

Attachment E

Acoustic Report



The Boxing Bear, Surry Hills

Licensed Venue Noise Impact Assessment

FDC Fitout & Refurbishment (NSW) Pty Ltd

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Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

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1 INTRODUCTION

Pulse White Noise Acoustics (PWNA) have been engaged to undertake an acoustic assessment of the proposed conversion of an existing building to a licenced restaurant (*The Boxing Bear Bar & Bistro*) located at 378-380 Cleveland Street, Surry Hills NSW 2010.

The licenced premises is proposed to incorporate internal dining areas, lounges, bar/bistro areas, an indoor courtyard/bar area with an operable glazed roof, as well as various back of house areas.

The application will be assessed against relevant statutory regulations and guidelines including the following.

- City of Sydney Council document titled Development Control Plan (DCP) 2012.
- New South Wales (NSW) Environmental Protection Authority (EPA) document titled Noise Policy for Industry 2017 (NPI); and
- NSW Liquor and Gaming typically imposed noise conditions.

1.1 Proposed Development

The proposed development includes the following:

- Conversion of an existing building into a licenced restaurant venue

It is assumed that the proposed development will operate until midnight on certain days of the week; that is, will encompass the daytime, evening and night-time periods, as defined under the NSW EPA Noise Policy for Industry (NPI) 2017.







Architectural drawings for the proposed development, which have been used in our assessment are from *Richards Stanisich* dated 15/08/2025.

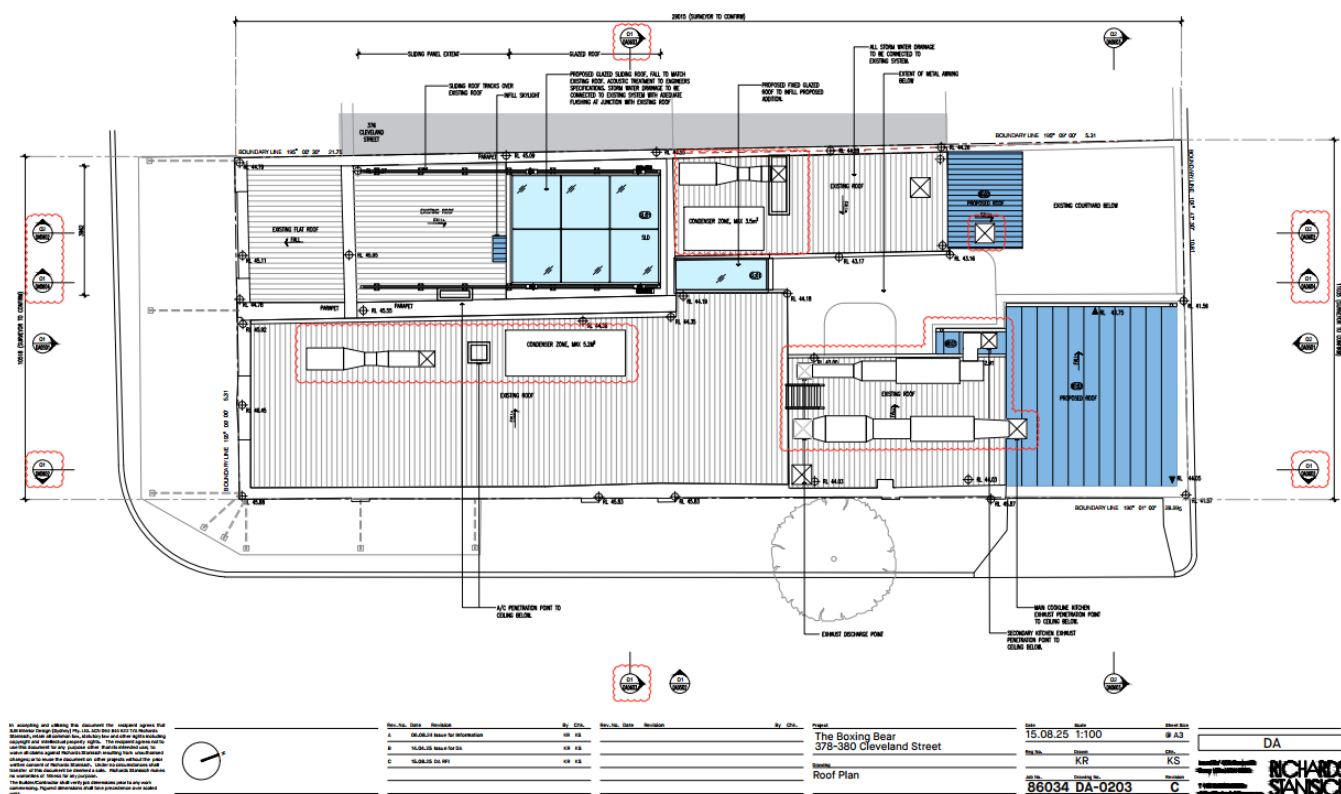
Floor plans of the proposed development are included in the figures below.

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GENERAL NOTES
LEGEND & FINISHES

	EXISTING WALLS
	DEMOLISHED
	PROPOSED MASONRY
	PROPOSED LIGHT WEIGHT
	PROPOSED METAL
	PROPOSED GLASS



2 SITE DESCRIPTION AND SURROUNDING RECEIVERS

The site is bounded by the following:

- Marlborough Street along the eastern boundary of the site.
- Cleveland Street along the southern boundary of the site.
- Goodlet Lane along the northern boundary of the site.
- Existing residential dwellings and shop-top housing surrounding the site to the north, south, east, and west.

The nearest sensitive noise receivers to the restaurant are detailed below:

- Receiver 1 -** Existing residential dwellings to the west of the site located along Cleveland Street and situated at 376 Cleveland Street, Surry Hills NSW 2010.
- Receiver 2 -** Existing residential dwellings to the north of the site located along Goodlet Lane and situated at 105 Marlborough Street, Surry Hills NSW 2010.
- Receiver 3 -** Existing residential dwellings to the north-east of the site located along Marlborough Street and situated at 94 Marlborough Street, Surry Hills NSW 2010.
- Receiver 4 -** Existing commercial receiver located on ground level, with residential shop-top housing located above. Situated to the east of the project site located at 382 Cleveland Street, Surry Hills NSW 2010.
- Receiver 5 -** Existing commercial receiver located on ground level, with residential shop-top housing located above. Situated to the east of the project site located at 357-359 Cleveland Street, Surry Hills NSW 2010.
- Receiver 6 -** Existing commercial receiver located on ground level, with residential shop-top housing located above. Situated to the east of the project site located at 353-355 Cleveland Street, Surry Hills NSW 2010.

A site map has been provided below which identifies the surrounding receivers and noise measuring locations, see Figure 4 below.

Figure 4 Site Map, Measurement Location and Surrounding Receivers – Sourced from SixMaps NSW





3 NOISE DESCRIPTORS AND TERMINOLOGY

Environmental noise constantly varies in level with time. It is therefore necessary to measure environmental noise in terms of quantifiable time periods and statistical descriptors. Typically, environmental noise is measured over 15-minute periods and relevant statistical descriptors of the fluctuating noise are determined to quantify the measured level.

Noise (or sound) consists of minute fluctuations in atmospheric pressure capable of detection by human hearing. Noise levels are expressed in terms of decibels, abbreviated as dB or dB(A), the A indicating that the noise levels have been frequency weighted to approximate the characteristics of normal human hearing. Because noise is measured using a logarithmic scale, 'normal' arithmetic does not apply, e.g. adding two sources of sound of an equal value results in an increase of 3dB (i.e. 60 dBA + 60 dBA = 63 dBA). A change of 1 dB or 2 dB in the level of a sound is difficult for most people to detect, whilst a 3 dB – 5 dB change corresponds to a small but noticeable change in loudness. A 10 dB change roughly corresponds to a doubling or halving in loudness.

The most relevant environmental noise descriptors are the LAeq, LA1, LA10 and LA90 noise levels. The LAeq noise level represents the "equivalent energy average noise level". This parameter is derived by integrating the noise level measured over the measurement period and is equivalent to a level that would have been experienced had the fluctuating noise level remained constant during the measured time period.

The LA1, LA10 and LA90 levels are the levels exceeded for 1%, 10% and 90% of the sample period. These levels are sometimes thought of as the typical maximum noise level, the average repeatable maximum and average repeatable minimum noise levels, respectively.

Specific acoustic terminology is used in this assessment report. An explanation of common acoustic terms is included as Appendix A.



4 EXISTING NOISE ENVIRONMENT

This section of the report details the acoustic survey which has been undertaken at the site for the purpose of obtaining existing background noise levels.

4.1 Unattended Noise Monitoring

An unattended noise survey was conducted between Friday 23rd February 2024 and Tuesday 5th March 2024 on the northern boundary of the site in a location representative of the residential receivers surrounding the site as shown in Figure 4 above. This survey was conducted to measure the existing background noise level. All data in the graphs presented in Appendix B have not been corrected (i.e., raw data is presented).

Instrumentation for the survey comprised one Rion NL-42 sound level meter (serial number 00396931). Calibration of the logger was 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.

4.1.1 Results in accordance with the NSW EPA Noise Policy for Industry (NPI) 2017 (RBL's)

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 1.

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 Observatory Hill (ID 066214) which is located within 30km. Levels presented below are processed results with extraneous weather events removed.

