Noise Management Plan

Proposed Temporary Use of Outdoor Area
Club Lennox
Stewart Street Lennox Head

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Club Lennox
Stewart Street Lennox Head

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1. Introduction

1.1 Preamble

This document is a Noise Management Plan (NMP) specific to the operation of a series of temporary functions at Club Lennox, No 10 Stewart Street Lennox Head. This Noise Management Plan has been prepared by Tim Fitzroy & Associates (TFA) for Club Lennox.

The NMP:

- Provides clear direction on the selection and implementation of appropriate noise control and monitoring techniques during its operational life, and
- Reflects the Club Lennox's commitments to high standard environmental performance.

In order to ensure that the facility operates with the least noise impact, the NMP addresses the operations associated with the temporary function activities to minimise noise impacts on the nearest affected dwellings. This NMP includes:

a) identification of nearby residences and other sensitive land uses;
b) an assessment of expected noise impacts;
c) a detailed examination of all feasible and reasonable management practices that will be implemented to minimise noise impacts;
d) strategies to promptly deal with and address noise complaints;
e) details of performance evaluating procedures (for example, sound checks on amplified music or public address systems);
f) contact details for the onsite manager for complaints and queries to be made, and responded to;
g) reference to all relevant consent conditions including hours of operation;
h) operational details about the use of any noise monitoring equipment to record sound pressure levels around the property; and
j) the name and qualifications of the person who prepared this report.

1.2 Proposed Development

From our discussions with Glen Lloyd (Club Lennox) and Kate Singleton (Planners North) we understand that Club Lennox propose to undertake a series of outdoor functions on the first, third and fifth Sunday during daylight savings at No 10 Stewart Street Lennox Head. We understand that the function is seeking temporary approval from Ballina Shire Council under the Council's *Events on Public Land Policy* and that you require a Noise Management Plan to be prepared to accompany the *Events on Public Land Application* to Council.

We understand that the function:

- Will operate on the first, third and fifth Sunday during daylight savings, commencing at 4pm and concluding at 8pm;
- Be held in the southern section of the eastern bowling green;
- Up to 150 people and staff are expected to attend;
- Live amplified music (solo/duo) will be used for entertainment;

A site layout plan for the function is provided in **Illustration1.1.**

As part of the preparation of this Noise Management Plan (NMP) we have undertaken noise modelling to predict noise impacts on nearby neighbours. It should be noted at the outset

that the nature of the proposed function, inclusive of outdoor, amplified music and up to 150 patrons within Lennox Head and within relatively close proximity to residential dwellings will result in noise impacts in excess of the Liquor Administration standard conditions for permanent activities.

The noise impacts of the proposed development need to be considered with respect to the following:

1. the temporary nature of the function on the first, third and fifth Sunday during daylight savings;
2. limited duration of each event (4pm to 7pm); and
3. restrictions on noise levels to be emitted (86dBA at 3m from speakers).

1.3 Objectives

The objectives of this NMP are to:

- *Minimise noise generated by amplified music, patrons and ancillary activities associated with the function; and*
- *Contain noise emissions to within the modelled noise criteria.*

Illustration 1.1 Function Site Layout Plan

2. Site Description

2.1 Location

The site is located in the grounds of Club Lennox within the village of Lennox Head. The site is approximately 7,800m^2. The site is home of Club Lennox and contains 2 bowling greens, clubhouse, maintenance shed and carparking.

The site is on a flat terrain. The proposed development is adjacent to residential development to the north, south, west and east.

Sixteen receptor points have been chosen to represent the closest surrounding dwellings. The receptors are placed on the property boundary closest to the noise source at a height of 1.5m above ground and predicted levels are free-field. Receptor locations are presented in **Table 2.1** and **Illustration 2.1.**

Table 2.1 Sensitive receptors.

