

T747-03F01 (rev 2) Stage 1 Acoustic Recommendations

15 July 2013

Eradi Tjandra

UrbanGrowth NSW

Dear Eradi,

RE: THORNTON STAGE 1 – STAGE 1 ACOUSTIC TREATMENTS

The attached figures and table contain the acoustic recommendations for the Thornton Stage 1 lots in accordance with the North Penrith Design Guidelines 2013 revision (19 March 2013) acoustic amenity criteria of:

- 35dB L_{Aeq} in sleeping areas and
- 40dB L_{Aeq} in other living areas

As the criteria are not appropriately defined in the Penrith Design Guideline, the criteria have been assumed to be equivalent to the NSW Department of Planning *Development near rail corridors and busy roads – interim guideline* (2008), in which the 35dB L_{Aeq} criteria is averaged over the period of 10:00pm to 7:00am, and the 40dB L_{Aeq} criteria is averaged over 15 hours (7:00am to 10:00pm) and 9 hours (10:00pm to 7am).

The attached figures (P01 and P02) are colour coded lot plans showing the category treatments recommended for each dwelling facade, at ground floor and first floor respectively. The recommended acoustic ratings and building treatments for each category are then detailed in the attached Table 1.

The external traffic noise levels conducted by Benbow Environmental in 2010 and forecasted traffic growth to 2026, as presented in the master plan Noise and Vibration Assessment, have been used as the basis of the assessment.

Yours faithfully,



RENZO TONIN & ASSOCIATES (NSW) PTY LTD

Michael Gange

Senior Engineer / Team Leader

Environmental Acoustics Team



Table 1 – Thornton Stage 1 Acoustic Recommendations

Category	Building Element	Required Acoustic Rating of Building Element, Rw	Construction Recommendation		
No.					
1	Windows / Sliding Doors	24+	Openable with minimum 4mm monolithic glass and standard weather seals		
	Facade	38+	Cladding Construction: 9mm fibre cement sheeting or weatherboards or plank cladding externally, 90mm timber stud, R2 insulation batts in wall cavity, 10mm standard plasterboard internally.	Brick Veneer Construction: 110mm brick, 90mm timber stud, minimum 40mm clearance between masonry and stud frame, R2 insulation batts in wall cavity, 10mm standard plasterboard internally.	Cavity Brick Construction: 2 leaves of 110mm brickwork separated by 50mm gap.
	Roof	40+	Pitched concrete or terracotta tile or metal sheet roof, 10mm plasterboard ceiling fixed to ceiling joists, bulk insulation in roof cavity.		
	Door	28+	35mm solid core timber door fitted with full perimeter acoustic seals		
2	Windows / Sliding Doors	27+	Openable with minimum 6mm monolithic glass and full perimeter acoustic seals		
	Facade	45+	Cladding Construction: 9mm fibre cement sheeting or weatherboards or plank cladding externally, 90mm timber stud, R2 insulation batts in wall cavity, 10mm standard plasterboard internally.	Brick Veneer Construction: 110mm brick, 90mm timber stud, minimum 40mm clearance between masonry and stud frame, R2 insulation batts in wall cavity, 10mm standard plasterboard internally.	Cavity Brick Construction: 2 leaves of 110mm brickwork separated by 50mm gap.
	Roof	43+	Pitched concrete or terracotta tile or metal sheet roof, 10mm plasterboard ceiling fixed to ceiling joists, bulk insulation in roof cavity.		
	Door	30+	40mm solid core timber door fitted with full perimeter acoustic seals		
3	Windows / Sliding Doors	32+	Openable with minimum 6.38mm laminated glass and full perimeter acoustic seals		
	Facade	52+	Brick Veneer Construction: 110mm brick, 90mm timber stud, minimum 40mm clearance between masonry and stud frame, R2 insulation batts in wall cavity, 10mm standard plasterboard internally.	Cavity Brick Construction: 2 leaves of 110mm brickwork separated by 50mm gap.	
	Light-weight Facade	46+	Cladding Construction: 9mm fibre cement sheeting or weatherboards or plank cladding externally, 16mm sound-rated plasterboard fixed to stud frame, 90mm timber stud, R2 insulation batts in wall cavity, 1 layer of 16mm sound-rated plasterboard internally.		
	Roof	48+	Pitched concrete or terracotta tile or sheet metal roof, 1 layer of 13mm sound-rated plasterboard fixed to ceiling joists, bulk insulation in roof cavity.		
	Door	33+	45mm solid core timber door fitted with full perimeter acoustic seals		