Table 1 Measured Ambient Noise Levels corresponding to the NPI's Assessment Time Periods

Measurement Location	Daytime ¹ 7:00 am to 6:00 pm		Evening ¹ 6:00 pm to 10:00 pm		Night-time ¹ 10:00 pm to 7:00 am	
	L _{A90} ² (dBA)	L _{Aeq} ³ (dBA)	L _{A90} ² (dBA)	L _{Aeq} ³ (dBA)	L _{A90} ² (dBA)	L _{Aeq} ³ (dBA)
378-380 Cleveland Street, Surry Hills, northern boundary – See Figure 4	48	56	43	58	36	51

Note 1 For Monday to Saturday, Daytime 7:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 7:00 am. On Sundays and Public Holidays, Daytime 8:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 8:00 am.

Note 2 The L_{A90} noise level is representative of the "average minimum background sound level" (in the absence of the source under consideration), or simply the background level.

Note 3 The L_{Aeq} is the energy average sound level. It is defined as the steady sound level that contains the same amount of acoustical energy as a given time-varying sound.

4.1.2 Results in accordance with NSW Liquor and Gaming

In addition to the overall broadband noise levels identified above, the unattended noise monitor was recording the associated single octave (1/1) noise spectra for each period. These are provided below.

The use of single octave spectra is for the establishment of the patron and music acoustic criteria.

Table 2 Measured Single Octave (1/1) Spectra

Time Period ¹	Parameter ²	Octave Band Centre Frequency, Hz (dB)									Overall dBA
		31.5	63	125	250	500	1k	2k	4k	8k	
Day	Measured L ₉₀	55	54	50	49	45	44	38	30	18	48
Evening (6:00pm – 8:00pm)		53	52	48	47	43	42	36	28	16	46
Evening (8:00pm – 10:00pm)		50	49	45	44	40	39	33	25	13	43
Night		41	41	44	37	34	30	24	17	10	36

Note 1 For Monday to Saturday, Daytime 7:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 7:00 am. On Sundays and Public Holidays, Daytime 8:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 8:00 am.

Note 2 The L_{A90} noise level is representative of the "average minimum background sound level" (in the absence of the source under consideration), or simply the background level.



5 ACOUSTIC CRITERIA

5.1 Noise Emission Criteria

Noise emissions from the operation of the site impacting on the adjacent land users are outlined below. Noise emissions expected from the use of the site include mechanical services and dining areas.

5.1.1 City of Sydney Council Development Control Plan (DCP) 2012

Noise emissions from the use of the site are not covered in the City of Sydney Council Development Control Plan 2012. However, typical conditions of consent that are adopted in relation to permitted noise emissions from a project site have been shown below. Typically, these are in line with the requirements of the NSW EPA *Noise Policy for Industry (NPI) 2017*.

(2) NOISE – COMMERCIAL PLANT / INDUSTRIAL DEVELOPMENT

- (a) *Noise from commercial plant and industrial development must not exceed a project amenity/intrusiveness noise level or maximum noise level in accordance with relevant requirements of the NSW EPA Noise Policy for Industry 2017 (NPfI) unless agreed to by the City's Area Planning Manager. Further:*
 - (i) *Background noise monitoring must be carried out in accordance with the long-term methodology in Fact Sheet B of the NPfI unless otherwise agreed by the City's Area Planning Manager.*
 - (ii) *Commercial plant is limited to heating, ventilation, air conditioning, refrigeration and energy generation equipment.*
- (b) *An LAeq,15 minute (noise level) emitted from the development must not exceed the LA90, 15 minute (background noise level) by more than 3dB when assessed inside any habitable room of any affected residence or noise sensitive commercial premises at any time. Further:*
 - (i) *The noise level and the background noise level shall both be measured with all external doors and windows of the affected residence closed.*
 - (ii) *Background noise measurements must not include noise from the development but may include noise from necessary ventilation at the affected premise.*
- (c) *Corrections in Fact Sheet C of the NPfI are applicable to relevant noise from the development measured in accordance with this condition, however duration corrections are excluded from commercial noise.*

5.1.2 NSW EPA Noise Policy for Industry (NPI) 2017

In NSW, the control of noise emissions is the responsibility of Local Government (Council) and the NSW Environment Protection Authority (NSW EPA).

The NSW EPA has recently released a document titled Noise Policy for Industry (NSW NPI 2017) which provides a framework and process for determining external noise criteria for the assessment of noise emission from industrial developments. The NSW NPI criteria for industrial noise sources have two components:

- Controlling the intrusive noise impacts for residents and other sensitive receivers in the short term; and



- Maintaining noise level amenity of particular land uses for residents and sensitive receivers in other land uses.

5.1.2.1 Intrusive Noise Impacts (Residential Receivers)

The NSW NPI states that the noise from any single source should not intrude greatly above the prevailing background noise level. Industrial noises are generally considered acceptable if the equivalent continuous (energy-average) A-weighted level of noise from the source (LAeq), measured over a 15 minute period, does not exceed the background noise level measured in the absence of the source by more than 5 dB(A). This is often termed the Intrusiveness Criterion.

The 'Rating Background Level' (RBL) is the background noise level to be used for assessment purposes and is determined by the methods given in the NSW NPI. Using the rating background noise level approach results in the intrusiveness criterion being met for 90% of the time. Adjustments are to be applied to the level of noise produced by the source that is received at the assessment point where the noise source contains annoying characteristics such as tonality or impulsiveness.

5.1.2.2 Protecting Noise Amenity (All Receivers)

To limit continuing increases in noise levels, the maximum ambient noise level within an area from industrial noise sources should not normally exceed the acceptable noise levels specified in Table 2.2 of the NSW NPI. That is, the ambient LAeq noise level should not exceed the level appropriate for the particular locality and land use. This is often termed the 'Background Creep' or Amenity Criterion.

The amenity assessment is based on noise criteria specified for a particular land use and corresponding sensitivity to noise. The cumulative effect of noise from industrial sources needs to be considered in assessing the impact. These criteria relate only to other continuous industrial-type noise and do not include road, rail or community noise. If the existing (measured) industrial-type noise level approaches the criterion value, then the NSW NPI sets maximum noise emission levels from new sources with the objective of ensuring that the cumulative levels do not significantly exceed the criterion.

5.1.2.2.1 Area Classification

The NSW NPI characterises the "Urban" noise environment as an area with an acoustical environment which shows the following:

- It is dominated by 'urban hum' or industrial source noise, where urban hum means the aggregate sound of many unidentifiable sources, consisting mostly of traffic and/or industrial related sounds
- Has through traffic with characteristically heavy and continuous traffic flows during peak periods
- It is near commercial or industrial districts
- It has a combination of any of the above

The residential area surrounding the proposed development falls under the "Urban" area classification (residential areas are located within R1 zones which are classified as "urban" in Table 2.3 of the NSW NPI). For residential and non-residential receivers in an urban area, the recommended amenity criteria are shown in Table 3 below.

Table 3 NSW NPI – Recommended LAeq Noise Levels from Industrial Noise Sources

Type of Receiver	Indicative Noise Amenity Area	Time of Day 1	Recommended Amenity Noise Level ($L_{Aeq, period}$) ²
Residence	Urban	Day	60
		Evening	50
		Night	45
Commercial	All	When in use	65

Note 1 For Monday to Saturday, Daytime 7:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 7:00 am. On Sundays and Public Holidays, Daytime 8:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 8:00 am

Note 2 The LAeq is the energy average sound level. It is defined as the steady sound level that contains the same amount of acoustical energy as a given time-varying sound.

When the existing noise level from industrial noise sources is close to the recommended “Amenity Noise Level” (ANL) given above, noise from the new source must be controlled to preserve the amenity of the area in line with the requirements of the NSW NPI.

Where existing road traffic noise is high enough to render stationary industrial noise sources effectively inaudible, the ANL can be modified so that the amenity criteria is not unduly stringent in an environment where road traffic noise is the dominant source of environmental noise. If all the conditions below are satisfied, the ANL becomes $L_{Aeq, traffic} - 15$ dBA. The conditions are:

- The road traffic noise is the dominant noise source.
- The existing noise is 10dB(A) or more above the acceptable ANL for the area.
- It is highly unlikely the road traffic noise levels would reduce in the near future.

5.1.2.3 Maximum Noise Level Event (Sleeping Disturbance)

Section 2.5 of the NPI states the following:

The potential for sleep disturbance from maximum noise level events from premises during the night-time period needs to be considered. Sleep disturbance is considered to be both awakenings and disturbance to sleep stages.

Where the subject development/premises night-time noise levels at a residential location exceed:

- $L_{Aeq, 15min}$ 40 dB(A) or the prevailing RBL plus 5 dB, whichever is the greater, and/or
- L_{AFmax} 52 dB(A) or the prevailing RBL plus 15 dB, whichever is the greater, a detailed maximum noise level event assessment should be undertaken.

As outlined in the section above, the measured rating background noise level during the night hours (10:00pm to 7:00am) is 36dBA L_{A90} . Therefore, the resultant RBL + 15dB is 51dBA, which is less than 52dBA, such that the L_{AFmax} 52 dBA criteria is adopted.

5.1.3 Project Specific External Noise Emission Criteria (Plant and Onsite Vehicles)

The intrusive and amenity criteria for industrial noise emissions, derived from the measured data, are presented in Table 4. These criteria are nominated for the purpose of determining the operational noise limits for mechanical plant associated with the development which can potentially affect noise sensitive receivers.

