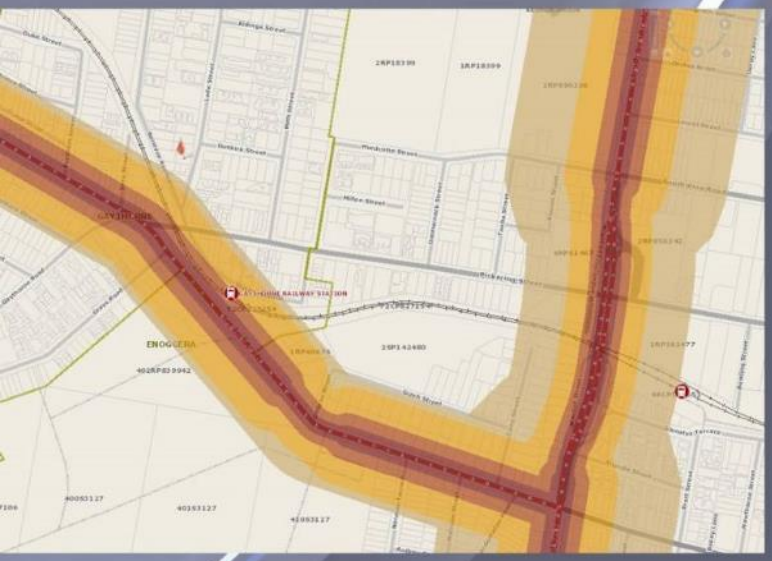
NOISE MEASUREMENT SERVICES

Environmental Noise Assessment
Animal Keeping
1-21 Virginia Way
Logan Village QLD 4207
(Lot 1 on RP19993)

Report Issue: 6181_1 17th February 2021



Noise Measurement Services Pty Ltd
18 Lade Street, Gaythorne QLD 4051
PO Box 2127, Brookside Centre QLD 4053

Ph.: (07) 3355 9707
Fax: (07) 3355 7210
Email: info@noisemeasurement.com.au

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NOISE MEASUREMENT SERVICES PTY LTD
18 Lade Street, Gaythorne, QLD 4051
PO Box 2127
Brookside Centre, QLD 4053

Telephone: (07) 3355 9707
Facsimile: (07) 3355 7210
E-mail: info@noisemeasurement.com.au

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Revision No	Issue Date	Revision Description	Author	Review
0	10/02/2022	Report	JD	MT
1	17/02/2022	Comments on PO and AO of LCC Planning Scheme	JD	MT

Copy No(s)	Rev No	Destination
1 pdf	1	Somerville Consultants
2	1	Noise Measurement Services

REPORT FOR **Somerville Consultants** *on behalf of Pawfect Place Doggy Day Care*

CONTACT **John Merrick**

Signed

Joshua Dyer
Grad Dip. Noise Management, CertIV Work Health and Safety, B. Environmental Technology, M.A.A.S
(Senior Acoustician Noise Measurement Services)

Contents

Executive Summary

An environmental noise assessment was conducted at the request of Somerville Consultants for a material change of use for an animal keeping facility located at 1-21 Virginia Way, Logan Village QLD 4207 (Lot 1 on RP19993). The property is currently in use as a doggy day care trading as 'Pawfect Place Doggie Day Care'. The animal keeping facility is located in Logan City Council and is zoned Rural Residential (Park Living).

The purpose of this report is to assess potential and actual noise emissions from the animal keeping facility and demonstrate compliance with the Logan City Council Rural Residential Zone Code (Park Living) for an animal keeping facility.

The hours of operation are:

- Monday to Saturday 7am – 6pm;
- Sunday by appointment only.

The assessment criteria referenced in this assessment include:

- *Logan City Council Planning Scheme 2015 Rural Residential Zone Code;*
- *Environmental Protection (Noise) Policy 2008.*

The following **Plates, Plan** and **Photos** show the site.

Assessment to Logan City Planning Scheme

Attended and unattended noise monitoring of the animal keeping facility (currently in use) demonstrates that the following Performance Outcomes P08 and P018 of the Logan City Planning Scheme (summarised in section 2.1 of this report) are achieved through the Acceptable Outcomes below:

Acceptable Outcome A08;

a. Noise emissions from the animal keeping facility, which is currently in use, have been assessed to be compliant by way of measurement from dog barking at the boundary of adjacent residential premises, assessed in section 4 of this Report. The measured noise emissions have been assessed to the standards of Table 3.2.1.1 of Logan City Council Planning Scheme Policy 3.
b. All adjacent Lots have been considered residential use and this performance outcome has not been applied.
c. to f. Not part of this report.

Acceptable Outcome A018;

a. to f. These outcomes are considered planning matters and not part of this report. The facility is generally well set back from boundaries. An acoustic fence for visual screening (AO f. iii.) can be considered around the dog runs to further reduce noise emissions and reduce visual stimulation for the dogs (which may reduce barking frequency). The impact of an acoustic fence has not been assessed due to noise emissions complying with Acceptable Outcome A08 a. by way of measurement at the boundary of adjacent residential premises.

Conclusions

It is concluded that:

- The relevant parts of Performance Outcome P08 and P018 (for noise emissions) are achieved, determined by way of measurement at the boundary of adjacent residential premises for a group of approximately ten large dogs in the dog run;
- An acoustic fence for visual screening (AO f. iii.) can be considered around the dog runs to further reduce noise emissions and reduce visual stimulation for the dogs (which may reduce barking frequency). The impact of an acoustic fence has not been assessed due noise emissions complying with Acceptable Outcome A08 a. by way of measurement at the boundary of adjacent residential premises
- The 24 hour observations from the 7th of December 2021 demonstrated that dog barking is audible at the site boundaries;
- Dog barking is intermittent and limited to daytime hours;
- Dogs that stay overnight are kept indoors during evening and night time;
- Doors and windows are generally kept closed and the indoor dog area is air conditioned;
- Dogs are generally quite and bark more when excited, such as when people (not staff) approach the facility. This generally occurs during the morning and afternoon pick up;
- Staff were observed to actively successfully discourage continuous barking;

Recommendations

It is recommended that:

- Dogs are kept indoors during evening and night time periods;
- Doors and windows are to be kept closed during evening and night time periods;
- Staff are trained in dog behaviour to discourage continuous dog barking.

1.0 Introduction

1.1 Background

An environmental noise assessment was conducted at the request of Somerville Consultants for a material change of use for an animal keeping facility located at 1-21 Virginia Way, Logan Village QLD 4207 (Lot 1 on RP19993). The property is currently in use as a doggy day care trading as 'Pawfect Place Doggie Day Care'. The animal keeping facility is located in Logan City Council and is zoned Rural Residential (Park Living).

