



173-179 Walker Street – 11,15 and 17 Hampden Street North Sydney

Construction Noise and Vibration Management Plan – Extended Working Hours

East Walker 88 Development Pty Ltd

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1 INTRODUCTION

Pulse White Noise Acoustics Pty Ltd (PWNA) has been engaged to undertake an assessment of construction noise impact as part of the proposed modification to the project approvals, including noise resulting from additional working hours to complete concrete pours at 173-179 Walker Street, 11, 15 and 17 Hampden Street, North Sydney site.

This assessment has included the investigation into the potential noise impact resulting from the proposed additional working hours including those based on the project SSD-67175465 approvals, specifically condition D3.

The proposed works to be included as part of the modification, to the consent include the following:

1. Works to include those required to complete concrete pours (including basement concrete pours up to the transfer at ground/level 1) only, ie helicopters, hand tools etc.
 - a. The works are proposed to be completed on a limited number of days, as required to complete the concrete pours and detailed within the CEMP.
 - b. The proposed hours for the additional working hours associated with the completion of concrete pours include 5pm to 9pm Monday to Fridays.
 - c. Limiting concrete trucks and pumping, if possible, during the proposed additional working hours based on the requirement to complete concrete pours at the site.
 - d. The proposed additional working period will not include high noise generating activities associated with 'normal construction', and only works required to complete concrete pours will be undertaken during the proposed additional working period.
 - e. There will be no general site deliveries or waste removal outside of the currently approved working hours.
 - f. Tool box talks will be undertaken with all works including need to minimise noise during the additional working periods including no playing of radios or the like.
 - g. Details of the proposed works to be included as part of the concrete pour finishes are included in the *Construction Environment Management Plan* included in Appendix C.

As part of this assessment the previously completed unattended noise levels undertaken by Arup and included in the *DA Acoustic Report* with reference: 284516-AC01_v1EWS revisedDANoiseAssessment.docx dated 28 May 2024 as well as the *East Walker Street (EWS) Early works – DA Construction Noise and Vibration Assessment* with reference 284516-AC10_v1_Early Works DA_CNVA and dated 18 December 2024 as well as additional unattended noise logging have been undertaken as part of the assessment.

Details of the acoustic assessment including all possible mitigations are included in this report.

A glossary of acoustic terminology used throughout this report is included in Appendix A.

1.1 Project Conditions of Consent

This report includes the assessment of the proposed extended working hours included in the SSD-67175465, including the hours of construction included in Condition D3 and included in the table below:

Table 1 Condition Satisfaction Table

SSD- 67175465	
Condition Number	Conditions of Consent
D3	HOURS OF CONSTRUCTION D3. Construction, including the delivery of materials or machinery to and from the site, may only be carried out between the following hours: (a) between 7am and 5pm, Monday to Friday inclusive; (b) between 8am and 1pm, Saturdays; and (c) No work may be carried out on Sundays or public holidays.

The details in this report include the assessment of noise resulting from the proposed modification to the consent above, including the extended working hours including the following:

1. Works to include those required to complete concrete pours (including basement concrete pours up to the transfer at ground/level 1) only, ie helicopters, hand tools etc.
 - a. The works are proposed to be completed on a limited number of days, as required to complete the concrete pours and detailed within the CEMP.
 - b. The proposed hours for the additional working hours associated with the completion of concrete pours include 5pm to 9pm Monday to Fridays.
 - c. Limiting concrete trucks and pumping, if possible, during the proposed additional working hours based on the requirement to complete concrete pours at the site.
 - d. The proposed additional working period will not include high noise generating activities associated with 'normal construction', and only works required to complete concrete pours will be undertaken during the proposed additional working period.
 - e. There will be no general site deliveries or waste removal outside of the currently approved working hours.
 - f. Tool box talks will be undertaken with all works including need to minimise noise during the additional working periods including no playing of radios or the like.
 - g. Details of the proposed activities to be undertaken as part of the proposed extended working hours are included below:

Transfer pours

- Transfer pours are approximately 800m³ in volume;
- The concrete pump takes 1 hour to set up for each pour;
- The concrete pump rate is approximately 70m³ per hour (without supply delays or breakdown) taking approximately 11.5 hours for a pour;
- An 800m³ pour is expected to be completed by 7pm with pack up taking 1 hour (by 8pm);
- It is expected that there will be 10 men working and 30 concrete trucks deliveries outside of routine working hours; and
- Finishing the slab will require 2 hours after the last concrete delivery (at 7pm) and will typically included 4 men on trowelling machines

2 DEVELOPMENT OVERVIEW

This report has been undertaken for the proposed extended working hours for the concrete pours of the site and detailed in Section 1.1 above.

2.1 Site Layout

The site is located within the North Sydney Local Government Area (LGA) at 173-179 Walker Street and 11-17 Hampden Street, North Sydney and comprises a total area of 3,952.1 m². The site is often referred to as the East Walker Street Precinct, which is bounded by Hampden Street to the north, Warringah Freeway to the east and Walker Street to the west. The site is adjacent to the north-eastern boundary of the North Sydney CBD. The surrounding local context of the site is shown in the below figure.

Land Uses surrounding the site can be described as follows:

North: Located along the northern boundary of the project site is located a series of terraces residential apartment buildings. This receiver is situated at 2-14 Hampden Street, North Sydney

South East: Located to the south east of the development is located a multilevel residential development. This receiver overlooks the project site, and is located at 86-88 Berry Street, North Sydney.

South West: Located to the south west of the project site to the western side of Walker Street is located a commercial building that overlooks the project site.

South: Located to the south of the project site is located the Century Plaza Apartments, this receiver is a residential multi story building that overlooks the project site.

West: Located to the west of the project site is located a series of residential and mixed use receivers, these properties are located to the western side of Walker Street, situated from 138, 144 Walker Street to 152 Walker Street, North Sydney.

2.1.1 Noise Sensitive Receivers

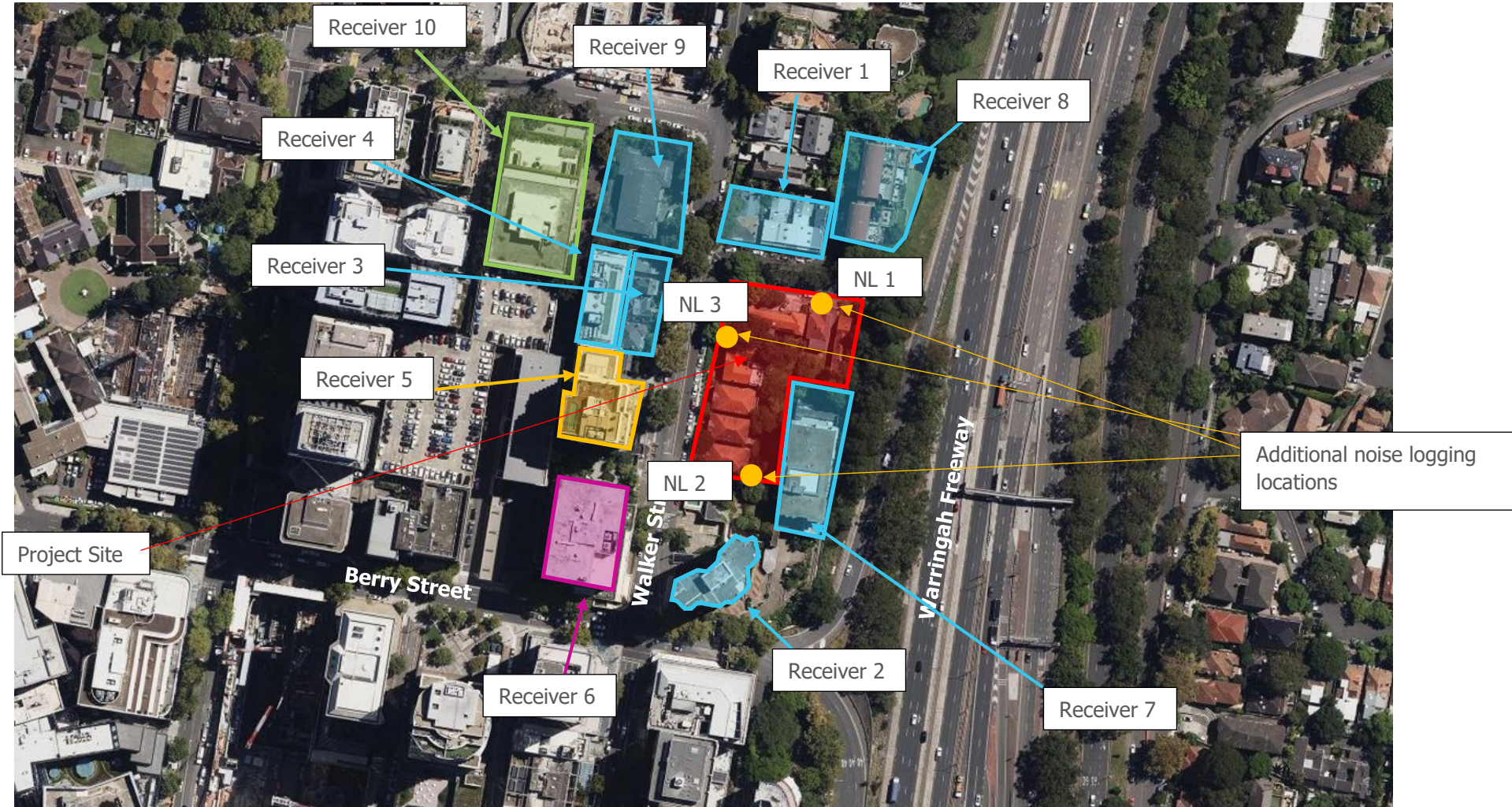
The following list outlines the nearest affected noise sensitive receivers:

- Receiver 1: Residential Receivers located at 2-14 Hampden Street, North Sydney
- Receiver 2: Century Plaza Apartments located at 171 Walker Street, North Sydney
- Receiver 3: Residential Receivers located at 148-152 Walker Street, North Sydney
- Receiver 4: Residential Receivers located at 144 Walker Street, North Sydney
- Receiver 5: Mixed Use Building located at 138 Walker Street, North Sydney
- Receiver 6: Commercial Receiver located at 76 Berry Street, North Sydney
- Receiver 7: Residential Receiver located at 86-88 Berry Street, North Sydney
- Receiver 8: Residential Receivers located at 16-18 Hampden Street, North Sydney
- Receiver 9: Residential Receivers located at 45 McLaren Street, North Sydney
- Receiver 10: Educations Receiver including Reddam house North shore located at 41 McLaren Street.

A map outlining the site location and the nearest sensitive receivers outlined above are included in the below figure.

As part of this assessment, including the extended working hours during evening periods, noise impact to the sensitive receivers including residential dwellings which include Receivers 1, 2, 3, 4, 5, 7, 8 and 9 as detailed above.

Figure 1 Site Map and Surround Receiver Locations



3.2 Additional Noise Logging

This section of the report details the results of the additional unattended noise logging located at the site.

3.2.1 Unattended Noise Monitoring

An unattended noise survey was conducted between the 22nd May and the 1st June 2026. Location of the noise loggers are shown in Figure 1 above. All data in the graphs presented in Appendix B have not been corrected (i.e., raw data presented).

Instrumentation for the survey included three Rion NL42 sound level meters. Calibration of the loggers were checked prior to and following the measurements. Drift in calibration did not exceed ± 0.5 dB. All equipment carried appropriate and current NATA (or manufacturer) calibration certificates.

Charts presenting summaries of the measured daily noise data are attached in Appendix B. The charts present each 24-hour period and show the LA1, LA10, LAeq and LA90 noise levels for the corresponding 15-minute periods. This data has been filtered to remove periods affected by adverse weather conditions based on weather information.

Based on the unattended noise measurements, the results of the survey have been presented below.

3.2.1.1 Unattended Noise Logging Results

In order to assess the acoustical implications of the development at nearby noise sensitive receivers, the measured background noise data of the logger was processed in accordance with the NSW EPA's Noise Policy for Industry (NPI, 2017).

The Rating Background Noise Level (RBL) is the background noise level used for assessment purposes at the nearest potentially affected receiver. It is the 90th percentile of the daily background noise levels during each assessment period, being day, evening and night. RBL LA90 (15minute) and LAeq noise levels are presented in Table 2.

Data affected by adverse meteorological conditions and by spurious and uncharacteristic events have been excluded from the results, and also excluded from the data used to determine the noise emission criteria. Meteorological information has been obtained from the Sydney Observatory weather station (ID 066214).

For the purpose of this assessment the background noise levels for the proposed extended hours, 5:00 pm to 9:00 pm Monday to Friday, are within the evening period (as defined by the Noise Policy for Industry)

Table 2 Measured Evening Ambient Noise Levels

Measurement Location	Evening ¹ 6:00 pm to 10:00 pm	
	L _{A90} ² (dBA)	L _{Aeq} ³ (dBA)
Noise Monitoring Location 1- Northern Logger	59 dB(A)	62 dB(A)
Noise Monitoring Location 2- Western Logger	51 dB(A)	55 dB(A)
Noise Monitoring Location 3- Southern Logger	50 dB(A)	54 dB(A)

Note: In addition to the monitoring above, additional attended measurements were undertaken around the site to supplement the unattended noise monitoring.

4 NOISE AND VIBRATION CRITERIA

Relevant noise and vibration criteria for construction activities are detailed below.

4.1 Notice of Determination Planning Consent Conditions

Relevant conditions of the consent require the following in relation to construction noise and vibration impacts from the site included within the SSD-67175465 and detailed in Section 1.1 above.

Additionally, the hours for construction works will be undertaken in accordance with Conditions D3 to D6, which include the following:

HOURS OF CONSTRUCTION

- D3. Construction, including the delivery of materials or machinery to and from the site, may only be carried out between the following hours:
 - (a) between 7am and 5pm, Monday to Friday inclusive;
 - (b) between 8am and 1pm, Saturdays; and
 - (c) No work may be carried out on Sundays or public holidays.
- D4. Activities may be undertaken outside of these hours if required:
 - (a) by the Police or a public authority for the delivery of vehicles, plant or materials to and from the site; or
 - (b) in an emergency to avoid the loss of life, damage to property or to prevent environmental harm.
- D5. Notification of activities undertaken in the circumstances in Condition D4 must be given to affected residents before undertaking the activities or as soon as is practical afterwards.
- D6. Rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between the following hours:
 - (a) 9am to 12pm, Monday to Friday;
 - (b) 2pm to 5pm Monday to Friday; and
 - (c) 9am to 12pm, Saturday.

4.2 Construction Noise Criteria

4.2.1 NSW EPA Interim Construction Noise Guideline (ICNG) – DECC 2009

Noise criteria for construction and demolition activities are discussed in the Interim Construction Noise Guideline (ICNG). The ICNG also recommends procedures to address potential impacts of construction noise on residences and other sensitive land uses. The main objectives of the ICNG are summarised as follows:

- Promote a clear understanding of ways to identify and minimise noise from construction works;
- Focus on applying all “feasible” and “reasonable” work practices to minimise construction noise impacts
- Encourage construction to be undertaken only during the recommended standard hours unless approval is given for works that cannot be undertaken during these hours
- Streamline the assessment and approval stages and reduce time spent dealing with complaints at the project implementation stage; and
- Provide flexibility in selecting site-specific feasible and reasonable work practices in order to minimise noise impacts.

The ICNG contains a quantitative assessment method which is applicable to this project. Guidance levels are given for airborne noise at residences and other sensitive land uses.

The quantitative assessment method involves predicting noise levels at sensitive receivers and comparing them with the Noise Management Levels (NMLs). The NML affectation categories for residential receivers have been reproduced from the guideline and are listed in the table below.

Table 3 NMLs for quantitative assessment at residences (extended hours)

Time of Day	Noise Management Level $L_{Aeq}(15\text{minute})^{1,2}$	How to Apply
Outside recommended standard hours including the proposed extended hours period of 5pm to 9pm Monday to Friday	Noise affected. RBL + 5 dB	• A strong justification would typically be required for works outside the recommended standard hours. • The proponent should apply all feasible and reasonable work practices to meet the noise affected level. • Where all feasible and reasonable practices have been applied and noise is more than 5 dB above the noise affected level, the proponent should negotiate with the community.
<i>Note 1 Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5 m above ground level. If the property boundary is more than 30 m from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30 m of the residence. Noise levels may be higher at upper floors of the noise affected residence.</i> <i>Note 2 The RBL is the overall single-figure background noise level measured in each relevant assessment period (during or outside the recommended standard hours). The term RBL is described in detail in the NSW Noise Policy for Industry (EPA 2017).</i>		



Based on the measured background noise levels summarised in section 3 of this report, and the NMLs outlined above the construction noise criteria to be used in this assessment are listed above. For the purpose of this assessment the background noise level recorded at the site as part of the additional noise logging completed at the site in May of 2026 have been used as the basis for this assessment.

Table 4 Extended Hours Noise Management Levels

Receiver Types		Noise Management Level, dB $L_{Aeq}(15\text{minute})$
		Evening Hours Monday to Friday: 5:00pm to 9:00pm
Residences to the north	Receiver 1, 7 and 8	NML: $59+5 = 64 \text{ dB(A)} L_{Aeq} (15 \text{ min})$
Residences to the west	Receiver 3, 4, 9	NML: $51+5 = 56 \text{ dB(A)} L_{Aeq} (15 \text{ min})$
Residences to the south	Receiver 2, 5	NML: $50+5 = 55 \text{ dB(A)} L_{Aeq} (15 \text{ min})$

4.2.2 Construction Traffic Noise Criteria

For existing residences and other sensitive land uses affected by additional traffic on existing roads, the NSW Road Noise Policy (RNP) states that for noise associated with increased road traffic generated by land use developments, any increase in the total traffic noise level should be limited to 2 dB during both day and night-time periods. An increase of 2 dB represents a minor impact that is considered barely perceptible to the average person and the construction traffic impacts are expected to comply with additional traffic noise requirements based on the existing ambient noise levels within the vicinity of the site (including noise resulting from the Warringah Freeway).

4.3 Vibration Criteria

Effects of ground borne vibration on buildings may be segregated into the following three categories:

- Human comfort – vibration in which the occupants or users of the building are inconvenienced or possibly disturbed. Refer to further discussion in Section 4.3.1.
- Effects on building contents – where vibration can cause damage to fixtures, fittings and other non-building related objects. Refer to further discussion in Section 4.3.2.
- Effects on building structures – where vibration can compromise the integrity of the building or structure itself. Refer to further discussion in Section 4.3.2.

4.3.1 Vibration Criteria – Human Comfort

Vibration effects relating specifically to the human comfort aspects of the project are taken from the guideline titled “Assessing Vibration – A Technical Guideline”. (AVTG) This type of impact can be further categorised and assessed using the appropriate criterion as follows:

- Continuous vibration – from uninterrupted sources (refer to Table 5).
- Impulsive vibration – up to three instances of sudden impact e.g. dropping heavy items, per monitoring period (refer to Table 6).
- Intermittent vibration – such as from drilling, compacting or activities that would result in continuous vibration if operated continuously (refer to Table 7)

Table 5 Continuous vibration acceleration criteria (m/s²) 1 Hz-80 Hz

Location	Assessment period	Preferred Values		Maximum Values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Residences	Daytime	0.010	0.0071	0.020	0.014
	Night-time	0.007	0.005	0.014	0.010
Offices, schools, educational institutions and places of worship	Day or night-time	0.020	0.014	0.040	0.028
		0.04	0.029	0.080	0.058

**Table 6 Impulsive vibration acceleration criteria (m/s²) 1 Hz-80 Hz**

Location	Assessment period	Preferred Values		Maximum Values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Residences	Daytime	0.30	0.21	0.60	0.42
	Night-time	0.10	0.071	0.20	0.14
Offices, schools, educational institutions and places of worship	Day or night-time	0.64	0.46	1.28	0.92

Table 7 Intermittent vibration impacts criteria (m/s^{1.75}) 1 Hz-80 Hz

Location	Daytime		Night-time	
	Preferred Values	Maximum Values	Preferred Values	Maximum Values
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80

4.3.2 Vibration Criteria – Building Contents and Structure

The vibration effects on the building itself are assessed against international standards as follows:

- For transient vibration: British Standard BS 7385: Part 2-1993 "Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration" (BSI 1993); and
- For continuous or repetitive vibration: German DIN 4150: Part 3 – 1999 "Effects of Vibration on Structure" (DIN 1999).

