Noise Assessment – 68 Phoenix Park Road Phoenix Park, NSW.

Prepared for

Cindy Modderman C/O Council Approval Group

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Relationships Attention Professional Trust

Document Details

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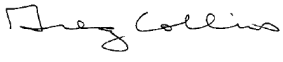
2223534_240318	0	18 March 2024	Gregory Collins - MAAS	

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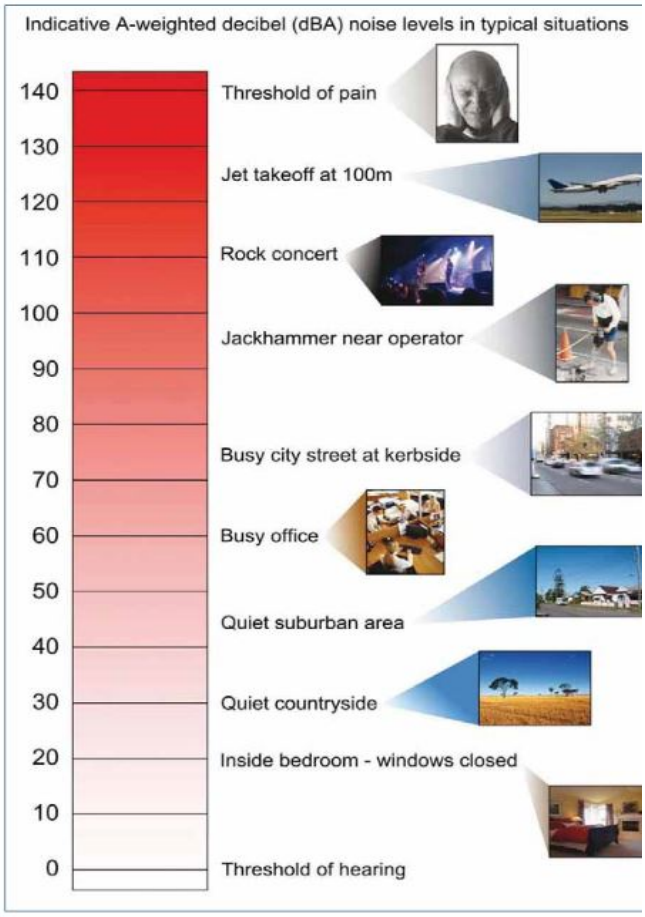
Glossary of Acoustic Terms

Term	Definition
dB	Decibel is the unit used for expressing the sound pressure level (SPL) or power level (SWL) in acoustics. The picture below indicates typical noise levels from common noise sources. 
dB(A)	Frequency weighting filter used to measure 'A-weighted' sound pressure levels, which conforms approximately to the human ear response, as our hearing is less sensitive at very low and very high frequencies.
$L_{Aeq(period)}$	Equivalent sound pressure level: the steady sound level that, over a specified period of time, would produce the same energy equivalence as the fluctuating sound level actually occurring.
$L_{A10(period)}$	The sound pressure level that is exceeded for 10% of the measurement period.

$L_{A90(period)}$	The sound pressure level that is exceeded for 90% of the measurement period.
L_{Amax}	The maximum sound level recorded during the measurement period.
Noise sensitive receiver	◗ An area or place potentially affected by noise which includes: ◗ A residential dwelling. ◗ An educational institution, library, childcare centre or kindergarten. ◗ A hospital, surgery or other medical institution. ◗ An active (e.g. sports field, golf course) or passive (e.g. national park) recreational area. ◗ Commercial or industrial premises. ◗ A place of worship.
Rating Background Level (RBL)	The overall single-figure background level representing each assessment period (day/evening/night) over the whole monitoring period.
Feasible and Reasonable (Noise Policy for Industry Definition)	**Feasible** mitigation measure is a noise mitigation measure that can be engineered and is practical to build and/or implement, given project constraints such as safety, maintenance and reliability requirements. Selecting **Reasonable** measures from those that are feasible involves judging whether the overall noise benefits outweigh the overall adverse social, economic and environmental effects, including the cost of the mitigation measure. To make a judgement, consider the following: ◗ Noise impacts ◗ Noise mitigation benefits ◗ Cost effectiveness of noise mitigation ◗ Community views.
Sound power level (SWL)	The sound power level of a noise source is the sound energy emitted by the source. Notated as SWL, sound power levels are typically presented in dB(A).