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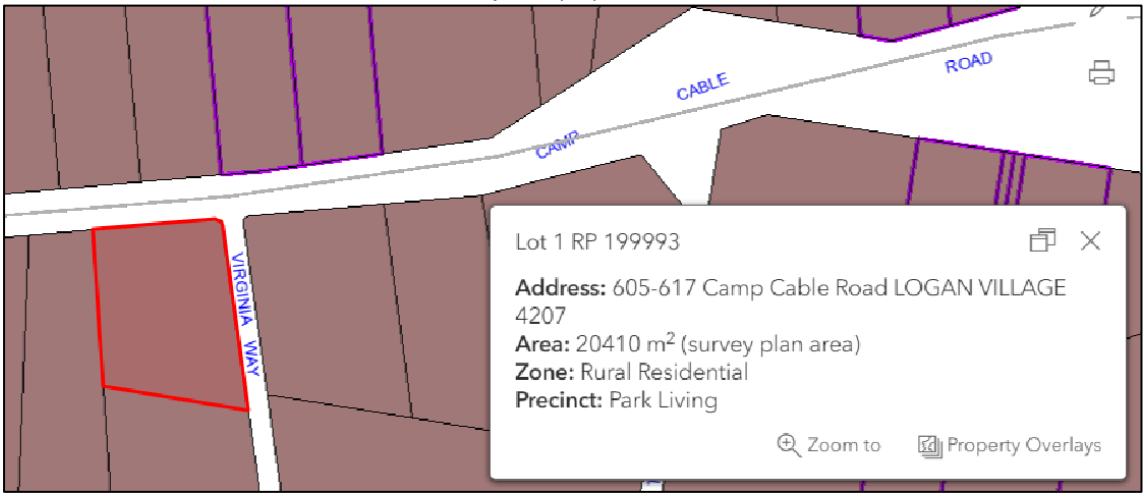
- *Environmental Protection (Noise) Policy 2008.*

The following **Plates, Plan** and **Photos** show the site.

Plate 1.1: *Aerial photograph of the site and surrounds. (Source: Google Earth. QLD government).*

Plate 1.2: *The Lot is zoned Rural Residential, all adjacent properties are zoned Rural Residential.*



Plan 1.1: *General floor plan overlaid on aerial photograph. (Source: Somerville Consultants, Google).*

Photo 1.1 *Showing the interior of the animal keeping facility. Doors and windows closed, air conditioned. Generally smaller dogs are kept inside.*

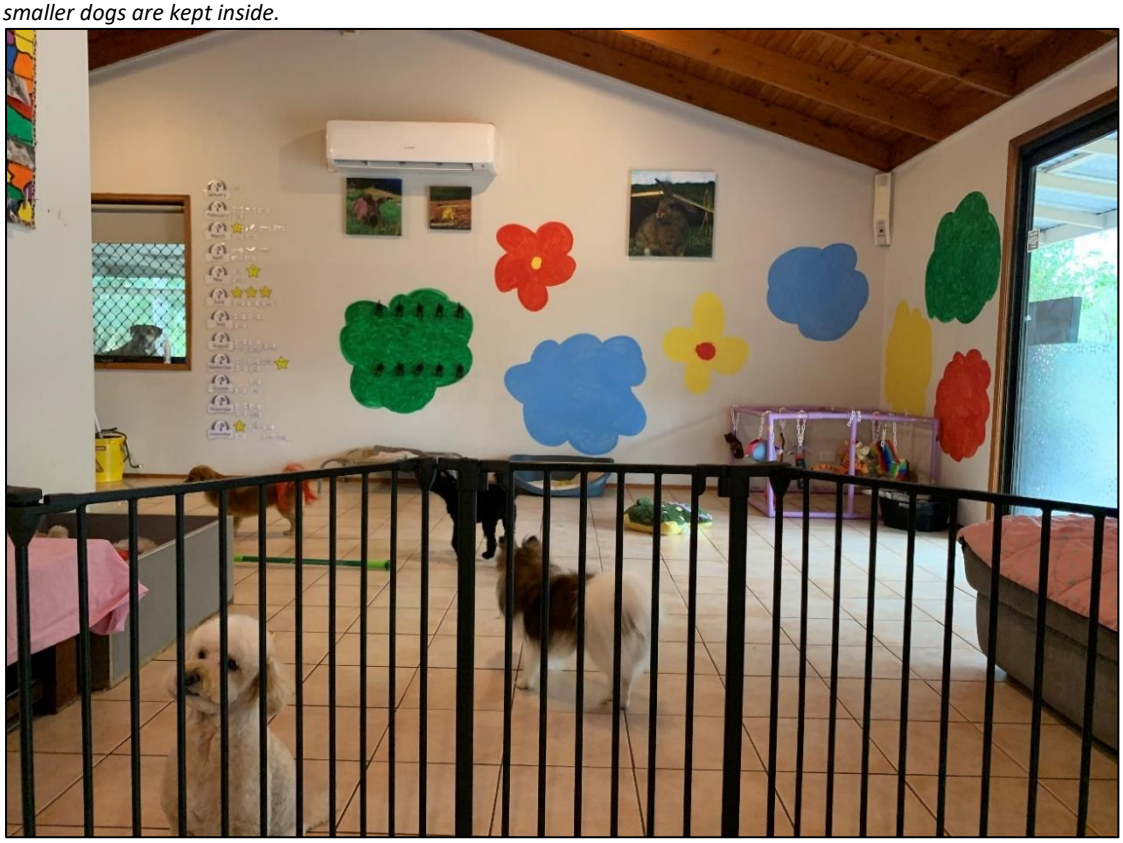
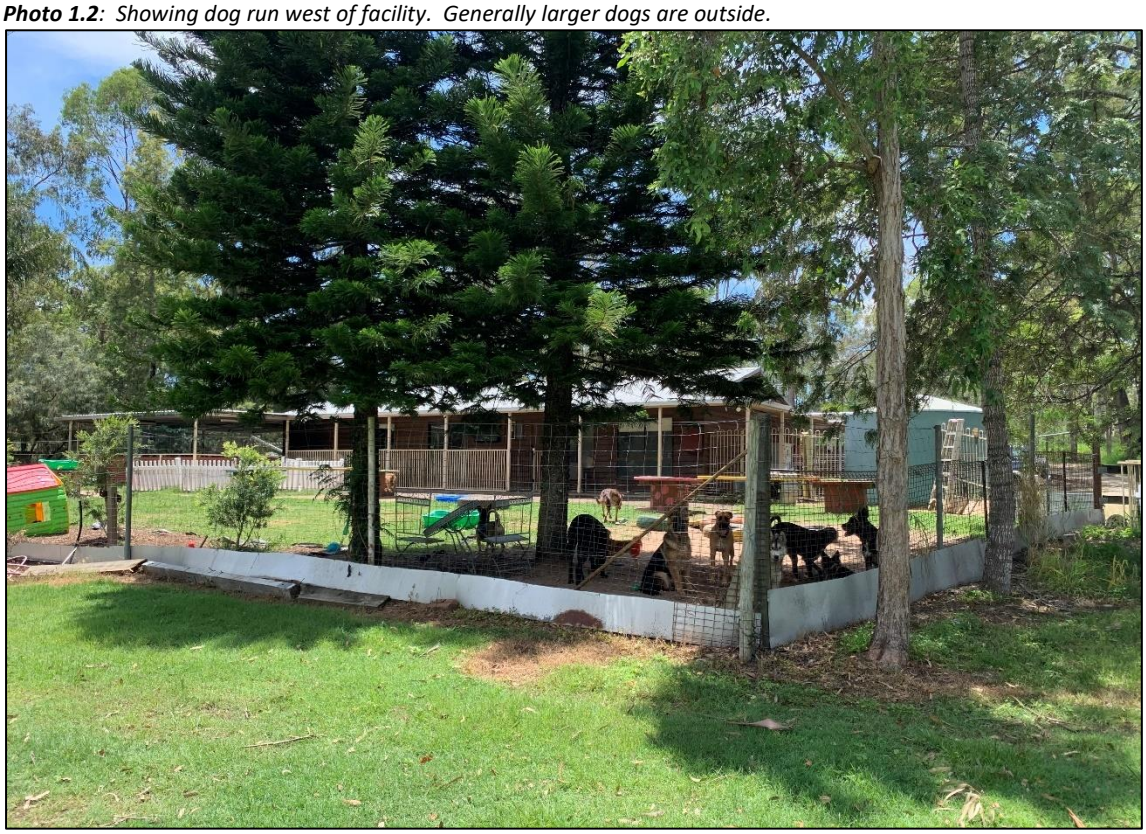