4.3.2.1 Standard BS 7385 Part 2 - 1993

For transient vibration, as discussed in standard BS 7385 Part 2-1993, the criteria are based on peak particle velocity (mm/s) which is to be measured at the base of the building. These are summarised in Table 8 and illustrated in Figure 3.

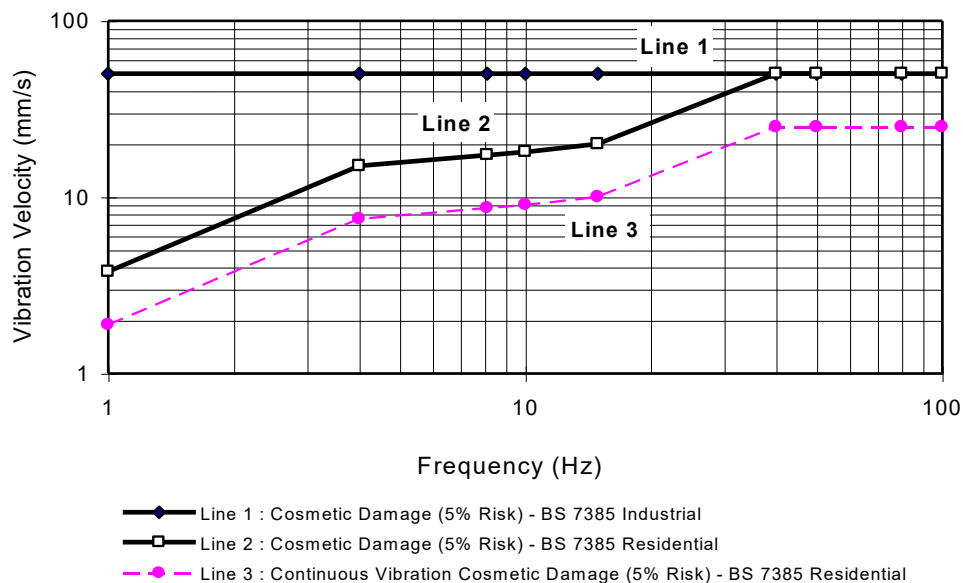
Table 8 Transient vibration criteria as per standard BS 7385 Part 2 - 1993

Line in Figure 3	Type of Building	Peak Component Particle Velocity in Frequency Range of Predominant Pulse	
		4 Hz to 15 Hz	15 Hz and Above
1	Reinforced or framed structures Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	
2	Unreinforced or light framed structures Residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

Standard BS 7385 Part 2 – 1993 states that the values in Table 8 relate to transient vibration which does not cause resonant responses in buildings.

Where the dynamic loading caused by continuous vibration events is such as that results in dynamic magnification due to resonance (especially at the lower frequencies where lower guide values apply), then the values in Table 8 may need to be reduced by up to 50% (refer to Line 3 in Figure 3).

Figure 3 BS 7385 Part 2 – 1993, graph of transient vibration values for cosmetic damage



In the lower frequency region where strains associated with a given vibration velocity magnitude are higher, the recommended values corresponding to Line 2 are reduced. Below a frequency of 4 Hz where a high displacement is associated with the relatively low peak component particle velocity value, a maximum displacement of 0.6 mm (zero to peak) is recommended. This displacement is equivalent to a vibration velocity of 3.7 mm/s at 1 Hz.

The standard also states that minor damage is possible at vibration magnitudes which are greater than twice those given in Table 8, and major damage to a building structure may occur at values greater than four times the tabulated values.

Fatigue considerations are also addressed in the standard and it is concluded that unless calculation indicates that the magnitude and number of load reversals is significant (in respect of the fatigue life of building materials) then the values in Table 8 should not be reduced for fatigue considerations.

4.3.2.2 Standard DIN 4150 Part 3 - 1999

For continuous or repetitive vibration, standard DIN 4150 Part 3-1999 provides criteria based on values for peak particle velocity (mm/s) measured at the foundation of the building; these are summarised in Table 9. The criteria are frequency dependent and specific to particular categories of structures.

Table 9 Structural damage criteria as per standard DIN 4150 Part 3 - 1999

Type of Structure	Peak Component Particle Velocity, mm/s			
	Vibration at the foundation at a frequency of			Vibration of horizontal plane of highest floor at all frequencies
	1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz	
Buildings used for commercial purposes, industrial buildings and buildings of similar design- Line 3	20	20 to 40	40 to 50	40
Dwellings and buildings of similar design and/or use – Line 2	5	5 to 15	15 to 20	15
Structures that, because of their sensitivity to vibration, do not correspond to those listed in lines 1 and 2 and are of great intrinsic value (e.g. buildings that are under a preservation order) – Line 1	3	3 to 8	8 to 10	8
<i>Note 3 For frequencies above 100Hz, at least the values specified in this column shall be applied.</i>				

4.4 Project Vibration Requirements

Based on the requirements included above the project relevant construction vibration limits include the following:

1. Receiver 1 (residential) – 8 mm/s and line 2 of the DIN 4150 above.
2. Receiver 2 (residential) – 8 mm/s and line 2 of the DIN 4150 above.
3. Receiver 3 (residential) – 8 mm/s and line 2 of the DIN 4150 above.
4. Receiver 4 (residential) – 8 mm/s and line 2 of the DIN 4150 above.
5. Receiver 5 (Mixed use) – 8 mm/s and line 2 of the DIN 4150 above.
6. Receiver 7 (Hotel/Residential) – 8 mm/s and line 2 of the DIN 4150 above.
7. Receiver 8 (residential) – 8 mm/s and line 2 of the DIN 4150 above.
8. Receiver 9 (residential) – 8 mm/s and line 2 of the DIN 4150 above.

4.5 Ground-Borne Noise Criteria

According to the NSW EPA Interim Construction Noise Guideline (ICNG) 2009, the criteria for ground-borne noise at residences is defined as follows:

- Maximum internal noise levels of 40 dB $L_{Aeq(15mins)}$ between 6:00pm and 10:00pm.

Based on the proposed works to be undertaken as part of the extended working hours (including the completion of concrete pours) the use of percussive equipment is not proposed to be undertaken. Based on the proposed activities to be included as part of the additional works hours included in this application compliance with the ground born requirements of the ICNG will be achieved.

5 CONSTRUCTION NOISE AND VIBRATION ASSESSMENT

5.1 Construction Noise Assessment

Sound power levels have been predicted for the construction tasks to be undertaken as part of the proposed additional working hours (including the completion of concrete pours). The equipment anticipated for use in each task is based on previous project experience. The sound power levels for the equipment likely to be used for each of the listed tasks are provided in Table 10 below.

Table 10 Summary of predicted sound power levels

Tasks	Equipment	Sound Power Levels (dBA re 1pW)	Aggregate Power Level per Task (dBA re 1pW)
To be included as part of the extended working hours	Concrete Pump	104	107
	Concrete Vibrator/Agitator	103	
	Concrete Helicopter	95	
	Hand Tools	95	

As part of this assessment a quantitative assessment of noise resulting from the proposed concrete pour finishes during the proposed additional working hours has been undertaken, details of the assessment to the receivers within the vicinity of the site are included in the following tables.



Table 11 Receiver 1 – Summary of preliminary predicted construction noise levels – Residential Receiver (including period until 9pm Monday to Friday)

Phase	Activity	Aggregate Power (dBA re 1pW)	Sound Level	Predicted <u>Individual</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Predicted <u>Combined</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Noise Management Levels dBA L _{Aeq} 15 minutes	Summary of Result
To be included as part of the extended working hours	Concrete Pump	107		56 to 71	59-74	64 dB(A)	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Works to include all possible and practical noise mitigations including those detailed in this report.
	Concrete Vibrator/Agitator			55 to 70			
	Concrete Helicopter			47 to 62			
	Hand Tools			47 to 62			

Table 12 Receiver 2 – Summary of preliminary predicted construction noise levels – Residential Receiver (including period until 9pm Monday to Friday)

Phase	Activity	Aggregate Power (dBA re 1pW)	Sound Level	Predicted <u>Individual</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Predicted <u>Combined</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Noise Management Levels dBA L _{Aeq} 15 minutes	Summary of Result
To be included as part of the extended working hours	Concrete Pump	107		56 to 70	59-73	55 dB(A)	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Works to include all possible and practical noise mitigations including those detailed in this report.
	Concrete Vibrator/Agitator			55 to 69			
	Concrete Helicopter			47 to 61			
	Hand Tools			47 to 61			

Table 13 Receiver 3 – Summary of preliminary predicted construction noise levels – Residential Receiver (including period until 9pm Monday to Friday)

Phase	Activity	Aggregate Power (dBA re 1pW)	Sound Level	Predicted <u>Individual</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Predicted <u>Combined</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Noise Management Levels dBA L _{Aeq} 15 minutes	Summary of Result
To be included as part of the extended working hours	Concrete Pump	107		58 to 70	61-73	56 dB(A)	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Works to include all possible and practical noise mitigations including those detailed in this report.
	Concrete Vibrator/Agitator			57 to 69			
	Concrete Helicopter			49 to 61			
	Hand Tools			49 to 61			

Table 14 Receiver 4 – Summary of preliminary predicted construction noise levels – Residential Receiver (including period until 9pm Monday to Friday)

Phase	Activity	Aggregate Power (dBA re 1pW)	Sound Level	Predicted <u>Individual</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Predicted <u>Combined</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Noise Management Levels dBA L _{Aeq} 15 minutes	Summary of Result
To be included as part of the extended working hours	Concrete Pump	107		56 to 64	59-67	56 dB(A)	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Works to include all possible and practical noise mitigations including those detailed in this report.
	Concrete Vibrator/Agitator			55 to 63			
	Concrete Helicopter			47 to 55			
	Hand Tools			47 to 55			

Table 15 Receiver 5 – Summary of preliminary predicted construction noise levels – Residential Receiver (including period until 9pm Monday to Friday)

Phase	Activity	Aggregate Power (dBA re 1pW)	Sound Level	Predicted <u>Individual</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Predicted <u>Combined</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Noise Management Levels dBA L _{Aeq} 15 minutes	Summary of Result
To be included as part of the extended working hours	Concrete Pump	107		58 to 70	61-73	55 dB(A)	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Works to include all possible and practical noise mitigations including those detailed in this report.
	Concrete Vibrator/Agitator			57 to 69			
	Concrete Helicopter			49 to 61			
	Hand Tools			49 to 61			

Table 16 Receiver 7 – Summary of preliminary predicted construction noise levels – Residential Receiver (including period until 9pm Monday to Friday)

Phase	Activity	Aggregate Power (dBA re 1pW)	Sound Level	Predicted <u>Individual</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Predicted <u>Combined</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Noise Management Levels dBA L _{Aeq} 15 minutes	Summary of Result
To be included as part of the extended working hours	Concrete Pump	107		59 to 76	62-79	64 dB(A)	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Works to include all possible and practical noise mitigations including those detailed in this report.
	Concrete Vibrator/Agitator			58 to 75			
	Concrete Helicopter			50 to 67			
	Hand Tools			50 to 67			



Table 17 Receiver 8 – Summary of preliminary predicted construction noise levels – Residential Receiver (including period until 9pm Monday to Friday)

Phase	Activity	Aggregate Power (dBA re 1pW)	Sound Level	Predicted <u>Individual</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Predicted <u>Combined</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Noise Management Levels dBA L _{Aeq} 15 minutes	Summary of Result
To be included as part of the extended working hours	Concrete Pump	107		55 to 68	58-71	64 dB(A)	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Works to include all possible and practical noise mitigations including those detailed in this report.
	Concrete Vibrator/Agitator			54 to 67			
	Concrete Helicopter			46 to 59			
	Hand Tools			46 to 59			

Table 18 Receiver 9 – Summary of preliminary predicted construction noise levels – Residential Receiver (including period until 9pm Monday to Friday)

Phase	Activity	Aggregate Power (dBA re 1pW)	Sound Level	Predicted <u>Individual</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Predicted <u>Combined</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Noise Management Levels dBA L _{Aeq} 15 minutes	Summary of Result
To be included as part of the extended working hours	Concrete Pump	107		55 to 66	58-70	56 dB(A)	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Works to include all possible and practical noise mitigations including those detailed in this report.
	Concrete Vibrator/Agitator			54 to 65			
	Concrete Helicopter			46 to 57			
	Hand Tools			46 to 57			



5.2 Vibration Assessment

Based on the proposed activities to be undertaken as part of the additional working hours for concrete pours the use of high vibration generating equipment (including that similar to vibration rollers, hydraulic hammers or the like) will not be undertaken.

Vibration from the proposed plant and equipment is expected to comply with the relevant vibration criteria the relevant vibration criteria (including tactile vibration as well as ground born noise resulting from vibration) will be complied with without additional acoustic mitigations or controls being implemented.

6 NOISE MANAGEMENT PLAN

This section of the report includes the assessment of the proposed activities to be included as part of the proposed additional construction hours for the completion of concrete pours and include the possible acoustic mitigations and management strategies which are to be included as part of the proposed modification.

6.1 General Comments

The contractor will, where reasonable and feasible, apply best practice noise mitigation measures. These measures shall include the following:

- Maximising the offset distance between plant items and nearby noise sensitive receivers which are to be undertaken during the proposed additional working hours.
- Preventing noisy plant working simultaneously and adjacent to sensitive receivers including equipment required to complete concrete pours.
- Minimising consecutive works in the same site area.
- Orienting equipment away from noise sensitive areas.
- Tool box meetings informing workers of their requirement to minimise noise on the site during the additional working hours and including:
 - No playing of radios or other noise generating equipment.
- No materials deliveries or waste removal from the site will be undertaken during the proposed extended working hours period. All deliveries and waste removal will be undertaken within the currently approved working hours.
- no other construction activities, other than those required to complete the concrete pours will be undertaken during the proposed additional construction hours.
- The works include those which are required to be completed as part of the concrete pours on the site. The works are required to include the proposed additional working hours periods such that the concrete pours can be completed as required for the structural integrity of the building.

The proposed works including the completion of the concrete pours will be undertaken in accordance with the Environmental Consulting Services *Construction Environment Management Plan* dated 1/5/2026 and included in Appendix C.

- The proposed working hours includes the evening period but does not extend into the night period after 10:00 pm.

It is noted that the proposed extended hours for the completion of concrete pours includes an evening period when noise resulting from traffic movements on the Warringah Freeway to the east of the site will include elevated noise levels.

In order to minimise noise impacts during the works, the contractor will take all reasonable and feasible measures to mitigate noise effects.

6.2 Acoustic Management Procedures

6.2.1 Acoustic Enclosures/Screening

Where possible the inclusion of acoustic screening and barriers will be included to the perimeter of the building site where works are to be undertaken during the extended working periods.

Screening will be included to the permanently located equipment including power generating equipment and the like.

6.3 Construction Noise Monitoring

Construction noise and vibration monitoring should be undertaken during the construction phases of the concrete pours including the following requirements:

1. Noise Monitoring – During the proposed extended hours working periods attended noise surveys are to be undertaken periodically during the proposed concrete pours.

Noise surveys are to include attended noise level surveys at a number of locations around the site, including up to 5 visits over the proposed concrete pours.

Noise surveys are to include the results of activities being undertaken including details of the equipment generating noise levels.

As part of the surveys and site visits identification of possible acoustic mitigations are to be provided.

6.4 Construction Vehicles

As part of the proposed modification for concrete pours construction vehicles are to be limited to those required to complete the concrete pours only.

All general deliveries and waste removal will be undertaken within the currently approved working hours and not during the proposed extended-hours period. All deliveries and waste removal will be undertaken within the currently approved working hours.

6.5 Community Consultation and Notifications

Prior to the works onsite being undertaken, it is recommended that community consultation with the neighbouring affected parties be undertaken. The communication, however, should not be limited to the beginning of the onsite works but throughout, providing the community with constant updates on the progress and upcoming works. In our experience these could include:

- Project website
- Email Notifications
- Letterbox drops.

Should complaints arise they must be dealt with in a responsible and uniform manner, therefore, a management system to deal with complaints is detailed above through the project's Construction Environmental Management Plan



6.6 Contingency Plans

Contingency plans are required to address noise or vibration problems if excessive levels are measured at surrounding sensitive receivers and/or if justified complaints occur. Such plans include:

- Stop the onsite works
- Identify the source of the main equipment within specific areas of the site which is producing the most construction noise and vibration at the sensitive receivers; and
- Review the identified equipment and determine if an alternate piece of equipment can be used or the process can be altered.
- In the event an alternative piece of equipment or process can be used, works can re-commence.
- In the event an alternative piece of equipment or process cannot be determined implement a construction assessment to be performed by a suitably qualified acoustic consultant.
- The superintendent shall have access to view the contractors noise measurement records on request. The superintendent may be undertake noise monitoring if and when required.

6.7 General Mitigation Measures (Australia Standard 2436-2010)

As well as the above project specific noise mitigation controls, AS 2436-2010 "Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites" sets out numerous practical recommendations to assist in mitigating construction noise emissions. Examples of strategies that could be implemented on the subject project are listed below, including the typical noise reduction achieved, where applicable.

6.7.1 Adoption of Universal Work Practices

- Regular reinforcement (such as at toolbox talks) of the need to minimise noise and vibration.
- Regular identification of noisy activities and adoption of improvement techniques.
- Avoiding the use of portable radios, public address systems or other methods of site communication that may unnecessarily impact upon nearby sensitive receivers.
- Use of broadband audible alarms on vehicles and elevating work platforms used on site, including compliance with the requirements of the SSD Consent D9, which includes the following:

D9. The Applicant must implement, where practicable and without compromising the safety of construction staff or members of the public, audible movement alarms of a type that would minimise noise impacts on surrounding Sensitive Receivers.

6.7.2 On Site Noise Mitigation

- Maximising the distance between noise activities and noise sensitive land uses.
- Installing purpose-built noise barriers, acoustic sheds and enclosures around static plant.

6.7.3 Miscellaneous Comments

- All deliveries and waste removals will be undertaken during approved construction hours.
- No public address system should be used on site (except for emergency purposes).

6.7.4 Complaints Management

Should complaints arise they must be dealt with in a responsible and uniform manner, therefore, a management system to deal with complaints is detailed below:

All complaints should be investigated by the Contractor in accordance with the procedures outlined in Australia Standard 2436-2010. Consequently, a complaint response procedure should be implemented. Information to be gathered as part of this process should include:

- location of complainant
- time/s of occurrence of alleged noise or vibration impacts
- nature of impact particularly with respect to vibration
- Perceived source
- Prevailing weather conditions and similar details that could be utilised to assist in the investigation of the complaint.

All resident complaints will be responded to in the required timeframe and action taken recorded.

Post receiving a noise and or vibration complaint, the process outlined in the *Contingency Plans* below should be undertaken.

During the construction of the project there will be a site contact person, details are to be included on the site in accordance with the projects Conditions of Consent. The site contact will include a suitable building contractor representative, including details to be provided and included on site notice board in accordance with the project Conditions of Consent,

In the event contact details change during the period of works updated details will be included in the community consultation notices and on the site contact noticeboard.

7 CONCLUSION

Pulse White Noise Acoustics Pty Ltd (PWNA) has been engaged to undertake an assessment of construction noise impact as part of the proposed modification to the project approvals, including noise resulting from additional working hours to complete concrete pours at 173-179 Walker Street, 11, 15 and 17 Hampden Street, North Sydney site.

This assessment has included the investigation into the potential noise impact resulting from the proposed additional working hours including those based on the project SSD-67175465 approvals, specifically condition D3.

The details in this report includes the required acoustic mitigations and management controls such that the proposed additional works hours including those required for the completion of concrete pours will be acoustically acceptable, including those required in accordance with the EPA's Interim Construction Noise Guideline.

For any additional information please do not hesitate to contact the person below.

Regards

A handwritten signature in blue ink that reads "BG White".

