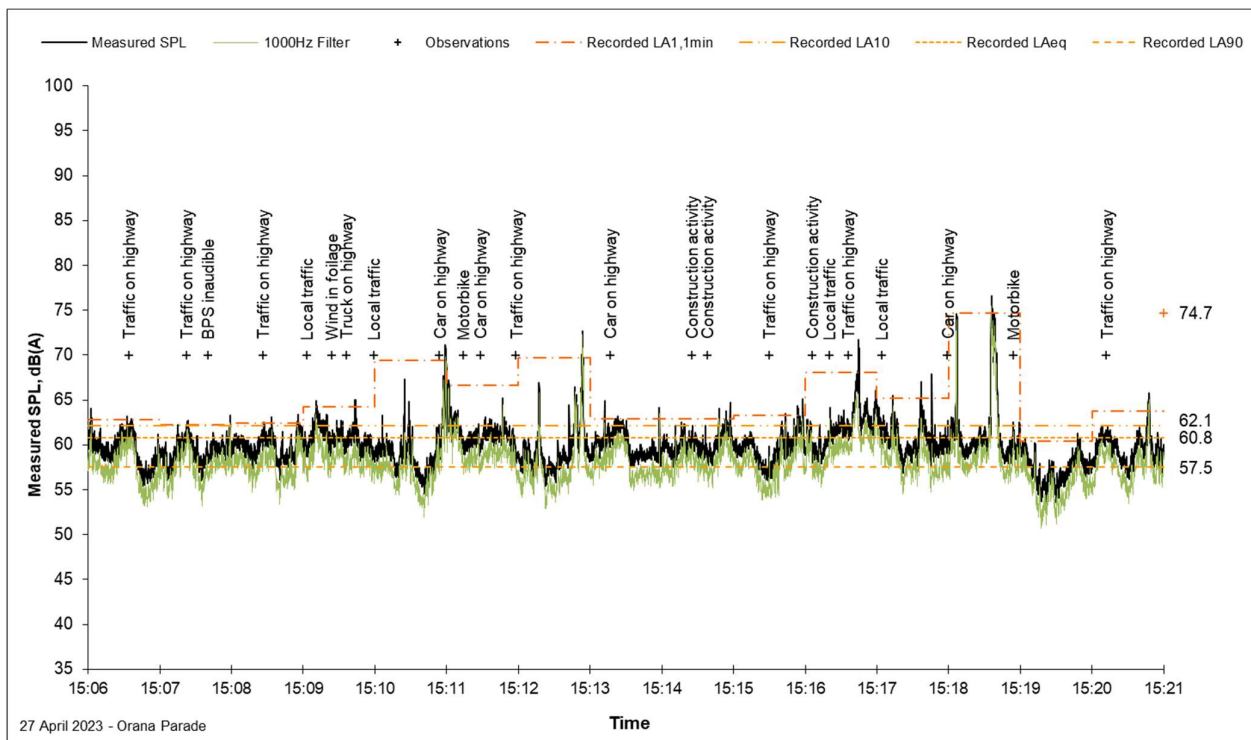
Day Monitoring Results for NML1, Orana Parade



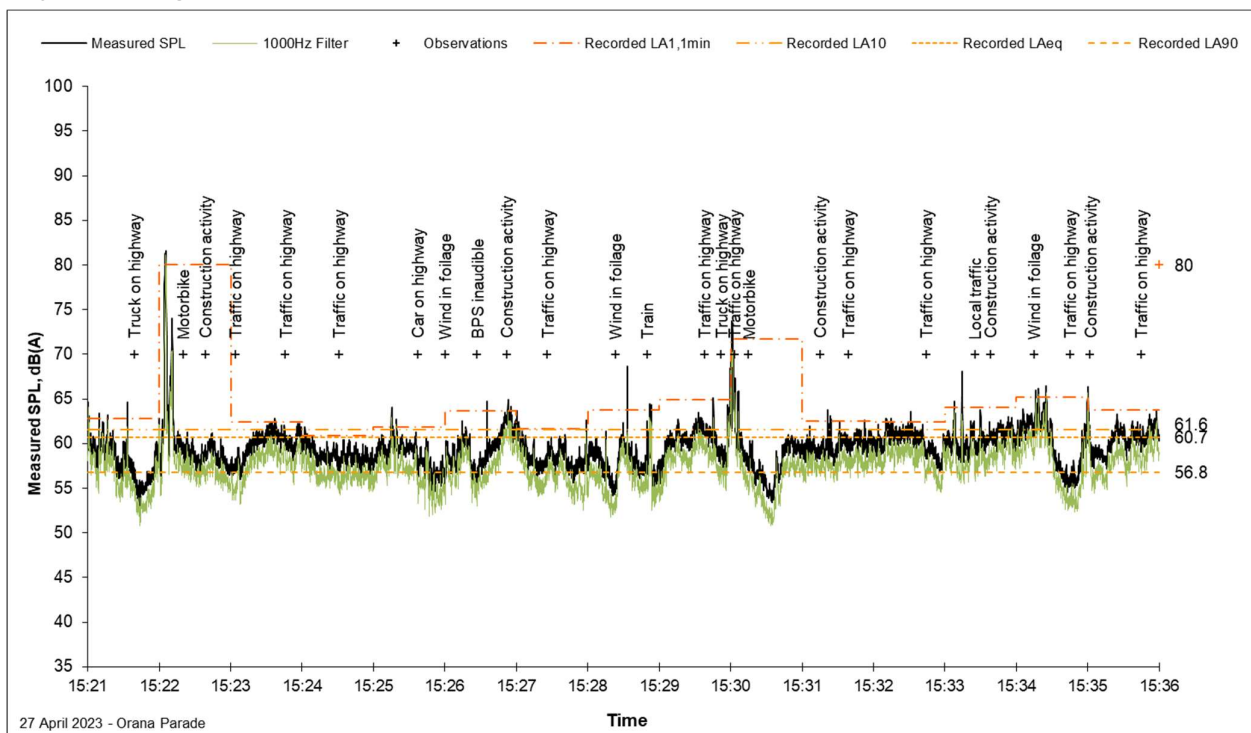
Day Monitoring Results for NML1, Orana Parade



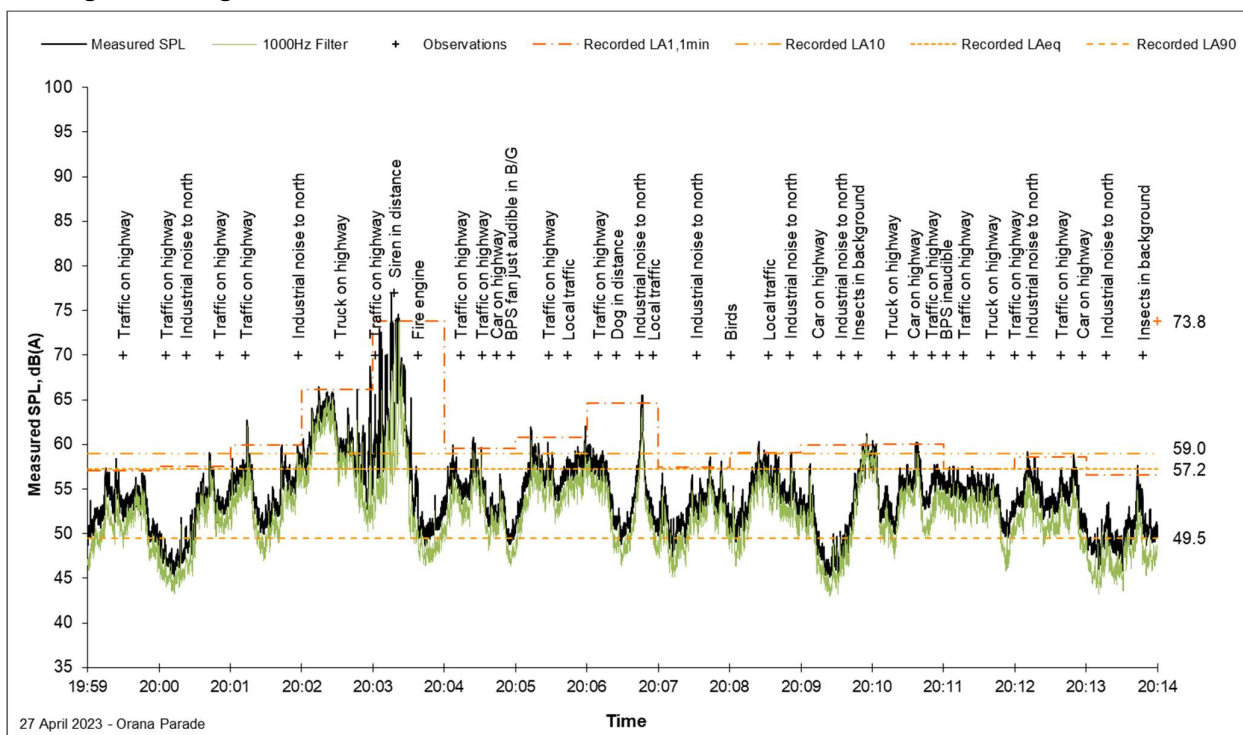
Day Monitoring Results for NML1, Orana Parade