For each assessment period, the lower (i.e., the more stringent) of the amenity or intrusive criteria are adopted. These are shown in bold text in Table 4.

Table 4 External noise level criteria in accordance with the NSW NPI

Location	Time of Day 1	Project Amenity Noise Level, $L_{Aeq, period}^2$ (dBA)	Measured $L_{A90, 15 min}$ (RBL) ³ (dBA)	Measured $L_{Aeq, 15 min}^4$ (dBA)	Intrusive $L_{Aeq, 15 min}$ Criterion for New Sources ⁴ (dBA)	Amenity $L_{Aeq, 15 min}$ Criterion for New Sources ⁵ (dBA)
Residential Receivers	Day	55	48	56	53	58
	Evening	45	43	58	48	48
	Night	40	36	51	41	43
Commercial	When in use	60	-	-	-	63

Note 1 For Monday to Saturday, Daytime 7:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 1:00 am. On Sundays and Public Holidays, Daytime 8:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 1:00 am.

Note 2 Project Amenity Noise Levels corresponding to "Urban" areas, equivalent to the Recommended Amenity Noise Levels minus 5 dBA.

Note 3 L_{A90} Background Noise or Rating Background Level.

Note 4 The L_{Aeq} is the energy average sound level. It is defined as the steady sound level that contains the same amount of acoustical energy as a given time-varying sound.

Note 5 According to Section 2.2 of the NSW NPI, the $L_{Aeq, 15 minutes}$ is equal to the $L_{Aeq, period} + 3$ dB.

In addition, a maximum noise level criterion of 52dBA L_{AFmax} during the night period (10:00pm to 7:00am) at residential receivers also applies.



5.1.4 City of Sydney Council Entertainment Noise Requirements

The criteria for Entertainment Noise set out in the City of Sydney Council DCP is reproduced below. This criteria is applicable for the assessment of patron and music noise emissions.

(1) NOISE - ENTERTAINMENT

- (a) *The $L_{A10, 15 \text{ minute}}$ noise level emitted from the use must not exceed the background noise level ($L_{A90, 15 \text{ minute}}$) in any Octave Band Centre Frequency (31.5 Hz to 8 kHz inclusive) by more than 5dB between the hours of 7.00am and 12.00 midnight when assessed at the boundary of any affected residence.*
- (b) *The $L_{A10, 15 \text{ minute}}$ noise level emitted from the use must not exceed the background noise level ($L_{A90, 15 \text{ minute}}$) in any Octave Band Centre Frequency (31.5 Hz to 8 kHz inclusive) between the hours of 12.00 midnight and 7.00am when assessed at the boundary of any affected residence.*
- (c) *Notwithstanding compliance with (a) and (b) above, noise from the use when assessed as an $L_{A10, 15 \text{ minute}}$ enters any residential use through an internal to internal transmission path is not to exceed the existing internal $L_{A90, 15 \text{ minute}}$ (from external sources excluding the use) in any Octave Band Centre Frequency (31.5 Hz to 8 kHz inclusive) when assessed within a habitable room at any affected residential use between the hours of 7am and 12midnight. Where the $L_{A10, 15 \text{ minute}}$ noise level is below the threshold of hearing, T_f at any Octave Band Centre Frequency as defined in Table 1 of International Standard ISO 226 : 2003- Normal Equal-Loudness-Level Contours then the value of T_f corresponding to that Octave Band Centre Frequency shall be used instead.*
- (d) *Notwithstanding compliance with (a), (b) and (c) above, the noise from the use must not be audible within any habitable room in any residential use between the hours of 12.00 midnight and 7.00am.*
- (e) *The $L_{A10, 15 \text{ minute}}$ noise level emitted from the use must not exceed the background noise level ($L_{A90, 15 \text{ minute}}$) in any Octave Band Centre Frequency (31.5 Hz to 8 kHz inclusive) by more than 3dB when assessed indoors at any affected commercial premises.*

Note: The $L_{A10, 15 \text{ minute}}$ noise level emitted from the use is as per the definition in the Australian Standard AS1055-1997 Acoustics – Description and measurement of environmental noise. The background noise level $L_{A90, 15 \text{ minute}}$ is to be determined in the absence of noise emitted by the use and be representative of the noise sensitive receiver. Background noise monitoring must be carried out in accordance with the long-term methodology in Fact Sheet B of the NPfI unless otherwise agreed by the City's Area Planning Manager.

Note that the City of Sydney Council Entertainment Noise criteria referenced above are generally in accordance with the NSW Liquor and Gaming Acoustic Requirements. These are reproduced below.

5.1.5 NSW Liquor & Gaming Acoustic Requirements

Section 79 of the Liquor Act 2007 provides mechanisms for complaints to be made when the amenity of local areas is disturbed by the use of licensed premises and registered clubs (including disturbances caused by patrons). These complaints are addressed by the Director of Liquor and Gaming, and in this process they may impose temporary or permanent noise conditions on the licensed venue. Typical noise conditions that are imposed upon licensed premises are as follows:

The LA10 noise level emitted from the licensed premises shall not exceed the background noise level in any Octave Band Centre Frequency (31.5 Hz – 8k Hz inclusive) by more than 5 dB between 07:00 am and 12:00 midnight at the boundary of any affected residence.*

The LA10 noise level emitted from the licensed premises shall not exceed the background noise level in any Octave Band Centre Frequency (31.5 Hz – 8k Hz inclusive) between 12:00 midnight and 07:00 am at the boundary of any affected residence.*

Notwithstanding compliance with the above, the noise from the licensed premises shall not be audible within any habitable room in any residential premises between the hours of 12:00 midnight and 07:00 am.

** For the purposes of this condition, the LA10 can be taken as the average maximum deflection of the noise emission from the licensed premises.*

This is a minimum standard. In some instances the Director may specify a time earlier than midnight in respect of the above condition.

Interior noise levels which still exceed safe hearing levels are in no way supported or condoned by the Director.

Note: NSW Liquor and Gaming criteria does not contain any requirements for commercial or industrial receivers. Noise impacts to these receivers will adopt the broadband criteria outlined in the NSW EPA NPI 2017, see above.

These criteria are applicable to noise emissions from the licensed venue component of the development, excluding noise from mechanical services. For external noise emissions, octave band spectral criteria for each assessment period have been summarised in Table 5 below.

**Table 5 Liquor & Gaming NSW – L10 Criteria (external) – Residential Criteria Only**

Time Period	Parameter ¹	Octave Band Centre Frequency, Hz (dB)									Overall dBA
		31.5	63	125	250	500	1k	2k	4k	8k	
7:00am to 6:00pm	Daytime Period (BG+5dBA)										
	Measured L ₉₀ ¹	55	54	50	49	45	44	38	30	18	48
	Criteria L ₁₀ ²	60	59	55	54	50	49	43	35	23	53
6:00pm to 8:00pm	Evening Period (BG+5dBA)										
	Measured L ₉₀ ¹	53	52	48	47	43	42	36	28	16	46
	Criteria L ₁₀ ²	59 ³	57	53	52	48	47	41	33	21	51
8:00pm to 10:00pm	Evening Period (BG+5dBA)										
	Measured L ₉₀ ¹	50	49	45	44	40	39	33	25	13	43
	Criteria L ₁₀ ²	59 ³	54	50	49	45	44	38	30	18	48
10:00pm to 12:00am (Midnight)	Night-time Period (BG+5dBA)										
	Measured L ₉₀ ¹	41	41	44	37	34	30	24	17	10	36
	Criteria L ₁₀ ²	59 ³	46	49	42	39	35	29	22	15	41

Note 1 The LA90 noise level is representative of the "average minimum background sound level" (in the absence of the source under consideration), or simply the background level.

Note 2 The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.

Note 3: Criteria is adjusted to match the threshold of hearing as outlined in International Standard ISO 226:2003.

6 ACOUSTIC ASSESSMENT

This section of the report details the assessment of potential noise from music and patrons and the expected noise levels at the nearest sensitive receivers.

The assessment of noise emissions from patron and music noise within the development has been made against the criteria for Entertainment Noise set out in the City of Sydney Council DCP.

The following scenarios have been modelled as the worst-case 15 minute scenarios for noise emissions from the licensed venue component of the development:

- Day Scenario (Until 6:00pm) – Liquor & Gaming
 - Patron and music noise from the external and internal dining areas.
- Evening Scenario (6:00pm to 8:00pm) – Liquor & Gaming
 - Patron and music noise from the internal dining areas, as well as the Level 1 Bar area with operable glazed roof.
- Evening and Night Scenario (8:00pm to 12:00am) – Liquor & Gaming
 - Patron and music noise from the internal dining areas only.

The proposed maximum occupancy is 186 (156 patrons and 30 staff).

It should be noted that existing bars are in operation in the vicinity of the proposed development, and traffic noise is considerable. As such, a level of noise emissions from the site is not unreasonable, provided compliance with the relevant City of Sydney Council DCP noise criteria can be achieved.

6.1 Licensed Venue Assessment

The assessment of licensed noise emissions from the development using this operating scenario has been made against the Liquor and Gaming NSW criteria identified previously, which are in line with the criteria for Entertainment Noise set out in the City of Sydney Council DCP.

