GABRIELS HEARNE FARRELL

ARCHITECTURAL ACOUSTICS

289-295 VINCENT STREET, LEEDERVILLE
DEVELOPMENT APPLICATION REPORT

Rev A - 31st August 2026



For

BUI DESIGN

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Report Version	Author	Notes	Date
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Rev A	Michael Ferguson	Minor wording and policy updates	31st August 2026

Association of Australasian Acoustical Consultants

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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 mixed use development, located at 289-295 Vincent Street, Leederville. This report is based on the design drawings received from the project team on the 31st July, 2026.

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 director of GHF in 2026, and a full member of the Australian Acoustical Society on the 22nd 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 60% commercial properties within a 450m radius of the neighbouring receivers, as well as a sports building and a major road within 100m. Therefore, the Influencing Factor applicable to this development is + 11 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)		
		L_{A10}	L_{A1}	L_{Amax}
Noise sensitive premises; highly sensitive area. (i.e. within 15m of a residential building)	0700 to 1900 hours Monday to Saturday	56	66	76
	0900 to 1900 hours Sunday and public holidays	51	61	76
	1900 to 2200 hours all days	51	61	66
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays.	46	56	66
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:

L_{A10} 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.).

L_{A1} 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.).

L_{Amax} 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 and Car Stackers within 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 Noise Levels.

For HVAC equipment the relevant Assigned Level parameter is L_{A10}, 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	L_{A10} 56 dB(A)
Daytime - Sundays & Public Holidays	9am to 7pm	L_{A10} 51 dB(A)
Evening - All Days	7pm to 10pm	L_{A10} 51 dB(A)
Overnight - All Days	All other times from above	L_{A10} 46 dB(A)

Table 02 –Relevant Assigned Noise Levels - HVAC Equipment

Since the HVAC could potentially run at any time of the day, the Assigned Level Criteria of $L_{A10} \leq 46$ dB will apply. Adjustment for tonality will also be considered, where relevant.

For this development, the primary air-conditioning plant is proposed to be located on the individual property balconies, with a dedicated plant area for the Level 4 units on the floor below. Based on the proposed plant locations, and assuming the installation of standard commercial condensing units with typical noise emissions, it is considered reasonable that the development has the potential to achieve compliance with the applicable Environmental Regulations.

As the mechanical services design progresses and equipment noise data becomes available, a detailed acoustic assessment will be undertaken to verify compliance with the relevant Assigned Noise Levels. This assessment will consider the selection of inherently low-noise equipment, together with the implementation of appropriate mitigation measures where required, including the use of night setback operating modes (where compatible with the proposed operating hours).

Night setback modes are highly recommended if units are proposed to run outside of hours, 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 this is unlikely to be a concern.

Noise emissions from car park ventilation fans etc. will be attenuated through the design process to ensure compliance with the Environmental Regulations.

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.

Car door closing within any gated parking facilities are technically required to achieve compliance with the Regulations. Given the short time frame of these noise sources, they are generally assessed against the L_{Amax} criteria, of 76 dB(A) during daytime hours.

Currently the car parking facilities are documented as an internal zone on levels one to three. The documentation has currently allowed for a naturally ventilated open balustrade design on both the North and South of levels one and two, with a fully sealed solid wall (construction TBC) to the South of level 3 where the car stackers are located.

Given this, as well as a distance of approximately 15m to the neighbouring residences across Electric Lane, compliance is expected to be achieved with the Regulations for cars and car stackers within this area, no further action required.

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.

Any car stackers proposed within this location can be problematic for noise emissions to neighbours. However as previously mentioned, all three sides of the proposed development are currently documented to be fully enclosed along the level 3 southern façade. Therefore, compliance with the Regulations is expected to be achieved at all times of the day. Any ventilation paths will be adequately attenuated to ensure this compliance is maintained.

2.3.3 *Fire Pumps*

For fire pumps, we have previously been advised these maintenance runs are typically less than a 24-minute duration. Therefore, these are assessed against the L_{A1} Assigned Levels, as tabulated below. If the generator must be run for extended duration (> 24 minutes) then the L_{A10} criteria becomes relevant.

Noise Emissions from Fire Pumps		
	Time of Day	*Relevant Assigned Noise Level*
Daytime - Monday to Saturday	7am to 7pm	L_{A1} 66 dB(A)
Daytime - Sundays & Public Holidays	9am to 7pm	L_{A1} 61 dB(A)
Evening - All Days	7pm to 10pm	L_{A1} 61 dB(A)
Overnight - All Days	All other times from above	L_{A1} 56 dB(A)

Table 03 –Relevant Assigned Noise Levels - Fire Pump

Fire pumps have currently been documented to be located within the basement/ lower ground area of the development. Whilst this is a typical arrangement on similar projects, a further acoustic review will be required. This should include consideration of the proposed exhaust outlet location and associated noise levels, together with any ventilation requirements for the pump room itself.

Where practicable, we recommend maximising the separation distance between exhaust and ventilation outlets and nearby noise-sensitive receivers, whether this is achieved by orienting outlets away from residents or discharging via the roof. Any ventilation paths facing residential neighbours to the South will be attenuated to ensure compliance with the Regulations.

Based on our experience with similar installations, it is likely that a Class 1 pump system, or an equivalent level of acoustic attenuation to the proposed equipment, will be required, even with the outlet distances maximised.

It should also be noted that the above Assigned Noise Levels apply to any generators on site, however it is our understanding these are unlikely to be proposed on this project. If generators are included in the project, then they must also comply with the L_{A10} requirements during power outages, as they are not normally considered a "life safety" device.

2.3.4 *Loading Bay Deliveries & Waste Management*

The rear ground floor area (off electric Lane) is currently documented as a designated loading bay for the commercial tenancies. This proposed loading bay has the potential to generate noise at nearby residential premises located across Electric Lane, particularly from delivery vehicle engines and associated loading activities.

As a primary noise management measure, delivery vehicles should be switched off while stationary within the loading bay wherever practicable. Provided this operational requirement can be effectively implemented, noise emissions are expected to be capable of being appropriately managed.

