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37/F Australia Square
264 George Street
SYDNEY NSW 2000

Attn: Shirley Hui

Central Barangaroo Early Works DA1 - Response to Authorities Comments

1 INTRODUCTION

The comments made in submissions received have been reviewed and addressed within this letter.

2 DEPARTMENT OF PLANNING COMMENTS

2.1 COMMENT 1

The acoustic assessment incorrectly classifies nearby residential receivers along Hickson Road as commercial receivers in error (e.g. 38 Hickson Road). Please provide an updated acoustic assessment that details:- the noise management levels for all residential receivers opposite the site along Hickson Road - the anticipated noise levels during construction at these additional receivers - all appropriate mitigation measures, including the estimated reduction of construction noise levels when these measures are used.

The assessment report has been revised to show these receivers as being residential (refer Figure 1 in the assessment report), and the appropriate noise management levels specific to these receivers have been included (Table 6). The noise levels generated by construction activities were modelled and included in the previous report. The predicted noise levels (refer Tables 8 and 9 in the assessment report) did not exceed the management level at these receivers, and therefore no additional noise management is required to address noise to these receivers.

2.2 COMMENT 2

Confirm the hours sought for Saturday out of hours construction works, noting the EIA and Acoustic Assessment are inconsistent.

The proposed hours of construction are:

- 7am to 6pm Monday to Friday
- 7am to 5pm Saturday and
- No work on Sundays/Public Holidays

The submitted CEMP proposes additional restrictions to hours of work for intensive activities. The assessment report has been revised to reflect the proposed hours and additional restrictions. (Refer Section 7.17 of the revised report).

2.3 COMMENT 3

Provide an assessment of the proposal against the City of Sydney Code of Practice: Construction Hours and Noise in the City Centre (1992).

The Code of Practice ("**Code**") is intended to "provide a balance between the competing interests of the City's worker, resident and tourist population with that of the property development industry." The Code does not restrict the hours of work, however work outside of normal hours requires separate approval and compliance with more stringent noise emission limits and increased management and monitoring. The following table is extracted from the Code.

TABLE 1

CATEGORIES OF WORKING HOURS, AND NOISE CRITERIA

DAY	TIME ZONE	CATEGORY	NOISE CRITERIA (which must not be exceeded)
Monday to Friday	00.00 - 07.00	4	Background + 0 dBA
	07.00 - 08.00	1	Background + 5 dBA
	08.00 - 19.00	1	Background + 5 dBA + 5 dBA to be determined on a site basis
	19.00 - 23.00	2	Background + 3 dBA
	23.00 - 24.00	4	Background + 0 dBA
Saturday	00.00 - 07.00	4	Background + 0 dBA
	07.00 - 08.00	1	Background + 5 dBA
	08.00 - 17.00	1	Background + 5 dBA + 5 dBA to be determined on a site basis
	17.00 - 23.00	2	Background + 3 dBA
	23.00 - 24.00	4	Background + 0 dBA
Sundays and Public Holidays	00.00 - 07.00	4	Background + 0 dBA
	07.00 - 17.00	3	Background + 3 dBA
	17.00 - 24.00	4	Background + 0 dBA

NOTE: 00.00 or 24.00 means 12.00 midnight.

1. All noise levels to be $L_{A,av,max}$ (15 minute) measured at the nearest Nominated Occupancy.
2. The permissible noise level is to be complied with during each fifteen (15) minute period during the relevant Category of Hours.
3. The guidelines for control of construction noise as outlined in AS2436 shall be applied, where appropriate.
4. Background is "Background Noise Level" as defined in para 18.j (page 5).

The following table compares the primary requirements of the Code with the EPA ICNG.

City of Sydney	ICNG	Comment
Noise levels are "Criteria (which must not be exceeded)"	Criteria are management levels ("noise affected" and "highly noise affected"). Noise affected levels should be met where feasible and reasonable. If the highly affected management levels are still exceeded following feasible and reasonable mitigation then additional respite periods, etc are applied.	In practice, during Category 1 hours after 8am, Council does not typically apply these as "criteria not to be exceeded". They are applied in a similar way to the ICNG; reasonable and feasible mitigation is applied and louder activities (such as rock hammering) have further time restrictions and respite periods are applied. This is because it is not practically possible to achieve strict compliance with the Code criteria given the close proximity of receivers and development in the CBD. These principles are reflected in the consent conditions proposed by City of Sydney.
The proposed works are during "Category 1" hours. Criteria applying to these hours are "Background + 5 dB(A)" + 5 dB(A) between 8am and 7pm Monday to Friday and 8am to 5pm Saturday.	"Background + 10 dB(A)" as the "Noise Affected Management Level" and 75 dB(A) for the "Highly Noise Affected" level for "standard" construction hours for residential receivers. Other land uses have specific management levels.	Typically, the additional 5 dB(A) is permitted in most cases for City of Sydney, meaning the "noise affected" criterion (outside 7am to 8am) is similar i.e. "background + 10 dB(A)". After 1pm Saturdays the Council Code requirement is less stringent, as EPA management level reverts to background + 5 dB(A).
Lav,max. descriptor used to measure noise (that is, the arithmetic average maximum noise level during the measurement interval)	Leq descriptor used to measure noise	Depending on the characteristics of the noise source, the two measurement descriptors will produce different noise levels. Where the construction noise is constant in level, both descriptors will yield the same noise level. When the characteristic is a very short, loud noise followed by lower noise peaks the Leq will be higher, and for a more consistent intermittent source the Lav,max will be higher than the corresponding Leq. The Code was written in 1992, whereas in subsequent years the Leq descriptor has become the primary measurement descriptor for steady and time-varying noise sources when assessing annoyance.
The Code is primarily aimed at controlling noise to residential receivers	Provides land use specific criteria. The ICNG has different management levels applying to receiver types other than residential receivers.	The Council code is unsuited to assessing noise to commercial receivers. This is evidenced by the more stringent criteria applying to night and early morning works, whereas most commercial receivers are vacant during these times, or at the least are no more sensitive to noise than during the day.
The guidelines in AS 2436 should be applied.	AS 2436 referenced.	The standard provides general guidance for noise and vibration control on construction sites, and for the preparation of noise and vibration management plans, work method statements and environmental impact studies. Much of this guidance is embodied in the ICNG and the recommendations of the assessment report.