Ben White
Director

Pulse White Noise Acoustics

APPENDIX A. ACOUSTIC TERMINOLOGY

<i>Sound power level</i>	The total sound emitted by a source																						
<i>Sound pressure level</i>	The amount of sound at a specified point																						
<i>Decibel [dB]</i>	The measurement unit of sound																						
<i>A Weighted decibels [dB(A)]</i>	The A weighting is a frequency filter applied to measured noise levels to represent how humans hear sounds. The A-weighting filter emphasises frequencies in the speech range (between 1kHz and 4 kHz) which the human ear is most sensitive to, and places less emphasis on low frequencies at which the human ear is not so sensitive. When an overall sound level is A-weighted it is expressed in units of dB(A).																						
<i>Decibel scale</i>	The decibel scale is logarithmic in order to produce a better representation of the response of the human ear. A 3 dB increase in the sound pressure level corresponds to a doubling in the sound energy. A 10 dB increase in the sound pressure level corresponds to a perceived doubling in volume. Examples of decibel levels of common sounds are as follows: <table> <tr> <td>0 dB(A)</td><td>Threshold of human hearing</td></tr> <tr> <td>30 dB(A)</td><td>A quiet country park</td></tr> <tr> <td>40 dB(A)</td><td>Whisper in a library</td></tr> <tr> <td>50 dB(A)</td><td>Open office space</td></tr> <tr> <td>70 dB(A)</td><td>Inside a car on a freeway</td></tr> <tr> <td>80 dB(A)</td><td>Outboard motor</td></tr> <tr> <td>90 dB(A)</td><td>Heavy truck pass-by</td></tr> <tr> <td>100 dB(A)</td><td>Jackhammer/Subway train</td></tr> <tr> <td>110 dB(A)</td><td>Rock Concert</td></tr> <tr> <td>115 dB(A)</td><td>Limit of sound permitted in industry</td></tr> <tr> <td>120 dB(A)</td><td>747 take off at 250 metres</td></tr> </table>	0 dB(A)	Threshold of human hearing	30 dB(A)	A quiet country park	40 dB(A)	Whisper in a library	50 dB(A)	Open office space	70 dB(A)	Inside a car on a freeway	80 dB(A)	Outboard motor	90 dB(A)	Heavy truck pass-by	100 dB(A)	Jackhammer/Subway train	110 dB(A)	Rock Concert	115 dB(A)	Limit of sound permitted in industry	120 dB(A)	747 take off at 250 metres
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40 dB(A)	Whisper in a library																						
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100 dB(A)	Jackhammer/Subway train																						
110 dB(A)	Rock Concert																						
115 dB(A)	Limit of sound permitted in industry																						
120 dB(A)	747 take off at 250 metres																						
<i>Frequency [f]</i>	The repetition rate of the cycle measured in Hertz (Hz). The frequency corresponds to the pitch of the sound. A high frequency corresponds to a high pitched sound and a low frequency to a low pitched sound.																						
<i>Ambient sound</i>	The all-encompassing sound at a point composed of sound from all sources near and far.																						
<i>Equivalent continuous sound level [L_{eq}]</i>	The constant sound level which, when occurring over the same period of time, would result in the receiver experiencing the same amount of sound energy.																						
<i>Reverberation</i>	The persistence of sound in a space after the source of that sound has been stopped (the reverberation time is the time taken for a reverberant sound field to decrease by 60 dB)																						
<i>Air-borne sound</i>	The sound emitted directly from a source into the surrounding air, such as speech, television or music																						
<i>Impact sound</i>	The sound emitted from force of one object hitting another such as footfalls and slamming cupboards.																						
<i>Air-borne sound isolation</i>	The reduction of airborne sound between two rooms.																						
<i>Sound Reduction Index [R] (Sound Transmission Loss)</i>	The ratio the sound incident on a partition to the sound transmitted by the partition.																						
<i>Weighted sound reduction index [R_w]</i>	A single figure representation of the air-borne sound insulation of a partition based upon the R values for each frequency measured in a laboratory environment.																						
<i>Level difference [D]</i>	The difference in sound pressure level between two rooms.																						
<i>Normalised level difference [D_n]</i>	The difference in sound pressure level between two rooms normalised for the absorption area of the receiving room.																						
<i>Standardised level difference [D_{nt}]</i>	The difference in sound pressure level between two rooms normalised for the reverberation time of the receiving room.																						
<i>Weighted standardised level difference [D_{nt,w}]</i>	A single figure representation of the air-borne sound insulation of a partition based upon the level difference. Generally used to present the performance of a partition when measured in situ on site.																						
<i>C_{tr}</i>	A value added to an R _w or D _{nt,w} value to account for variations in the spectrum.																						



<i>Impact sound isolation</i>	The resistance of a floor or wall to transmit impact sound.
<i>Impact sound pressure level $[L_i]$</i>	The sound pressure level in the receiving room produced by impacts subjected to the adjacent floor or wall by a tapping machine.
<i>Normalised impact sound pressure level $[L_n]$</i>	The impact sound pressure level normalised for the absorption area of the receiving room.
<i>Weighted normalised impact sound pressure level $[L_{n,w}]$</i>	A single figure representation of the impact sound insulation of a floor or wall based upon the impact sound pressure level measured in a laboratory.
<i>Weighted standardised impact sound pressure level $[L'_{nT,w}]$</i>	A single figure representation of the impact sound insulation of a floor or wall based upon the impact sound pressure level measured in situ on site.
C_i	A value added to an L_{nW} or $L_{nT,w}$ value to account for variations in the spectrum.
<i>Energy Equivalent Sound Pressure Level $[L_{A,eq,T}]$</i>	'A' weighted, energy averaged sound pressure level over the measurement period T.
<i>Percentile Sound Pressure Level $[L_{Ax,T}]$</i>	'A' weighted, sound pressure that is exceeded for percentile x of the measurement period T.
<i>Speech Privacy</i>	A non-technical term but one of common usage. Speech privacy and speech intelligibility are opposites and a high level of speech privacy means a low level of speech intelligibility. It should be recognised that acceptable levels of speech privacy do not require that speech from an adjacent room is inaudible.
<i>Sound Pressure Level, LP dB</i>	A measurement obtained directly using a microphone and sound level meter. Sound pressure level varies with distance from a source and with changes to the measuring environment. Sound pressure level equals 20 times the logarithm to the base 10 of the ratio of the rms sound pressure to the reference sound pressure of 20 micro Pascals.
<i>Sound Power Level, Lw dB</i>	Sound power level is a measure of the sound energy emitted by a source, does not change with distance, and cannot be directly measured. Sound power level of a machine may vary depending on the actual operating load and is calculated from sound pressure level measurements with appropriate corrections for distance and/or environmental conditions. Sound power levels is equal to 10 times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power of 1 picoWatt
<i>Noise Reduction</i>	The difference in sound pressure level between any two areas. The term "noise reduction" does not specify any grade or performance quality unless accompanied by a specification of the units and conditions under which the units shall apply
<i>Audible Range</i>	The limits of frequency which are audible or heard as sound. The normal ear in young adults detects sound having frequencies in the region 20 Hz to 20 kHz, although it is possible for some people to detect frequencies outside these limits.
<i>Background Sound Low</i>	The average of the lowest levels of the sound levels measured in an affected area in the absence of noise from occupants and from unwanted, external ambient noise sources. Usually taken to mean the LA90 value
<i>Character, acoustic</i>	The total of the qualities making up the individuality of the noise. The pitch or shape of a sound's frequency content (spectrum) dictate a sound's character.
<i>Loudness</i>	A rise of 10 dB in sound level corresponds approximately to a doubling of subjective loudness. That is, a sound of 85 dB is twice as loud as a sound of 75 dB which is twice as loud as a sound of 65 dB and so on
L_{Max}	The maximum sound pressure level measured over a given period.
L_{Min}	The minimum sound pressure level measured over a given period.
L_1	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.
L_{10}	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.
L_{90}	The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L90 noise level expressed in units of dB(A).
L_{eq}	The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.



APPENDIX B. RESULTS OF NOISE LOGGING

177 Walker Street, North Sydney NSW 2060

Ambient noise monitoring report

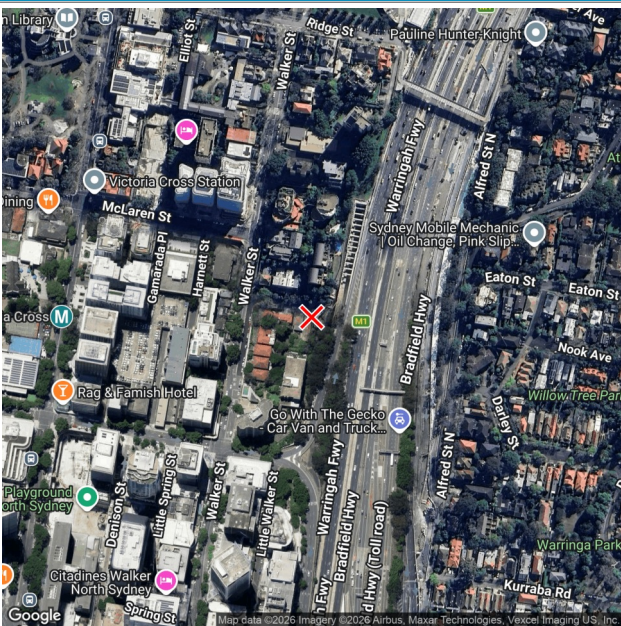


Item	Information
Logger Type	NL-43
Serial number	00653005
Address	177 Walker Street, North Sydney NSW 2060
Location	177 Walker Street, North Sydney NSW 2060
Facade / free field	Free field
Environment	

Measured noise levels

Logging date	Rating Background Level			L _{Aeq,period}		
	Daytime 7am-6pm	Evening 6pm-10pm	Night-time 10pm-7am	Daytime 7am-6pm	Evening 6pm-10pm	Night-time 10pm-7am
Fri 22 May 2026	-	59	-	-	64	-
Sat 23 May 2026	57	60	57	63	62	59
Sun 24 May 2026	58	58	59	60	60	62
Mon 25 May 2026	62	59	58	69	61	63
Tue 26 May 2026	62	62	58	69	66	61
Wed 27 May 2026	60	59	59	66	63	64
Thu 28 May 2026	61	59	59	67	61	66
Fri 29 May 2026	60	59	58	66	60	66
Sat 30 May 2026	58	58	58	61	59	59
Sun 31 May 2026	58	57	57	59	58	58
Mon 01 Jun 2026	-	-	-	64	-	59
Summary	60	59	58	66	62	63

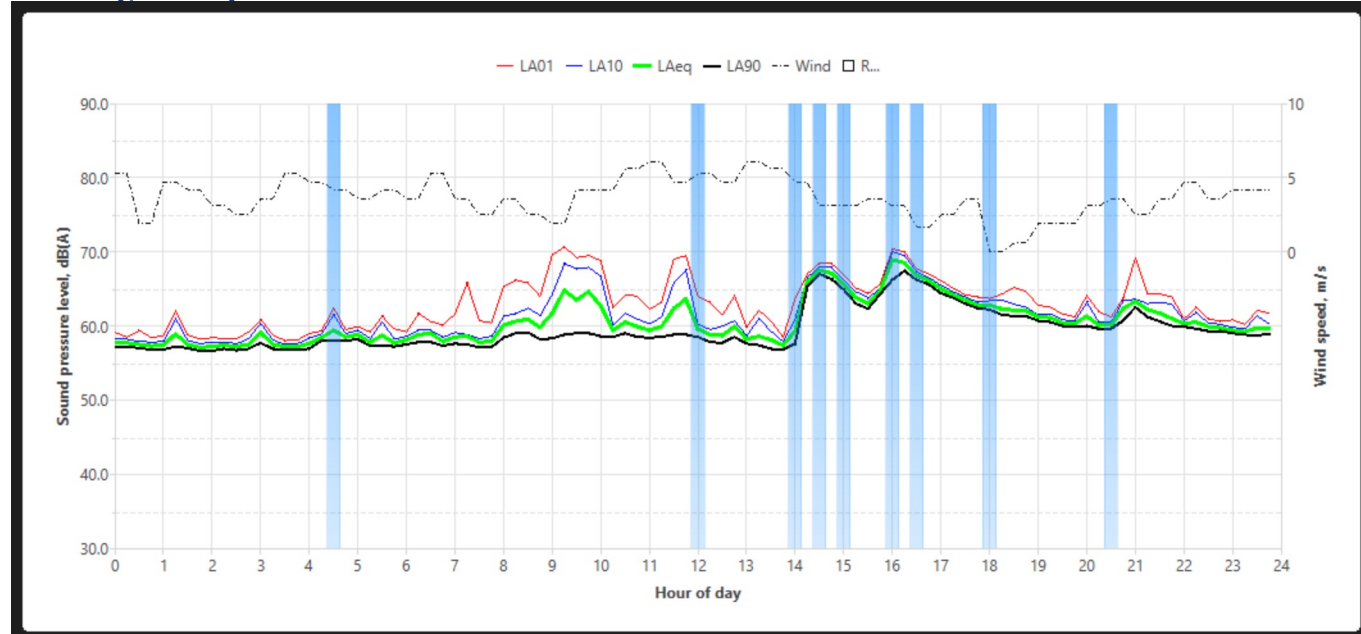
Note: Results with a '-' identify that there were not enough measurements available to correctly calculate the level, in accordance with the Noise Policy for Industry. The data has been excluded either from weather or manual exclusions. See the charts for more information