Receiver #	Address
1	1 GIBBON STREET
2	24 STEWART STREET
3	22 STEWART STREET
4	23 STEWART STREET
5	21 STEWART STREET
6	19 STEWART STREET
7	17 STEWART STREET
8	15 STEWART STREET
9	13 STEWART STREET
10	11 STEWART STREET
11	8 STEWART STREET
12	5A LENNOX STREET
13	7 LENNOX STREET
14	9 LENNOX STREET
15	11 LENNOX STREET
16	12 GIBBON STREET
17	1 MEGAN CRESCENT

Illustration 2.1 **Location of affected sensitive receptors**

3. Legislative Requirements and Noise Criteria

3.1 Noise Management Principles

Club Lennox are committed to ethical and legal obligations regarding environmental and occupational noise. This includes control of occupational and environmental noise particularly where any activities may negatively impact on the environment, staff, sub-contractors', other workers and members of the public.

Club Lennox's noise management protection systems are primarily aimed at controlling the following:

- Amplified music and the Public Address (PA) system to prevent or minimise noise impacts; and
- Patron noise.

Compliance processes are driven by the Onsite Manager and staff, through:

- An effective Noise Management Plan (NMP) to control the planning and implementation of noise protection measures;
- Identification of statutory requirements, compliance limits and adverse environmental issues which could affect any undertaking;
- Integrating work activities and environmental protection measures to minimise potential for risks and comply with specific protection requirements;
- Implementation of best practice measures that form the basis of our awareness and compliance programs for Onsite Manager and staff;
- Routine monitoring and refinement of the noise management program; and
- Continuous improvement for environmental protection outcomes.

3.2 Legislative Requirements

Applicable legislative requirements listed within **Table 3.1**. All activities carried out on the sites must comply with the relevant provisions of all legislation relating to the operation of the Function.

Table 3.1 Relevant Legislation

Legislation
Environmental Planning and Assessment Act 1979 (EP&A Act)
Protection of the Environment Operations Act 1997 (POEO Act).

3.2.1 Other Guidelines/Standards

Other guidelines and Standards that apply to the Function are listed below in **Table 3.2**.

Table 3.2 Relevant Standards and Guidelines

Standard or Guideline
Noise Guide for Local Government (DECCW 2010)

3.3 Applicable Noise Criteria

Protection of the Environment Operations Act 1997 (POEO Act) and the Protection of the Environment Operations (Noise Control) Regulation 2008 (Noise Control Regulation)

The *Protection of the Environment Operations Act 1997 (*POEO Act) and the Protection of the Environment Operations (Noise Control) Regulation 2008 (Noise Control Regulation) provide the main legal framework and basis for managing unacceptable noise.

The POEO Act:

- identifies the authority responsible for regulating noise (s. 6 of the Act)
- defines 'noise' and 'offensive noise' (Dictionary in the Act)
- provides a range of regulatory tools to manage noise, including Noise Control Notices, Prevention Notices, Noise Abatement Directions and Noise Abatement Orders.

Depending on the circumstances, the Noise Control Regulation may require an assessment of a noise's audibility, time of occurrence, duration or offensiveness. The POEO Act does not always require noise to be measured to determine whether it is offensive. However, noise measurement can help in deciding what action, if any, is necessary.

3.4.1 Offensive Noise

Depending on the type of noise under consideration, noise can be considered as offensive in three ways according to it's:

- audibility
- duration
- inherently offensive characteristics.

Given the nature of the potential noise complaints, namely amplified music and patron noise, it will be necessary for Council to consider a range of factors to determine whether the noise is offensive, including the following:

- the loudness of the noise, especially compared with other noise in the area
- the character of the noise
- the time and duration of the noise
- whether the noise is typical for the area
- how often the noise occurs
- the number of people affected by the noise.

3.4.2 Intrusive Noise

Noise is identified as 'intrusive' if it is noticeably louder than the background noise and considered likely to disturb or interfere with those who can hear it. It is our understanding that BSC does not have a policy about what they consider constitutes intrusive noise from specified activities in particular situations or locations.

As a guide the Noise Guide for Local Government states that the intrusiveness of an industrial noise source may be generally considered to be acceptable if the equivalent continuous A-weighted level of noise from the source, measured over a 15 minute period, does not exceed the background noise level by more than 5dB. Therefore, the limiting criteria for the control of intrusive noise impacts is if the $L_{Aeq,15\text{-}minute}$ descriptor is < RBL + 5 dB.

