

KENNEL FOR SHOW DOGS

NOISE ASSESSMENT

| Report No. | M24233.01 |
|--------------|--|
| Site: | 12 Myall Forest Road, Bulahdelah, NSW, 2423 |
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SUMMARY

Noise from the existing shed for animal training and breeding purposes at 12 Myall Forest Road, Bulahdelah was assessed.

We predict that noise from the shed will generally comply with requirements of the NPfl as long as barking does not continue for more than a few minutes.

We recommend that the animals must be managed to avoid barking as much as possible. Extra sound absorption inside the kennel is recommended to reduce noise impacts.



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1 INTRODUCTION

The proponent has an existing shed for animal training and boarding purposes at 12 Myall Forest Road, Bulahdelah. It has been designed to minimise noise emission to the nearest residential neighbours. The proponent seeks to keep and breed up to 10 Schnauzers dogs, largely for companion and show purposes.

MidCoast Council have requested a noise assessment of the shed, as required by the Great Lakes Council Local Environmental Plan (LEP).

This report provides that assessment, considering noise emission of dogs barking.



2 CONTEXT AND LOCATION

The site is currently used by the proponent for breeding up to 10 Schnauzers dogs.

The site is shown in Figure 2-1, along with the nearest residential receivers. The distance to the nearest receivers is shown in Table 2-1. Note that for all receivers the assessable position is 30 m from the house in the direction of the noise source.



Figure 2-1 Proposed Site and Receiver Location





| Receiver Number | Address | Approximate Distance – Assessment Point to Kennel, m |
|--------------------|-----------------------|---|
| 1 | 6 Myall Forest Road | 85 |
| 2 | 20 Myall Forest Road | 120 |
| 3 | 94 Markwell Back Road | 70 |

 Table 2-1
 Noise Sensitive Receiver Distances

3 PLANNING NOISE LEVELS

3.1 NSW NOISE POLICY FOR INDUSTRY

Assessment criteria are discussed in the New South Wales Noise Policy for Industry (NPfI). The NPfI gives a procedure for setting "trigger" noise levels. If noise is above a trigger level, a residual noise impact may exist. Depending on the severity of the impact noise mitigation or management needs to be considered.

The policy discusses "intrusiveness" and "amenity" levels which are a set based on the existing noise environment, and the type of residential area. The project specific trigger levels become the most stringent of the two.

3.2 INTRUSIVENESS NOISE LEVEL

For assessing intrusiveness, the background noise level (L_{A90}) is measured and the Rating Background Level (RBL) determined. The intrusiveness of an industrial noise source may generally be considered acceptable if the equivalent continuous noise level (L_{Aeq}) of the source (measured over a 15-minute period) does not exceed the background noise level (RBL) by more than 5 dB.

3.2.1 RATING BACKGROUND NOISE MEASUREMENT

Long term background noise levels were recorded over a period of seven days, from 23 to 30 September 2024.

An ARL brand, model EL-316, Type 1 environmental noise logger was used to measure the background noise level. A Lutron sound level calibrator, model SC-941, was used as a reference sound source immediately before and after measurements were taken. All instruments are in current calibration from a NATA registered laboratory. A noise logger measures the noise levels over a 15-minute sampling period and then determines L_{A1} through to L_{A99}, L_{Amax} and L_{Aeq}. The ARL EL-316 is an integrating sound level meters which is able to process a continuous, variable, intermittent or impulsive signal to give a single integrated level or L_{Aeq} for the sampling period. This equipment complies with AS 1259 'Acoustics-Sound level meters", Part 2 "Integrating-Averaging" and the testing procedure with AS 2659 "Guide to the use of sound measuring equipment".

The location of noise logger used for recoding can be seen in Figure 2-1, and the daily results are shown in Table 3-1 shows the RBL measurements for the daytime, evening and night time periods. Note that the measured evening and night time levels are higher than daytime, which is not usually the case. The NPfI notes that if no specific reason for this, the daytime RBL may be more appropriate for evening and night time assessment, which is what is done in this assessment.



| Period | RBL |
|------------|-----|
| Daytime | 34 |
| Evening | 40 |
| Night-time | 37 |

Note: Daytime is defined as 7.00am to 6.00pm, Monday to Saturday; 8.00am to 6.00pm Sunday and Public Holidays. Evening is defined as 6.00pm to 10.00pm, Monday to Saturday and Public Holidays.