Logger location	Logger deployment photo
	

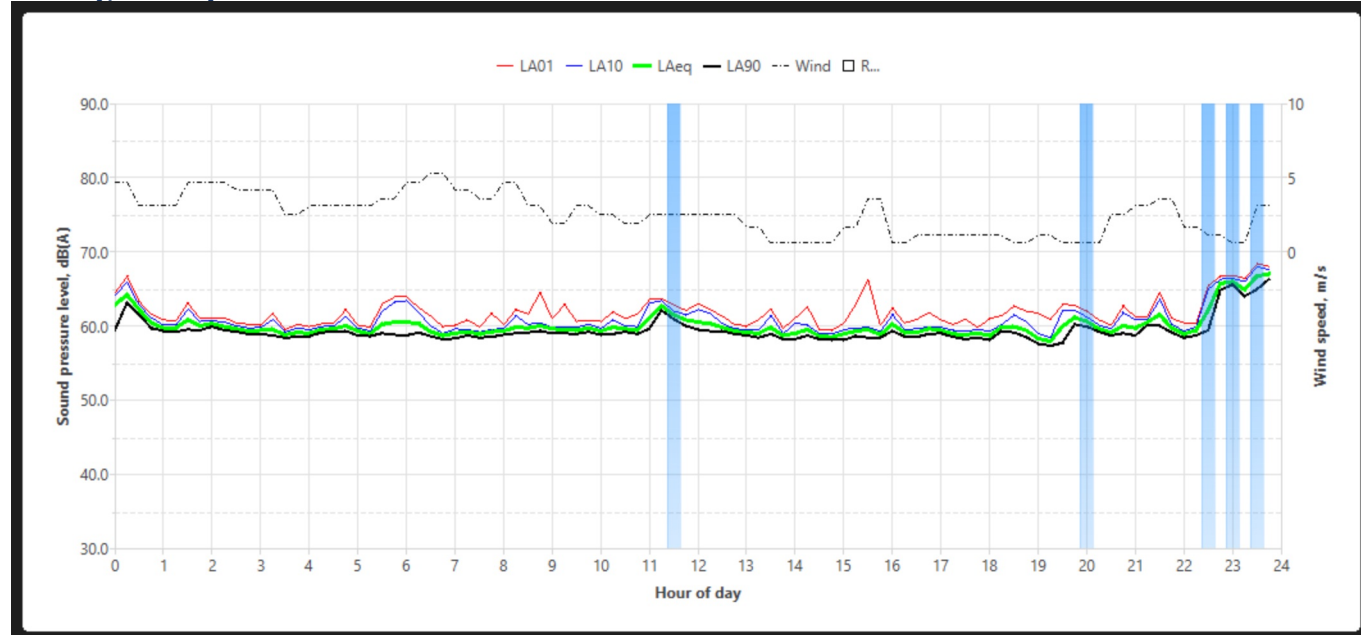
Friday, 22 May 2026



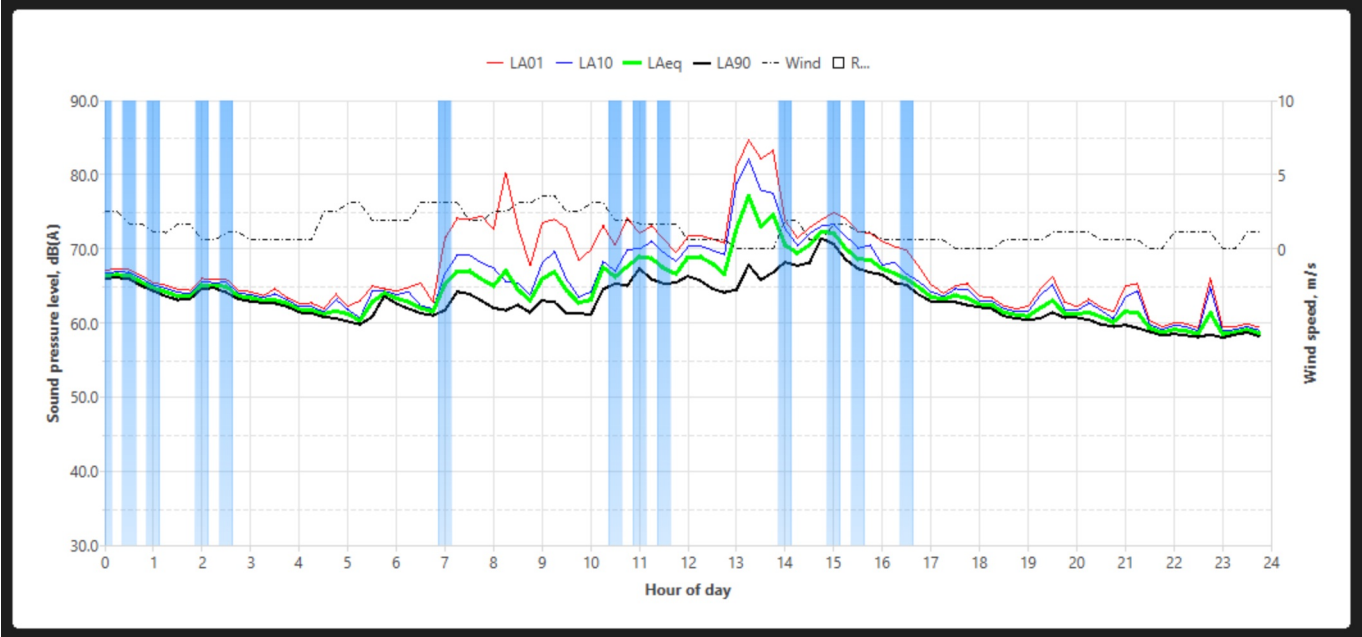
Saturday, 23 May 2026



Sunday, 24 May 2026



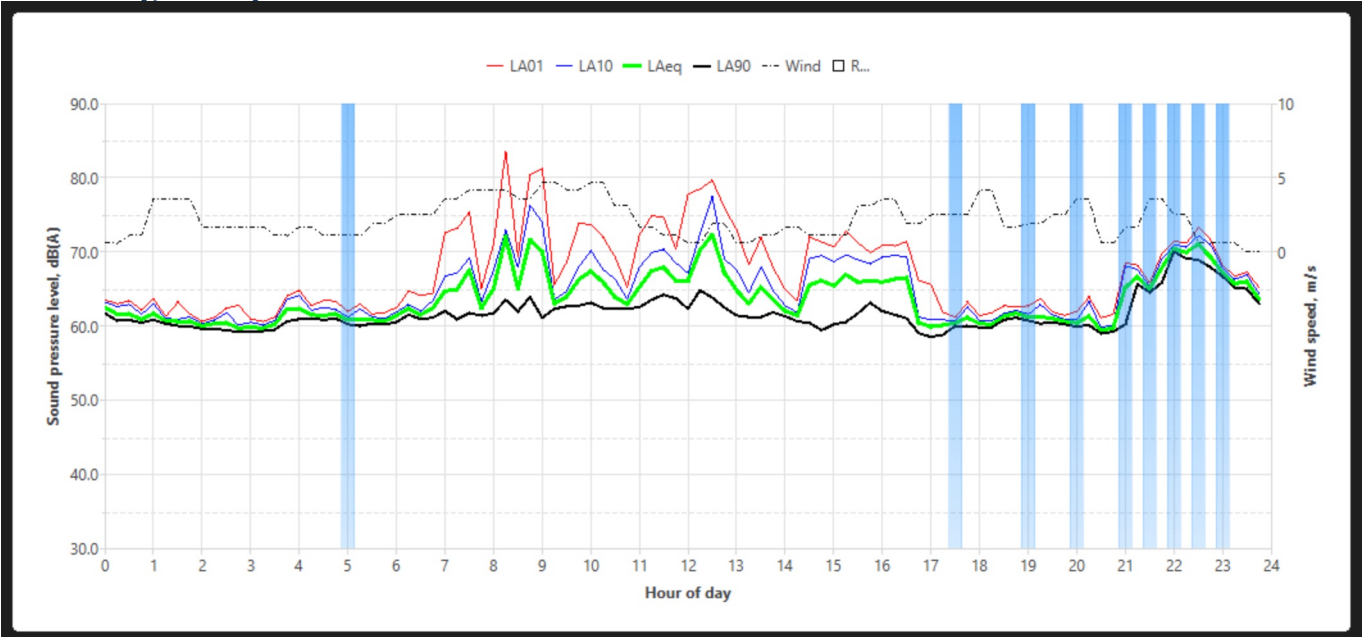
Monday, 25 May 2026



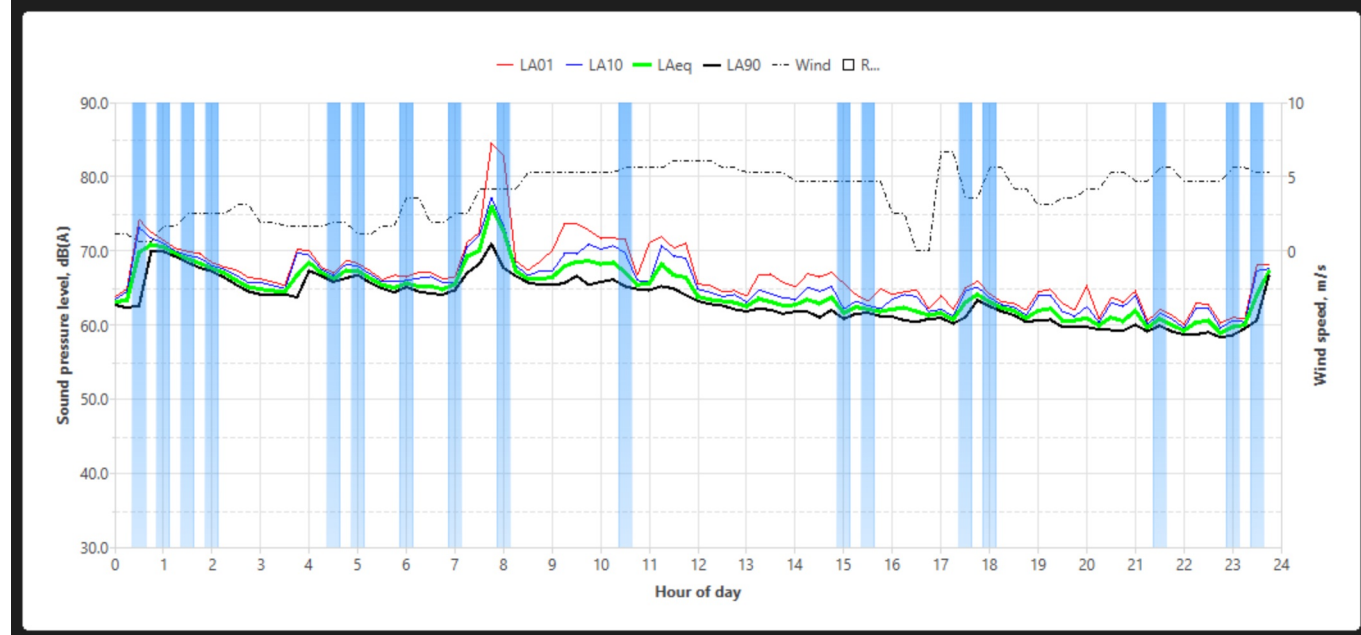
Tuesday, 26 May 2026



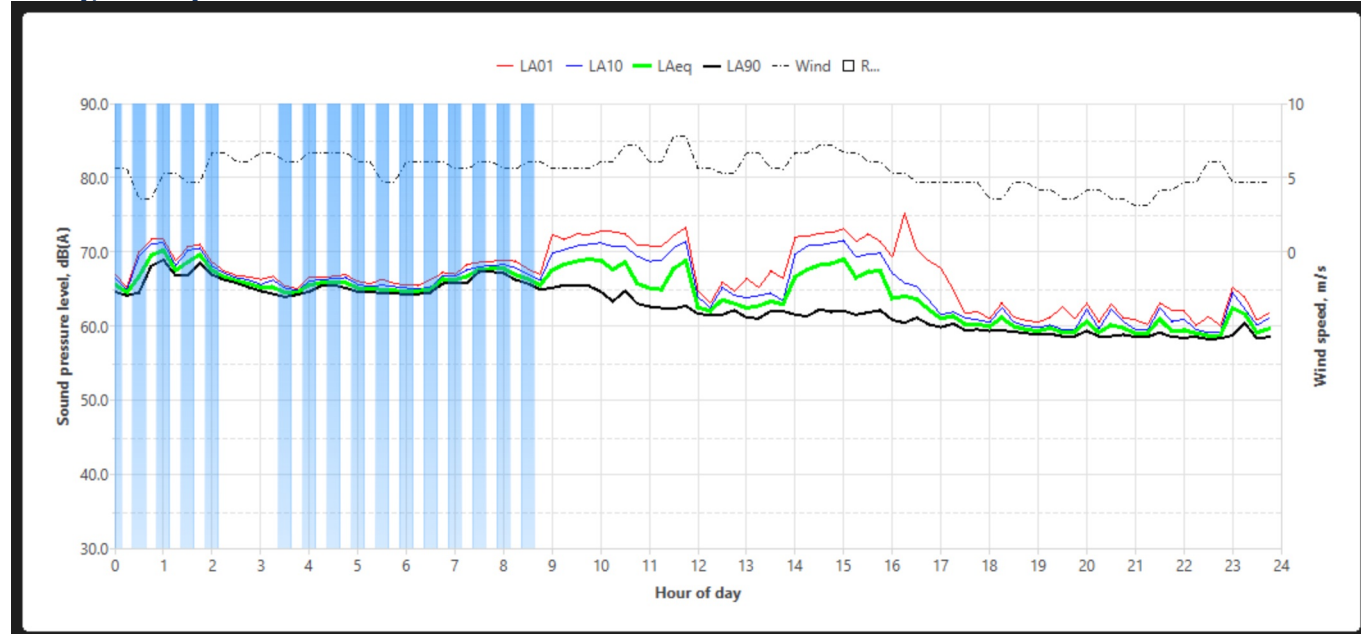
Wednesday, 27 May 2026



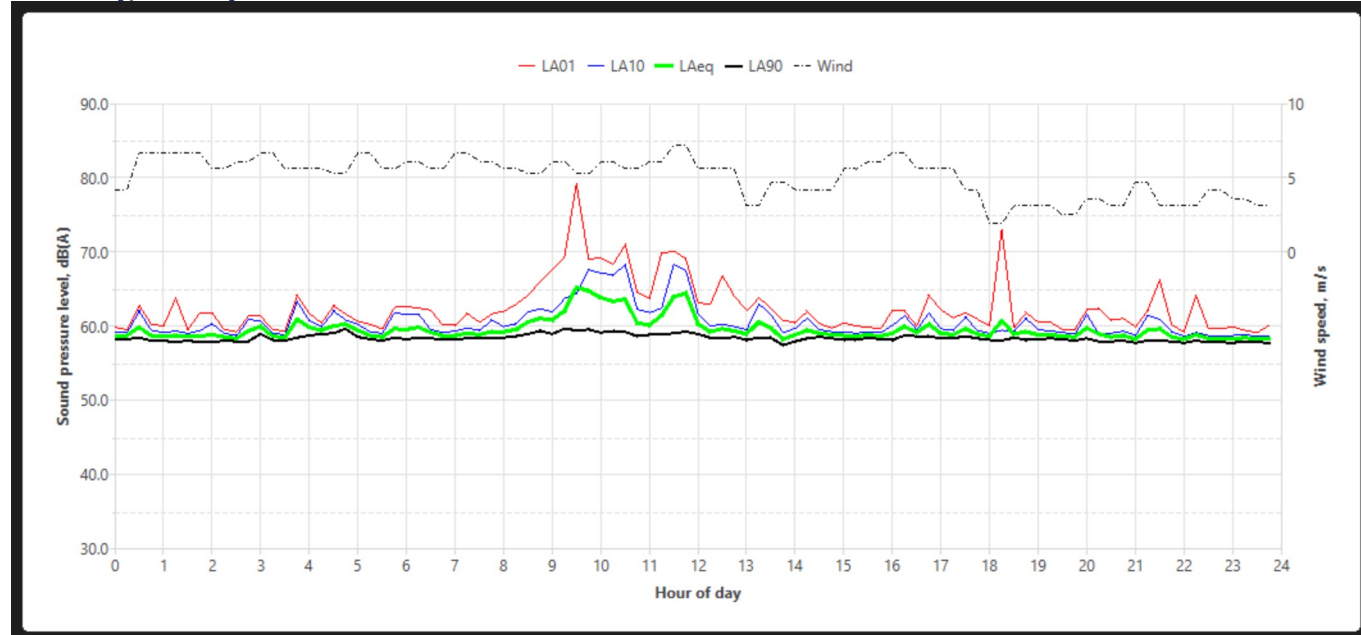
Thursday, 28 May 2026



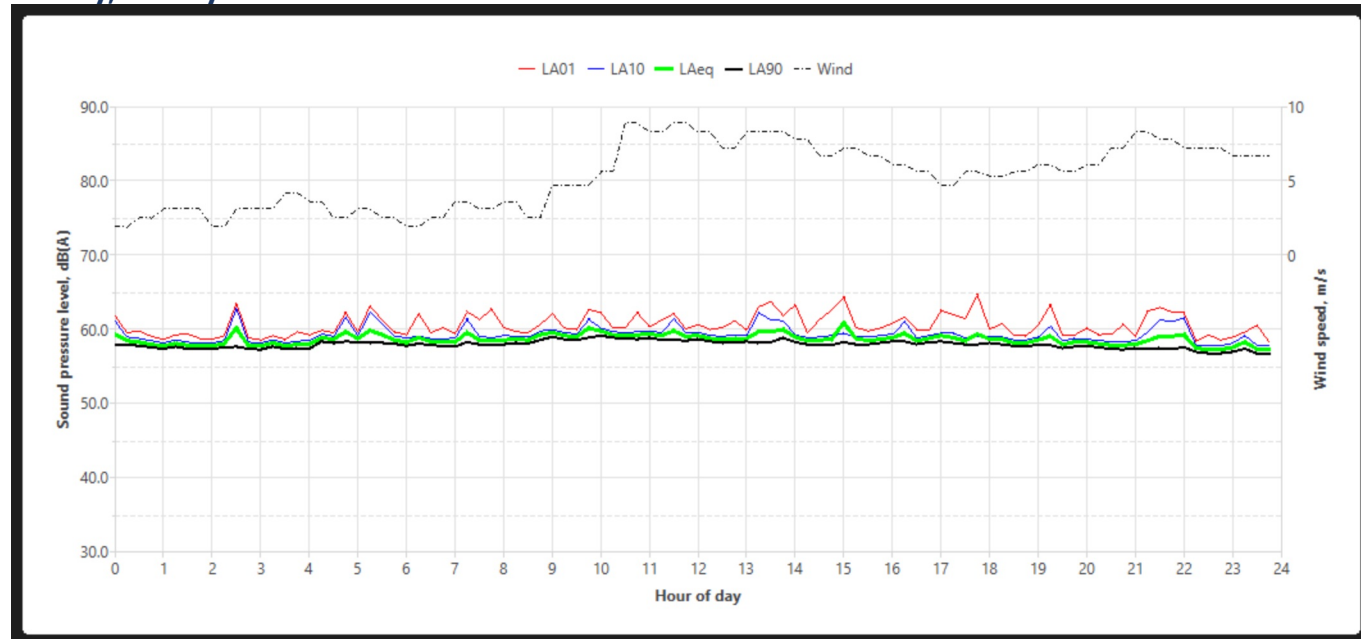
Friday, 29 May 2026



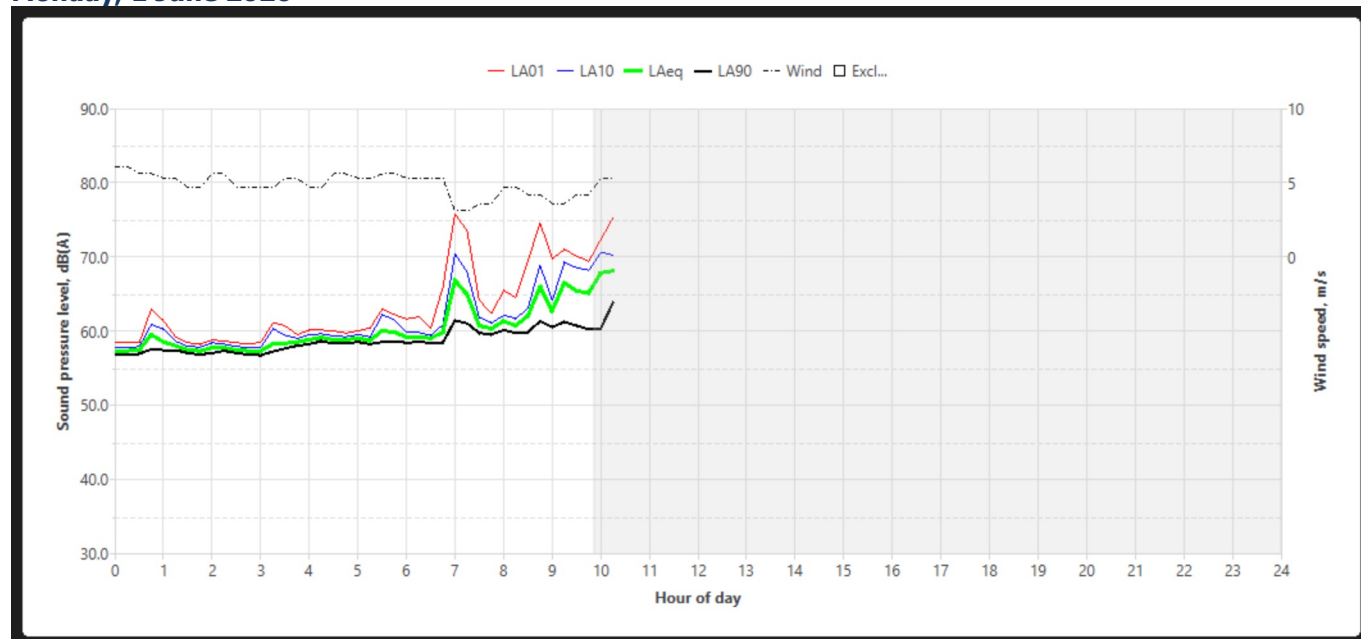
Saturday, 30 May 2026



Sunday, 31 May 2026



Monday, 1 June 2026



177 Walker Street, North Sydney NSW 2060

Ambient noise monitoring report

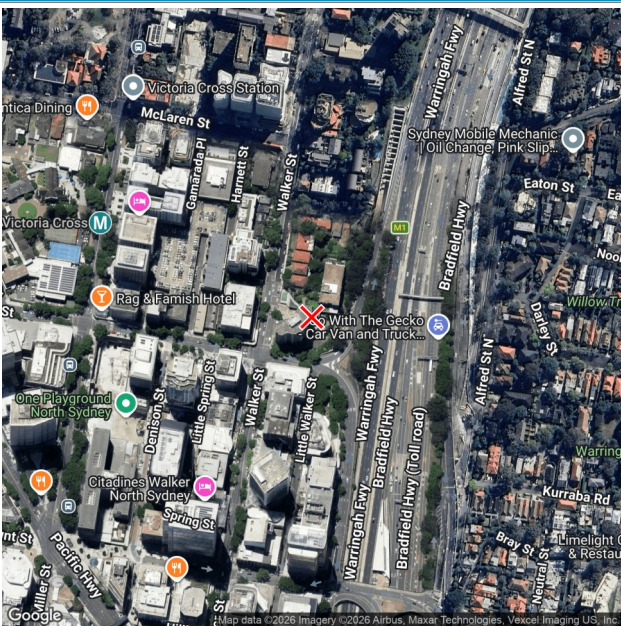


Item	Information
Logger Type	NL-42
Serial number	998081
Address	177 Walker Street, North Sydney NSW 2060
Location	177 Walker Street, North Sydney NSW 2060
Facade / free field	Free field
Environment	

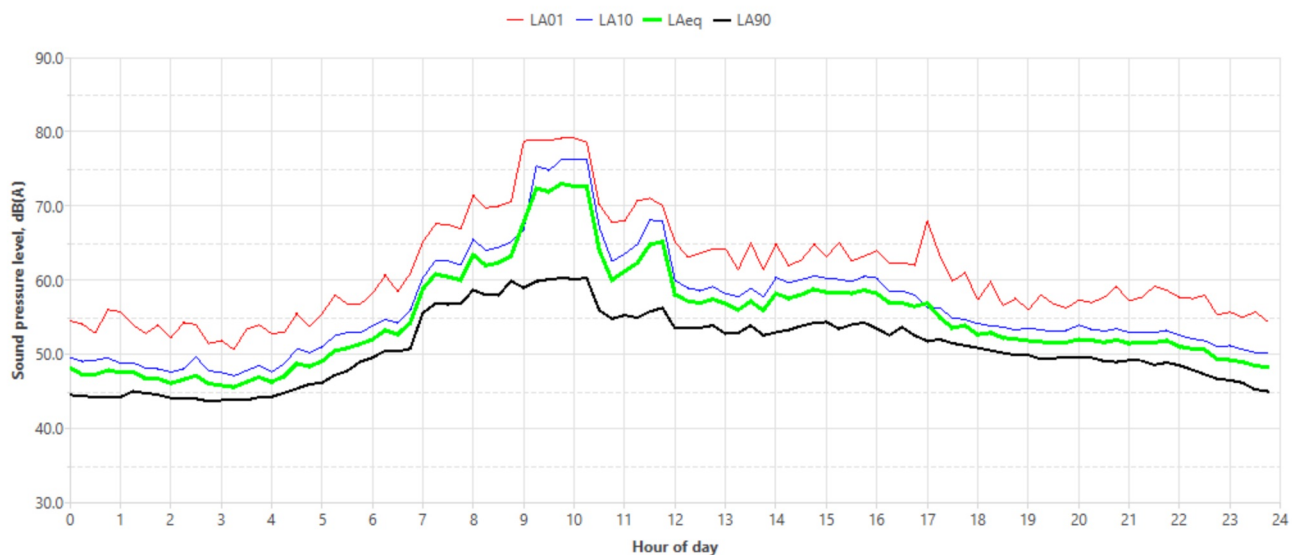
Measured noise levels

Logging date	Rating Background Level			L _{Aeq,period}		
	Daytime 7am-6pm	Evening 6pm-10pm	Night-time 10pm-7am	Daytime 7am-6pm	Evening 6pm-10pm	Night-time 10pm-7am
Fri 22 May 2026	-	52	-	-	55	-
Sat 23 May 2026	53	51	46	71	55	51
Sun 24 May 2026	50	50	45	55	53	50
Mon 25 May 2026	57	49	45	76	54	51
Tue 26 May 2026	57	53	43	77	57	51
Wed 27 May 2026	57	51	43	75	55	53
Thu 28 May 2026	55	51	45	72	54	54
Fri 29 May 2026	54	50	46	78	54	53
Sat 30 May 2026	50	49	45	69	52	51
Sun 31 May 2026	49	47	44	53	51	48
Mon 01 Jun 2026	-	-	-	76	-	49
Summary	54	50	45	74	54	51

