Wagga Harness Racing Club – NIA

Harness Racing NSW
92 Cooramin Street, North Wagga Wagga NSW 2650

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1 INTRODUCTION

Pulse White Noise Acoustics Pty Ltd has been engaged to undertake an acoustic assessment of the proposed usage of the existing Wagga Harness Racing Club clubhouse, located at 92 Cooramin Street, Cartwrights Hill NSW. Specifically, this assessment considers the noise impacts from the use of the existing clubhouse for the purpose of holding functions and event hire.

This assessment will address the following:

- Surrounding environmental noise potentially impacting upon the site (i.e., traffic noise intrusion from Cooramin Street and Hampden Avenue)
- Noise emissions to nearby receivers from the operation of the base building services (i.e., electrical, and mechanical services)
- Noise associated with the proposed function use and event hire of the existing club house (including music, patron noise, and increased carparking movements)
- Noise impacts from the increased traffic flows along the surrounding road networks.

This report will discuss the relevant acoustic criteria which has been adopted as well as the outcome of the noise impact assessment.

A glossary of acoustic terminology used in the acoustic assessment, is included in Appendix A.

1.1 Proposed Development

The Wagga Harness Racing Club is located approximately 3.4 km to the north of Wagga Wagga CBD.

The existing clubhouse is proposed to include functions and event hire within the existing clubhouse. These events will include birthday parties, Christmas functions, corporate training days, sporting club and community club functions and events.

Architectural drawings of the clubhouse development, which have been used in our assessment, were prepared by *McKinnon Design*, with drawing number: 13073.

Traffic engineering data used for this assessment was obtained from the project's Traffic Assessment, completed by McLaren Traffic report ref: '240488.01FC', dated 30 September 2024.

The site location in relation to the surrounding receivers, is shown in Figure 1 below. The nearest residential receivers are located to the east of the club house, across Hampden Avenue at a distance of approximately 240 m. Additional residential receivers are located to the north of the site, at a distance of approximately 400 m.

1.1.1 Existing approval

The site currently has the following approval, listed under DA14/0488.02.

Approval for 52 events thought the calendar year, including:

- No more than 26 events shall be nighttime events
- Two of the nighttime events are defined as major tier 1 events (2000 spectators) and two are defined as tier 2 events (500 spectators).
- The use of the race-track, associated loud speakers and track lighting must only be conducted between the following scheduled race hours:
    - 10 am and 10:45 pm on any Teir 1 or Tier 2 race day;

- 10 am and 10 pm on any other race day (Tier 3 – 200 spectators).

- The use of the clubhouse facility must only be conducted between the hours of 9 am and midnight on Fridays and Saturdays and 0 am and 11 pm on Tier 1 and Tier 2 race days and 9 am and 10:30 pm all other days.

1.1.2 Proposed approval

The current indicative proposal details are to permit the use of the clubhouse for cocktail functions, awards dinners, community gatherings, workshops, forums, birthday parties, presentations, and corporate training days.

The proposal would be limited to a maximum of 285 patrons (excluding staff).

The proposed operational hours / events would be limited to five (5) functions per week between:

- Monday – Friday: 9 am – 5 pm.

- Friday – Sunday: 9 am – 12 am (midnight).

1.2 Relevant Guidelines

Acoustic criteria which have been adopted in this assessment include requirements from the Local and State Authorities, and in the absence of any applicable criteria from these bodies, Australian and International Standards will be utilised.

1.3 Site Layout

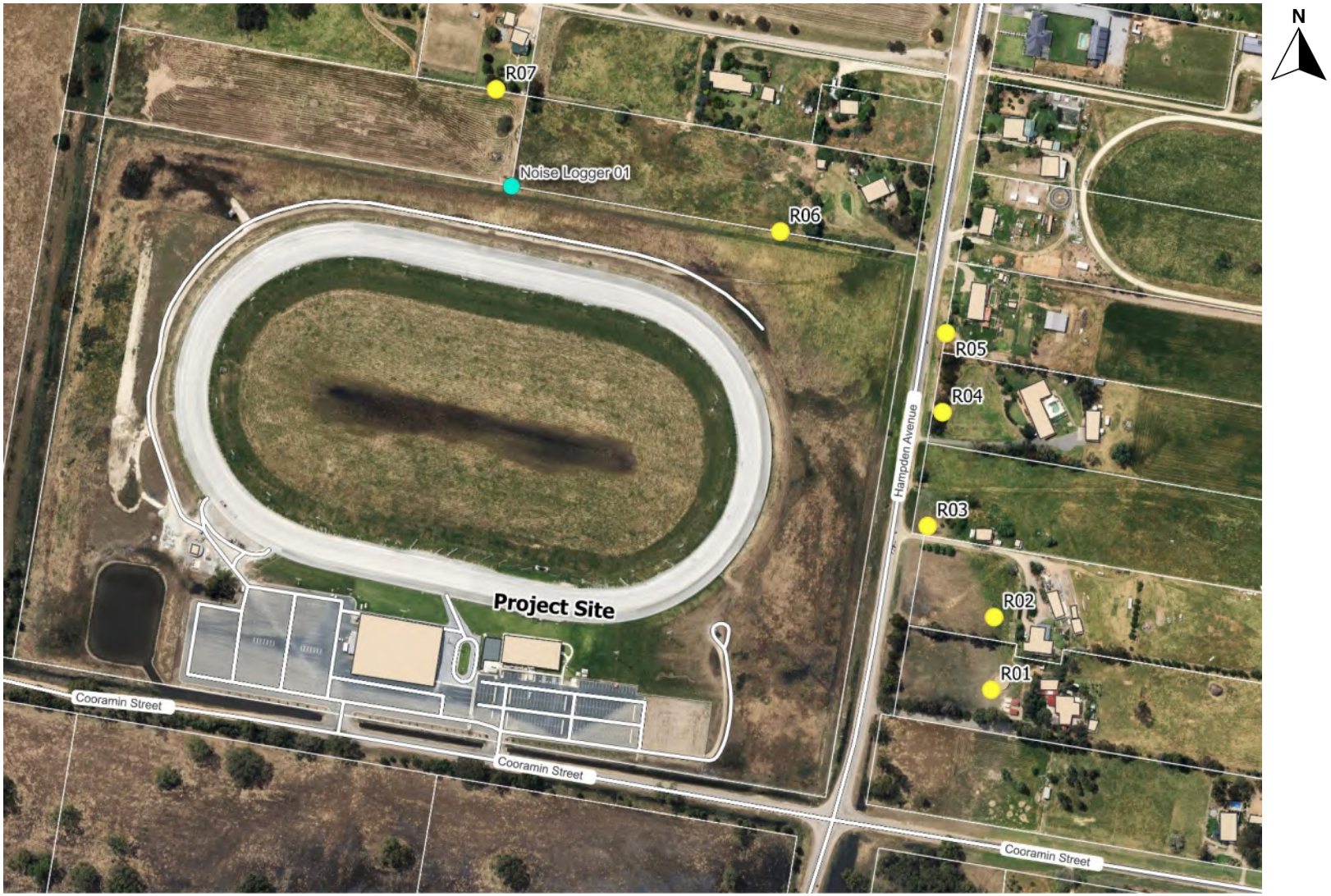
The project site is located at 92 Cooramin Street, Cartwrights Hill NSW, formally described as Lot 10/-/DP1247474 which is zoned as a RU1 (Primary Production) area in the NSW Planning ePlanning Spatial Viewer Zoning Maps. The site is approximately 24.4 ha in size.

The nearest sensitive receivers to the site, as well as the background noise monitoring locations, are identified in Figure 1 and detailed within Table 1 below.

Table 1 Noise sensitive receivers.

ID	Address	Use
R01	355 HAMPDEN AVENUE CARTWRIGHTS HILL	Residential
R02	369 HAMPDEN AVENUE CARTWRIGHTS HILL	Residential
R03	371 HAMPDEN AVENUE CARTWRIGHTS HILL	Residential
R04	375 HAMPDEN AVENUE CARTWRIGHTS HILL	Residential
R05	389 HAMPDEN AVENUE CARTWRIGHTS HILL	Residential
R06	390 HAMPDEN AVENUE CARTWRIGHTS HILL	Residential
R07	404 HAMPDEN AVENUE CARTWRIGHTS HILL	Residential

Figure 1 Site map, measurement locations and surrounding receivers – sourced from Google Maps.



2 NOISE DESCRIPTORS & 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), with 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 dB(A) + 60 dB(A) = 63 dB(A)). 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 L_{Aeq}, L_{A01}, L_{A10} and L_{A90} noise levels. The L_{Aeq} 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 L_{A01}, L_{A10} and L_{A90} levels are the levels exceeded for 01%, 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.

3 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.

3.1 Unattended Noise Monitoring

As part of this assessment, an acoustic survey of the existing acoustic environment at the site and surrounding receivers was undertaken. The survey included long-term unattended noise logging in one location between the 24th of July and the 7th of August 2024. 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 Wagga Wagga AMO (ID 072150).

3.1.1 Monitoring Instrumentation

Instrumentation used for the noise survey comprised of the following equipment;

- Noise Logger 01 – 92 Cooramin Street, Cartwrights Hill – Rion NL-42 – 1/3 Octave (serial number: 00396931).

Calibration of all equipment was checked prior to and following the measurements. Drift in calibration did not exceed ± 0.5 dB(A). All equipment carries appropriate and current NATA (or manufacturer) calibration certificates.

Charts presenting summaries of the measured daily noise data are attached to this report in Appendix B. The charts present each 24-hour period and show the L_{A01}, L_{A10}, L_{Aeq} and L_{A90} 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.

Noise Logger 01 was located along the centre, northern boundary of the development site at 92 Cooramin Street, Cartwrights Hill NSW. Refer to Figure 1 above to see an image of the noise logger location relative to the nearby residents and the clubhouse.

The purpose of monitoring noise levels at this location is that the existing background noise level will approximate traffic noise levels likely to be experienced at the clubhouse building while also quantifying background noise levels at the residences most likely to be impacted by the development. These monitored levels were also used to establish the noise emissions from the development (i.e. to determine the noise levels representative of those at the nearest noise sensitive receiver locations to the development).

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

In order to assess the potential noise impacts of the development on nearby sensitive receivers, the measured background noise data was processed in accordance with the Environmental Protection Authority (EPA) *Noise Policy for Industry* (NPI).

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 levels $L_{A90\ (15minute)}$ and L_{Aeq} 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 Wagga Wagga AMO (ID 072150).

Table 2 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] (dB(A))	L_{Aeq}[3] (dB(A))	L_{A90}[2] (dB(A))	L_{Aeq}[3] (dB(A))	L_{A90}[2] (dB(A))	L_{Aeq}[3] (dB(A))
Noise Logger 01 – Along centre, northern boundary of project site (See Figure 1).	36	52	39	49	32	46

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.

3.1.3 Results in accordance with the NSW EPA *Road Noise Policy (RNP) 2011*

The measured ambient noise level in accordance with the NSW EPA Road Noise Policy (RNP) 2011 are provided in Table 3.

Table 3 Measured ambient noise levels corresponding to the EPA Road Noise Policy (RNP) 2011 Time Periods.

Measurement Location	Measured Noise Level	
	Daytime[1] 7:00 am to 6:00 pm	Night-time[1] 6:00 pm to 7:00 am
	L_{Aeq}[1] (dB(A))	L_{Aeq}[1] (dB(A))
Noise Logger 01 – Along centre, northern boundary of project site (See Figure 1).	51	46

Note 1: 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 ACOUSTIC CRITERIA

The acoustic criteria which have been adopted for this assessment are outlined below. The criteria have been separated into the relevant assessment type; these are:

- *Noise Intrusion Criteria* (Assessment of building envelope),
- *Noise Emission Criteria* (Assessment of noise to surrounding receivers).

4.1 Noise Intrusion Criteria

External noise intrusion into the building will generally be via the building envelope (external wall, glazing or external roof). The design of the building envelope should be such that the requirements listed below are achieved.