4. Noise Management Plan

4.1 Introduction

In order to ensure that the facility operates with the least environmental impact, the NMP addresses a wide range of issues as follows:

4.1.1 Identification of nearby residences and other sensitive land uses

There are numerous potentially sensitive receptors (dwellings) identified surrounding the venue. The distance and orientation of sensitive receivers from the function site are described in **Table 2.1** and **Illustration 2.1.**

4.1.2 Noise Model

Noise levels from the temporary outdoor entertainment area at Club Lennox have been predicted to the closest sensitive dwellings using SoundPLAN v8.0 and the prediction methodology Concawe. All prediction models have limits to their accuracy of prediction. This is due to the inherent nature of the calculation algorithms that go into the design of the models, the assumptions made in the implementation of the model, and the availability of good source sound power data. Various researchers have suggested that an un-calibrated model has an accuracy of ±5 dB while a calibrated model has an accuracy of ±2 dB. Calibration means that the model has been established with reference to measured sound levels at a receiver, known source levels and tightly defined propagation variables (wind speed and direction, for example). Alternatively, a series of predictions with different programs but the same assumption variables can be used for verification purposes.

4.1.3 Noise Source Level

Noise from live music is represented by point source positioned 2m above ground with directivity towards the east-southeast. Patron noise is represented by an area source covering the proposed entertainment area with a source level intended to represent raised voices. The noise source level and locations are presented in the following **Table 4.1**and **Plate 4.1.**

Table 4.1 Noise Source

Description	dB(Z)									Sum dB(A)
	31.5Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
Live Music (SPL @ 3m)	86	88	92	83	82	79	78	76	73	86
Patron Noise (L_{eq} SWL / m^2)	41	42	36	36	38	69	65	49	40	71

Plate 4.1 Location of noise sources

4.1.4 Weather Conditions

Noise modeling has been made using the prediction methodology *Concawe* which is used to present both Standard and Noise-enhancing meteorological conditions.

- **Standard meteorological conditions** are represented in the SoundPlan software with a stability class of D and wind speed of 0.5m/s source-to-receiver.
- **Noise-enhancing meteorological conditions** are represented in the SoundPlan software with a stability class of F and wind speed of 2m/s source-to-receiver.

4.1.5 Model Verification

The noise model presents future scenarios that have not been measured on site and validation measurements are not possible, the model is therefore considered to be uncalibrated.

4.1.6 Calculation of Noise Levels

Noise levels from the site have been predicted to each receptor. Predicted noise levels include screening from surrounding structures and topography, with topographic information sourced from the NSW Government. Predicted noise levels and assessment are presented in **Table 4.2.** Visual noise contours are presented in **Plates 4.2 and 4.3.**

Table 4.2 Predicted noise levels, live music and patron noise. Levels are in dB(A) Leq

Receiver #	Predicted Noise Level (L_{Aeq} free-field)	
	Standard Met.	Noise-enhancing Met.
1	53	54
2	54	55
3	58	59
4	55	56
5	57	57
6	58	58
7	60	61
8	59	60
9	59	60
10	57	57
11	44	46
12	42	44
13	40	43
14	35	36
15	34	35
16	39	41
17	52	54

Plate 4.2 Noise contours at 1.5m above ground, Standard Meteorological Conditions. Levels are in dB(A) Leq, including façade effects.

