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From:	Date:	WM Project No:
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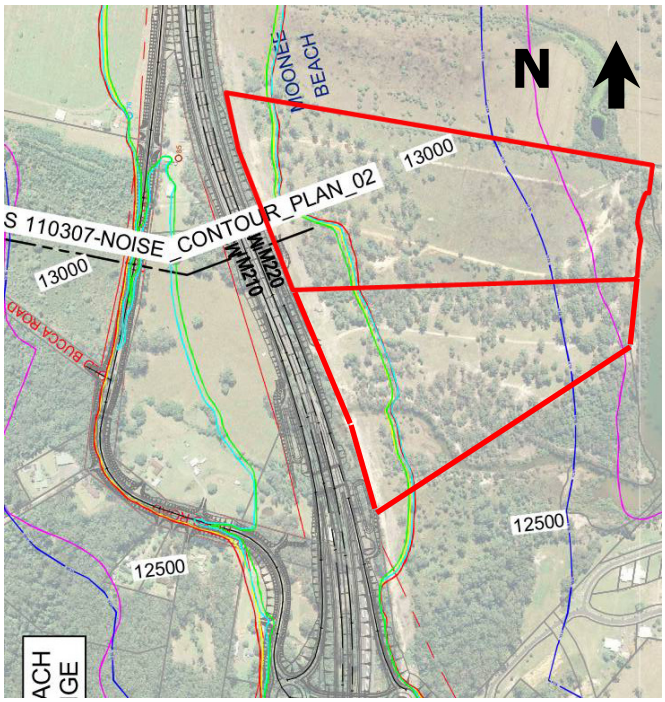
Subject: Moonee Parklands – Proposed Subdivision **Pages:** 8

Wilkinson Murray has been engaged by JW Planning Pty Ltd to conduct a noise assessment for the proposed Moonee Parklands Subdivision on the Pacific Highway.

STE DESCRIPTION

The site location and surrounding area is shown in Figure 1. The site is bounded to the west by the Pacific Highway. The Collector Road would be located between the subdivision and the Pacific Highway. It is proposed to have houses facing the Collector Road with vehicle access from the Collector Road. The Pacific Highway is subjected to heavy traffic with daily volumes in access of 20,000 vehicles per day.

Figure 1 Site Location



NOISE CRITERIA

Land use planning offers the greatest potential for minimising conflict between road noise and sensitive land uses, followed closely by the development of appropriately designed and noise insulated buildings.

The State environmental planning policy (Infrastructure) 2008 (Infrastructure SEPP) (Department of Planning 2007) sets internal noise criteria which must be met by new developments along some of the busiest transport corridors in NSW. This is a major initiative to ensure that sustainable higher density living can occur along major transport routes whilst maintaining an acceptable level of amenity for residents. Clause 102 within Infrastructure SEPP is potentially applicable for the Moonee Parklands Subdivision and is reproduced below:

102 Impact of road noise or vibration on non-road development

(1) This clause applies to development for any of the following purposes that is on land in or adjacent to a road corridor for a freeway, a tollway or a transitway or any other road with an annual average daily traffic volume of more than 40,000 vehicles (based on the traffic volume data published on the website of the RTA) and that the consent authority considers is likely to be adversely affected by road noise or vibration:

(a) a building for residential use,

(b) a place of public worship,

(c) a hospital,

(d) an educational establishment or child care centre.

The noise criteria is summarised below:

(3) If the development is for the purposes of a building for residential use, the consent authority must not grant consent to the development unless it is satisfied that appropriate measures will be taken to ensure that the following L_{Aeq} levels are not exceeded:

(a) in any bedroom in the building – 35 dBA at any time between 10pm and 7am,

(b) Anywhere else in the building (other than a garage, kitchen, bathroom or hallway) – 40 dBA at any time.