1. Introduction

1.1 Background

RAPT Consulting has been engaged to undertake a noise assessment to inform a Development Application (DA)) for temporary use function centre located at 68 Phoenix Park Road Phoenix Park, NSW.

Based on information provided, it is understood the proposal seeks to establish a Function Centre within the large existing building (Farm shed) on the property. Details include:

- Temporary Function Facility - Maximum 52 days within any 12 month period
- Proposed functions such as weddings, parties, high teams, community events and meetings.
- Types of entertainment - prerecorded music and live amplified music (soloists or small group acts)
- Hours of operation - 9am to 10pm Sunday - Thursday, 9am to 11pm Friday - Saturday (to provide for flexibility but maximum 52 days per year)
- Live entertainment to cease by 10pm and doors close by 11pm on Friday - Saturday
- Number of patrons - 80 patrons
- Food and drink is to be BYO or external catering
- The use will be contained within the large existing building (shed) which has been fully insulated.
- Car parking located in front between building and road.

The site and surrounding area is shown in Figure 1-1

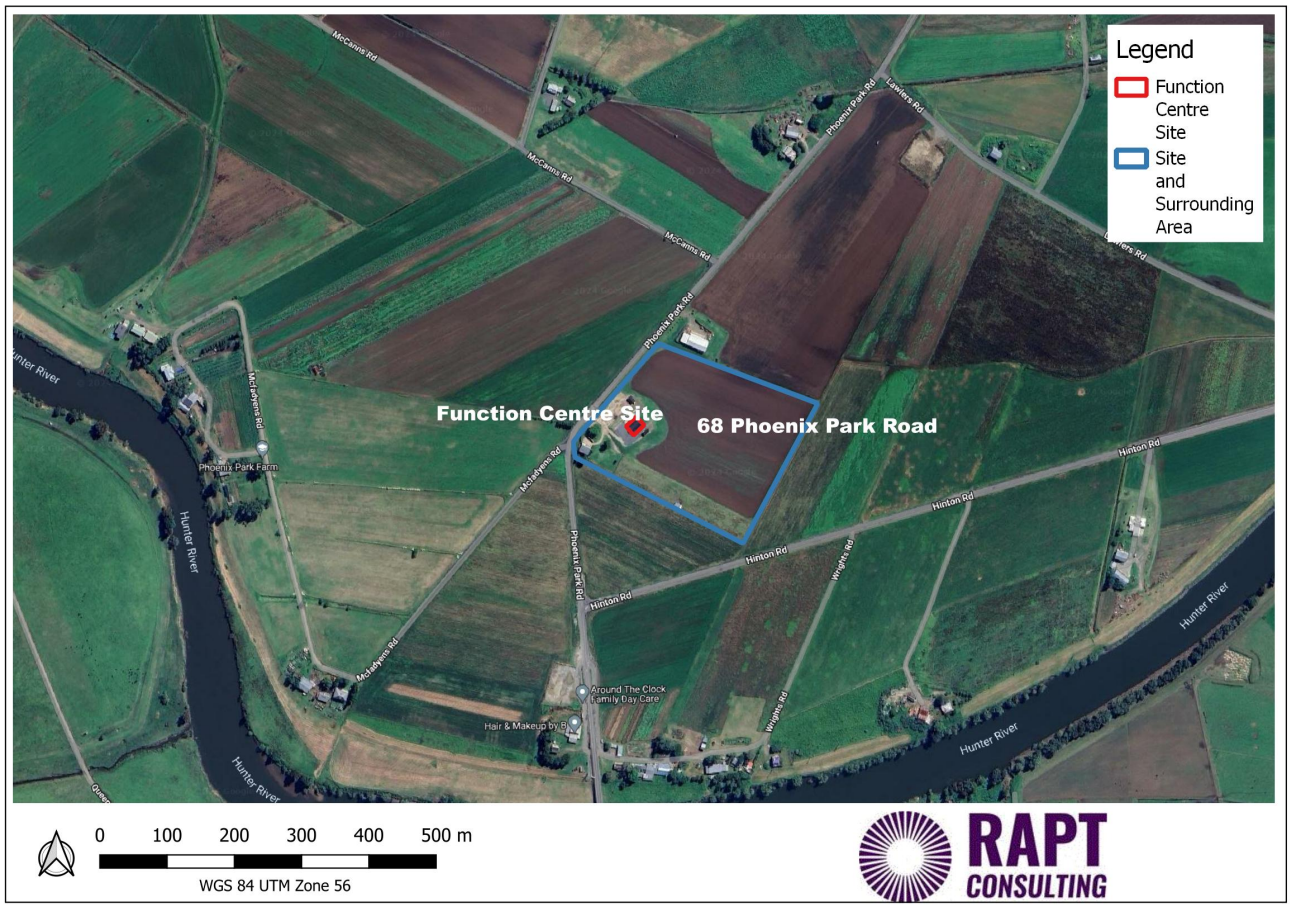


Figure 1-1 Site and Surrounding Area

The proposed function centre is shown in Figure 1-2.

Figure 1-2 Proposed Function Centre

1.2 Assessment Objectives

This acoustic assessment considers the potential noise emissions of the operation of the proposal. The purpose is to assess potential noise from the proposal and to recommend mitigation measures where required.

The outcomes of this assessment include recommendations where necessary for potential noise mitigation and management measures designed to achieve an acceptable noise amenity for residential (dwelling) occupants and other sensitive receivers surrounding the study area.

1.3 Scope

The acoustic assessment scope of work included:

- Initial desk top review to identify noise sensitive receptors from aerial photography
- Undertake noise measurements to determine ambient and background noise levels