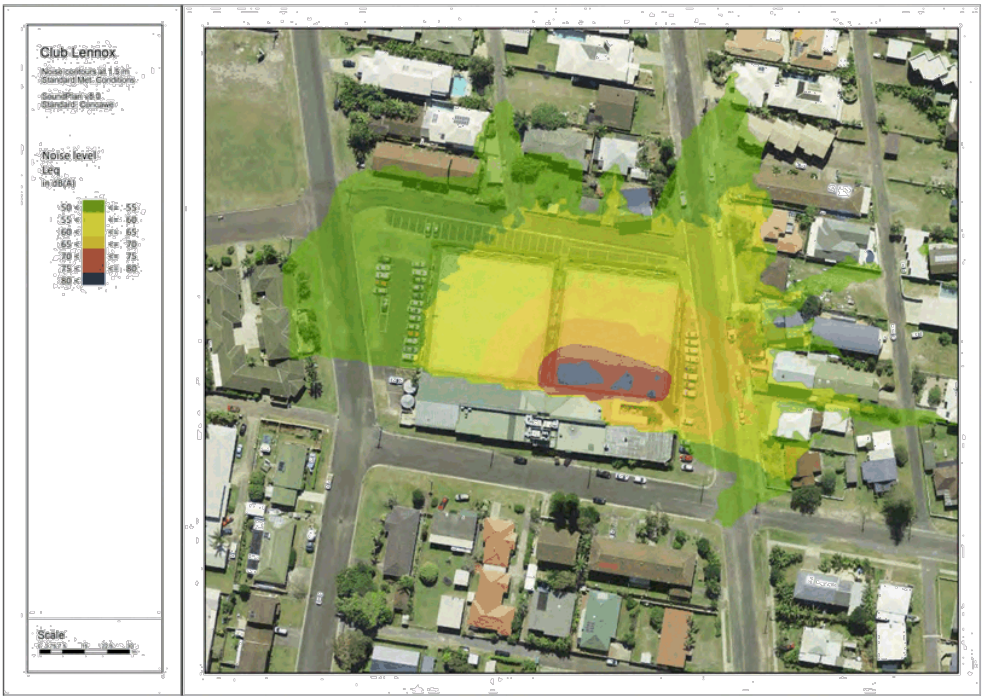
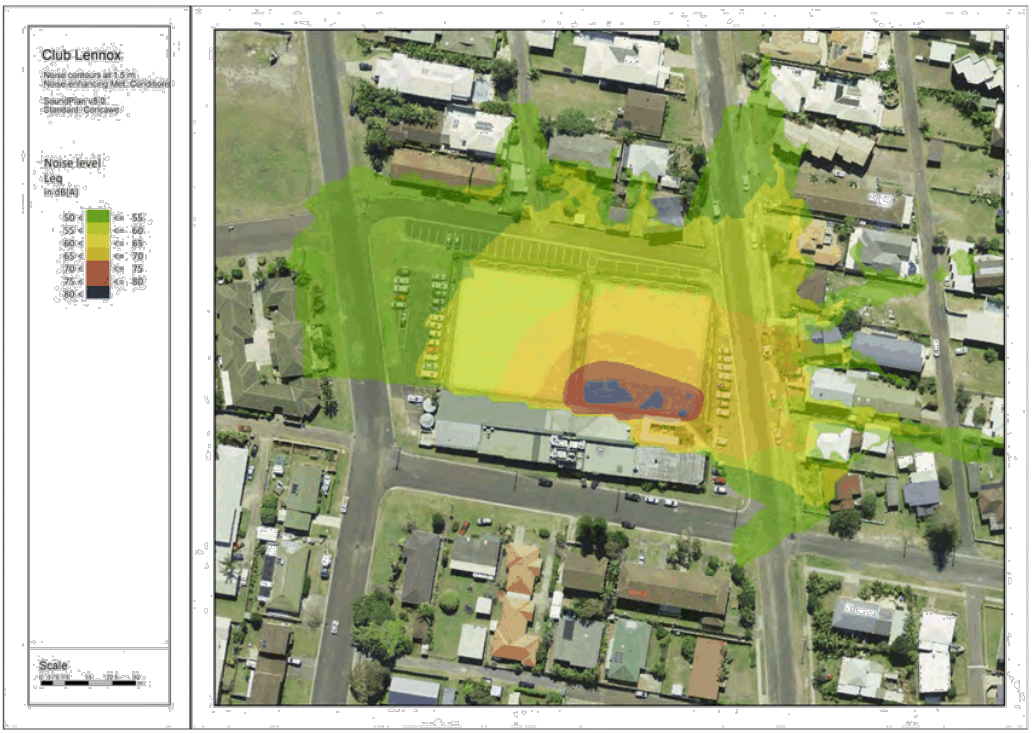


Plate 4.3 Noise contours at 1.5m above ground, Noise-enhancing Meteorological Conditions. Levels are in dB(A) Leq, including façade effects.