The Department of Planning and Infrastructure have released a guideline in support of the SEPP called *Department of Planning "Development near Rail and Busy Roads – Interim Guidelines 2008*. The aim of that guideline is to assists in the planning, design and assessment of development in, or adjacent to busy roads".

The application of the Infrastructure SEPP requirements is mandatory only for residential developments near specific highly trafficked roads (daily traffic volume of more than 40,000 vehicles). However, the guideline also recommends, that it is advisable for new developments on moderately busy roads (where daily traffic volume of more than 20,000 vehicles) follow the design advice offered in the SEPP.

The "Development near Rail and Busy Roads – Interim Guidelines 2008" confirms that the noise criteria is calculated as $L_{Aeq,9hr}$ for night and $L_{Aeq,15hr}$ for day.

The proposed Moonee Parklands subdivision is located on the Pacific Highway near Moonee Beach where it is advisable for any new subdivision to meet the requirements of the Infrastructure SEPP.

ASSESSMENT - TRAFFIC NOISE INTRUSION ON SITE

The Pacific Highway around the proposed Moonee Parklands Subdivision is currently being upgraded by Roads and Maritime Services. As such it is not practical to conduct traffic noise measurements on site, as it would be corrupted by noise from the construction works.

RMS has conducted an operational noise management plan for the project which specifically identifies predicted traffic noise levels affecting the site for 2024 (10 years after completion of the upgrade). Noise levels have been predicted using the CoRTN traffic noise prediction algorithms as implemented in the Soundplan noise model. The calculations were conducted by AECON.

The results of site noise modelling are presented in Figure 2 and Figure 3 for day and night time, respectively.