- Establish project noise goals for the operation of the proposal
- Identify the likely principal noise sources during operation and their associated noise levels
- assessment of potential noise impacts associated with operation aspects of the project
- provide recommendations for feasible and reasonable noise mitigation and management measures, where noise objectives may be exceeded.

1.4 Relevant Guidelines

The relevant policies and guidelines for noise and vibration assessments in NSW that have been considered during the preparation of this assessment include:

- Noise Policy for Industry (NPfI), Environment Protection Authority (EPA), 2017
- Noise Guide for Local Government (NGfLG) Environment Protection Authority (EPA), 2013

1.5 Limitations

The purpose of this report is to provide an independent noise assessment for the proposal.

It is not the intention of the assessment to cover every element of the acoustic environment, but rather to conduct the assessment with consideration to the prescribed work scope.

The findings of the noise assessment represent the findings apparent at the date and time of the assessment undertaken. It is the nature of environmental assessments that all variations in environmental conditions cannot be assessed and all uncertainty concerning the conditions of the ambient environment cannot be eliminated. Professional judgement must be exercised in the investigation and interpretation of observations.

In conducting this assessment and preparing the report, current guidelines for noise were referred to. This work has been conducted in good faith with RAPT Consulting's understanding of the client's brief and the generally accepted consulting practice.

No other warranty, expressed or implied, is made as to the information and professional advice included in this report. It is not intended for other parties or other uses.

2. Existing Environment

The area surrounding the proposal is zoned RU1 Primary Production. A map showing the land use zonings in the vicinity of the proposal are shown in Figure 2-1.