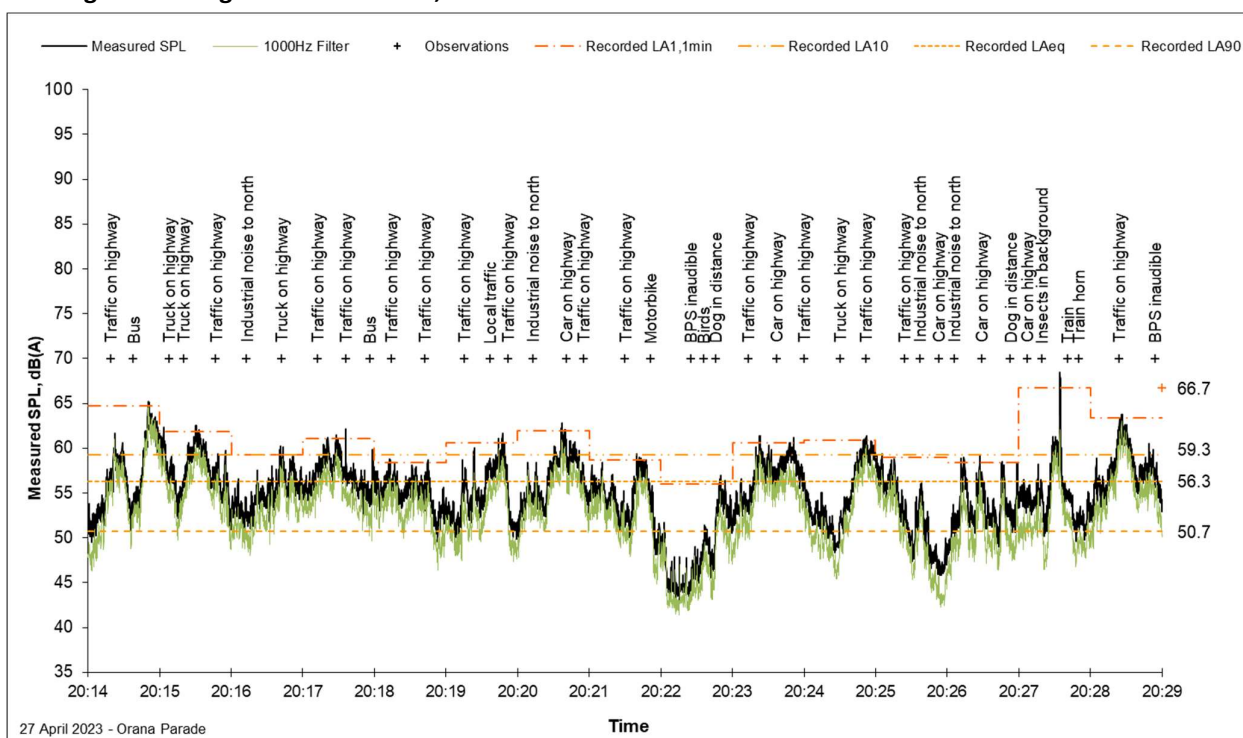
Day Monitoring Results for NML1, Orana Parade



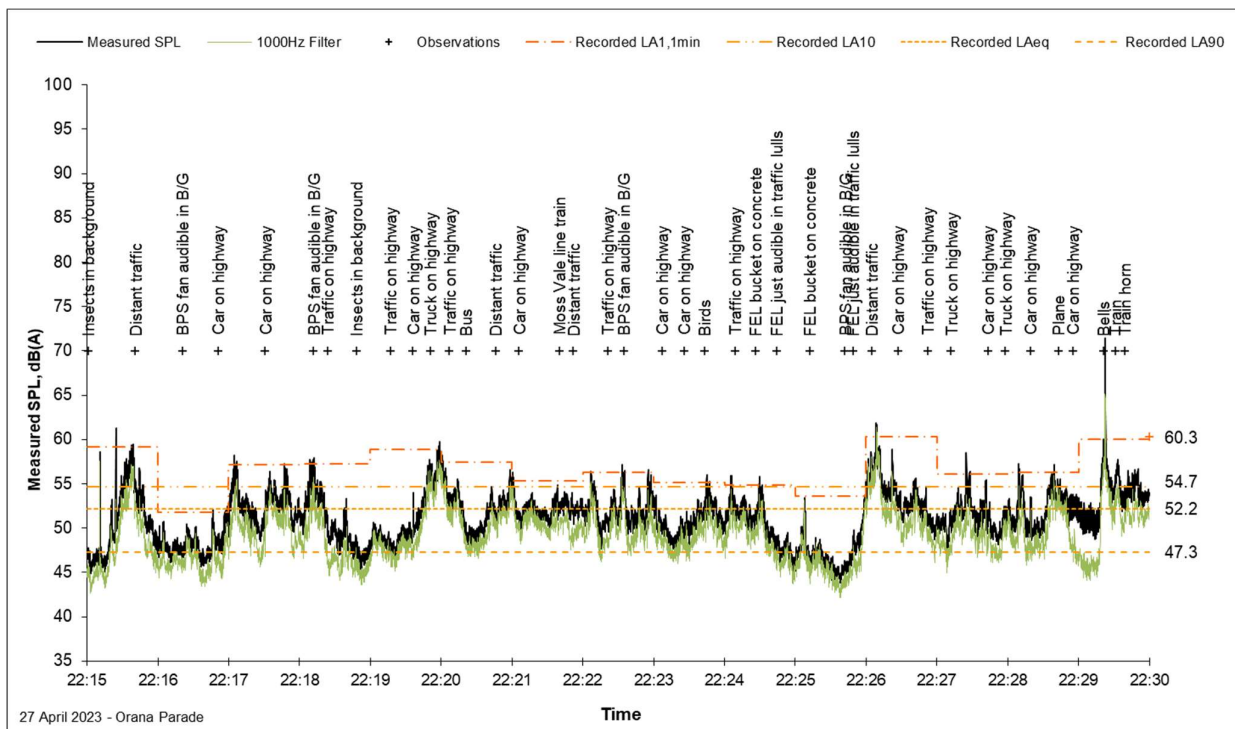
Evening Monitoring Results for NML1, Orana Parade