Where vehicles are required to remain running during deliveries, or where engine / refrigeration shut-down cannot be reliably managed, additional acoustic treatment may be necessary. This may include the provision of solid screening to the loading bay, such as a solid roller door or other suitably constructed acoustic barrier, to reduce noise emissions towards the residences across Electric Lane. Details of noise management practices will be discussed with the client in the following stages of this project.

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

3.1 External Traffic Noise

Due to the location of this development in close proximity to Vincent Street (as well as Mitchell Freeway, and Loftus Street), which at this location receives approximately 15,000 vehicles per day. Therefore, the proposed development must be assessed in accordance with the State Planning Policy 5.4 - *"Road and Rail Noise"* requirements.

Details on the architectural requirements to meet this policy have been provided below, as well as general recommendations for potential noise intrusion across the development.

3.1.1 Outdoor Noise Criteria

The State Planning Policy 5.4 - *"Road and Rail Noise"*, establishes criteria in terms of an Outdoor Noise Levels.

Outdoor Noise Level Criteria	
Time of Day	**Noise Criteria**
Day - 16 Hour (6am to 10pm)	L_{Aeq}(day) = 55 dB
Night - 8 Hour (10pm to 6am)	L_{Aeq}(night) = 50 dB

Table 04 –SPP 5.4 Outdoor Noise Level Criteria

The above levels are for average external noise levels (L_{Aeq}) measured over the whole of the day or night period. The criteria set out above applies to the emission of road noise as received at a noise sensitive development. It is our understanding that this outdoor criteria should be met in at least one outdoor space for the development.

3.1.2 Indoor Noise Criteria

In terms of indoor noise levels, the SPP quotes the acceptable levels for residential buildings as:

- L_{Aeq} (day) 40 dB(A) in living and work areas, and
- L_{Aeq} (night) 35 dB(A) in bedrooms.

For all other non-residential noise sensitive areas of a development, acceptable indoor noise levels are to meet the recommended design sound levels in Table 1 of Australian Standard AS/NZS 2107:2016 *"Acoustics - Recommended Design Sound Levels and Reverberation Times for Building Interiors"*.

Given the combined living / sleeping arrangement of some units, it is our understanding that both the daytime criteria and nighttime criteria are applied to the same room. However, the more stringent nighttime criteria for sleeping areas is only assessed against the nighttime measured noise levels. This is in accordance with Table 02: Noise Targets of the SPP5.4 policy.

3.2 Noise Level Measurements

3.2.1 Measurement Instrumentation

The ambient noise level was monitored on the site during the peak traffic period on the 20th August, 2026. This monitoring was undertaken to provide a noise level of the vehicles during this particular period of traffic flow. This level can then be interpolated into noise levels for all hours of the day based on their respective traffic volumes.

The monitoring location was positioned in-line with the front façade of the property, approximately 4m from the road reserve. The measured noise level during peak traffic conditions is as follows:

- L_{Aeq} Front Façade 67 dB(A)

Based on this the relevant noise levels for the hourly traffic data have been calculated as the following:

Calculated Noise Levels based on On-Site Measurements				
Time of Day	East	West	Total	Noise Level
0	40	35	75	54
100	18	19	37	51
200	14	13	27	50
300	14	17	31	50
400	21	61	82	54
500	93	269	362	61
600	222	556	778	64
700	425	601	1026	65
800	530	613	1143	66
900	552	670	1222	66
1000	599	673	1272	66
1100	652	674	1326	67
1200	650	682	1332	67
1300	624	672	1296	66
1400	706	683	1389	67
1500	764	672	1436	67
1600	759	606	1365	**67**
1700	719	609	1328	67
1800	670	580	1250	66
1900	499	449	948	65
2000	371	378	749	64
2100	309	304	613	63
2200	183	168	351	61
2300	103	81	184	58

Table 05 - Calculated Noise Level Measurements

Therefore, based on these calculated noise levels, the ambient noise level due to traffic is:

- L_{Aeq} (day) Front façade 66 dB(A)
- L_{Aeq} (night) Front façade 57 dB(A)

3.3 Future Traffic

In accordance with SPP5.4 policy requirements, allowances for the potential increase in future traffic must be considered. Due to this, Main Roads WA were contacted for traffic volume counts and future modelling predictions (Scott Hazebroek, Transport Modelling Analyst, #43850, received 26/08/2026).

The traffic volumes used in this assessment can be seen on the following page. Note future traffic volumes have been extrapolated / adjusted based on discrepancies between MRWA current modelling predictions and validated traffic count observations.

Traffic Volumes				
	Year	**Traffic Volume**	**% Heavy Vehicles**	**Speed**
Current	2026	15,200	5 %	60 km/h
Future	2046	20,000	5 %	60 km/h

Table 06 –Main Roads Traffic Data

Note that both Mitchel Freeway and Loftus Street information were also input into the traffic noise model, however for clarity (and as Vincent Street is the dominant source of noise), only Vincent Street traffic data is displayed in this report.

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Based on the above, allowing for the potential increase in traffic noise due to future traffic, the predicted noise levels (at the front façade / calibration position) are as follows:

- L_{Aeq} (day) North façade 67 dB(A)
- L_{Aeq} (night) North façade 58 dB(A)

The relevant frequency information, interpolated from the on-site noise level measurements is as follows:

Calculated Noise Level Spectrums									
	63Hz	**125Hz**	**250Hz**	**500Hz**	**1kHz**	**2kHz**	**4kHz**	**8kHz**	**L_{Aeq}**
L_{Aeq} (day) – Front Facade	70	66	62	61	64	60	51	42	**67**
L_{Aeq} (night) – Front Facade	61	57	53	52	55	51	42	33	**58**

Table 07 - Calculated Noise Level Measurements

From the above on-site noise level measurements, it can be seen that the levels exceed the Noise criteria. Therefore, appropriate measures to ameliorate noise impact must be undertaken. An acoustic assessment has been undertaken and is detailed in Section 3.7 of this report.

