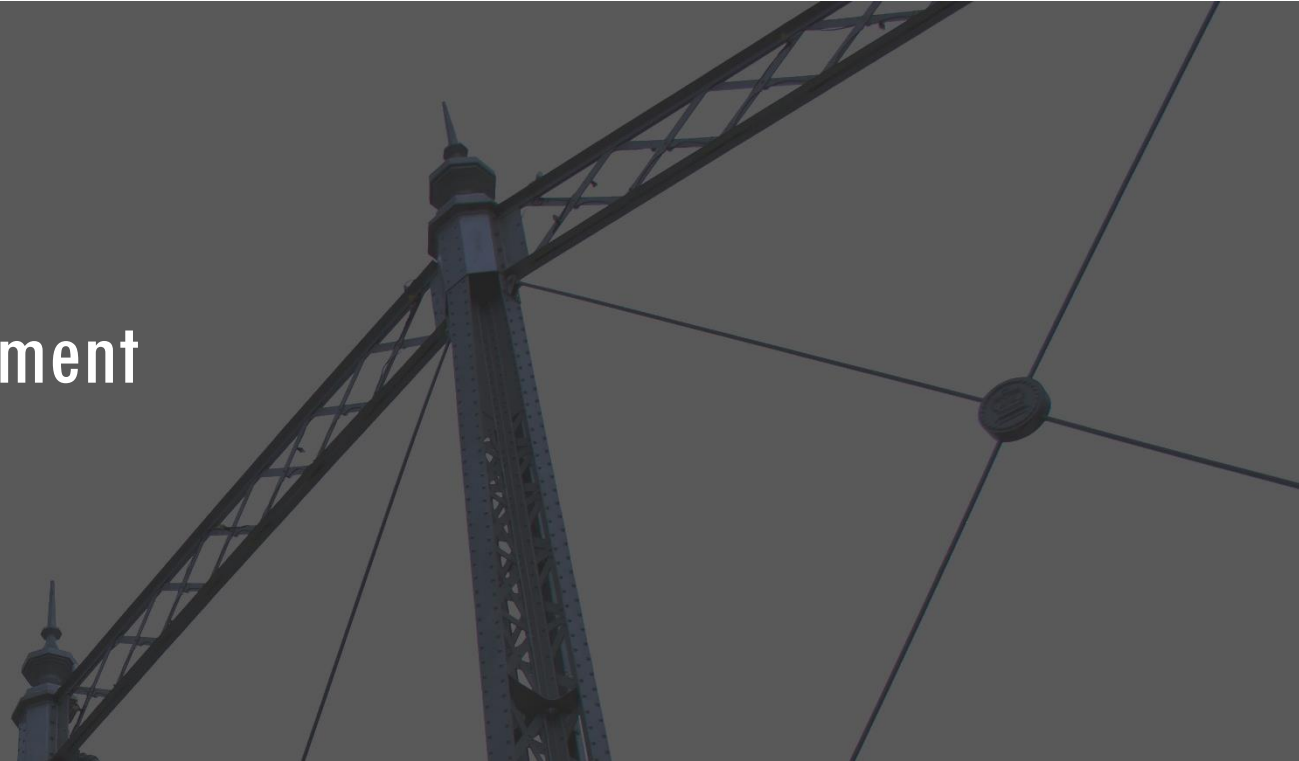


Appendix B

Environmental Noise Assessment



PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2023/1404

Date: 21 February 2025



Environmental Noise Assessment

Material Change of Use for Animal Keeping

At 5 Hercules Street, Hamilton

On behalf of Paws and Relax Pty Ltd

23BRA0057 R01_1



About TTM

For 40 years, we've been at the centre of the Australian development and infrastructure industry. Our unique combination of acoustics, data, traffic and waste services is fundamental to the success of any architectural or development project.

We have over 50 staff, with an unrivalled depth of experience. Our industry knowledge, technical expertise and commercial insight allow us to deliver an exceptional and reliable service.

T: (07) 3327 9500

F: (07) 3327 9501

E: ttmbris@ttmgroup.com.au



Revision Record

No.	Author	Reviewed/Approved	Description	Date
A	A Ashworth	S Yorke	Internal draft	16/05/2023
0	A Ashworth	S Yorke	Client issue	16/05/2023
1	A Ashworth		Client DA Issue	18/05/2023

Executive Summary

TTM was engaged by Paws and Relax Pty Ltd to undertake an environmental noise assessment of a material change of use for animal keeping (dog day care facility), located at 5 Hercules Street, Hamilton. The assessment was based on the Northshore Hamilton Priority Development Area (PDA) planning scheme (October 2022) and Brisbane City Council City Plan 2014 Planning Scheme.

Unattended noise monitoring was undertaken to establish the existing ambient noise levels and onsite noise monitoring of an existing dog day care facility. Operating noise was assessed onto the nearest noise sensitive receivers.

Compliance with the Northshore Hamilton PDA scheme and City Plan 2014 planning scheme is predicted to be achieved based on the recommendations outlined in Section 7 of this report.

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1 Introduction

1.1 Background

TTM was engaged by Paws and Relax Pty Ltd to undertake an environmental noise assessment of a material change of use for animal keeping, located at 5 Hercules Street, Hamilton.

1.2 References

This report is based on the following:

- Northshore Hamilton Urban Development Area Development Scheme, October 2022
- Brisbane City Council *City Plan 2014*
- *Noise impact assessment planning scheme policy* - Schedule 6, City Plan 2014
- Development plans shown in Appendix A
- Site inspection, noise measurements, analysis and calculations conducted by TTM

1.3 Scope

The assessment includes the following:

- Description of the development site and proposal
- Measurement of existing ambient noise levels and statement of assessment criteria relating to environmental noise emissions
- Assessment of the external noise environment.
- Assessment of noise generated by the development onto nearby noise sensitive receivers.
- Details of noise control recommendations to be incorporated to achieve predicted compliance.