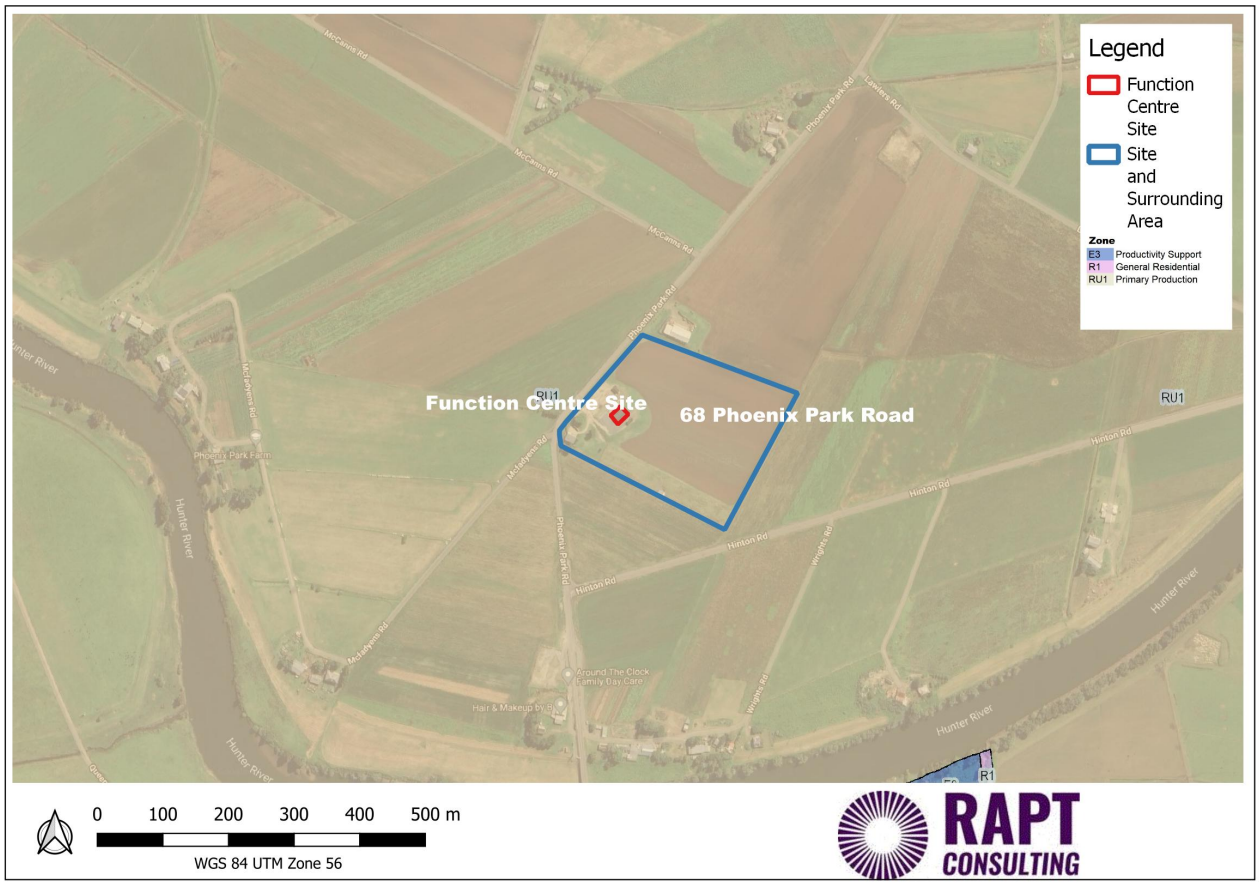


Figure 2-1 Land Use Zonings

Closest receptors to the proposal assessed in this acoustic assessment are identified in Table 2-1 and Figure 2-2. Other receptors are located in these areas however the locations selected are considered representative of the localised noise environment in the vicinity of the locations selected.

2.1 Background and Ambient Noise

To establish background and ambient noise levels, noise monitoring was undertaken by RAPT Consulting from 8 February to 15 February 2024. The monitoring was undertaken at 68 Phoenix Park Road to the west of the proposed function centre.