3.4 Notification on Title

Further to above mentioned assessment, the policy under Section 6.5.3.1 provides the following information regarding notifications on titles where noise levels are above target levels:

> "Notifications on title are required as a condition of subdivision (including strata subdivision) and development approval informing of the existence of transport noise where existing and or forecasted noise levels are to exceed the policy's outdoor noise targets."

The wording currently recommended for the notification on title is as follows:

> "This lot is in the vicinity of a transport corridor and is affected, or may in the future be affected, by road and rail transport noise. Road and rail transport noise levels may rise or fall over time depending on the type and volume of traffic."

Please note that the above notification on title is required irrespective of the treatment options implemented. The provision of external building envelope treatments to reduce noise levels below the applicable criteria does not negate the requirement for this notification to be included on the title.

3.5 Modelling Procedure

Acoustic modelling of the traffic noise from the nearby major road was undertaken of the proposed development, using SoundPLAN 9.1 software with the CoRTN (Calculation of Road Traffic Noise) algorithm.

The modelling was conducted in accordance with the Implementation Guidelines for SPP 5.4, which includes consideration of the traffic volumes and mix, type of road surface, vehicle speed, road gradient, ground absorption, and the effect of shielding from ground topography and intervening structures such as buildings, fences etc. (i.e. 3D acoustic modelling).

3.5.1 Project Site

Ground topography was taken from a combination of the site survey supplied and the gradients extracted from online mapping systems. Surrounding building heights were input from known data and information measured from online services.

3.5.2 Vehicle Emission Heights

In accordance with the modelling procedure, the road noise source was split up into 3 different vehicle noise emission heights with the following criteria:

- Standard Vehicles 0.5m above ground level
- Heavy Vehicles (engine) 1.5m above ground level -0.8 dB(A)
- Heavy Vehicles (exhaust) 3.6m above ground level -8.0 dB(A)

3.5.3 Road Surface Material

The surface material of a road has an impact upon the predicted noise level at the building façade. The adjustments typically applied for differing road surfaces are as follows:

Adjustments for Road Surface							
	14mm Chip Seal	**10mm Chip Seal**	**5mm Chip Seal**	**Dense Graded Asphalt**	**Novachip**	**Stone Mastic Asphalt**	**Open Graded Asphalt**
Adjustment - dB(A)	+ 3.5	+ 2.5	+ 1.5	0	- 0.2	- 1.5	**- 2.5**

Table 08 - Typical Road Surface Corrections

It should be noted that whilst the above corrections are important for the modelling of new roads, they are not relevant to existing roads. With Vincent Street being an existing road there is no correction made to the SoundPLAN input regarding the road surface.

Instead, the model is calibrated to the existing site noise levels as per the following 'Calibration of Acoustic Model' section of this report (which therefore takes into account the existing road surface). We have not been advised of any changes proposed to the road surface, nor do we expect any future resurfacing to be selected as a noisier material.

3.5.4 Façade Reflections

SPP 5.4 policy guidelines recommend that an allowance for façade reflection, typically +2.5 dB(A), be included when assessing traffic noise levels. This adjustment is generally applicable when modelling vacant or undeveloped sites where no building structures have been incorporated into the assessment. The purpose of the allowance is to account for the potential increase in outdoor noise levels resulting from reflections off future building façades once development has occurred.

In this instance, the adjustment is not applicable, as the proposed buildings have been explicitly included within the acoustic model. The SoundPLAN software inherently accounts for façade reflections as part of its calculation methodology.

Furthermore, façade reflections from the assessed building are not relevant to internal noise intrusion calculations, which are based on the incident sound pressure level at the façade. Reflections from adjacent buildings and surrounding structures are already incorporated within the SoundPLAN model where relevant.

In summary, including a specific façade correction on this project is not required for the modelling and analysis of noise intrusion.

3.6 Modelling Results

3.6.1 Calibration of Acoustic Model

The three dimensional parameters were input into the acoustic modelling that were present at the time of site measurements, including the existing surrounding buildings where applicable. This model was then run using the current traffic volumes and percentage of heavy vehicles i.e. approximately 15,000 vehicles per day and 5% heavy vehicles.

The road noise sources within the acoustic model were then adjusted to reflect the measured noise level information at the calibration position. The results of this modelling can be seen in the image below: (and appended to this report).