2 Site Description

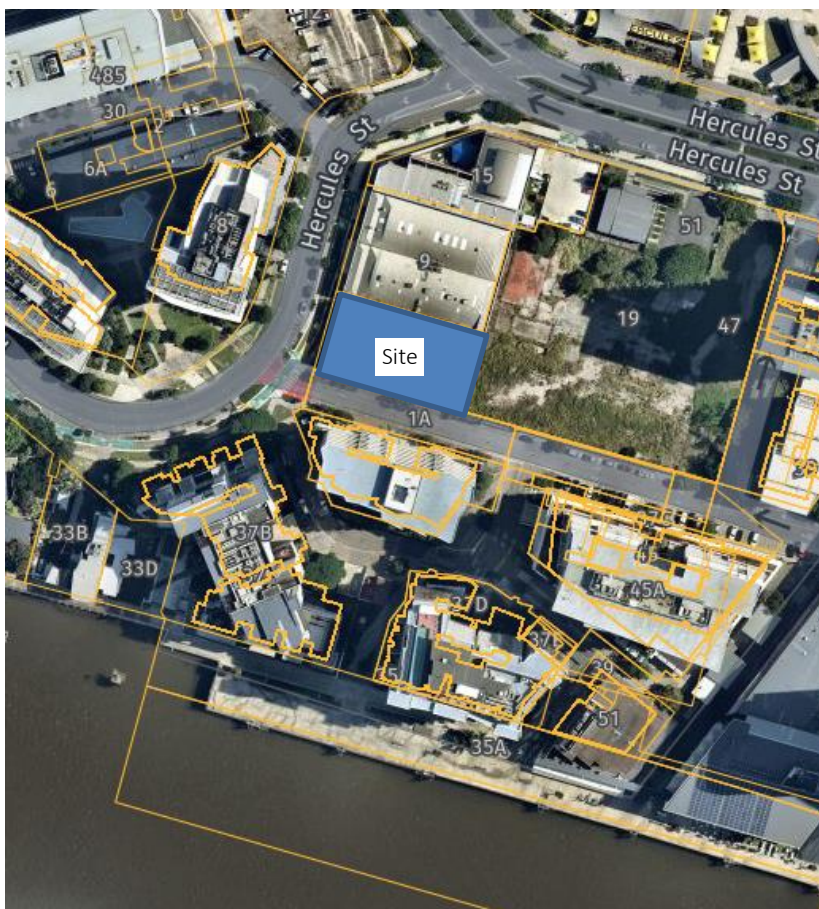
2.1 Site Location

The site is described by the following:

- 5 Hercules Street, Hamilton

The site locality is shown in Figure 1.

Figure 1: Site Locality



2.2 Description of Surrounding Environment

The site is bound by Hercules Street to the west, commercial properties to the north, a lane way to the south and potential, future residential properties to the east. The current acoustic environment primarily consists of local road traffic noise.

3 Proposed Development

3.1 Development Description

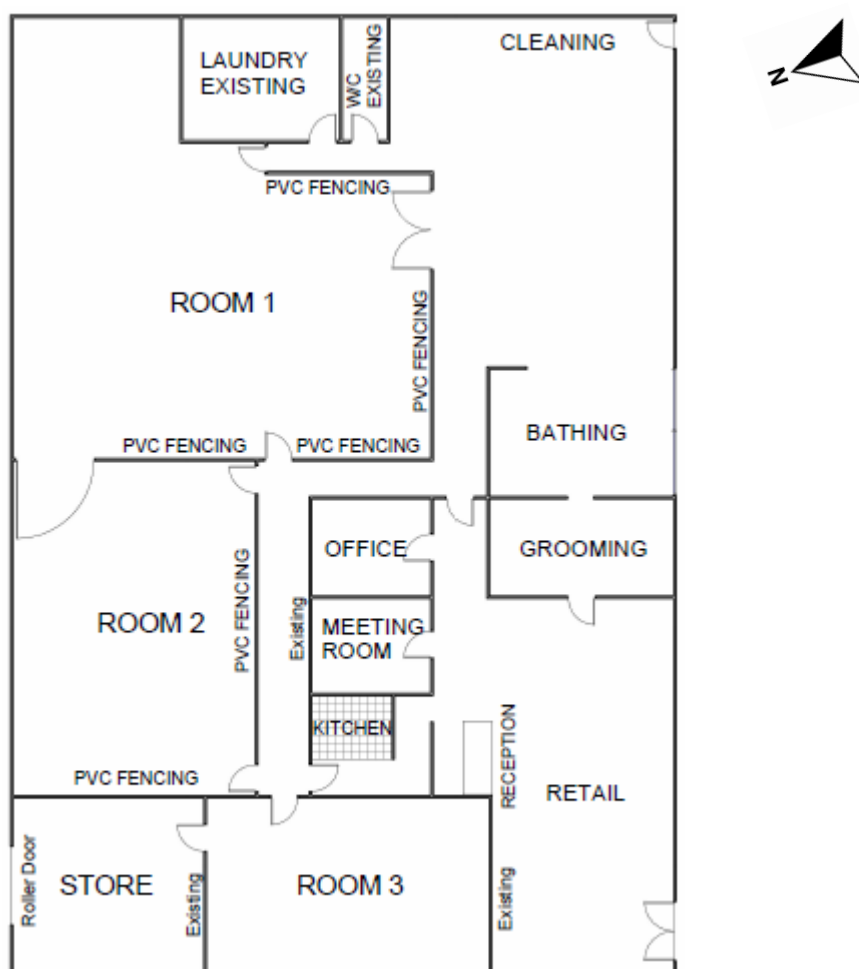
The proposal is a dog day care centre comprising an internal fit-out of the existing building on the site. There are to be multiple areas for the dogs (separated by PVC fencing) and a separate reception / office / retail area. The proposal is to provide a capacity for up to 50 dogs as well as providing dog grooming services. There will be no on-site car parking.

The proposed hours of operation are:

- Monday to Friday 6.30am - 6.30pm (Dog Day Care and Grooming)
- Saturday 8.30am - 3.00pm (Grooming Only)

A plan of the development is shown in Figure 2. Further development plans are provided in Appendix A.

Figure 2: Proposed Development Plan



4 Measurements

4.1 Equipment

The following equipment was used to measure existing noise levels:

- Norsonic Nor140 sound level meter as a logger (SN# 1406505)
- Norsonic Nor140 sound level meter as a logger (SN# 1406507)
- Norsonic Nor131 sound level meter (SN# 1313158)
- RION NC-73 acoustical calibrator (SN# 10697023)

All equipment was calibrated by a National Association of Testing Authorities (NATA) accredited laboratory. The equipment was field calibrated before and after the measurement session. No significant drift from the reference signal was recorded.

4.2 Unattended Noise Monitoring

Unattended noise monitoring was conducted to establish the existing ambient noise levels between Friday 13th November and Wednesday 18th November 2020. The noise monitor was located on the site, as shown in Figure 3. The monitor position was considered representative of the ambient noise levels experienced by the nearby noise sensitive receivers with consideration to access and security requirements.