Night is defined as 10.00pm to 7.00am, Monday to Saturday; 10.00pm to 8.00am Sunday and Public Holidays.

Table 3-1 Measured background A-weighted sound pressure levels

3.3 AMENITY NOISE LEVEL

The amenity assessment is based on noise criteria specific to land use and associated activities. The criteria relate only to industrial-type noise and do not include transportation noise.

The amenity noise level aims to limit continuing increases in noise levels which may occur if the intrusiveness level alone is applied to successive development within an area.

The recommended amenity noise level represents the objective for total industrial noise at a receiver location. The project amenity noise level represents the objective for noise from a single industrial development at a receiver location.

To prevent increases in industrial noise due to the cumulative effect of several developments, the project amenity noise level for each new source of industrial noise is set at 5 dB below the recommended amenity nose level. While amenity is assessed over the entire 13-hour daytime period, under the NPfl it can be compared directly to the 15-minute assessment of intrusiveness by adding 3 dB to the period level.

Amenity noise levels are not used directly as regulatory limits. They are used in combination with the project intrusiveness noise level to assess the potential impact of noise, assess mitigation options and determine achievable noise requirements.

An extract from the NSW NPfI that relates to the amenity noise levels for surrounding receivers is given in Table 3-2.

| Type of Receiver | Indicative Noise Amenity Area | Time of Day | Recommended L _{Aeq} Noise Level dB |
|---------------------|----------------------------------|-------------|--|
| | | Day | 50 |
| Residence | Rural | Evening | 45 |
| | | Night | 40 |

- Note: Daytime is defined as 7.00am to 6.00pm, Monday to Saturday; 8.00am to 6.00pm Sunday and Public Holidays. Evening is defined as 6.00pm to 10.00pm, Monday to Saturday and Public Holidays. Night is defined as 10.00pm to 7.00am, Monday to Saturday; 10.00pm to 8.00am Sunday and Public Holidays.
- Table 3-2
 Recommended amenity criteria from the NSW Noise Policy for Industry.



3.4 PROJECT NOISE TRIGGER LEVELS

The project noise trigger levels are taken to be the more stringent value when comparing the Intrusiveness noise level and the project amenity noise level for each period. The trigger levels for the proposed development are:

| Period | Rating Background Level LA90,15min (dBA) | Intrusiveness Noise Level ¹ L _{Aeq,15min} (dBA) | Project Amenity Noise Level ² L _{Aeq,15min} (dBA) | Project Trigger Levels L _{Aeq,15min} (dBA) |
|------------|---|---|--|---|
| Daytime | 34 | 39 | 48 | 39 |
| Evening | 34 | 39 | 42 | 39 |
| Night-time | 34 | 39 | 38 | 38 |

Note 1: Intrusiveness noise level is LAeq,15min ≤ RBL +5 dB

Note 2: Project amenity noise level (PANL) is suburban ANL minus 5dBA plus 3dBA to convert from a period level to a 15minute level.

Table 3-3Project trigger levels

3.5 MAXIMUM NOISE LEVEL EVENTS

Noise sources of short duration and high level that may cause disturbance to sleep if occurring during the night time need to be considered.

The approach recommended by the NPfI is to apply the following initial screening noise levels:

- L_{Aeq,15min} 40dBA or the prevailing RBL + 5dB, whichever is the greater; and/or
- L_{AFmax} 52dBA or the prevailing RBL + 15dB, whichever is the greater.

As the night time RBL has been set at 34 dBA, the screening level is L_{AFmax} 52dBA.

The sleep disturbance screening noise levels apply outside bedroom windows during the night time period. Where the screening noise levels cannot be met, a detailed maximum noise level event assessment should be undertaken. It may also be appropriate to consider other guidelines including the NSW Road Noise Policy (RNP) which contains additional guidance relating to potential sleep disturbance impacts.