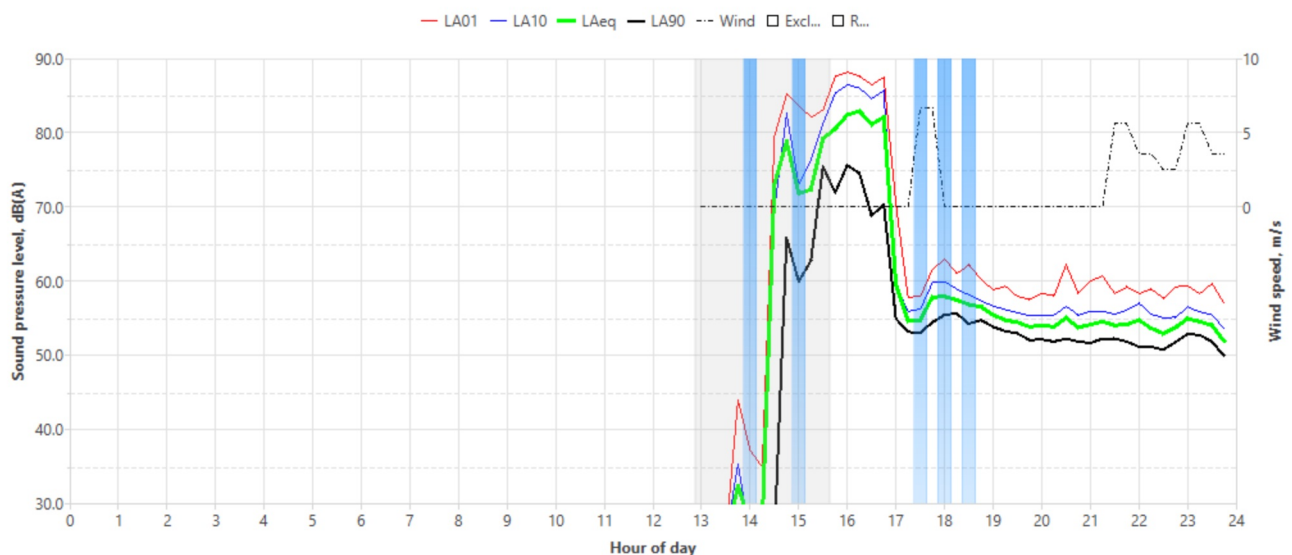
Note: Results with a '-' identify that there were not enough measurements available to correctly calculate the level, in accordance with the Noise Policy for Industry. The data has been excluded either from weather or manual exclusions. See the charts for more information

Logger location	Logger deployment photo
	

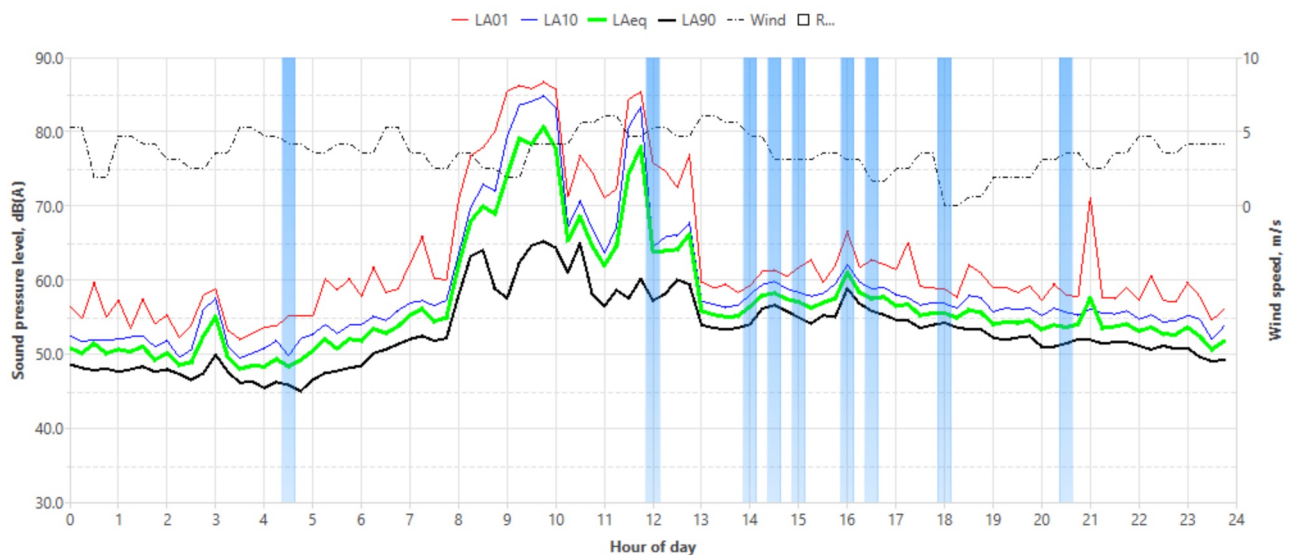
Typical Day



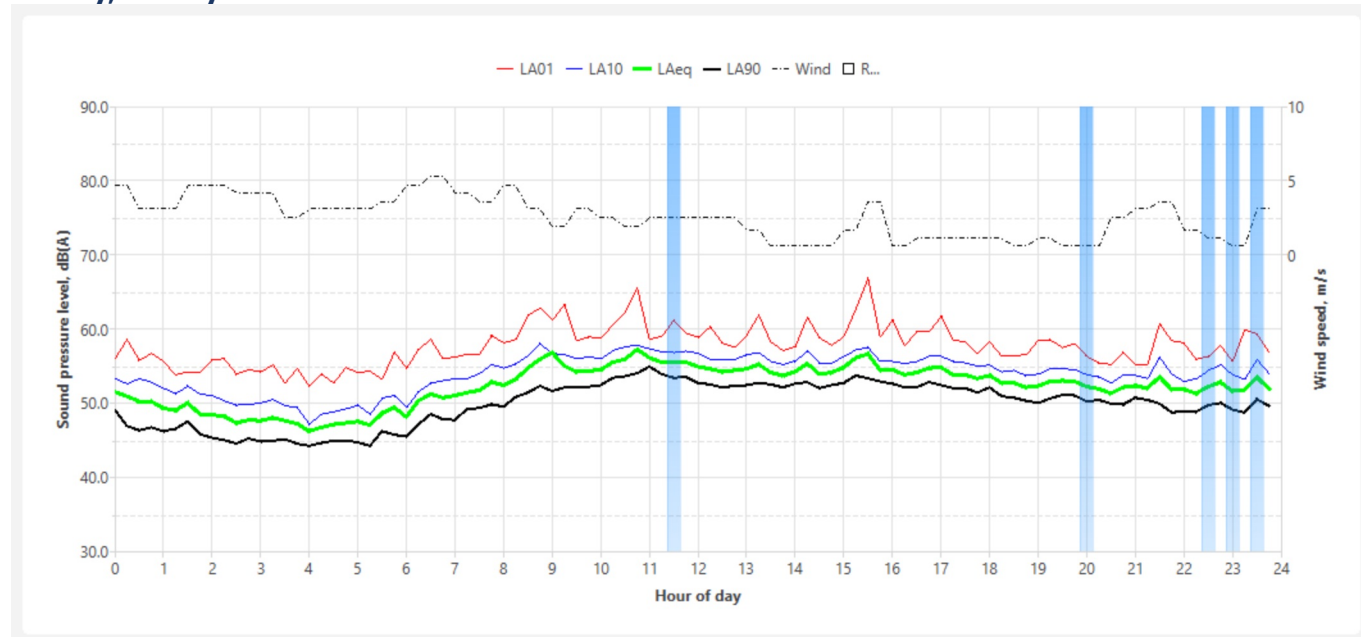
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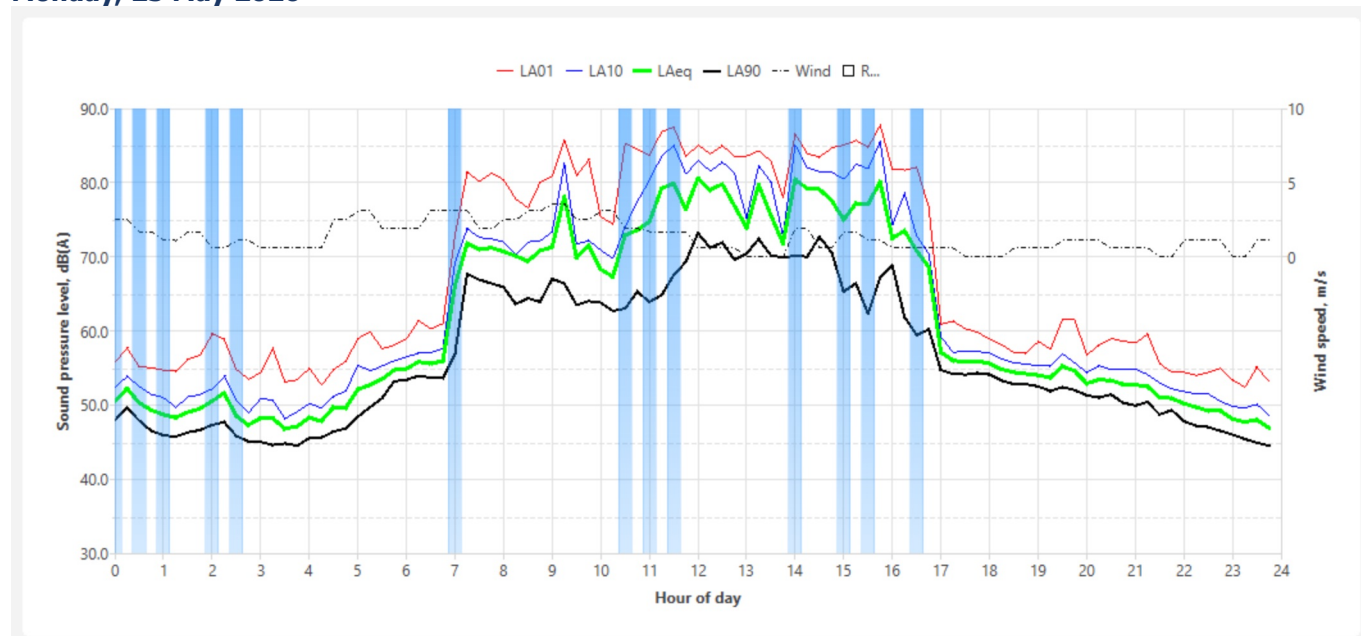
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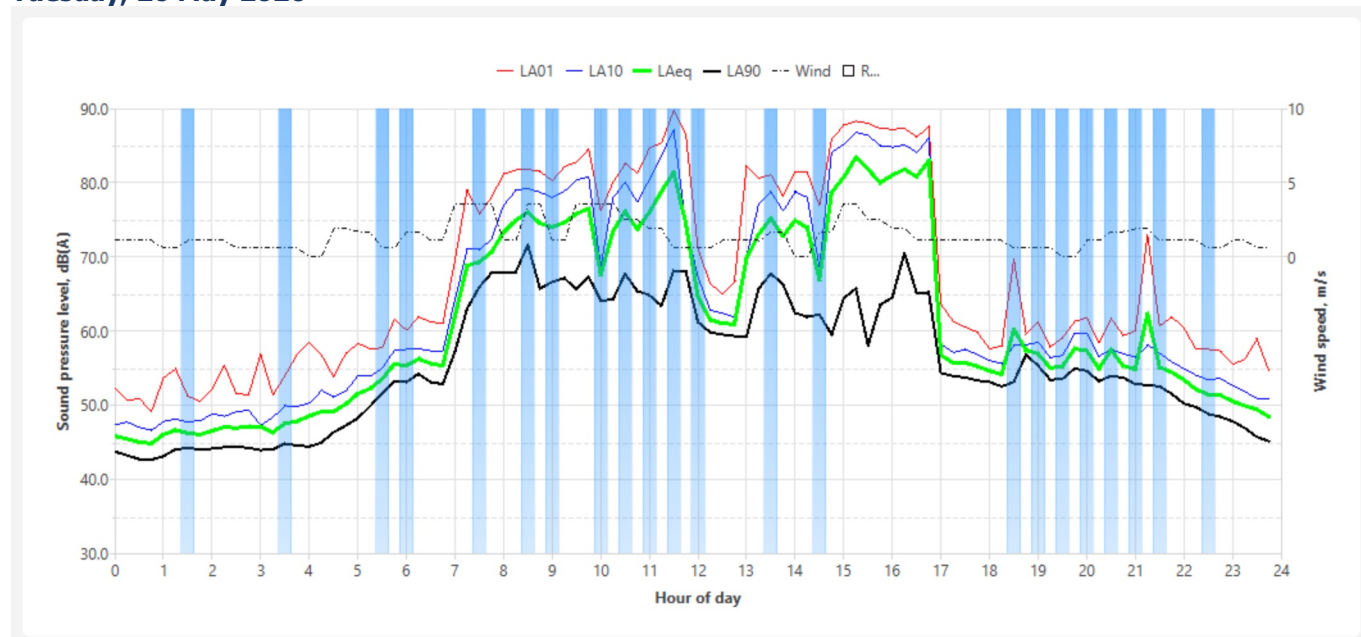
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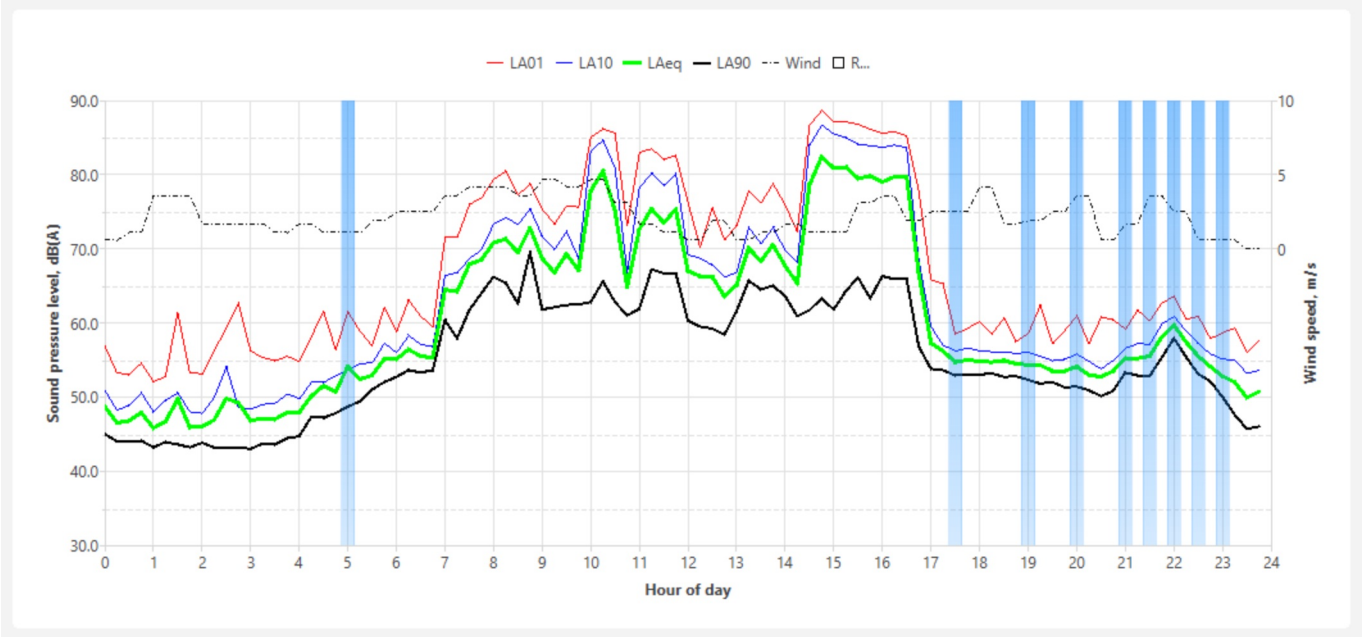
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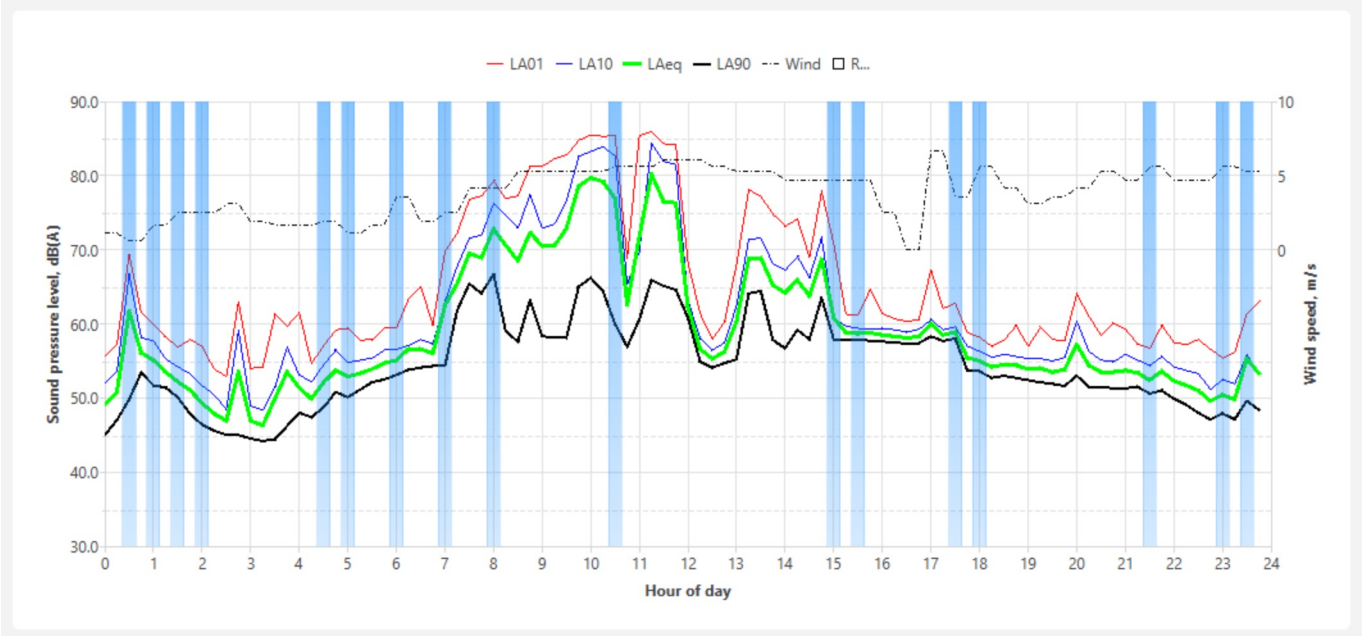
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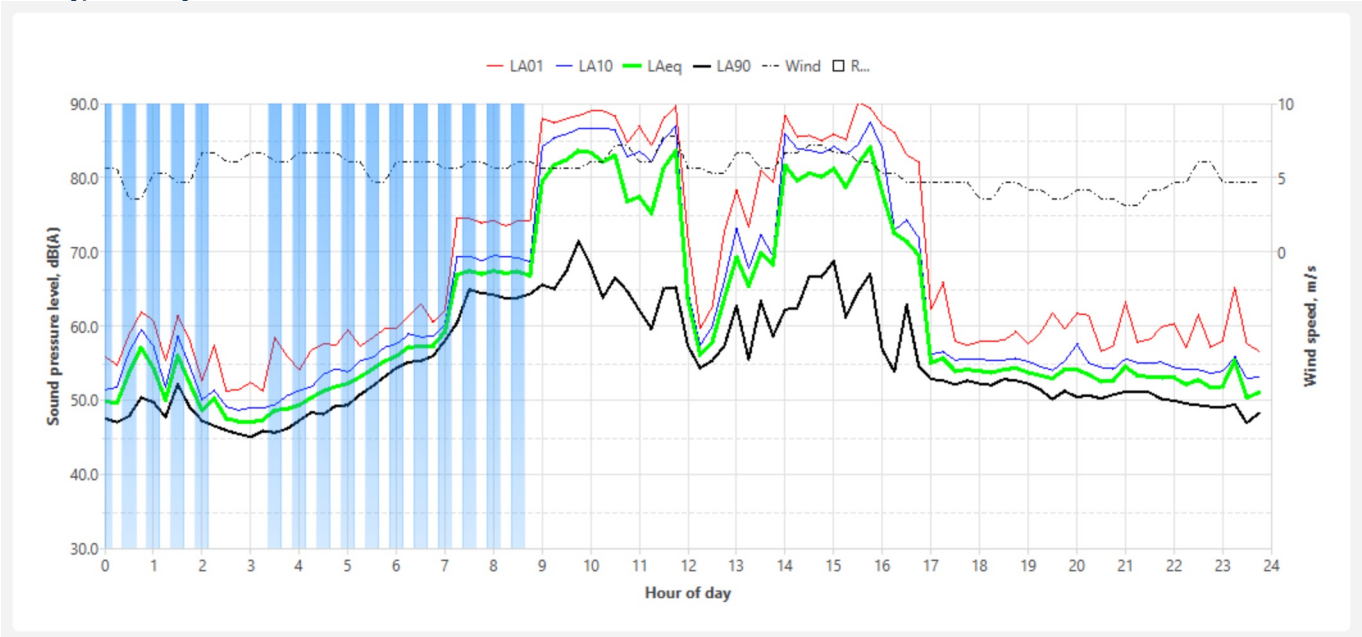
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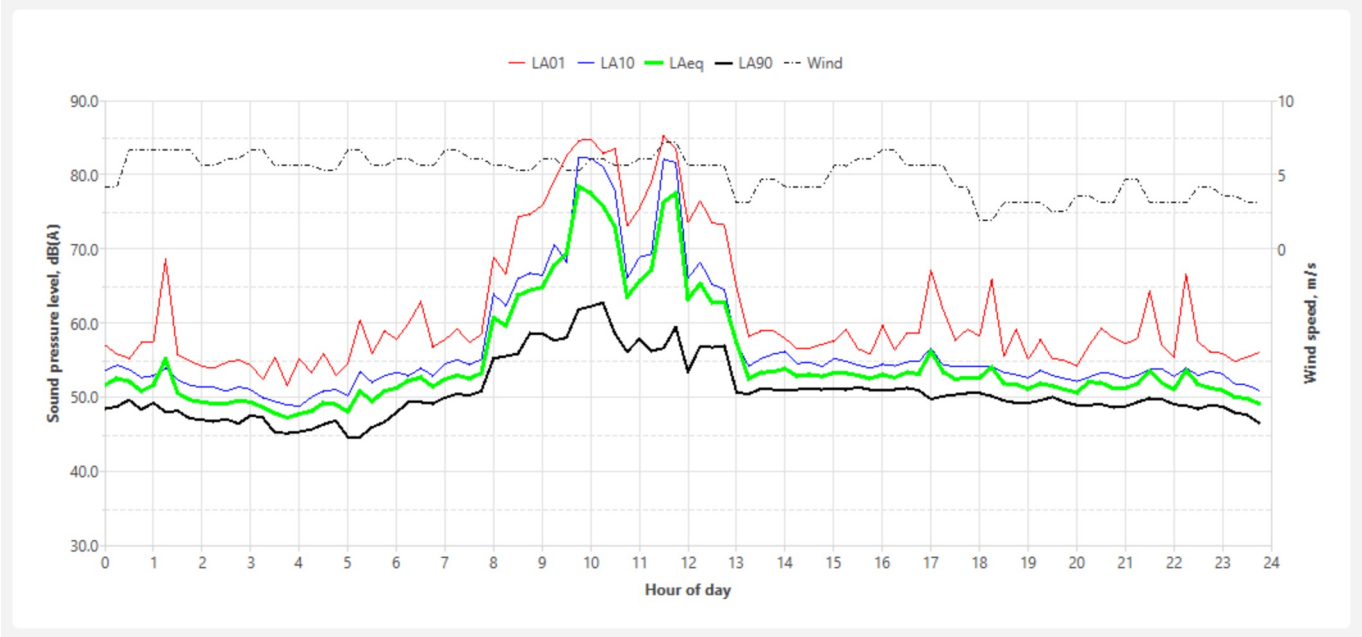
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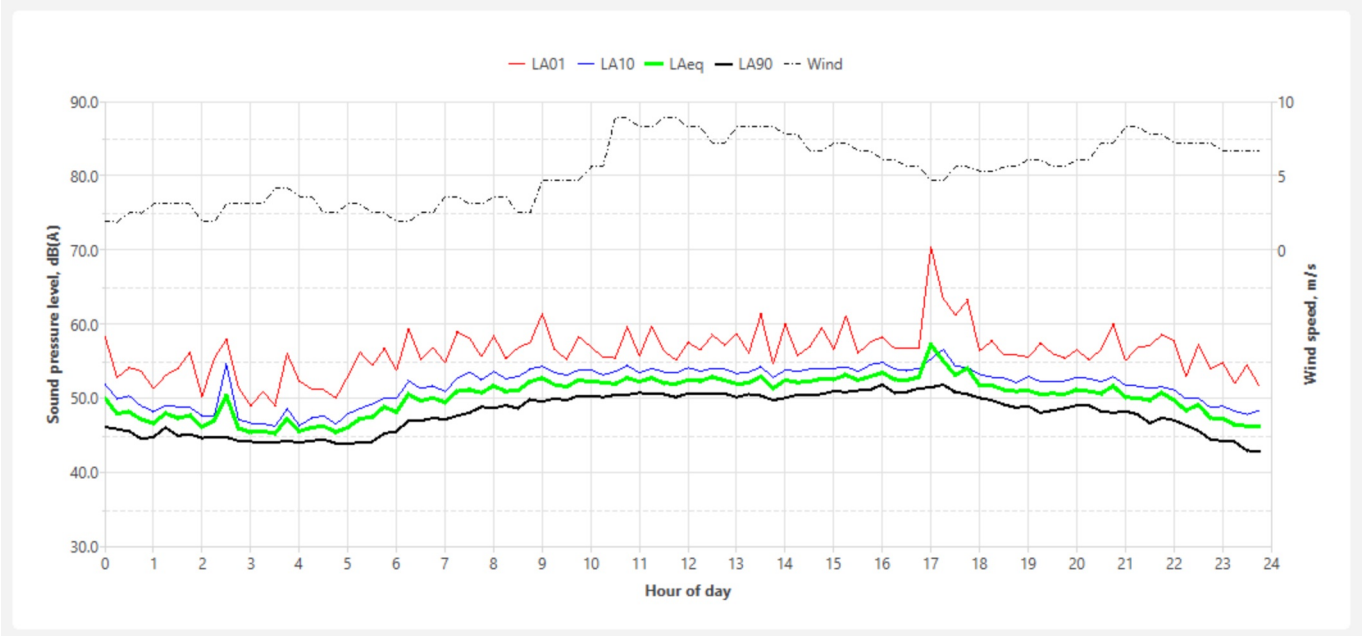
Friday, 29 May 2026



