

**256 – 258 CHARLES STREET
NORTH PERTH**

**DEVELOPMENT APPLICATION
ACOUSTIC REPORT**

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1.0 INTRODUCTION

Herring Storer Acoustics was commissioned to conduct a preliminary review of the proposed development located at 256 – 258 Charles Street, North Perth, to accompany the Development Application.

This report has been based on the Development Application drawings provided.

2.0 CRITERIA

2.1 BCA PROVISIONS

For Class 2 or 3 buildings, the appropriate sections of Part F7 “Sound transmission and insulation” relating to the acoustic criteria are attached in Appendix B for information. Table 2.1 summarises the deemed to satisfy requirements of Part F7.

TABLE 2.1 – SUMMARY OF NCC REQUIREMENTS

Space of separation	Acoustic Rating	Discontinuous Construction Required
WALLS		
Wet to wet	$R_W + C_{tr}$ not less than 50 dB	NO
Living to living	$R_W + C_{tr}$ not less than 50 dB	NO
Wet to living	$R_W + C_{tr}$ not less than 50 dB	YES
Kitchens to living	$R_W + C_{tr}$ not less than 50 dB	YES
Unit to plantroom, stairway Public corridor / lobby or alike	R_W not less than 50 dB.	NO
Unit to Lift shaft	R_W not less than 50 dB.	YES
FLOORS		
Between Sole Occupancy Units	$R_W + C_{tr}$ not less than 50 dB.	N/A
	$L_{n,w}$ not more than 55 dB is recommended	N/A
SERVICE RISERS / STORM WATER DOWN PIPES		
to Habitable Rooms	$R_W + C_{tr}$ not less than 40 dB.	NO
to Non-Habitable Rooms	$R_W + C_{tr}$ not less than 25 dB	NO
DOORS		
Doors to Sole Occupancy Units	R_W not less than 30 dB	NO

Notes:

- 1 Where kitchens are part of an open living area, kitchens are considered to be part of the living area and in these cases discontinuous construction is required. This also includes cases where kitchens are back-to-back, however, discontinuous construction is only required on one side.
- 2 Wet area include bathrooms, ensuites, sanitary compartments/powder rooms, laundries and kitchens.
- 3 For the purposes of this Part, discontinuous construction means a wall having a minimum 20 mm cavity between 2 separate leaves, and—
 - (a) for masonry, where wall ties are required to connect leaves, the ties are of the resilient type; and
 - (b) for other than masonry, there is no mechanical linkage between leaves except at the periphery.

The development will be designed to comply with the requirements of Part F7 of the NCC.

2.2 ENVIRONMENTAL PROTECTION (NOISE) REGULATIONS 1997

The *Environmental Protection (Noise) Regulations 1997* stipulate the allowable noise levels at any noise sensitive premises from other premises. The allowable or assigned noise levels for noise sensitive premises are determined by the calculation of an influencing factor, which is added to the baseline criteria set out in Table 1 of the Regulations. The baseline assigned noise levels are listed in Table 3.1. For commercial premises, the allowable or assigned noise levels are the same for all hours of the day. Table 3.1 also lists the assigned noise levels for commercial premises.

TABLE 3.1 – ASSIGNED NOISE LEVELS

Premises Noise	Receiving	Time of Day	Assigned Level (dB)		
			L _{A 10}	L _{A 1}	L _{A max}
Noise sensitive premises within 15 metres of a dwelling		0700 - 1900 hours Monday to Saturday	45 + IF	55 + IF	65 + IF
		0900 - 1900 hours Sunday and Public Holidays	40 + IF	50 + IF	65 + IF
		1900 - 2200 hours all days	40 + IF	50 + IF	55 + IF
		2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	35 + IF	45 + IF	55 + IF

Note: The L_{A10} noise level is the noise that is exceeded for 10% of the time.
The L_{A1} noise level is the noise that is exceeded for 1% of the time.
The L_{Amax} noise level is the maximum noise level recorded.

It is a requirement that noise from the site be free of annoying characteristics (tonality, modulation and impulsiveness) at other premises, defined below as per Regulation 9.

“impulsiveness” means a variation in the emission of a noise where the difference between L_{Apeak} and L_{Amax Slow} is more than 15dB when determined for a single representative event;

“modulation” means a variation in the emission of noise that –

- (a) is more than 3dB L_{A Fast} or is more than 3dB L_{A Fast} in any one-third octave band;
- (b) is present for more at least 10% of the representative assessment period; and
- (c) is regular, cyclic and audible;

“tonality” means the presence in the noise emission of tonal characteristics where the difference between –

- (a) the A-weighted sound pressure level in any one-third octave band; and
- (b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as L_{Aeq,T} levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as L_{A Slow} levels.

Where the above characteristics are present and cannot be practicably removed, the following adjustments are made to the measured or predicted level at other premises.

TABLE 3.2 – ADJUSTMENTS FOR ANNOYING CHARACTERISTICS

Where tonality is present	Where modulation is present	Where impulsiveness is present
+ 5 dB	+ 5 dB	+ 10 dB

Figure 1 shows the development location and surrounds.



FIGURE 1 – AERIAL OF DEVELOPMENT LOCATION AND SURROUNDS

From a review of the development, the influencing factor for the premises identified in proximity to the development would be 6 dB, based on the following :

Major Roads within inner circle;

Charles Street + 6 dB

Total IF +6 dB

Hence the influencing factor would be + 6 dB and the assigned noise levels would be as listed in Table 3.3.

TABLE 3.3 - ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L _{A10}	L _{A1}	L _{Amax}
Noise sensitive premises within 15 metres of a dwelling	0700 - 1900 hours Monday to Saturday	51	61	71
	0900 - 1900 hours Sunday and Public Holidays	46	56	71
	1900 - 2200 hours all days	46	56	61
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	41	51	61

Note: L_{A10} is the noise level exceeded for 10% of the time.
L_{A1} is the noise level exceeded for 1% of the time.
L_{Amax} is the maximum noise level.

We note that noise emissions from the premises need to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997*. This includes noise associated with mechanical services (ie air conditioning and ventilation systems).

2.3 NOISE INGRESS

Inbound Noise Levels

Traffic noise impact for the proposed development will need to be assessed in accordance with WAPC State Planning Policy 5.4.

The aim of the planning policy is to design the residential building façade to achieve the following internal sound levels :

- L_{eq} 35 dB(A) in sleeping areas (bedrooms); and
- L_{eq} 40 dB(A) in living/work areas and other habitable rooms.

3.0 BCA REQUIRMENTS

From information provided, we understand that the development would be classified as a Class 3. The proposed development will be constructed to comply with the requirements of Part F7 of the NCC.

4.0 NOISE INGRESS

The area of the proposed development was examined to ascertain the applicable noise sources.

As shown below, the development is within the trigger distance for Charles Street.