It is concluded that –

- A noise model has been constructed to predict the propagation of noise from the proposed outdoor entertainment at Club Lennox. The model includes shielding effects from topography and existing structures. Topography information included in the model was sourced from the NSW Government.
- Predictions are based on amplified entertainment that emanates from speakers positioned in the specified location and pointing towards the east-southeast. Entertainment noise is modelled at a level of 86dBA @ 3m from the speakers.
- Noise levels from the site are predicted to be up to 61 dB(A) Leq at the boundary of nearby dwellings, with an uncertainty of ± 5dBA.

4.1.7 Noise Mitigation Measures

The following feasible and reasonable management practices that will be implemented to minimise noise impacts:

- All amplified music and public address systems must operate so that they are not audible outside of the boundary of the property before 3pm and after 7pm on the day of the function.
- All amplified music to cease by 7pm with all patrons to have vacated the outdoor area 8pm.
- Alcohol consumption shall be managed by staff in accordance with the NSW Responsible Service of Alcohol regulations.
- The Manager may terminate a performance if they reasonably believe that the performer/s is not being conducted in an orderly and lawful manner and/or may remove any person or persons from the Function whom they reasonably regard as intoxicated or unruly.

4.1.8 Noise Complaints Management

Inquiries and Complaints
All enquiries and complaints with respect to the Function can be made through the Club Lennox telephone service. Any such communication will be directed to the Manager (M) to action.

Procedures for dealing with verbal and written complaints and inquiries will be managed through the Club Lennox Festival Customer Service Register (CSR). The CSR will be used for the following:
- to track and close-out complaints and enquiries;
- as an indicator of progress in fostering positive attitudes among the community, and
- to periodically review the list of current community issues.

Specific details to be included on the register will include:
- Date and time of complaint/inquiry;
- Type of communication (phone, letter, email etc);
- Name, address, telephone number of complainants;
- Nature of complaint/inquiry, and
- Response/action taken and date.

An example register is provided below for reference and/or use overleaf. The completed register will be made available to the BSC on request.

Table 4.3 Example of Customer Service Register

Date	Times	Complaint made via phone, letter, email, in person?	Details of complainant (Name, address, contact info.)	Description of complaint	Impact on complainant	Likely source of noise impact?	Response action taken	Date action taken

4.1.5 Noise Monitoring and Evaluation (Use of noise monitoring equipment)

- Noise level monitoring to determine compliance with the Noise Model Criteria at the nearest affected residence will be undertaken by the manager at the commencement of each performance.
- On setting up of amplified music noise measurements are to be taken with a type 2 noise meter at 3m outside from the mixing desk.
- The noise output at the mixing desk is to be adjusted so as to not exceed 86dB (A) at 3m from stage.
- The Noise Meter should be set to:
    - Fast Response;
    - Range (30 to 130 db);
    - Hold for at least 3 minutes to determine noise measurement
    - Noise measurements should be:
        - Taken at 3m from the Outdoor Stage speakers (primary source of the noise)
        - The noise meter should be preferably placed on a tripod or away from body of recorder (1.3m off ground)
- A calibrator suitable for the noise meter is to be used to calibrate the meter on each occasion before use.
- Noise recordings are to be placed in the attached template together with environmental conditions (see **Appendix A**).
- Weather conditions during noise monitoring should be verified with the Bureau of Meteorology (BOM) website for Ballina Weather station.

4.1.6 Notification of Adjoining Neighbours

- The landline and mobile phone number and email address of the manager will be provided in letter box drop to each of the neighbouring residents within 500m of the Function.

4.1.7 Events on Public Land Approval

When available the relevant conditions of the Events on Public Land Approval with respect to noise management will be appended to this NMP in **Appendix B**.