Photo 1.2*: Showing dog run west of facility. Generally larger dogs are outside.*



1.2 Identification of Noise Sensitive Receivers

The purpose of this assessment is to measure existing ambient sound levels that represent nearby noise sensitive receivers, and assess the impact of actual and potential noise emissions from the facility in accordance with Logan City Council Planning Criteria. The existing ambient noise levels have been used to derive the noise criterion limits.

The location is zoned Emerging Community and all adjacent Lots are zoned Emerging Community Zone. This assessment considers the following as the most potentially affected noise sensitive neighbours presented in **Plate 1.3** and **Table 1.1**.

Plate 1.3: *Showing the facility in relation to nearby noise sensitive dwellings. (Source: Google).*

Table 1.1: *The location of nearby noise sensitive receivers in relation to the distance from the facility are presented.*

Receiver Number	Nearest Noise Sensitive Receiver	Type	Zone	Distance from Animal Keeping Facility to Dwelling	At Boundary of Premises
R1	584-600 Camp Cable Road,	Dwelling	Rural Residential	253m NW	170m NW
R2	630-636 Camp Cable Road	Dwelling	Rural Residential	230m NE	177m NE
R3	621-636 Camp Cable Road	Dwelling	Rural Residential	90m E	52m E
R4	23-37 Virginia Way	Dwelling	Rural Residential	145m S	56m S
R5	597-603 Camp Cable Road	Dwelling	Rural Residential	159m SW	56m S
R6	591-603 Camp Cable Road	Dwelling	Rural Residential	172m SW	79m W

2.0 Noise Criteria and Limits

2.1 Logan City Council Logan Planning Scheme 2015

The Council assessment criteria referenced in this report is from the Logan City Council Planning Scheme Rural Residential Zone Code.

2.1.1 Rural Residential Zone Code

The Rural Residential Zone Code are referenced (in part) below.

Table 2.1: *Logan City Council Rural Residential Code (in part).*

Performance Outcome	Acceptable Outcomes
General Emissions	
PO8 Development protects the intended amenity for the zone and precinct of an adjoining premises by having regard to: a. Noise emissions; b. Air emissions; c. Light emission; d. Radiation emissions; e. Vibration emissions.	**AO8** Development complies with the following emissions standards of Planning scheme policy 3 - Environmental management: a. Table 3.2.1.1 - Noise emission standards for the protection of residential amenity where adjoining a premises in a zone specified in 3.2.1(1)(a) of Planning scheme policy 3 - Environmental management; b. Table 3.2.1.2 - Noise emission standards for the protection of general amenity where adjoining a premises in a zone specified in 3.2.1(1)(b) of Planning scheme policy 3 - Environmental management; c. Table 3.2.2.1 - Air emission standards; d. Table 3.2.3.1 - Light emission standards; e. section 3.2.4 - Radiation emission standards; f. Table 3.2.5.1 - Preferred weighted rms value for continuous and impulsive vibration acceleration (m/s^2) 1/80Hz.
PO18 Animal keeping being a kennel does not produce emissions that adversely impact on residential amenity by providing: a. adequate separation from a use in the residential zone category; b. separation from other existing kennels; c. ease of supervision; d. boundary clearances; e. setbacks; f. a visual buffer to limit visual stimulus to dogs from an external source; g. an acoustic fence; h. a limit on the number of dogs kept on the premises.	**AO18** Animal keeping being a kennel: a. is located a minimum of 100 metres from any lot in the residential zone category; b. is located a minimum distance of 1000 metres from another lawfully established or approved kennel; c. is located a maximum of 20 metres from the Dwelling house on the same lot; d. has a minimum boundary clearance of: i. 100 metres from a road frontage; ii. 15 metres from a side and rear boundary; e. is setback a minimum of: i. 150 metres from a sensitive land use; ii. 150 metres from the boundary of an adjoining lot where the adjoining lot is vacant; f. is visually buffered by: i. a minimum five metres wide screen landscaping strip adjoining a building, run, exercise yard or car park; ii. locating the kennel behind the existing or proposed Dwelling house; iii. provides an acoustic fence with a minimum height of two metres; iv. has no more than 10 dogs per hectare, up to a maximum of 100 dogs

The noise emission standards for the protection of residential amenity are summarised in **Table 2.2** and **2.3** following. The following noise criteria must be achieved at the boundary of premises.

Table 2.2: *Table 3.2.1.1 Noise emission standards for the protection of residential amenity.*

Noise level at the boundary of premises			
Noise type	Time period	Monday to Saturday	Sunday and public holidays
Non-steady sound*	Day 7:00am - 6:00pm	$L_{Aeq,adj,T} \leq L_{A90}$ plus 5 dB(A)	$L_{Aeq,adj,T} \leq L_{A90}$ plus 5 dB(A)
	Evening 6:00pm to 10:00pm	$L_{Aeq,adj,T} \leq L_{A90}$ plus 5 dB(A)	$L_{Aeq,adj,T} \leq L_{A90}$ plus 5 dB(A)
	Night 10:00 - 7:00am	$L_{Aeq,adj,T} \leq L_{A90}$ plus 0 dB(A) and $L_{Amax} \leq$ 60dB(A)	$L_{Aeq,adj,T} \leq L_{A90}$ plus 0 dB(A) and $L_{Amax} \leq$ 60dB(A)
Continuous noise*	Anytime	$L_{A90,T}$ plus 0dB(A)	$L_{A90,T}$ plus 0dB(A)

Editor's note - * as defined in AS1055.1-1997 Acoustics - Description and measurement of environmental noise
Note - Adjustments for tonality and impulsiveness to be included in accordance with AS1055.1-1997 Acoustics - Description and measurement of environmental noise.

Table 2.3: *Table 3.2.1.2 Noise emission standards for the protection of general amenity.*

Noise level at the boundary of premises			
Noise type	Time period	Monday to Saturday	Sunday and public holidays
Non-steady sound *	Day 7:00am - 6:00pm	$L_{Aeq,adj,T}$ ≤ L_{A90} plus 10 dB(A)	$L_{Aeq,adj,T}$ ≤ L_{A90} plus 5 dB(A)
	Evening 6:00pm to 10:00pm	$L_{Aeq,adj,T}$ ≤ L_{A90} plus 10 dB(A)	$L_{Aeq,adj,T}$ ≤ L_{A90} plus 5 dB(A)
	Night 10:00pm - 7:00am	$L_{Aeq,adj,T}$ ≤ L_{A90} plus 5 dB(A) and L_{Amax} ≤ 80dB(A)	$L_{Aeq,adj,T}$ ≤ L_{A90} plus 5 dB(A) and L_{Amax} ≤ 80dB(A)
Continuous noise*	Anytime	$L_{A90,T}$ plus 5dB(A)	$L_{A90,T}$ plus 5dB(A)

Note - Adjustments for tonality and impulsiveness to be included in accordance with AS1055.1-1997 Acoustics - Description and measurement of environmental noise.