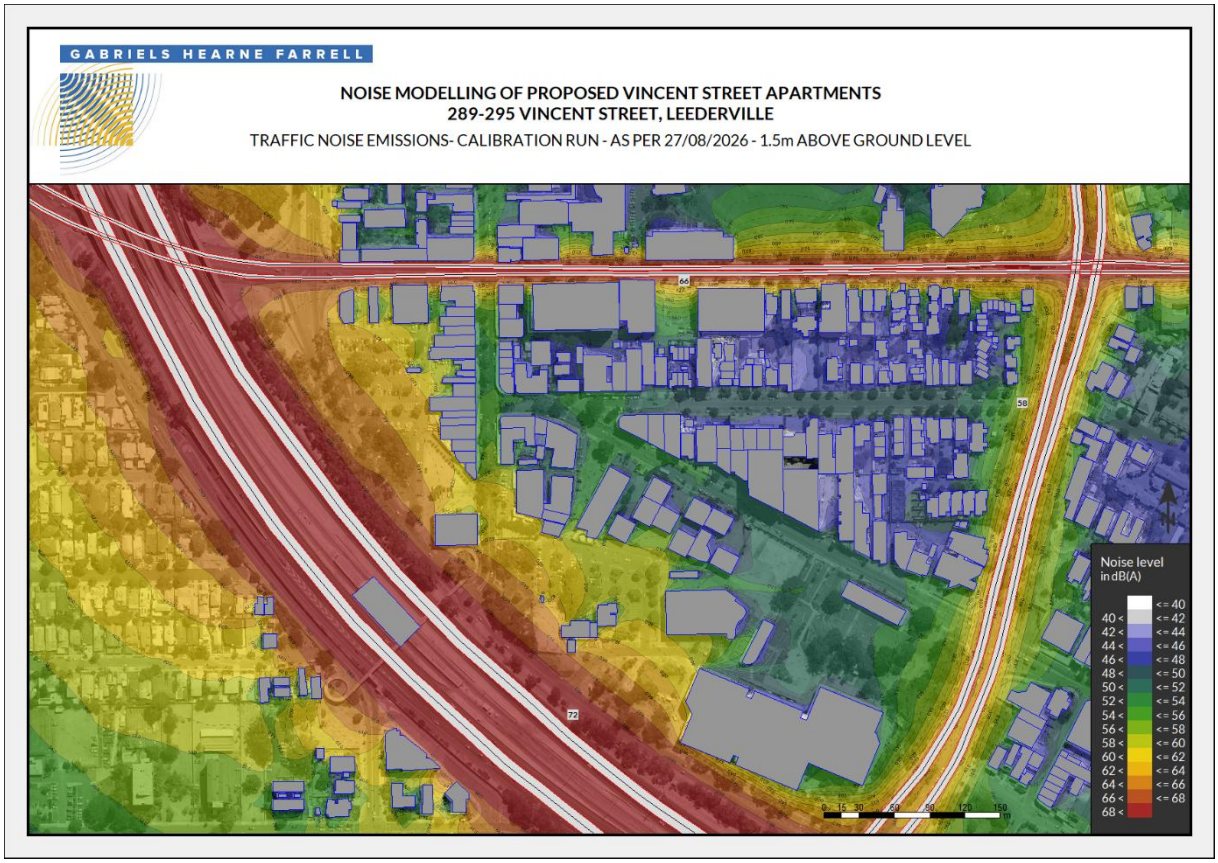


Image 01 - SoundPLAN Results for Traffic Modelling

3.6.2 *Future Traffic Modelling*

Once the model was calibrated to the existing traffic noise conditions, the model was then adjusted to include the proposed development, as well as increase the traffic volumes to allow for future predicted levels i.e. the traffic volumes were increased accordingly to approximately 20,000 vehicles for Vincent Street. Mitchel Freeway and Loftus Street were also increased to their respective vehicle numbers.

Contour plots at both Level 4 (lowest residential level) as well as Level 13 (upper residential level) were created to ascertain noise levels at various heights / façade locations. The results of this can be seen in the images on the following page of this report.

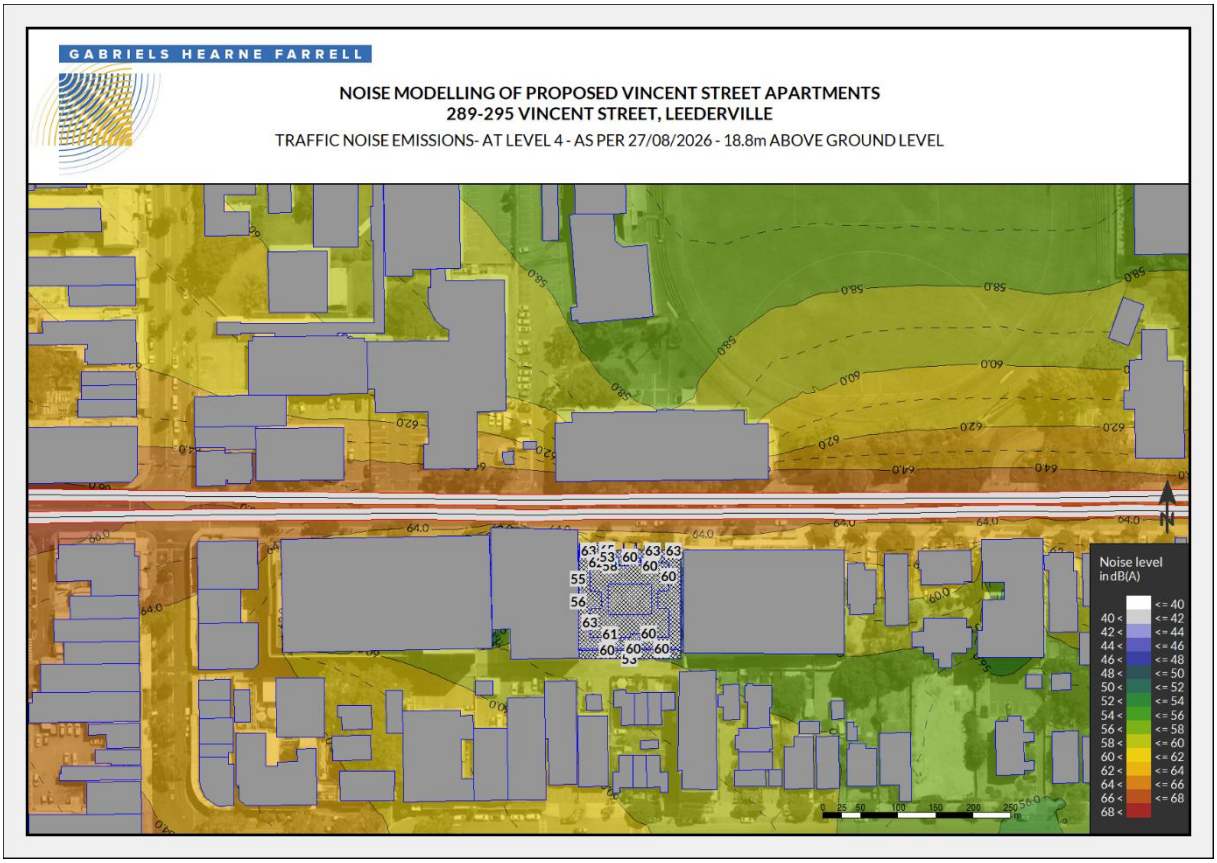


Image 02 - SoundPLAN Results for Traffic Modelling - Future (Level 4)