6.1.1 Assumed Source Noise Levels and Modelling Assumptions

In this assessment, the following assumptions have been incorporated regarding the noise sources and source noise levels:

- For the purpose of this assessment, it is assumed that a single person speaking with a normal voice has a Sound Power Level (L_w) of 69dBA. This has been formulated in accordance with the published noise levels from Klark Teknik (*The Audio System Designer Technical Reference*, Chapman Partnership).
- Background music being played in the internal restaurant areas has been assumed at a sound pressure level of 75 dBA when measured as a sound pressure level within the space, during the daytime period (until 6:00pm), and 70 dBA thereafter.
- The proposed maximum occupancy is 186 (156 patrons and 30 staff).
- It is assumed that the external courtyard will be closed to patrons at all times. No music is to be played in any outdoor areas. Note that patrons are permitted to traverse through the courtyard via the door from the main bar to use the amenities, provided it does not remain open, i.e., this door can be used intermittently as required.
- It is assumed that one in three patrons are talking at any one time, which is a relatively conservative calculation.



- All external and internal areas are assumed to be operating simultaneously.
- No music is to be played in the outdoor seating areas, except for the Level 1 Bar area with operable glazed roof, which can feature low level background music at a sound pressure level of 60 dBA when measured as a sound pressure level within the space.
- All operable windows and doors are to be kept closed during all proposed operational hours, except for the operable glazed roof to the Level 1 Bar area, which can remain open until 8:00pm, but must remain closed thereafter.
- All glass openings within the façade, including the operable glazed roof, are to include a minimum acoustic performance of no less than $R_w (C;Ctr): 35 (0;-3)$, which could include 10.38 mm laminated glass, for example.
 - Existing window not meeting this requirement will be rectified by replacing panes with laminated glass, providing secondary internal glazing or other alternative treatment such that an acoustic performance of not less than $R_w 35$ is achieved.

6.1.2 Predicted Licensed Venue Noise Levels

Noise emission predictions for the combination of internal and external patron noise and internal music from the previously mentioned areas are provided below.

Table 6 Predicted Entertainment Noise Levels to Surrounding Receivers – Daytime Assessment (Until 6:00pm)

Parameter	Octave Band Centre Frequency, Hz (dB)									Overall dBA
	31.5	63	125	250	500	1k	2k	4k	8k	
Receiver 1 – 376 Cleveland Street, Surry Hills (Residential)										
Predicted LA10 Noise Levels - Day	52	47	41	51	52	46	42	36	24	52
CoS DCP L10 criterion - Day	60	59	55	54	50	49	43	35	23	53
Compliance	Yes	Yes	Yes	Yes	Yes ¹	Yes	Yes	Yes ¹	Yes ¹	Yes
Receiver 2 – 105 Marlborough Street, Surry Hills (Residential)										
Predicted LA10 Noise Levels - Day	52	47	41	51	52	46	42	36	24	52
CoS DCP L10 criterion - Day	60	59	55	54	50	49	43	35	23	53
Compliance	Yes	Yes	Yes	Yes	Yes ¹	Yes	Yes	Yes ¹	Yes ¹	Yes
Note 1 Exceedances of 1–2 dB are considered marginal compliance. The reason for marginal compliance is because a 1–2 dB difference is difficult to perceive subjectively.										


Table 7 Predicted Entertainment Noise Levels to Surrounding Receivers – Evening Assessment (6:00pm to 8:00pm)

Parameter	Octave Band Centre Frequency, Hz (dB)									Overall dBA
	31.5	63	125	250	500	1k	2k	4k	8k	
Receiver 1 – 376 Cleveland Street, Surry Hills (Residential)										
Predicted LA10 Noise Levels – Evening (6:00pm to 8:00pm)	50	45	39	49	50	44	40	34	22	50
CoS DCP L10 criterion – Evening (6:00pm to 8:00pm)	59	57	53	52	48	47	41	33	21	51
Compliance	Yes	Yes	Yes	Yes	Yes ¹	Yes	Yes	Yes ¹	Yes ¹	Yes
Receiver 2 – 105 Marlborough Street, Surry Hills (Residential)										
Predicted LA10 Noise Levels – Evening (6:00pm to 8:00pm)	50	45	39	49	50	44	40	34	22	50
CoS DCP L10 criterion – Evening (6:00pm to 8:00pm)	59	57	53	52	48	47	41	33	21	51
Compliance	Yes	Yes	Yes	Yes	Yes ¹	Yes	Yes	Yes ¹	Yes ¹	Yes
Note 1 Exceedances of 1–2 dB are considered marginal compliance. The reason for marginal compliance is because a 1–2 dB difference is difficult to perceive subjectively.										



Table 8 Predicted Entertainment Noise Levels to Surrounding Receivers – Evening/Night-time Assessment (8:00pm to 12:00am)

Parameter	Octave Band Centre Frequency, Hz (dB)									Overall dBA
	31.5	63	125	250	500	1k	2k	4k	8k	
Receiver 1 – 376 Cleveland Street, Surry Hills (Residential)										
Predicted LA10 Noise Levels – Evening/Night (8:00pm to 12:00am)	39	34	28	38	40	33	29	23	16	39
CoS DCP L10 criterion – Evening/Night (8:00pm to 12:00am)	59	46	49	42	39	35	29	22	15	41
Compliance	Yes	Yes	Yes	Yes	Yes ¹	Yes	Yes	Yes ¹	Yes ¹	Yes
Receiver 2 – 105 Marlborough Street, Surry Hills (Residential)										
Predicted LA10 Noise Levels – Evening/Night (8:00pm to 12:00am)	39	34	28	38	40	33	29	23	16	39
CoS DCP L10 criterion – Evening/Night (8:00pm to 12:00am)	59	46	49	42	39	35	29	22	15	41
Compliance	Yes	Yes	Yes	Yes	Yes ¹	Yes	Yes	Yes ¹	Yes ¹	Yes
Note 1 Exceedances of 1–2 dB are considered marginal compliance. The reason for marginal compliance is because a 1–2 dB difference is difficult to perceive subjectively.										

Refer to section 6.1.3 below the for the required management controls to ensure compliance.

6.1.3 Assessment Results and Recommendations

Predicted noise levels from the operation of the licenced venue restaurant in full operation (i.e., full capacity patron noise) has been predicted. To ensure compliance is achieved, the following recommendations must be implemented:

- Background music being played in the internal restaurant areas should be limited to a sound pressure level of 75 dBA when measured as a sound pressure level within the space, during the daytime period (until 6:00pm), and 70 dBA thereafter.
- proposed maximum occupancy is 186 (156 patrons and 30 staff).
- The external courtyard is to be closed to patrons at all times. Note that patrons are permitted to traverse through the courtyard via the door from the main bar to use the amenities, provided it does not remain open, i.e., this door can be used intermittently as required.
- No music is to be played in the outdoor seating areas, except for the Level 1 Bar area with operable glazed roof, which can feature low level background music at a sound pressure level of 60 dBA when measured as a sound pressure level within the space.

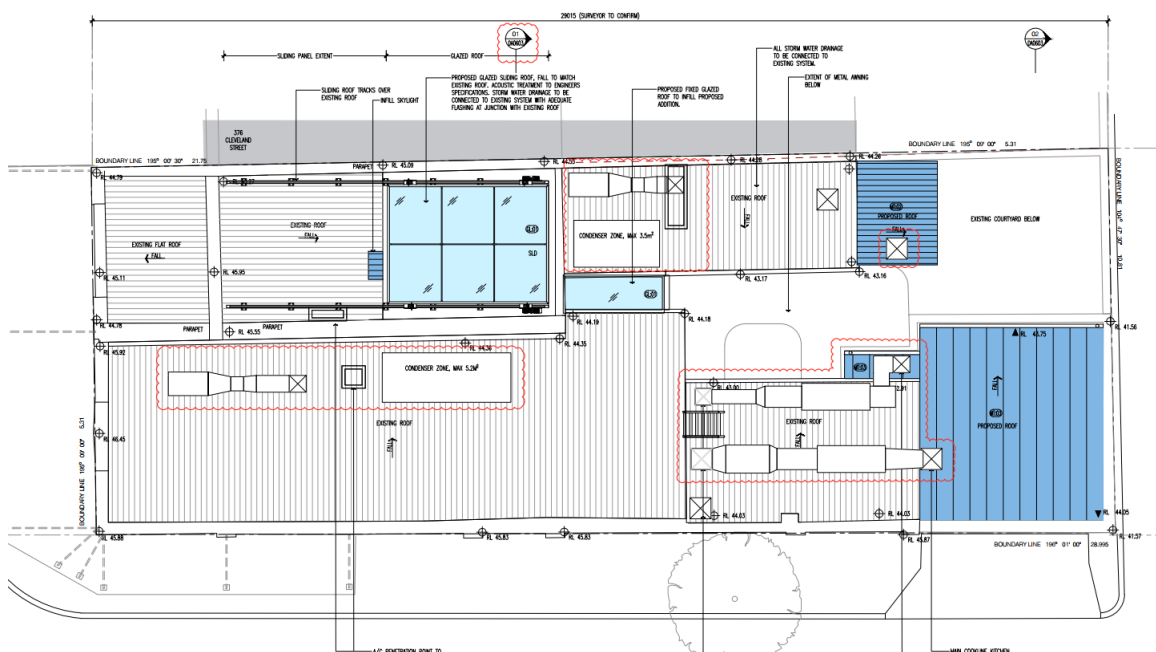
- All operable windows and doors are to be kept closed during all proposed operational hours, except for the operable glazed roof to the Level 1 Bar area, which can remain open until 8:00pm, but must remain closed thereafter.
- All glass openings within the façade, including the operable glazed roof, are to include a minimum acoustic performance of no less than $R_w (C;Ctr): 35 (0;-3)$, which could include 10.38 mm laminated glass, for example.
- Provisions should be made for acoustic absorption within the Level 1 Bar space such that the reverberant noise build up is minimised.
- Waste is collected in line with council's waste policy during daytime hours.
- Truck deliveries are to occur during the daytime period.
- No glass crushing, or the like, is to occur outside the daytime period.
- A contact number must be displayed for the purposes of receiving any complaints if they arrive.
- Signs must be displayed at all exits reminding patrons to be mindful of noise when leaving the premise.