2.2 AS1055 Acoustics-Description and Measurement of Environmental Noise

AS1055 requires the consideration of the noise emission as being tonal or impulsive in nature, where the criteria is denoted as being “adj, T” . If either, a 2 dB (noticeable) or 5 dB (clearly identifiable) penalty is added to the measured sound level. Some but not all of the criteria are “adj, T’.

3.0 Ambient Noise Monitoring

3.1 Measurement of Background Sound Levels

Noise monitoring has been undertaken on site at 1-21 Virginia Way, Logan Village to measure existing ambient noise levels and noise emissions near noise sensitive receivers. The noise logger was located on the southern property boundary, approximately 80 metres from the east boundary and 1.4 metres above ground level in a free field location. The location of the instrument is between the main sources of noise emissions on site and noise sensitive receivers located further south. The approximate location of the noise logger is shown in the **Plate 3.1** below.

Plate 3.1: *Showing the noise measurement location (ML1) in relation to other noise sensitive receivers in the area.*

The instrument was field calibrated before and after the measurement session and the instrument was found to be within 0.2 dB of the reference signal. All instrumentation used in this assessment holds a current calibration certificate from a certified NATA calibration laboratory. The following instruments were used to measure the ambient noise levels-

- Larson Davis Class 1 environmental noise logger;
- Larson Davis CAL200 Class 1 calibrator.

Ambient sound pressure levels were measured generally in accordance with the Department of Environment and Science *Noise Measurement Manual 2020* and Australian Standard AS1055:2018 - '*Acoustics-Description and measurement of environmental noise*.

3.2 Measured Levels

Ambient noise levels were recorded at 15 minute intervals between 7th and 13th December 2021. Audio for 60 seconds during each interval were also recorded. Levels are presented graphically in **Figure 3.1**, and the average ambient background is presented in tabular format in **Table 3.1**.

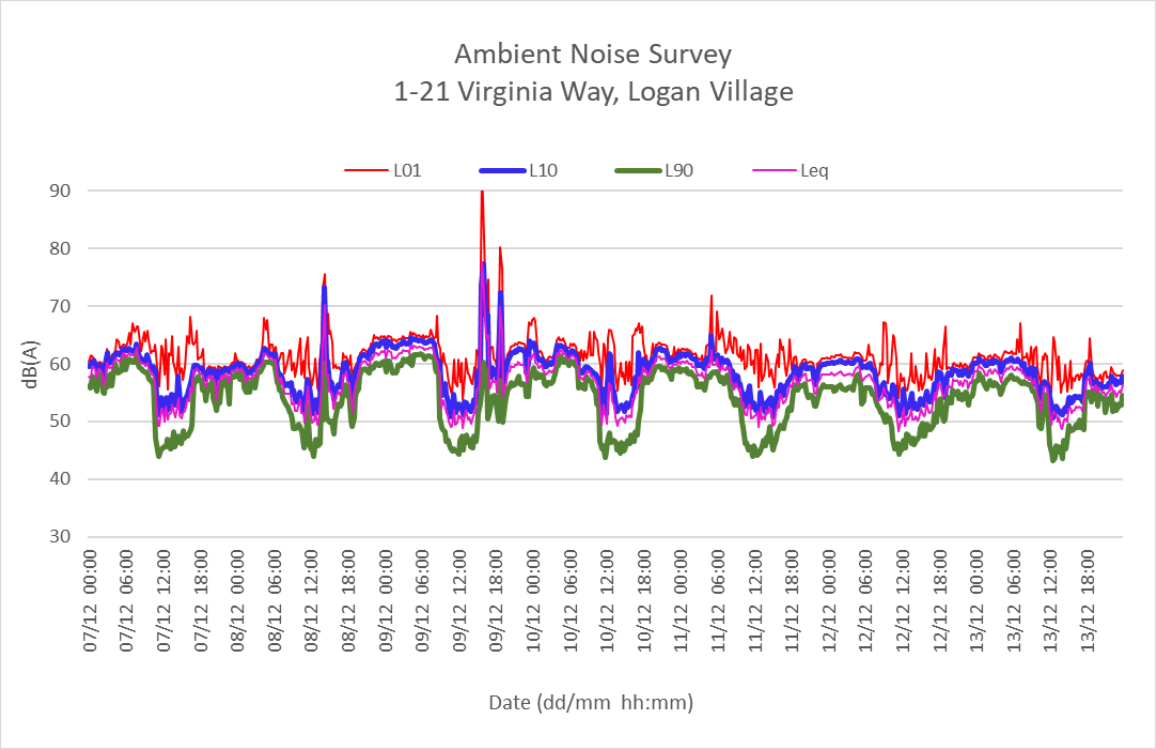


Figure 3.1: *Average ambient noise levels at ML1 (levels in dB(A), free-field).*

Upon interrogation of the audio recording it was determined that the sound levels in this locality during the survey period are dominated by insect and frog noise from around 4pm to around 11am the following day. Birds are also most active in the hours after sunrise and before sun set. Distant road traffic is also audible throughout. These are the most dominant sources of noise in the area.

Dog barking was also audible occasionally and is analysed in detail in the following section of this report. It is possible that ambient background sound levels may change seasonally due to insect, frog and bird activity. The rating background sound level (or minL90) has been calculated in accordance with the (former) Department of Environment and Heritage Protection Planning for Noise Control Guideline as it provides a more conservative background for assessment purposes.

Table 3.1: *Average min L90 sound levels at ML1 (levels in dB(A), free-field, a-typical and weather affected data removed).*

Date	Day	$_{min}L_{90}$ Day (7:00am – 6:00pm)	$_{min}L_{90}$ Evening (6:00pm – 10:00pm)	$_{min}L_{90}$ Night (10:00pm - 7:00am)
07/12/2021	Tuesday	46	54	56
08/12/2021	Wednesday	46	53	56
09/12/2021	Thursday	46	48	59
10/12/2021	Friday	45	57	56
11/12/2021	Saturday	45	54	57
12/12/2021	Sunday	**46**	**52**	**54**
13/12/2021	Monday	45	53	55
	Median	**46**	**53**	**56**

Other measured statistical levels were recorded, and are available, are not tabulated in this section.

3.3 Criteria Summary

Relevant criteria for noise assessment are derived from the noise criteria and limits presented in **section 2** of this report and the measured ambient sound levels in **section 3.1** of this report. The noise limits are summarised in **Table 3.2** below.

