

Munro Operations Trust
138-142 Cronulla Street
Planning Proposal - Acoustic Review

AC01

Issue 2 | 24 April 2020

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 274719

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Glossary

1 Introduction

Arup has been engaged by Munro Operations Trust to provide an acoustic review of the subject Planning Proposal (PP), and in brief, the conceptual scheme that informs the PP.

At this stage of the planning process, a quantitative assessment of the proposal has not been undertaken, nor considered to be warranted. However, a qualitative review has been carried out, and this report discusses aspects of the development requiring future consideration regarding the acoustic environment, in terms of influence on the surrounding land use and community, and within the development site.

This report also outlines relevant policy and guidelines that should inform future assessments along with a recommended methodology, such that potential impacts are addressed at appropriate stages of the planning, design and delivery of the development.

1.1 Project overview

The site, identified as 138-142 Cronulla Street, Cronulla (see Figure 1), comprises four lots having a total area of 1,424 m², that consist primarily of food and beverage premises within single storey tenancies (location).

The site is bound by Cronulla Street to the west, with Cronulla railway station opposite, Monro Park to the south, Surf Lane to the east, and retail uses to the north. Residential flat buildings are located along Surf Lane, ranging from two to eight storeys.



Figure 1: Aerial view, subject site in red outline and shaded yellow (City Plan)

The PP specifically relates to the following proposed amendments to Sutherland Shire Local Environmental Plan 2015 ('SSLEP'):

- Include incentive Floor Space Ratio (FSR) for the development of a commercial development on the site; and
- Amend the FSR permissible on the site from 2:1 to 2.9:1.

No changes to the permissible height (25 m) or zoning (B3 – Commercial core) is proposed as part of the PP.

For zoning *B3 – Commercial core*, the following uses are permissible with consent:

- Centre-based child care facilities; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hotel or motel accommodation; Information and education facilities; Medical centres; Oyster aquaculture; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Tank-based aquaculture; Any other development not specified in item 2 or 4

1.2 Scope of report

As the planning submission does not seek consent for the specific development, only the modification of various planning controls, this acoustic report does not present a detailed assessment. Rather this report provides a high-level review of potential uses, with focus on the conceptual scheme prepared by Innovate Architects (April 2020), discussing the likely suitability and requirements for future assessment and detailed design. Accordingly, this report:

- Discusses the current and potential future acoustic environment and surrounding land use context
- Identifies the relevant acoustic policies and standards that are likely to govern the future development, to be confirmed at later application stages
- Identifies the acoustic factors that may influence the future assessment and design of the site
- Identify the acoustic assessment approach for subsequent DA stages

2 Acoustic review

The acoustic review is structured as follows:

- Discussion regarding potential impacts upon the development
- Discussion regarding potential impact from the development, onto both existing surrounding development and future uses within the site, and
- A summary of the acoustic factors against relevant guidelines and the approach to future DAs

2.1 Impact upon the development

For the conceptual scheme, the proposed uses of commercial office and food & beverage use are not considered overly sensitive to noise and vibration impact from the surrounding environment. A consent authority would not typically be concerned about environmental noise and vibration impact upon these uses, despite commercial office spaces generally considering this as part of the design process.

The site zoning however permits, with consent, other more acoustically sensitive uses such as centre-based child care facilities, hotel or motel accommodation, education facilities, medical centres and respite day care centres, which if proposed would warrant consideration at the use development application stage.

2.2 Impact from the development

The increased FSR sought under the PP does not necessarily translate to any increase in potential noise impact from the site. Impact from the site will be specifically related to the proposed use of the site, which will be subject of separate development application.

Regarding the conceptual scheme, the primary noise emission would be related to the food & beverage use at ground and first floor. Noise emission from the commercial development would largely be limited to building services noise, which can be readily mitigated to address standard noise criteria. Use of terrace spaces off the commercial tenancies should also be considered, however activity associated with commercial offices would not be expected to present a significant risk for noise impact.

With respect to the food & beverage use, the proposed scheme, while representing an increase in food and beverage use compared to the current site, would otherwise be permitted with consent, under the current planning controls. Further, under the Sutherland Shire DCP 2015, the site is located within the high activity area under the Late Night Trading Policy and includes an active street frontage to the west and south of the site. The scheme is therefore consistent with these controls.

Notwithstanding, detailed assessment would be warranted for the food & beverage use, which would require establishment of appropriate noise criteria and project

goals at surrounding sensitive receivers, prediction of impacts based on the specific uses, operating hours and building design, along with determination of appropriate mitigation and management measures.