4.1.1 Wagga Wagga Local Environmental Plan (LEP) 2010

A review of the current Wagga Wagga Development Control Plan (DCP) 2010 reveals that this document does not contain any applicable numerical internal noise intrusion criteria.

As such, and in the absence of any other applicable requirements, the following will be adopted:

- Australian/New Zealand 2107:2016 Acoustics - Recommended design sound levels and reverberation times for building interiors.
- These AS/NZ 2107:2016 levels apply to the total internal noise level from both noise intrusion (i.e. from road traffic) as well as from building services equipment servicing the space (such as the air conditioning system).

4.1.2 Wagga Wagga Development Control Plan (DCP) 2010

A review of the current Wagga Wagga Development Control Plan (DCP) 2010 reveals that this document does not contain any applicable numerical internal noise intrusion criteria.

As such, and in the absence of any other applicable requirements, the objectives listed in AS/NZ 2107:2016 will be adopted for the internal noise intrusion criteria.

4.1.3 Australian / New Zealand Standard AS/NZS 2107:2016 Acoustics - Recommended design sound levels and reverberation times for building interiors - (AS/NZS 2107:2016)

In relation to design internal noise levels, Standard AS/NZS 2107:2016 recommends a range with lower and upper levels (rather than "satisfactory" and "maximum" internal noise levels) for building interiors based on room designation and location of the development relative to external noise sources. This change in the Standard has occurred due to the fact that sound levels below 'satisfactory' could be interpreted as desirable, but the opposite may in fact be the case. Levels below those which were listed as 'satisfactory' can lead to inadequate acoustic masking resulting in loss of acoustic isolation and speech privacy.

The levels for areas relevant to this development are given in Table 4 below. In this report we will confine our recommendations to dB(A) levels, however, where the background noise appears to be unbalanced, standard AS/NZS 2107:2016 provides direction in terms of suitable diagnostic tools that can be used to assess the spectrum distribution of the background noise.

Section 6.18 of standard AS/NZ 2107:2016 notes that the presence of discrete frequencies or narrow band signals may cause the sound level to vary spatially within a particular area and be a source of distraction for occupants. Where this occurs, the sound level shall be determined as the highest level measured in the occupied location(s).

If tonal components are significant characteristics of the sound within a measurement time interval, an adjustment shall be applied for that time interval to the measured A-weighted sound pressure level to allow for the additional annoyance. If the background sounds include spectral imbalance, then the RC (Mark II) levels indicated in Table 4 should be referenced (see also Appendix D of AS/NZ 2107:2016 for additional guidance).

Table 4 Recommended design sound levels as per standard AS/NZS 2107:2016.

Type of Occupancy/Activity	Design sound level range ($L_{Aeq,t}$)
Sports clubs or clubrooms	
Function areas	40 to 45
Change rooms	< 50
Bars	< 50

Generally, where the final noise levels are within +/- 2 dB of the specified level given above, the design criteria will be considered met. Both the upper and lower limits will need to be satisfied especially where privacy is important or where noise intrusion to be avoided.

4.1.4 Project Airborne Noise Requirements

Based on the details included in the section above, the project internal noise levels requirements are summarised in Table 5 below.

Table 5 Project airborne internal noise level requirements.

Type of Occupancy/Activity	Design sound level range ($L_{Aeq,t}$)
Sports clubs or clubrooms	
Function areas	45
Change rooms	< 50
Bars	< 50

4.2 Noise Emission Criteria (Operational Criteria)

Noise emissions from the operation of the site impacting on the adjacent land users are outlined below.

4.2.1 Wagga Wagga Development Control Plan (DCP) 2010

Following a review of the current Wagga Wagga Development Control Plan (DCP) 2010, we note that the document does not contain any applicable numerical acoustic criteria for the assessment of noise emissions from mechanical plant for developments of this kind. As such, in the absence of any other applicable requirements, the objectives listed in the NSW EPA "*Noise Policy for Industry*" (NPfI) 2017 below will be adopted.

4.2.2 NSW EPA Noise Policy for Industry (NPI) 2017

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

The *Noise Policy for Industry* (NSW NPI) 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.
- Maintaining noise level amenity of particular land uses for residents and sensitive receivers in other land uses.

4.2.2.1 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 (L_{Aeq}), 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.

4.2.2.2 Protecting Noise Amenity (All Receivers)

To limit continuing increase 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 L_{Aeq} 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.

Project amenity noise level for industrial developments is specified as the recommended amenity noise level (Table 2.2 of the NPI) minus 5 dB(A). To standardise the time periods for the intrusiveness and amenity noise levels, this policy assumes that the $L_{Aeq,15min}$ will be taken to be equal to the $L_{Aeq,period}$ + 3 decibels (dB).

Where the resultant project amenity noise level is 10 dB or more lower than the existing industrial noise level, the project amenity noise levels can be set at 10 dB below existing industrial noise levels.

4.2.2.3 Area Classification

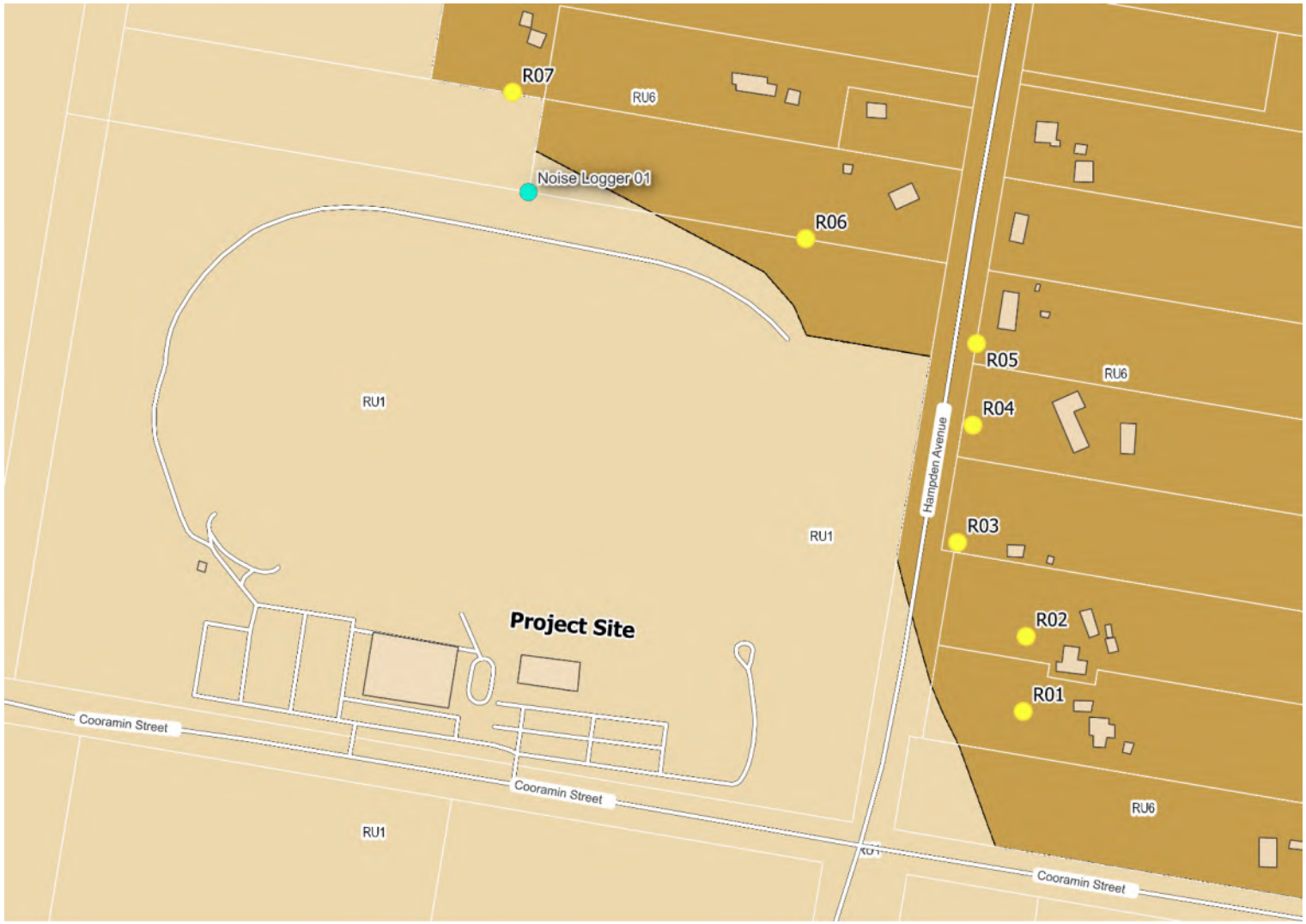
The NSW NPI characterises the "Rural Residential" noise environment as an area that has the following characteristics:

- *An area with an acoustical environment that is dominated by natural sounds, having little or no road traffic noise and generally characterised by low background noise levels. Settlement patters wound be typically sparse.*

  Note: Where background noise levels are higher than those presented in column 3 due to existing industry or intensive agricultural activities, the selection of a higher noise amenity area should be considered

Figure 2 is obtained from the NSW Planning ePlanning Spatial Viewer Zoning Maps and shows the land zoning map of the proposed development and the nearest sensitive receivers.

Figure 2 NSW Planning ePlanning spatial viewer zoning maps.



As shown above, the nearest surrounding receivers are located in an area defined as RU6 (Transition). The most appropriate zoning for the surrounding receivers is therefore *Rural Residential*.

For residential receivers in a rural residential area, the recommended amenity criteria are shown in Table 6 below.

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.

Table 6 NSW NPI – recommended L_{Aeq} noise levels from noise sources.

Type of Receiver	Indicative Noise Amenity Area	Time of Day[1]	Recommended Amenity Noise Level ($L_{Aeq, period}$)[2] (dB(A))
Residence	Rural	Day	50
		Evening	45
		Night	40

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.

4.2.2.4 Project Specific NPfI Noise Emission Criteria

The intrusive and amenity criteria for mechanical services noise emissions, excluding patron noise (i.e. restaurants / food & beverage outlets, etc.), derived from the measured data at the logger along the northern boundary of the site (Noise Logger 01), are presented in Table 7. 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 levels are shown in bold text in Table 7.

Table 7 External noise level criteria in accordance with the NSW NPI (dB(A)).

Location	Time of Day [1]	Project Amenity Noise Level, $L_{Aeq, period}$ [2]	Measured $L_{A90, 15\ min}$ (RBL) [3,4]	Measured $L_{Aeq, period}$ Noise Level	Intrusive $L_{Aeq, 15\ min}$ Criterion for New Sources	Amenity $L_{Aeq, 15\ min}$ Criterion for New Sources
Residential Receivers	Day	45	36	52	**41**	48
	Evening	40	39	49	~~44~~ **41**[5]	43
	Night	35	32	46	**37**	38

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

Note 2: 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 3: L_{A90} Background Noise or Rating Background Level.

Note 4: Project Noise Trigger Levels are shown in bold and underlined.

Note 5: As per Section 2.3 of the NPfI the evening PTNL must not be set greater than the daytime period, as such the PTNL for the evening is to be set as the daytime noise level.

4.2.2.5 Maximum Noise Level Event Assessment

The EPA's *Noise Policy for Industry* (NPfI) includes suitable criteria for the assessment of potential sleep awakening events, which have been used as the basis of this report. The policy requires the following:

> ***2.5 Maximum noise level event assessment***
>
> *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.*
>
> *The detailed assessment should cover the maximum noise level, the extent to which the maximum noise level exceeds the rating background noise level, and the number of times this happens during the night-time period. Some guidance on possible impact is contained in the review of research results in the NSW Road Noise Policy.*

Based on the measured noise levels outlined in Section 3.1 the resulting maximum noise level event requirements are:

Residential Receivers

- 32 dB(A) $L_{A90\ (10pm\text{-}7am)}$ + 5 dB = 37 dB(A) $L_{Aeq(15\ mins)}$, which is lower than 40 dB(A) and therefore the 40 dB(A) will be adopted.
- 32 dB(A) $L_{A90\ (10pm\text{-}7am)}$ + 15 dB = 47 dB(A) $L_{AFMax)}$, which is lower than 52 dB(A) and therefore the 52 dB(A) L_{AFMax} will be adopted.