Table 3.2: *Summary of relevant assessment criteria. Levels are in dB(A), free-field.*

Noise Type	Time	Descriptor	Monday to Saturday	Sunday and Public Holiday
At the boundary of sensitive neighbouring premises				
Non Steady Sound	Day 7:00am – 6:00pm	$Leq_{Adj,T}$	51	51
Non Steady Sound	Evening 6:00pm – 10:00pm	$Leq_{Adj,T}$	58	57
Non Steady Sound	Night 10:00pm – 7:00am	$Leq_{Adj,T}$ / Lmax	56 / 60	54 / 60
Continuous Noise	Day 7:00am – 6:00pm	$L90_{,T}$	46	46
Continuous Noise	Evening 6:00pm – 10:00pm	$L90_{,T}$	53	52
Continuous Noise	Night 10:00pm – 7:00am	$L90_{,T}$	56	54

4.0 Environmental Noise Assessment

4.1 Environmental Noise Monitoring – Unattended Noise Logger with Audio Recording

Noise monitoring has been undertaken on site at 1-21 Virginia Way, Logan Village to measure existing ambient noise levels and noise emissions near noise sensitive receivers. The noise logger was located on the southern property boundary, approximately 80 metres from the east boundary and 1.4 metres above ground level in a free field location. The location of the instrument is between the main sources of noise emissions on site and noise sensitive receivers located further south. The approximate location of the noise logger is shown in the **Plate 3.1** below.

Plate 4.1: *Showing the noise measurement location (ML1) in relation to other noise sensitive receivers in the area.*

In order to assess noise emissions from the site the noise logger was set to record audio for 60 seconds in fifteen minute intervals; this allowed the author to listen to the sounds while also recording the levels of those sounds.

Figure 4.1 following shows the first 60 seconds of each 15 minute interval from the full 24 hours of the 7th December 2021. Intervals when at least some barking was audible are highlighted grey. The potential noise from the site identified in the audio recordings are highlighted grey and examined in detail in **Table 4.1**.

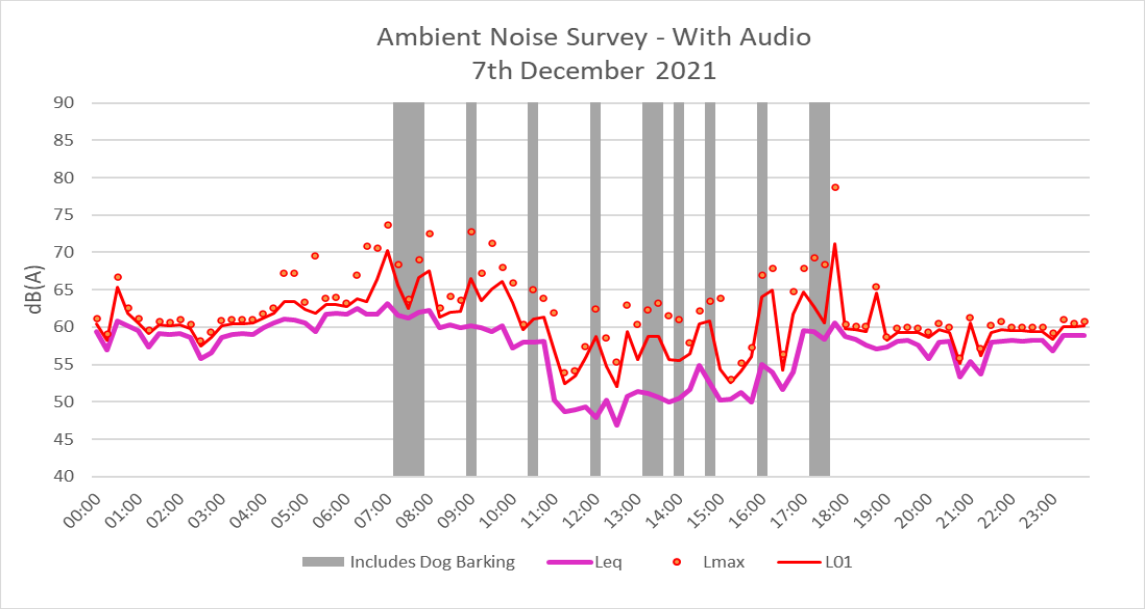


Figure 4.1: *Showing a one minute sample, per 15 minute interval with dog barking identified by audio.*

Table 4.1: *Dominant source of noise emissions identified by audio recording.*

Date	Time	LAeq, 60s	LAFmax, 60s	Dominant Sources of Noise
2021-12-07	00:00	59.4	61.1	Insects/Frogs
2021-12-07	00:15	56.9	59.0	Insects/Frogs
2021-12-07	00:30	60.8	66.7	Insects/Frogs
2021-12-07	00:45	60.2	62.6	Insects/Frogs
2021-12-07	01:00	59.5	61.1	Insects/Frogs
2021-12-07	01:15	57.3	59.6	Insects/Frogs
2021-12-07	01:30	59.1	60.7	Insects/Frogs
2021-12-07	01:45	59.1	60.7	Insects/Frogs
2021-12-07	02:00	59.1	61.0	Insects/Frogs
2021-12-07	02:15	58.6	60.4	Insects/Frogs
2021-12-07	02:30	55.8	58.1	Insects/Frogs
2021-12-07	02:45	56.6	59.3	Insects/Frogs
2021-12-07	03:00	58.7	60.8	Insects/Frogs
2021-12-07	03:15	59.0	61.0	Insects/Frogs
2021-12-07	03:30	59.1	61.0	Insects/Frogs
2021-12-07	03:45	59.0	61.0	Insects/Frogs
2021-12-07	04:00	59.9	61.8	Insects/Frogs
2021-12-07	04:15	60.6	62.6	Insects/Frogs/Birds
2021-12-07	04:30	61.1	67.2	Insects/Frogs/Birds
2021-12-07	04:45	61.0	67.2	Insects/Frogs/Birds/Distant Road Traffic
2021-12-07	05:00	60.6	63.3	Insects/Frogs/Birds/Distant Road Traffic
2021-12-07	05:15	59.4	69.5	Insects/Frogs/Birds/Distant Road Traffic
2021-12-07	05:30	61.8	63.9	Insects/Frogs/Birds
2021-12-07	05:45	61.9	64.0	Insects/Frogs/Birds/Distant Road Traffic

Table 4.1 *continued over…*

Table 4.1 (continued):.