Figure 3: Noise Monitoring Location



The ambient noise monitor was in a free-field location and 1.5m above ground level. The monitor was set to measure statistical noise levels in 'A'-weighting, 'Fast' response, over 15 minute intervals. Ambient noise levels were measured in accordance with Australian *Standard AS1055:October 2022 Acoustics – Description and Measurement of Environmental Noise* (AS1055).

Weather during the monitoring period was generally fine with rain occurring on the 18th November (source: Bureau of Meteorology). Weather affected data was excluded from the analysis.

4.3 Noise Source Measurements

Noise levels associated with typical activities which may impact noise sensitive receivers were taken from similar investigations conducted by TTM. Measurements were conducted generally in accordance with Australian Standard AS1055.

Noise levels associated with the dog day care centre were taken from noise monitoring of an existing dog day care facility to monitor the average and maximum noise levels between Tuesday 9th and Friday 12th May 2023. The full days of Wednesday 10th and Thursday 11th, May were analysed along with information regarding the number of dogs within the facility at the time. The noise monitoring noise levels include all internal noises (dogs barking, dog grooming, drying, conversation etc).

Attended measurements were also taken of dogs barking and the dog blow drying machine to verify the noise logging measurements.

4.4 Results of Noise Measurements

4.4.1 Ambient Noise Levels

Table 1 presents the measured ambient noise levels. The Rating Background Level (RBL) was determined in accordance with the BCC *Noise Impact Assessment Planning Scheme Policy* (NIAPSP). Graphical presentation of the measured levels is shown in Appendix B. The measurement results were used to determine the assessment criteria for the development.

Table 1: Measured Ambient Noise Levels

Time Period	Measured Noise Levels, dB(A)	
	RBL L ₉₀	L _{eq}
Daytime (7am – 6pm)	52	57
Evening (6pm – 10pm)	51	56
Night time (10pm – 7am)	48	52
Operating hours (night)		
Night Time Operation (6am – 7am)	50	53

4.4.2 Noise Source Measurements

Table 1 presents the measured internal noise levels of the existing dog day care centre. The measurement results were used to determine the assessment criteria for the development.

Table 2: Measured Ambient Noise Levels – Noise Logger

Time Period 6.30am-6.30pm (operating hours)	Measured Noise Levels, dB(A)	
	Avg L_{Aeq}	Max $L_{Aeq,1hr}$
Wednesday (17 dogs)	66	77
Thursday (17 dogs)	69	80

The worst case noise logging measurement of $L_{Aeq,1hr}$ **80dB(A) for 17 dogs** will be used to calculate the noise source level.

5 Noise Criteria

The applicable noise criteria codes for the site location are the Northshore Hamilton PDA Scheme (October 2022) and Brisbane City Plan 2014.

5.1 Northshore Hamilton PDA Scheme

Northshore Hamilton Urban Development Area Development Scheme (October 2022) states in relation noise criteria:

General noise requirements

Development achieves acceptable noise levels for noise sensitive uses in affected areas

2.5.9.1 Noise

Development manages the noise amenity expectations of different land uses, especially sensitive land uses, with consideration for the variety of noise sources that may contribute to background noise levels in the PDA, such as aircraft operations, transport noise, marine activities, industrial activities and mixed-used urban environments.

Development is designed, sited and constructed to:

i. mitigate exposure of occupants to noise impacts from:

- a. industrial noise sources,*
- b. airport and aviation facilities,*
- c. marine facilities,*
- d. designated transport noise corridors, and*

ii. meet building standards for recommended sound levels for building interiors, and

iii. achieve minimum acoustic environmental values for indoor and outdoor areas.

The applicable noise assessment aspects are potential onsite noise emissions from commercial activities such as dogs barking and conversation noise. These are best addressed by using the performance and acceptable outcomes within City Plan 2014.

5.2 City Plan 2014

The Brisbane City Council City Plan 2014 details site specific planning scheme zones, overlays and codes relevant to a site in the BCC local government area. Table 3 summarises the planning scheme requirements for the site which are relevant to the acoustic assessment.

Table 3: City Plan 2014 - Site Specific Acoustic Requirements

Location	Zone	Development Code
Site	Emerging Community	Animal Keeping Code
Noise Sensitive Receivers	Emerging Community	n/a

5.2.1 Animal Keeping Code

The development includes animal keeping and is therefore assessed against the *Animal Keeping Code*.

Table 4 summarises the acoustic requirements that apply to the site.

Table 4: Multiple Dwelling Code Performance Outcomes

Performance Outcomes	Acceptable Outcomes
PO1 Development for animal keeping protects an occupant of a nearby sensitive use from adverse noise impacts, including sleep disturbance, through design, siting and construction that prevents or reduces the emission of noise beyond the development site by ensuring noise emissions do not exceed: a. $L_{Aeq,adj,15min}$ emitted from the development is not greater than the rating background level plus 3 at a sensitive use; b. Where $L_{Aeq,adj,15min}$ is the A-weighted equivalent continuous sound pressure level during a 15 minute measurement time, adjusted for tonal and impulsive noise characteristics, determined in accordance with the methodology described in the Noise impact assessment planning scheme policy. Note—Rating background level is to be determined in accordance with the methodology described in the Noise impact assessment planning scheme policy. Note—A noise impact assessment report prepared in accordance with the Noise impact assessment planning scheme policy can assist in demonstrating achievement of this performance outcome.	AO1 Development ensures that animal noise is not clearly audible and does not create a disturbance within a dwelling or its associated balconies/patios.

It is recommended to comply with the noise emission criteria of Performance Outcome PO1 of the Animal Keeping Code at nearby sensitive uses, the criteria is presented in Table 5.

5.2.1.1 Noise (Planning) Criteria

The noise emission criteria of Performance Outcome PO1 of the Animal Keeping Code is presented in Table 5.

Table 5: Noise (Planning) Criteria

Criteria Location	Intrusive noise criteria, dB(A) Day, evening and night $L_{Aeq,adj,T}$ are not greater than the RBL plus the value shown in Column 1			
	Column 1	Day 7am-6pm	Evening 6pm-10pm	Night 6am-7am
Nearby Sensitive Use	+3	55	54	53

Day: 7am – 6pm. Evening: 6pm – 10pm. Night 10pm – 7am.

6 Assessment – Onsite Noise

The following section presents an assessment of noise associated with the development to determine the potential impacts at the nearest sensitive receivers.

6.1 Noise Sensitive Receivers

This assessment will focus on the nearest noise sensitive receivers as outlined below and shown in Figure 4. If compliance can be achieved at these nearest receivers, then all remaining noise sensitive locations are expected to comply.