6.1.4 Mechanical Plant

At this stage of the project, the location of major plant items and the exact selection to be installed are not known. As such, a detailed assessment of noise associated from engineering services cannot be undertaken.

To ensure that future selections of plant items meet external noise levels at neighbouring properties, a proof of concept approach has been considered, including the proposed equipment to be included on the project and detailed in the figure below.

Figure 5 Proposed Roof top Layout





In our experience, for this type of development the following mechanical systems may be installed, and their associated sound power levels are outlined below, which have been included in the DA assessment of the project.

- Ventilation fans / Outside air fans – 80 dB(A) (Lw) or 60 dB(A) @3m
- kitchen exhaust fans – 85 dB(A) (Lw) or 65 dB(A) @3m
- Toilet exhaust fans – 55 dB(A) (Lw) or 45 dB(A) @3m
- Air Conditioning Condensers – 80 dB(A) (Lw) or 60 dB(A) @3m
- External refrigeration systems – 80 dB(A) (Lw) or 60 dB(A) @3m

Based on the proposed mechanical services layouts and the expected noise levels of equipment include above the expected acoustic mitigations such that external noise emission will comply with the requirements included in this report (including the City of Sydney Council DCP) the following would be expected:

1. Internal lining of mechanical ductwork.
2. Acoustic silencers to intake/discharge sides of fans.
3. External wrapping or boxing of rood top equipment.

Details of the required mechanical services equipment and acoustic treatments to ensure the relevant noise level criteria is achieved will be provided as part of the normal detailed design of the project and include within the CC documentation of the project.

Experience with similar projects confirms that the acoustic treatment of mechanical services is both possible and practical to ensure noise emission criteria is achieved.

On the assumption the recommendations outlined above are incorporated, compliance with the acoustic project criteria outlined in Section 5 above will be achieved, which includes the requirements of the City of Sydney Council DCP.

7 CONCLUSION

Pulse White Noise Acoustics (PWNA) have been engaged to undertake an acoustic assessment of the proposed conversion of an existing building to a licenced restaurant (*The Boxing Bear Bar & Bistro*) located at 378-380 Cleveland Street, Surry Hills NSW 2010.

Acoustic modelling has indicated that noise from the operation of the licensed venue elements of the development are likely to result in compliance with the typically imposed NSW Liquor and Gaming acoustic requirements. To ensure compliance, recommended building and management controls are recommended in this report.

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

Regards,

A handwritten signature in black ink, appearing to read 'Alex Danon'.

Alex Danon

Senior Acoustic Engineer

PULSE WHITE NOISE ACOUSTICS PTY LTD

APPENDIX A. APPENDIX 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>	<p>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:</p> <table> <tr><td>0dB(A)</td><td>Threshold of human hearing</td></tr> <tr><td>30dB(A)</td><td>A quiet country park</td></tr> <tr><td>40dB(A)</td><td>Whisper in a library</td></tr> <tr><td>50dB(A)</td><td>Open office space</td></tr> <tr><td>70dB(A)</td><td>Inside a car on a freeway</td></tr> <tr><td>80dB(A)</td><td>Outboard motor</td></tr> <tr><td>90dB(A)</td><td>Heavy truck pass-by</td></tr> <tr><td>100dB(A)</td><td>Jackhammer/Subway train</td></tr> <tr><td>110 dB(A)</td><td>Rock Concert</td></tr> <tr><td>115dB(A)</td><td>Limit of sound permitted in industry</td></tr> <tr><td>120dB(A)</td><td>747 take off at 250 metres</td></tr> </table>	0dB(A)	Threshold of human hearing	30dB(A)	A quiet country park	40dB(A)	Whisper in a library	50dB(A)	Open office space	70dB(A)	Inside a car on a freeway	80dB(A)	Outboard motor	90dB(A)	Heavy truck pass-by	100dB(A)	Jackhammer/Subway train	110 dB(A)	Rock Concert	115dB(A)	Limit of sound permitted in industry	120dB(A)	747 take off at 250 metres
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80dB(A)	Outboard motor																						
90dB(A)	Heavy truck pass-by																						
100dB(A)	Jackhammer/Subway train																						
110 dB(A)	Rock Concert																						
115dB(A)	Limit of sound permitted in industry																						
120dB(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 [Leq]</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, L_p 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, L_w 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. UNATTENDED NOISE MONITORING RESULTS

Weather Station: Observatory Hill

Weather Station ID: 066214

Coordinates: Lat: -33.86, Lon: 151.20, Height: 43.37 m

378-380 Cleveland Street, Surry Hills

Ambient noise monitoring report



Item	Information
Logger Type	NL-42
Serial number	00396931
Address	378-380 Cleveland Street, Surry Hills
Location	378-380 Cleveland Street, Surry Hills
Facade / free field	Free field
Environment	

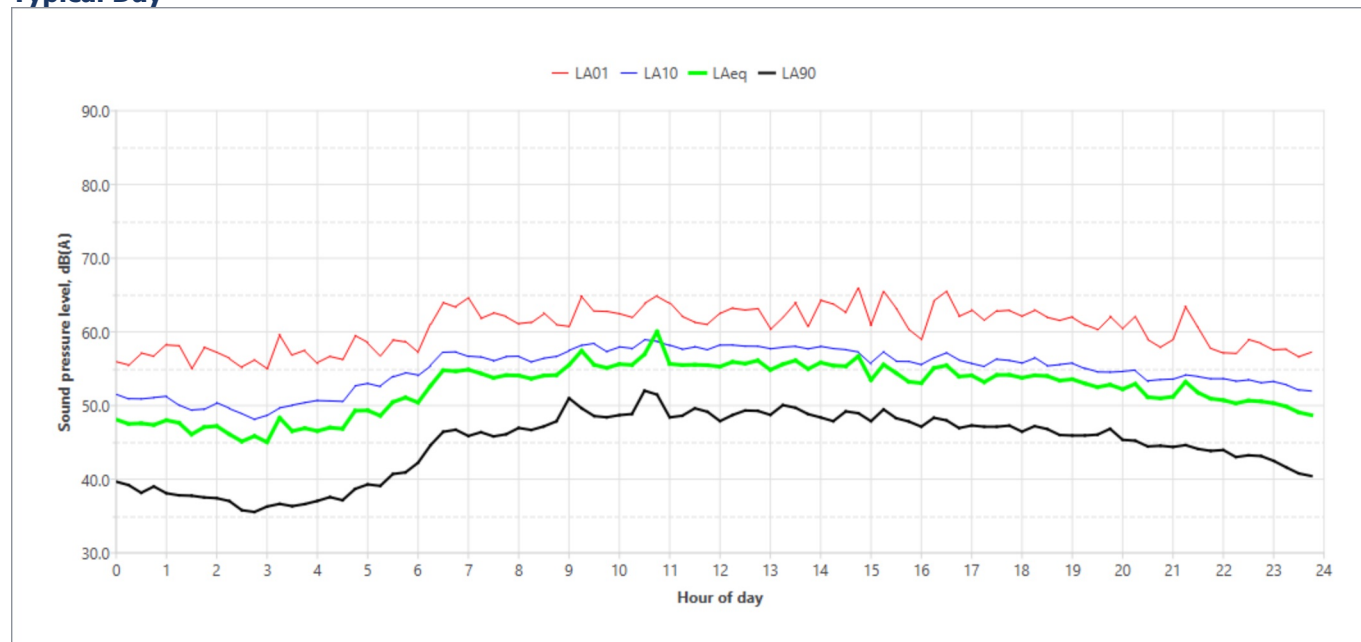
Measured noise levels

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 23 Feb 2024	-	-	-	56	65	-
Sat 24 Feb 2024	-	-	-	54	-	50
Sun 25 Feb 2024	-	43	-	55	55	51
Mon 26 Feb 2024	47	43	35	56	53	50
Tue 27 Feb 2024	-	-	-	57	-	54
Wed 28 Feb 2024	-	44	-	57	55	51
Thu 29 Feb 2024	48	46	36	57	54	51
Fri 01 Mar 2024	-	43	-	56	53	49
Sat 02 Mar 2024	-	-	-	54	-	49
Sun 03 Mar 2024	-	43	-	59	52	51
Mon 04 Mar 2024	48	42	37	55	53	50
Tue 05 Mar 2024	-	-	-	-	-	47
Summary	48	43	36	56	58	51