The aforementioned mitigation and monitoring measures coupled with frequency and roles and responsibilities can be found in **Table 4.3**.

Table 4.4 Noise Management

M = Manager, **S= Staff**, **Timing**: **AN** = As Necessary, **C** = Continuously

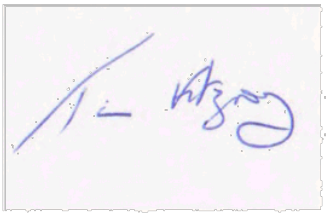
Management Control	Timing	Performed By	Monitored By	Verification (Name, Date & signature)
Noise				
▪ All amplified music and public address systems must operate so that they are not audible outside of the boundary of the property before 3pm and after 7pm on the day of the function	C	S	M	
▪ All amplified music to cease by 7pm with all patrons to have vacated the outdoor area by 8pm.	AN	S	M	
▪ A register of public complaints shall be established. This shall include a general telephone service, email address and postal address.	AN	S	M	
▪ The Complaints Register shall record: ⇒ Time and date of complaint; ⇒ Means by which complaint received (phone, email, letter); ⇒ Personal details of complainant; ⇒ Nature of complaint; ⇒ Actions taken to address complaint; and ⇒ If no action was taken, justification as to why.				
▪ A copy of the complaints register is located in Section 4				
Any Noise Complaints should be directed to The Manager Club Lennox 10 Stewart St Lennox Head NSW 2478 CONTACT DETAILS Mob:(0409 903 722) manager@clublennox.com.au				

Management Control	Timing	Performed By	Monitored By	Verification (Name, Date & signature)
▪ Noise level monitoring to determine compliance with modelled criteria at the nearest affected residence will be by the manager at the commencement of each live performance	AN	M	M	
▪ On setting up of amplified music noise measurements are to be taken with a type 2 noise meter at 3m from the Outdoor Stage The noise meter should be preferably placed on a tripod or away from body of recorder (1.3m off ground)	AN	M	M	
▪ The noise output is to be adjusted so as to not exceed the levels set in Table 4.1	AN	M	M	
▪ Noise recordings are to be placed in the attached template together with environmental conditions (see **Appendix A**).	AN	S	M	
Adjoining neighbours will be notified of:	AN	S	M	
▪ The landline and mobile phone number and email address of the manager will be provided by a letter box drop, to each of the neighbouring residents within 500m of the Function				
▪ Speakers will be assessed with noise meter to ensure compliance with noise limits as described in Table 4.1	AN	S	M	
▪ Alcohol consumption at the Club shall be managed in accordance with the NSW Responsible Service of Alcohol regulations.	C	S	M	
▪ The Manager may terminate a Performance if they reasonably believe that the Performer/s is not being conducted in an orderly and lawful manner and/or may remove any person or persons from the Function whom they reasonably regard as intoxicated or unruly.	AN	M	M	

4.2 Monitoring Program

4.2.1 Monitoring of the NMP

This NMP is to be monitored during the function by the Function Manager to ensure that the objectives and actions set out in this plan are carried out. Any actions that are incomplete or inappropriately carried out should be reported as a non-conformance to Club Lennox Manager and preventative or corrective action taken to ensure the requirements of the NMP are fully met.



Tim Fitzroy

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A Noise Monitoring Template

Noise Management Plan
Club Lennox Temporary Outdoor Use
10 Stewart Street Lennox Head

tim fitzroy & associates
environmental health environmental education environmental auditing

Date:	Time:	Officer	File

Equipment	
Make	
Model	
Serial #	

Location and Topography

Weather:	Winds Speeds:	Max Gust Speeds:
Wind Direction:	Precipitation:	Inversion:
Air Temperature:	Cloud Cover:	Visibility:

Settings	Cal Start	Cal finish	Meter Range

Fast	A weighting	SPL	Windshield	Battery

Start Time	Stop Time	Pauses	Measurement Interval

Results	Leq	L1	L10	L95	Overload	Lmax	Lmin	Pmax
Level:								
Source:								