- Receiver 1: Residential use in an Emerging community zone to the south of the site
- Receiver 2: Residential use in an Emerging community zone to the west of the site

Figure 4: Noise Sensitive Receivers



6.2 Noise Source Levels

Table 6 presents the typical noise sources with the potential to impact noise sensitive receivers and the respective measured noise levels. The noise source levels were calculated to one metre and include corrections for tonality and impulsiveness as per *AS1055* where applicable.

Table 6: Typical Transient Noise Source Levels

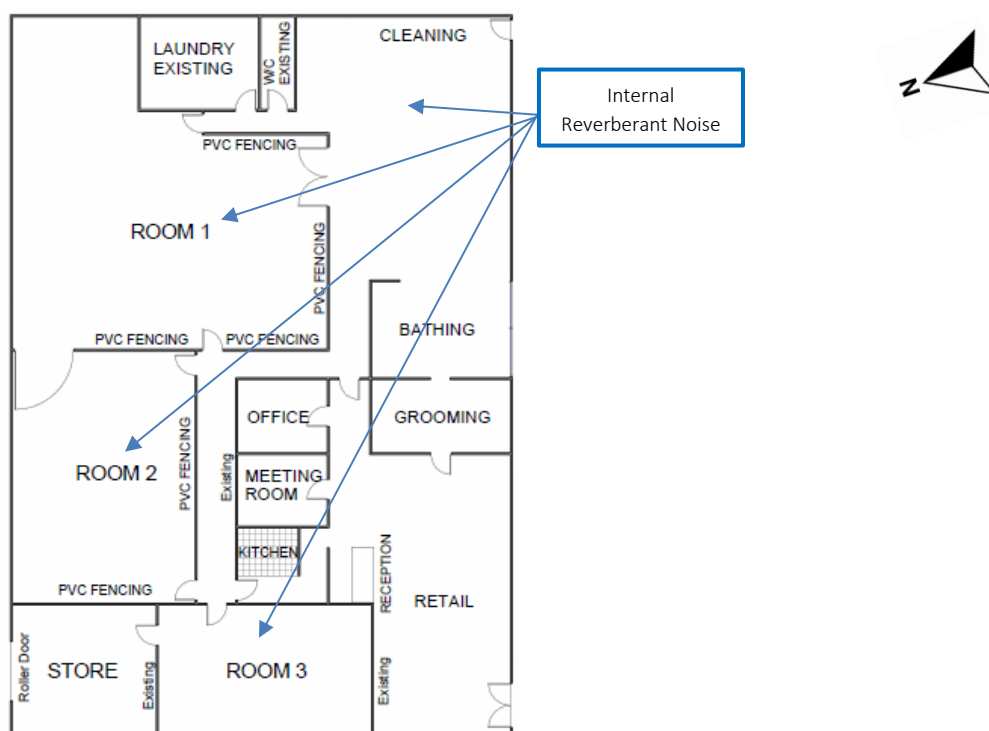
Noise Source Description	Measured Duration (sec)	Noise Level at 1m, dB(A)	'Peak' events per hour or % of period
		$L_{Aeq,T}$	
Internal Reverberant Noise (50 dogs + all other noise sources)	3600	85	100%

6.3 Noise Assessment Methodology

The following assumptions have been made for noise calculations:

- The proposed operation of the dog day care centre is to operate with up to 50 dogs on site (internally) as well as grooming activities being conducted internally. The combined noise levels for these noise sources is based off measurements done by TTM at the existing Eagle Farm site.
 - Measured internal noise levels, Maximum $L_{eq,15min}$ with 17 dogs on site, and grooming activities being conducted: 80 dBA
 - Predicted maximum internal noise levels, Maximum $L_{eq,15min}$ with 50 dogs on site and grooming activities being conducted: 85 dBA
- To calculate the noise transmission to Receiver 1 the following façade details were considered.
 - Building façade (east): 4mm glazing (Rw24) (weakest component) and Concrete + Brick wall (Rw50+)
 - Building façade (south): Timber Door (Rw20) (weakest component), Roller Door (Rw22), 6mm glazing (Rw25) and Concrete + Brick wall (Rw50+)
 - Noise attenuation from distance loss to Receiver 1.
- To calculate the noise transmission to Receiver 2 the following façade details were considered.
 - Building façade (north): Roller Door (Rw22) (weakest component), 4mm glazing (Rw24) and Concrete + Brick wall (Rw50+)
 - Screening from the intervening building to the north has been ignored for this assessment.
 - Noise attenuation from distance loss to Receiver 2.
- Calculations are included in Appendix C.
- Figure 5 presents the relevant noise activity locations.

Figure 5: Noise Activity Locations



6.4 Predicted Noise Levels at Receivers

The predicted noise levels from typical onsite activities are based on the noise sources presented in Table 6 and the assumptions outlined in Section 6.3. Calculations are included in Appendix C.

6.4.1 Noise Planning Criteria – L_{eq}

Table 7 presents the predicted noise emission levels.

Table 7: Predicted Noise Planning Impacts

Receiver	Noise Source	Predicted External Noise Level L_{Aeq} dB(A)	Complies with Criteria?		
			Day 7am - 6pm 55 dB(A)	Evening 6pm - 10pm 54 dB(A)	Night 6am – 7am 53 dB(A)
1	Internal Reverberant Noise Level	38	✓	✓	✓
2	Internal Reverberant Noise Level	32	✓	✓	✓

Noise activities are predicted to comply with the relevant noise criteria at all receivers.

7 Recommendations

Recommended noise mitigation measures are presented in this section to achieve predicted compliance with the relevant assessment criteria.

7.1 Façade Treatment

The following façade treatment is recommended to achieve predicted compliance and minimise noise annoyance:

- a. During internal fit out:
 - i. Any broken windows and doors in the dog day care area should be fixed / replaced.
 - ii. Any holes in the façade in the dog day care area should be repaired / patched.

7.2 Management Strategies

The following management strategies are recommended to achieve predicted compliance and minimise noise annoyance:

- a. Facades within the dog keeping areas are to remain closed during operation.

7.3 Mechanical Plant

As detailed mechanical plant selections are not available at this stage, it is not possible to carry out a detailed examination of any attenuation measures that may be required to achieve the noise criteria.

To comply with planning scheme acceptable outcomes for mechanical plant (City Plan 2014), we recommend the following for plant with the potential to adversely impact nearby sensitive receivers:

Development ensures mechanical plant is acoustically screened from nearby sensitive uses.