In summary, the only significant differences between the ICNG adopted in the assessment report and the Code are:

- The Code adopts a 5 dB(A) more stringent criterion between 7am and 8am Mondays to Fridays. This is addressed in the proposed CEMP by restricting high noise impact activities to the hours of 8am to 6pm Monday to Friday and 8am to 1pm on Saturdays, which would result in compliance during the early morning. Outside of the early morning period the criteria are similar, except for after 1pm Saturdays where the Council Code is less stringent.
- The Code does not specifically address noise to commercial (and "other than residential") receivers, whereas the ICNG does, and therefore is a more appropriate guideline in this case for these receiver types.

3 CITY OF SYDNEY

3.1 COMMENT 1

The submitted Acoustic Report predicts some minor exceedances of the acoustic criteria for the proposed works for some neighbouring sites, which should be further addressed.

The noise assessment examined the likely noise impacts from the expected construction methodology and equipment.

The assessment predicts some exceedances of the noise management levels but no exceedances of the highly noise affected management levels.

The site is already bounded by a timber barrier. Additional time limits on noise are proposed in the CEMP to mitigate noise impacts for noisy activities.

Noting that the typical activities assessed can produce some exceedances of the ICNG management levels, the noise assessment recommended that a further examination during detailed planning be carried out. This assessment should investigate alternative equipment, methods and additional mitigation and management to determine whether additional feasible and reasonable measures are possible to minimise impacts.

A similar post-approval, detailed assessment is included in the "Demolition, Excavation and Construction Noise and Vibration Management Plan" condition proposed by City of Sydney.

3.2 COMMENT 2

Conditions are recommended to be included in any consent at Attachment A (see below).

The proposed conditions are acceptable with the following exceptions.

3.2.1 Demolition, Excavation and Construction Noise and Vibration Management Plan

This condition requires all work to comply with the Code whereas other conditions permit noise level exceedances of the Code criteria providing additional time management is applied. This clause should be modified to be consistent with the remaining clauses addressing noise impacts, or the condition should acknowledge the other conditions.

As indicated above, the Code should only be applied to residential receivers. The IGNG is more appropriate for other receivers.

3.2.2 Hours of Work and Noise – CBD

This condition requires compliance with the Code. As indicated full compliance with the Code criteria may not be feasible and reasonable and the Code recognises this in other proposed conditions. This clause should be made consistent with the other conditions (and typical practice).

4 PUBLIC SUBMISSIONS

4.1 COMMENT 1

Requests DPE to seek further detailed construction processes and adequate mitigation measures to ensure that the noise exceedance is not as high as it currently is.

The noise assessment examined the likely noise impacts from the expected construction methodology and equipment to indicate whether noise emissions would need further mitigation to achieve the EPA IGNG noise management levels.

As the assessment indicated that exceedances of the noise management levels are likely to occur, assessment report recommends a detailed noise assessment and construction noise and vibration management plan be undertaken prior to commencement. The assessment and plan would investigate additional noise control measures and implement additional controls (where feasible and reasonable) to further mitigate noise impacts to those receivers identified in the assessment as likely to have noise exposure exceeding the management levels.

It is expected that noise emissions from the proposed works would be less than those from other construction occurring, or has recently occurred in the Barangaroo precinct.

5 CONCLUSION

This letter addresses the comments received in respect of the acoustic assessment report.

The report has been revised to:

- Include the residential receivers on Hickson Road to the east. (refer Figure 1 and Tables 6, 8 and 9 of the updated assessment report.)
- Make the hours of construction consistent with the proposed CEMP. (Refer Sections 4.3 and 7.17 of the revised report.)
- Include a specific reference to AS 2436. (Refer Section 7.2 of the revised report.)

Yours faithfully,



Acoustic Logic Pty Ltd
Victor Fattoretto
MAAS