Category	Building Element	Required Acoustic Rating of Building Element, Rw	Construction Recommendation
No.			
4	Windows / Sliding Doors	35+	Openable with minimum 10.38mm laminated glass and full perimeter acoustic seals
	Facade	55+	Brick Veneer Construction: 110mm brick, 90mm timber stud, minimum 40mm clearance between masonry and stud frame, R2 insulation batts in wall cavity, 10mm standard plasterboard internally.
	Light-weight Facade	49+	Cladding Construction: 9mm fibre cement sheeting or weatherboards or plank cladding externally, 16mm sound-rated plasterboard fixed to stud frame, 90mm timber stud, R2 insulation in wall cavity, 2 layer of 16mm sound-rated plasterboard internally.
	Roof	52+	Pitched concrete or terracotta tile or sheet metal, 2 layers of 13mm sound-rated plasterboard fixed to ceiling joists, bulk insulation in roof cavity.
	Door	33+	45mm solid core timber door fitted with full perimeter acoustic seals

Notes:

1. Where a room has different category recommendations on two or more facades, the roof recommendation for the highest category applies.
2. Any wall, roof or ceiling penetrations shall be acoustically sealed so as not to reduce the acoustic performance of the element.
3. The acoustic performance of glazed doors should be in accordance with the window glazing requirement of the applicable category.

The required acoustic rating is for the entire system. For example, for windows this includes the glass, frame and seals including the perimeter seal at the wall junction.

By way of explanation, the Sound Insulation Rating Rw is a measure of the noise reduction property of the glazing assembly, a higher rating implying a higher sound reduction performance.

Note that the Rw rating of systems measured as built on site (R'w Field Test) may be up to 5 points lower than the laboratory result.

The client is advised not to commence detailing or otherwise commit to systems which have not been tested in an approved laboratory or for which an opinion only is available. Testing of systems and assemblies is a component of the quality control of the design process and should be viewed as a priority because there is no guarantee the forecast results will be achieved. No responsibility is taken for use of or reliance upon untested systems, estimates or opinions. The advice provided here is in respect of acoustics only.

The advice provided here is in respect of acoustics only. Supplementary professional advice may need to be sought in respect of fire ratings, structural design, buildability, fitness for purpose and the like.

NOTES FOR GLAZING CONSTRUCTIONS:

All openable glass windows and doors shall incorporate full perimeter acoustic seals equivalent to Q-Lon, which enable the Rw rating performance of the glazing to not be reduced.

The above glazing thicknesses should be considered the minimum thicknesses to achieve acoustical ratings. Greater glazing thicknesses may be required for structural loading, wind loading etc.

GENERAL

The sealing of all gaps in acoustic rated glazing assemblies and facades is critical in a sound rated construction. Use only sealer approved by the acoustic consultant.