The definition of 'acoustically screened' is provided in Table SC1.2.3.B of Brisbane City Plan 2014, Schedule 1 Definitions:

The source of noise is completely screened from view of habitable rooms (including balconies, patios, decks and verandas) of an adjoining sensitive use by solid, gap free material and construction e.g. acoustic fence, building, or enclosure.

Acoustic barrier: Solid, gap free barrier with minimum surface density of 12.5kg/m²

8 Conclusion

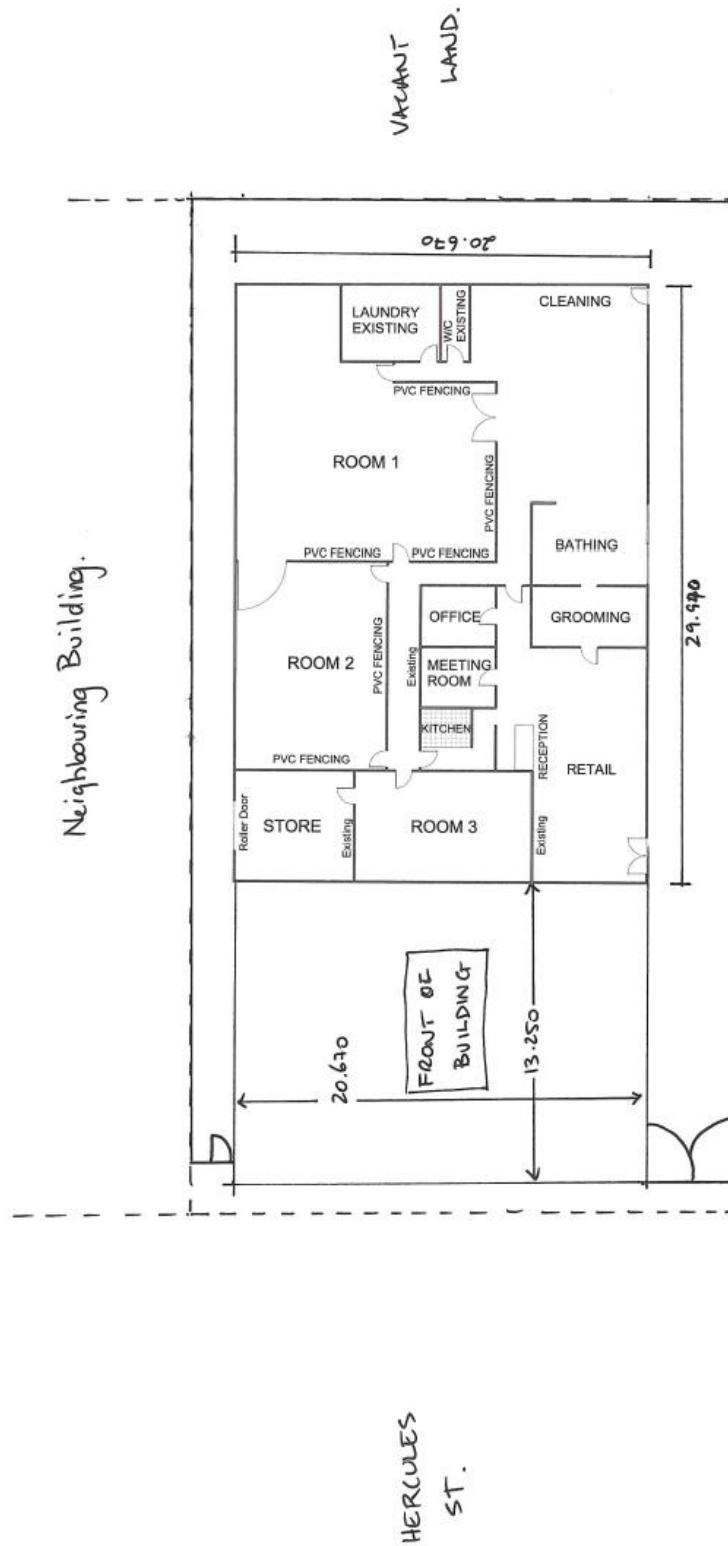
An environmental noise assessment was conducted of a material change of use for animal keeping located at 5 Hercules Street, Hamilton.

Compliance with the Northshore Hamilton Priority Development Area (PDA) planning scheme and Brisbane City Council *City Plan 2014* planning scheme is predicted to be achieved based on the recommendations outlined in Section 7 of this report.

Appendix A Sample Development Plans



Drawn By: Shem James



NOT TO SCALE

5 HERCULES ST
HAMILTON QLD.

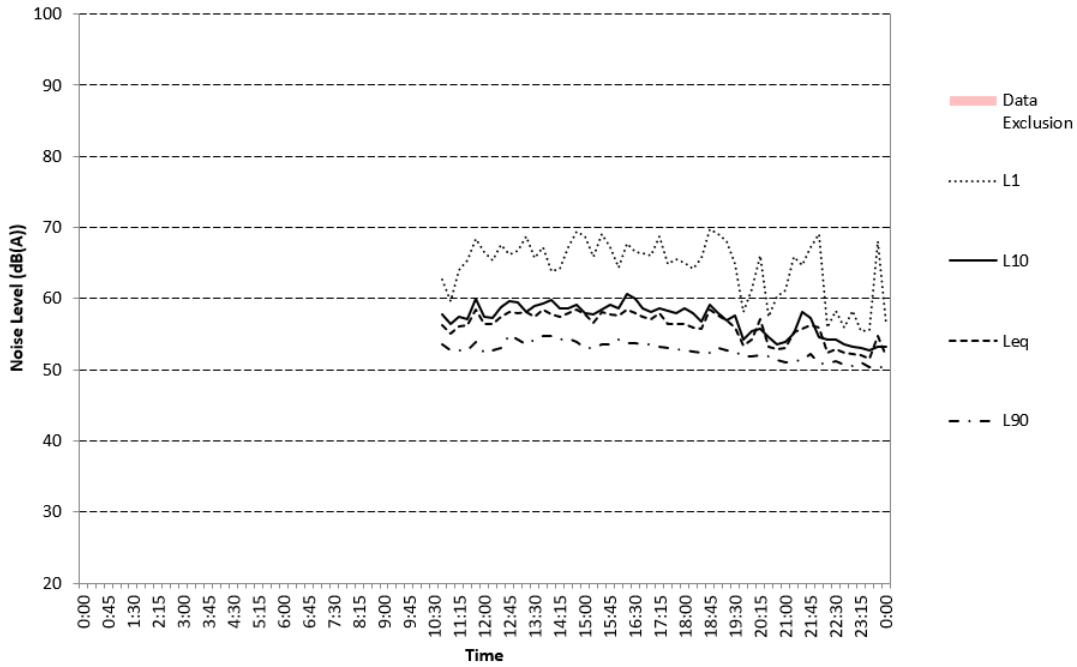
FLOOR PLAN.