A review of research on sleep disturbance in the RNP indicates that in some circumstances, higher noise levels may occur without significant sleep disturbance. Based on currently available research results, the RNP concludes that:

- "Maximum internal noise levels below 50 dBA to 55 dBA are unlikely to cause awakening reactions."
- "One or two noise events per night, with maximum internal noise levels of 65 dBA to 70 dBA, are not likely to affect health and wellbeing significantly."

As the night time RBL is 34dBA, the appropriate sleep disturbance screening level is L_{AFmax} 52dBA.



4 NOISE MODELLING

4.1 SOURCE NOISE LEVELS OF DOGS

The noise level of dogs depends on many factors, including the size and breed of the dog. As the dogs under study are already being kept at the kennel, we had the opportunity to measure their noise level. Noise levels were measured using a SVAN 958A Sound Level meter. As noise from dogs is typically intermittent, the dogs were deliberately disturbed to generate the maximum level of barking.

Inside the shed the sound level was L_{Aeq} 91 dBA with the dogs barking. At 10 m from the shed, with all doors and windows closed, the noise level with dogs barking was L_{Aeq} 60 dBA. Because noise is assessed over a 15 minute period, the noise source level to use for assessment depends on how long during a 15 minute period the dogs are barking at the maximum level.

4.2 PREDICTED NOISE LEVELS

To predict noise levels at residential neighbours, modelling was done using the iNoise noise modelling software. This takes into account such things as the distance between the kennel and the residence, any topographic shielding, shielding provided by the kennels themselves, and the nature of the noise source. The software uses algorithms from the standard ISO9613.2 procedures which include the enhancing effect of meteorological factors such as wind and temperature inversions.

Dog noise occurs when the dogs in the kennel are disturbed and barked all together. As this is generally not in the interest of the dogs' wellbeing, kennels are managed to avoid such disturbance. For noise assessment, we have assumed that dogs would bark for up to 3 minutes in any 15 minute period.

The NPfI recommends addition of "modifying factors" to any predicted noise level that contains characteristics such as tonality or intermittency. The dog noise measurements at receivers in the past do not require modification for tonality, however they are intermittent. The intermittency modification of 5 dBA is added to the night time predicted noise level and is included in all the following predictions. Table 4-2 shows the predicted noise level for the intrusiveness assessment for daytime and evening, and Table 4-2 for night time, including the intermittency adjustment.

During daytime and evening, compliance is achieved for the assumed level of barking from the shed.

During night time, because of the intermittency adjustment, there are minor exceedances of the trigger level if dogs bark for 2 minutes or more in a 15 minute period. A 2 minute barking period leads to a 1dBA exceedance which the NPfI considers having a "negligible" impact.

| Dessiver | Predicted Noise Level, L _{Aeq,15min} dBA, Trigger level 39dBA | | | |
|----------|--|-------------------|------------------------|--|
| Receiver | Dogs barking 3 minutes Dogs barking 2 minutes | | Dogs barking 1 minutes | |
| | out of 15 minutes | out of 15 minutes | out of 15 minutes | |
| 1 | 36 | 34 | 31 | |
| 2 | 36 | 34 | 31 | |
| 3 | 26 | 24 | 21 | |

Table 4-1 Intrusive Noise Assessment, daytime and evening



| Receiver | Predicted Noise Level, L _{Aeq,15min} dBA, including 5dBA adjustment for intermittency, Trigger Level, 38dBA | | | |
|----------|---|---|---|--|
| | Dogs barking 3 minutes out of 15 minutes | Dogs barking 2 minutes out of 15 minutes | Dogs barking 1 minutes out of 15 minutes | |
| 1 | 41 | 39 | 36 | |
| 2 | 41 | 39 | 36 | |
| 3 | 31 | 29 | 26 | |

 Table 4-2
 Intrusive Noise Assessment, night time

4.3 SLEEP DISTURBANCE ASSESSMENT

It is proposed to house all dogs inside during night time hours. The maximum level of the dogs was measured on site and is 7dBA higher than the 3minute L_{Aeq} level (without the adjustment for intermittency). The predicted maximum noise levels from short term events are shown in Table 4-3. The predicted levels are below the screening level of 52dBA at all receivers and no further analysis is required.