Site observations noted the location was considered indicative of the local ambient noise environment and the sites also presented as secure locations whereby minimising the risk of theft or vandalism to the monitoring equipment. Additionally, they are considered as acceptable locations for determination of the background noise with consideration to the NSW Environment Protection Authority's (EPA's) – Noise Policy for Industry (NPfI). During site visits it was noted that local traffic and natural wildlife primarily described the ambient noise environment and is indicative of a rural noise environment.

The monitoring locations are shown in Figure 2-2 and 2-3.

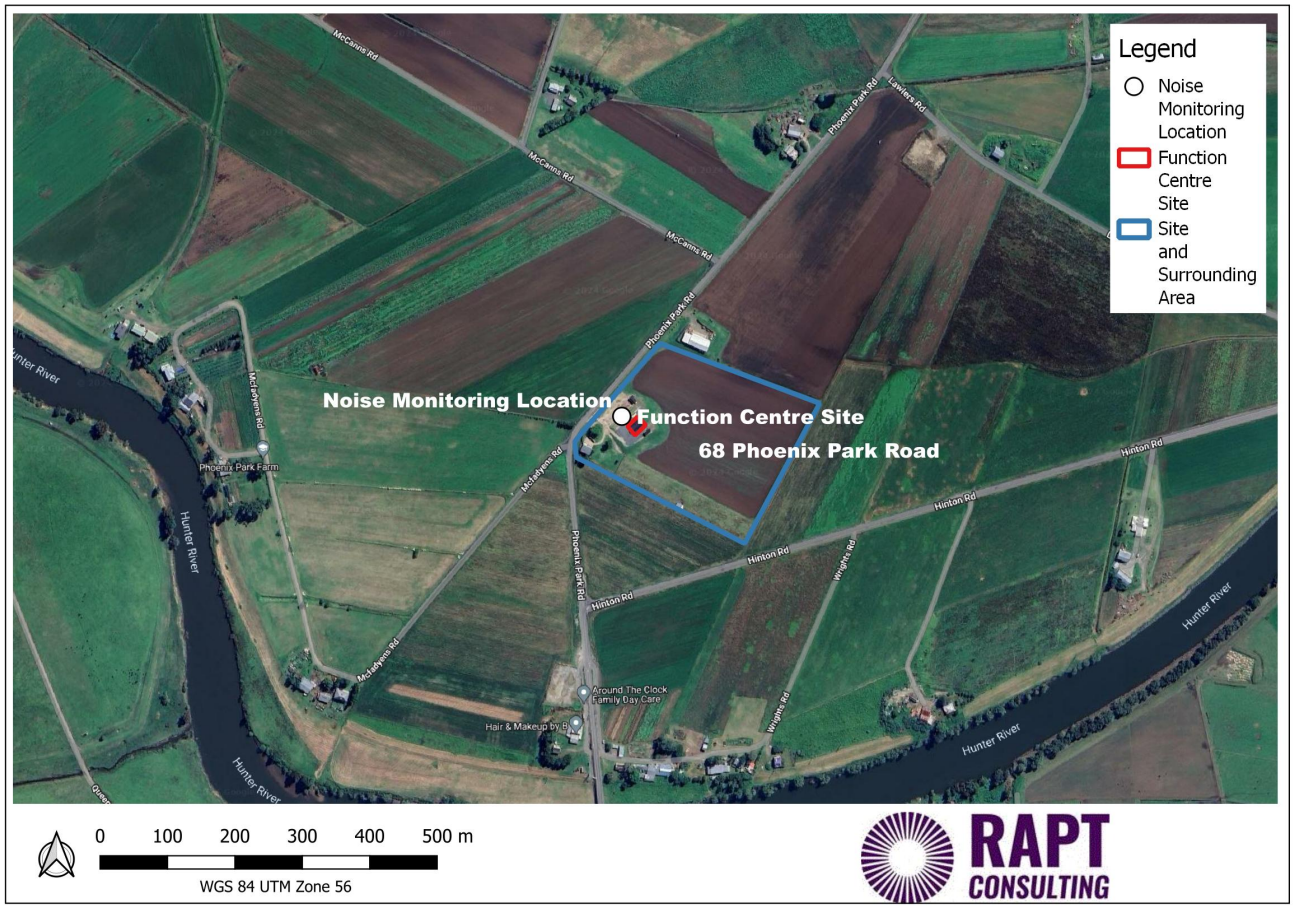


Figure 2-2 Noise Monitoring Location

Figure 2-3 Noise Monitoring Location

Monitoring was undertaken using a RION NL-52 noise logger with Type 1 Precision. Calibration was checked prior to and at the conclusion of the measurements with no significant drift. These loggers are capable of measuring continuous sound pressure levels and are able to record L_{Amin}, L_{A90}, L_{A10}, L_{Amax} and L_{Aeq} noise descriptors. The instrument was programmed to accumulate environmental noise data continuously over sampling periods of 15 minutes for the entire monitoring period.

The noise surveys were conducted with consideration to the procedures described in Australian Standard AS 1055:2018, "Acoustics – Description and Measurement of Environmental Noise" and the NSW Noise Policy for Industry (NPfI). Calibration was checked before and after each measurement and no significant drift occurred. The acoustic instrumentation used carries current NATA calibration and complies with AS/NZS IEC 61672.1-2019-Electroacoustics – Sound level meters – Specifications.

The L_{A90} descriptor is used to measure the background noise level. This descriptor represents the noise level that is exceeded for 90 percent of the time over a relevant period of measurement. In line with the procedures described in the EPA's NPfI, the assessment background level (ABL) is established by determining the lowest tenth-percentile level of the L_{A90} noise data acquired over each period of interest. The background noise level or rating background level (RBL) representing the day, evening and night-time assessment periods is based on the median of individual ABL's determined over the entire monitoring duration. The RBL is representative of the average minimum background sound level, or simply the background level.