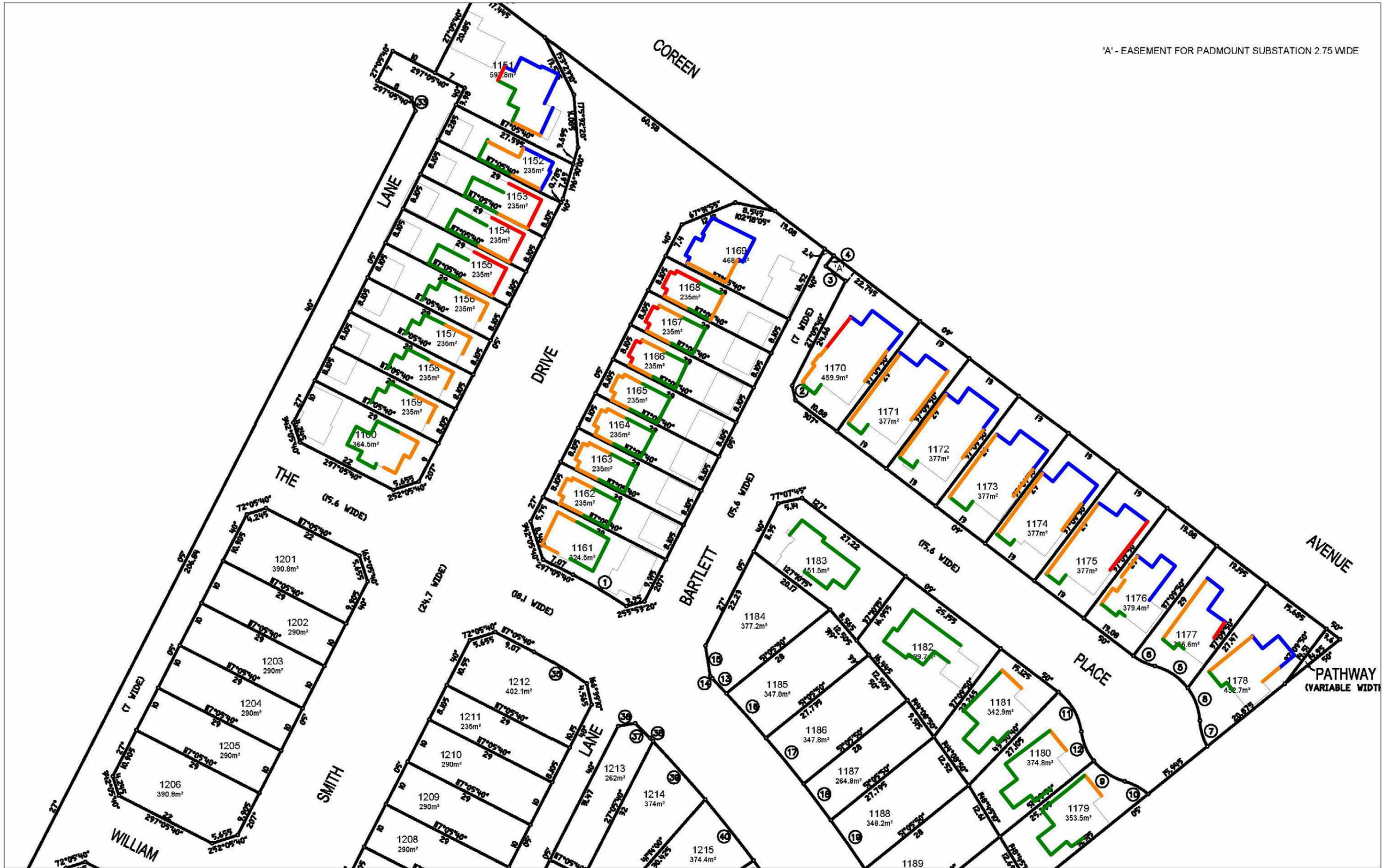
Check design of all junction details with acoustic consultant prior to construction.

Check the necessity for HOLD POINTS with the acoustic consultant to ensure that all building details have been correctly interpreted and constructed.

The information provided in this table is subject to modification and review without notice.

The advice provided here is in respect of acoustics only. Supplementary professional advice may need to be sought in respect of fire ratings, structural design, buildability, fitness for purpose and the like.

'A' - EASEMENT FOR PADMOUNT SUBSTATION 2.75 WIDE



Project:
**North Penrith
 Stage 1**

Description:
 Ground Floor
 Facade Recommendations

Reference: TF747-03 CA01_P01 (rev 3)

Client: Urban Growth NSW

Date: 11/07/2013



Scale: 1: 750 A3

Treatment Category

- Cat 1
- Cat 2
- Cat 3
- Cat 4

'A' - EASEMENT FOR PADMOUNT SUBSTATION 2.75 WIDE



Project:
**North Penrith
 Stage 1**

Description:
 First Floor
 Facade Recommendations

Reference: TF747-03 CA01_P02 (rev 3)

Client: Urban Growth NSW

Date: 11/07/2013



Scale: 1: 750 A3

Treatment Category

- Cat 1
- Cat 2
- Cat 3
- Cat 4