4.2.3 Operational road traffic noise

Commercial developments have the potential to generate additional road traffic and associated noise impacts from the vehicles accessing the site, The EPAs Road Noise Policy provides guidance on appropriate noise criteria which should be considered.

Presented below are the applicable noise criteria for road traffic on local roads. Access routes for vehicles accessing the site will be along Cooramin Street and Hampden Avenue which are classified as local roads.

Table 8 Road noise criteria.

Road category	Type of project / land use	Assessment criteria, dB(A)	
		Daytime 7:00 am – 10:00 pm	Nighttime 10:00 pm – 7:00 am
Local roads	Existing residences affected by additional traffic on existing local roads generated by land use developments.	$L_{Aeq,1hour}$ 55 (external)	$L_{Aeq,1hour}$ 50 (external)

Where the predicted noise levels with the project indicate likelihood to exceed the noise criteria presented in Table 8, it is considered not reasonable and feasible to provide noise mitigation measures if the project does not increase noise by greater than 2.0 dB. A change of 2 dB to 3 dB in road traffic noise is often considered to be indiscernible.

4.3 Patron Noise

Noise sources related to operations of restaurants or food & beverage areas typically include patron noises and background music playback. As the acoustic characteristics of these noise sources are different in their frequency spectral contents and intermittent in nature when compared to industrial noise sources, a different and more suitable noise assessment approach must be applied to patron and music noise emissions. A typical noise assessment tool for patron and music noise emission is the conditions set out by the Office of Liquor and Gaming.

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 licenced premises and registered clubs (including disturbances caused by patrons). These complaints are addressed by the Director of Liquor and Gaming, and in the process may impose temporary or permanent noise conditions on the licensed venue. Typical noise conditions that are imposed upon licensed premises are as follows:

- *The L_{A10}* 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 am (midnight) at the boundary of any affected residence.*
- *The L_{A10}* 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 am (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 house of 12:00 am (midnight) and 07:00 am.

** For the purposes of this condition, the L_{A10} 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.

These criteria are applicable to noise emissions from the proposed clubhouse usage. Octave band spectral criteria for each assessment period has been summarised in Table 9 below. These are based on the measured noise

spectra, which has been adjusted to match the overall RBLs listed in Table 2.

The noise criteria have been separated into three distinct times based on the noise levels measured at the site. These are considered suitable to form noise management measures to control impacts on the surrounding community. For this assessment, it is assumed that the Clubhouse will not operate past midnight.

Table 9 Liquor & gaming NSW – LA10 criteria (external) – residential criteria only.

Time Period [1]	Parameter [2]	Octave Band Centre Frequency, Hz (dB(A))								
		31.5	63	125	250	500	1k	2k	4k	8k
L_{A90} Noise level										
7:00 am to 6:00 pm	Measured L_{A90}[1]	7	24	31	29	26	34	29	20	14
6:00 pm to 10:00 pm		2	20	24	21	26	35	27	24	13
10:00 pm to 12:00(Midnight)		1	17	21	17	22	27	22	20	13
L_{A10} Noise criteria										
7:00 am to 6:00 pm (L_{A90} + 5 dB(A))	Resulting L_{A10} noise criteria[2]	30[3]	29	36	34	31	39	34	25	19
6:00 pm to 10:00 pm (L_{A90} + 5 dB(A))		30[3]	25	29	26	31	40	32	29	18
10:00 pm to 12:00 (Midnight) (L_{A90} + 5 dB(A))		30[3]	22	26	22	27	32	27	25	18

Note 1 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 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 Internation Standard ISO 226:2003.

5 NOISE ASSESSMENT

5.1 Noise from Additional Vehicles on Surrounding Road Network

Noise impacts from the increase in vehicle movements along Cooramin Street and Hampden Avenue are to be assessed in accordance with the NSW EPA Road Noise Policy (RNP) 2011.

The traffic report prepared by McLaren Traffic Engineering identifies that proposal will increase existing road traffic movements by up to 95 vehicles within the worst 1-hour period. Additionally, the traffic report identifies the following traffic assignment:

- 25% to / from the North via Hampden Avenue;
- 75% to / from the South via Hampden Avenue.

For this assessment, it has been assumed that the peak arrival traffic will occur between 4:00 pm – 5:00 pm and depart from 10:00 pm – 11:00 pm. These times have been derived from typical horse-racing events, considering that the proposed function events will likely also occur at similar times.

From the conducted traffic assessment, McLaren Traffic Engineering noted the following traffic counts along Hampden Avenue from 4:00 pm – 5:00 pm. Study conducted on the 2nd of August 2024.

- 4:00 pm – 5:00 pm = 402 vehicle movements (both directions)
- 10:00 pm – 11:00 pm = study not completed during these hours. As such, the last measured one hour period has been adopted. Counted vehicle movements 5:30 pm – 6:30 pm = 242 vehicle movements.

The noise propagation algorithm Calculation of Road Traffic Noise (CoRTN) has been proven to effectively calculate road traffic noise from free-flowing traffic throughout Australia. Both existing and predicted road traffic noise levels have been predicted for sensitive receivers along Hampden Avenue. These receivers are presented below in Table 10. The numerical predictions are presented within Table 11 and Table 12 for the daytime and nighttime periods respectively.

Table 10 Road noise sensitive receivers.

Address	Approximate distance from road (m)	Comment
106 HAMPDEN AVENUE NORTH WAGGA WAGGA	35	Residential, main house.
175 HAMPDEN AVENUE NORTH WAGGA WAGGA	68	Residential, main house.
187 HAMPDEN AVENUE NORTH WAGGA WAGGA	41	Residential, main house.
229 HAMPDEN AVENUE NORTH WAGGA WAGGA	44	Residential, main house.
355 HAMPDEN AVENUE CARTWRIGHTS HILL	122	Residential, main house.
389 HAMPDEN AVENUE CARTWRIGHTS HILL	28	Residential, main house.
401 HAMPDEN AVENUE CARTWRIGHTS HILL	32	Residential, main house.

Table 11 Predicted Road noise impacts – Daytime 7:00 am – 10:00 pm, $L_{Aeq,15\ min}$.

Address	Criteria Daytime – L_{Aeq}, (1 hour)	Existing, dB(A)	Future, dB(A)	Change in noise (dB)
106 HAMPDEN AVENUE NORTH WAGGA WAGGA	55	54.2	56.4	2
175 HAMPDEN AVENUE NORTH WAGGA WAGGA	55	51.3	53.5	2
187 HAMPDEN AVENUE NORTH WAGGA WAGGA	55	53.5	55.7	2
229 HAMPDEN AVENUE NORTH WAGGA WAGGA	55	55.4	57.6	2
355 HAMPDEN AVENUE CARTWRIGHTS HILL	55	51.0	51.9	1
389 HAMPDEN AVENUE CARTWRIGHTS HILL	55	57.4	58.3	1
401 HAMPDEN AVENUE CARTWRIGHTS HILL	55	56.8	57.7	1

Table 12 Predicted road noise impacts – Nighttime 10:00 pm – 7:00 am, $L_{Aeq,15\ min}$.

Address	Criteria Nighttime – L_{Aeq}, (1 hour)	Existing, dB(A)	Future, dB(A)	Change in noise (dB)
106 HAMPDEN AVENUE NORTH WAGGA WAGGA	50	58.0	59.2	1
175 HAMPDEN AVENUE NORTH WAGGA WAGGA	50	55.2	56.3	1
187 HAMPDEN AVENUE NORTH WAGGA WAGGA	50	57.4	58.5	1
229 HAMPDEN AVENUE NORTH WAGGA WAGGA	50	59.2	60.4	1
355 HAMPDEN AVENUE CARTWRIGHTS HILL	50	54.8	55.2	0
389 HAMPDEN AVENUE CARTWRIGHTS HILL	50	61.2	61.6	0
401 HAMPDEN AVENUE CARTWRIGHTS HILL	50	60.6	61.0	0

As event in both Table 11 and Table 12, the existing road traffic noise resulting from the existing road traffic on Hampden Avenue exceeds the local road noise criteria at many the nearest residential receivers during the daytime, and all of the existing receivers during the nighttime period. However, the predicted change in noise levels as a result of the proposed development are not greater than 2 dB. It is therefore not considered reasonable, nor feasible to provide noise mitigation to reduce road traffic noise impacts as part of this proposal.

A 2 dB increase is barely perceptible to the average person and therefore considered acoustically acceptable.

5.2 Licenced Venue – Assessment methodology

Noise generated by the site has been modelled using SoundPLAN v9.1, using the ISO9613 noise modelling algorithm. This algorithm was selected to calculate the worst-case downwind noise propagation, calculating the reasonable worst case noise impacts.

Noise sources have incorporated octave noise levels to ensure that the predicted noise can be assessed against the NSW Liquor and Gaming noise criterion. Presented in Table 13 is a summary of the scenarios considered in this assessment.

For all scenarios one third of the people in the space have been assessed talking in raised voices. For example, a space with 100 people has been assessed with 33 people talking in raised voices simultaneously (One in three people talking).

5.2.1 Assumed source noise levels and assumptions

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

The noise assessment has considered the operational time periods of 10:00 pm - 12:00 am (midnight) only, as this period represents the most stringent noise criteria. As such, compliance with the 10:00 pm – 12:00 am (midnight) criteria will also ensure that the noise criteria of the daytime and evening periods is achieved.

Operations have not been considered from 12:00 am (midnight) – 7 am due to the external noise criteria becoming significantly more stringent, hence limiting the scale of operations that could be conducted during this time period.

5.2.1.1 Scenario 01 – 10:00 pm – Midnight Operations

Scenario 01 considers noise emissions from the clubhouse (music and patron noise).

Clubhouse assumptions

- For the purpose of this assessment, we have assumed that a single person speaking with a raised voice has a Sound Power Level (Lw) of 76 dB(A). This has been formulated in accordance with the published noise levels from Klark Teknik (The Audio System Designer Technical Reference, Chapman Partnership). This represents a conservative assessment approach. Patrons have been modelled with a source height of 1.5 m.
- We have assessed a maximum of 285 patrons within the clubhouse. No patrons have been considered using the external grandstand seating / marque area at any time period.
- We have assumed that one in three patrons are talking at any one time (in the clubhouse)
- Internal music is being played within the clubhouse, with a reverberant sound pressure level of 85 dB(A) Live music is permitted, so long as the resulting reverberant sound pressure level (at all octave bands) is not exceeded.
- All operable windows and doors to the clubhouse along the northern and eastern facades are closed during all proposed operational hours.
- All glazed façades are to meet a minimum acoustic performance of no less than Rw (C;Ctr): 31 (0;-3). This transmission loss is consistent with 6.38 mm laminated glass. Additionally, the entry doors should be fitted with full perimeter door seals.

The modelled noise source levels are presented in Table 13 below.

Table 13 Noise source levels.

Source / description	Octave band frequency, Hz (dB(Z))								
	63	125	250	500	1 k	2 k	4 k	8 k	Overall (dB(A)
Internal clubhouse background music and Internal clubhouse patrons (285 patrons, 1/3 speaking) with a reverberation time of 0.90 seconds.	71	74	83	83	81	76	74	68	85
Note 1 The provided sound power levels represent a singular noise event within a 15-minute period. These have since been corrected to account for multiple sources for each specific scenario (refer to Section 5.2.1.1 for further details).									

5.2.1.1.1 Predicted noise impacts

Presented in Table 14 and below is a summary of the noise predictions for Scenario 01, assessed against the relevant noise criteria. A summary of the noise mitigations that has been included to achieve the design criteria has also been included.

Noise contours for Scenario 01 are presented in Appendix C: Operational Noise Contours – Scenario 01.

Table 14 Predicted noise levels to residential receivers – Scenario 01.