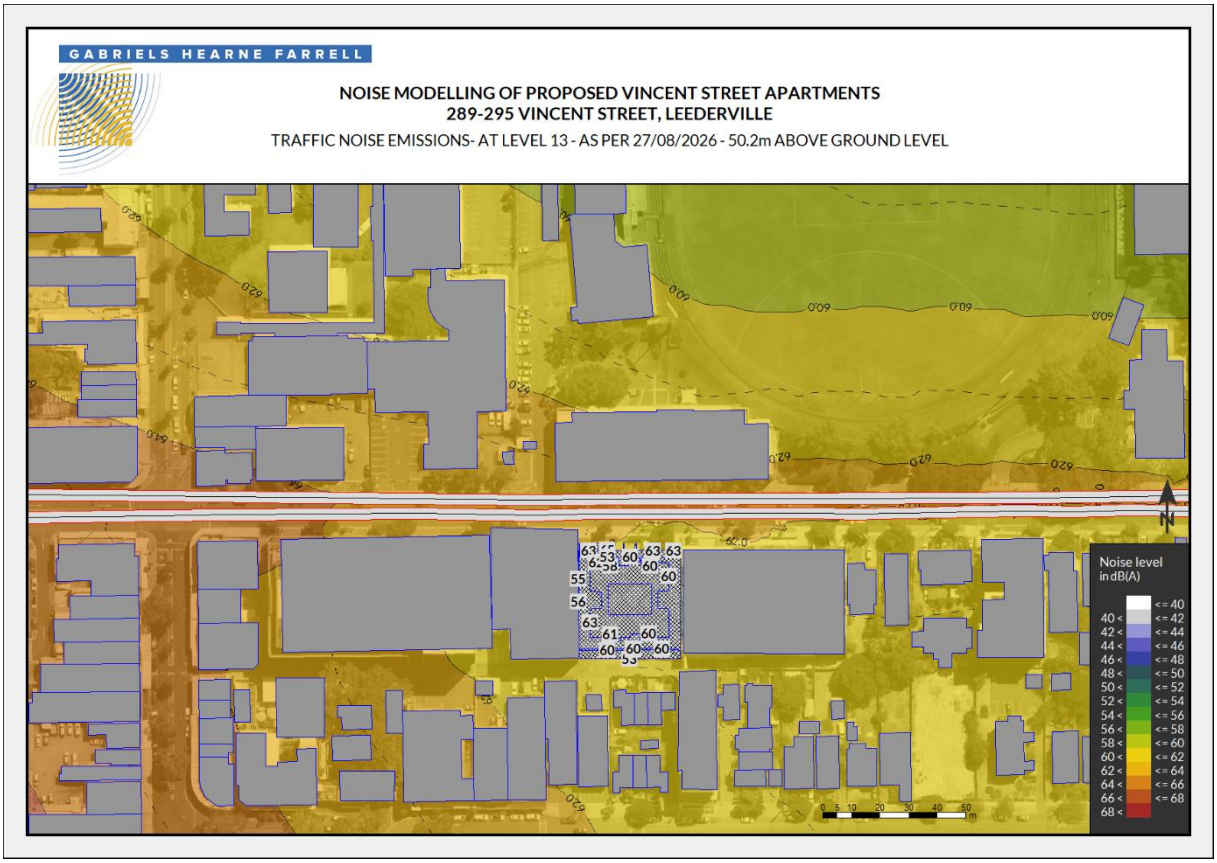


Image 03 - SoundPLAN Results for Traffic Modelling - Future (Level 13)

3.7. Noise Intrusion Calculations & Recommendations

3.7.1 Outdoor Living Area

As the predicted noise level is above the SPP 5.4 Limit, practical mitigation measures are to be implemented to achieve the noise criteria of 55 dB(A) within at least one outdoor area. As per Section 6.1 of the SPP5.4 Policy:

> "It is recognised that in some instances, it may not be reasonable and/or practicable to meet the outdoor noise targets. Where transport noise is above the noise targets, measures are expected to be implemented that balance reasonable and practicable considerations with the need to achieve acceptable noise protection outcomes."

Based on our measurements and acoustic assessment it is likely that the proposed balcony for individual units will exceed the above recommended noise levels. However, it should be noted that due to the site's close proximity to a major traffic corridor, achieving this criterion it not typically feasible unless balconies are fully enclosed. There is also a propose communal roof top area, which is likely to achieve compliance with the 55 dB(A) criteria.

Therefore, all reasonably practicable mitigation measures appear to have been implemented through site planning and the use of solid fencing / balustrade materials. No further action is required.

3.7.2 Indoor Noise Levels

Detailed noise intrusion calculations were undertaken for the proposed development, in particular the bedrooms and main living areas adjacent glazing elements. The building fabric has had the following assumptions in these calculations:

- External walls - Concrete tilt-up / cavity masonry wall panels, and lightweight upper floor walls (as noted in this section of the report)
- Roof / Ceiling - Metal Colorbond with minimum 75mm Anticon (or equivalent) / 13mm flush plasterboard ceiling with fibreglass insulation over (where relevant)

External Glazing

The results of these calculations have predicted that the following glazing elements are required to meet SPP 5.4 minimum internal noise levels:

- **North Façade**
  - All Floors fixed / awning glazing min 10.38mm laminated (or equivalent) R_w 34
  - All Floors sliding glazing min 10.38mm laminated (or equivalent) R_w 32
- **East / West & South Façades**
  - All Floors fixed / awning glazing min 6.38mm laminated (or equivalent) R_w 32
  - All Floors sliding glazing min 6.38mm laminated (or equivalent) R_w 30

The above recommended glass types and locations are also provided in the attached marked-up floor plans. This assessment is based upon the currently proposed glazing sizes. If this changes, we must be notified such that we can update our calculations accordingly.

It is critical that this glazing is specified as the minimum R_w performances specified above for the combined glass / frame operable system, allowing for the type of glazing outlined above e.g. laminated glass. Do not rely on glass only values typically provided by glazing suppliers. These systems must have high quality seals and multi-locking systems where applicable in order to maintain adequate acoustic isolation.