The L_{Aeq} is the equivalent continuous noise level which would have the same total acoustic energy over the measurement period as the varying noise actually measured, so it is in effect an energy average.

Weather information for the unattended noise logging was obtained from the Bureau of Meteorology Nobbys AWS for the monitoring period and any data adversely affected by rain, wind (more than 5 m/s as per NPfI) or extraneous noise were discarded.

The RBL and ambient LAeq levels are provided in Table 2-2 below.

Table 2-1 Background and Ambient Noise Monitoring Results

	Rating background level, L_{A90}, dB(A)				Ambient noise levels, L_{Aeq} dB(A)			
Monitoring Location	**Day[1]**	**Evening[1]**	**Night[1]**	**Night (10pm-11pm)[1]**	**Day[1]**	**Evening[1]**	**Night[1]**	**Night (10pm-11pm)[1]**
68 Phoenix Park Road	36	36[2](37)	36	36	55	52	50	45

Note 1 Day: 7:00 to 18:00 Monday to Saturday and 8:00 to 18:00 Sundays & Public Holidays Evening: 18:00 to 22:00 Monday to Sunday & Public Holidays Night: 22:00 to 7:00 Monday to Saturday and 22:00 to 8:00 Sundays & Public Holidays (night 10pm – 11pm for this assessment inline with intended operations)
Note 2 As outlined in the NPfI, the evening or night criteria or management levels are set no louder than that daytime or evening levels. Number in brackets (XX) represents actual measured RBL determined for assessment period.

3. Noise Objectives

3.1 Noise Guide for Local Government

Section 2.10 of the NGLG provides guidance for amplified music and parties at residential premises. However there is no specific guidance for a Function Centre which is un-licensed. Section 2.10 of the NGLG refers to Section 4.2.1 Offensive Noise in these situations and Table 19 for factors to be considered for assessing offensive noise.

In the absence of specific noise 'goals' for this circumstance, the NPfI will be referred to as a 'yardstick'.

3.2 Operational Noise – NSW Noise Policy for Industry

The NPfI doesn't contain specific procedures for the assessment of noise emissions from unlicensed function centres. However, it is provided as a guide for ascertaining potential noise impacts and applicable criteria.