Appendix B Unattended Noise Monitoring Graphs

Environmental Noise Logger

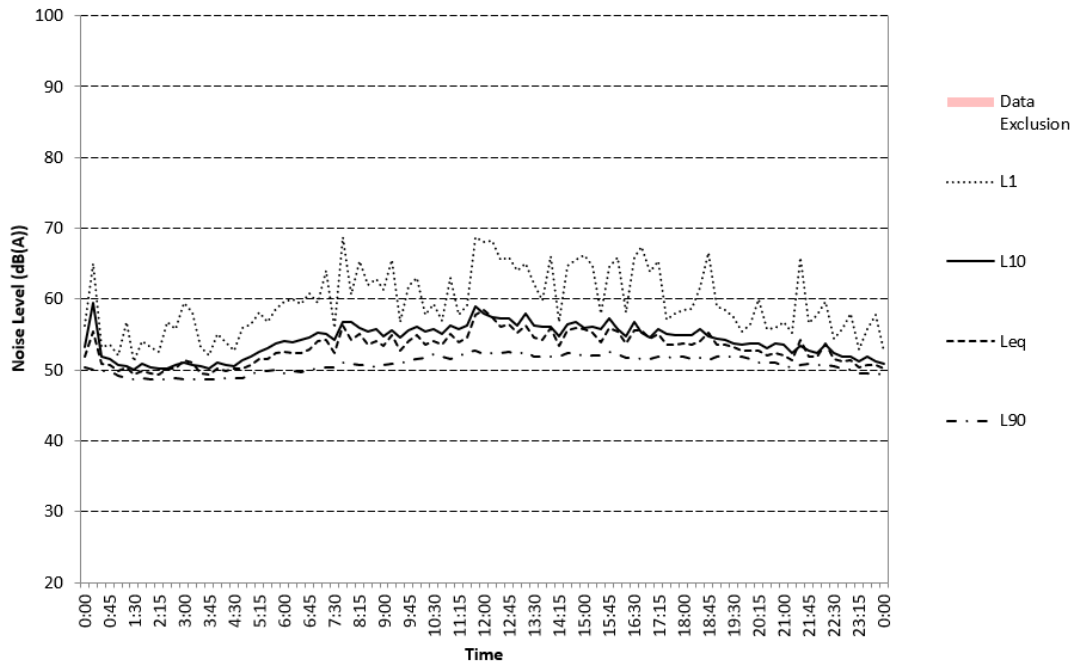
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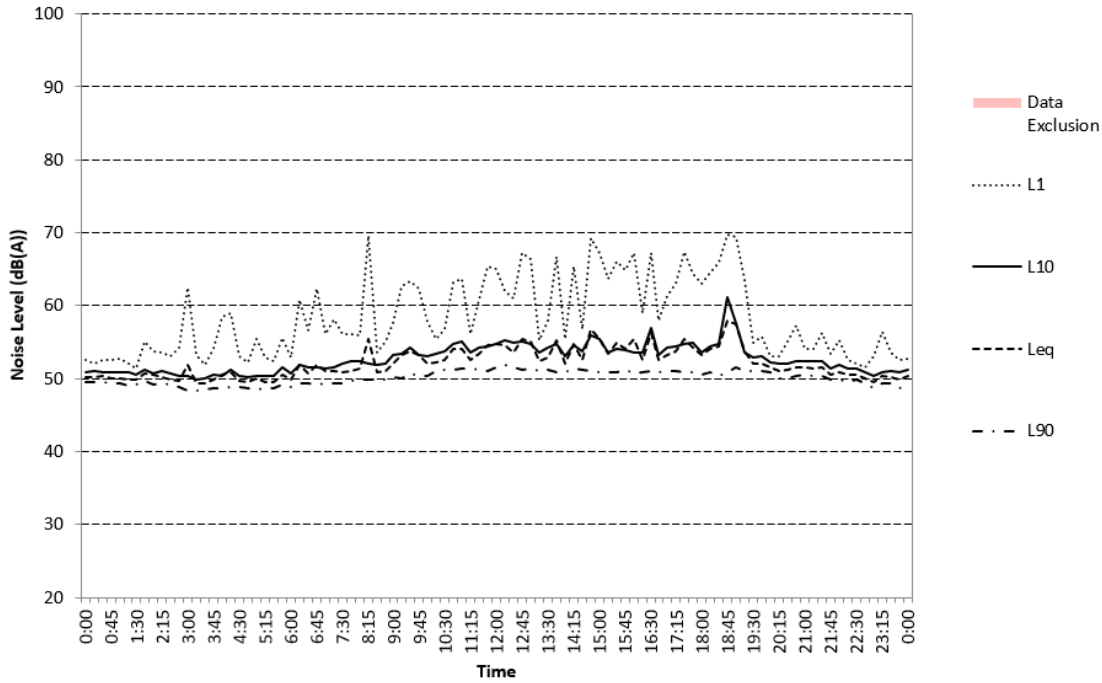
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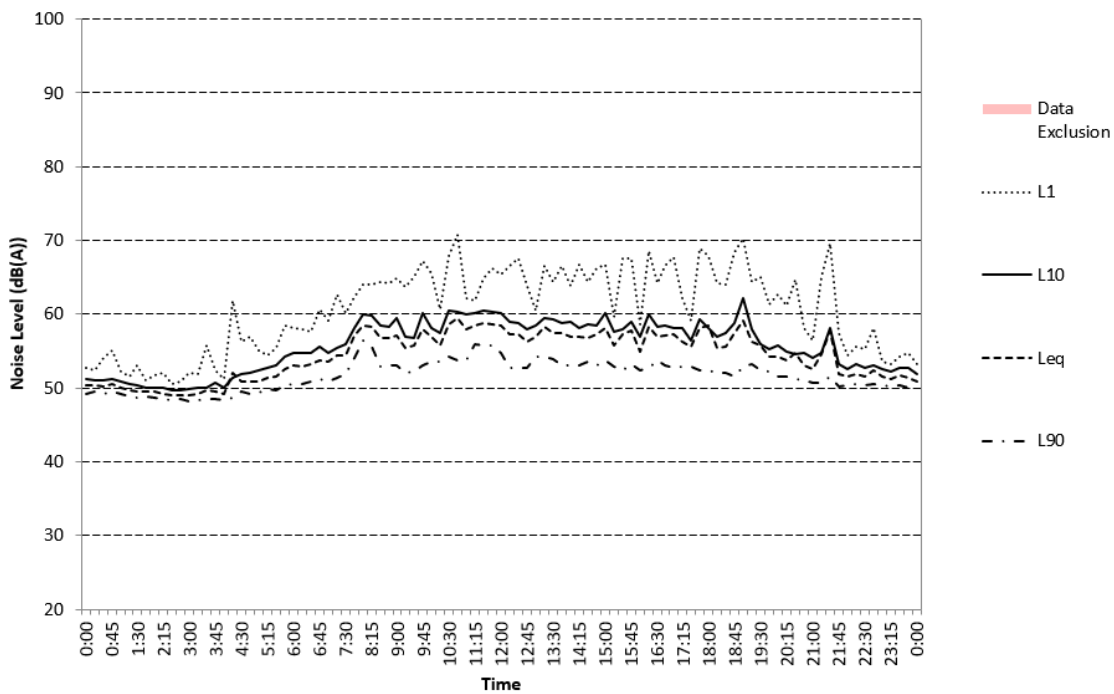