Saturday, 30 May 2026



Sunday, 31 May 2026



Monday, 1 June 2026



177 Walker Street, North Sydney NSW 2060

Ambient noise monitoring report



Item	Information
Logger Type	NL-43
Serial number	00653006
Address	177 Walker Street, North Sydney NSW 2060
Location	177 Walker Street, North Sydney NSW 2060
Facade / free field	Free field
Environment	

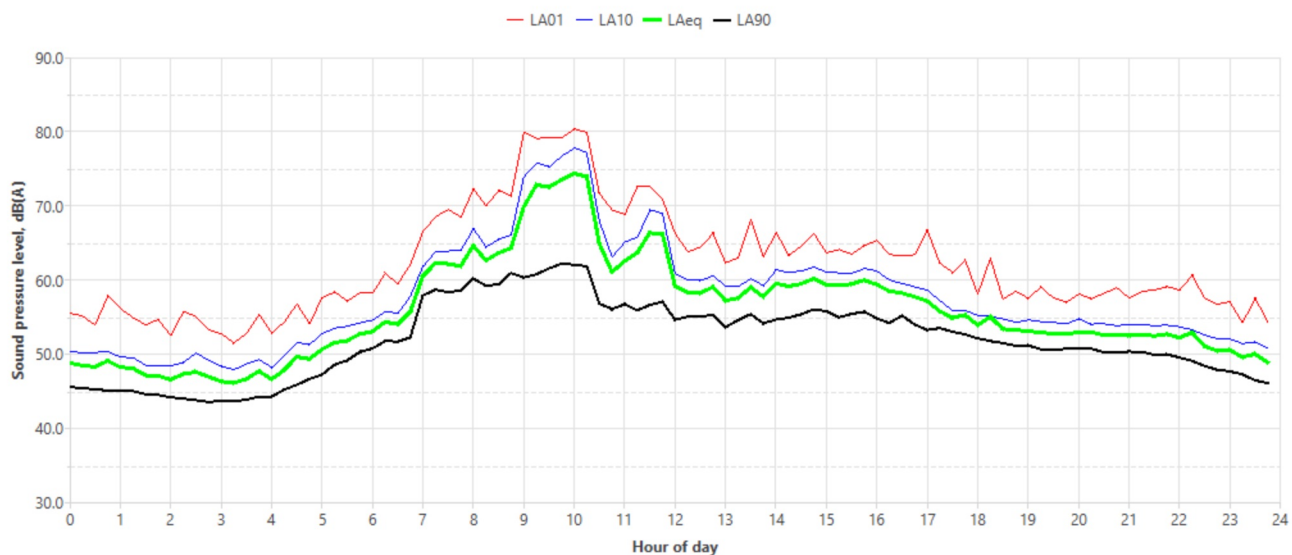
Measured noise levels

Logging date	Rating Background Level			L _{Aeq,period}		
	Daytime 7am-6pm	Evening 6pm-10pm	Night-time 10pm-7am	Daytime 7am-6pm	Evening 6pm-10pm	Night-time 10pm-7am
Fri 22 May 2026	-	52	-	-	56	-
Sat 23 May 2026	54	52	46	71	55	52
Sun 24 May 2026	50	51	44	55	53	50
Mon 25 May 2026	58	50	45	77	54	51
Tue 26 May 2026	57	53	44	77	57	52
Wed 27 May 2026	56	52	43	75	55	53
Thu 28 May 2026	56	51	44	72	55	53
Fri 29 May 2026	55	51	46	79	54	53
Sat 30 May 2026	52	50	46	70	54	52
Sun 31 May 2026	50	49	44	54	52	49
Mon 01 Jun 2026	-	-	-	76	-	51
Summary	55	51	44	74	55	52

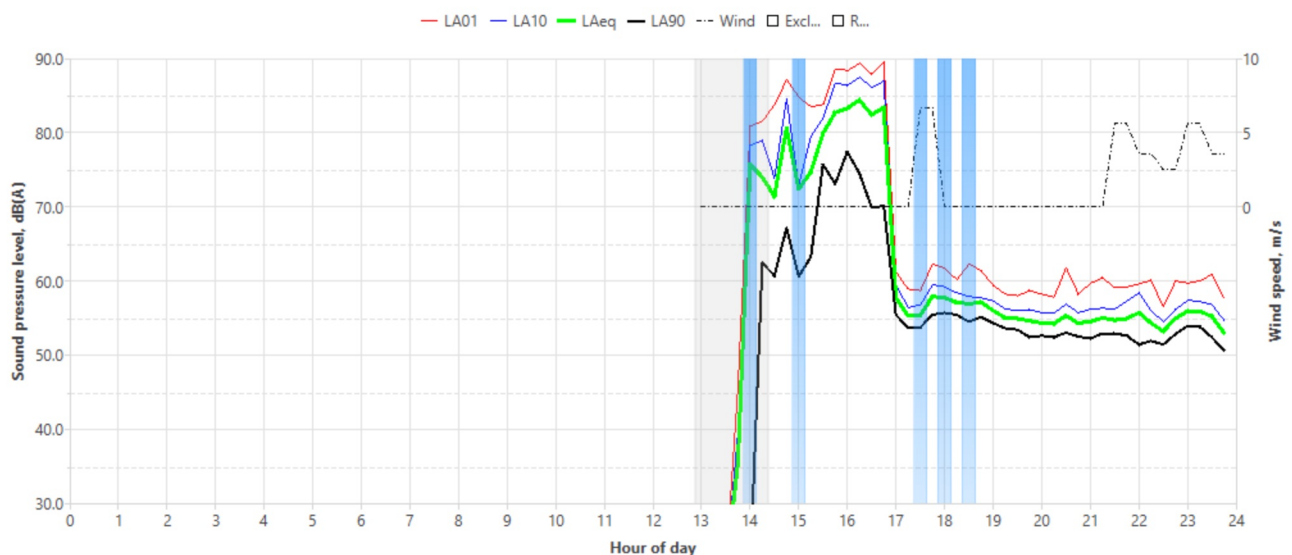
Note: Results with a '-' identify that there were not enough measurements available to correctly calculate the level, in accordance with the Noise Policy for Industry. The data has been excluded either from weather or manual exclusions. See the charts for more information

