

## NOISE AND SOUND SERVICES

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**Our Ref nss21433**

Michelle

**Re: Road Traffic Noise Study - Ocean Drive, Rainbow Beach North**

We carried out a study for the potential to construct 100 lots of single-storey homes along Ocean Drive, Rainbow Beach North in 2006. This was to assess the road traffic noise levels and advise on residential housing noise mitigation measures from external road traffic to accompany a development application to Hastings Council.

Our recommendations were: Earth mounds (bunds) to be constructed along the proposed site, 10 metres set back from the roadway, to act as acoustic barriers. These earth mounds can be landscaped with grass, shrubs and trees to improve the visual aesthetics. An alternative to complete earth mounds are complete concrete walls or timber lapped and capped fences. Walls constructed of two materials could also be considered e.g. a concrete wall or wooden fence constructed above earth mounds to the required heights.

Access to the site should, where practicable, not provide direct line-of-sight between the road at Ocean Drive and any of the proposed residences at Rainbow Beach North. If this is unavoidable, the sound insulation of the proposed building façades (mainly the glazing) will need to be increased to meet the internal design goals based on the Australian Standard AS 2107 – 2000 '*Acoustic – Recommended Design Sound Levels and Reverberation Times for Building Interiors*' as given in Table 1 below.

**TABLE 1. RECOMMENDED DESIGN SOUND LEVEL FOR BUILDINGS. FROM AS 2107 (2000)**

Type of Occupancy	Recommended Design Sound Level ( $L_{Aeq}$ ) dBA	
	Satisfactory	Maximum
<b><i>Houses near Minor Roads</i></b>		
Living Areas	30	40
Sleeping Areas	30	35
Work Areas	35	40
Apartment Common Areas	45	55
<b><i>Houses near Major Roads</i></b>		
Living Areas	35	45
Sleeping Areas	30	40
Work Areas	35	45
Apartment Common Areas	45	55

Site specific road traffic noise goals ( $L_{Aeq, 15 \text{ minute}}$ ) are set at 35 dBA for sleeping areas and 40 dBA for living areas.

To meet the internal design goals as given in Table 1 above, all building elements (mainly windows and glazed doors) will need to be assessed once the architectural design of the proposed residences to be constructed has been carried out.

Earth mound barrier, or alternatives as given in the recommendations above, should be constructed between the road at Ocean Drive and the propose residences at Rainbow Beach North. To meet the NSW Environmental Criteria for Road Traffic Noise, for predicted traffic flows in the year 2020, the earth mound barrier should be 2.2 metres high if the current road surface (as of 2006) is maintained or 1.8 metres high if the road surface is replaced with a ‘quiet’ open grade asphalt surface. A summary of the acoustic barrier height recommendations are shown in Table 2 below.

**TABLE 2. SUMMARY OF ACOUSTIC BARRIER HEIGHT RECOMMENDATIONS.**

Situation	Required Barrier Height (metres)	Predicted Noise Reduction (dB)
Existing Traffic Flows and Existing Road Surface	1.8	6
Existing Traffic Flows with Open Grade Asphalt Road Surface	1.2	3
Traffic flows for Year 2020 and Existing Road Surface	2.2	9
Traffic flows for Year 2020 with Open Grade Asphalt Road Surface	1.8	6

We have been given a copy of the 2009 Concept Plan and understand that it is proposed that the entire length of the residential areas will be provided with a 10 metre buffer strip.

We have reviewed our previous work and are of the opinion that the recommendations in our 2006 report (reference nss20819 dated 27 March 2006) will apply to the entire length of the residential development adjacent to Ocean Drive provided single-storey homes are still proposed. Accordingly, our recommendations from the 2006 report may be extrapolated to apply to the 2009 Concept Plan residential area fronting Ocean Drive.

If you require any further information or wish to discuss any issues in greater detail please feel free to contact us.

Yours sincerely

*Ken Scannell*

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Partner and Senior Acoustical Consultant