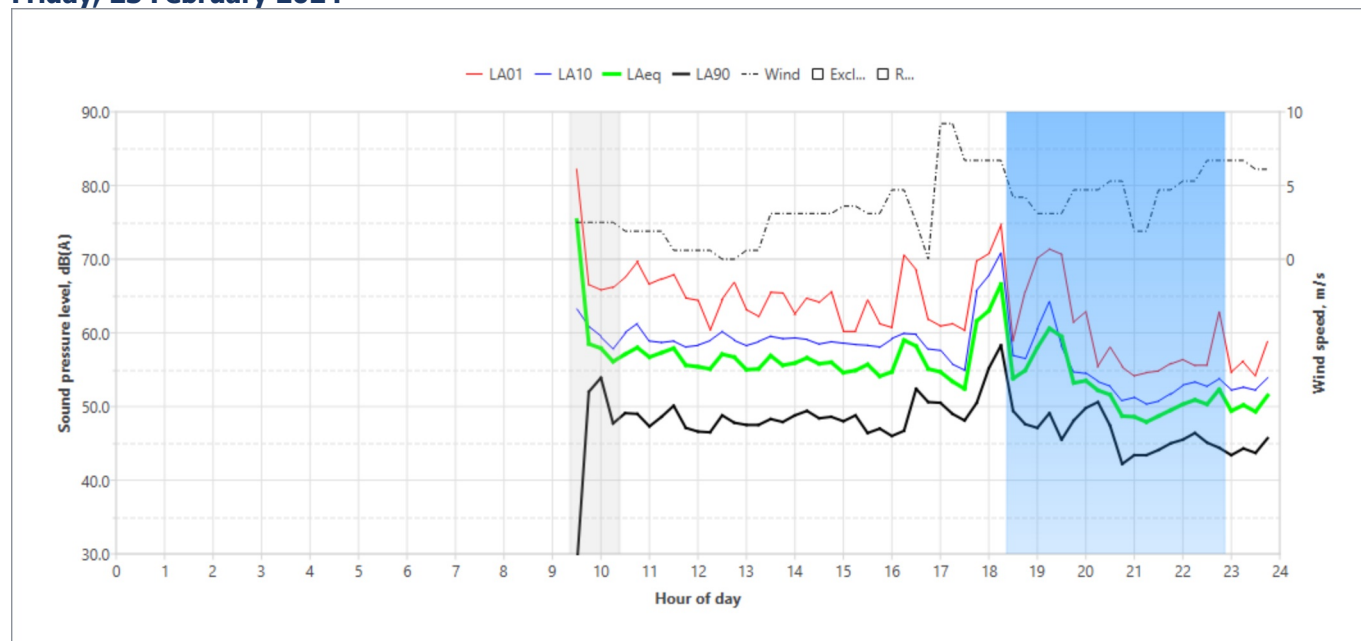
Note: Results with a '-' identify that there were not enough measurements available to correctly calculate the level, in accordance with the Noise Policy for Industry. The data has been excluded either from weather or manual exclusions. See the charts for more information

Logger location	Logger deployment photo

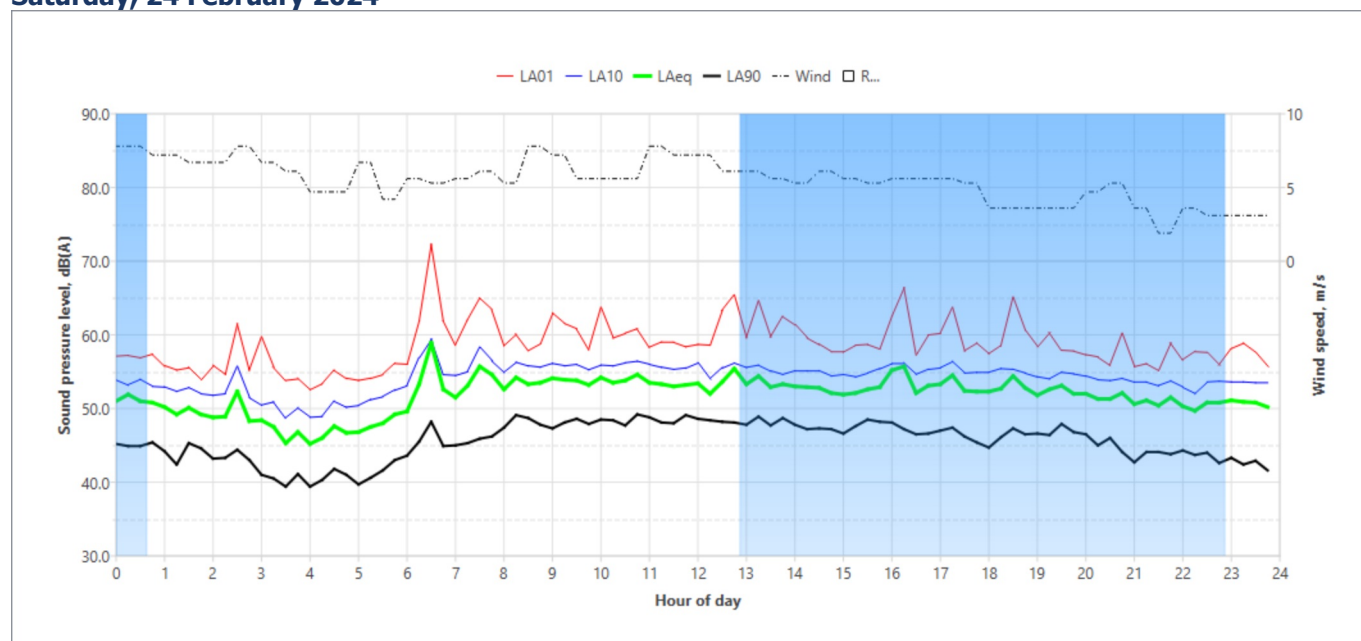
Typical Day



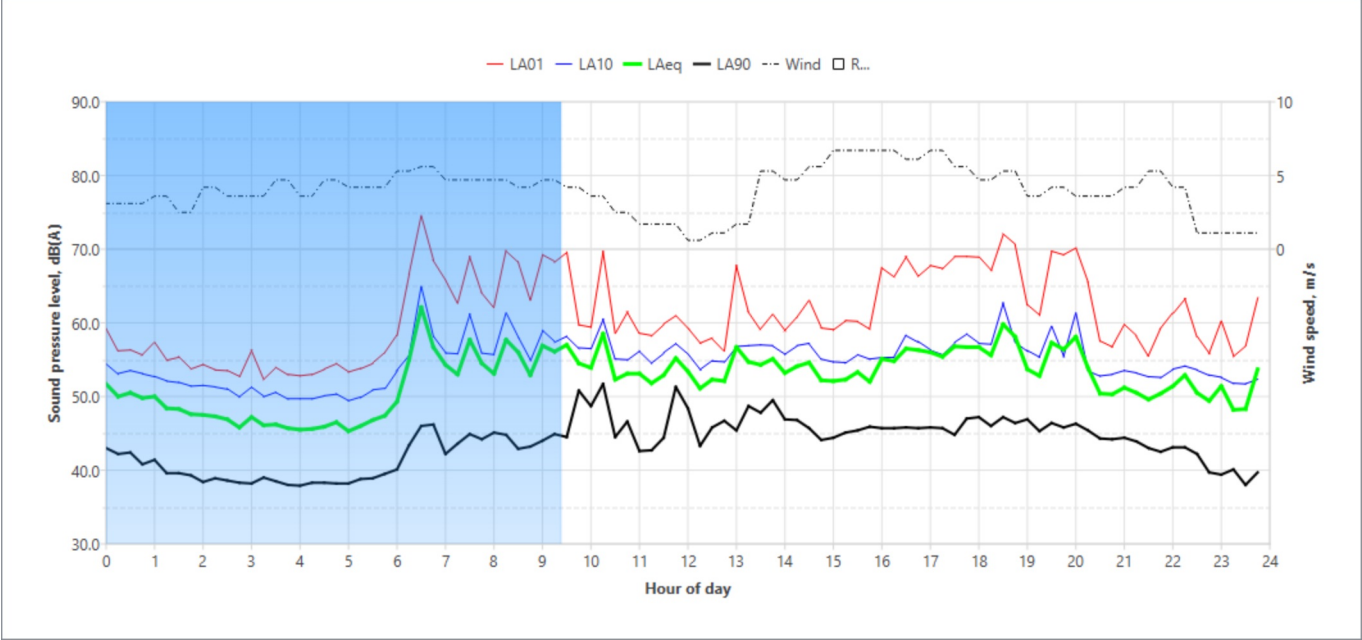
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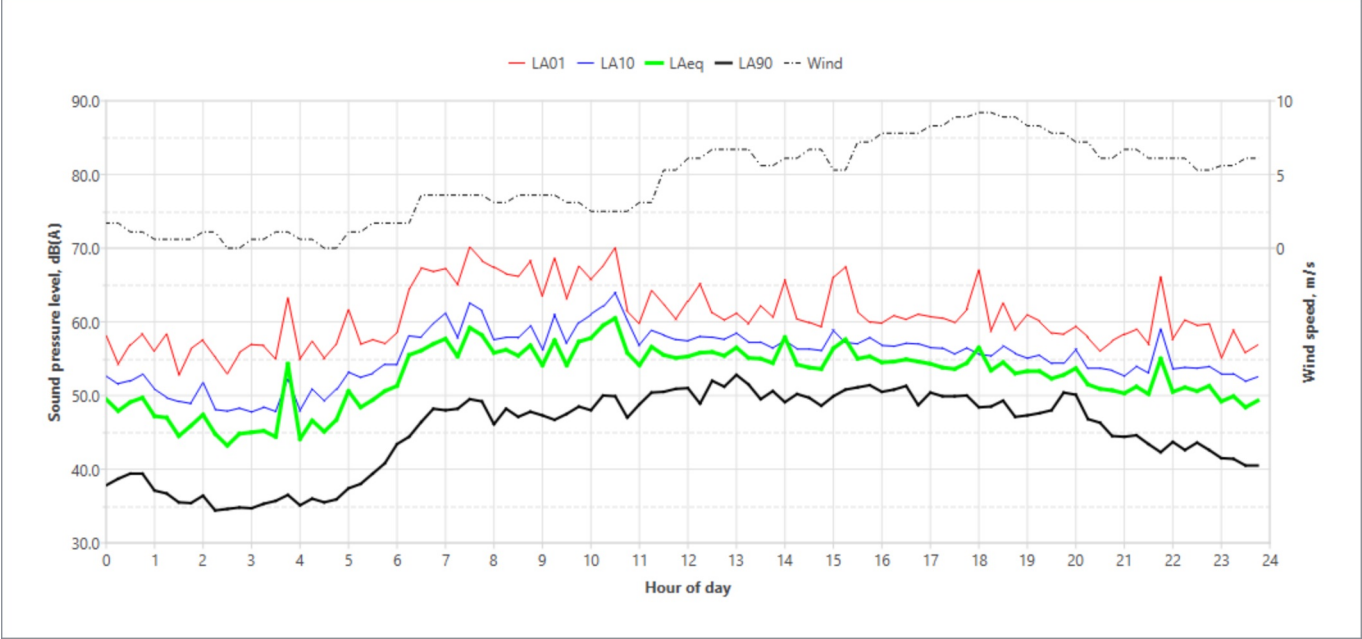
Saturday, 24 February 2024