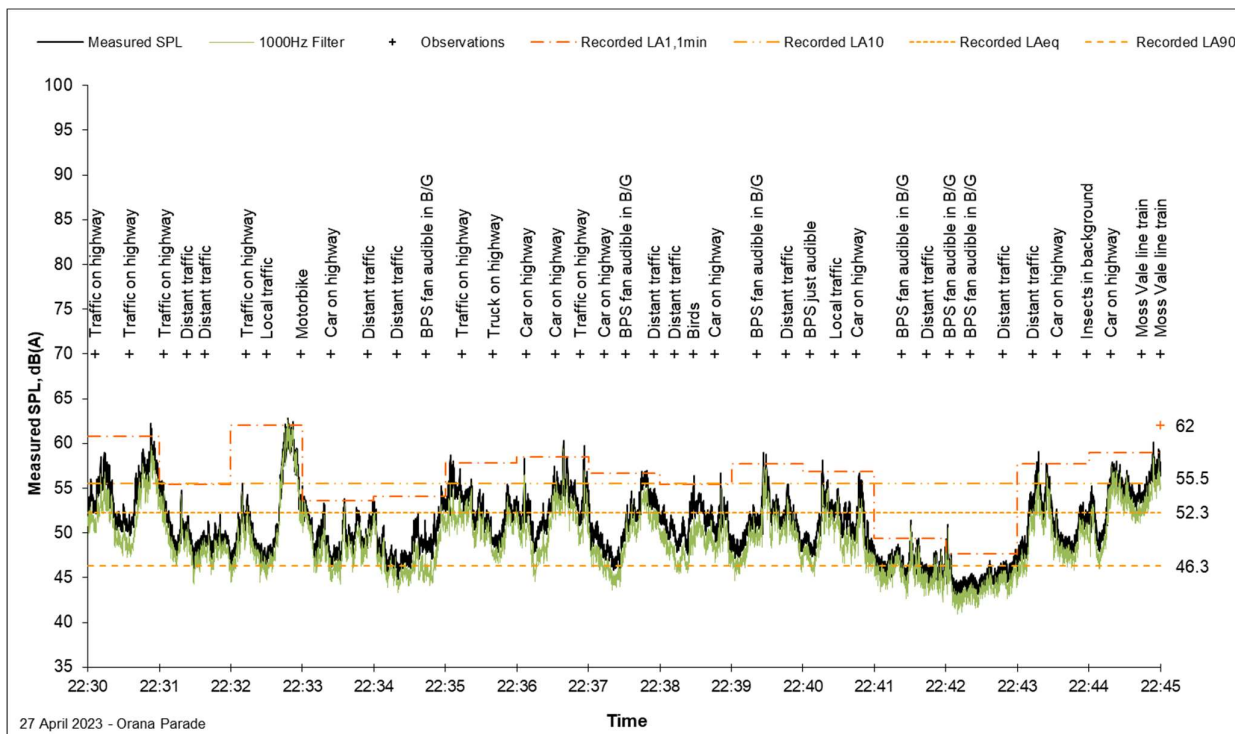
Evening Monitoring Results for NML1, Orana Parade



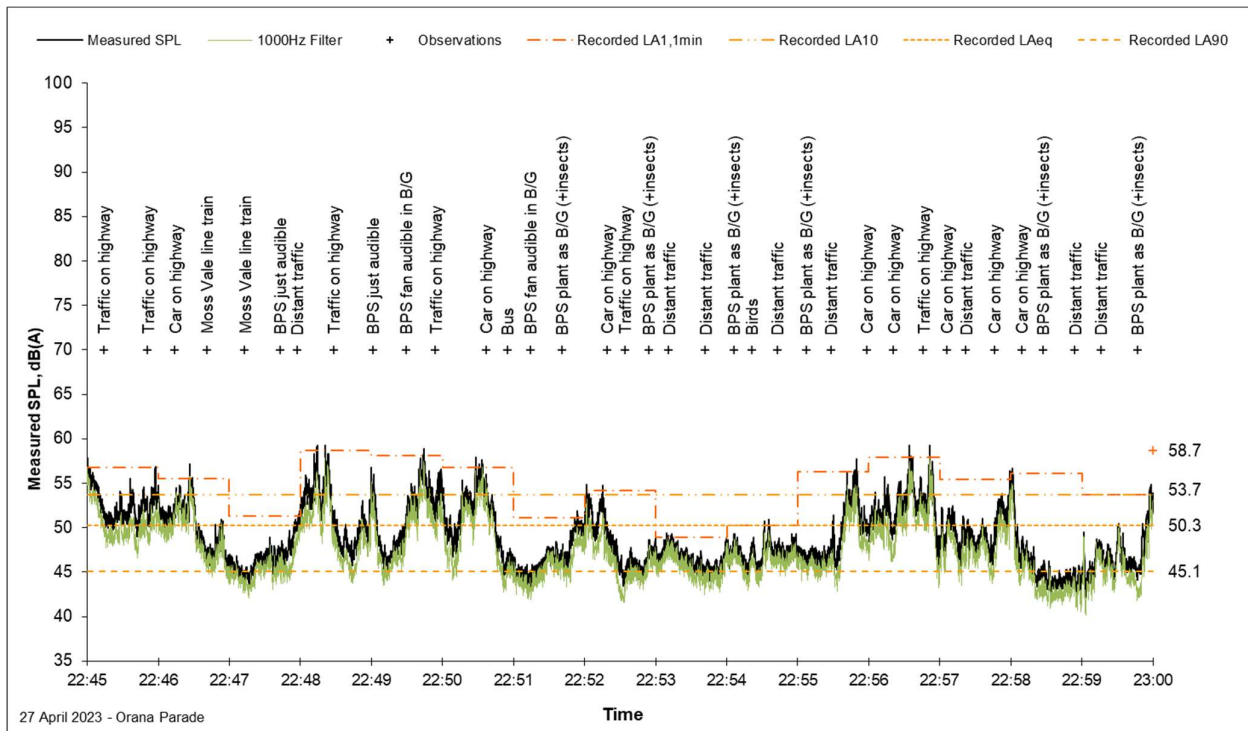
Night Monitoring Results for NML1, Orana Parade



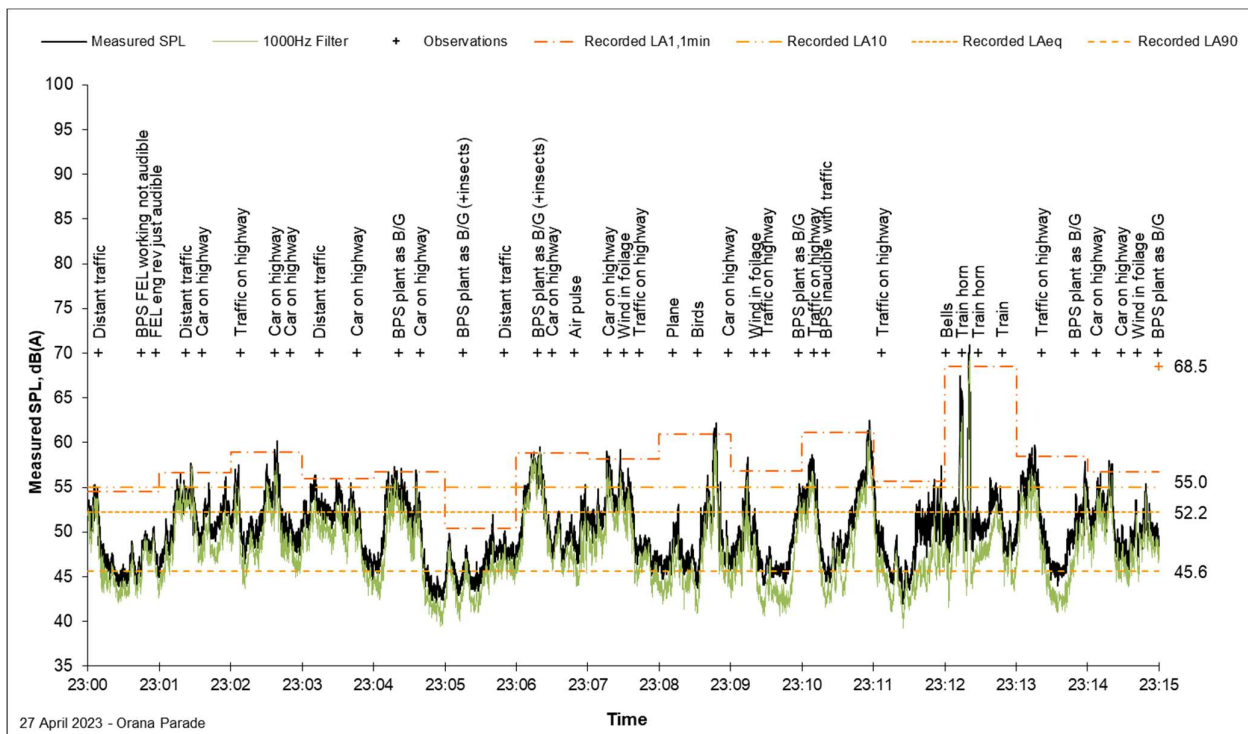
Night Monitoring Results for NML1, Orana Parade

