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BALGOWLAH RSL

Balgowlah RSL Club

Development Application - Acoustic Revision

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1 Introduction

Vipac Engineers & Scientists Ltd. (Vipac) has been commissioned by Balgowlah RSL club to prepare a revised acoustic assessment for the re-development and expansion of the current outdoor area. The premises are located at 30/38 Ethel St, Seaforth NSW 2092.

2 References

The following standards and guidelines were used for this assessment:

- Environmental Protection Authority (EPA) NSW Industrial Policy for Industry (NPfI), October 2017;
- NSW Road Noise Policy (RNP).
- Australian Standard AS 1055-1997- "Acoustics Description and Measurement of Environmental Noise, Part 1- General Procedure".
- AAAC Licensed Premises Noise Assessment Technical Guideline V2.0

3 Project Development

3.1 Description

The proposed redevelopment is located along the eastern side of the RSL. It will comprise of an expansion of the outdoor area increasing from current 50 to 75 patrons, keeping the overall capacity of the club. Figure 3-1

The RSL operating hours are:

- Sunday, Monday and Tuesday: 1100 to 0000 hr;
- Wednesday, Thursday, Friday and Saturday: 1100 to 0100 hr.

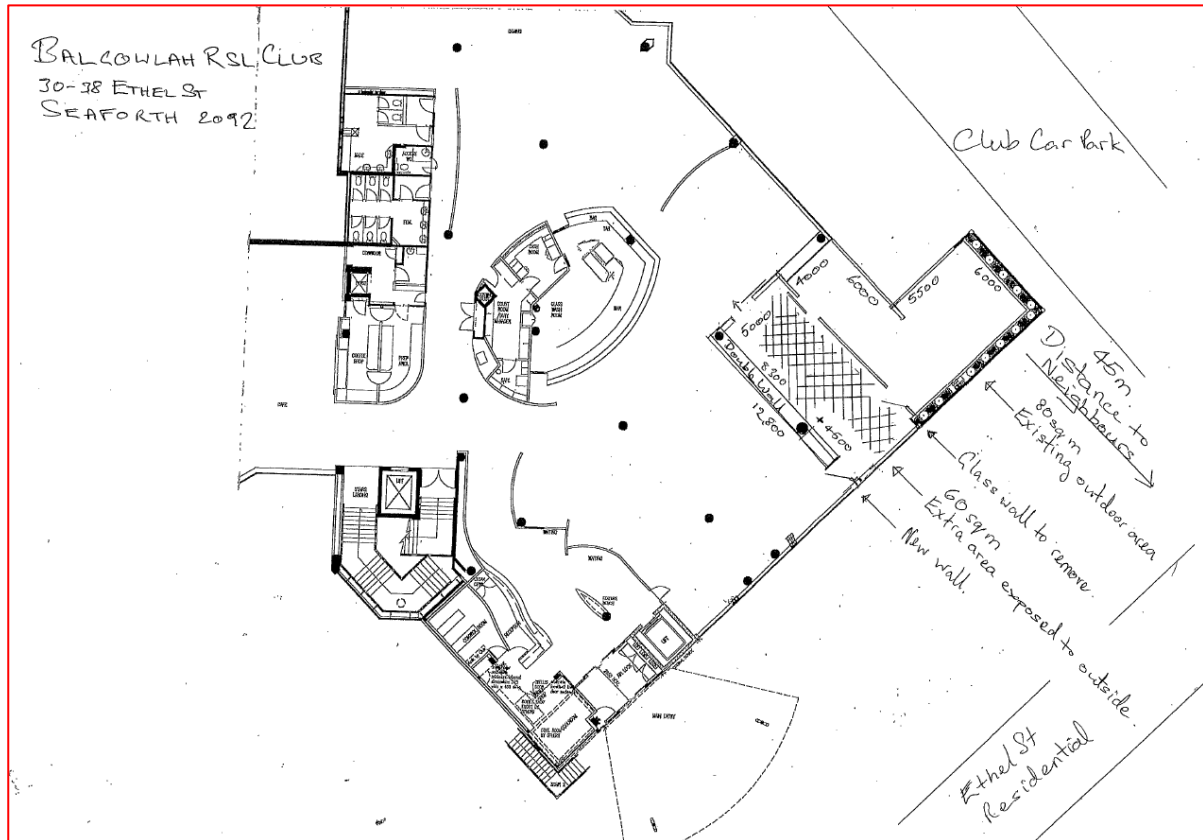


Figure 3-1: Project Redevelopment

3.2 Noise Sensitive Receivers

The nearest noise sensitive receivers are summarised as follows:

- Residential receivers adjacent Ethel Street to the East across Manly Road.
- Residential receivers across Ethel Street to the South

Figure 3-2 shows the site aerial photograph and the potentially noise affected receivers.



Figure 3-2: Aerial view noise sensitive receivers

4 Noise Measurements

4.1 Location

Unattended noise monitoring was conducted at the boundary of the existing building at 30/38 Ethel St, Seaforth NSW 2092, between the 31st August to 7th September 2021, to obtain the existing ambient and background noise levels.

4.2 Methodology and Instrumentation

Measurements were conducted using calibrated Type 1 Noise loggers. Instrumentation details are provided in Table 4-1

Table 4-1: Equipment List

Instrument	Serial Number	Next Calibration Due
Metravid DUO Noise Logger	10296	11/08/2023
Svantek SV36 Sound Level Calibrator	782006	26/08/2022

Field calibrations at 94 dB were conducted pre- and post-measurements, with no significant drift observed.

4.3 Noise Levels

According to the NSW Policy for Industry 2017, measured noise levels were processed into the following time periods:

- Daytime : 0700 – 1800hrs;
- Evening : 1800 – 2200hrs;
- Night-time : 2200 – 0700hrs.

The L_{A90} noise levels are Rating Background Levels (RBLs), being the median of the background L_{A90} in each measurement period, for each 24-hour period during the noise survey.

The L_{Aeq} noise levels are the logarithmic average of all the L_{Aeq} samples taken in each of the daytime, evening and night-time periods.

Existing ambient measured background L_{A90} and equivalent continuous L_{Aeq} noise levels during these defined time periods are presented in Table 4-2. Given the measured RBL, the area is defined as Urban. Appendix A provides a graphical plot of measured noise levels.

Table 4-2: Ambient Noise Levels period. dB(A)

Location	Period	Existing $L_{Aeq, period}$	RBL L_{A90}
Balgowlah RSL	Day	53	47
	Evening	50	46
	Night	48	44

5 Noise Criteria

5.1 NSW Noise Policy for Industry

The procedures detailed in NSW NPfI have been considered to determine the limit of allowable noise emission from the proposed site for residential receivers. The assessment procedure has two requirements that must be met, namely:

Intrusiveness Criteria

The Intrusiveness Criteria is used to evaluate the extent to which a noise intrudes above the background, particularly where the receiver is a dwelling. The NPfI considers that the L_{Aeq} , 15 minute level associate with a broad-band industrial noise source may be up to 5 dB(A) above the rating background noise level (L_{A90}) at a receiver without being considered offensive.

The rating background noise level (RBL) is similar to the 10th percentile background L_{A90} however uses a different sampling technique to determine the value.

Where a noise source contains certain characteristics, such as tonality, intermittency, impulsiveness, irregularity or low-frequency dominance, correction factors may need to be applied to the noise annoyance criteria to determine the project specific criteria.

Amenity Criteria

The NSW NPfI also considers that there is a community expectation for a certain level of environmental noise amenity, depending on the type of area in which the noise sensitive receiver is located. The Industrial Noise Policy provides a table of recommended L_{Aeq} noise levels that, subject to the type of area and time of day, are considered desirable.

Depending on the level of existing industrial or commercial noise, these desirable levels are adjusted so as to require progressively more stringent amenity compliance levels. The objective of this approach is to prevent the background noise level from continually increasing as a result of each progressive new development. For an 'Urban' amenity area, the NPfI proposes that the L_{Aeq} noise level should not exceed the following acceptable noise emission levels shown in Table 5-1.