The New South Wales *Noise Policy for Industry* (NPfI) provides guidance on the assessment of operational noise impacts. The guidelines include both intrusive and amenity criteria that are designed to protect receivers from noise significantly louder than the background level and to limit the total noise level from all sources near a receiver.

Intrusive noise levels set by the NPfI control the relative audibility of operational noise compared to the background level. Amenity criteria limit the total level of extraneous noise. Both sets of criteria are calculated and the lower of the two in each time period normally apply. Intrusive criteria are simply 5 decibels above the measured (or adopted) background level with a minimum of 40 dB(A) for daytime and 35 dB(A) for evening and night time.

Amenity noise levels are determined based on the overall acoustic characteristics of the receiver area and the existing level of noise excluding other noises such as traffic and insects. Residential receiver areas are characterised into 'urban', 'suburban', 'rural' or other categories based on land uses, the existing level of noise from industry, commerce, and road traffic. Project amenity noise levels are the recommended amenity noise level (Table 2.1 of the NPfI) minus 5 dB(A) and plus 3 dB(A) to convert from a period level to a 15-minute level. The project noise trigger level is the lower value between the intrusive and the amenity noise levels.

The NPfI noise criteria are planning levels and are not mandatory limits required by legislation however the noise criteria assist the regulatory authorities to establish licensing conditions. Where noise criteria are predicted to be exceeded, feasible and reasonable noise mitigation strategies should be considered. In circumstances where noise criteria cannot be achieved negotiation is required to evaluate the economic, social and environmental costs and benefits of the development against the noise impacts.

Based on site observations and guidance in the NPfI, Nearest residential receptors are considered rural. Target noise levels for day, evening and night time are provided for residences and commercial premises in Table 3-1.

	Day 7am to 6pm	Evening 6pm to 10pm	Night 10pm to 11pm
Rating Background Level $L_{A90(Period)}$	36	36	36
Project Intrusive Noise Level, $L_{Aeq(15min)}$	41	41	41
Project Amenity Noise Level (Rural), $L_{Aeq(Period)}$	45	40	35
Project Amenity Noise Level $L_{Aeq(15min)}$	48	43	38
Project Trigger Level Residential $L_{Aeq(15min)}$	**41**	**41**	**38**
Commercial Premises (When in use) $L_{Aeq(15min)}$	**63**	**63**	**63**

Figure 3-1 Project Noise Trigger Levels

3.3 Liquor and Gaming NSW

Noise from licensed premises are regulated by Liquor and Gaming NSW. While this proposal will not be licensed and therefore not regulated by Liquor and Gaming NSW the following noise guidelines for licensed premises are provided in Figure 3-1 also as a guide.

Current noise condition

The L_{A10}* noise level emitted from the licensed premises shall not exceed the background noise level in any Octave Band Centre Frequency (31.5Hz–8kHz inclusive) by more than 5dB between 7:00 am and 12:00 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 (31.5Hz–8kHz inclusive) between 12:00 midnight and 7:00 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 7:00 am.

* For the purpose 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.

Figure 3-2 NSW Liquor and Gaming Noise Requirements

4. Assessment of Potential Impacts

4.1 Operational Noise

Assessment approach

Acoustic modelling was undertaken using Bruel and Kjaer's "Predictor" to predict the effects of site noise. Predictor is a computer program for the calculation, assessment and prognosis of noise propagation. Predictor calculates environmental noise propagation according to ISO 9613-2, "Acoustics – Attenuation of sound during propagation outdoors". The method predicts the sound pressure level under meteorological conditions favourable to propagation from sources of known sound emission. These conditions are for downwind propagation or equivalently under a well-developed moderate ground based temperature inversion. Terrain topography, ground absorption, atmospheric absorption and relevant shielding objects are taken into account in the calculations.