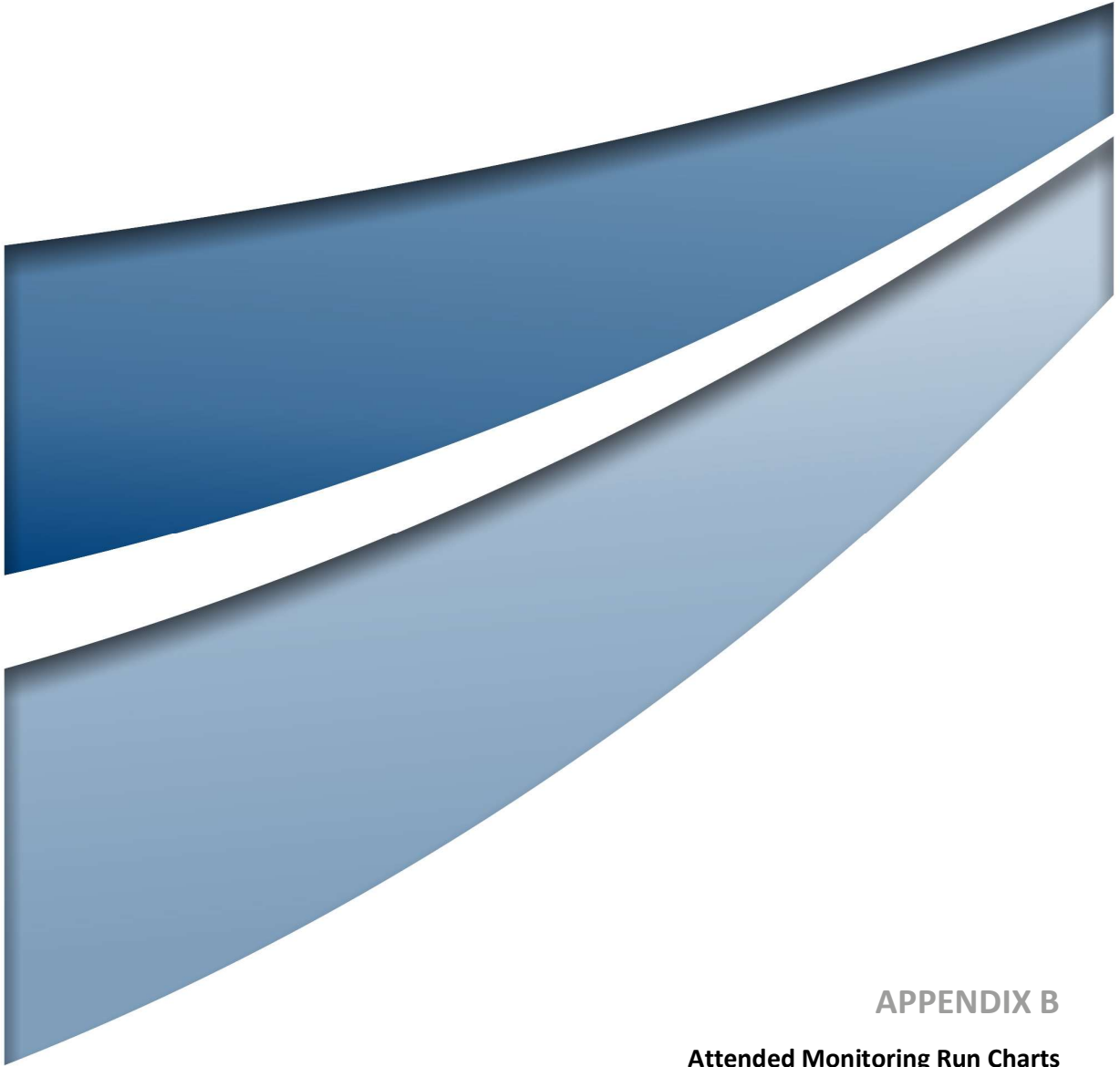


Night Monitoring Results for NML1, Orana Parade



Night Monitoring Results for NML1, Orana Parade

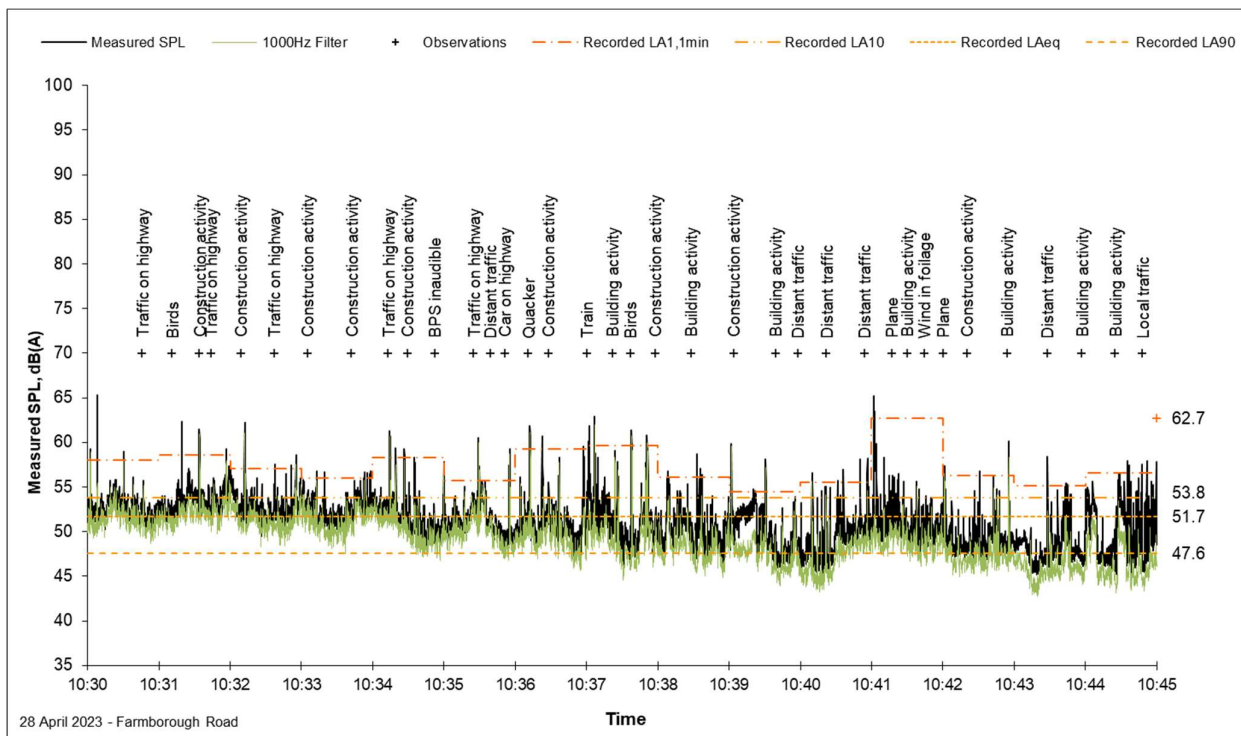