In the assessment of any proposed food & beverage uses it is recommended that consideration be given to potential cumulative impact of the operations. Noise criteria are typically applied to individual uses, and thus cumulative impacts are not specifically considered. Compared with the current separate tenancies, there is potential that while the proposed scheme represents an increase in floor area, that the permissible cumulative noise emission would be reduced, or at least no greater than the cumulative allowance for the existing tenancies.

Key considerations for food & beverage uses are patron and music noise emission, particularly where outdoor areas or openable facades are a feature. Internal activity can otherwise be readily controlled through appropriate design of the building fabric, interior finishes and limiting of music noise levels.

Where openings in the façade are proposed (either doors or operable windows), consideration needs to be given to the size of openings and their location. It may be required that these are closed at specific times, either in responding to more sensitive time of day, or more noise intensive internal activity within the venue. Based on the conceptual scheme, if a single use was to occur with entry via Cronulla Street, this would enable the southern façade to be closed at certain times while still maintaining operation. Compared with the current site arrangement, where individual uses front Beach Park Avenue, the concept represents a potential improvement in noise mitigation and management for the site.

For outdoor areas, opportunities for noise mitigation is often limited, and therefore detailed assessment is warranted to inform appropriate locations, patron capacities and densities, and hours of operation. Where awning structures or upper floor soffit cover patron areas, acoustic absorption can be incorporated to minimise increases in patron noise levels as a result of reflected/reverberant sound. Use of barriers and screens can provide some benefit, though these measures are likely to be limited where surrounding development are high rise apartment buildings.

Patrons arriving and leaving the site should also be considered when evaluating the potential impacts on the surrounding environment. However this needs to be assessed in the context of general pedestrian movement in the area and the extent to which activity is promoted. It is not reasonable to assume that a night time trading area with active frontages generate no noise from pedestrian activity. Notwithstanding, site design and operational management should seek to minimise the risk of excessive impacts. For the conceptual scheme, the locating of the main entry to Cronulla Street and no patron access via Surf Lane or the eastern end of Beach Park Avenue, would be expected to minimise patron movement in proximity to nearby residential development.

Traffic noise generated by the proposed development would also be assessed. Based on information presented in Ason Group report (1350r01), the increased FSR is expected to contribute only a marginal increase in additional traffic to the surrounding network. As identified in the report, this traffic would also not be concentrated at the site itself or in Surf Lane, which would be areas more sensitive

to increased traffic generation. While detailed assessment would be warranted at the DA stage, the traffic generation is not anticipated to adversely impact the acoustic environment. The noise impact assessment would also need to give specific consideration of delivery and collection vehicles, for which specific controls are outlined under the Late Night Trading Policy. No significant change in this activity would be considered to result from the proposed FSR increase.

2.3 Summary of relevant policies, standards and assessment approach

The following policies and standards are identified to be relevant to the future development of the site. The acoustic feasibility and assessment approach for the future development application are also provided in the table.

Table 1: Summary of relevant acoustic policies and standards

| Acoustic aspect | Noise and vibration sources | Policies and standards | Assessment approach for future development applications |
|---|--|---|---|
| Noise and vibration impact on the development | Road noise Rail noise and vibration | State Environmental Planning Policy (Infrastructure) 2007 [1] NSW DoP Development Near Rail Corridors and Busy Roads – Interim Guideline [4] | The SEPP (Infrastructure) is required for development near rail lines and roads over 20,000 AADT. It applies to noise sensitive development, which includes residential accommodation, place of public worship, hospitals, educational establishments or centre-based child care facilities. Should these uses be proposed, detailed acoustic assessment during DA stage will need to be carried out to demonstrate the acoustic criteria can be achieved. |
| Noise emission to the environment | Industrial noise including building services equipment | NSW EPA Noise Policy for Industry (NPfI) [5] | The NSW NPfI is typically applied not only to industrial sites, but also industrial type noise sources, such as building services equipment. Other onsite operations, such as loading docks and carparks are also typically assessed by reference to the NPfI criteria. Acoustic assessment at the development application stage should establish appropriate acoustic criteria, assess sources where appropriate detail is available and/or propose appropriate acoustic mitigation and management measures. Detailed design measures are typically not determined until construction documentation is prepared prior to issue of the construction certificate. |
| | Road Noise | NSW EPA Road Noise Policy (RNP) [6] | Noise from road traffic generated by the development and its potential impact to nearby noise sensitive premises would generally be assessed in accordance with the RNP. Acoustic assessment for the potential noise impacts from the traffic generated by the development and loading dock usage should be carried out at the DA stage. |