Date	Time	LAeq, 60s	LAFmax, 60s	Source of Noise
2021-12-07	06:00	61.7	63.2	Insects/Frogs/Birds/Distant Road Traffic
2021-12-07	06:15	62.6	66.9	Insects/Frogs/Birds/Distant Road Traffic
2021-12-07	06:30	61.7	70.8	Insects/Frogs/Birds/Distant Road Traffic
2021-12-07	06:45	61.7	70.6	Insects/Frogs/Birds/Distant Road Traffic
2021-12-07	07:00	63.2	73.7	Insects/Frogs/Birds/Distant Road Traffic
2021-12-07	07:15	61.6	68.4	Dog Bark
2021-12-07	07:30	61.2	63.7	Dog Bark
2021-12-07	07:45	62.0	69.0	Dog Bark - Staff Control - Motor
2021-12-07	08:00	62.2	72.5	Dog Bark
2021-12-07	08:15	59.9	62.6	Dog Bark
2021-12-07	08:30	60.3	64.1	Insects/Frogs/Birds
2021-12-07	08:45	59.9	63.6	Insects/Frogs/Birds
2021-12-07	09:00	60.2	72.8	Dog Bark (72.8 Lmax)
2021-12-07	09:15	59.9	67.3	Insects/Frogs/Birds/Distant Road Traffic
2021-12-07	09:30	59.4	71.2	Distant Road Traffic
2021-12-07	09:45	60.1	68.0	Aircraft
2021-12-07	10:00	57.3	66.0	Insects/Frogs/Bird/Distant Road Traffic
2021-12-07	10:15	58.0	60.4	Insects/Frogs/Birds
2021-12-07	10:30	58.0	65.0	Dog Bark (small dog)
2021-12-07	10:45	58.2	63.9	Insects/Frogs/Birds/Distant Road Traffic
2021-12-07	11:00	50.3	61.9	Birds
2021-12-07	11:15	48.7	53.9	Distant Road Traffic
2021-12-07	11:30	48.9	54.2	Birds/Distant Road Traffic
2021-12-07	11:45	49.3	57.5	Birds/Distant Road Traffic
2021-12-07	12:00	47.9	62.5	Dog Bark / Dog Bark (small dog)
2021-12-07	12:15	50.2	58.5	Birds/Distant Road Traffic
2021-12-07	12:30	46.8	55.3	Distant Road Traffic
2021-12-07	12:45	50.7	63.0	Distant Road Traffic
2021-12-07	13:00	51.4	60.4	Birds/Distant Road Traffic
2021-12-07	13:15	51.1	62.3	Dog Bark
2021-12-07	13:30	50.6	63.3	Dog Bark
2021-12-07	13:45	49.9	61.6	Birds
2021-12-07	14:00	50.5	61.0	Dog Bark x 1
2021-12-07	14:15	51.7	57.9	Birds/Aircraft
2021-12-07	14:30	54.9	62.2	Aircraft
2021-12-07	14:45	52.5	63.4	Birds/Dog Bark
2021-12-07	15:00	50.2	63.9	Birds/Insects/Frogs/Distant Road Traffic
2021-12-07	15:15	50.4	53.0	Birds/Insects/Frogs/Distant Road Traffic
2021-12-07	15:30	51.3	55.2	Birds/Insects/Frogs/Distant Road Traffic
2021-12-07	15:45	50.0	57.3	Birds/Insects/Frogs/Distant Road Traffic

***Table 4.1** continued over…*

Table 4.1 *(continued):.*

Date	Time	LAeq, 60s	LAFmax, 60s	Source of Noise
2021-12-07	16:00	55.0	67.0	Dog Bark/Birds/Insects/Frogs
2021-12-07	16:15	54.0	67.9	Birds/Insects/Frogs/Distant Road Traffic
2021-12-07	16:30	51.6	56.4	Birds/Insects/Frogs/Distant Road Traffic
2021-12-07	16:45	54.0	64.7	Birds/Insects/Frogs/Distant Road Traffic
2021-12-07	17:00	59.5	67.8	Birds/Insects/Frogs/Distant Road Traffic
2021-12-07	17:15	59.4	69.3	Birds/Insects/Frogs/Dog Bark
2021-12-07	17:30	58.3	68.4	Birds/Insects/Frogs/Dog Bark
2021-12-07	17:45	60.6	78.7	Birds/Insects/Frogs/Distant Road Traffic
2021-12-07	18:00	58.7	60.4	Birds/Insects/Frogs/Distant Road Traffic
2021-12-07	18:15	58.4	60.2	Birds/Insects/Frogs/Distant Road Traffic
2021-12-07	18:30	57.6	60.1	Insects/Frogs/Distant Road Traffic
2021-12-07	18:45	57.0	65.4	Insects/Frogs/Distant Road Traffic
2021-12-07	19:00	57.3	58.6	Insects/Frogs
2021-12-07	19:15	58.1	59.8	Insects/Frogs
2021-12-07	19:30	58.3	60.0	Insects/Frogs
2021-12-07	19:45	57.6	59.9	Insects/Frogs
2021-12-07	20:00	55.8	59.4	Insects/Frogs
2021-12-07	20:15	58.0	60.5	Insects/Frogs
2021-12-07	20:30	58.2	60.0	Insects/Frogs
2021-12-07	20:45	53.4	55.8	Insects/Frogs
2021-12-07	21:00	55.4	61.3	Insects/Frogs
2021-12-07	21:15	53.7	57.1	Insects/Frogs
2021-12-07	21:30	58.0	60.2	Insects/Frogs
2021-12-07	21:45	58.2	60.7	Insects/Frogs
2021-12-07	22:00	58.3	59.9	Insects/Frogs
2021-12-07	22:15	58.1	60.0	Insects/Frogs
2021-12-07	22:30	58.2	59.9	Insects/Frogs
2021-12-07	22:45	58.2	60.0	Insects/Frogs
2021-12-07	23:00	56.8	59.3	Insects/Frogs
2021-12-07	23:15	58.9	61.0	Insects/Frogs
2021-12-07	23:30	58.9	60.5	Insects/Frogs
2021-12-07	23:45	58.9	60.8	Insects/Frogs

End of ***Table 4.1****.*

From the 24 hour observations from the 7th of December 2021 it has been concluded that:

- Dog barking is audible at the (southern) site boundary;
- Dog barking is intermittent and limited to daytime hours and not evening or night time.

4.2 Attended Nosie Monitoring

Attended noise monitoring has been undertaken on site at 1-21 Virginia Way, Logan Village to measure the sound level from the dogs at the site boundaries in the direction of the nearest dwellings with the purpose of determining compliance or non compliance by way of measurement. The measurements were undertaking on the 16th December 2021. The duration for each measurement was for 15 minutes. The location of each measurement is shown in the **Plate 4.2** below.

Ambient sound pressure levels were measured generally in accordance with the Department of Environment and Science *Noise Measurement Manual 2020* and Australian Standard AS1055:2018 - *Acoustics-Description and measurement of environmental noise*.

The instrument was field calibrated before and after the measurement session and the instrument was found to match the reference signal. All instrumentation used in this assessment holds a current calibration certificate from a certified NATA calibration laboratory. The following instruments were used to measure the ambient noise levels-

- Larson Davis Class 1 environmental noise logger;
- Larson Davis CAL200 Class 1 calibrator.

Plate 4.2: *Showing the attended noise measurement location and location of dogs during survey.*

The measured sound levels in 1 second intervals Each second where a dog was barking has been highlighted grey to represent the frequency and duration of the dog barks over a 15 minute period. It was observed that the dogs were generally quiet and that the dogs barked more frequently when a person (other than staff) would approach the building or the dog runs. During each attended period, the surveyor approached the facility which excited the dogs and the excided state generally lasted less than one minute. This simulates an owner or other person visiting the facility and exciting the dogs. The measured are presented in **Figure 4.1** to **Figure 4.3** for each location. A photo of ten large dogs in the dog run is shown in **Photo 4.1** below.