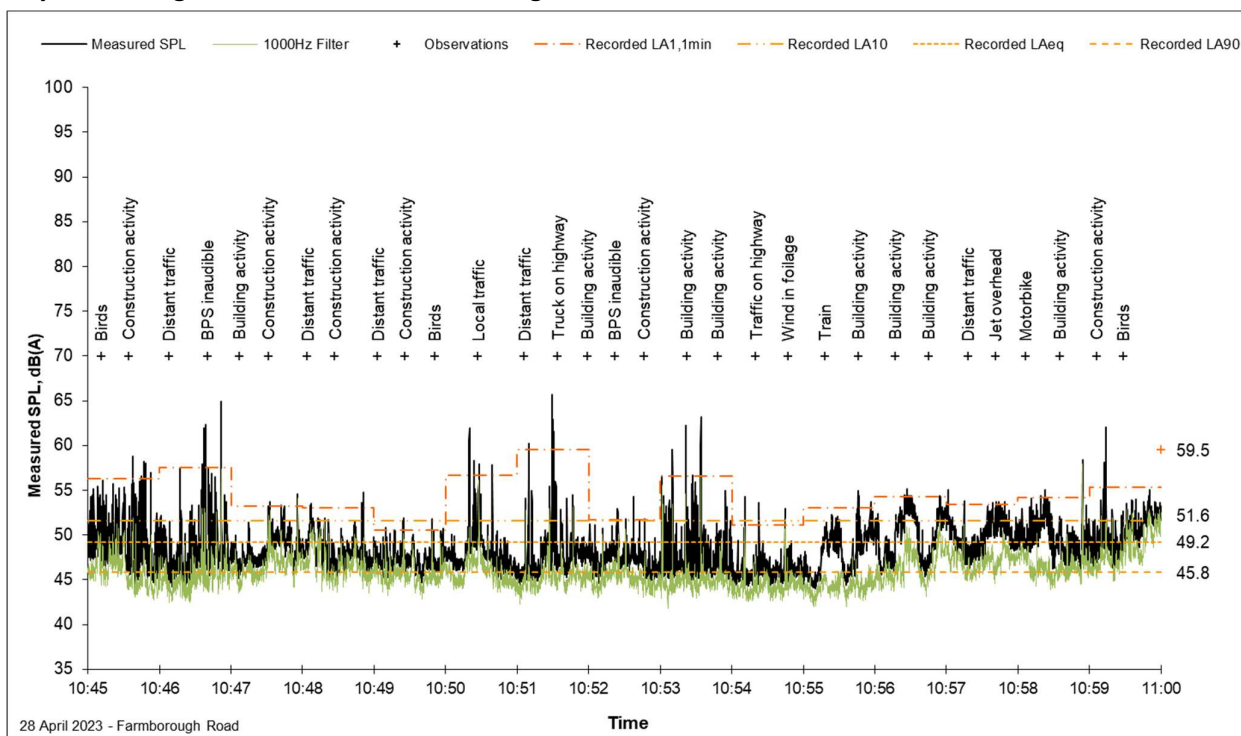
APPENDIX B

**Attended Monitoring Run Charts
NML2 – Farmborough Road**

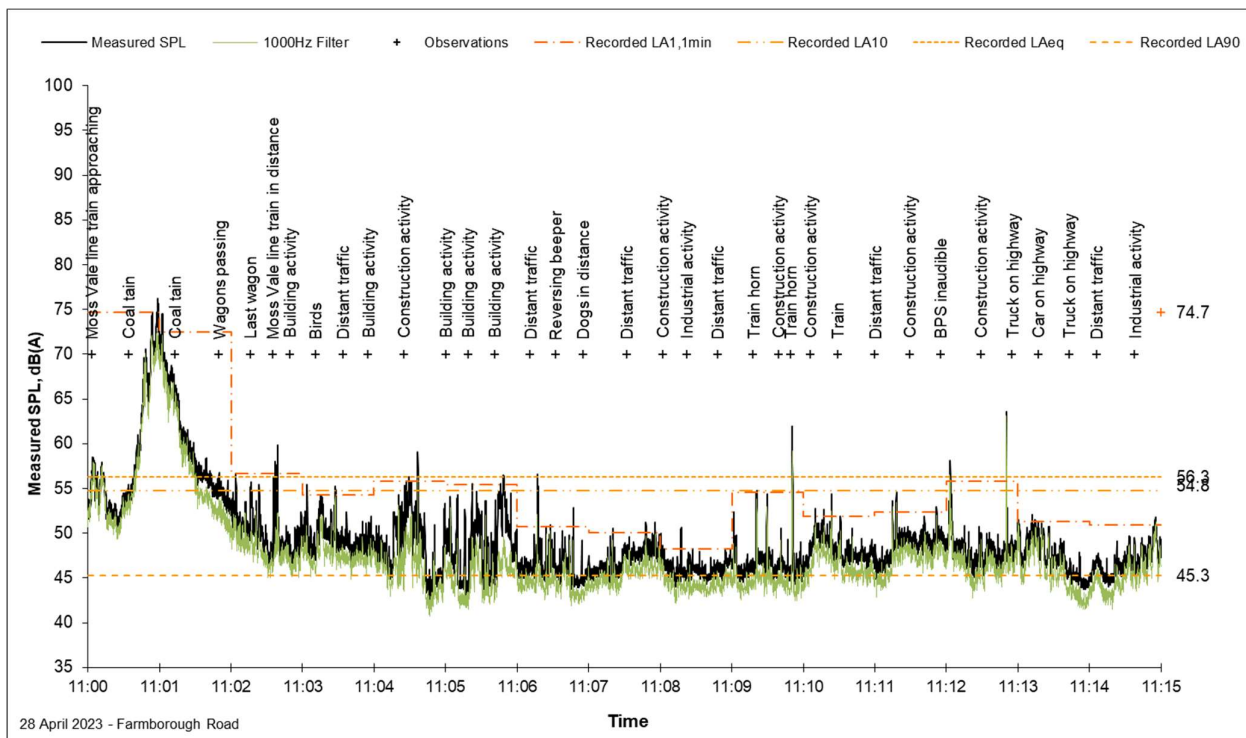
Day Monitoring Results for NML2, Farmborough Road



