

ACOUSTICAL ADVISORY & CONSULTING SERVICES

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Project: 12288-2

Project Title:

**Acoustic Assessment Report:
Potential Noise Issues –
Licensed Bar, Unit 119 Pelago Centre,
Warrambie Road,
Karratha**

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Date:

19th July 2012



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**Acoustic Assessment Report:
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1.0 Introduction

1.1

I confirm our engagement by Hospitality Total Services on behalf of Mr. Bart Parsons to undertake an acoustic assessment of potential noise issues expected with entertainment within a proposed licensed bar premises including an associated alfresco area.

1.2

In preparing this acoustic assessment report reference is made to a series of plans and specifications provided by Hospitality Total Services as well as relevant standards and State Regulations as detailed later.

1.3

The licensed bar premises (Venue) is proposed to occupy a commercial tenancy located on the ground level of a ten level building housing 114 residential apartments and 8 commercial tenancies. It will be located on the south-east corner of the building and include an alfresco area wrapping around the external corner of the building. There will be no public access to the Venue from the internal lobby (Lobby 2) nor from the external door of the Venue facing the gated Walk-Thru.

1.4

It is understood that the Venue will be permitted to accommodate a maximum of 120 patrons. The entertainment aspect of the facility is proposed to be consistent with an upmarket small bar venue with music by in-house DJ's who will be familiar with the sound system and any controls that may be required on music levels as discussed later.



At times there may also be solo artists playing acoustic music including jazz (no amplified instruments). There will be no rock bands or loud DJ's music permitted in the Venue.

2.0 References

(a) Drawings

Hospitality Total Services, DRG. No. A00 rev T2 – Fit-out Plan of Bar

S S Chang, DRG. No. A 101 rev 0a – Site Plan

S S Chang, DRG. No. A 203 rev 0h – Ground floor plan, Sheet 2

S S Chang DRG. No. A 301 rev 0b – Elevations, Sheet 1

S S Chang DRG. No. A 305 rev 0c – Sections, Sheet 5

(b) Regulations, Specifications and Standards

Western Australia – Environmental Protection (Noise) Regulations 1997 ,

as at 07 November 2003

Australian/New Zealand Standard AS/NZS 2107:2000 – Acoustics – *Recommended design sound levels and reverberation times for building interiors.*

Australian Standard AS 2670.2-1990 *Evaluation of human exposure to whole body vibration. Part 2: Continuous and shock induced vibration in buildings (1 – 80 Hz)*

Liquor Licensing definition for background sound levels in Licensed Premises

3.0 Scope of report

3.1

This report gives attention to predicted sources of noise and vibration solely associated with entertainment in respect to impact on residential apartments located within the development.

3.2

The report provides advice pertaining acoustic treatment to the internal acoustic environment within the Venue only insofar as it may impact on potential entertainment noise transference to apartments.



3.3

External entertainment noise in respect to the alfresco area created by music and raised voices is also addressed in this report.

4.0 Acoustic assessment report

4.1 Adoption of Environmental Regulations

In carrying out this acoustic assessment, reference has been made to the Western Australian Environment Protection (Noise) Regulations. The proposed Venue is located in a building premises classified in Part C, Schedule 1, as being a noise sensitive premises.

‘Premises occupied solely or mainly for residential or accommodation purposes’

4.2

As the Venue is not yet operating, this report sets out the ‘assigned levels’ that must be met by the Venue for the noise sensitive premises, being the apartments, located in same development. The assigned levels are set out in Table 1 below and are dependent on the time period. The determined levels will vary during the day, evening and night period. Attention will need to be paid to the ‘assigned levels’ based on the licensed hours of operation.

4.3

In addition, there needs to be an adjustment applied to the assigned levels giving consideration to impulsiveness, modulation and tonality. The adjustment for music is set out in Table 2 below.

4.4

It is noted that impulsiveness particularly applies where there is rhythm sound which occurs in some music types such as, but not limited to heavy metal and rock style music. As mentioned earlier in the report, it is understood that this style of music will not be played.



4.5

TABLE 1: Determined Assigned Levels for the licensed venue

Type of premises receiving noise	Time of day	Assigned level (dB)		
		L _A 10	L _A 1	L _A max
Noise sensitive premises at locations within 15 metres of a building directly associated with a noise sensitive use	0700 to 1900 hours Monday to Saturday	45 + influencing factor	55 + influencing factor	65 + influencing factor
	0900 to 1900 hours Sunday and public holidays	40 + influencing factor	50 + influencing factor	65 + influencing factor
	1900 to 2200 hours all days	40 + influencing factor	50 + influencing factor	55 + influencing factor
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays	35 + influencing factor	45 + influencing factor	55 + influencing factor

Table 2: Application of adjustment for music noise emission

Adjustment where noise emission is music	
Where impulsiveness is not present	Where impulsiveness is present
+10 dB	+15 dB

4.6

On the basis of the above, the maximum level (L_{Amax}) of entertainment sound with no impulsiveness as assessed near the facades of the apartments would be expected to be as follows.