Photo 4.1: *Showing ten large dogs in the dog run during the attended noise monitoring.*

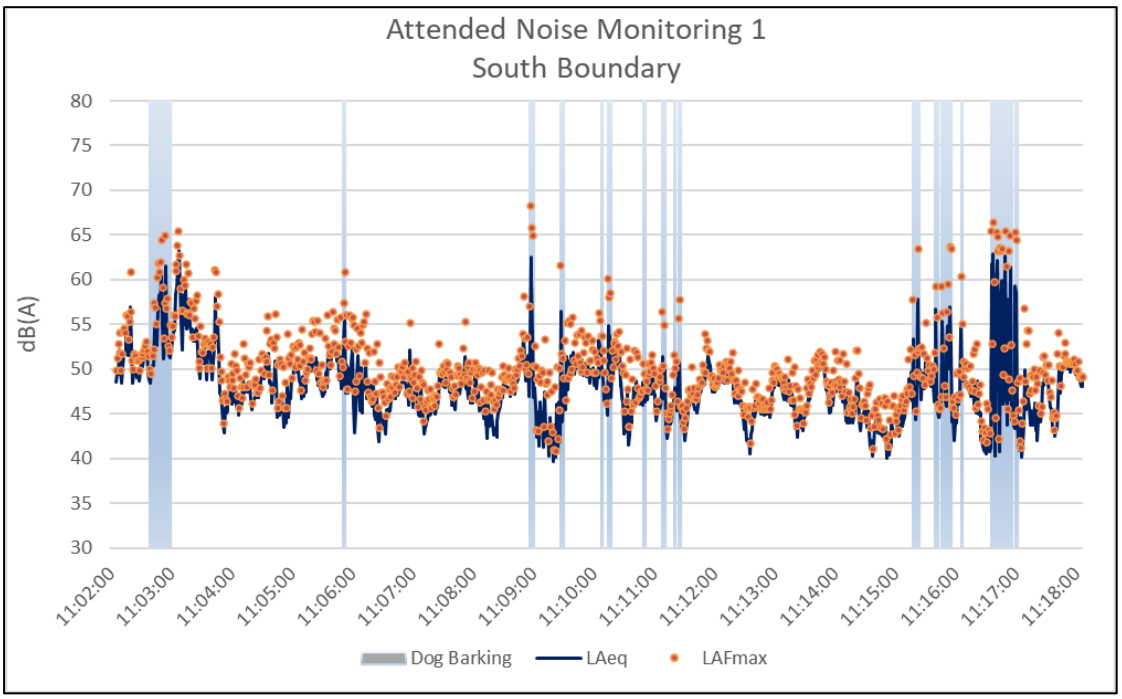


Figure 4.1: *Measured sound levels at the southern boundary and identified dog barking.*

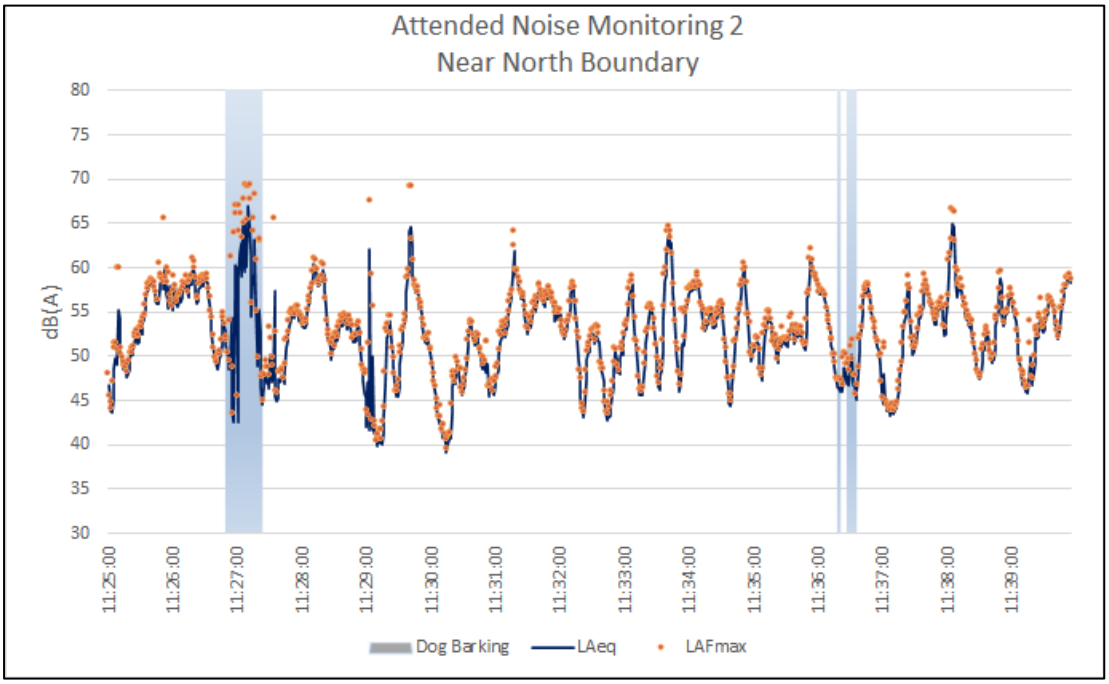


Figure 4.2: *Measured sound levels near the north boundary and identified dog barking.*

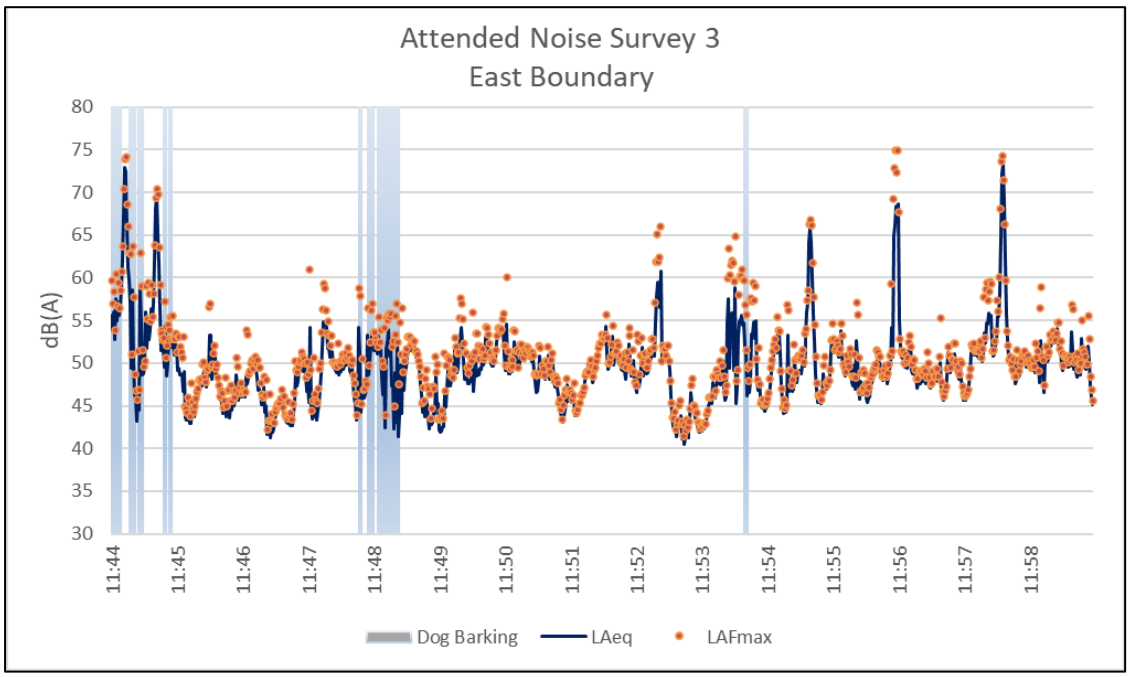


Figure 4.3: *Measured sound levels near the north boundary and identified dog barking.*

The measured sound level of the dog barking has been summarised in **Table 4.3** below. The dog barking has been identified by audio recording and notes during attended monitoring. The total duration of dog barking over the three attended surveys was 160 seconds with 79 seconds being the longest duration during a 15 minute period. The dogs were approached and excided during the monitoring period, which is representative of dog pick up and drop off times or when a visitor arrives. It was observed that the facility staff actively discouraged barking and were successful in reducing the duration of dog barking frequency and duration.

