

Azzwic Holdings Pty Ltd

1130 Pittwater Road, Collaroy

## Traffic Noise Assessment

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## 1 Introduction

The following report has been prepared by Acouras Consultancy on behalf of Azzwic Holdings Pty Ltd to assess the potential for traffic noise that may potentially impact the new two (2) storey residential dwelling at 1130 Pittwater Road, Collaroy. The new dwelling will include:

- Living, dining room, kitchen, laundry, toilets and garage on ground floor.
- Four (4) bedrooms and bathrooms on first floor.

The proposed residential dwelling is surrounded by existing and new residential dwellings. Traffic noise along the Pittwater Road contributes to the surrounding ambient noise levels.

The site location is shown in Figure 1.

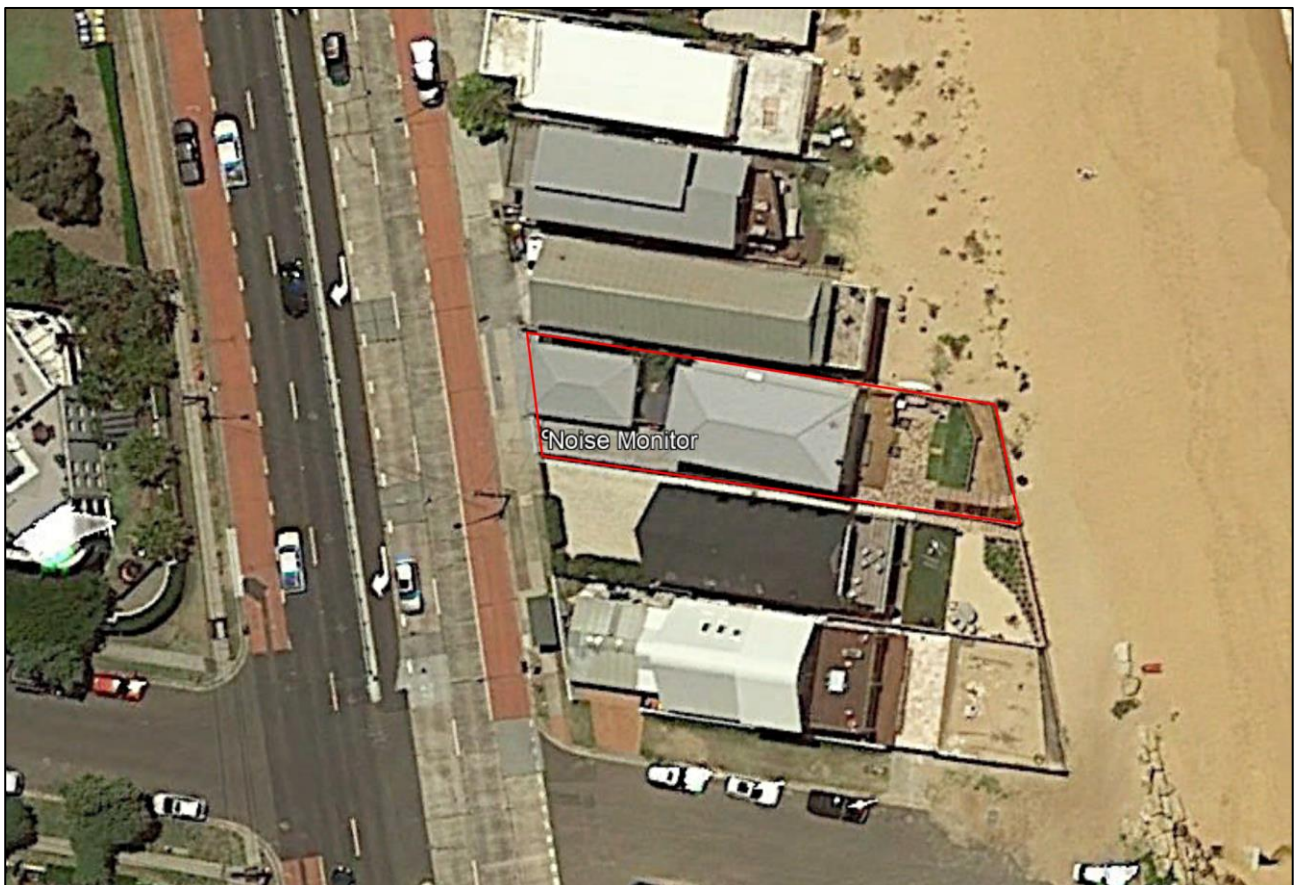


Figure 1 – Site Location and Noise Logger Position

## 2 Noise Criteria

The following standards and guidelines are applicable to this project:

- Northern Beaches Council (Development Application No: DA2023/1438) letter dated 14 December 2023.
- State Environmental Planning Policy (Infrastructure) Clause 102.
- Australian standard AS 1055.1-1997: Acoustics – Description and measurement of environmental noise - General procedures.

### 2.1 Internal Noise Levels

According to Northern Beaches Council requirements:

#### **State Environmental Planning Policy (Transport and Infrastructure) 2021**

##### Division 17 Road and Traffic – Clause 2.120 Impact of road noise or vibration on non-road development

Under *Clause 2.120* development for the purposes of residential accommodation located adjacent to a road with an annual average daily traffic volume of more than 20,000 vehicles (based on the traffic volume data published on the website of TfNSW), consent must not be granted unless appropriate measures have been taken to ensure that the following LAeq levels are not exceeded—

*(a) in any bedroom in the residential accommodation—35 dB(A) at any time between 10 pm and 7 am,*

*(b) anywhere else in the residential accommodation (other than a garage, kitchen, bathroom, or hallway)—40 dB(A) at any time.*

As the site adjoins Pittwater Road, it is requested that an Acoustic Report is prepared to confirm that the above LAeq levels are not exceeded.

## 2.2 Traffic Noise Survey

An attended noise survey was carried out at the site to measure traffic noise levels impacting the new dwelling. Attended traffic noise monitoring was conducted on Wednesday 13<sup>th</sup> of January 2023 at the noise monitor position as shown in Figure 1.

Measurements were conducted using the following equipment:

- SVAN 977C Type 1 Real time Analyser/Noise Logger. Serial No. 97497.
- SVAN SV30A Type 1 Sound Level Calibrator. Serial No. 31830.

Noise monitoring was conducted in general accordance with Australian standard AS 1055.1-1997: Acoustics-Description and measurement of environmental noise-General procedures. The noise analyser was calibrated immediately before and after measurements were taken with no discernible differences between these two recorded levels. The sound analyser is Type 1 and complies with Australian standard AS1259.2: 1990.

Table 1 presents a summary of the measured traffic noise level impacting the development during the morning peak period which would represent the worst case scenario.

**Table 1 – Measured Ambient and Traffic Noise and Levels, dBA**

Location	Period	Average $L_{eq}(15min)$
Pittwater Road	Morning Peak (08:00-09:00)	74

### 3 Assessment and Recommendations

#### 3.1 Façade Glazing Requirements

Acoustic glazing for the dwelling are given in Table 2 are required to reduce noise impact on the internal occupants and should result in noise levels in accordance with SEPP and Council condition.

**Table 2 – Schedule of Window and Glazing (R<sub>w</sub>)**

Level	Space	Glazing Thickness	Minimum R <sub>w</sub> (Glazing+Frame)
G	Living, dining kitchen	East & North-6.38mm laminated	30
		South-10.38mm laminated	32
1	Bed (Pittwater Rd)	12.5mm V-Lam (Viridian)/100mm gap/10.38mm laminated	45
	Bed (centre)	10.38mm laminated	32
	Master Bed (East)	6.38mm laminated	30

All Windows/doors should be well sealed (air tight) when closed with good acoustic seals around the top and bottom sliders. Mohair seals are not considered to be acoustic seals.

#### 3.2 Building Façade Construction

To provide sufficient acoustic attention of noise, the general external construction of the proposed building would need to be constructed as detailed in Table 3.