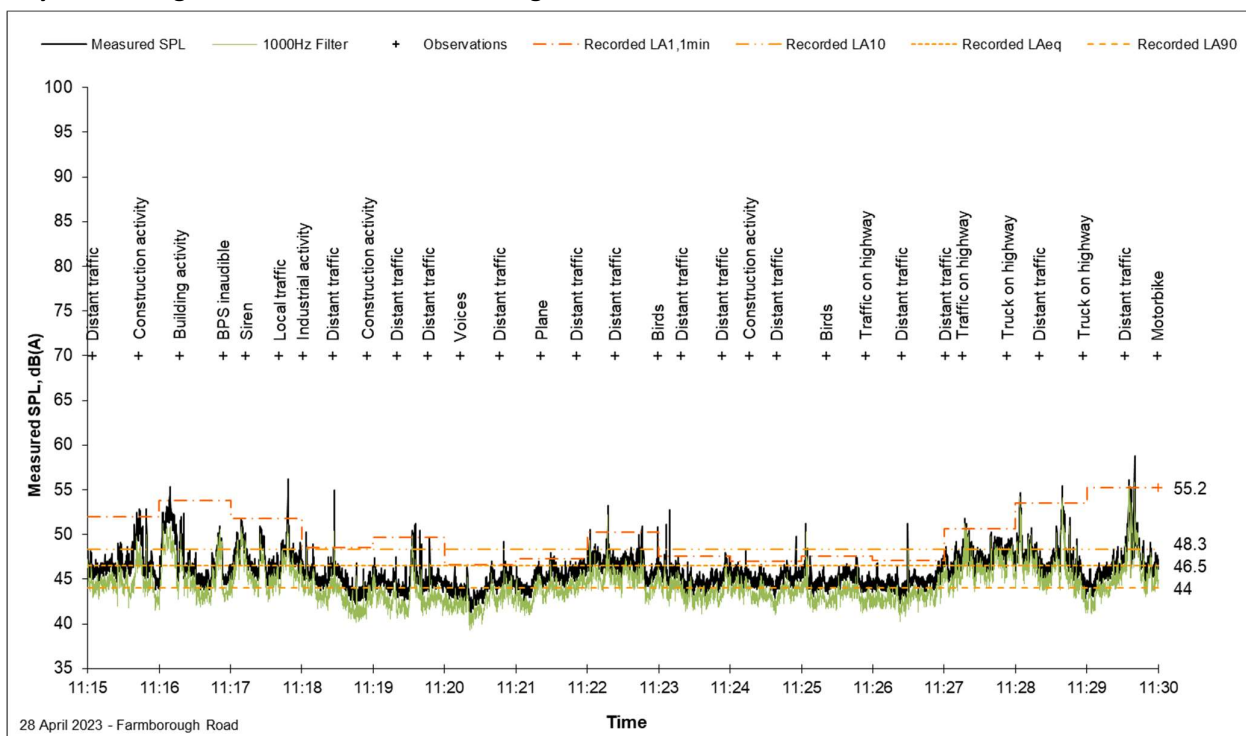
Day Monitoring Results for NML2, Farmborough Road



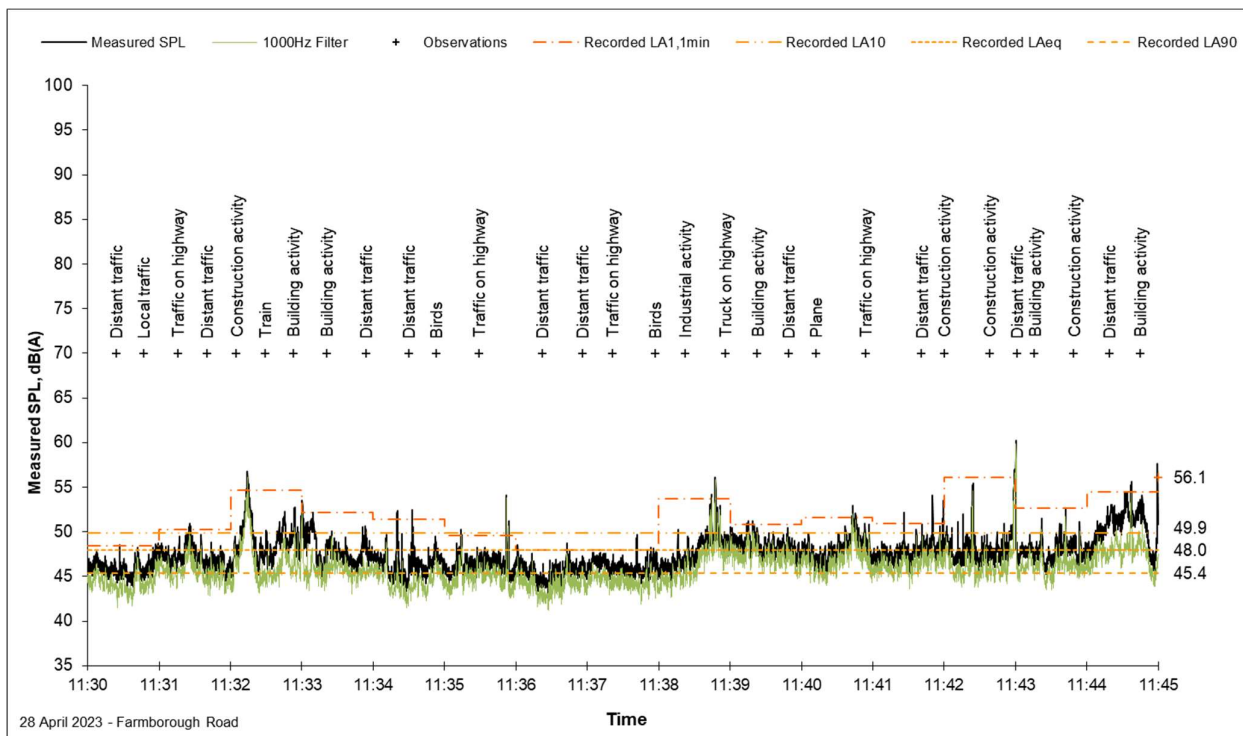
Day Monitoring Results for NML2, Farmborough Road



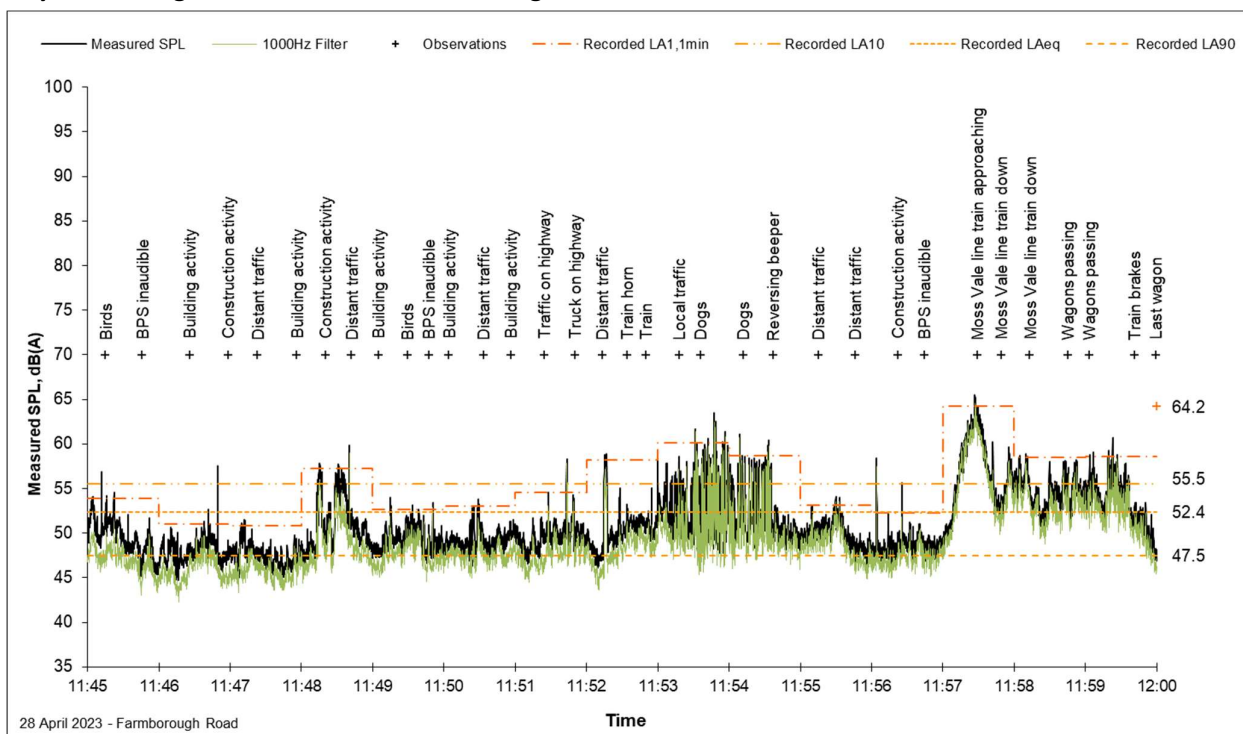
Day Monitoring Results for NML2, Farmborough Road



