



# ARCHITECTURAL ACOUSTICS

PROPOSED COMMERCIAL DEVELOPMENT  
882 CANNING HIGHWAY

19<sup>th</sup> August 2025



For

**DMG ARCHITECTURE**  
Level 1 / 1008 Hay Street  
PERTH WA 6000

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Report Version	Author	Notes	Date
Initial Report	Michael Ferguson		19 <sup>th</sup> August 2025



Gabriels Hearne Farrell Pty Ltd is a Member Firm of the Association of Australasian Acoustical Consultants. The report author is a full Member of the Australian Acoustical Society.

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## 1. INTRODUCTION

This Development Application report addresses the architectural acoustic issues to be covered during the design and development stages of the proposed Commercial Development, located at 882 Canning Highway, Applecross. This report is based on the design drawings received from the project team on the 8<sup>th</sup> August 2025.

The purposes of this report is to provide an overview of the acoustic design requirements included in Regulations, Codes, Planning Policies and Australian Standards, relevant to the Development Application stage. It therefore establishes the acoustic requirements for this project, which must then be addressed in the detailed design and construction stages.

### 1.1 Qualifications of Consultant

The author of this report, Michael Ferguson, has been working for Gabriels Hearne Farrell Pty Ltd (formerly Gabriels Environmental Design Pty Ltd) since the beginning of 2010. He became a full member of the Australian Acoustical Society on the 22<sup>nd</sup> March, 2014. GHF is also a Member Firm of the Association of Australasian Acoustical Consultants.

## 2. ENVIRONMENTAL NOISE EMISSION

The Environmental Protection (Noise) Regulations require that potential noise emissions from the development must comply with site specific 'Assigned Levels' at adjacent premises, as established in accordance with Regulations.

### 2.1 Assigned Noise Levels

The Regulations describe a procedure for establishing the Assigned Levels, based on the traffic flow and land zoning within a 100m radius and 450m radius outer circle, relevant to the reference receiver premises. As indicated in Fig 1 below, there is approximately 53% commercial properties within a 450m radius of the neighbouring receivers (both circles combined), and a major roads within 100m of most adjacent noise sensitive receiver positions. Therefore, the Influencing Factor applicable to the Assigned Noise Levels for this development is +9 dB.



Image 01 - Influencing Factor Radii

The calculated Assigned Levels for receiver properties adjacent to this site are set out below in Table 01 on the following page.

Type of premises receiving noise	Time of day	Assigned Noise Level (dB)		
		LA10	LA1	LAm <sub>ax</sub>
Noise sensitive premises; highly sensitive area. (i.e. within 15m of a residential building)	0700 to 1900 hours Monday to Saturday	54	64	74
	0900 to 1900 hours Sunday and public holidays	49	59	74
	1900 to 2200 hours all days	49	59	64
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays.	44	54	64
Commercial Premises	All hours	60	75	80

Table 01 - Assigned Noise Levels for Adjacent Receiver Positions

The sound level parameters used for the various environmental noise criteria are described below, based on an assessment period of 15 minutes up to 4 hours:

**LA10** is the 'A' weighted noise level which is not to be exceeded for more than 10% of the time, e.g. for more than 10 minutes in 100 minutes. This is the parameter relevant to most HVAC equipment, and emissions from other longer term noise sources that run for extended duration (such as exhaust fans, air-conditioning units etc.).

**LA1** is the 'A' weighted noise level which is not to be exceeded for more than 1% of the time, e.g. for more than 1 minute in 100 minutes, or up to 24 minutes in 4 hours. This is the parameter relevant to noise sources that only occur occasionally, for short durations, (e.g. fire pump testing, etc.).

**LAm<sub>ax</sub>** is the 'A' weighted noise level for individual events (e.g. car door closes, car stackers, etc.) which is not to be exceeded at any time.

## 2.2 Adjustments for Noise Character

In accordance with Regulation 9, sounds with tonal, modulating or impulsive characteristics are deemed to be more annoying, and therefore an adjustment of +5dB is required to be added to the measured level for tonal and modulating characteristics, and +10dB for impulsive characteristics; where measurable at the point of reception.