Logger location	Logger deployment photo

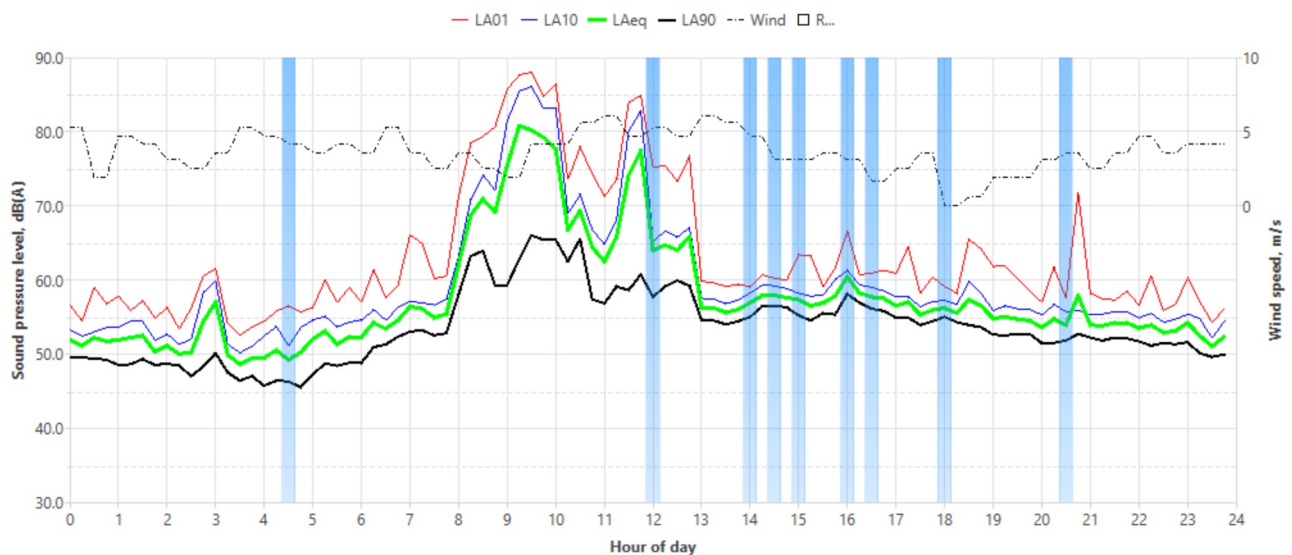
Typical Day



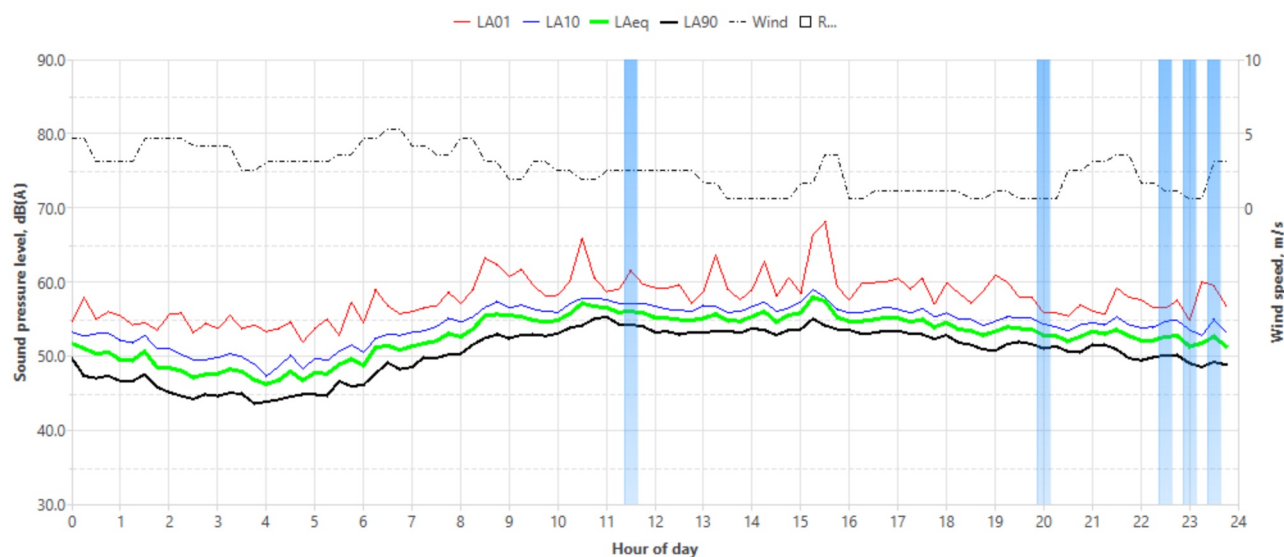
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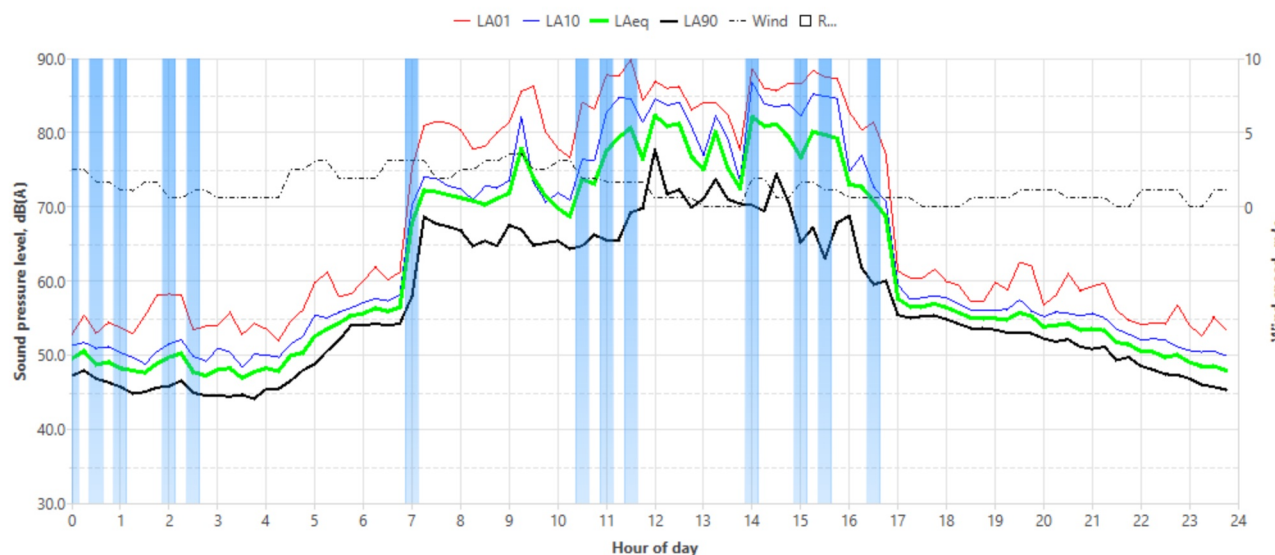
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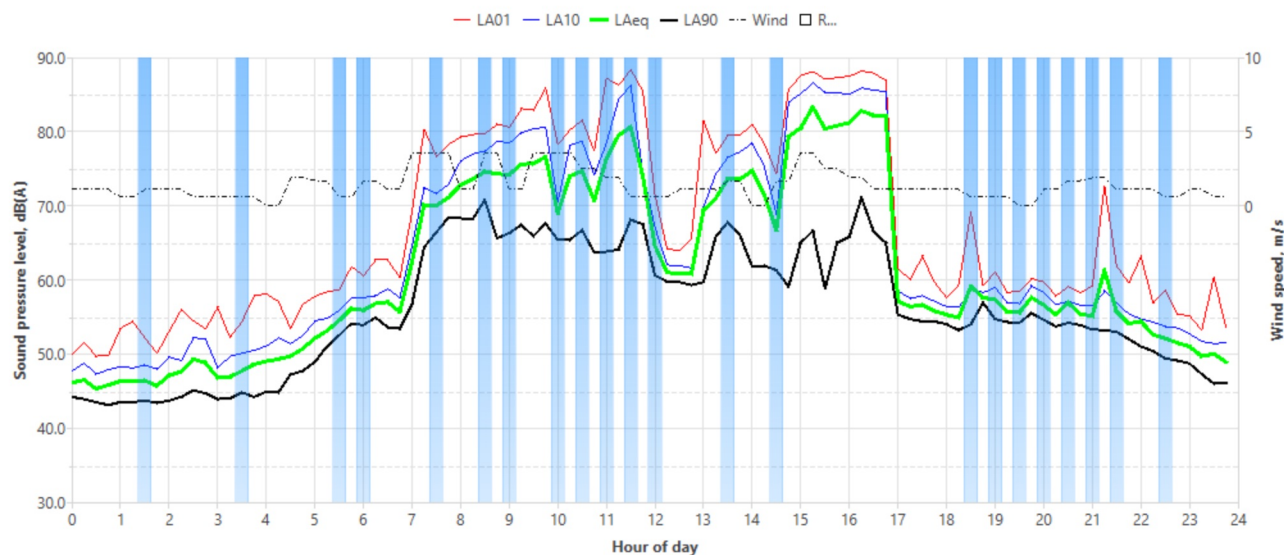
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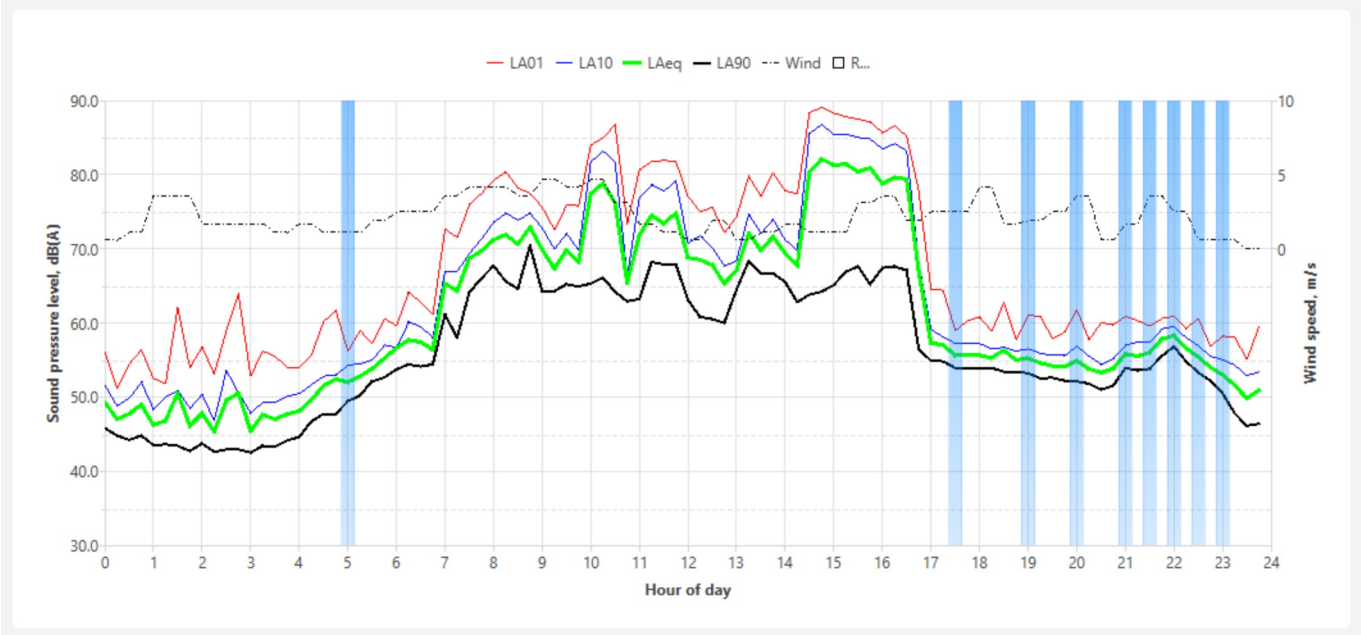
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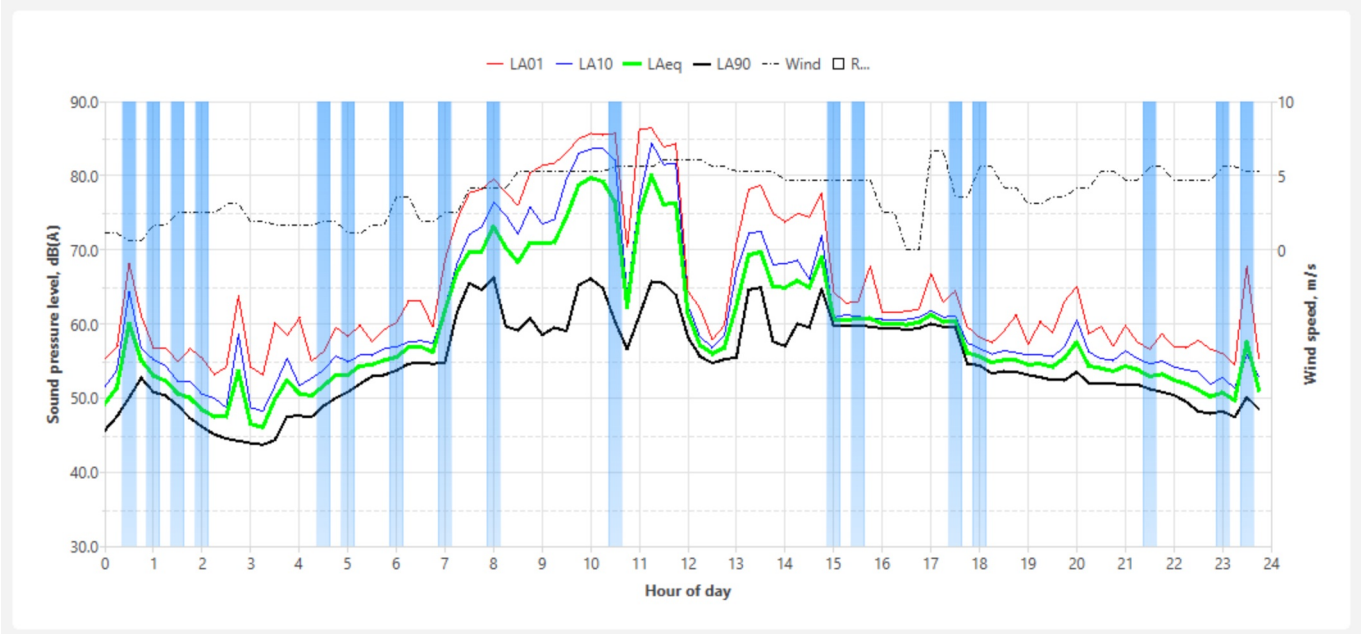
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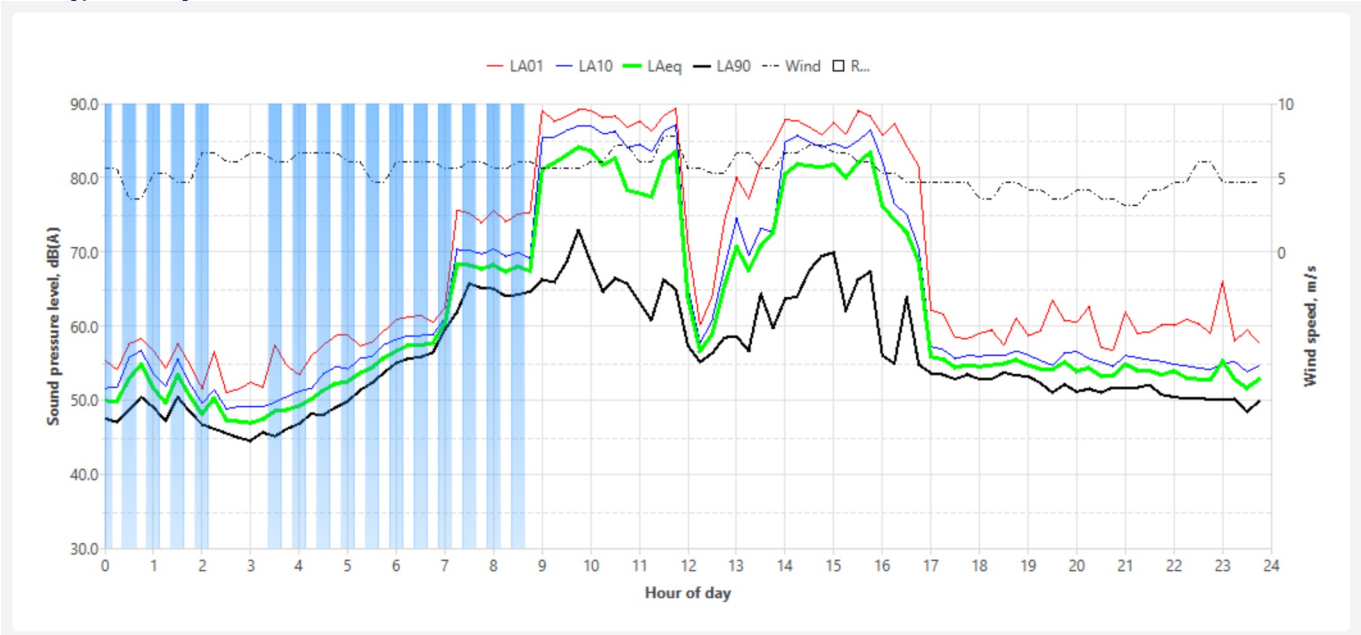
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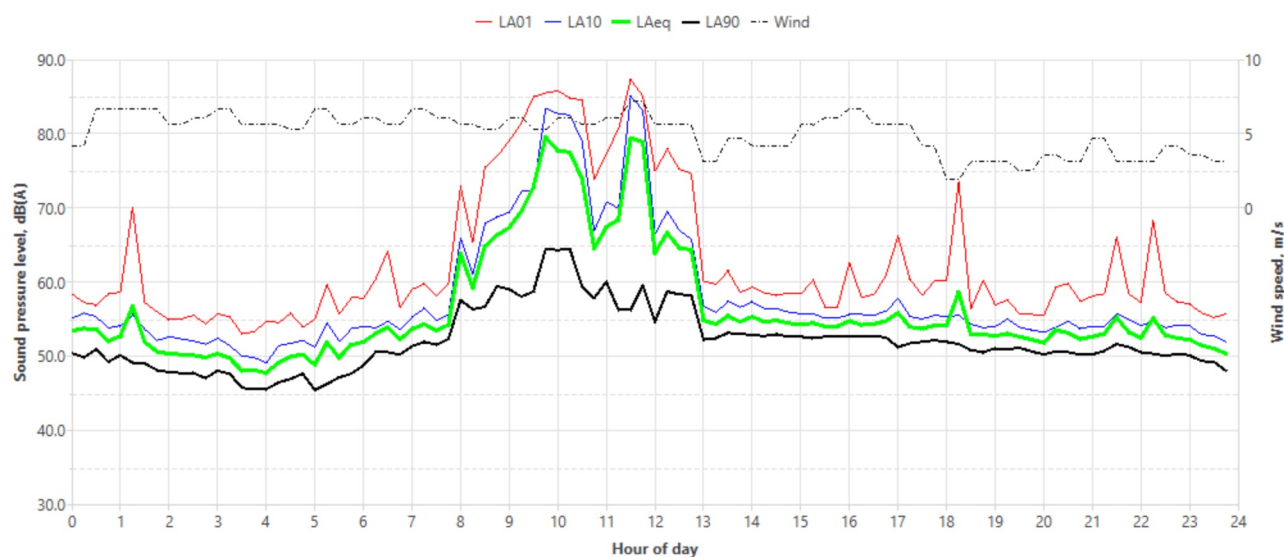
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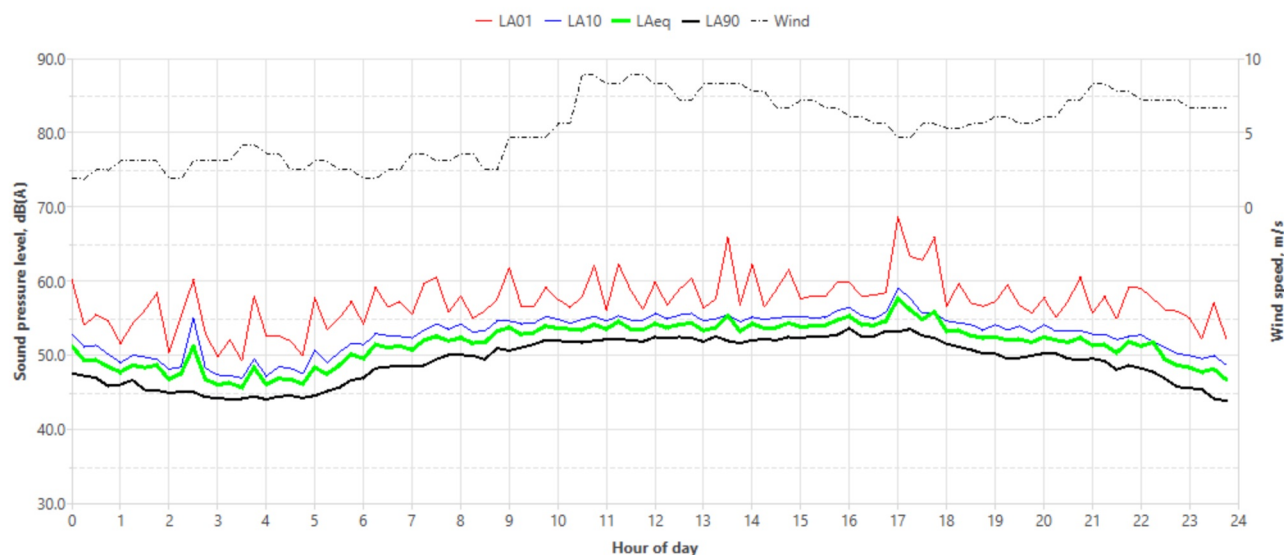
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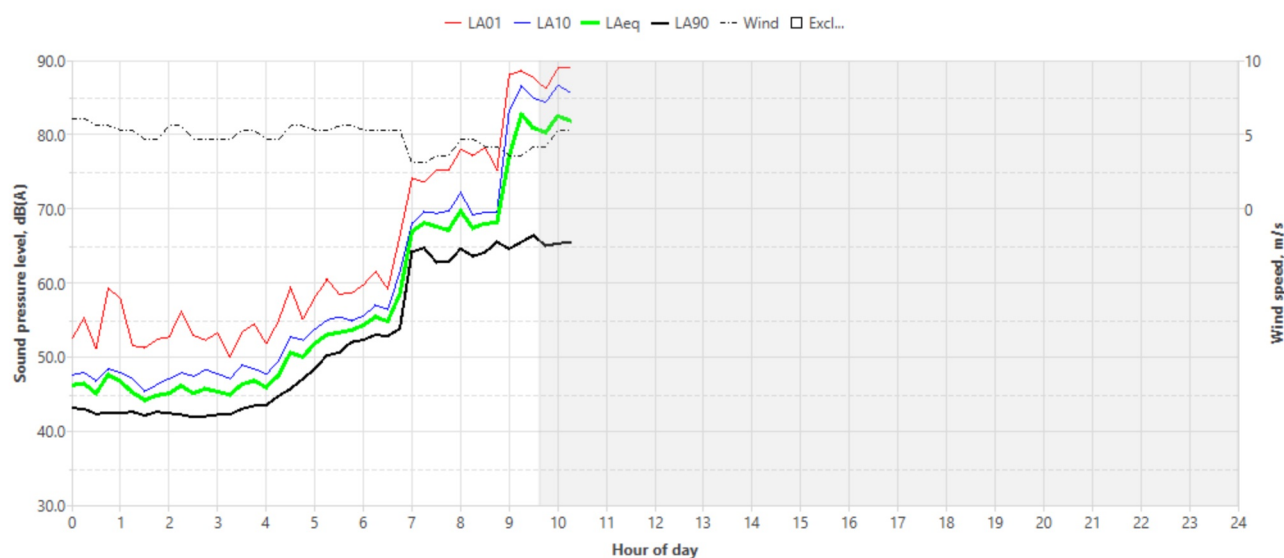
Saturday, 30 May 2026



Sunday, 31 May 2026



Monday, 1 June 2026





APPENDIX C. CONSTRUCTION ENVIRONMENT MANAGEMENT PLAN



Construction Environment Management Plan

For Site Development

At

**177 Walker Street
North Sydney NSW 2060**

Disclaimer

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Register of Amendments		
Revision	Date	Description
1	01.05.2026	Issued for use
2	06.05.2026	Updated project description
3	07.05.2026	Updated Site Contacts

Document Approval		
Prepared by	Date	Signed
Simon Caples Principal Consultant	28.04.2026	

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Table 2.1	Site Identification
Table 3.1	Construction Program

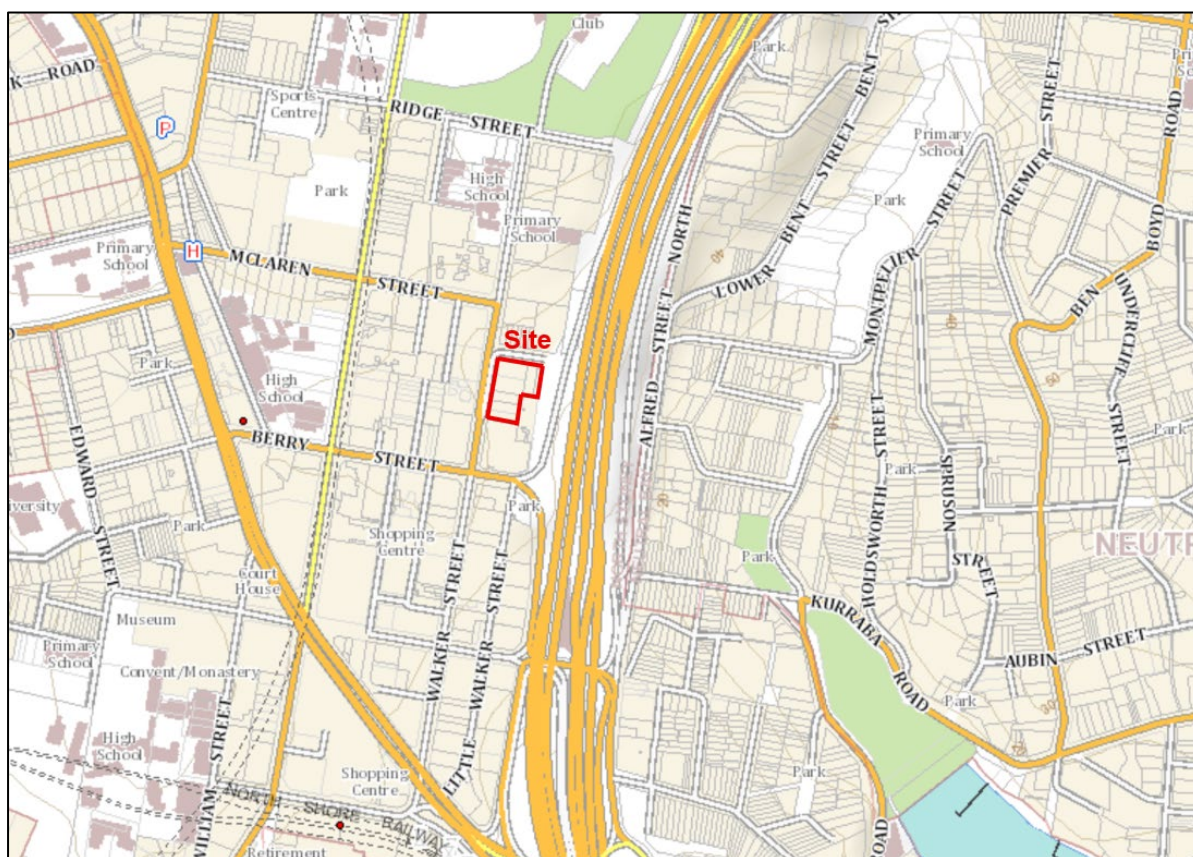
Figures

Figure 1.1	Location Plan
Figure 1.2	Site Layout

1.0 INTRODUCTION

Environmental Consulting Services Pty Ltd (ECS) was engaged to prepare the Construction Environment Management Plan (CEMP) for management of potential environmental impacts during excavation and construction of the basement at 173-179 Walker Street and 11-17 Hampden Street, North Sydney (the Site). The location of the Site is shown on Figure 1.1 – Location Plan.

Figure 1.1 – Location Plan



The purpose of this CEMP is to ensure that appropriate environmental management practices are followed during the proposed excavation activities associated with the development of the Site.