| Acoustic aspect | Noise and vibration sources | Policies and standards | Assessment approach for future development applications |
|---|---|--|--|
| | Food & beverage uses | - | <p>There are no NSW policies or standards specific to the operation of food & beverage activities such as patron and music noise. Typically, assessment of licensed premises is carried out against Liquor and Gaming NSW noise criteria, however alternative criteria can be applied by local governments.</p> <p>Guidance may also be taken from the NPfI in the absence of other specific criteria. The initial DA should aim to establish appropriate criteria that is reflective of the intended uses and activities, the potential noise sources and their characteristics and that is aligned with the land use planning objectives and controls.</p> |
| Demolition and Construction noise and vibration | Construction noise and vibration emission | Interim Construction Noise Guideline [7] Assessing Vibration: A Technical Guideline [8] | <p>The construction phase of the project has potential to impact surrounding development, and therefore is recommended to be assessed and managed in accordance with relevant NSW policies and standards.</p> <p>Typically, early stage DAs may present a preliminary assessment along with mitigation and management guidelines. More detailed noise and vibration management plans would be required of contractors prior to the commencement of works.</p> |

3 Conclusion

Based on the acoustic review of the Planning Proposal for the 138-142 Cronulla Street, Cronulla, it is considered that the proposed increase in Floor Space Ratio for the site, in of itself, would not lead to any increased noise emission to the surrounding environment. Evaluation of potential acoustic impacts can only reasonably be carried out for a specific development and use.

On review of the conceptual scheme that supplements the Planning Proposal, as the proposal is otherwise permissible with consent on the subject site, and is situated in a high activity zone of the Late Night Trading Policy, the use is considered consistent with the general planning objectives. Nevertheless, detailed acoustic studies will be required during the development application stage(s) to inform the detailed building design, including confirmation of relevant criteria, assessment of proposed uses and development of more specific mitigation and management strategies.

References

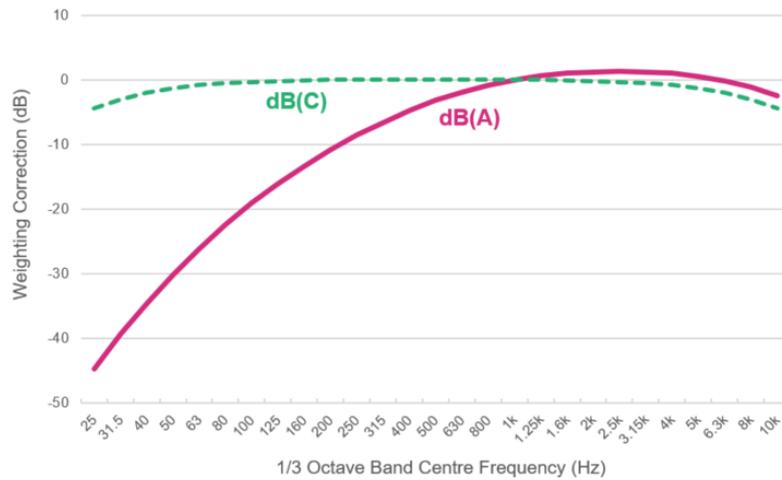
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- [2] NSW Department of Planning, “Development Near Rail Corridors and Busy Roads - Interim Guideline,” NSW Department of Planning, Sydney, 2008.
- [3] NSW Environmental Protection Authority, “NSW Noise Policy for Industry,” NSW EPA, Sydney, 2017.
- [4] NSW Environmental Protection Authority, “NSW Road Noise Policy,” NSW Environmental Protection Authority, Sydney, 2012.
- [5] Department of Environment & Climate Change NSW (DECC), “Interim Construction Noise Guideline (ICNG),” NSW DECC, Sydney, July 2009.
- [6] Department of Environment and Conservation (NSW), “Assessing Vibration: A technical guideline,” Department of Environment and Conservation (NSW), Sydney, 2006.