In accordance with the noise assessment techniques described in the Regulations, noise emission from most mechanical equipment such as condensing units, cooling towers / heat pumps, and exhaust fans etc. are considered tonal and therefore a +5dB adjustment is required to be added the measured (or predicted) level. However during the daytime hours it is feasible that there is enough diversity in the units running, and combined with a higher background noise level tonality may not be measurable and therefore may not be applied during these times.

## 2.3 Project Noise Sources

Noise sources relevant to this development that may result in emission to neighbouring premises include:

- Mechanical Services, Air conditioning and other HVAC equipment – including condensers, exhaust fans, car park ventilation systems and the like.
- Vehicles in car parking areas
- Fire Pump (if applicable)
- Waste Collection

Each relevant Noise Source is discussed below.

2.3.1 *Mechanical Services*

Potential noise emissions from all mechanical equipment will be addressed in the design and documentation stages, to ensure appropriate mechanical acoustic design and specifications are incorporated, to comply with the relevant 'Assigned Levels'. For HVAC equipment the relevant Assigned Level parameter is LA10, as equipment will typically run for more than 10% of the time, as tabulated below:

Noise Emissions from HVAC Equipment		
	Time of Day	Relevant Assigned Noise Level
Daytime - Monday to Saturday	7am to 7pm	LA10 54 dB(A)
Daytime - Sundays & Public Holidays	9am to 7pm	LA10 49 dB(A)
Evening - All Days	7pm to 10pm	LA10 49 dB(A)
Overnight - All Days	All other times from above	LA10 44 dB(A)

Table 02 -Relevant Assigned Noise Levels - HVAC Equipment

As this is largely a commercial development, it is currently assumed that mechanical equipment is likely to only run between the hours of 7am to 10pm, Monday to Saturday, and 9am Sundays and Public Holidays. Therefore, the relevant Assigned Level Criteria to be targeted for compliance is LA10 ≤ 49 dB will apply. Adjustment for tonality will also be considered where relevant, which typically is most mechanical equipment.

For this development, the proposed location of the main air-conditioning plant appears to be located on the roof of the development, within a dedicated plant room. With consideration given to the noise level of the units selected, and assuming standard residential condensing units, it is reasonable that the proposed scenario has the capability of achieving compliance with the Environmental Regulations.

Once the Mechanical Services design is progressed and noise level data becomes available, a detailed assessment will be conducted to ensure compliance with the relevant Assigned Levels. Selection of equipment with inherently low noise operation, and potential use of night setback modes will be considered as part of the design process. Night setback modes are highly recommended if units are proposed to be run outside of the hours mentioned above, as they typically reduce noise emissions by approximately 5dB(A). Meaning that if compliance is achieved with Sunday daytime Assigned Noise Levels, compliance is also achieved during the overnight period with the setback mode activated.

Potential for noise intrusion into the development itself, via the roof / building envelope etc. will also be considered as the design develops. Given the location of the equipment and the assumption of a concrete floor slab to the plant room, this is unlikely to be a concern.

2.3.2 *Noise from Vehicles in Carparks*

Noise emission from vehicle movements in Public Carparks that are open to public access are treated in accordance with the Road Traffic Act (as road traffic noise), and are therefore not addressed by the Environmental Protection (Noise) Regulations. This is consistent with the approach applied to parking facilities at other multi-residential and commercial developments.

However, noise from any ventilation exhaust systems (if proposed) are mechanical in nature and must be assessed for compliance against the Environmental Regulations, as per the previous mechanical services section of this report.

2.3.3 *Fire Pumps*

As per the building HVAC plant, noise emission from a proposed Fire Pump installation must be controlled to meet the relevant Assigned Noise Levels. It should be noted that this is only applicable to the testing of the equipment for maintenance purposes, during actual emergencies compliance with the Regulations is not required.

For fire pumps, we have been previously been advised these maintenance runs are typically less than a 24 minute duration. Therefore, these are assessed against the LA1 Assigned Levels, as tabulated below. If the generator must be run for extended duration (> 24 minutes) then the LA10 criteria becomes relevant.