**Table 3 – External Façade Construction (R<sub>w</sub>)**

Building Element	Proposed Construction	Minimum R <sub>w</sub>
External Wall	Ground level: <ul style="list-style-type: none"> <li>External brick veneer.</li> <li>Internal 13mm plasterboard lining on timber/steel studs.</li> <li>50mm insulation (11kg/m<sup>3</sup>) in cavity.</li> </ul>	50
	First level: <ul style="list-style-type: none"> <li>External 9mm FC cladding on 35mm furring channel.</li> <li>Internal 2x13mm plasterboard lining on timber/steel studs.</li> <li>50mm insulation (11kg/m<sup>3</sup>) in cavity.</li> </ul>	

Building Element	Proposed Construction	Minimum $R_w$
Roof and ceiling	<ul style="list-style-type: none"> <li>• Metal roof with 13mm internal plasterboard cavity ceiling.</li> <li>• Insulation as per ESD requirements.</li> </ul>	45
Front Entry Door	<ul style="list-style-type: none"> <li>• 40mm solid core door.</li> <li>• Acoustic perimeter seals (such Raven RP10) and drop seals (such as Raven RP38) for the bottom of the door with a compatible threshold plate.</li> </ul>	30

## 4 Conclusion

An acoustic assessment of the proposed residential dwelling has been carried out in accordance with the requirements of Northern Beaches Council and NSW Department of Planning and SEPP(Infrastructure) Clause 102.

Construction for glazing, external walls and the roof/ceiling systems have been provided to achieve the internal noise criteria and are detailed in Section 3.1 and Section 3.2 based on the impact of road noise as given in Table 1.

Providing the recommendations in this report are implemented, the noise from the proposed new two (2) storey residential dwelling is predicted to comply with acoustic requirements of Northern Beaches Council and SEPP(Infrastructure) Clause 102.



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## Appendix A – Acoustic Terminology

**Decibel, dB:** A dimensionless unit which denotes the ratio between two quantities that are proportional to power, energy or intensity. One of these quantities is a designated reference by which all other quantities of identical units are divided. The sound pressure level in decibels is equal to 10 times the logarithm (to the base 10) of the ratio between the pressure squared divided by the reference pressure squared. The reference pressure used in acoustics is 20 micro Pascals.

**A-WEIGHTING:** A measure of sound pressure level designed to reflect the response of the human ear, which does not respond equally to all frequencies. To describe sound in a manner representative of the human ear's response it is necessary to reduce the effects of the low and high frequencies with respect to medium frequencies. The resultant sound level is said to be A-weighted, and the units are in decibels (dBA). The A-weighted sound level is also called the noise level.

**Sound Pressure Level, L<sub>p</sub> (dB), of a sound:** 20 times the logarithm to the base 10 of the ratio of the r.m.s. sound pressure to the reference sound pressure of 20 micro Pascals. Sound pressure level is measured using a microphone and a sound level meter, and varies with distance from the source and the environment.

**Ambient Noise/Sound:** All noise level present in a given environment, usually being a composite of sounds from many sources far and near. Traffic, HVAC, masking sound or even low-level background music can contribute to ambient level of noise or sound.

**Percentile Level - L<sub>90</sub> , L<sub>10</sub> , etc:** A statistical measurement giving the sound pressure level which is exceeded for the given percentile of an observation period, e.g. L<sub>90</sub> is the level which is exceeded for 90% of a measurement period. L<sub>90</sub> is commonly referred to as the "background" sound level.

**Background Noise (L<sub>90</sub>):** The sum total of all unwanted residual noise generated from all direct and reflected sound sources in a space that can represent an interface to, or interfere with good listening and speech intelligibility.

**Rating Background Level – RBL:** Method for determining the existing background noise level which involves calculating the tenth percentile from the L<sub>A90</sub> measurements. This value gives the Assessment Background Noise Level (ABL). Rating Background Level is the median of the overall ABL.

**L<sub>AEQ,T</sub>:** Equivalent continuous A-weighted sound pressure level. The value of the A-weighted sound pressure level of a continuous steady sound that, within a measurement time interval T, has the same A-weighted sound energy as the actual time-varying sound.



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## Appendix B – Architectural Drawings

This assessment was based on the following architectural drawings provided by MAP Architects.

<b>Drawing</b>	<b>Issue</b>	<b>Date</b>	<b>Description</b>
A0000	A	15.09.23	Cover Sheet
A0002	A	15.09.23	Site Plan
A2101	A	15.09.23	Ground Floor
A2102	A	15.09.23	First Floor Plan
A2103	A	15.09.23	Roof Plan
A3000	A	15.09.23	North/East Elevation
A3001	A	15.09.23	South/West Elevation