

Change of Use to Veterinary Hospital at 16 Myoora Rd, Terry Hills

Noise Impact Assessment

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1 INTRODUCTION

Acoustic Logic Consultancy (ALC) has been engaged to prepare an acoustic assessment for the proposed veterinary hospital to be located at 16 Myoora Rd, Terrey Hills. The assessment has been prepared to address the following request from Northern Beaches Council (pre-lodgement advice for application PLM2019/0081, dated 16 May 2019).

SPECIALIST ADVICE – Environmental Health

Council's Environmental Health Officer has commented on the proposal as follows:

2) Potential noise from any animals kept overnight on the premises is to be addressed.

Noise emissions from the development have been assessed against the requirements of the following:

- Warringah Development Control Plan 2011
- EPA Noise Policy for Industry

The report is prepared based on the architectural drawings prepared by Cyclo construction and fitout, issue A, dated 10/04/19.

2 SITE PROPOSAL AND LOCATION

The proposed development does not include any external physical works. It alters the existing registered club and the nearest noise sensitive noise receivers are

1. Residential receiver at 20 Myoora Rd, Terrey Hills
2. Residential receiver at 5 Myoora Rd, Terrey Hills
3. Residential receiver at 18 Myoora Rd, Terrey Hills
4. Commercial receiver at 327 Mona Vale Rd, Terrey Hills



Figure 2-1: Site Location and Receivers

3 ENVIRONMENTAL NOISE DESCRIPTORS

Environmental noise constantly varies. Accordingly, it is not possible to accurately determine prevailing environmental noise conditions by measuring a single, instantaneous noise level.

To accurately determine the environmental noise a 15-20 minute measurement interval is utilised. Over this period, noise levels are monitored on a continuous basis and statistical and integrating techniques are used to determine noise description parameters.

In analysing environmental noise, three-principle measurement parameters are used, namely L_{10} , L_{90} and L_{eq} .

The L_{10} and L_{90} measurement parameters are statistical levels that represent the average maximum and average minimum noise levels respectively, over the measurement intervals.

The L_{10} parameter is commonly used to measure noise produced by a particular intrusive noise source since it represents the average of the loudest noise levels produced by the source.

Conversely, the L_{90} level (which is commonly referred to as the background noise level) represents the noise level heard in the quieter periods during a measurement interval. The L_{90} parameter is used to set the allowable noise level for new, potentially intrusive noise sources since the disturbance caused by the new source will depend on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the L_{90} level.

The L_{eq} parameter represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the 15 minute period. L_{eq} is important in the assessment of environmental noise impact as it closely corresponds with human perception of a changing noise environment; such is the character of environmental noise.

4 NOISE EMISSION CRITERIA

The following discusses relevant legislation to govern noise emissions from the operation of the site.

4.1 NORHTERN BEACHES COUNCIL

There appears to be no specific noise requirements in the Warringa Council Development Control Plan 2011 to govern noise from veterinary or developments involving animal keeping. On this basis, guidance has been provided by the EPA Noise Policy for Industry 2017.

4.2 EPA – NOISE POLICY FOR INDUSTRY

The Noise Policy for Industry (NPI) provides guidelines for assessing noise impacts from industrial developments. The recommended assessment objectives vary depending on the potentially affected receivers, the time of day, and the type of noise source. The NPI has two requirements which both have to be complied with, namely an amenity criterion and an intrusiveness criterion.

4.2.1 Intrusiveness Criterion

The guideline is intended to limit the audibility of noise emissions at residential receivers and requires that noise emissions measured using the L_{eq} descriptor not exceed the background noise level by more than 5 dB(A).

Table 2.1 of the policy nominates minimum assumed rating background noise levels for the assessment of noise from industry. The minimum background noise levels and resultant intrusive noise levels are provided below.

Table 1 – NIP Intrusiveness Criteria

Receiver Location	Time of day	Minimum Rating Background Noise Level dB(A) L_{90}	Intrusiveness Criteria (Background+5dB(A)) dB(A) L_{eq} 15min
Residential	Day (7am to 6pm)	35	40
	Evening (6pm to 10pm)	30	35
	Night (10pm to 7am)	30	35

4.2.2 Amenity Criterion

The guideline is intended to limit the absolute noise level from all noise sources to a level that is consistent with the general environment. The NPI sets out acceptable noise levels for various land uses. Table 2.2 on Page 11 of the policy has three categories to distinguish different residential areas. They are rural, suburban and urban

ALC have deemed receiver locations to be typically 'suburban' for the purposes of this assessment. The corresponding Amenity Criteria noise emission goals are presented below.

Table 2 – NPI Amenity Acceptable Noise Levels

Type of Receiver	Indicative Noise Amenity Area	Time of day	Recommended Acceptable Noise Level dB(A) L_{eq} period	Project Amenity Noise Criteria, dB(A) L_{eq} 15min
Residence	Suburban	Day	55	53 (55-5+3)
		Evening	45	43 (45-5+3)
		Night	40	38 (40-5+3)
Commercial	All	When in use	65	60 (65-5)

The acceptable noise levels are adjusted -5dB to the recommended amenity noise level to account for existing noise sources.

A 3dB adjustment is applied to the amenity criterion to establish the representative L_{eq} 15min as per Section 2.2 of the NPI.