Figure 2 Day Time $L_{Aeq,15hr}$ Traffic Noise Contour Plot

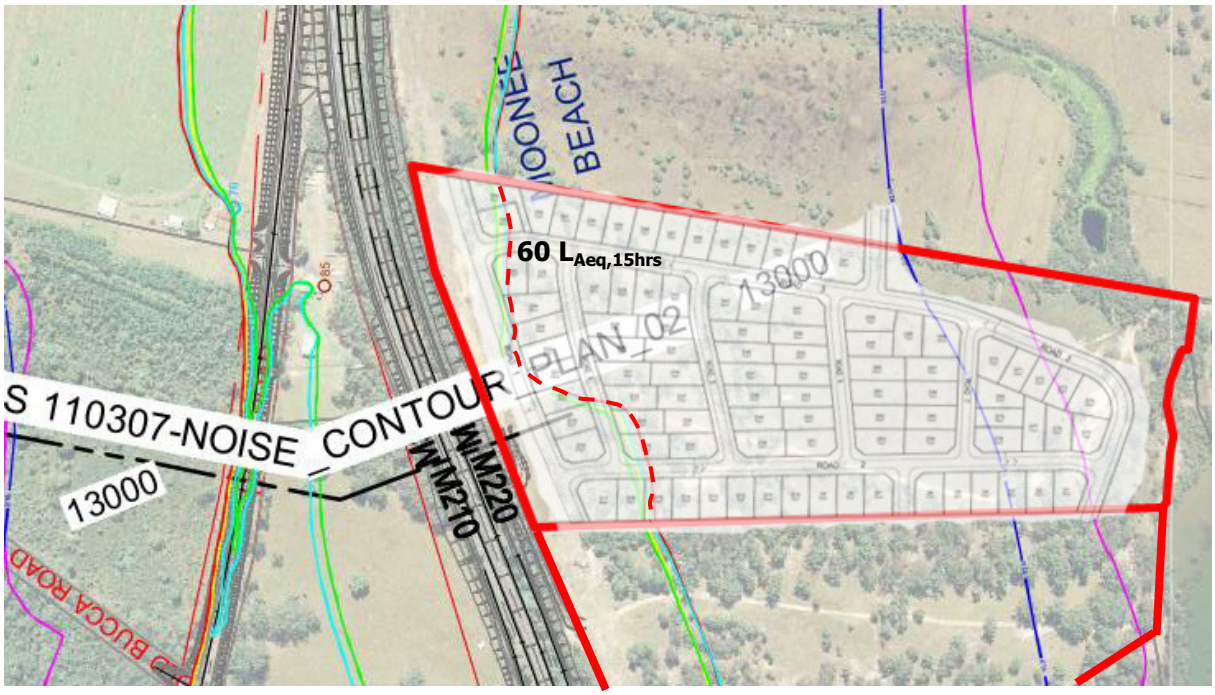
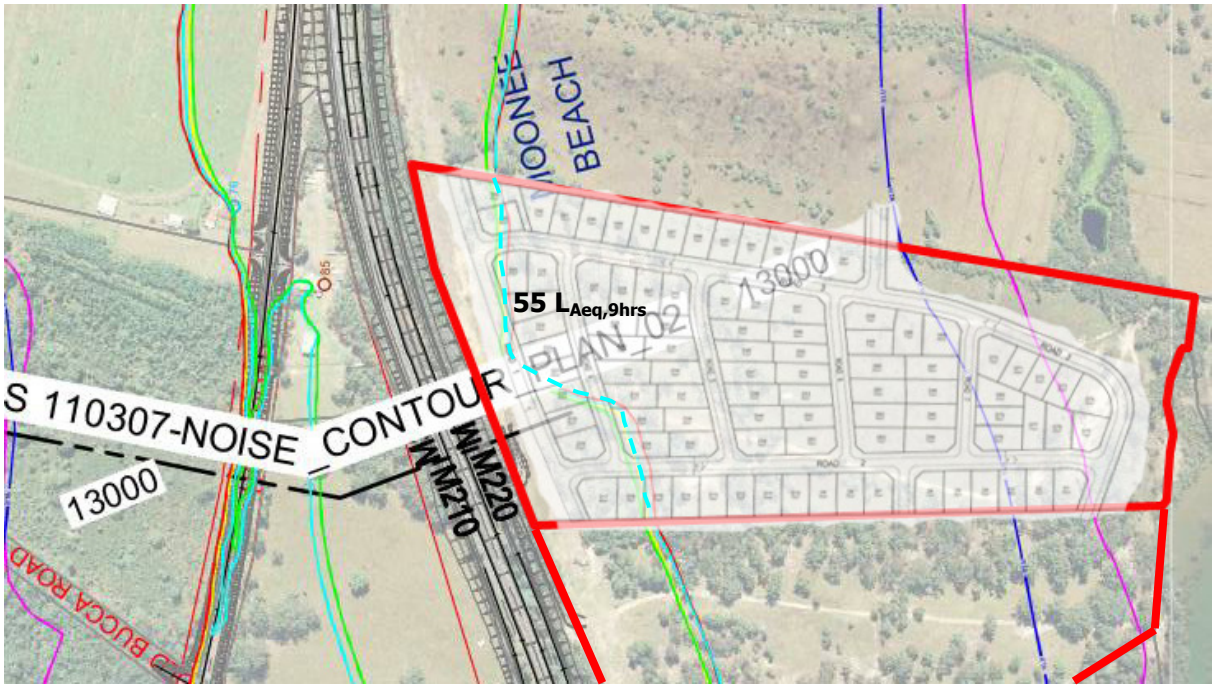