Noise Emissions from Fire Pumps		
	Time of Day	Relevant Assigned Noise Level
Daytime - Monday to Saturday	7am to 7pm	LA1 64 dB(A)
Daytime - Sundays & Public Holidays	9am to 7pm	LA1 59 dB(A)
Evening - All Days	7pm to 10pm	LA1 59 dB(A)
Overnight - All Days	All other times from above	LA1 54 dB(A)

Table 03 –Relevant Assigned Noise Levels - Fire Pump

It should also be noted that the above Assigned Noise Levels apply to any generators on site, however it is our understanding these are not currently proposed on this project. Further to this, if generators are included in the project then they must also comply with the LA10 requirements during power outages, as they are not normally considered a “life safety” device on developments such as this.

When assessing this equipment it is assumed that the testing will only be conducted between 7am and 7pm Monday to Saturday. Equipment selections and relevant noise level data is not yet available for these items. The acoustic design and specification requirements will therefore be determined during the design development and documentation stages of the project, to fully comply with the relevant Assigned Levels. This includes noise emissions from the exhaust outlet pipe, as well as the ventilation of the fire pump room itself, as an escape path for the fire pump engine noise itself.

#### 2.3.4 Loading Bay Deliveries & Waste Management

There is currently a proposed loading bay / dock, documented centrally within the building on the ground floor. The entrance to this loading dock is off Canning Highway, with the other three sides fully enclosed by tenancies.

Given the orientation of this loading bay, we do not currently have any concerns regarding potential noise emissions from delivery vehicles to neighbouring properties. Once the development is progressed further, confirmation of this compliance will be undertaken.

With regards to servicing Bin compounds, noise generated by this activity falls under the recently amended part of the Regulations “14A. Waste collection and other works”. This section of the Regulations states that the Assigned Levels (Regulation 7) do not apply to a range of ‘specified works’, including ‘the collection of waste’. Provided the waste collection is conducted between 7am to 7pm Monday to Saturday, (or 9am to 7pm Sunday and public holidays), then the activity is deemed to be “Class 1”.

### 3. ENVIRONMENTAL NOISE INTRUSION

The proposed development is located adjacent to Canning Highway, which at this location receives approximately 50,000 vehicles per day. Whilst this is a considerable number of vehicles, the current proposed development consist entirely of commercial tenancies, and is therefore not deemed to be “noise sensitive” in nature.

Given this, there is no requirement for any assessment in accordance with the State Planning Policy 5.4 “Road and Rail Noise”.

Information on potential noise intrusion, assessed against the recommended criteria outlined in Australian Standard 2107:2016 “Acoustics – Recommended design sound levels and reverberation times for building interiors”, can be provided to the architect at subsequent stages of the project for consideration and inclusion in the project documentation.

#### 4. INTERNAL ACOUSTICS

Part F7: “*Sound Transmission and Insulation*” of the Building Code of Australia (BCA) establishes minimum mandatory requirements for the acoustic performance of buildings.

As this proposed development falls under Class 5, no mandatory requirements apply to this project. Any provisions for internal acoustic performance may be incorporated at the client’s discretion.

#### 5. OVERVIEW

At the Development Application stage of this project the relevant acoustic design issues to consider are:

- Requirement for noise emissions to comply with Environmental Protection (Noise) Regulations,
- An assessment of noise intrusion from nearby traffic on major roads in accordance with the State Planning Policy 5.4 is not required, due to the proposed development having no “noise sensitive” habitable spaces.
- There are no building Code requirements for the proposed development in regards to Part F7: “*Sound Transmission and Insulation*”.

This Acoustic Report has addressed each of the project specific acoustic design issues relevant to the Development Application stage.

Further detailed consideration of these issues is required throughout the design development and documentation stages of the project, to ensure compliance with the relevant regulations, codes and acoustic quality standards.

If you have any further queries regarding any of the information contained in this report, please call the undersigned on 9474 5966.

Regards,

**Michael Ferguson**

Associate Director B.IntArch(Hons) M.A.A.S.



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