Other Key assumptions in the model include:

- topographical information was obtained from NSW Government Spatial Services
- all areas were modelled considering a conservative ground factor of 0.8
- all ground floor residential and commercial receivers were modelled at 1.5 metres above the ground surface.

Site layout and building structures were based on information provided at the time of the assessment.

Primary onsite environmental noise sources will be in the form of patrons conversing and background music which could be in the form of a singer and self-powered speaker. It is understood live amplified music at the premises such as band performances will not be taking place.

Background Music and Occupants

Different noise sources can be perceived in dining and social areas. First, sound ambience is generally dependent of the service proposal for each particular place. Managers and owners will select background music or televisions to fit with target customers Typically, background music or televisions in restaurants and social areas is set at a level for patrons to be able to converse comfortably. Previous experience suggests generally, cumulative noise levels in restaurants and social areas can range from 67 – 83 dB(A) and mainly depends on occupant density and intended use. RAPT Consulting has undertaken numerous internal noise measurements of live music, club, small bar and restaurant situations. It is understood 1 - 2 person live and music soloists will primarily be the background music. Examples of these typical sound levels for similar setting establishments comparative to what is proposed for music are shown in Table 4-1.

The sound level for background music is on the higher end which allows for conversation at raised vocal effort at 600mm separation.

Male voice are shown for normal voice with 40 persons speaking at any one time as it expected only half would be speaking simultaneously.

Table 4-1 Typical Octave Band LA10 Sound Levels dB(A)

	L_{A10} dB(A) Octave Band Centre Frequency, Hz									
	31.5	**63**	**125**	**250**	**500**	**1K**	**2K**	**4K**	**8K**	**dB(A)**
Background setting Music	31	49	62	70	78	81	79	71	60	**85**
Male Raised Voice (@ 1metre) x 40*	-	-	56	70	79	78	75	70	61	**83**

Note 2 Association of Australasian Acoustical Consultants Licensed Premises and Patron Noise Assessment Technical Guideline Version 3

Building Materials

The building walls and roof are insulated corrugated steel. There is also 6mm glazing on the walls. The sound reduction properties of building elements are provided in Table 4-2.

Table 4-2 Standard Building Materials

	31.5	**63**	**125**	**250**	**500**	**1K**	**2K**	**4K**	**8K**
Glass 6mm	11	16	21	25	28	31	27	27	27
Corrugated Steel 90mm rock wool Roof	6	11	16	31	40	46	48	48	48

Received noise produced by anticipated outlined activities have been simulated. Figure 4-3 shows the results of the modelling.

To simulate a reasonable worst-case scenario, received noise produced by anticipated activities outlined above have been simulated. \ Figure 4-1 shows the cumulative results of the modelling assessment.

Figure 4-1Noise Modelling Results Leq(15min) dB(A)

The results of the modelling indicate compliance is expected at all assessed residential and commercial receptors.

While compliance with operational project noise trigger levels is expected, it is recommended the site as part of its plan of management have measures in place to particularly to deal with any unexpected excessive noise from patrons. This could include but not be limited to:

- Ensure all employees are trained to assist patrons to minimise noise, particularly patrons leaving the site
- Place signage in appropriate areas requesting patrons to respect the neighbours in terms of noise and to leave quietly
- Request patrons leave the site if they are being excessively noisy

- Management and staff shall immediately address complaints relating to noise and where possible act immediately to satisfy the complaint. Any complaint made should be recorded in the Complaints Register and dealt with. If required, the site shall meet with neighbours to address ongoing matters as they arise and to ensure contingency plans are in place

- Strict adherence to the approved hours of operation.

5. Conclusion

This noise assessment has been undertaken to inform a DA for a temporary use function centre located at 68 Phoenix Park Road Phoenix Park, NSW.

Based on the results and the information provided regarding the development, compliance with all noise goals is expected for the development on neighbouring residences and commercial operators. Recommendations have been made for management to have measures in place to particularly to deal with any unexpected excessive noise from patrons. Therefore, from an acoustics perspective the findings suggest the proposal is acceptable.