The above represents the minimum requirements to meet the internal noise levels stipulated in the State Planning Policy 5.4.

It must be noted that if double glazing is required for thermal purposes, then achieving the above Rw performance by themselves may not be adequate. Due to potential co-incident dips in using the same glass thickness in both panes, it is strongly recommended that any double glazing elements achieve these Rw values as a minimum, whilst also having differing thicknesses of glass, and at least one layer of glass to be laminated.

External Walls

The proposed construction of the external walls is currently being coordinated with the project Architect. Where external walls comprise high-mass construction, such as concrete tilt-up panels or cavity masonry, noise intrusion through these elements is not anticipated to be a significant concern.

Where lightweight wall constructions are proposed, further acoustic advice will be provided during subsequent stages of the development to ensure sufficient mass and appropriate construction details are incorporated to achieve the required level of acoustic attenuation.

Ceilings

All upper floor habitable rooms are to have the following construction as a minimum:

- Colorbond roof sheeting,
- Minimum 75mm Anticon insulation, compressed between roof sheeting and purlins
- Roof / ceiling space
- R2.5 fibreglass ceiling insulation
- 13mm plasterboard

This is only relevant to roof / ceiling systems over habitable sole-occupancy units that are exposed to traffic noise, typically reserved for the penthouse floor only.

Concrete floor slabs over other habitable areas will provide sufficient attenuation.

External Doors

External entry doors to be minimum 38mm solid core doors with full perimeter acoustic seals to achieve a minimum performance of R_w 30. Appropriate seals include Raven RP114 bottom seals with Raven RP95 threshold plates, and Raven RP93Si perimeter seals together with Raven RP150 delta seals. If glass panels are incorporated into these door panels we recommend the use of 10.38mm laminated glass as a minimum (or equivalent glass thickness to adjacent required glazing).

Any sliding glass doors to balconies must have a similar acoustic rating to those outlined in the previous section of this report "External Glazing". It is critical that high quality frames and seals are used on these doors.

3.7.3 General Construction Requirements

Upgrading of the sound reduction performance of the external windows to reduce the major environmental noise source (traffic noise), is an important element in the overall control of noise through the building envelope. However, with upgraded glazing, noise transmission through the roof / ceiling system etc., must be considered in order to balance the sound reduction through the building envelope.

Roofing Details

The roof ceiling system (and associated drainage systems / box gutters / eaves etc.) proposed on all floors appears to be concrete slabs with suspended flush plasterboard ceiling. Therefore provided these are adequately sealed there are no further acoustic requirements to control noise intrusion.

Kitchen Exhausts

Permanent vented windows in wet areas, must not be used. Wall mounted exhaust fans may only be used in this proposed development if they are capable of being sealed with appropriate materials. Mechanical exhaust systems should incorporate acoustic attenuation treatment such that the building envelope barrier system is maintained. Exhaust fans will require an internally lined cushion head behind the ceiling grill with at least 1.2m of acoustic flexible ductwork attached to the cushion head. This is likely to require usage of an in-line fan.

Air-Conditioning

In implementing the above requirements, mechanical ventilation or air-conditioning must ensure that windows can remain closed in order to achieve the indoor noise standards.

In all habitable rooms to be air-conditioned we recommend the use of reverse cycle air-conditioner with inverter type condensing units. Evaporative cooling systems are not recommended as these require windows to be open to operate.

4. LOCAL PLANNING POLICY 7.5.21

The intent of the City of Vincent Sound Attenuation Policy is acknowledged, particularly its objective of facilitating the sustainable co-existence of residential, commercial and entertainment land uses through appropriate consideration of environmental noise at the planning and design stages.

In this regard, the proposed development will incorporate reasonable and practicable acoustic design measures to minimise noise intrusion and provide an appropriate degree of internal acoustic amenity, having regard to the mixed-use character of the surrounding locality.

The measures outlined in this report are intended to reduce the potential for future noise disturbance and associated complaints, while recognising that some degree of environmental noise is an inherent characteristic of vibrant mixed-use and entertainment precincts within the City of Vincent.

The potential environmental noise sources relevant to the proposed development have been considered below in accordance with the intent of Section 4 of the City of Vincent Sound Attenuation Policy.

4.1 Traffic Noise

Road traffic noise affecting the development has been assessed in accordance with the requirements of State Planning Policy 5.4 - *"Road and Rail Noise"*. Appropriate acoustic design measures have been, or will be, incorporated into the building envelope as required to achieve the applicable internal noise level criteria. Accordingly, traffic noise is considered to have been appropriately addressed through the relevant State planning framework.

4.2 Entertainment and Lifestyle Noise

The site is located within an established mixed-use environment where noise associated with nearby restaurants, bars, entertainment venues and other commercial premises may form part of the existing acoustic environment.

Notwithstanding the provisions of the City's Sound Attenuation Policy, noise emissions from these premises remain subject to the Environmental Protection (Noise) Regulations 1997 (EPNR). Compliance with the applicable assigned noise levels is the responsibility of the noise-emitting premises, rather than surrounding noise-sensitive receivers. For the purposes of this assessment, it is therefore reasonably assumed that existing and future entertainment and commercial premises operate in compliance with the EPNR.

It is acknowledged, however, that actual operating conditions may vary from time to time and that isolated instances of noise emissions exceeding the applicable regulatory requirements cannot be entirely discounted.

It is also recognised that complete control of entertainment noise intrusion at external areas, such as the proposed residential balconies, is neither practicable nor reasonably achievable through building construction given their open air nature. These areas are inherently exposed to the surrounding environmental noise environment.

Notwithstanding the above, reasonable and practicable measures have been, and will continue to be, considered as part of the development design to minimise external noise intrusion. Current recommendations for traffic noise include 10.38mm laminated glazing to the northern façade and 6.38mm laminated glazing to the remaining façades. While the 6.38mm laminated glazing is considered appropriate for the applicable traffic noise requirements, consideration could be given to extending the use of 10.38mm laminated glazing to all building orientations as an additional precautionary measure to minimise potential noise intrusion from the surrounding mixed-use environment as far as practicable.

