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New Years Eve Event - Noise Emission Assessment

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1 INTRODUCTION

This report presents our assessment of noise emissions from the use of a section of the Barangaroo Headland Park Site, for the New Years Eve celebrations on 31st December 2010.

The noise impact from the above source will be assessed based on City of Sydney Council criteria, for special outdoor events.

2 SITE DESCRIPTION

Barangaroo Delivery Authority is to open a section of the Barangaroo site for a picnic style event to view city's New Years Eve fireworks from 9 pm to 12 am. The proposed event area is over 14,000 square meters with a capacity allowance of 15,052 people in the main viewing. Figure 1 shows the location of the proposed event area.



Figure 1 – Proposed Event Area (source Bing maps)

It is proposed to have food vendors and a display tent with music broadcast along the eastern boundary of the viewing area. The entry and exit point for the event will be through Gatehouse 4 located along Hickson Road.

The opening of gates for the event is proposed to occur at 6pm on the 31st December and close at 12:30 am on the 1st January, 2011.

2.1 NEIGHBOURING AFFECTED SITES

The nearest residential properties to the site are as follows:

- Residences on Towns Place and Dalgety Avenue. The nearest residence is approximately 50m from the boundary of the proposed event area.
- To the south, located along Rhodes Lane and Merriman Street.
- Residences are located to the West of the site at Weston Street, Balmain East. These residences are approximately 450 metres from the proposed site.
- To the North, across Sydney Harbour. The nearest residences are located on the northern side of the harbour along Henry Lawson Avenue Road, approximately 875m from the site.
- No. 3. Residences are also located on Goat Island to the North West of the site. This is approximately 500 metres from the proposed site

3 NOISE DESCRIPTORS

Environmental noise constantly varies. Accordingly, it is not possible to accurately determine prevailing environmental noise conditions by measuring a single, instantaneous noise level.

To accurately determine the environmental noise a 15-20 minute measurement interval is utilised. Over this period, noise levels are monitored on a continuous basis and statistical and integrating techniques are used to determine noise description parameters.

In analysing environmental noise, three-principle measurement parameters are used, namely L_{10} , L_{90} and L_{eq} .

The L_{10} and L_{90} measurement parameters are statistical levels that represent the average maximum and average minimum noise levels respectively, over the measurement intervals.

The L_{10} parameter is commonly used to measure noise produced by a particular intrusive noise source since it represents the average of the loudest noise levels produced by the source.

Conversely, the L_{90} level (which is commonly referred to as the background noise level) represents the noise level heard in the quieter periods during a measurement interval. The L_{90} parameter is used to set the allowable noise level for new, potentially intrusive noise sources since the disturbance caused by the new source will depend on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the L_{90} level.

The L_{eq} parameter represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the 15 minute period. L_{eq} is important in the assessment of traffic noise impact as it closely corresponds with human perception of a changing noise environment; such is the character of environmental noise.

L_{Max} is the maximum (instantaneous) noise level which occurs over a measurement period.

4 ACOUSTIC GOALS

4.1 CITY OF SYDNEY – EVENT GUIDELINES, JULY 2010 – JUNE 2011

Section 4 of the events guideline lists the following in regards to noise;

- 55. No public address (PA) system or electronically operated equipment shall be used unless approved by Council as part of the event. OR (delete not applicable)*
- 56. Noise from any amplified music or notification system used at the event must not exceed an L_{Amax} of 75dB(A) when measured at the nearest affected receiver.*
- 57. The sound generated by the event shall be controlled and activity must not result in the transmission of 'offensive noise' as defined in the Protection of the Environment Operations Act 1997 at the nearest affected receiver.*
- 58. If, during the event, substantiated complaints or breaches of noise conditions occur, the event organiser must immediately reduce the noise to ensure the event complies with the noise levels specified in the Noise conditions above.*

4.2 PROTECTION OF THE ENVIRONMENT OPERATIONS ACT 1997

The act defines offensive noise as noise:

- a) that, by reason of its level, nature, character or quality, or the time at which it is made, or any other circumstances:*
 - i. is harmful to (or is likely to be harmful to) a person who is outside the premises from which it is emitted, or*
 - ii. interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted, or*
- b) that is of a level, nature, character or quality prescribed by the regulations or that is made at a time, or in other circumstances, prescribed by the regulations.*

The definition of offensive noise does not include any specific noise level which is deemed to be offensive for special events at outdoor locations.