Predicted L10 Noise Levels Night Period: 10pm – 12am (midnight)	Octave Band Centre Frequency, Hz (dB(A))								
	31.5	63	125	250	500	1 k	2 k	4 k	8 k
R01	-	<10	<10	11	11	<10	<10	<10	-
R02	-	<10	<10	11	11	<10	<10	<10	-
R03	-	<10	<10	12	12	<10	<10	<10	-
R04	-	<10	<10	11	11	<10	<10	<10	-
R05	-	<10	<10	<10	<10	<10	<10	<10	-
R06	-	<10	<10	11	10	<10	<10	<10	-
R07	-	<10	<10	<10	<10	<10	<10	<10	-
LA10 criterion (10:00pm to 12:00am (midnight))	30[1]	22	26	22	27	32	27	25	18
Compliance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note 1 Criteria is adjusted to match the threshold of hearing as outlined in Internation Standard ISO 226:2003.

5.2.2 Assessment results and noise criteria measures

Predicted noise levels from the operation of the clubhouse area when fully operational (i.e., full capacity patron noise) has been calculated. To ensure compliance is achieved, the following recommendations must be implemented:

- No more than 285 patrons are permitted in the clubhouse at any one time (excluding staff). No patrons are to use the external grandstand seating / marque area at any time period.
- Internal music is to be played within the clubhouse, with a reverberant sound pressure level of no greater than 85 dB(A).
- All glazed façades are to meet a minimum acoustic performance of no less than Rw (C;C_{tr}): 31 (0;-3). Additionally, the entry door should be fitted with full perimeter door seals.
- All operable windows and doors are to be kept closed during the proposed operating hours.
- 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, emptying bottle into recycling bins and the like, is to occur outside the daytime period.
- A contact number must be displayed for the purpose of receiving any complaints, should they occur.
- Operations are not to occur past midnight.

Neither the NPfI or NSW Liquor and Gaming documents specify the maximum allowable number of events that occur during a week / year etc. As such, so long as the above noise levels and number of sources (patrons) are not exceeded, the proposed clubhouse usage will be suitable for use at any desired frequency throughout the year.

On the assumption the recommendations outlined above are incorporated, compliance with the acoustic project criteria outlined in Section 4 above will be achieved.

5.3 Mechanical services and carpark assessment methodology

Carpark assumptions

We have assessed the traffic report prepared by McLaren Traffic report ref: '240488.01FC', dated 30 September 2024. Their traffic report concludes that the peak per/post function event 1-hour traffic volumes are expected to be 95 vehicle trips. As such, we can expect that peak 15-minute traffic flows are expected to be equal to approximately 24 vehicle trips per 15-mimute period. A conservative approach was taken to consider the traffic impacts of 25 vehicle movements occurring withing a 15-minute period.

- 25 x cars manoeuvring (departing) have been modelled to occur within a 15-minute period. Cars have been considered to drive at a speed of 10 km/h with a sound power level of 90 dB(A). Car movements have been modelled at a source height of 1 m.

- 25 x car engine starts have been considered within the 15-minute period. Car starts feature a sound power level of 94 dB(A), with a time correction applied to correct the duration to 2 seconds. Car engine starts have been modelled with a source height of 1 m.

- 50 x car door slams have been considered within the 15-minute period. Car door slams have been modelled with a sound power level of 92 dB(A), with a time correction applied to correct the duration to 1 second. Car door slams have been modelled with a source heigh of 1 m.

The carpark source levels are presented in Table 17.

Mechanical plant emissions

The existing mechanical plant items are not anticipated to change. However, given that the proposal is seeking to operate at additional hours than what the site is currently used for, the existing mechanical services has been assessed.

The major item of mechanical equipment that requires an assessment is the rooftop air conditioner (in the form of two air-to-air counter flow plate heat exchanger), referred to as PAC-1 (servicing the lounge section) and PAC-2 (servicing the function room) of the development.

The sound power levels of the existing rooftop mounted air conditioners are presented in Table 15 and Table 16 below.

Table 15 PAC-1 – Sound power levels.

Condition	Unit	Octave Band Centre Frequencies, dB (Hz)								Overall (dB(A))
		63	125	250	500	1000	2000	4000	8000	
Supply air										
3200 L/s with 250 Pa external static pressure	ACL70RCRTP-EL – Inlet	71	69	83	78	72	73	70	70	**81**
	ACL70RCRTP-EL – Outlet	72	72	84	79	82	79	75	73	**86**
Exhaust air										
6200 L/s with 250 Pa external static pressure	ACL70RCRTP-EL – Inlet	74	84	84	81	76	74	73	71	**83**
	ACL70RCRTP-EL – Outlet	77	88	88	87	74	78	77	74	**87**

Table 16 PAC-2 – Sound power levels.

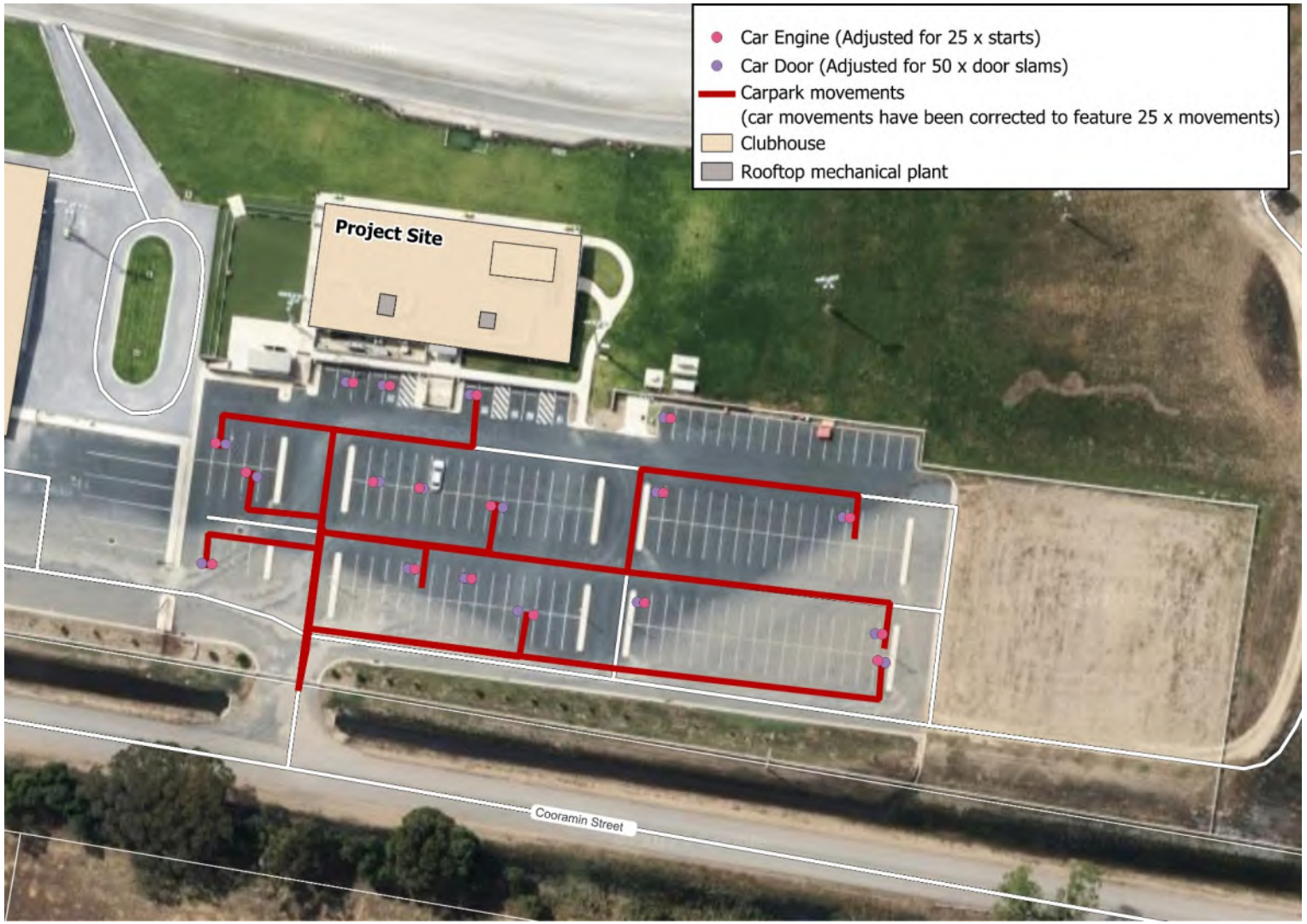
Condition	Unit	Octave Band Centre Frequencies, dB (Hz)								Overall (dB(A))
		63	125	250	500	1000	2000	4000	8000	
Supply air										
1400 L/s with 250 Pa external static pressure	ACS32RCRTP-EL – Inlet	70	68	79	75	70	69	67	71	**78**
	ACS32RCRTP-EL – Outlet	71	71	82	79	81	78	74	75	**85**
Exhaust air										
2240 L/s with 250 Pa external static pressure	ACL70RCRTP-EL – Inlet	69	68	78	75	69	69	66	68	**77**
	ACL70RCRTP-EL – Outlet	70	70	80	77	79	76	72	71	**83**

Table 17 Carpark noise source power levels.

Source / description	Octave band frequency, Hz (dB(Z))								
	63	125	250	500	1 k	2 k	4 k	8 k	Overall (dB(A)
Car movements x1 (excluding time correction)[1]	72	70	71	85	88	81	70	60	90
Car engine start x1 (excluding time correction)[1]	-	-	-	97	-	-	-	-	94
Car door slams x1 (excluding time correction)[1]	-	-	-	95	-	-	-	-	92
Note 1 The provided sound power levels represent a singular noise event within a 15-minute period. These have since been corrected to account for multiple sources for each specific scenario (refer to Section 5.2.1.1 for further details).									

The positioning of the mechanical services and carpark noise sources are illustrated in Figure 3 below.

Figure 3 Mechanical services and carpark source locations.



5.3.1 Predicted noise impacts

Presented in Table 18 below is a summary of the noise predictions for the mechanical plant and carpark assessment, assessed against the relevant NPfI noise criteria.

Noise contours for the mechanical services and carpark assessment are presented in Appendix D: Operational Noise Contours – Mechanical services and carpark.

Table 18 Predicted noise levels for mechanical services and carpark assessment.

Receiver	NPfI criteria nighttime (dB(A))	Predicted (dB(A))	Exceedance
R01	37	30	-
R02	37	30	-
R03	37	30	-
R04	37	28	-
R05	37	27	-
R06	37	27	-
R07	37	25	-

As provided in Table 18 above, the mechanical services and carpark scenario is compliant with the nighttime period (10:00 pm – 7:00 am), representing the most stringent time period. Hence, compliance will also be achieved for other time periods with a more lenient noise criterion.

5.4 Sleep disturbance noise impacts

A maximum noise impact assessment has been undertaken in accordance with the requirement of the NPfI to determine the potential noise impact on sleep disturbance. To assess the worst-case scenario, car engine startups and car door slams have been considered for the maximum noise level event assessment and representing the worst-case scenario where patrons drive away from the development site during the nighttime period (10:00 pm – 7:00 am).

Maximum noise levels resulting from patrons has also been considered, however given the source level, patron noise will not drive the sleep disturbance when compared to the car movements.

The noise has been modelled using SOUNDPLAN with the ISO9613 noise modelling algorithm.

The maximum predicted noise levels are presented in Table 19 below.

Table 19 Maximum event source noise levels, L_{AFMax} SWL dB(A).

Equipment	LAF Max dB(A)
Car engine startup	94
Car door slam	92

Table 20 below provides a summary of the predicted maximum noise levels at the identified sensitive receiver locations.

Table 20 Predicted maximum level noise impacts L_{AFMax}, dB(A) – Scenario 01.