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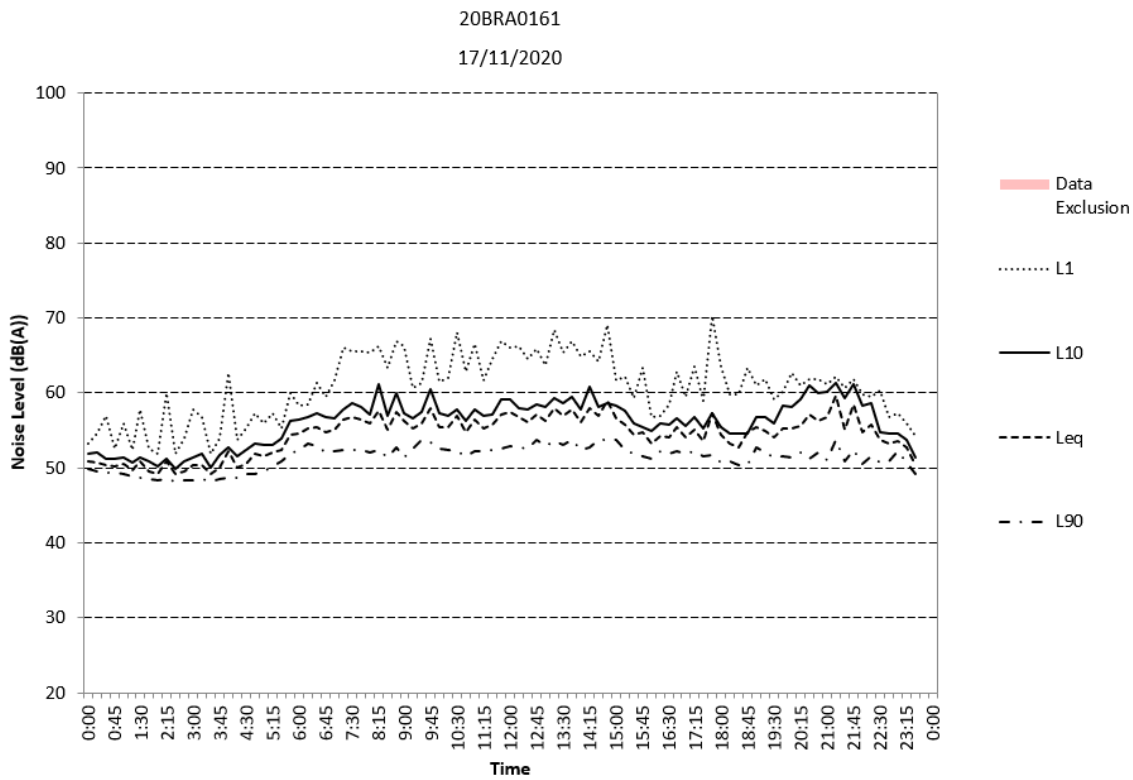
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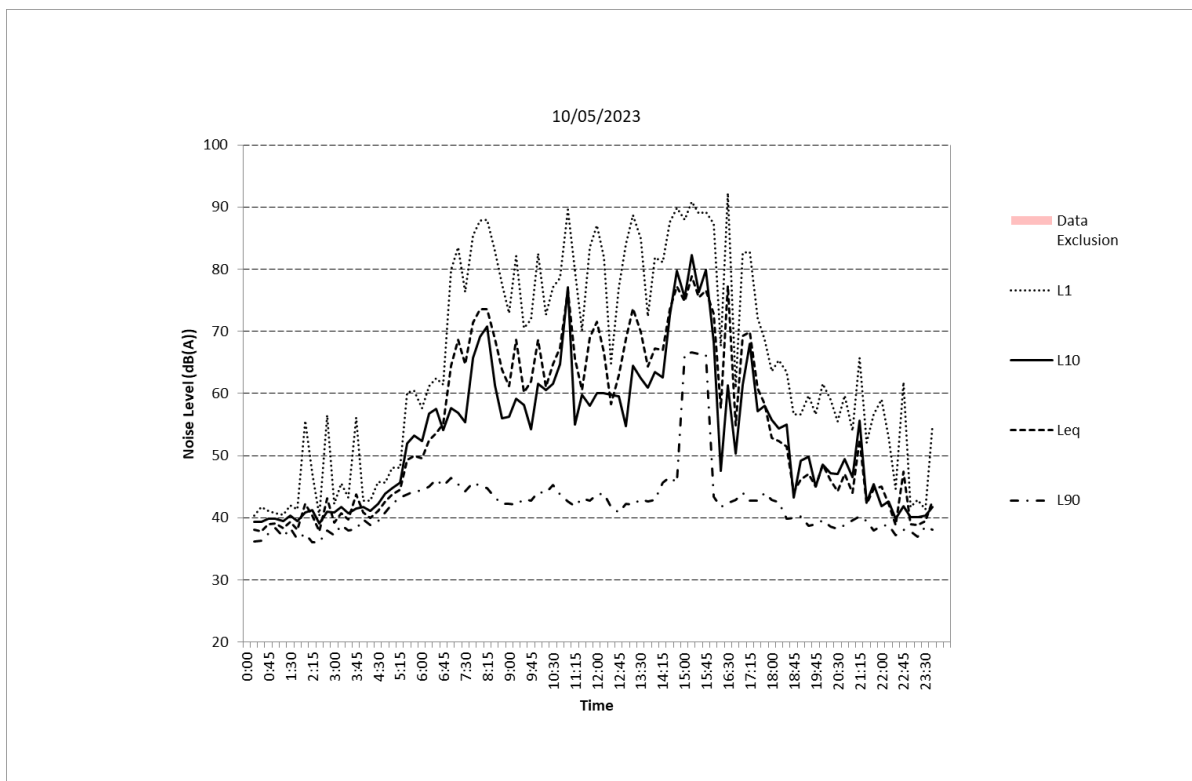
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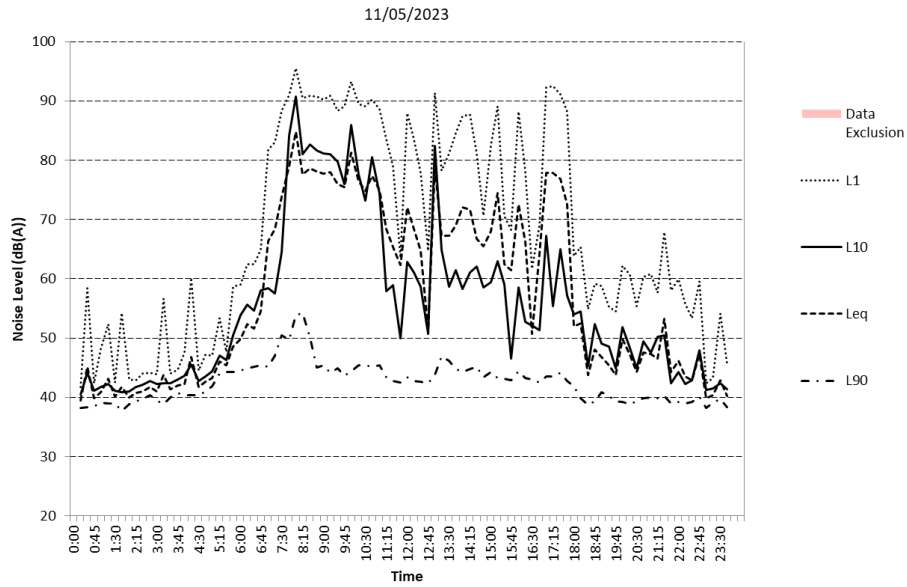
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Internal Noise Logger