Figure 3 Night Time $L_{Aeq,9hr}$ Traffic Noise Contour



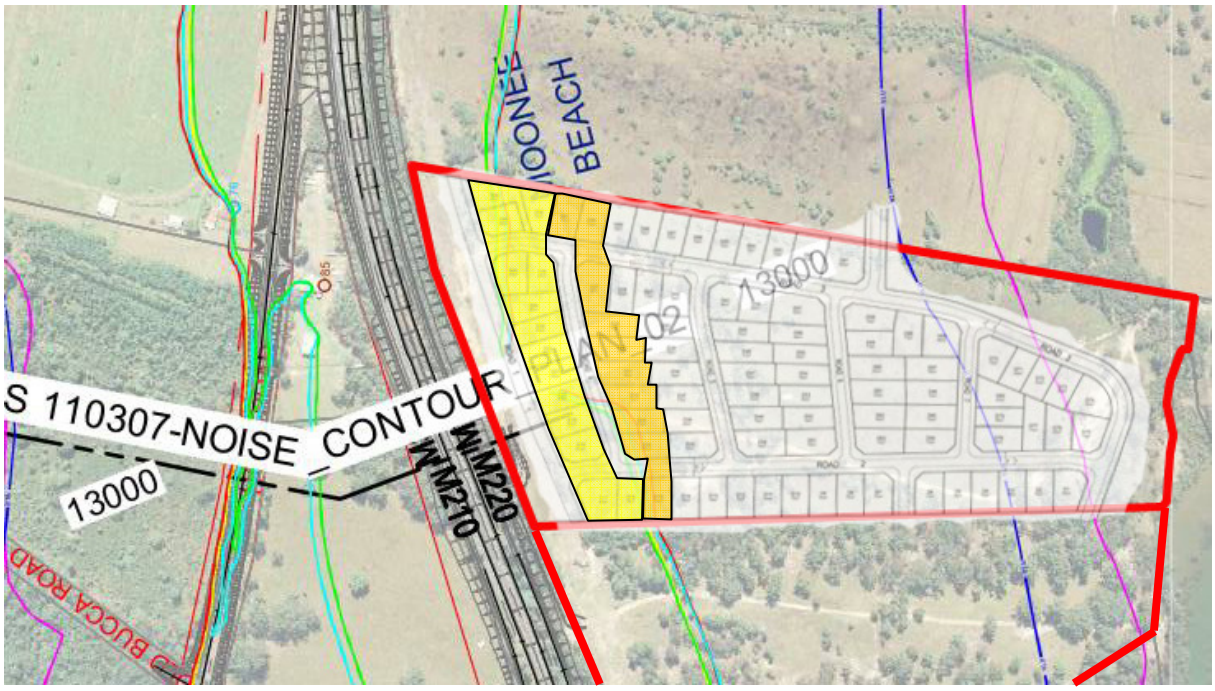
A review of the noise contours reveals that external noise levels of 60 $L_{Aeq,15hours}$ and 55 $L_{Aeq,9hours}$ intrude on the proposed subdivision.

For urban design consideration it is proposed to have houses facing the Collector Road with vehicle access from the Collector Road, as such fencing between the Pacific Highway and the proposed subdivision is not possible. Therefore only architectural treatments of the houses are considered.

Wilkinson Murray has conducted studies on the propagation of noise from roads. Typically the first row of houses provides up to 8 to 10dB shielding. Once a row of houses is built near the Pacific Highway, the L_{Aeq} contours in Figure 2 and Figure 3 will be much closer to the high way.

Figures 4 shows the subdivided lots bordering on the Pacific Highway that would require architectural treatment to meet the SEPP noise criteria in the bedrooms and habitable rooms other than laundries and kitchens. Two zones have been considered. Table 1 shows the required architectural treatments required for the zones indentified in Figure 4. Only the façades facing the Pacific Highway would require the noise treatments.

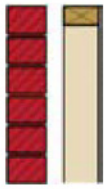
Figure 4 Areas where noise mitigation is required

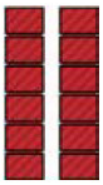
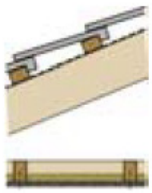
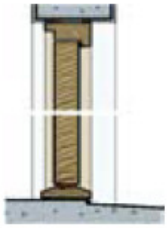


NOISE MITIGATION

Yellow Mitigation Zone

- The houses in this zone should be single storey.
- The following table sets out standard treatment for the sleeping areas and other habitable areas of the single story house located in the identified zone.