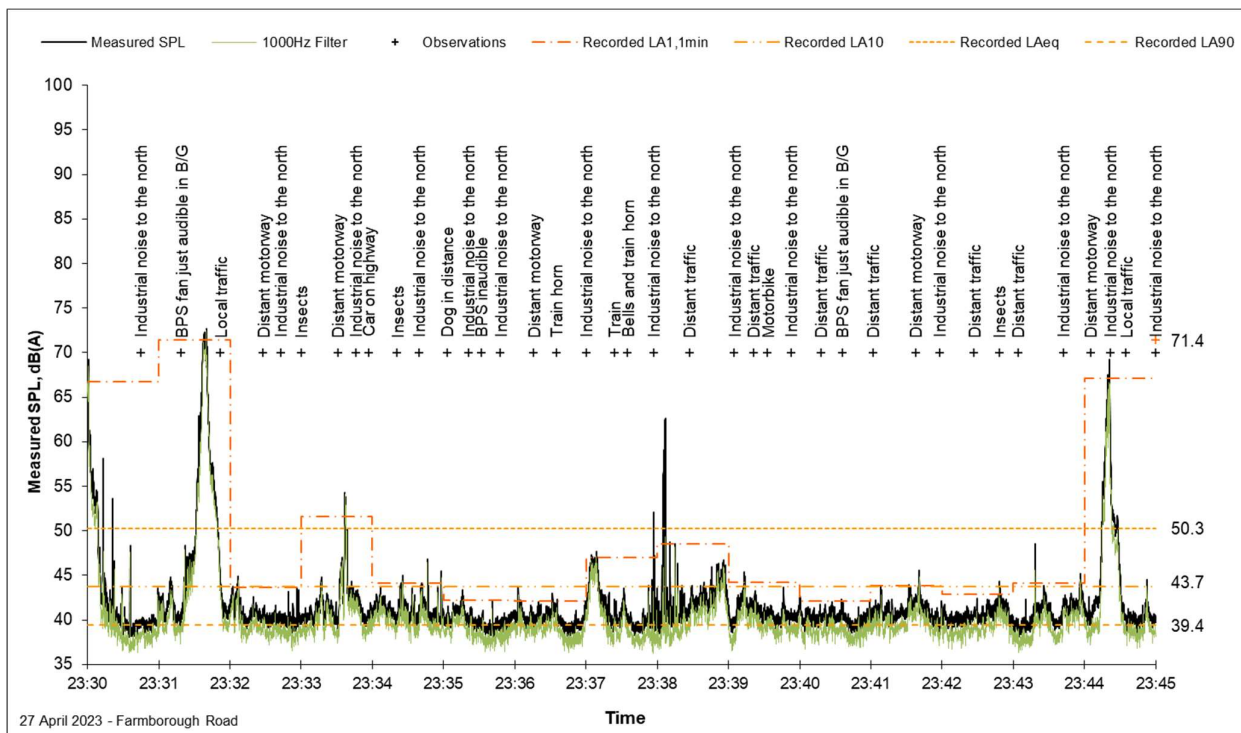
Day Monitoring Results for NML2, Farmborough Road



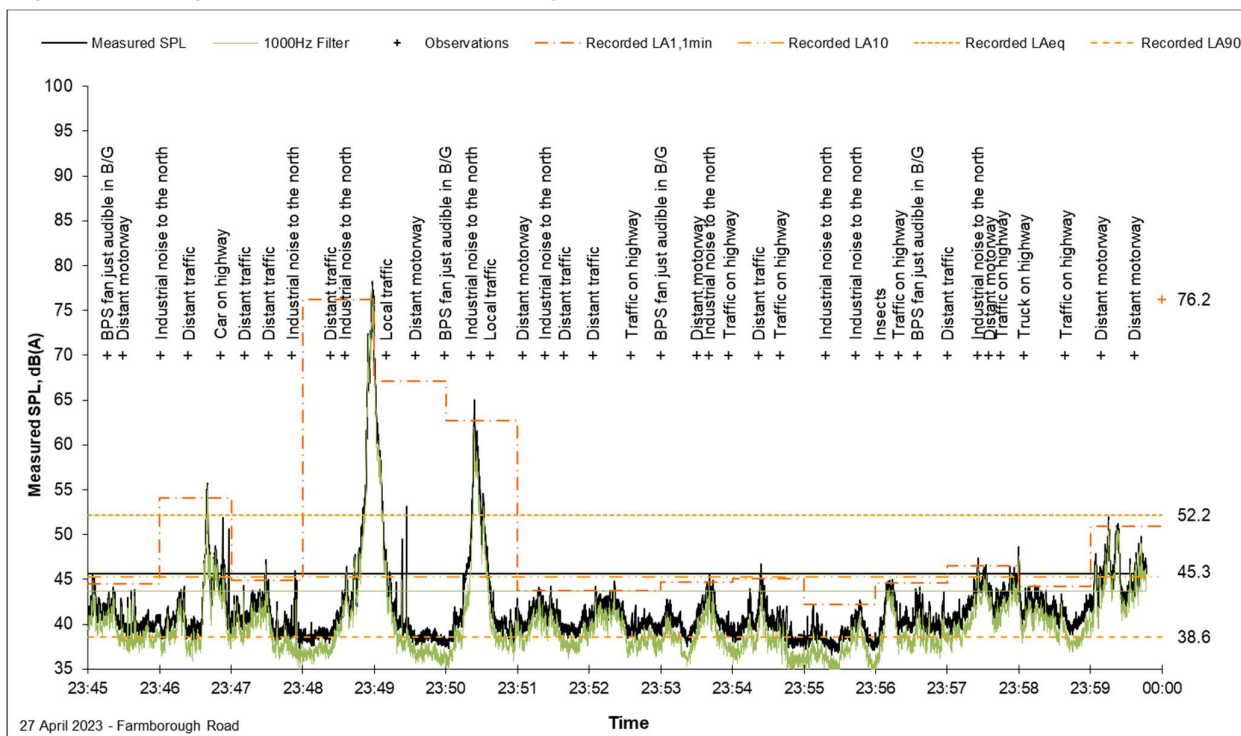
Day Monitoring Results for NML2, Farmborough Road