Sounds	Description & Location
Wind-related	
Transport	
Industry	
Sea	
Animals	

B Noise Conditions

CRGACOUSTICS

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CRG Acoustics Pty Ltd
ACN 151 847 255 ABN 11 708 556 182

22 May 2020
CRGref: 12019 Letter 19_05_2020

The General Manager,
Ballina Shire Council,
PO Box 450
BALLINA NSW 2478

Dear Sir / Madame,

PEER REVIEW OF NOISE IMPACT ASSESSMENT FOR USE OF OUTDOOR AREA FOR AMPLIFIED MUSIC LENNOX HEAD COMMUNITY SPORTS & RECREATION CLUB LTD (CLUB LENNOX) LENNOX HEAD.

Thank you for your request of CRG to provide a Peer review of the noise assessment dated 18 December 2019 ("the report"). We have reviewed the material provided, and offer the following comments:

The report discusses various noise control legislation, and concludes the most appropriate noise limit criteria is pursuant to typical liquor license conditions set by Liquor and Gaming NSW. This criteria is typically a limit of 5 dB above the octave band centre frequency (31.5 Hz – 8k Hz) when noise occurs between 7am to midnight. I agree with this conclusion. By applying the Liquor and Gaming NSW criteria, low frequency sound is taken into account; as low frequency noise is often the source of noise complaint associated with amplified music, a frequency analysis can assist in managing this noise.

A discussion is put forward that the case studies of the NSW Noise Guide for Local Government are a valid basis for managing noise from the subject site. Examples given are inner city locations in Sydney. We do not believe that the means of management of these venues can be compared to the subject site, given the quieter urban nature of Lennox Head. It is likely that there was controlled testing to determine placement of speakers and source noise levels prior to commencement of use in the venue, and that treatments / controls stemmed from this testing. Further, these venues may have less regularity of events occurring that that proposed.

Long term background noise measurement and frequency analysis of background noise has been undertaken, and the data is considered a good basis for setting noise limits.

The assessment has been based upon noise prediction modelling; whilst this is an acceptable means of estimating noise impacts in situations where measurement is not possible, there is likely the potential for actual measurement under a controlled experiment using a portable PA system, with some simpler modelling to determine impacts from the addition of patron voice to music noise impacts.

The advantages of undertaking an actual test are as follows:

- Provision of certainty in determination of impacts;
- Allowing investigation of the effect of directivity in positioning & aiming of speakers. During a test, speakers can be moved around to optimise positioning to minimise impacts at nearest dwellings (e.g. facing speakers west, away from the nearest dwellings);
- Setting of noise limits at 3m from speakers in octave bands to comply at nearest dwellings once speaker aiming has been refined.

It is suggested that the report should set recommendations similar to the following:

- Speakers be located and aimed as per a diagram;
- Sound levels be limited to an octave band spectrum between 31.5 – 8,000 Hz, assessed at 3m from speakers. This limit will ensure compliance at nearest noise sensitive premises;
- Management principles to ensure compliance with the numeric criteria, including:
    - Having a Staff member use a sound level meter to check sound levels from the PA during system setup;
    - Making a contractual agreement with entertainment providers stating the sound limits at 3m from speakers, and stipulating that compliance with the limit is a requirement of engagement.

I note that the Noise Management Plan includes a variety of other management items that are useful in managing noise, but the critical item is setting firm noise limits.

Overall, I recommend that an actual experimental test be conducted of amplified music under controlled conditions, with an assessment of this coupled with the additive effect of patron voice. The recommendations of the report should include noise limits set at 3m from speakers to demonstrate compliance with the requirements of Liquor and Gaming NSW. By approaching the limits this way, the Operator will also have more certainty that if a noise complaint is lodged with Liquor and Gaming NSW, that they manage noise to the requirements of Liquor and Gaming NSW already.

I trust the above is of assistance. Please feel free to call me should you wish to discuss any aspect.

Yours faithfully
CRG ACOUSTICS PTY LTD

JAY CARTER BSc
DIRECTOR