These measures are intended to provide an appropriate level of acoustic amenity without transferring the regulatory responsibility for controlling noise emissions from surrounding premises to the proposed development.

4.3 Mechanical Plant and Equipment

As outlined previously within this report, all mechanical plant and equipment associated with the proposed development will be designed, selected and, where necessary, acoustically treated such that noise emissions comply with the applicable assigned noise levels of the Environmental Protection (Noise) Regulations 1997 at surrounding noise-sensitive premises.

On this basis, the relevant noise sources identified under Section 4 of the Policy are considered to have been appropriately addressed for the proposed development.

5. INTERNAL ACOUSTICS

5.1 Class 2 Acoustic Requirements

Part F5: *"Sound Transmission and Insulation"* of the Building Code of Australia (BCA) establishes minimum mandatory requirements for the acoustic performance of Class 2 buildings. These acoustic requirements impact on the construction of walls, ceilings, and services.

Further to the above, where requirements are not specifically stated in the BCA, we will still provide recommended acoustic performances based on what has been deemed fit-for-purpose on previous similar projects.

The following BCA Part F5 design requirements and acoustic recommendations will be addressed during design and documentation.

Minimum Acoustic NCC Requirements - Class 2	
Walls	
Party walls separating habitable areas in adjoining Sole Occupancy Units	$R_w + C_{tr}$ 50
Party walls between wet and habitable areas	$R_w + C_{tr}$ 50 + discontinuous construction
Walls to public corridor or lobby, stairs, or parts of different classification	R_w 50
Entry Doors	
Entry Door to Public Area	R_w 30
Floors	
Separating sole occupancy units, or parts of different classification - Airborne	$R_w + C_{tr}$ 50
Impact sound insulation	L_{nTw} no greater than 62 dB field measurement
Services	
Services adjacent to Habitable room	$R_w + C_{tr}$ 40
Services adjacent to Kitchen or Non-habitable room	$R_w + C_{tr}$ 25

Table 09 - Minimum NCC Acoustic Requirements

The BCA also stipulates general construction requirements, as well as services access and locations etc. These minimum requirements will be outlined during the following stages of this development for the project Architect to incorporate into the documentation.

6. 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,
- Consideration of potential traffic noise intrusion, in accordance with the State planning Policy 5.4 *"Road & Rail Noise"*, as well as Australian Standard 2017 *"Acoustics - Recommended Design Sound Levels and Reverberation Times for Building Interiors"*.
- Requirement to comply with the Building Code of Australia (BCA), Part F5 – 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.

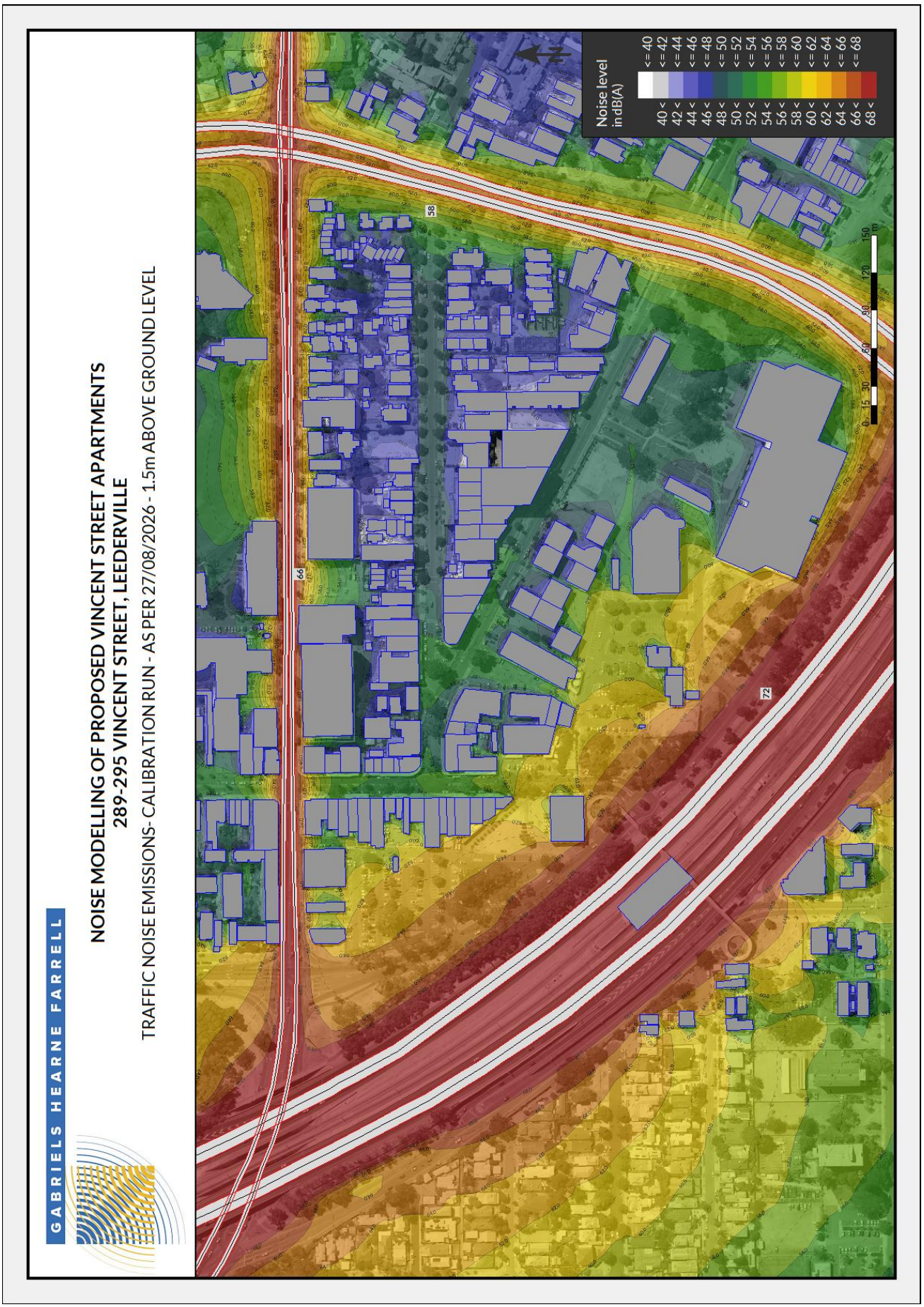
If you have any further queries regarding any of the information contained in this report, please call the undersigned on 9474 5966.