Receiver	Screening Criterion (L_{AFMax})	Predicted $L_{AF\ Max}$ dB(A)	Exceedance
R01	52	32	-
R02	52	32	-
R03	52	33	-
R04	52	31	-
R05	52	30	-
R06	52	30	-
R07	52	27	-

As shown in Table 20 above, the predicted maximum noise levels comply with the NPfI screening criterion at noise sensitive receiver locations during the nighttime period.

5.5 Cumulative noise impact assessment

This proposal is not seeking to operate whilst the existing approved events are occurring (as detailed within DA14/0488.2), see Section 1.1.1 above.

As such, there will be no cumulative noise impacts associated with the current approved events with this proposal.

6 CONCLUSION

Pulse White Noise Acoustic Pty Ltd (PWNA) has been engaged to undertake an acoustic assessment of the proposed change in usage to the existing Wagga Harness Racing Club clubhouse located at 92 Cooramin Street, Cartwrights Hill NSW. The conclusions of this assessment are outlined below.

An assessment of the impacts associated with the number of vehicle trips generated on the surrounding public roads around the site shows that the predicted increase in traffic noise levels will be less than 2 dB(A) and therefore is compliant with the NSW EPA RNP.

External noise emissions from the proposed usage of the development have been assessed in accordance with the Liquor and Gaming NSW noise criteria. Specifically, this assessment considered noise impacts from the use of the existing clubhouse development and carparking activities from 10:00 pm – 12:00 am (midnight). Compliance with this assessment period, also ensures that the noise criteria will during the daytime and evening periods will automatically be satisfied.

Operations were not considered from 12:00 am (midnight) – 7:00 am due to fact that the external noise criterion becomes significantly more stringent which greatly limits the scale of operations that could be conducted during this time period.

Mitigation and management controls are included in Section 5.2.1.1.1 of this report. These controls will be required to ensure compliance with the relevant noise emission criteria is achieved.

Neither the NPfI or NSW Liquor and Gaming documents specify a maximum allowable number of events that occur during a week / year etc. As such, so long as the assessed scenarios assumptions are not exceeded, the proposed clubhouse usage will be suitable for use at any desired frequency (so long as the proposed functions do not occur simultaneously with the existing events as approved under DA14/0488.2).

Sleep disturbance noise impacts have also been assessed against the NPfI screening criterion. Compliance is achieved at all locations and further considerations of impacts and noise mitigation is not required.

APPENDIX A: ACOUSTIC GLOSSARY

The following is a brief description of the acoustic terminology used in this report:

Ambient Sound	The totally encompassing sound in a given situation at a given time, usually composed of sound from all sources near and far.
Audible Range	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.
Character, acoustic	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.
Decibel [dB]	The level of noise is measured objectively using a Sound Level Meter. The following are examples of the decibel readings of every day sounds; 0 dB the faintest sound we can hear 30 dB a quiet library or in a quiet location in the country 45 dB typical office space. Ambience in the city at night 60 dB Martin Place at lunch time 70 dB the sound of a car passing on the street 80 dB loud music played at home 90 dB the sound of a truck passing on the street 100 dB the sound of a rock band 115 dB limit of sound permitted in industry 120 dB deafening
dB(A)	*A-weighted decibels* The ear is not as effective in hearing low frequency sounds as it is hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter. The sound pressure level in dB(A) gives a close indication of the subjective loudness of the noise.
Frequency	Frequency is synonymous to *pitch*. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
Loudness	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
LMax	The maximum sound pressure level measured over a given period.
LMin	The minimum sound pressure level measured over a given period.
L1	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.
L10	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.
L90	The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L_{90} noise level expressed in units of dB(A).
Leq	The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.
dB (A)	'A' Weighted overall sound pressure level
Sound Pressure Level, LP dB	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.
Sound Power Level, Lw dB	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

APPENDIX B: UNATTENDED NOISE LOGGING RESULTS

Weather Station: Wagga Wagga AMO

Weather Station ID: 072150

92 Cooramin Street, North Wagga Wagga

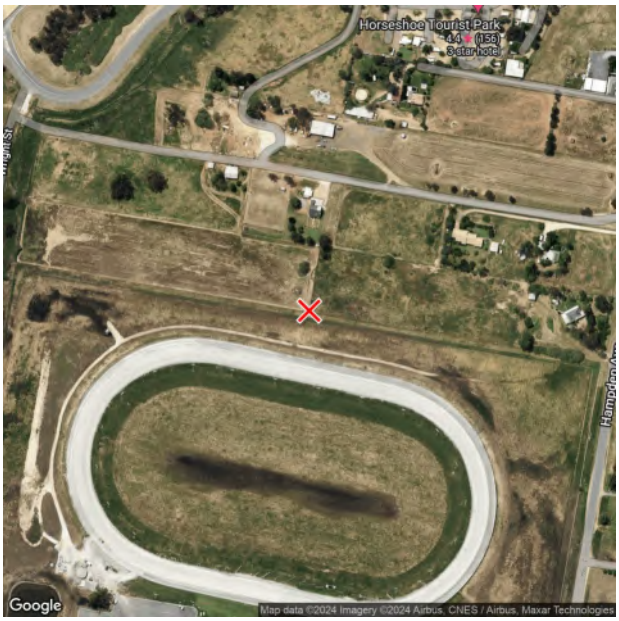
Ambient noise monitoring report

Item	Information
Logger Type	NL-42
Serial number	00396931
Address	92 Cooramin Street, North Wagga Wagga
Location	92 Cooramin Street, North Wagga Wagga
Facade / free field	Free field
Environment	

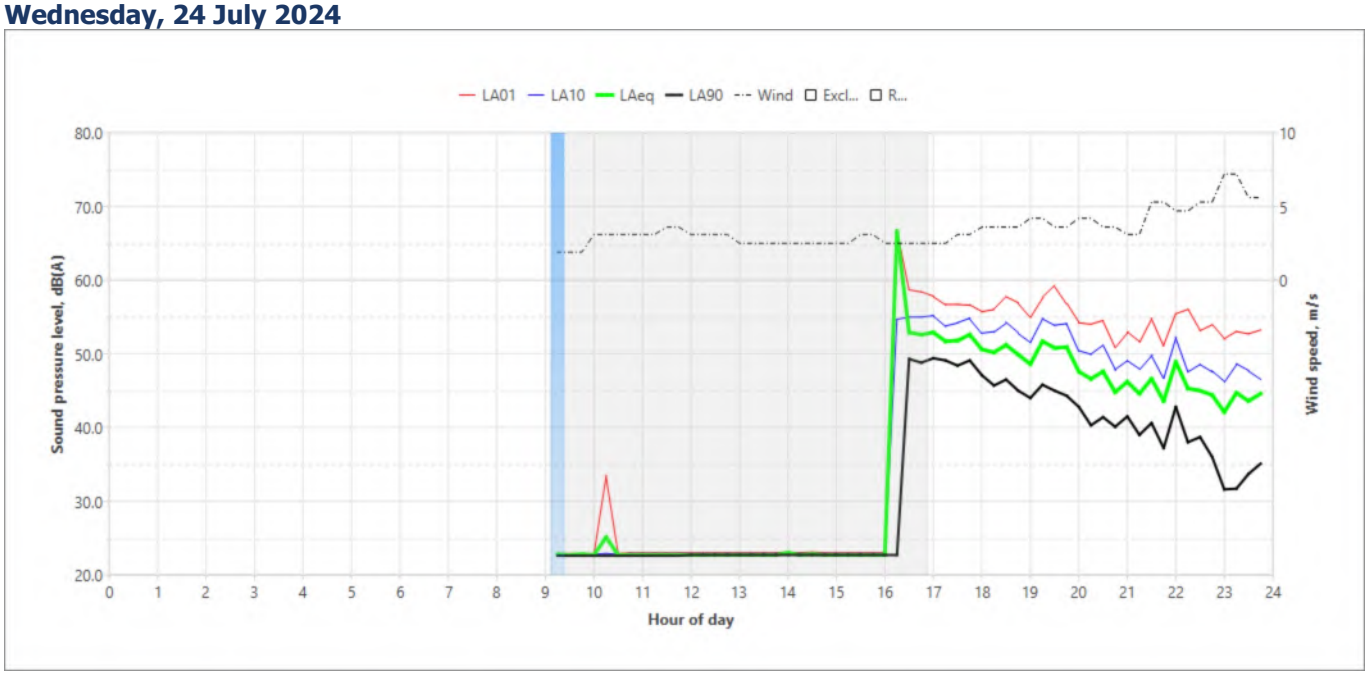
Measured noise levels

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
Wed 24 Jul 2024	-	39	-	52	49	45
Thu 25 Jul 2024	-	-	-	53	-	48
Fri 26 Jul 2024	-	40	-	50	49	45
Sat 27 Jul 2024	37	-	-	48	49	43
Sun 28 Jul 2024	-	32	-	57	43	41
Mon 29 Jul 2024	40	38	26	50	48	46
Tue 30 Jul 2024	36	39	32	50	49	47
Wed 31 Jul 2024	35	39	33	52	51	47
Thu 01 Aug 2024	36	41	33	49	51	48
Fri 02 Aug 2024	38	40	33	53	50	47
Sat 03 Aug 2024	34	38	31	50	48	45
Sun 04 Aug 2024	34	36	28	53	47	41
Mon 05 Aug 2024	35	-	-	48	41	44
Tue 06 Aug 2024	-	38	-	53	48	46
Wed 07 Aug 2024	-	-	-	51	-	46
Summary	**36**	**39**	**32**	**52**	**49**	**46**

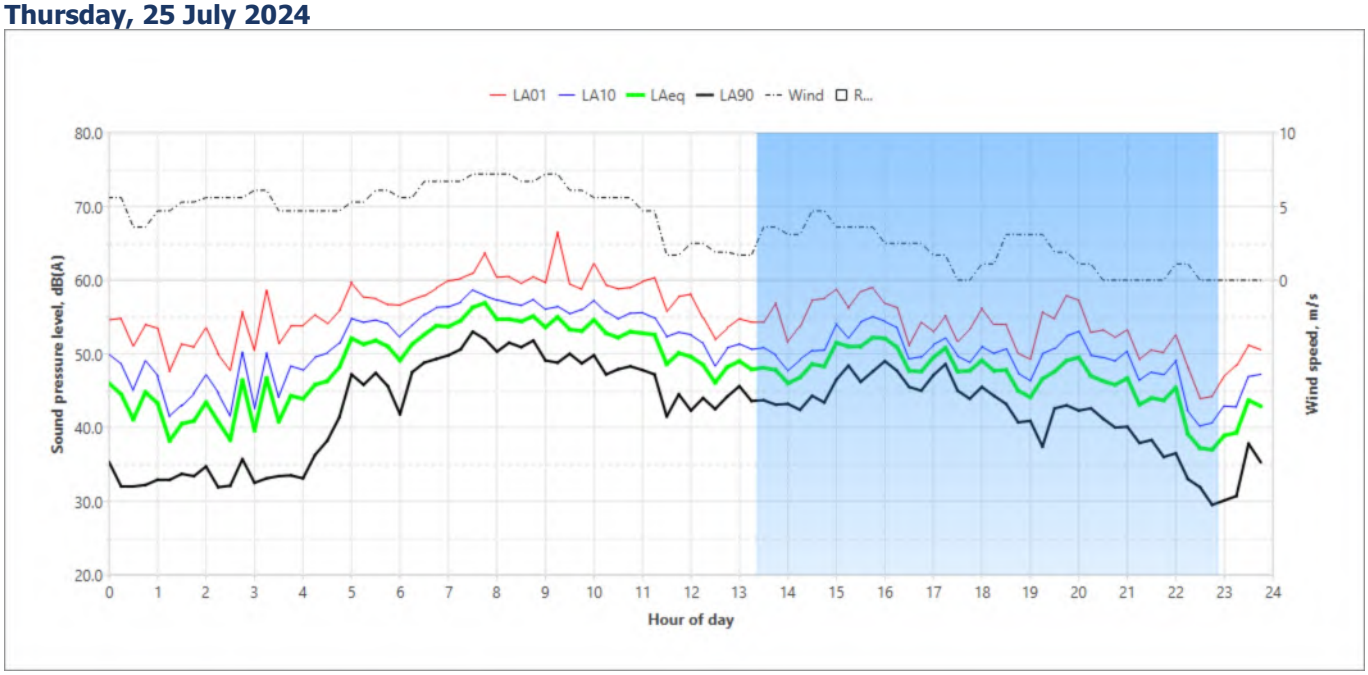
Note: Results with a '-' identify that there were not enough measurements available to correctly calculate the level, in accordance with the Noise Policy for Industry. The data has been excluded either from weather or manual exclusions. See the charts for more information