In our opinion, a noise level of approximately 65-70dB(A) $L_{eq(15min)}$ is a reasonable level of a New Years Eve event for patron noise:

- In our experience, this is consistent with acoustic objectives adopted by events such as Jazz in the Domain, in Sydney Domain.
- Noise from fire works on the harbour are likely to exceed 75dB(A) at the residences in any event.
- There is some expectation that some level of noise will be generated by activities around the harbour on New Years Eve.

5 NOISE EMISSION ASSESSMENT

Primary noise emissions during the event will be:

- Patron noise.
- Noise from the public address system.

We note that background music only is proposed in the event area

5.1 PATRON NOISE IN VIEWING AREA

Noise emissions at the nearby residences will be predicted based on the following assumptions:

- The sound power level of a patron is 75dB(A) L_{eq} (which is the noise level from a raised voice).
- Approximately one in three patrons will be speaking at any one time.
- The viewing area is filled to capacity (approximately 15,000 people).

Predicted noise levels at the nearest residential properties (located at the corner of Towns Place and Dalgety Avenue) are presented below:

Table 1 – Predicted Noise Levels

Location	Predicted Level	Allowable Noise Level	Complies
Towns Place	63dB(A) L_{eq}	65-70dB(A) L_{eq}	Yes

Noise levels at other properties will be lower, as they are further from the noise source.

5.2 NOISE FROM THE PUBLIC ADDRESS SYSTEM

Noise from the public address system will be capable of complying with the noise emission goal of 75dB(A) L_{Amax} provided that the recommendations set out in Section 6 are adopted.

6 RECOMMEDATIONS

The following management controls are recommended:

- Patron management - Event organisers to manage patron noise. In particular:
 - Noise from patrons queuing at entry points (Gate 4A) and walking between the entry gate and the viewing area.
 - Ensuring patrons promptly leave the area at the end of the event (12.30am) in an orderly manner. Security should prevent patrons waiting/loitering in residential areas at the conclusion of the event.
 - Patrons should be contained within the defined entertainment area, and not allowed to enter other parts of the Baranagroo site.
- Public address systems:
 - The location, number and dispersion characteristics of the speakers should be selected to minimise noise spill to the nearest residential receivers. Speakers should be positioned such that they are at least 90m away and face away from the nearest residential properties at Town Place. This will allow for the speakers to generate clearly audible noise (approximately 75-80dB(A) in the entertainment area) while still achieving a noise level of no more than 65dB(A) L_{eq} at the nearest residences, and so will comply with the 75dB(A) L_{Max} noise emission goal.
 - Speakers to be used for announcements and background music only (not highly amplified music).
 - On the night of the event, a measurement of noise from the speakers should be undertaken during a sound check to verify that the noise level at the nearest residences is less than 75dB(A) L_{Max} .
- Temporary mechanical plant (eg generators, refrigeration plant) should be located at least 60m from any residential property.

7 CONCLUSION

Potential noise emission sources associated with the proposed event area at the Barangaroo Hedland Park Site during New Year's Eve festivities have been identified.

Noise emissions have been assessed against typical guidelines imposed by the City of Sydney.

Noise emissions from the operation of the proposed event area will comply with noise emission criteria provided that the management controls set out in Section 6 of this report are adopted.

Yours faithfully,

A handwritten signature in black ink, appearing to be 'Yogendra Kalkunte', written over a horizontal line.

Acoustic Logic Consultancy Pty Ltd
Yogendra Kalkunte