Appendix C Sample Calculations

Façade inside to outside breakout - South to R1

Item / Description	Rating/Broadband/Input			31.5	Octave Band Centre Frequency, Hz							
	Rating	dB	dB(A)		63	125	250	500	1k	2k	4k	8k
Inside to Outside Attenuation												
Measured Leq Max 1hr	7:30am-8:30am, 11/05/2023		79.9 (A)		62	67	62	79	77	69	51	44
Source correction 17 to 50	plus	4.7										
Reverberant internal sound level			84.6 (A)		67	72	67	83	82	74	56	49
Façade Area		53.5	m2									
Attenuation	Receiver 1											
Transmission Loss Single Leaf: 1x100mm Concrete		Rw 50	36.3 m²		-40	-44	-39	-44	-54	-62	-70	-77
Transmission Loss Single Leaf: 1x6mm Glass	Single Glazing 6mm	Rw 26	4.1 m²		-11	-16	-20	-24	-28	-25	-35	-45
Transmission Loss Single Leaf: 1x0.47mm Steel		Rw 22	9.0 m²		-4	-9	-13	-18	-22	-27	-30	-34
Transmission Loss Single Leaf: 1x12mm Pine		Rw 20	4.2 m²		-5	-10	-14	-18	-21	-21	-32	-41
Composite Transmission Loss		Rw 27	53.5 m²		-10	-15	-19	-24	-27	-29	-36	-41
Area Correction	10LOG(S)		53.5 m²	17.3	17	17	17	17	17	17	17	17
Directivity 10LOG(Q) Q=	4		6		6	6	6	6	6	6	6	6
internal to free field correction			-6.0		-6	-6	-6	-6	-6	-6	-6	-6
Distance loss 10LOG(1/(4*pi*R²)) R=		22 m	-38		-38	-38	-38	-38	-38	-38	-38	-38
Sound Level at Receiver			38.4 (A)		36	37	27	39	34	24	-1	-12
		Day	Evening	Night								
Noise Criteria		55	54	53								
Difference		-17	-16	-15								
Max allowable, reverberant, internal sound level		101	100	99								

Façade inside to outside breakout - North to R2

Item / Description	Rating/Broadband/Input				31.5	Octave Band Centre Frequency, Hz							
	Rating	dB	dB(A)	63		125	250	500	1k	2k	4k	8k	
Inside to Outside Attenuation													
Measured Leq Max 1hr	7.30am-8.30am, 11/05/2023			79.9 (A)		62	67	62	79	77	69	51	44
Source correction 17 to 50	plus	4.7											
Reverberant internal sound level				84.6 (A)		67	72	67	83	82	74	56	49
Façade Area		104.4	m2										
Attenuation	Receiver 2												
Transmission Loss Single Leaf: 1x100mm Concrete		Rw 50	71.1 m²			-40	-44	-39	-44	-54	-62	-70	-77
Transmission Loss Single Leaf: 1x4mm Glass		Rw 24	24.3 m²			-8	-12	-16	-21	-25	-24	-27	-39
Transmission Loss Single Leaf: 1x0.47mm Steel		Rw 22	9.0 m²		-4	-9	-13	-18	-22	-27	-30	-34	
Composite Transmission Loss		Rw 28	104.4 m²		-12	-16	-20	-25	-29	-30	-33	-42	
Area Correction	10LOG(S)		104.4 m²	20	20.2	20	20	20	20	20	20	20	
Directivity 10LOG(Q) Q=	4			6		6	6	6	6	6	6	6	
internal to free field correction				-6.0		-6	-6	-6	-6	-6	-6	-6	
Distance loss 10LOG(1/(4*pi*R²)) R=		55 m		-46		-46	-46	-46	-46	-46	-46	-46	
Sound Level at Receiver				32.1 (A)	30	31	21	33	27	18	-2	-18	
		Day	Evening	Night									
Noise Criteria		55	54	53									
Difference		-23	-22	-21									
Max allowable, reverberant, internal sound level		108	107	106									