Logger location	Logger deployment photo
	

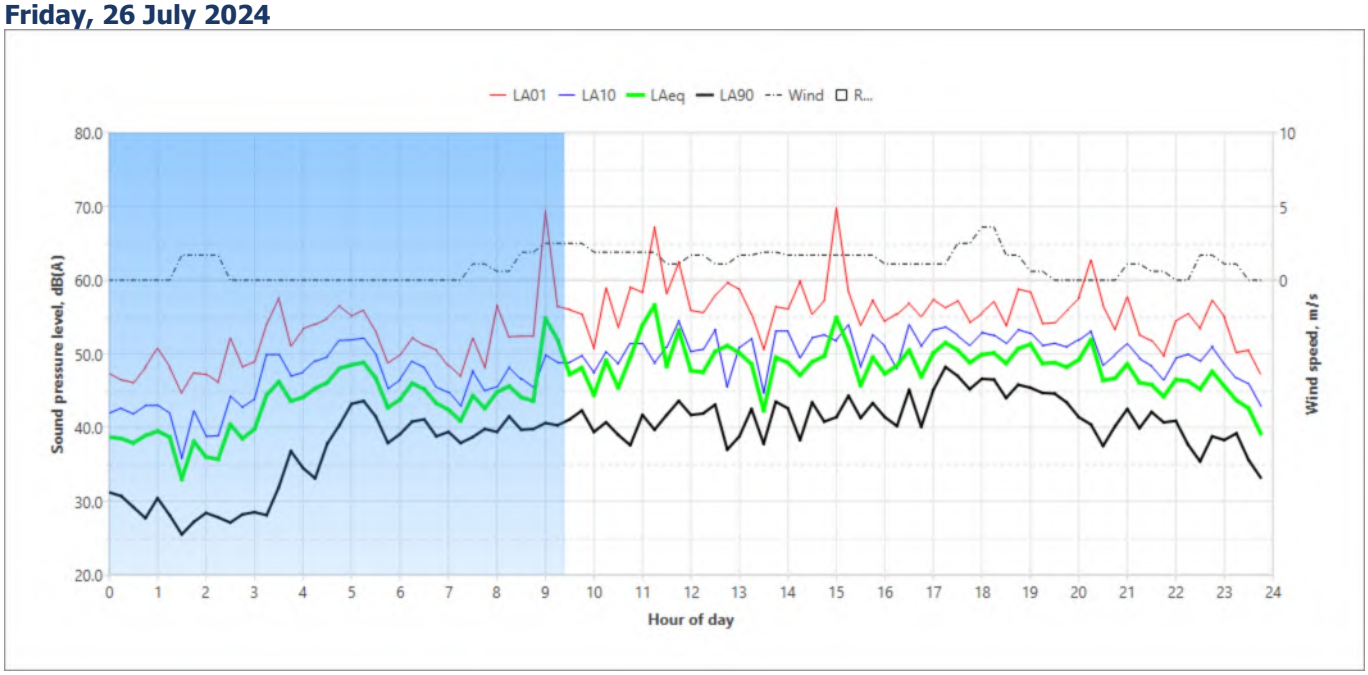
Wednesday, 24 July 2024



Thursday, 25 July 2024

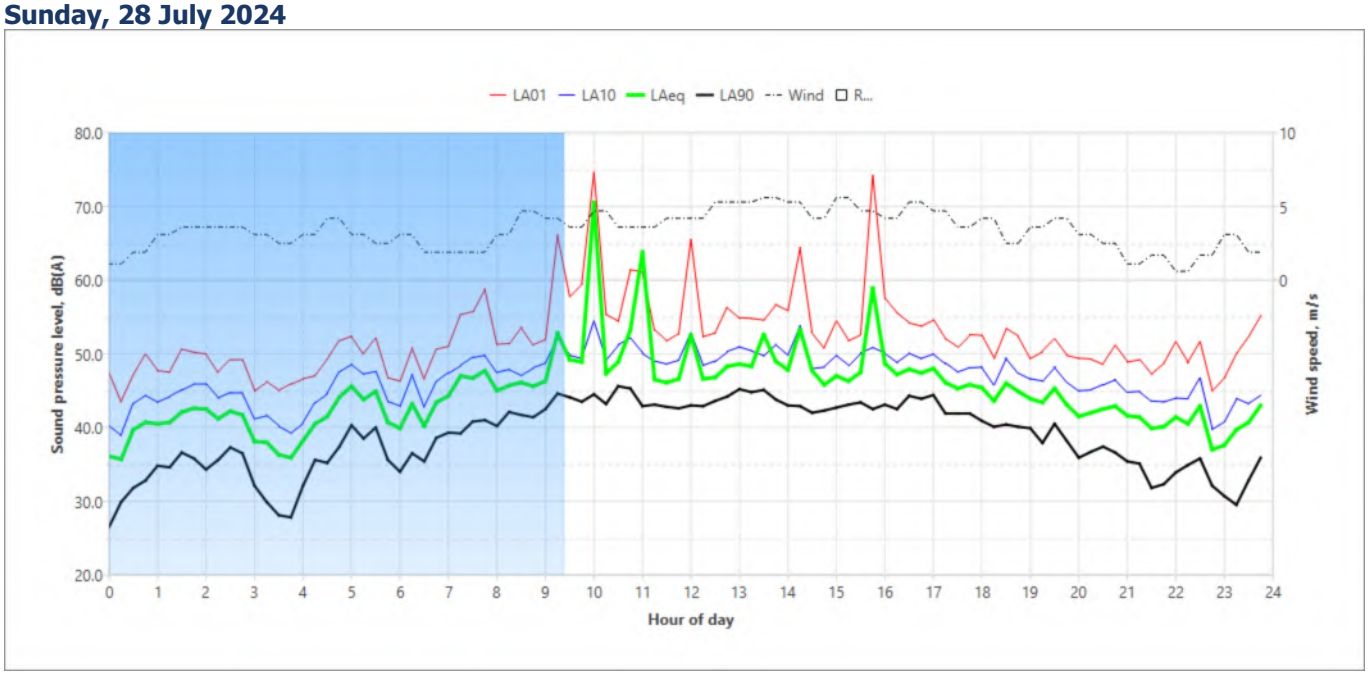


Friday, 26 July 2024

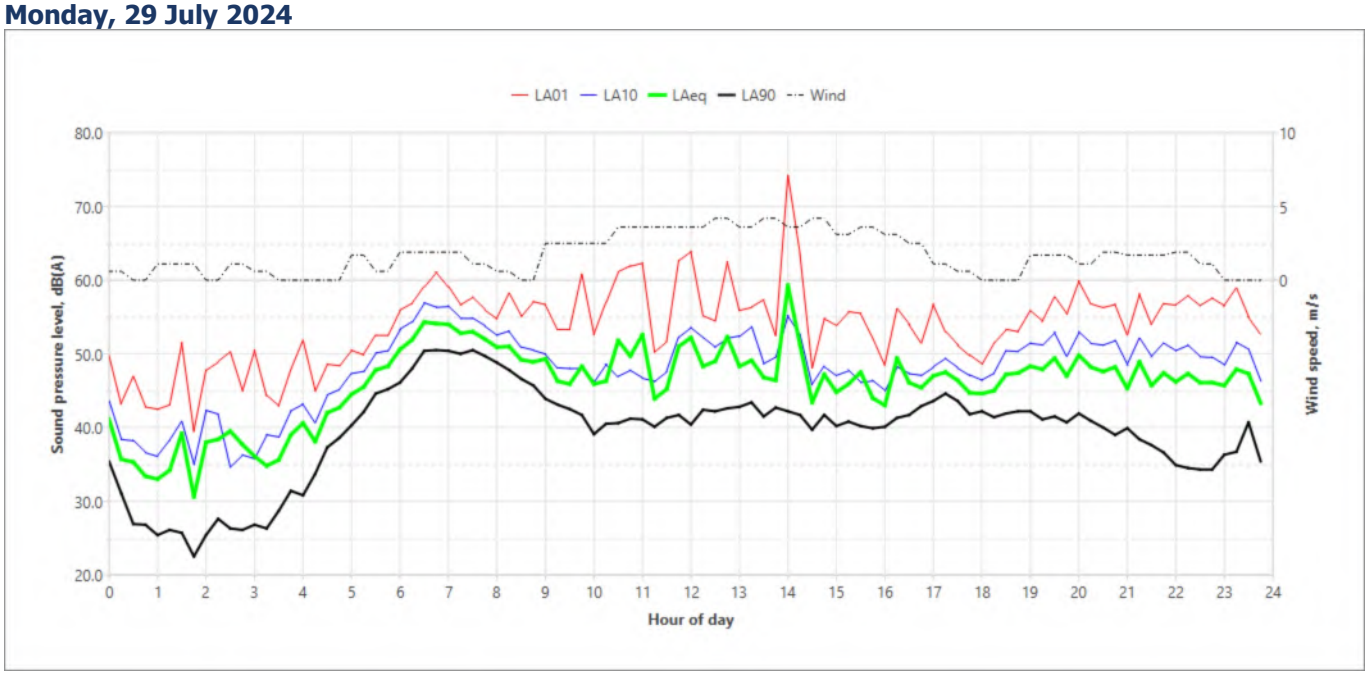


Saturday, 27 July 2024

Sunday, 28 July 2024

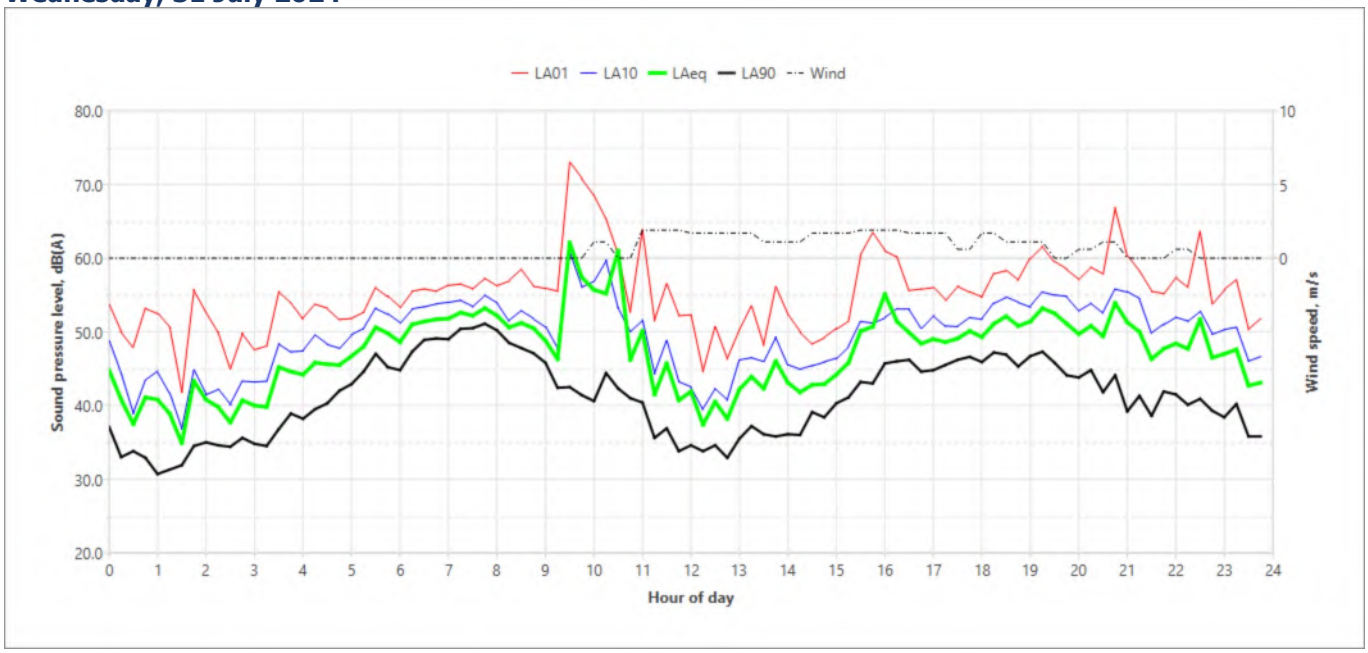


Monday, 29 July 2024

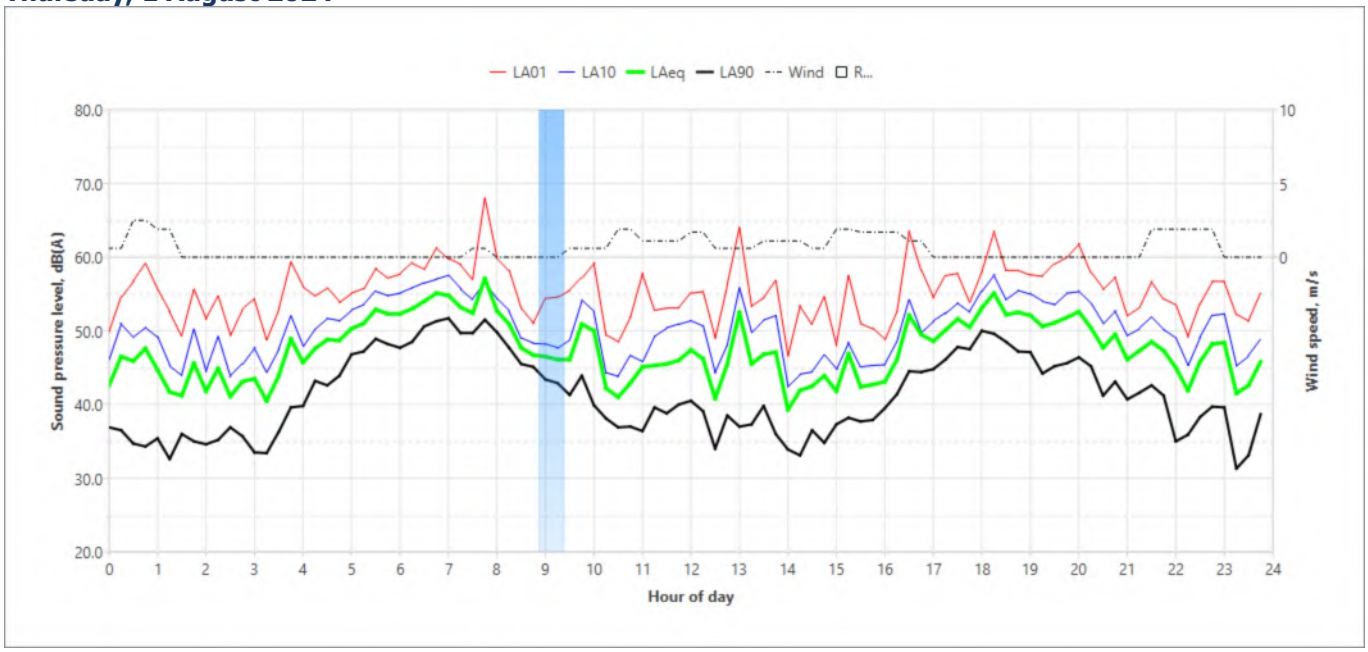


Tuesday, 30 July 2024

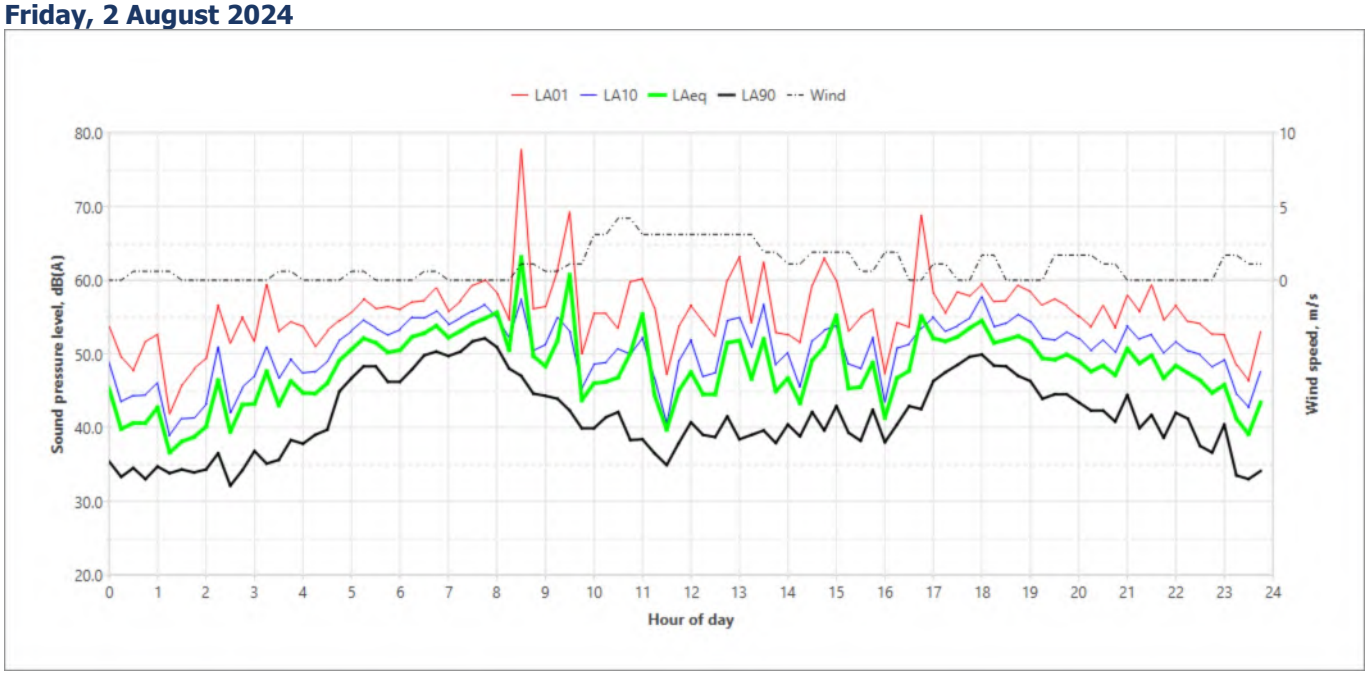
Wednesday, 31 July 2024



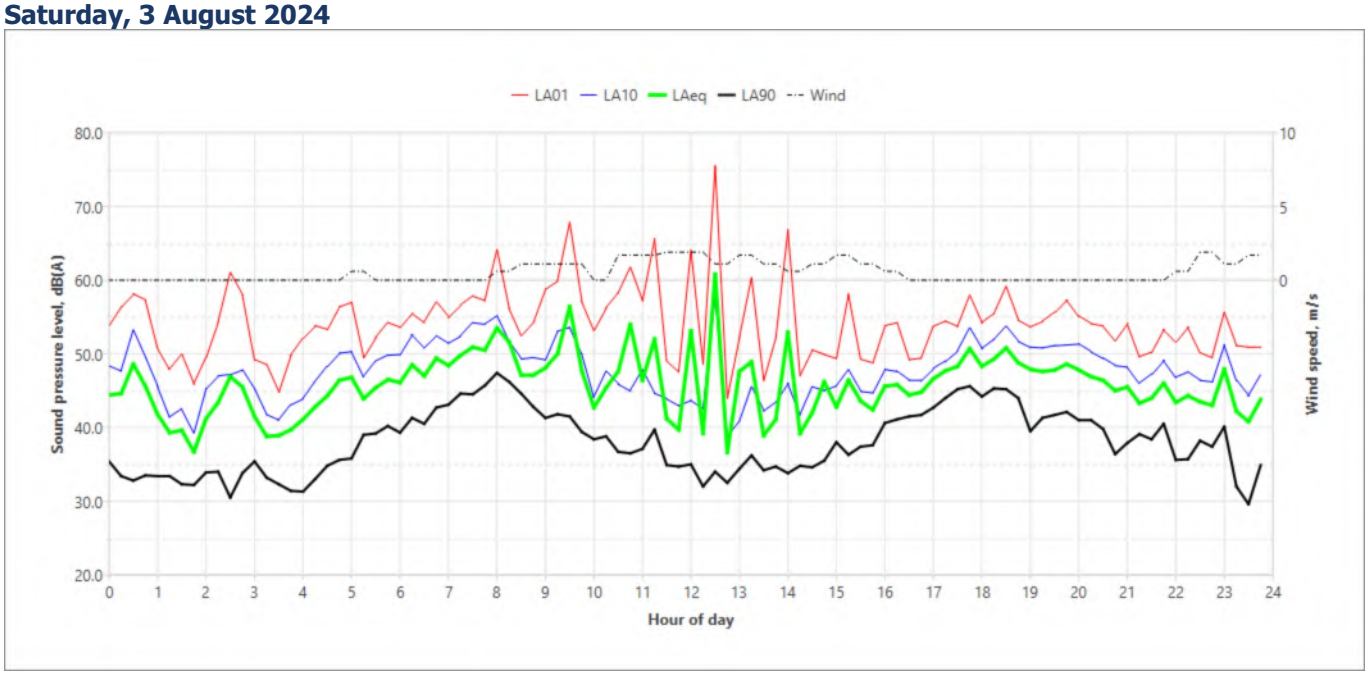