This CEMP has been prepared to manage potential environmental impacts during the excavation and construction of the basement for the development at the Site. The management of soil and groundwater during construction has been presented in the report titled *Construction Soil and Water Management Sub-Plan* (ECS revision 2 dated 12.03.2026).

The Construction Soil and Water Management Sub-Plan (CSWMSP) was prepared to address the following Development Consent condition (Application Number: SSD-67175465):

CONSTRUCTION SOIL AND WATER MANAGEMENT PLAN SUB - PLAN

- C7. Prior to the commencement of any work, the Applicant must submit to the Certifier a Construction Soil and Water Management Sub - Plan (**CSWMP**) for the Development (for Stages 1 and 2 as identified in Condition C1). The CSWMP must be prepared by a suitably qualified expert, in Consultation with Council and include, at a minimum, the following information:

- a) describe all erosion and sediment controls to be implemented during construction;
- b) provide a plan of how all construction works will be managed in a wet-weather event (i.e. storage of equipment, stabilisation of the site);
- c) detail all off-site flows from the site during construction; and
- d) describe the measures that must be implemented to manage stormwater and flood flows for small and large sized events, including, but not limited to 1 in 1-year ARI, 1 in 5-year ARI and 1 in 100-year ARI.

The CSWMP provides the basis for environmental management of soil and water throughout construction works associated with excavation and basement construction activities. It is expected that the CSWMP will be relevant until excavation activities are completed and construction of basements up to ground level are completed and surrounding open spaces are sealed or landscaped.

In addition to the CSWMP, the Development Consent requires the preparation of the following other management plans:

- C3. Construction Traffic and Pedestrian Management Sub-Plan;
- C4. Construction Noise and Vibration Management Sub-Plan;
- C5. Air Quality Management Sub-Plan; and
- C6. Construction Waste Management Sub-Plan

This CEMP provides information relevant to:

- a) details of:
 - i. hours of construction;
 - ii. 24-hour contact details of the site manager and complaint handling procedure;
 - iii. construction program and construction methodology, including construction staging;
 - iv. traffic management;
 - v. noise and vibration management;
 - vi. management of dust and odour;
 - vii. stormwater control and discharge including ensuring that vehicles leaving the site do not transfer dirt to roadways;
 - viii. prevention and management of contamination;
 - ix. management of stockpiles of soil or other materials;
 - x. waste management;
 - xi. external lighting in compliance with applicable Australian Standards; and
 - xii. site security, including fencing or hoarding.
- b) Construction Traffic and Pedestrian Management Sub-Plan in accordance with condition C3;
- c) Construction Noise and Vibration Management Sub-Plan in accordance with condition C4;
- d) Air Quality Management Sub-Plan in accordance with condition C5;
- e) Construction Waste Management Sub-Plan in accordance with condition C6;
- f) Construction Soil and Water Management Sub-Plan in accordance with condition C7;
- g) an unexpected finds protocol for remediation in accordance with condition C15;
- h) an unexpected finds protocol for Aboriginal and non-Aboriginal heritage and associated communications procedure, including but not limited to ensuring compliance with condition D25;
- i) waste classification (for materials to be removed) and validation (for materials to remain) to be undertaken to confirm the contamination status of relevant areas of the site.

Each Contractor will adopt this CEMP and the referenced sub-plans to manage risks specifically related to their scope of work on the Project.

Compliance with this CEMP is mandatory for all personnel and Contractors carrying out construction activities associated with excavation and basement construction.

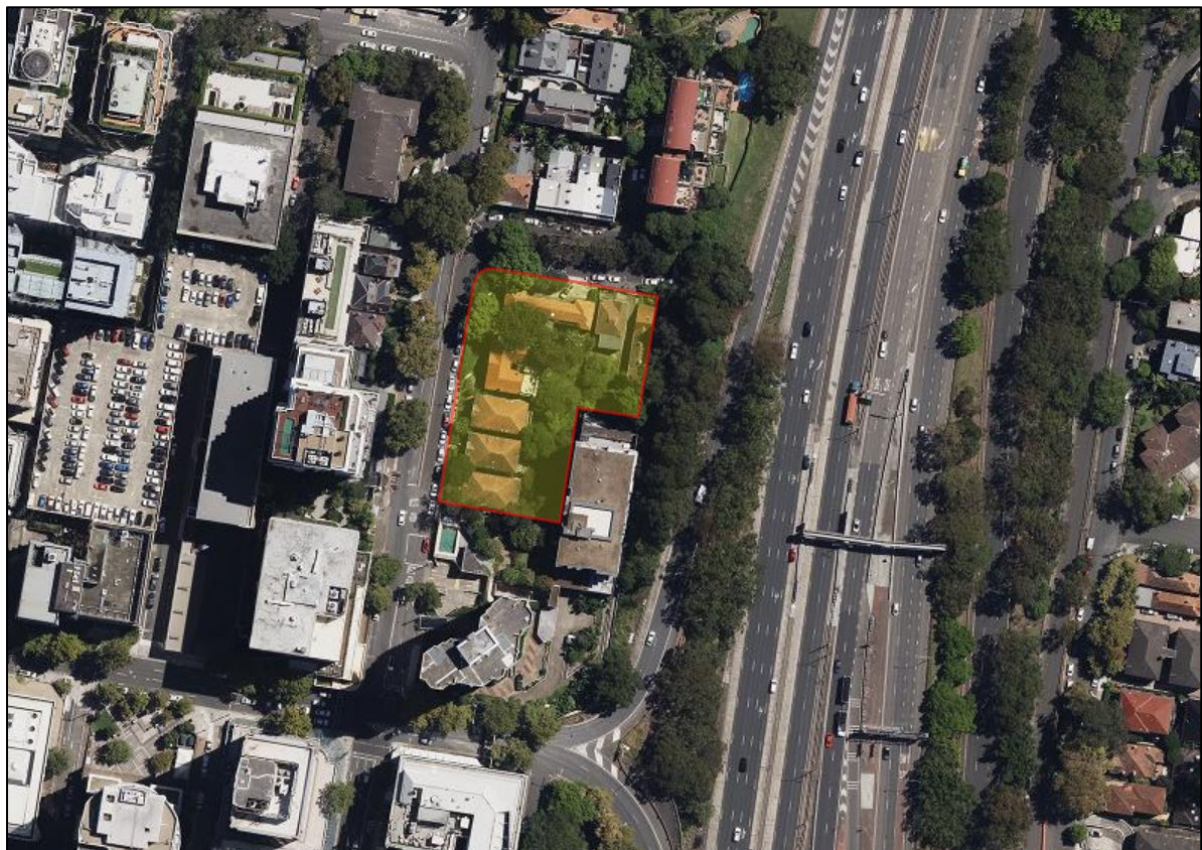
2.0 SITE IDENTIFICATION

The location of the Site and neighbouring developments are presented in Figure 2.1 – Site Location Plan with the Site identification details summarised in Table 2.1 – Site Identification.

Table 2.1 – Site Identification

Attribute	Detail
Site Address	173-179 Walker Street and 11-17 Hampden Street in North Sydney NSW 2060
Lot & Deposited Plan	Lot 50 DP 1318635 (formerly Lot 1 DP 523229, Lot 1 DP 1175748, Lot A DP 318690, Lot 100 DP 103595, Lot 1 DP 119732, Lot 1 DP 591516 and Lot 2 DP 591516)
Local Government Authority	North Sydney Council
Current Zoning	R4 – High Density Residential
Site Area (m ²)	Overall site: 3950 m ²
Geographic Co-ordinates (Site Centre)	Latitude: -33.836116466 (GDA94) Longitude: 151.209800558 (GDA94)

Figure 2.1 – Site Layout



The surrounding land around the Site includes commercial and residential uses dominated by multi-storey high-rise buildings to the south and southwest but houses to the north and northwest.

3.0 PROJECT OVERVIEW

The project includes the demolition of existing dwellings and structures, early works, excavation and construction of a residential development with infill affordable housing comprising:

- two residential flat buildings (12 and 30 storeys);
- 239 apartments (including 78 affordable housing apartments);
- one four-storey resident amenity and services building;
- four levels of basement with 218 car spaces;
- vehicular access from Walker Street;
- landscaping works, consolidation of existing lot.

The expected construction schedule will extend for approximately 2 years and is summarised in Table 3.1 – Construction Program

Table 3.1 – Construction Program

Activity		Expected Period
1	Demolition and bulk excavation	January 2026 – April 2025
2	Construction and fitout	April 2026 – October 2027
3	Commissioning	October 2027 – December 2027

4.0 SITE MANAGEMENT

This CEMP provides an overview of the environmental management required during the proposed development that must be implemented in conjunction with the following supporting plans:

- The Construction Traffic and Pedestrian Management Sub-Plan;
- The Construction Noise and Vibration Management Sub-Plan;
- The Air Quality Management Sub-Plan;
- Construction Waste Management Sub-Plan;
- Construction Soil and Water Management Sub-Plan;

In addition the CEMP notes the following requirements that must be implemented during the project:

- An unexpected finds protocol for remediation of conyamination;
- An unexpected finds protocol for Aboriginal and non-Aboriginal heritage and associated communications procedure; and
- Waste classification (for materials to be removed) and validation (for materials to remain) to be undertaken to confirm the contamination status of relevant areas of the site.

4.1 Construction Hours

The routine construction work hours are:

- Between 7am and 5pm, Monday to Friday inclusive;
- Between 8am and 1pm on Saturdays.

Routine construction work is not permitted on Sundays or public holidays.

Over and above the routine construction hours specified above, it is understood that approval for extended working hours for 30 days will be requested. The extended working hours will be for basement concrete pours up to the transfer at ground/level 1 with the works extending through to 9pm.

The request for the extended work hours is based on the following expected time requirements:

Typical basements pour (burnish finish)

- Concrete pour is on average is 300m³ in volume;
- The concrete pump takes 1 hour to set up for each pour;
- The concrete pump rate is approximately 40m³ per hour (without supply delays or breakdowns) taking 7.5 hours for an average concrete pour;
- A typical 300m³ pour is expected to be completed by 4pm with pack up taking 1 hour (by 5pm); and
- Finishing the slab will require 4 hours after the last concrete delivery and will typically included 4 men on trowelling machines.

Transfer pours

- Transfer pours are approximately 800m³ in volume;
- The concrete pump takes 1 hour to set up for each pour;
- The concrete pump rate is approximately 70m³ per hour (without supply delays or breakdown) taking approximately 11.5 hours for a pour;
- An 800m³ pour is expected to be completed by 7pm with pack up taking 1 hour (by 8pm);
- It is expected that there will be 10 men working and 30 concrete trucks deliveries outside of routine working hours; and
- Finishing the slab will require 2 hours after the last concrete delivery (at 7pm) and will typically included 4 men on trowelling machines

The approval for this project also restricts rock breaking, rock hammering, sheet piling, pile driving or similar activities to the following hours:

- Between 9am and 12pm, Monday to Friday inclusive;
- Between 2pm and 5pm, Monday to Friday inclusive; and
- Between 9am and 12pm on Saturdays.

Non-routine work, as directed by the police or a public authority or in an emergency; to avoid injury, property damage or environmental harm can be undertaken.

4.2 Site Contact

The 24 hour contact for this project is a designated phone line and email address for East Walker 88 Development Pty Ltd:

- Phone: 1300 927 516
- Email: Thewalden.community@aland.com.au

4.3 Traffic Management

The key points within the Construction Traffic and Pedestrian Management Sub-Plan that relate to impacts from vehicle movements include:

- The requirement for trucks entering and departing the site will be under traffic controller supervision via Hampden Street; and
- Pedestrian safety along Hampden Street will continue to be maintained through the use of appropriate site fencing, signage, and traffic control measures, consistent with the requirements of TfNSW and the relevant Australian Standards.

4.4 Noise and Vibration Management

The Construction Noise and Vibration Management Sub-Plan has established the expected impacts from the proposed works. This plan has identified the key receptors and the and established the Noise Management Levels for each receptor.

In the event that the request for extended working hours is permitted then the Construction Noise and Vibration Management Sub-Plan should be updated to incorporate the extended work hours.

The potential for noise impacts should be mitigated through the mandatory use of project notifications to all identified receptors providing the timing of the extended working hours. The notification must be at least 5 working days prior to the extended work period.

4.5 Dust Mitigation and Odour Management

The generation of dust must be minimised during the excavation and construction activities. Water sprays must be effectively use to mitigate the generation of dust during excavation works, from vehicle movements and from soil stockpiles.

The application of water to the ground surface on internal site roads, on stockpiled material and at excavation locations is intended to prevent the generation of excessive dust that may travel beyond the site boundaries.

Alternatives to the use of water may be considered for some dust suppression such as the covering of soil stockpiles with geofabric of the surfacing of internal roads with aggregate.

The ground conditions at the site are not expected to result in the generation of excessive, offensive odour. In the event that odorous, offensive soil conditions are encountered then the Unexpected Finds Protocol for the project must be enacted.

The Air Quality Management Sub-Plan must be implemented.

4.6 Stormwater Management

The Construction Soil and Water Management Sub-Plan presents the required controls for stormwater management.

The key controls include;

- The placement of a concrete or asphalt bund across the entrance to the Site. This bund needs to mitigate overland flow of stormwater onto or off-site (depending on location) and direct surface water to the installed drainage system.
- All discharge grates must be bunded with sandbags to mitigate sediment influx into the grates.
- The placement of sandbags around the existing stormwater drains along neighboring Streets.
- The establishment of internal Site drains/sumps to direct stormwater to the drainage grates or collect water for pumpout. These internal drains should be constructed so that in the event of a major rainfall event (1% AEP or greater), that has the potential to inundate the drainage system, surface water is redirected into the basement excavation of the building.

4.7 Prevention and Management of Contamination

The Site is the subject of a Remediation Action Plan (Douglas Partners Pty Ltd dated May 2024) which requires the management of soil contamination. This CEMP must be implemented in conjunction with the Remediation Action Plan (RAP).

The RAP identifies the known contamination at the site and specifies the required remediation. All contamination must be managed in accordance with the RAP.

All soil and rock excavated for removal from the site will require the preparation of waste classifications in accordance with current regulations (NSW EPA waste classification guidelines) and retain records.

To prevent further contamination at the site the following controls must be implemented:

- The establishment of dangerous goods storage areas for all dangerous goods brought to site;
- The establishment of a vehicle refuelling area that has controls to manage leaks and spills that minimise the potential for soil impacts and prevent runoff to stormwater drains; and
- The selective importation of materials (including fill material) that have been certified as suitable for use at the site.

4.8 Waste Management

Waste management during the excavation and construction activities must minimise the potential for mixing of waste types and provide for designated waste streams for:

- Excavated soil and rock;
- Surplus building materials;
- Packaging materials;
- Office waste; and
- Putrescible waste.

Where possible waste material must be recycled. The management of waste must conform with the Construction Waste Management Sub-Plan.

4.9 Site Security

Adequate security fencing or hoarding must be established and maintained around the site perimeter. The fencing should be 1.8m high and have secure gates for vehicle and pedestrian access. The gates must be manned or have access control measures to prevent unauthorised site access.

There are no proposed external lighting requirements for the project. However, any temporary lighting established for periods of extended working hours must be established to mitigate excessive light spill beyond the site boundary. Where possible work lighting and onsite lighting should be directed towards the site centre and should not be directed across the site boundary.

5.0 IMPLEMENTATION

Overall responsibility for the implementation of this CEMP rests with the Project Manager. All employees and Contractors will meet the requirements of this CEMP. Management actions stated in this CEMP may be delegated in writing by the Project manager to specific Contractors.

Key Project personnel including the Project Manager and Site Manager, Civil Contractor Project Manager and Project Environmental Consultant will ensure that all management actions are undertaken to a satisfactory standard and that all personnel are aware of their responsibilities with respect to environmental matters associated with excavation and construction work. A general outline of responsibilities in relation to environmental management is provided below:

Project Manager

- Overall accountability for the environmental management of the Project.
- Overall responsibility for development, implementation, maintenance and compliance with the CEMP.
- Ensure contracts contain relevant environmental provisions.
- Review and sign off on this CEMP and subsequent revisions.

Site Manager

- Accountability for the implementation of environmental management controls.
- Responsibility for and compliance with the CEMP.
- Ensure compliance with relevant environmental provisions in contracts.
- Review effectiveness off on the implementation of this CEMP.

Civil Contractor Project Manager

- Overall responsibility for the development and implementation of the Contractor's own project specific management plans and safe work method statement.
- Ensure compliance with the requirements of this CEMP throughout its works.
- Ensure compliance with the requirements of the Contractors own project specific management plans and safe work method statement.

Environmental Consultant

- Responsible for environmental monitoring for the duration of the CEMP.
- Advise regarding compliance with the requirements of this CEMP throughout works.
- Advise regarding management of Unexpected Finds.

All Excavation and Construction Personnel

- Comply with the requirements of this CEMP.
- Report all environmental incidents as they occur.
- Attend environmental inductions or any other training as required.
- Require reasonable steps be taken to avoid or minimise unintended or adverse environmental impacts and failing the effectiveness of such steps, direct that relevant actions be ceased immediately should an adverse impact on the environment be likely to occur.

5.1 Induction

The Project Manager will implement a Site induction program that all contractors and employees are required to complete prior to undertaking excavation and basement construction work. The Project specific induction will include the requirement for mandatory compliance with this CEMP by all personnel involved in excavation and basement construction activities.

5.2 Training

The personnel will have the experience, training and necessary licences to carry out the tasks required for the implementation of this CEMP. Specific environmental training will be provided as relevant by the Project Manager, or delegated to relevant Contractors, including:

- The Contractor will implement appropriate training to ensure its personnel are aware of their environmental responsibilities, including requirements set out in their works-specific management plans or safe work method statements.
- The Project Manager and the Contractor will each maintain a Training Register that records all training completed by its personnel, including records of attendance at awareness training and toolbox talks, as well as competency assessments.

5.3 Internal Communication

Internal communications will include discussions, electronic communications and printed material as required.

All environmental issues including incidents and near misses will be raised as a regular component of toolbox talks, site meetings and transmitted electronically as necessary.

5.4 External Communication

The Project Manager is responsible for external communication in relation to matters concerning the project. This includes but is not limited to communications with the media and government agencies and particularly in relation to external reporting of incidents that may have occurred. This excludes emergency calls or required by law which may be made by anyone.

5.5 Incident Management

The Project Manager will implement incident management procedures, including for response to, investigation and reporting of incidents.

5.6 Complaint Management

The Project Manager will establish a complaint management procedure for the investigation, response and reporting of complaints.

Records will be kept of all complaints relating to the implementation of this CEMP made to the Principal Contractor and its Contractors, including:

- The date and time of the complaint.
- The method by which the complaint was made.
- Any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect.
- The nature of the complaint.
- The action taken by the Principal Contractor in relation to the complaint, including any follow-up contact with the complainant.
- If no action was taken by the Principal Contractor, the reasons why no action was taken.

The complaints record must be produced to any authorised officer of the EPA, SafeWork or Council who asks to see it.

The complaints record must be kept for at least four years after the complaint was made.

5.7 Inspection and Compliance Management

Regular inspections will be carried out to confirm compliance with the CEMP. Inspections should be conducted daily during excavation activities and observations recorded after each inspection. Inspection observations/findings that indicate non-compliance or potential non-compliance with the CEMP will be recorded in a Corrective Actions Register for action and close out. The Corrective Actions Register will detail the source of the action, the action required, target close out date, actual close out date and the person responsible for the action item.

Inspections should also be undertaken during significant storm events and observations recorded. Such inspections during storm events are considered to represent a test of control adequacy.

5.8 CEMP Review

The CEMP is intended to be for excavation and basement construction activities that should reasonably be completed within less than 12 months. However, in the event that excavation and basement construction activities are not completed within 12 months, the CEMP should be formally reviewed by the Project Manager in consultation with relevant stakeholders. The CEMP should also be reviewed when any of the following occur:

- The scope of excavation works significantly changes;
- The Project implementation program significantly changes; or
- Opportunities for improvement, or deficiencies in the existing system are identified through Inspection Reports, Incident / Non-conformance Reports or site observations.

The CEMP will be revised by the Project Manager. A summary of changes will be recorded in the revision control chart and the revised CEMP distributed to personnel. Where changes are significant and impact on Site environmental management, a tool box talk will be presented to relevant staff and recorded.