Appendix A

Glossary

| Term | Definition |
|-------------------------------|---|
| Ambient noise level | The ambient noise level is the overall noise level measured at a location from multiple noise sources. When assessing noise from a particular development, the ambient noise level is defined as the remaining noise level in the absence of the specific noise source being investigated. For example, if a fan located on a building is being investigated, the ambient noise level is the noise level from all other sources without the fan operating, such as traffic, birds, people talking and other noise from other buildings. |
| Background noise level | <p>The background noise level is the noise level that is generally present at a location at all or most times. Although the background noise may change over the course of a day, over shorter time periods (e.g. 15 minutes) the background noise is almost-constant. Examples of background noise sources include steady traffic (e.g. motorways or arterial roads), constant mechanical or electrical plant and some natural noise sources such as wind, foliage, water and insects.</p> <p>Assessment Background Level (ABL)</p> <p>A single-number figure used to characterise the background noise levels from a single day of a noise survey. ABL is derived from the measured noise levels for the day, evening or night time period of a single day of background measurements. The ABL is calculated to be the tenth percentile of the background L_{A90} noise levels – i.e. the measured background noise is above the ABL 90% of the time.</p> <p>Rating Background Level (RBL / $\min L_{A90,1\text{hour}}$)</p> <p>A single-number figure used to characterise the background noise levels from a complete noise survey. The RBL for a day, evening or night time period for the overall survey is calculated from the individual Assessment Background Levels (ABL) for each day of the measurement period, and is numerically equal to the median (middle value) of the ABL values for the days in the noise survey.</p> |
| Decibel (dB) | <p>The logarithmic scale used to measure sound and vibration levels.</p> <p>Human hearing is not linear and involves hearing over a large range of sound pressures, which would be cumbersome if presented on a linear scale.</p> <p>An increase of approximately 10 dB corresponds to a subjective doubling of the loudness of a noise. The minimum increase or decrease in noise level that can be noticed is typically 2 to 3 dB.</p> |
| dB weighting curves | The frequency of a sound affects its perceived loudness and human hearing is less sensitive at low and very high frequencies. When seeking to represent the summation of sound pressure levels across the frequency range of human hearing into a single number, weighting is typically applied. Most commonly, A-weighting, denoted as dB(A), is used for environmental noise assessment. This is often supplemented by the linear or C-weighting curves, where there is the potential for excess low-frequency sound at higher sound pressure levels. |

| Term | Definition |
|------|------------|
|------|------------|



dB(A) denotes a single-number sound pressure level that includes a frequency weighting ('A-weighting') to reflect the subjective loudness of the sound level.

The frequency of a sound affects its perceived loudness. Human hearing is less sensitive at low and very high frequencies, and so the A-weighting is used to account for this effect. An A-weighted decibel level is written as dB(A).

Some typical dB(A) levels are shown below.

| Sound Pressure Level dB(A) | Example |
|----------------------------|--|
| 130 | Human threshold of pain |
| 120 | Jet aircraft take-off at 100 m |
| 110 | Chain saw at 1 m |
| 100 | Inside nightclub |
| 90 | Heavy trucks at 5 m |
| 80 | Kerbside of busy street |
| 70 | Loud stereo in living room |
| 60 | Office or restaurant with people present |
| 50 | Domestic fan heater at 1m |
| 40 | Living room (without TV, stereo, etc) |
| 30 | Background noise in a theatre |
| 20 | Remote rural area on still night |
| 10 | Acoustic laboratory test chamber |
| 0 | Threshold of hearing |

L₁(period) The sound level exceeded for 1% of the measurement period. As an example, 65 dB_{L_{A1,1min}} indicates that the A-weighted sound level would not exceed 67 dB for more than 0.6 seconds in the 1-minute measurement period.

L₁₀(period) The sound level exceeded for 10% of the measurement period, or alternatively, the sound levels would be lower for 90% of the time. The L₁₀ is often defined as the 'average maximum' sound level over a measurement period, as in Australian Standard 1055.

L₉₀(period) The sound level exceeded for 90% of the measurement period.

| Term | Definition |
|------------------------------------|---|
| | The L_{90} is often defined as the ‘average minimum’ or ‘background’ noise level for a period of measurement. For example, 45 $dB_{LA90,15min}$ indicates that the sound level is higher than 45 dB(A) for 90% of the 15-minute measurement period. |
| $L_{eq(Period)}$ | The equivalent (‘eq’) continuous sound level, used to describe the level of a time-varying sound or vibration measurement. The L_{eq} is often defined as the ‘average’ level, and mathematically, is the energy-average level over a measurement period. |
| L_{max} | The L_{max} is the ‘absolute maximum’ level of a sound or vibration recorded over the measurement period. As the L_{max} is often caused by an instantaneous event, it can vary significantly between measurements. |
| Vibration | Waves in a solid material are called ‘vibration’, as opposed to similar waves in air, which are called ‘sound’ or ‘noise’. If vibration levels are high enough, they can be felt; usually vibration levels must be much higher to cause structural damage. A vibrating structure (e.g. a wall) can cause airborne noise to be radiated, even if the vibration itself is too low to be felt. Structureborne vibration limits are sometimes set to control the noise level in a space. Vibration levels can be described using measurements of displacement, velocity and acceleration. Velocity and acceleration are commonly used for structureborne noise and human comfort. Vibration is described using either metric units (such as mm, mm/s and mm/s ²) or else using a decibel scale. |