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ATTN: MS NICOLE WOODROW

North Penrith Development - Traffic Noise Review

1 INTRODUCTION

This letter presents our review of traffic noise exposure of the North Penrith Demonstration homes. The subject site is Lot 1221, bound by Sydney Smith Drive (North), William St, Cleveland Lane, Hope Place, Grace Drive and Sydney Smith Drive.

This review is based on the following project drawings:

Table 1 – Referenced Drawings

Architect	Drawing Number	Dated
PAA Design	A-001	16/12/11
	A-101	11/5/12
	A-102	11/5/12
	A-103	11/5/12
	A-104	11/5/12
	A-105	11/5/12

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In addition to the above drawings, this assessment is based on the project Noise and Vibration Assessment (NVA) by Benbow Environmental dated 19th October 2010 and the North Penrith Development Transport Mobility and Accessibility Plan (TMAP) by Parsons Brinckerhoff dated 29th October 2010.

2 SITE DESCRIPTION

The subject site sits on the corner of the main entrance road, Sydney Smith Drive and opposite the village oval (Public Open Space).

For preparation of the NVA, unattended noise monitoring was undertaken at a number of locations on the overall North Penrith development site. The Lot 1221 site which is the subject of this review is in close proximity to R02, which is described in the NVA as "... an area of potential acoustic refugia..." once the buildings fronting the railway line and Correen Avenue have been constructed.

2.1 EXISTING NOISE LEVELS

The existing noise levels at the subject site (R02), presented in the NVA are as follows:

Table 2 – Existing Noise Levels at Lot 1221

Location	Noise Level dB(A)	Time of Day		
		Day (7am–6pm)	Evening (6pm–10pm)	Night (10pm–7am)
Lot 1221	Rating Background L_{90}	39	41	36
	Average L_{eq}	47	47	46

2.2 FUTURE NOISE LEVELS

Given that the subject site is "... an area of potential acoustic refugia..." from external noise sources, the only significant impacts on the site itself will be from traffic serving the development driving on the development roads.

The predicted flow on Sydney Smith Drive is 2000-3000 vehicles per day (Reference: Figure 18 of TMAP). Based on the road design diagrams within the TMAP and the project design drawings, using CORTN modelling, the predicted noise level at the residential façade is 58dB(A) L_{eq} .

3 INTERNAL NOISE GOALS

In accordance with the NVA, the project internal goals for road traffic noise are as follows:

Table 3 – Residential Internal Noise Goals

Room Type	Internal Noise Goals dB(A)	
	Day (7am – 10pm)	Night (10pm – 7am)
Bedroom	40 $L_{eq}(15hour)$	35 $L_{eq}(9hour)$
Living Room	40 $L_{eq}(15hour)$	40 $L_{eq}(9hour)$

4 REVIEW

The internal noise levels of the property will be primarily as a result of noise transfer through the roof, windows and entry doors. This is due to the relatively light building elements used, which offer less resistance to the transmission of sound.

Any noise transferred through masonry wall elements will not be significant and does not need be considered further.

4.1 RECOMMENDED CONSTRUCTIONS

The following constructions are recommended to comply with the noise objectives stated in Table 3.

4.1.1 Glazed Windows

The recommended window glazing constructions for the proposed unit, to ensure internal noise levels comply with AS2120:2000 internal noise criteria are presented in Table 2.

Table 4 – Glazing Requirements

Room		Glazing Thickness	Acoustic Seals
Bedrooms facing Sydney Smith Dr	Sliding Doors	6mm Float	Yes
	Windows	4mm Float	Yes
Remaining Bedrooms	All	4mm Float	No
Living Areas	All	Standard	No

The proposed glazing thickness will satisfy the internal noise goals. For structural, safety or other purposes thicker glazing may be required. Where this is the case, thicker glazing will also be acoustically acceptable.

In addition to complying with the minimum selected glazing thickness, the STC rating of the glazing fitted into operable frames fixed into the building opening should not be lower than the values listed in Table 5 for all rooms. Where nominated, this will require the use of acoustic seals (equal

to Q-Ion seals from Schlegel) around the full perimeter of openable frames and the frame will need to be sealed into the building opening using a flexible sealant. Note that mohair seals in windows and doors are not acceptable where acoustic seals are required.

Table 5 – Minimum STC of Glazing

Glazing Assembly	Acoustic Seals	Minimum STC/Rw of Installed Window
6mm float	Yes	29
4mm float	Yes	27
Standard Glazing	No	22

4.1.2 Walls

The proposed brick veneer walls do not require upgrades for compliance with the project acoustic goals.

4.1.3 Roof/Ceiling

The proposed metal roof, with plasterboard ceiling and insulation in the roof/ceiling cavity is acoustically acceptable without upgrade.

Penetrations in ceilings (such as for light fittings etc.) must be sealed gap free with a flexible sealant. Any ventilation openings in the ceilings would need to be acoustically treated to maintain the acoustic performance of the ceiling construction.

4.1.4 Entry Doors

Entry doors should be installed with all gaps minimised, but acoustic seals are not required.

5 CONCLUSION

An acoustic review of the traffic noise intrusion into Lot 1221 has been conducted.

Acoustic seals are required to bedroom windows and doors facing Sydney Smith Drive for compliance with the project internal noise goals. Standard building constructions are suitable otherwise.

We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,



Acoustic Logic Consultancy Pty Ltd
Hilary Pearce