Table 5-1: Amenity Noise Criteria – Urban NSW NPfI

Period	Time	Levels dB(A)
Daytime	0700 – 1800hrs	60
Evening	1800 – 2200hrs	50
Night-time	2200 – 0700hrs	45

This policy sets out two separate noise criteria designed to ensure developments meet environmental noise objectives. The first criterion accounts for intrusive noise and the second criterion applies to protection of amenity of particular land uses. Applying both the amenity and intrusiveness criteria to the situation and adopting the more stringent of the two is used to assess the new development. This becomes the project specific noise levels. Applying the most stringent requirement as the project specific noise levels ensures that both intrusive noise is limited and the amenity is protected.

The noise criterion for commercial receivers at all time periods for urban areas is 65 dB(A).

5.1.1 Project Specific Emission Goals

Table 5-2 presents the project trigger noise level (PTNL) for the nearest receivers.

Table 5-2: Project Trigger Noise Levels, dB(A)

Receiver Type	Time of Day	Existing L _{Aeq} (period)	RBL L _{A90}	ANL Urban L _{Aeq} (15 min)	Intrusive L _{Aeq} (15 min)	Amenity L _{Aeq} (15 min)	PTNL
Residential	Day	53	47	60	52	58	52
	Evening	50	46	50	51	48	48
	Night	48	44	45	49	43	43
Commercial	All	-	-	65	-	-	65

5.2 Sleep Disturbance

Activities occurring on-site during the night period have the potential to cause sleep disturbance for the nearby residents. These include activities associated with the Development between 2200 through to 0700hrs.

The Noise Policy for Industry states that a detailed maximum noise level assessment should be undertaken where the subject development 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.

The Policy does not currently provide details on how to assess sleep disturbance but makes reference to the RNP. The RNP suggests that potential sleep arousal from traffic should be assessed. The RNP has compared a number of sleep disturbance criteria and concluded the following:

- Maximum internal noise levels below 50-55 dB L_{Amax} are unlikely to cause awakening reactions,
- One or two noise events per night, with maximum internal noise levels of 65-70dB L_{Amax} are not likely to affect health and wellbeing significantly.

5.2.1 Project Sleep Disturbance Levels

Based on the Night-time RBL of 44 dB, the site-specific trigger levels for further assessment are specified in Table 5-3.

Table 5-3: Sleep Disturbance Specific Levels. dB(A)

Receiver Type	RBL disturbance	L _{AFmax} disturbance
Residential	49	59

5.3 Liquor and Gaming

The noise conditions relevant to this project are as follows and taken from references in Section 2.

- The L_{A10} noise level emitted from the licensed premises shall not exceed 5dB above the background (L_{A90}) noise level in any Octave Band Centre Frequency (31.5Hz to 8KHz inclusive) between the hours of 7.00am to 12.00 midnight when assessed at the nearest affected residential boundary. The background noise level shall be measured in the absence of noise emitted from the licensed premises.
- The L_{A10} noise level emitted from the licensed premises shall not exceed the background (L_{A90}) noise level in any Octave Band Centre Frequency (31.5Hz to 8KHz inclusive) between the hours of 12.00 midnight to 7.00am when assessed at the nearest affected residential boundary. The background noise level shall be measured in the absence of noise emitted from the licensed premises.
- Notwithstanding compliance with the above clauses, the noise from the licensed premises shall not be audible within any habitable room in any residential premises between the hours 12.00 midnight to 7.00am.

As such, given the venue is licensed until 1am, the L_{A10} noise level emitted from the licensed premises shall not exceed the background (L_{A90}) noise level in any Octave Band Centre Frequency (31.5Hz to 8KHz inclusive). Shown in Table 5-4.

5.3.1 Noise Level Requirements

In order to perform a noise assessment for the proposed redevelopment, Vipac established the night-time background noise levels. Noise levels were measured continuously in 15-minute intervals.

According to the noise requirements set out for Liquor and Gaming premises, the background noise levels octave band spectra were determined at the boundary of the nearby sensitive receivers, as shown in Table 5-4.