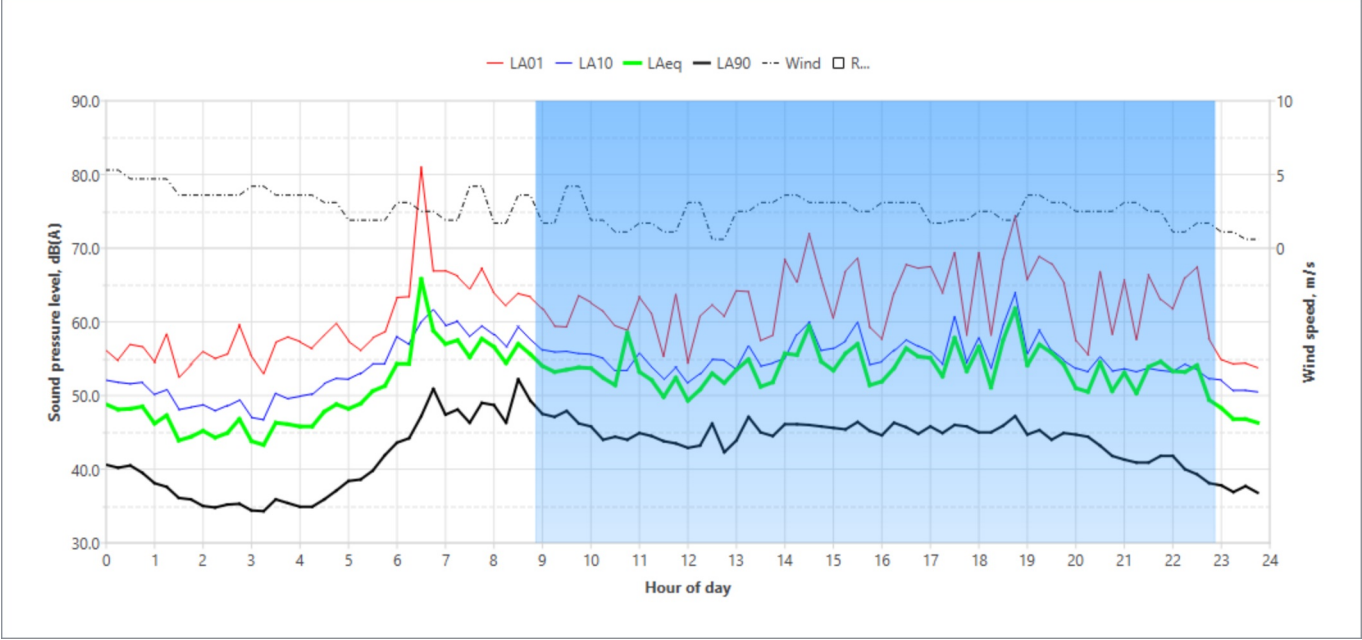
Sunday, 25 February 2024



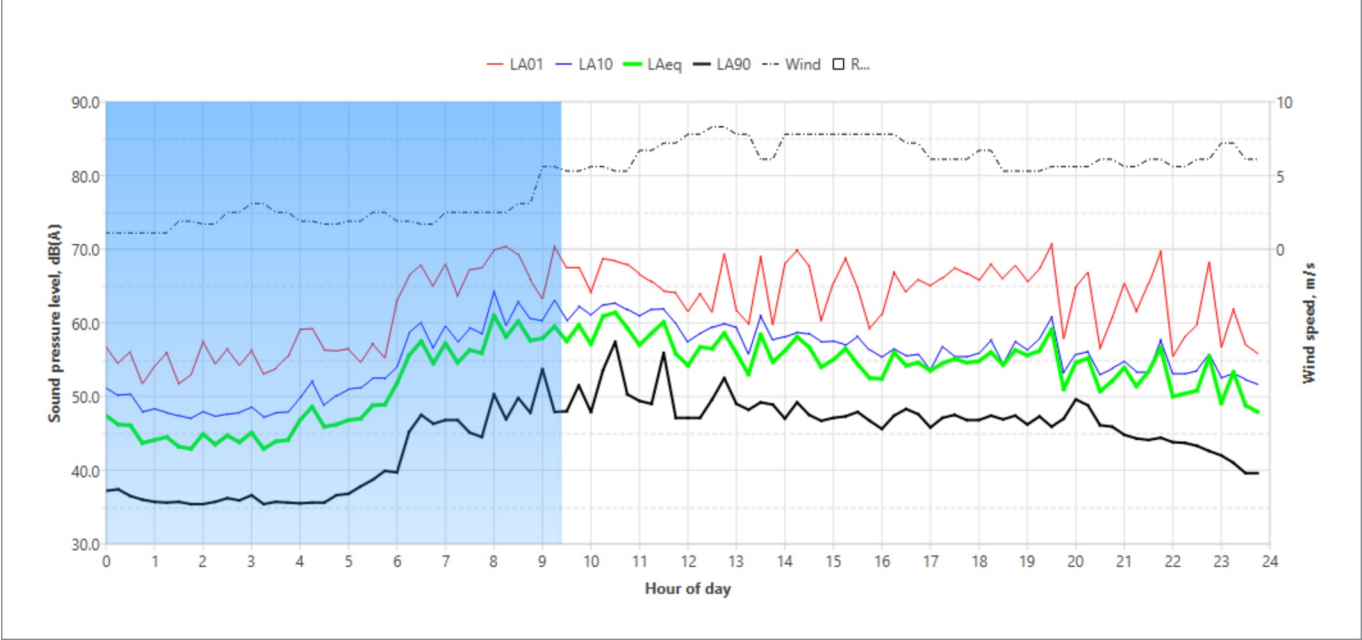
Monday, 26 February 2024



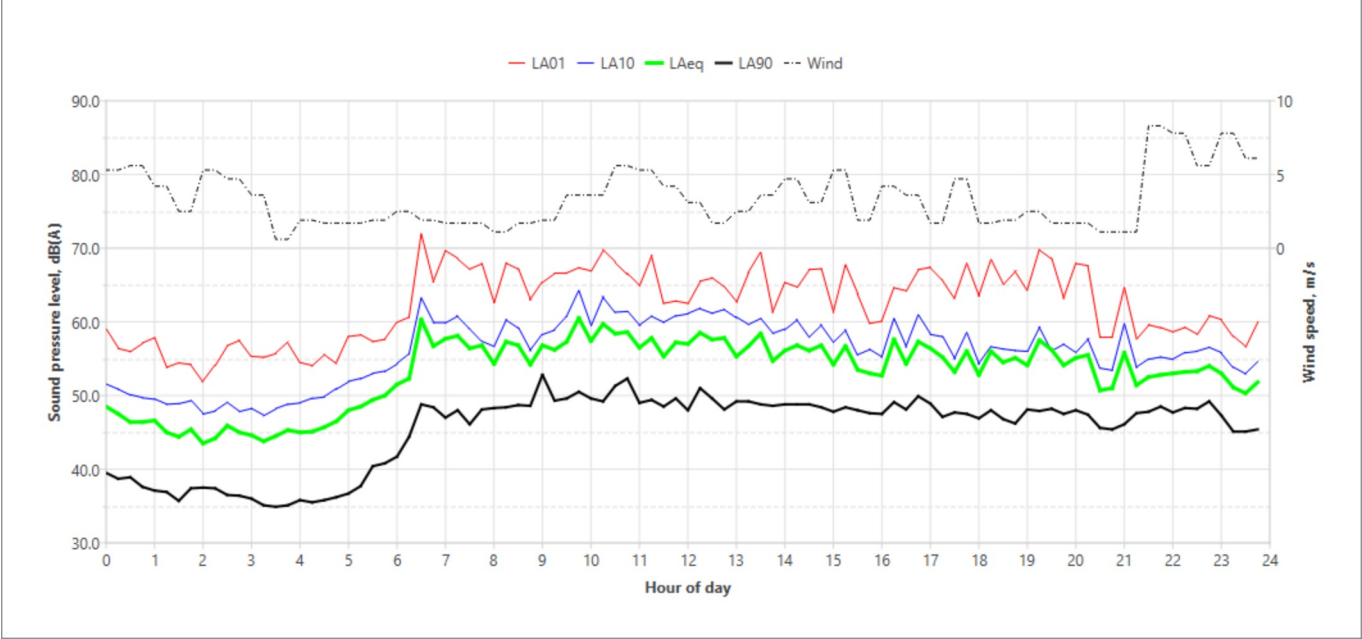
Tuesday, 27 February 2024



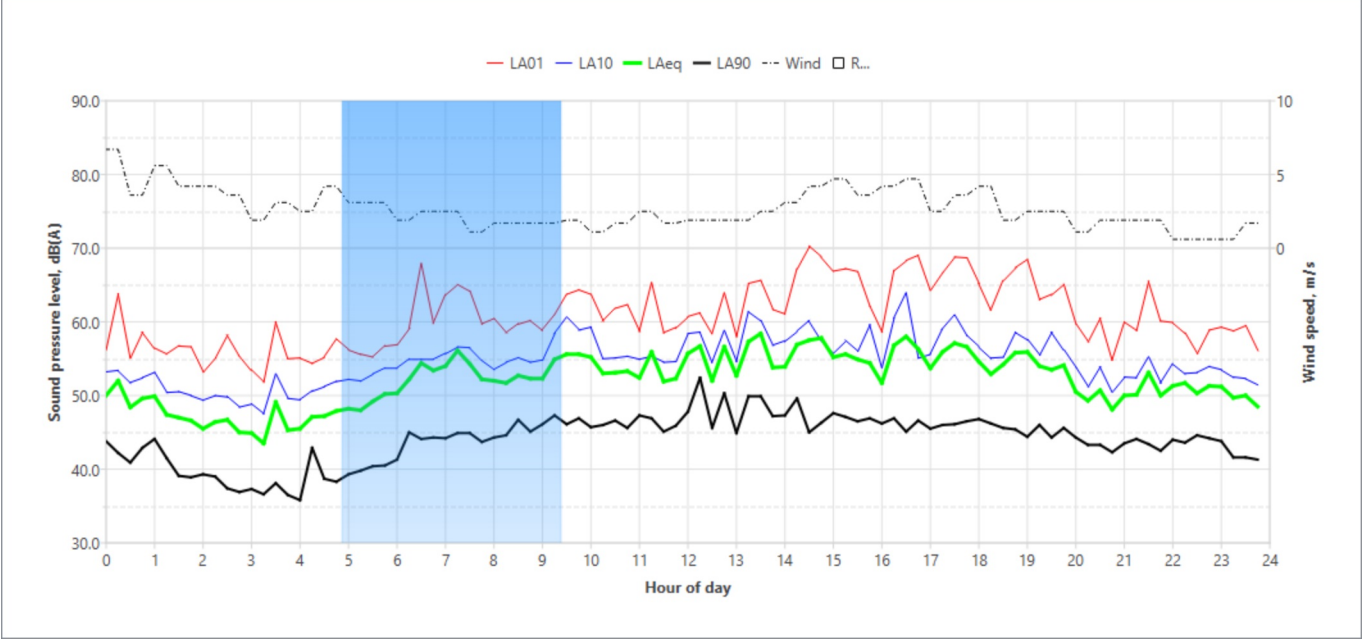