Day Period*	55 dB(A)
Evening Period*	45 dB(A)
Night period*	45 dB(A)

* See definitions in Appendix



4.7 **Music sound level controls**

(a)

The sound level settings for the Venue will depend on whether the music is generated within the Venue or externally in the alfresco area and at the times of operation – whether during the day, evening and night periods. These internal and external music sound level settings are to be subject to determination prior to commencement of operation of the Venue and set accordingly.

(b)

Before music sound levels limits can be set there are other factors which will impinge on the resultant maximum permitted music levels. Major factors include the capability of the Venue building fit-out materials and structural elements to adequately attenuate music noise. These include the following:

- External glazing,
- Internal and external walls,
- Ceiling of the tenancy,
- Access doors leading into the tenancy,
- Supply and return air conditioning ducts,
- Kitchen and other exhaust ducting,
- Penetrations through the walls and ceiling of the tenancy.

(c)

Once the maximum level of music has been determined for both within the Venue and externally, sound limiting devices are to be incorporated and set to control the in-house and external amplification systems to prevent exceedances.

(d)

All loud speakers are to be small, low powered units, mounted on appropriate vibration isolating brackets to prevent structure-borne noise.



(e)

Live music of any type is not to occur in the alfresco area unless it can be adequately controlled to meet the adjusted assigned maximum ($L_{A \text{ max}}$) determined noise limits. This will prove be very difficult to achieve at a level satisfactory to typical licensed bar patrons bearing in mind the proximity of the Venue to apartments within the building.

(f)

Only 'ambient' music is to be produced by the small loud speakers. They are to be installed at a height not exceeding 2.0 metres facing downwards and mounted on appropriate vibration isolating brackets to prevent structure-borne noise. The loud speakers are to be set to comply with the determined assigned levels.

(g)

It is highlighted that although not considered a part of the entertainment aspect of the Venue, the sound of voices from patrons in the alfresco area, particularly raised voices is likely at times during the day and evening to generate excessive noise levels at some apartments in proximity to the venue. The Venue must develop a Management Plan strategy to effectively deal with any such occurrences.

4.8 Internal acoustic treatment to the licensed venue

In effectively reducing the build -up of entertainment noise within the Venue, it is recommended that acoustic treatment be applied to the walls and/or ceiling to provide a reverberation time (t) not exceeding 1.0 second. As a guide, the reverberation time (t) is the time taken for sound to reduce to a millionth of its intensity (60dB).

5.0 Summary

5.1

This acoustic assessment report discusses measures which focus on ensuring that entertainment within the Licensed Bar in the Pelago Centre in Karratha can meet environmental noise limits in respect to the residential apartments within the same development.



5.2

The noise attenuation measures herein are designed to address the major potential entertainment noise sources from an acoustic view point. These measures do not necessarily take into consideration other factors which may impinge on the practicability and permissibility of the proposed measures. If and when these factors do arise, they must be brought to the attention of the acoustic consultant for consideration and for further advice.

5.3

Please make contact with the writer of this report if you require any additional information or elaboration on any aspect of this acoustic assessment report.

Geoffrey A. Barnes
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Appendix

1. Terminology
2. Artist's impression of Licensed Bar façade in the Pelago Centre



Terminology

ACOUSTIC TERMS

- L_{A1} means A-weighted sound pressure level which is exceeded 1% of the time interval considered.
- L_{A10} means A-weighted sound pressure level which is exceeded 10% of the time interval considered.
- L_{Aeq} means the equivalent continuous A-weighted sound pressure level recorded in the time interval considered.
- L_{Amax} means the maximum sound pressure level recorded in the time interval considered
- Assigned level (sound limit) for all premises is determined with reference to Table 1 in this report.
- Influencing Factor is an adjustment made due to noise character of music based on the noise character - ie presence of impulsiveness, modulation (variation in noise emission and tonality as shown in Table 2.

OTHER TERMS

- Day period 7.00am – 7.00pm Monday to Saturday
 9.00am – 7.00pm Sunday and public holidays
- Evening period 7.00pm – 10.00pm all days
- Night period 10.00pm to 7.00am Monday to Saturday
 and to 9.00am Sundays and public holidays

Artist's impression of Licensed Bar façade in the Pelago Centre