4.3 SLEEP DISTURBANCE

The Noise Policy for Industry recommends the following noise limits to mitigate sleeping disturbance:

Where the subject development / premises night -time noise levels at a residential location exceed:

- $L_{Aeq,15min}$ 40 dB(A) or the prevailing RBL plus 5 dB, whichever is the greater, and/or
- L_{AFmax} 52 dB(A) or the prevailing RBL plus 15 dB, whichever is the greater,

a detailed maximum noise level even assessment should be undertaken.

4.4 NOISE EMISSION OBJECTIVES

The following project noise emission objectives have been used to assess noise from animals kept overnight on the premises.

Table 3 – Noise Emission Objectives

Receiver	Intrusive Noise Criteria, dB(A) L_{eq} 15min	Amenity Noise Criteria, dB(A) L_{eq} 15min	Sleep Emergence Criteria, dB(A)	Project Noise Emission Criteria, dB(A) L_{eq} 15min
Residential (Night)	35	38	40dB(A) L _{eq} 15min 52dB(A) L _{AFmax}	35 dB(A) L _{eq} 15min 52dB(A) L _{AFmax}
Commercial	N/A	60	N/A	60 dB(A) L _{eq} 15min

5 NOISE EMISSION ASSESSMENT

The loudest source of noise expected at the premises will be due to dogs barking. This section examines the potential impacts to the closest residential receivers during the night time period.

5.1 NOISE MODELLING ASSUMPTIONS

Noise modelling for the vet has been conducted based on measurements and noise data held by ALC from previous kennel projects. These are summarised below.

Noise levels measured within a kennel facility located near Kingsford Smith Airport. Measured noise levels recorded during operation were as follows:

Table 4 - Dogs within Kennels - Internal Noise Levels

Noise Source	Descriptor	Sound Pressure Level (within Kennel)
Noise within kennel (15 dogs)	L _{eq}	84dB(A)
	L _{max}	95dB(A)

The noise levels recorded within the kennel represent the loudest 10% of each descriptor measured on the loudest day during the monitoring period. Levels presented in the table above are based on a noise level generated by a group of 15 dogs.

A maximum correction of 10dB(A) for tonality and intermittent noise will be added

A façade loss of 20dB(A) has been assumed indicating that windows to the area where the animals are kept overnight are closed.

5.2 PREDICTED NOISE LEVELS

The following noise levels have been predicted to the closest receivers.

Table 5 – Predicted Noise Emissions to Receivers (15 dogs)

Receiver	Location	Predicted Noise Level	Project Criteria	Complies?
Receiver 1	20 Myoora Rd	25 dB(A) L_{eq} 15min 36 dB(A) L_{AFmax}	35 dB(A) L_{eq} 15min 52dB(A) L_{AFmax}	Yes
Receiver 2	5 Myoora Rd	20 dB(A) L_{eq} 15min 31 dB(A) L_{AFmax}	35 dB(A) L_{eq} 15min 52dB(A) L_{AFmax}	Yes
Receiver 3	18 Myoora Rd	31 dB(A) L_{eq} 15min 42 dB(A) L_{AFmax}	35 dB(A) L_{eq} 15min 52dB(A) L_{AFmax}	Yes
Commercial	327 Mona Vale Rd	45 dB(A) L_{eq} 15min	60 dB(A) L_{eq} 15min	Yes

6 RECOMMENDATION

A façade loss of 20dB(A) was assumed to calculate impacts to the closest receivers. This equates to the various façade elements having a rating of Rw 27-30. The table below gives recommended constructions to achieve this Rw rating,

Table 6 – Recommended Minimum Façade Constructions

Façade Element	Rw Rating	Recommended Construction
Glazing	27	Minimum 5mm thick glass with full perimeter acoustically rated seals. Note windows must remain closed to achieve façade loss of 20dB(A)
External Walls	30	Single leaf of clay brick masonry with: i) a row of 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and ii) one lay of plasterboard at least 10mm thick fixe to outside face of studs OR Minimum 6mm thick fibre cement sheeting or weatherboards or plank cladding externally, minimum 90mm deep timber studs or 92mm metal stud, standard plasterboard at least 13mm thick internally
Roof	34	Metal sheet roof with sarking and plasterboard ceiling, at least 10mm thick, fixed to ceiling cavity
External Doors (to animal keeping area)	28	Solid core timber door not less than 35mm thick fitted with full perimeter acoustically rated seals

7 CONCLUSION

The calculations presented above indicated that animals can be kept over night at the proposed veterinary clinic. The assessment has been conducted based on the noise levels of dogs barking, as it is the experience of this office that this will be the loudest noise source expected in the premise. As detailed plans and proposed operation of the facility has not been finalised it was assumed that facades will remain closed and a maximum of 15 dogs will be kept over night. However more animals than this can be allowed for. A detailed assessment should be conducted at CC stage, by a suitably qualified Acoustic consultant, to ensure emissions from keeping animals at the premise over night comply with the noise emission objectives presented in [Table 3](#).

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

Yours faithfully,

A handwritten signature in black ink, appearing to read 'K Beeston', with a stylized, cursive script.

Acoustic Logic Consultancy Pty Ltd
Katherine Beeston