Wednesday, 28 February 2024



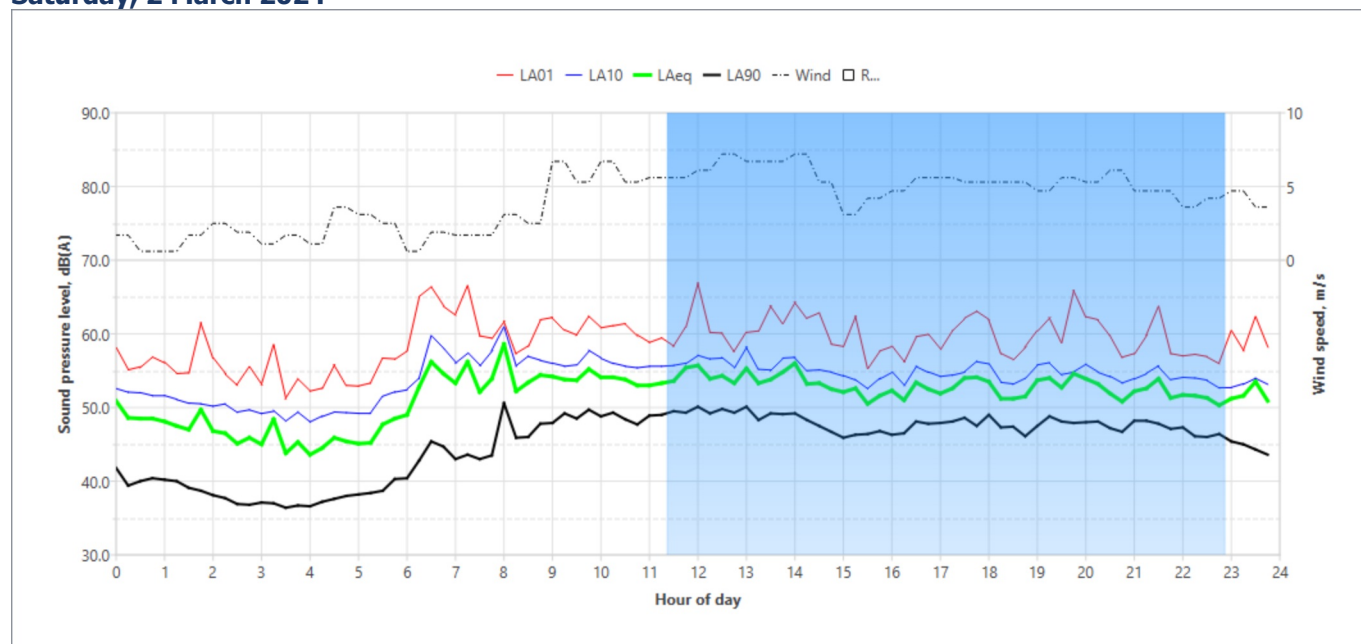
Thursday, 29 February 2024



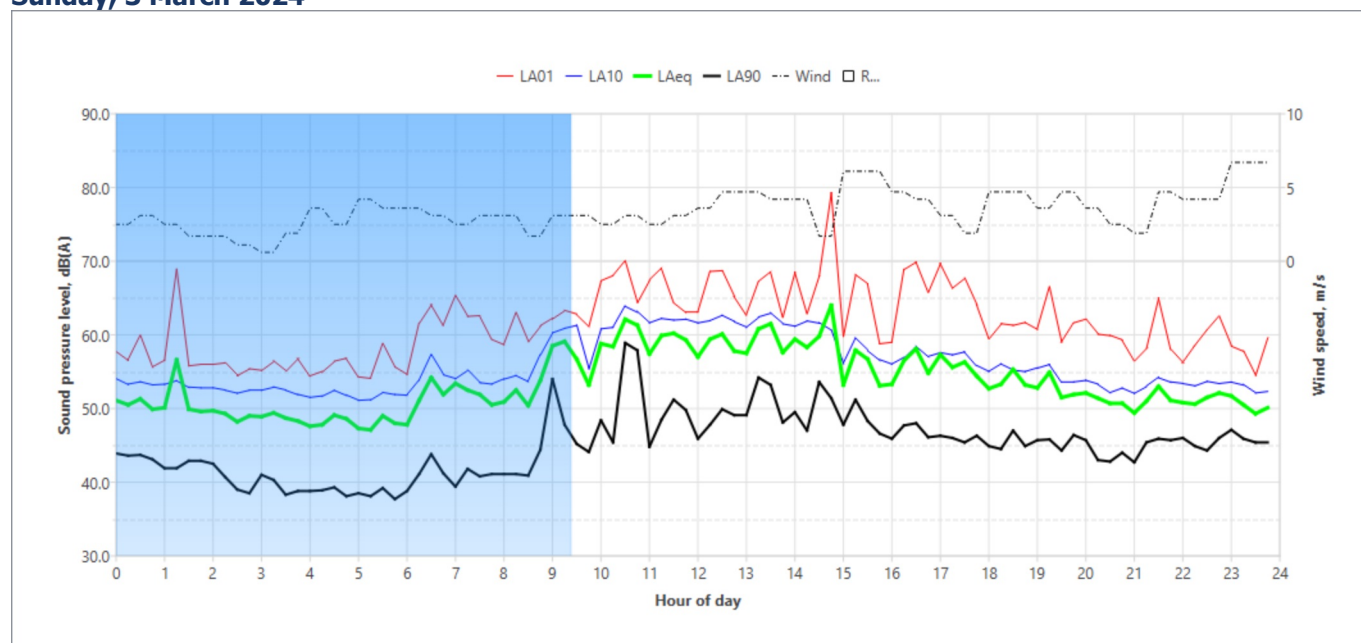
Friday, 1 March 2024



Saturday, 2 March 2024



Sunday, 3 March 2024



Monday, 4 March 2024