Table 5-4: Background Noise Levels at NSRs

Noise Spectra L ₉₀ , dB Night time [0000hr to 0200hr]	Octave Band Centre Frequency. Hz									Overall L ₉₀ dB(A)
	31.5	63	125	250	500	1k	2k	4k	8k	
Measured at Site Boundary	49	49	47	41	37	35	31	27	23	41

6 Noise Assessment

Vipac has assessed the cumulative noise emission from the venue considering the following points of note:

- 75 patrons of which 50% are talking at raised vocal volume
- Background music noise is playing

Background music noise has been determined using measured 1/3 octave spectrum data and also based on the AAAC guideline for allowing conversation at raised vocal effort with 600mm separation. The noise spectrum is presented in Table 6-1.

Table 6-1: Estimated Music Background Spectra

Estimated Background Music Spectra L ₁₀ , dB	Octave Band Centre Frequency. Hz									Overall dB(A)
	31.5	63	125	250	500	1k	2k	4k	8k	
Background Music	63	65	70	72	72	72	72	70	70	78

Noise emission data relating to patron noise has been determined based on the maximum capacity of 75 patrons in the outdoor area, using data from the AAAC Guideline for raised spec. The noise spectrum is presented in Table 6-2.

Table 6-2: Estimated Patron Noise Levels – 75 patrons

Estimated Patrons Noise Spectra L ₁₀ , dB	Octave Band Centre Frequency. Hz									Overall dB(A)
	31.5	63	125	250	500	1k	2k	4k	8k	
Cumulative Patrons Voice Raised	-	72	72	78	81	77	73	68	62	82

6.1 Predicted Noise Levels

Predicted noise levels are based on the noise source levels in Table 6-1 and Table 6-2, existing barrier attenuation and distance to the nearest receivers located to the south and east of the premises. Table 6-3 and Table 6-4 presents the predicted noise levels at receivers during the night period from midnight being the worst-case scenario.

Table 6-3: Predicted Noise Spectra – South Receivers

Predicted Noise Spectra	Octave Band Centre Frequency, Hz									Overall dB(A)
	31.5	63	125	250	500	1k	2k	4k	8k	
L ₁₀ , dB South Receivers	42	45	43	42	40	30	18	9	4	39
L ₉₀ , dB Criteria Midnight (2021 levels)	49	49	47	41	37	35	31	27	23	41
Compliance with 2021 background	✓	✓	✓	+1	+3	✓	✓	✓	✓	✓
L ₉₀ , dB Criteria Midnight (2005 levels)	56	56	54	45	40	39	35	28	21	45
Compliance with 2005 background	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table 6-4: Predicted Noise Spectra – East receivers

Predicted Noise Spectra	Octave Band Centre Frequency, Hz									Overall dB(A)
	31.5	63	125	250	500	1k	2k	4k	8k	
L ₁₀ , dB East Receivers	41	44	42	41	38	29	17	8	3	38
L ₉₀ , dB Criteria Midnight (2021 levels)	49	49	47	41	37	35	31	27	23	41
Compliance with 2021 background	✓	✓	✓	✓	+1	✓	✓	✓	✓	✓
L ₉₀ , dB Criteria Midnight (2005 levels)	56	56	54	45	40	39	35	28	21	45
Compliance with 2005 background	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

When assessing cumulative noise levels against 2021 background noise levels, an exceedance of up to 3 dB(A) is predicted at 500Hz and 1 dB(A) at 250Hz. These levels are not expected to be perceived by receivers, however they do indicate exceed of the criteria. As such, the following requirements are noted which are expected to achieve compliance:

- After midnight, limit the number of patrons to 25 outside; and
- Limit the speaker output of background music to the spectrum provided in Table 6-1

6.2 Sleep Disturbance

The potential for sleep disturbance has been assessed at the nearest noise sensitive receivers during the night time period. Table 6-5 presents RBL sleep disturbance predictions.

Table 6-5: Sleep Disturbance Noise Predictions

Receiver	Period	Sleep Disturbance		
		L _{Amax} Predicted	Criteria	Compliance
South Receivers	Night	39	49	✓
East Receivers	Night	38	49	✓

7 Discussion

Noise emission from the proposed redevelopment and expansion of the current outdoor area from the Balgowlah RSL located at 30/38 Ethel St, Seaforth NSW 2092, is expected to comply with the relevant standards, guidelines and criteria upon implementation of the two requirements listed in this report.

Appendix A Noise Monitoring