Table 4.3: *Measured Leq and Lmax from dog barking at the site boundaries.*

Attended Measurement Location	Representative Location	Duration of Dog Barking,t (within 15 minutes)	LAeq,t (Dogs Only)	Lmax,t (Dogs Only)	LAeq,15m (Dog Barking Only)
1	South Boundary	79s	56.0	68.3	45.4
2	(Near) North Boundary	32s	60.4	69.5	45.8
3	East Boundary	49s	53.4	63.7	40.7

4.3 Assessment of Dog Barking

It has been considered, the measured dog noise at attended measurement Location 1 is the boundary of premises nearest the exterior dog run. There were ten large dogs in the dog run at the time of the survey. The measured dog noise in **Table 4.3** is assessed against the Logan City Planning Scheme presented in **Section 2** and summarised in **Section 3.3** of this report. Dog noise has also been considered to have special audible characteristics and +5 dB(A) adjustment for impulsiveness of a dog bark is part of this assessment. It has been concluded from unattended monitoring, with audio recording, that dogs are kept inside at night and dog barking was not identified during the night time or evening time periods.

The measured dog barking at the boundary of premises is assessed in **Table 4.4**.

Table 4.4: *Measured Leq from a group of ten dogs barking (only) assessed to Logan City Council Assessment Criteria.*

Representative Location	Noise Type	Noise Source	Duration of Dog Barking	Dog Bark LAeq,79s	Dog Barking (only) LAeq,15min	Dog Barking (only) adjusted LAeq,Adj,15min	Criteria D/E/N (LAeq,adj,T)	Comply
South Boundary of Premises	Non Steady Sound	Dog Barking (group of ten)	79s	56	45	50	51/58/56	Yes/Yes/Yes

The measured sound levels at the boundary and assessment are from a real group of approximately ten dogs, as showing in **Photo 4.1** in section **4.2**.

5.0 Assessment Conclusions and Recommendations

5.1 Assessment to Logan City Planning Scheme

Attended and unattended noise monitoring of the animal keeping facility (currently in use) demonstrates that the following Performance Outcomes P08 and P018 of the Logan City Planning Scheme (summarised in section 2.1 of this report) are achieved through the Acceptable Outcomes below:

Acceptable Outcome A08;

a. Noise emissions from the animal keeping facility, which is currently in use, have been assessed to be compliant by way of measurement of dog barking at the boundary of adjacent residential premises, as set out in section 4 of this Report. The measured noise emissions have been assessed to the standards of Table 3.2.1.1 of Logan City Council Planning Scheme Policy 3.
b. All adjacent Lots have been considered residential use and this performance outcome has not been applied.
c. to f. Not part of this report.

Acceptable Outcome A018;

a. to f. These outcomes are considered planning matters and not part of this report. The facility is generally well set back from boundaries. An acoustic fence for visual screening (AO f. iii.) can be considered around the dog runs to further reduce noise emissions and reduce visual stimulation for the dogs (which may reduce barking frequency). The impact of an acoustic fence has not been assessed due to noise emissions complying with Acceptable Outcome A08 a. by way of measurement at the boundary of adjacent residential premises.

5.2 Conclusions

It is concluded that:

- The relevant parts of Performance Outcome P08 and P018 (for noise emissions) are achieved, determined by way of measurement at the boundary of adjacent residential premises for a group of approximately ten large dogs in the dog run;
- An acoustic fence for visual screening (AO f. iii.) can be considered around the dog runs to further reduce noise emissions and reduce visual stimulation for the dogs (which may reduce barking frequency). The impact of an acoustic fence has not been assessed due noise emissions complying with Acceptable Outcome A08 a. by way of measurement at the boundary of adjacent residential premises
- The 24 hour observations from the 7th of December 2021 demonstrated that dog barking is audible at the site boundaries;
- Dog barking is intermittent and limited to daytime hours;
- Dogs that stay overnight are kept indoors during evening and night time;
- Doors and windows are generally kept closed and the indoor dog area is air conditioned;
- Dogs are generally quiet and bark more when excited, such as when people (not staff) approach the facility. This generally occurs during the morning and afternoon pick up;
- Staff were observed to actively successfully discourage continuous barking;

5.3 Recommendations

It is recommended that:

- Dogs are kept indoors during evening and night time periods;
- Doors and windows are to be kept closed during evening and night time periods;
- Staff are trained in dog behaviour to discourage continuous dog barking.

5.4 Caution

The conclusions and recommendations above are based solely on supplied information and surveyed under operating conditions available at that time. The average sound levels are likely to change slightly from day to day and will change from location to location depending on the number and type of dogs at the facility. The conclusions and recommendations take no account of degradation or maintenance of equipment over time, nor the circumstances of instances of use of equipment as may occur from time to time.

APPENDIX A: Definitions

Noise assessment terms used in this Report include-

Event maximum sound pressure level ($L_{A\%,adj,T}$), L01

The L01 level is calculated as the noise level equalled and exceeded for 1% of the measurement time, for example 9 seconds in any 15 minute interval. L01 is an appropriate level to characterise single events, such as from train bypass.

Average maximum sound pressure level ($L_{A\%,adj,T}$), L10

The "L10" level is an indicator of "steady-state" noise or intrusive noise conditions from traffic, music and other relatively non-impulsive noise sources. The L10 level is calculated as the noise level equalled and exceeded for 10% the measurement time, for example 90 seconds in any 15 minute interval. The measured L10 time-intervals for day/evening/night are arithmetically averaged to present the "average maximum" levels of the environment for day/evening/night. The level can be adjusted for tonality or impulsiveness.

Background sound pressure level ($L_{A90,T}$), L90

Commonly called the "L90" or "background" level and is an indicator of the quietest times of day, evening or night. The L90 level is calculated as the noise level equalled and exceeded for 90% the measurement time. The measured L90 time-intervals are arithmetically averaged to present the "average background" levels of the environment for day/evening/night. The level is recorded in the absence of any noise under investigation. The level is not adjusted for tonality or impulsiveness.

Rating Background Level (RBL)

The overall, single-figure, background level representing each assessment period (day/evening/night) over the whole monitoring period (as opposed to over each 24-hour period used for the assessment of background level). This is defined as the median value of all the day evening or night assessment background levels.

Equivalent Continuous or time average sound pressure level ($L_{Aeq,T}$), Leq

Commonly called the "Leq" level it is the logarithmic average noise level from all sources far and near. The level can be adjusted for tonality.

Adjustments to levels

Under some circumstances, noise levels may be "adjusted" for tonal or impulsive characteristics by the addition of +2 or +5 dB. The adjustments are made in accordance with AS1055. Measured noise levels are not normally adjusted for the purposes of a traffic noise assessment.

Free-field level

A sound level that is measured at a distance of more than 3.5 metres from a wall or facade.