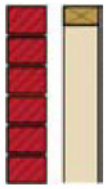
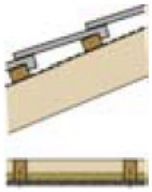
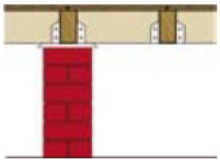
Building Element	Standard constructions	Example
Windows/sliding Doors	Openable with minimum 6.38mm laminated glass and full perimeter acoustic seals	
Frontage facade	brick veneer construction: 110mm brick, 90mm timber stud or 92mm metal stud, minimum 50mm clearance between masonry and stud frame, 10mm standard plasterboard internally.	

Building Element	Standard constructions	Example
	or Double brick cavity construction: 2 leaves of 110mm brickwork separated by 50mm gap	
Roof	Pitched concrete or terracotta tile or sheet metal roof with sarking, 1 layer of 13mm sound-rated plasterboard fixed to ceiling joists, R2 insulation batts in roof cavity.	
entry Door	45mm solid core timber door fitted with full perimeter acoustic seals	
floor	Concrete slab floor on ground	

Orange Mitigation Zone

- Houses in this are can have two stories.
- The ground floor does not need any special acoustic treatment as it will be shielded by the houses in front.
- The following table sets out standard treatment for the sleeping areas and other habitable areas for the first story located in the identified zone.

Building Element	Standard constructions	Example
Windows/sliding Doors	Openable with minimum 6mm monolithic glass and full perimeter acoustic seals	

Building Element	Standard constructions	Example
Frontage facade	brick veneer construction: 110mm brick, 90mm timber stud or 92mm metal stud, minimum 50mm clearance between masonry and stud frame, 10mm standard plasterboard internally.	
	or Double brick cavity construction: 2 leaves of 110mm brickwork separated by 50mm gap	
	or Timber frame or cladding construction. 6mm fibre cement sheeting or weatherboards or plank cladding externally, 90mm deep timber stud or 92mm metal stud, 13mm standard plasterboard internally with R2 insulation in wall cavity.	
Roof	Pitched concrete or terracotta tile or sheet metal roof with sarking, 1 layer of 10mm sound-rated plasterboard fixed to ceiling joists, R2 insulation batts in roof cavity.	
Floor	1 layer of 19mm structural floor boards, timber joist on piers	
	Concrete slab floor on ground	

Ventilation

In order to fully comply with the Infrastructure SEPP requirements, it is necessary to provide alternative ventilation so that windows can be kept closed. In this way the indoor noise goals can be met while providing room ventilation that meets the Building Code of Australia. Three typical ways to achieve this are:

1. Ducted Air-Conditioning System where the Fan Coil Units also provide Outside Air mixed with the Return Air. Air-conditioning ductwork and plenums must be acoustically treated such that the acoustic rating of the ceiling is not derated.
2. A device similar to the Aeropac Room Ventilator and Air-Filter is fitted to the required rooms. (Available from Acoustica – ph: 1300 722 825).
3. Silenceair external wall vents, together with upgraded toilet and laundry fans to provide forced flow-through ventilation. The fans in this case must be operating whenever external doors/windows are closed (available from www.silenceair.com.

CONCLUSION

Wilkinson Murray has conducted an acoustic assessment for the proposed Moonee Parklands subdivision on the Pacific Highway. The noise assessment was carried out in accordance with NSW Infrastructure SEPP.

The key findings of this assessment are as follows:

- Road traffic on the Pacific Highway will generate noise levels intruding on the proposed subdivision.
- Improved architectural treatments are required to meet internal noise criteria presented in the SEPP.
- Ventilation will be required in bedrooms and habitable rooms to allow windows to be shut to meet Infrastructure SEPP requirements.

I trust this information is sufficient. Please contact us if you have any further queries.

Yours faithfully
WILKINSON MURRAY

John Wassermann
Director