| Receiver | Noise from Dogs Inside, L _{AMax dBA} |
|----------|--|
| 1 | 42 |
| 2 | 42 |
| 3 | 33 |

Table 4-3 LAmax levels from dogs, dBA

5 Assessment and Recommendations

in this assessment we have predicted noise levels from dogs inside the closed shed. If dogs are disturbed and are continuously for more than two or three minutes during the daytime or evening, there is a risk of some noise impact at neighbouring residences. This reduces to one or two minutes during night-time because an intermittency correction applies.

It is recommended that the dogs being managed in such a way as to minimise the risk of such disturbances occurring. The noise levels could be reduced overall by including extra noise absorbing material inside the shed. We noted on our site visit that the shed is lined and insulated (in the wall cavity) for the thermal comfort of the dogs.

It is recommended to install an additional wall or roof area of 10 m² of acoustically absorbent panels. This would reduce noise inside the shed, and at the neighbours, by approximately 5 dBA. The acoustic panels could be such material as earthwool or polyester installation. Acoustic insulation is similar to thermal insulation, except where the loose or absorbent surface is not covered up by foil or rigid wall lining. The insulation may be covered with perforated sheets or other permeable material such as shade cloth.



6 CERTIFICATION FOR NOISE IMPACT STATEMENT

Acoustic Certification: Once the required recommendations that are documented in this report are implemented, the residual noise impact associated with the existing shed for animal training and breeding purposes at 12 Myall Forest Road, Bulahdelah, will be to an acceptable level specified by the NSW Noise Policy for Industry at the boundary of the nearest residence. Based on the information obtained by on-site noise measurements of the existing operations, the development, subject to this report, is unlikely to cause "offensive noise" as defined by the protection of the Environment Operations Act 1997.

7 CONCLUSION

Noise from the existing shed for animal training and breeding purposes at 12 Myall Forest Road, Bulahdelah was assessed.

Based on our measurements and noise modelling, we predict that noise from the shed will generally comply with requirements of the NPfI. If the animals all bark at the same time, there is a risk of exceeding the noise trigger levels if the barking continues for more than 3 minutes in daytime and evening, and 1 minute during night time.

Therefore, the animals must be managed to avoid barking as much as possible. Extra sound absorption inside the shed is recommended to reduce noise impacts.

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APPENDIX A: GLOSSARY OF ACOUSTIC TERMS

| Assessment Period | The period in a day over which assessments are made. |
|----------------------|---|
| dB(A) | Unit of sound level in A-weighted decibels. The A-weighting approximates the sensitivity of the human ear by filtering these frequencies. The dB(A) measurement is considered representative of average human hearing. |
| L _{Aeq} | The A-weighted equivalent continuous sound pressure level, used to quantify the average noise level over a time period. |
| L _{A10} | The A-weighted sound pressure level exceeded for 10% of the measurement period. It is usually used as the descriptor for intrusive noise level. |
| L _{A90} | The A-weighted sound pressure level exceeded for 90% of the measurement period. It is usually used as the descriptor for background noise level. |
| $L_{Aeq15min}$ | Refers to the A-weighted energy averaged equivalent noise level over a 15 minute time period. |
| L_{Cpeak} | The highest instantaneous C-weighted sound pressure level over the measurement period. It is usually used for high impulsive noise. |
| L _{Amax} | The maximum A-weighted sound pressure level for the measurement period. |
| Loudness | A 3dB(A) change in sound pressure level is just noticeable or perceptible to the average human ear; a 5dB(A) increase is quite noticeable and a 10dB(A) increase is typically perceived as a doubling in loudness. |
| RBL | The overall single figure background level representing the assessment period over the whole monitoring period. For the short-term method of assessment, the RBL is the measured $L_{A90, 15min}$ value, or where a number of measurements have been made, the lowest $L_{A90, 15min}$ value. |



APPENDIX B: NOISE LOGGER CHARTS