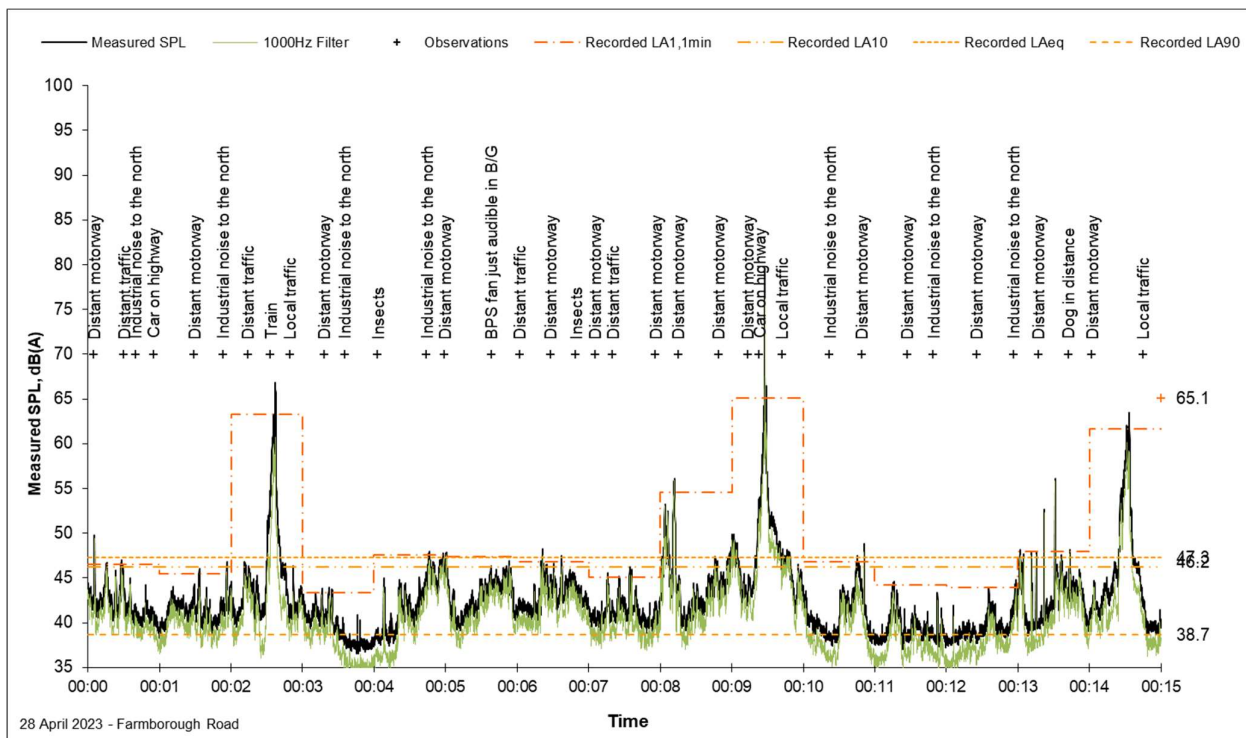
Night Monitoring Results for NML2, Farmborough Road



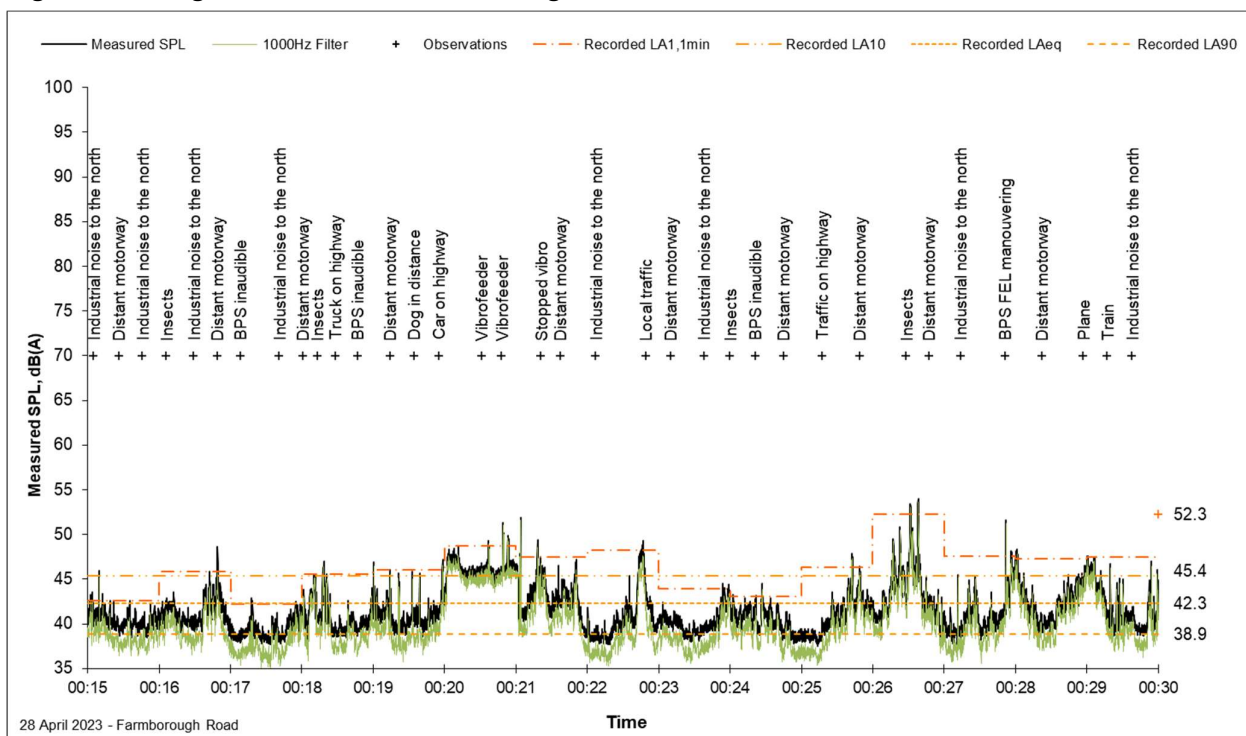
Night Monitoring Results for NML2, Farmborough Road



Night Monitoring Results for NML2, Farmborough Road



Night Monitoring Results for NML2, Farmborough Road





APPENDIX C
Calibration Certificates

CERTIFICATE OF CALIBRATION

CERTIFICATE No: **SLM33138**

EQUIPMENT TESTED: Sound & Vibration Analyser

Manufacturer: Svantek

Type No: SVAN-958A

Serial No: 59839

Mic. Type: 7052E

Serial No: 71109

Pre-Amp. Type: SV12L

Serial No: 73589

Filter Type: 1/3 Octave

Test No: F033139

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 996 hPa ± 1 hPa

Date of Receipt : 08/07/2022

Temperature 22 $^{\circ}\text{C} \pm 1^{\circ}\text{C}$

Date of Calibration : 08/07/2022

Relative Humidity 48 % $\pm 5\%$

Date of Issue : 11/07/2022

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

CHECKED BY: *[Signature]*

AUTHORISED SIGNATURE: *[Signature]*

Hein Soe

Accredited for compliance with ISO/IEC 17025 - Calibration

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

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

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



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Accredited Lab No. 9262
Acoustic and Vibration
Measurements

Acu-Vib Electronics
CALIBRATIONS SALES RENTALS REPAIRS

Head Office & Calibration Laboratory
Unit 14, 22 Hudson Ave. Castle Hill NSW 2154
(02) 9680 8133
www.acu-vib.com.au

CERTIFICATE OF CALIBRATION

CERTIFICATE No: **C33147**

EQUIPMENT TESTED : Sound Level Calibrator

Manufacturer: Svantek

Type No: SV-36 Serial No: 90131

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

Tests Performed: Measured Output Pressure level, Frequency & Distortion

Comments: See Details overleaf. All Test Passed.

Parameter	Pre-Adj	Adj Y/N	Output: (dB re 20 μ Pa)	Frequency (Hz)	THD&N (%)
Level1:	NA	N	93.99 dB	1000.00 Hz	0.89 %
Level2:	NA	N	113.95 dB	1000.00 Hz	0.63 %
Uncertainty			± 0.11 dB	$\pm 0.05\%$	± 0.20 %
Uncertainty (at 95% c.l.) k=2					

CONDITION OF TEST:

Ambient Pressure 996 hPa ± 1 hPa
Temperature 23 $^{\circ}\text{C} \pm 1^{\circ}\text{C}$
Relative Humidity 46 % $\pm 5\%$

Date of Receipt : 08/07/2022

Date of Calibration : 08/07/2022

Date of Issue : 11/07/2022

Acu-Vib Test AVP02 (Calibrators)

Procedure: Test Method: AS IEC 60942 - 2017

CHECKED BY: *[Signature]*

AUTHORISED

SIGNATURE: *[Signature]*

Hein Soe

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

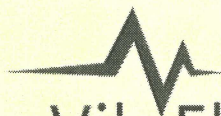
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