Regards,

Michael Ferguson
Director *B.IntArch(Hons) M.A.A.S.*

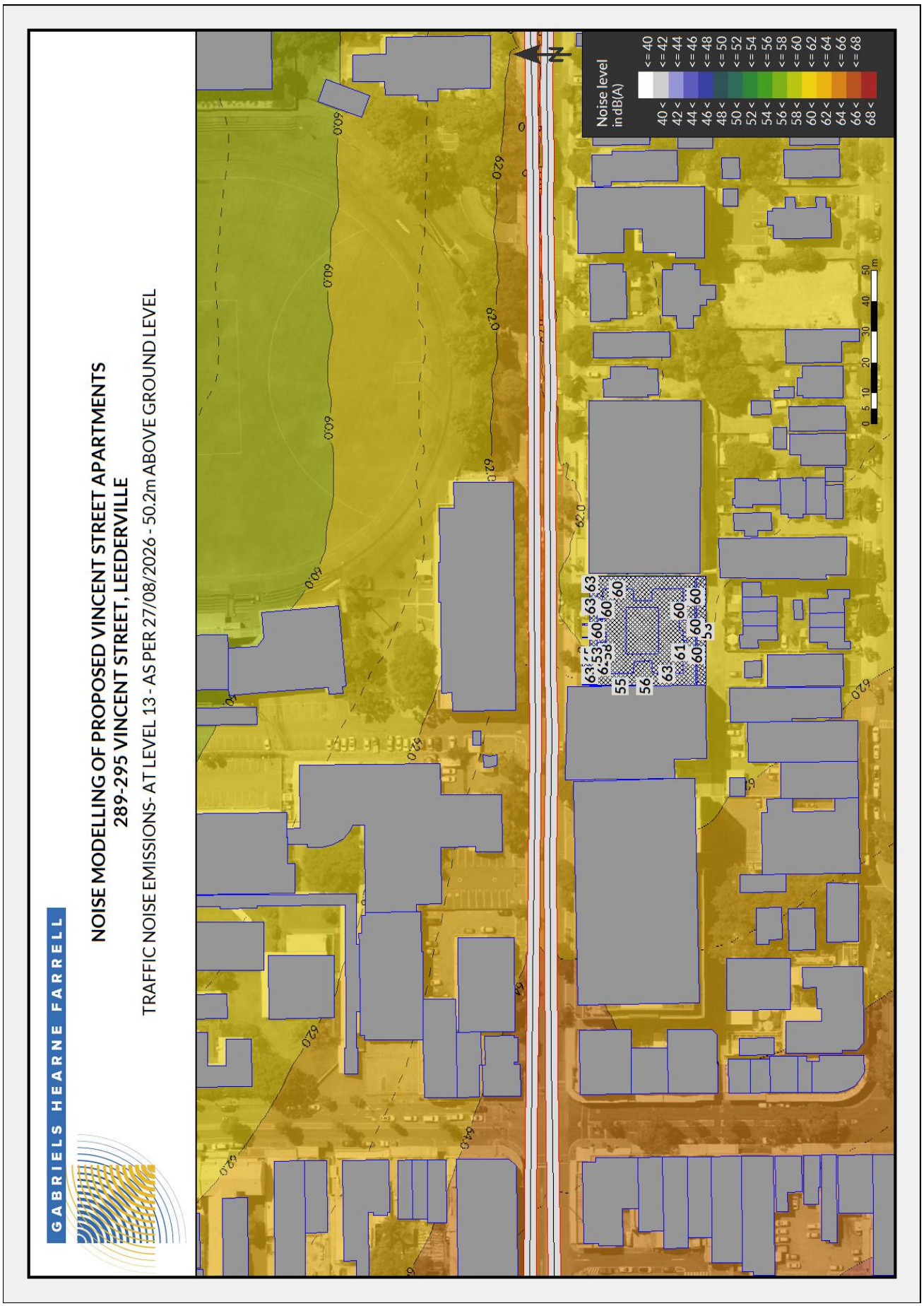


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NOISE MODELLING OF PROPOSED VINCENT STREET APARTMENTS
289-295 VINCENT STREET, LEEDERVILLE
TRAFFIC NOISE EMISSIONS- CALIBRATION RUN - AS PER 27/08/2026 - 1.5m ABOVE GROUND LEVEL
GABRIELS HEARNE FARRELL
Noise level in dB(A)
< 40
= < 42
= < 44
= < 46
= < 48
= < 50
= < 52
= < 54
= < 56
= < 58
= < 60
= < 62
= < 64
= < 66
= < 68
40 < 42 < 44 < 46 < 48 < 50 < 52 < 54 < 56 < 58 < 60 < 62 < 64 < 66 < 68
0 15 30 60 90 120 150 m
58
66
72



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NOISE MODELLING OF PROPOSED VINCENT STREET APARTMENTS
289-295 VINCENT STREET, LEEDERVILLE
TRAFFIC NOISE EMISSIONS- AT LEVEL 13 - AS PER 27/08/2026 - 50.2m ABOVE GROUND LEVEL
GABRIELS HEARNE FARRELL
Noise level in dB(A)
<= 40
<= 42
<= 44
<= 46
<= 48
<= 50
<= 52
<= 54
<= 56
<= 58
<= 60
<= 62
<= 64
<= 66
<= 68
40 <
42 <
44 <
46 <
48 <
50 <
52 <
54 <
56 <
58 <
60 <
62 <
64 <
66 <
68 <
N
0
5
10
20
30
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