Thursday, 1 August 2024



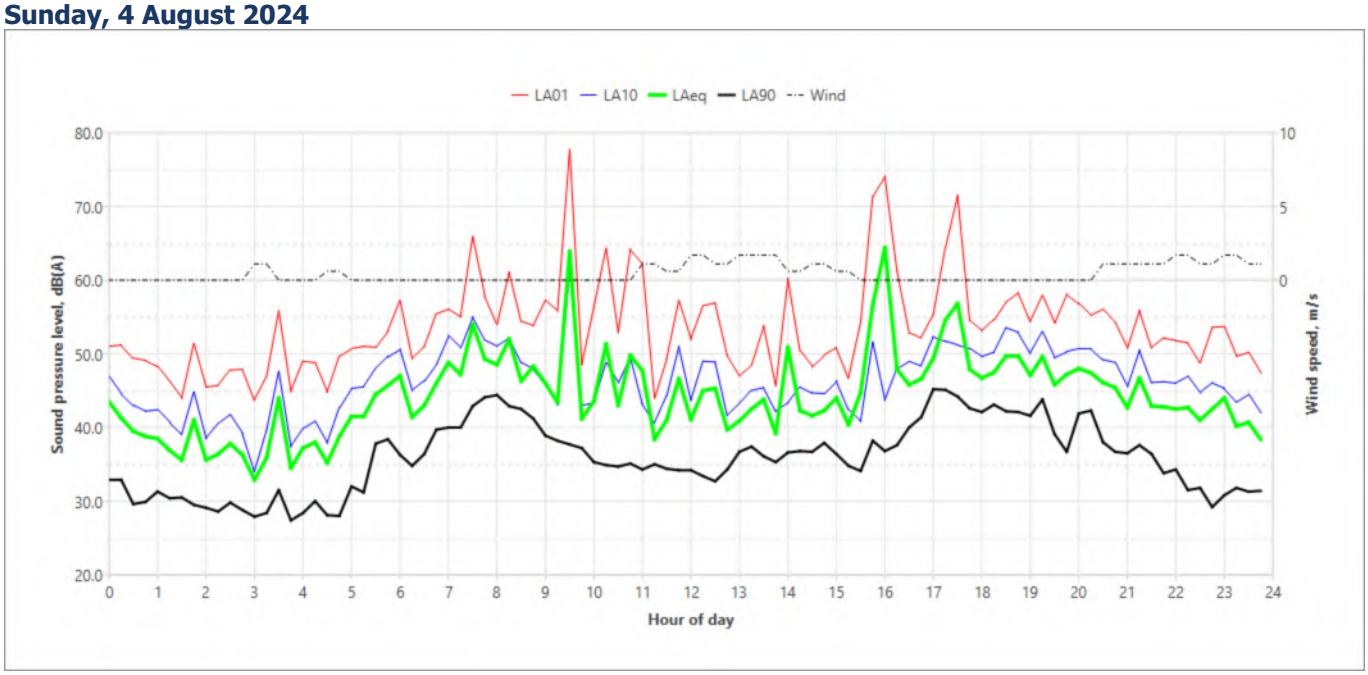
Friday, 2 August 2024



Saturday, 3 August 2024

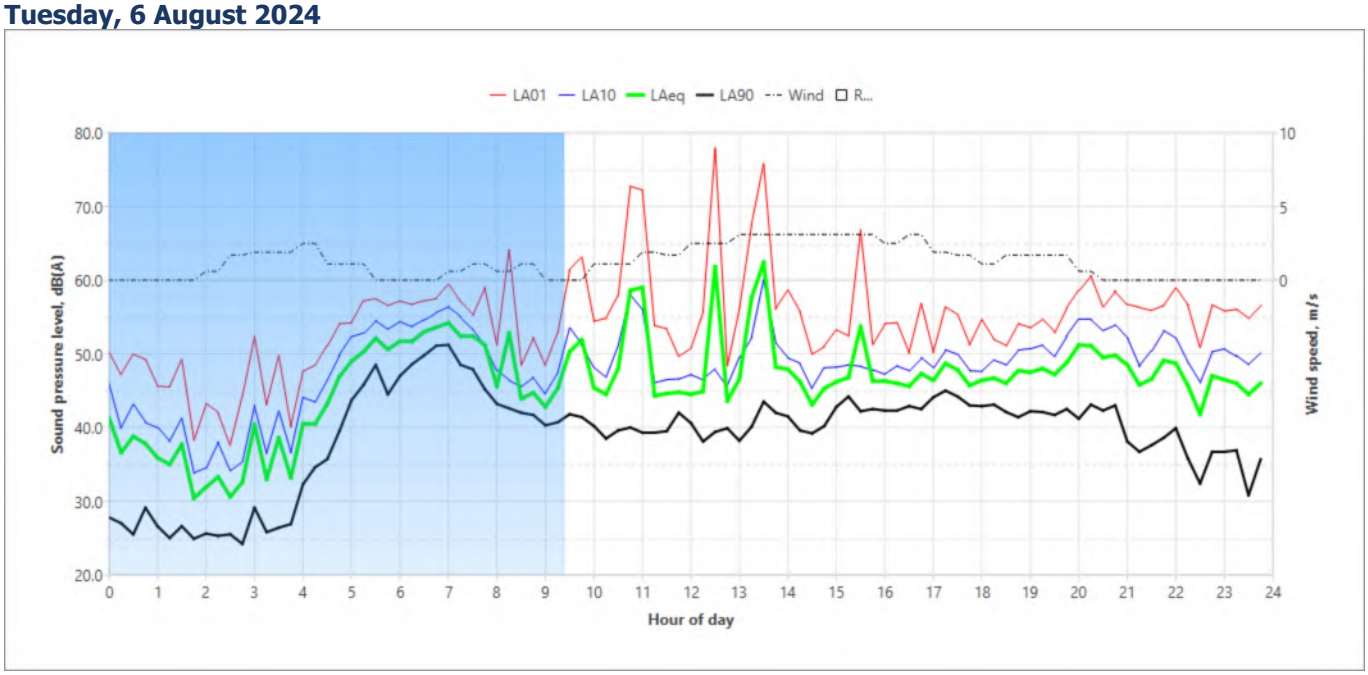


Sunday, 4 August 2024

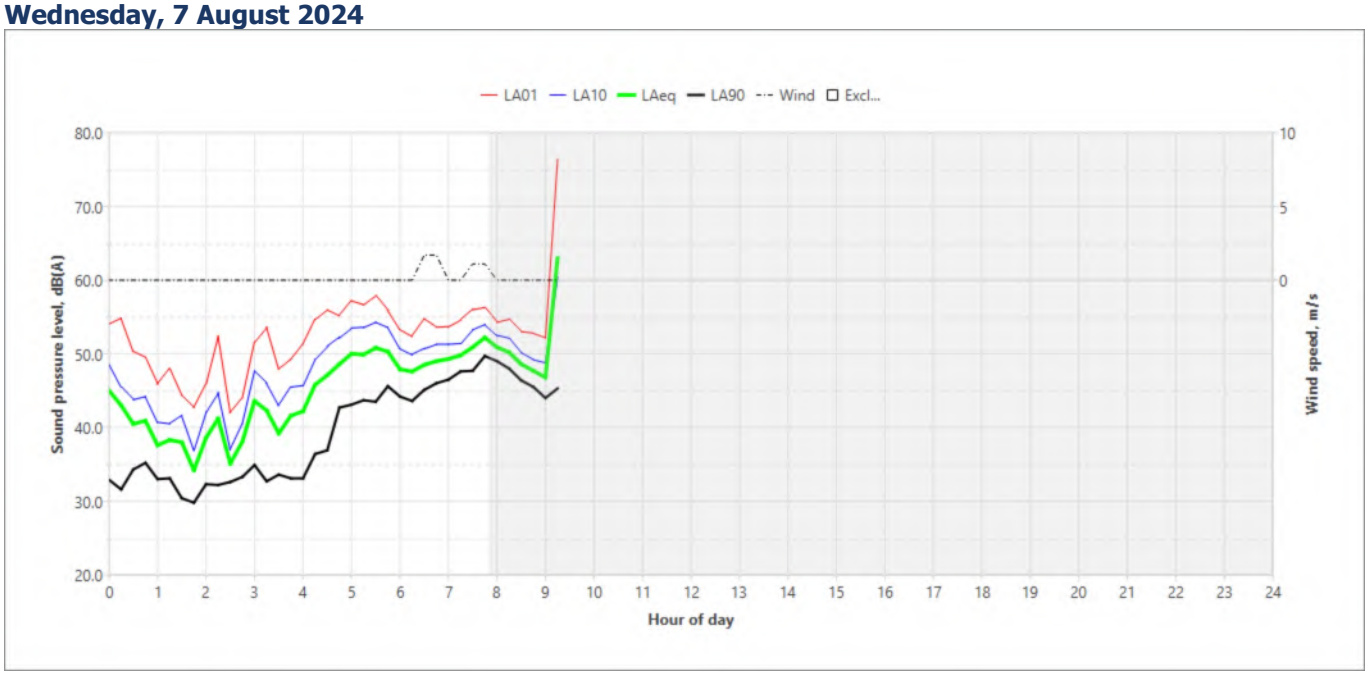


Monday, 5 August 2024

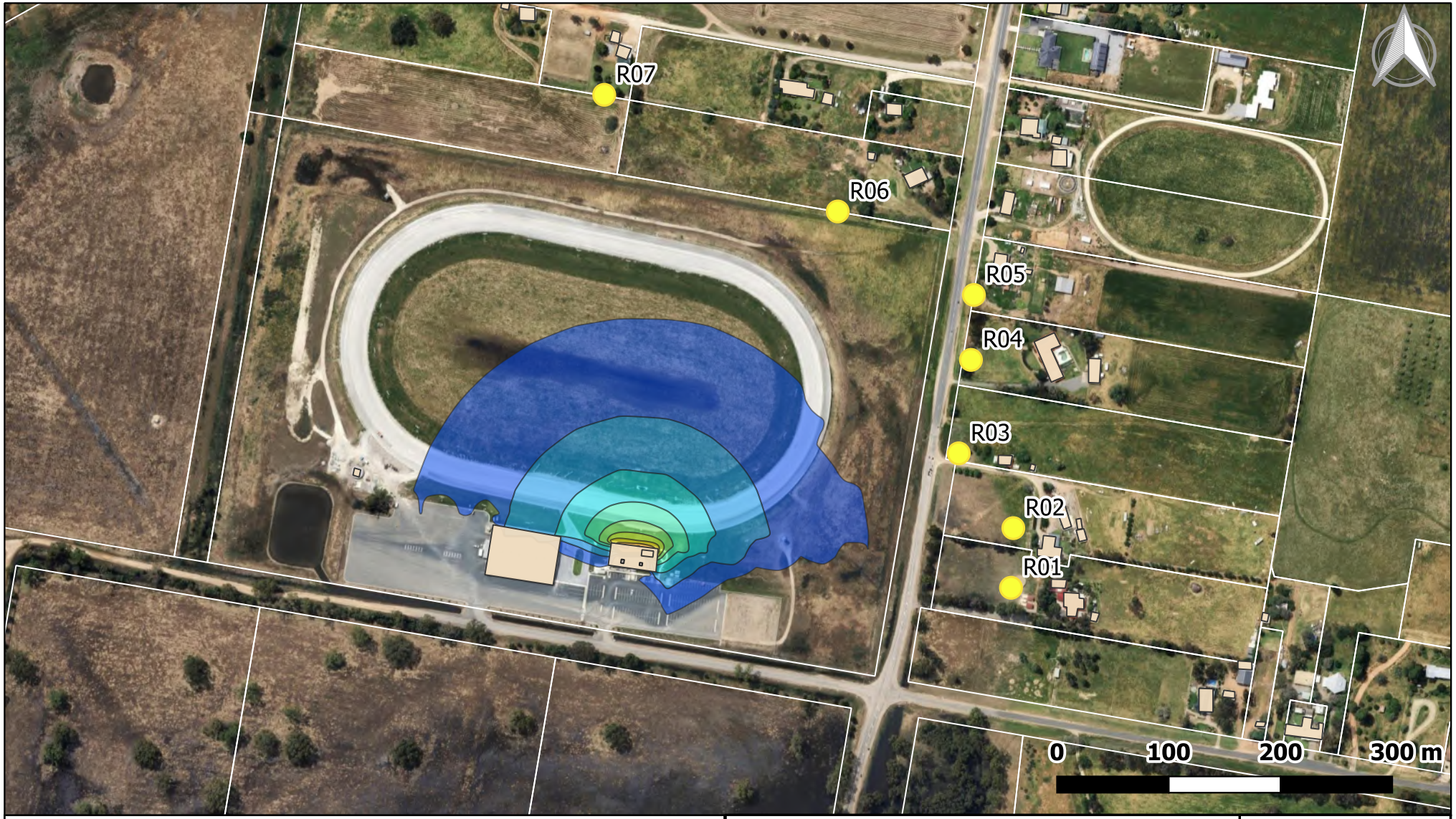
Tuesday, 6 August 2024



Wednesday, 7 August 2024



APPENDIX C: OPERATIONAL NOISE CONTOURS – SCENARIO 01



$L_{A10,15\ min}$ noise levels , dB(A)

- 20 to 25
- 25 to 30
- 30 to 35
- 35 to 40
- 40 to 45
- 45 to 50
- 50 to 55
- 55 to 60
- 60 to 65

Wagga Harness Racing Club Operational noise contours 10:00 pm - 12:00 am (midnight) $L_{A10,15\ min}$ noise impacts

Contour height 1.5 m

PWNA

APPENDIX D: OPERATIONAL NOISE CONTOURS – MECHANICAL SERVICES AND CARPARK

$L_{Aeq,15min}$ noise levels, dB(A)

- 20 to 25
- 25 to 30
- 30 to 35
- 35 to 40
- 40 to 45
- 45 to 50
- 50 to 55
- 55 to 60
- 60 to 65

Wagga Harness Racing Club Operational noise contours (mechanical plant & carpark) 10:00 pm - 7:00 am

$L_{Aeq,15\ min}$ noise impacts

Contour height 1.5 m

PWNA