



Proposed Residential Development
Lots 1 and 2, 35 University Drive
Meadowbrook

ACOUSTIC REPORT



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Buildcorp

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1. Introduction

This report is in response to a request by Buildcorp for a road traffic and environmental noise assessment of a proposed residential development to be located at Subdivision Lots 1 and 2 located at 35 University Drive Meadowbrook. To facilitate the assessment, unattended noise monitoring was conducted to establish traffic impacts and ambient noise levels in the locality. Based on the results of the assessment, recommendations for acoustic treatments are specified in this report.

2. Site Description

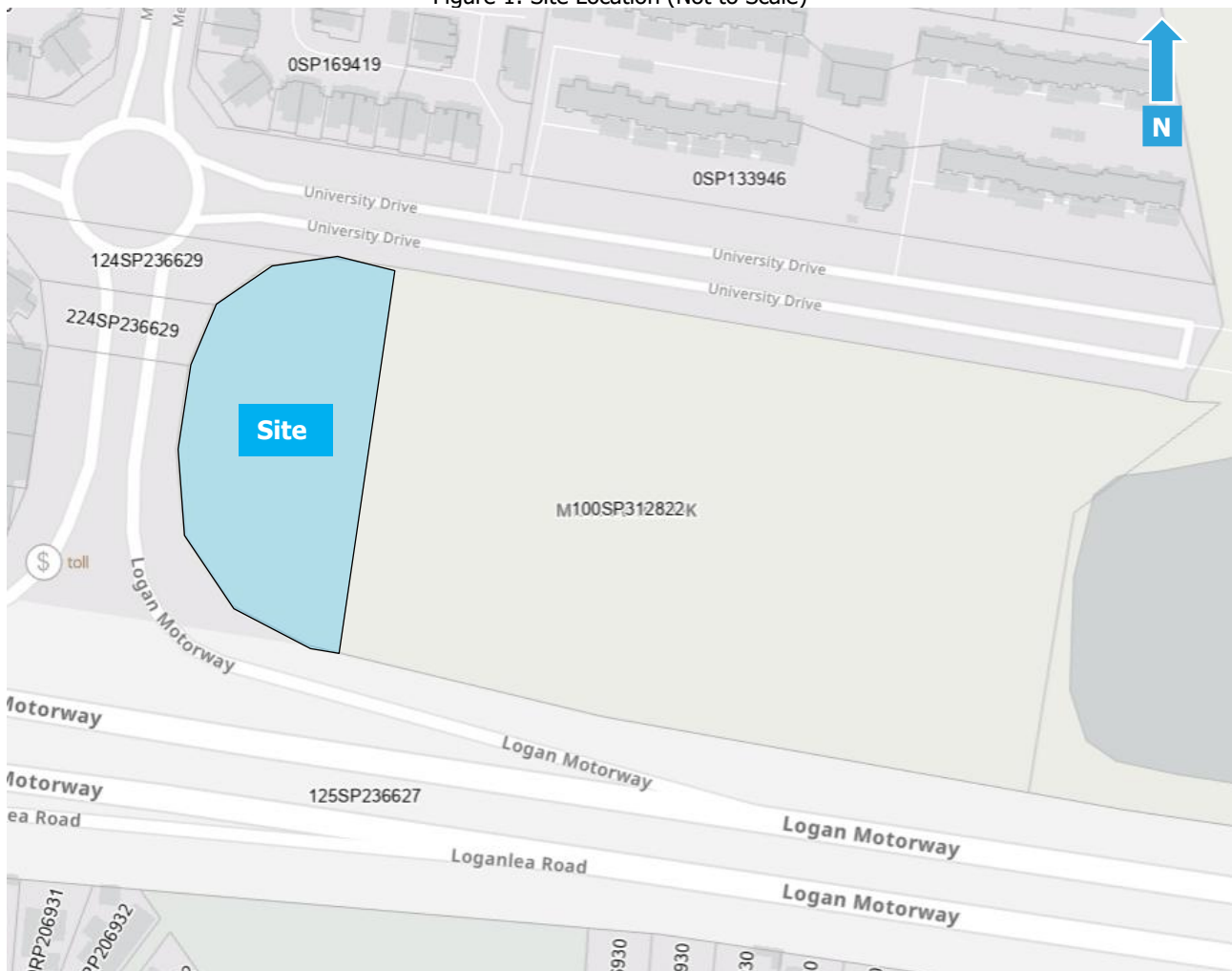
2.1 Site Location

The site is described by the following:

Subdivision Lots 1 and 2 at 35 University Drive, Meadowbrook
Subdivision Lots 1 and 2 on 100 SP31822

Refer to Figure 1 for site location.

Figure 1: Site Location (Not to Scale)



A site survey was conducted on the 13th of November 2025 and identified the following:

- a) The site is currently vacant.
- b) There are residential land uses to the north of the site, separated from the development by University Drive.
- c) There is commercial land uses located to the west of the site, separated from the development by the Logan Motorway entry ramp.
- d) Logon Motorway bounds the site to the south.

2.2 Proposal

The proposal is to a residential development with communal amenities, which will be comprised of the following:

- Ground floor: 80 car parking spaces, 4 one-bedroom and 2 two-bedroom units and an outdoor communal open space.
- Level 1: 8 two-bedroom units and 6 one-bedroom.
- Level 2-5: 9 two-bedroom units and 4 one-bedroom.
- Site access is via University Drive.

Refer to the Appendices for development plans.

2.3 Acoustic Environment

The area is primarily affected by noise from the surrounding road network.

3. Equipment

The following equipment was used to record noise levels:

- 2x Rion NL42 Environmental Noise Monitor
- BSWA Technology Co. Ltd Sound Calibrator

The Rion NL42 Environmental Noise Monitor holds current NATA Laboratory Certification and was field calibrated before and after the monitoring period, with no significant drift from the reference signal recorded.

4. Receiver Locations

The nearest noise sensitive receiver locations were identified as follows:

1. Two-storey residential dwellings located within Meadowbrook Place.
2. Two-storey residential dwellings located within Meadowbrook Court.
3. Three-storey residential buildings used as university accommodation located within Unicentral Griffith.

These locations were chosen as being representative of the nearest noise sensitive receivers to the proposed development. Refer to Figure 2 for these locations.

Figure 2: Receivers and noise monitoring locations



4.1 Zoning

The Logan City Council Planning Scheme has zoned the site as 'community facilities with the nearby receivers zoned as 'low medium density residential'. Refer to Figure 3 for zoning categories.

Figure 3: Zoning of Site and Receivers



5. Road Traffic Noise Monitoring

5.1.1 Ambient Noise Monitoring (Monitor 1)

A Rion NL42 environmental noise monitor was placed at 12 Lakes Entrance, Meadowbrook to measure ambient noise levels. This location was selected as it was considered being representative of the nearest residential receivers. The monitor was located in a free field position with the microphone approximately 1.4 metres above ground level. The noise monitor was set to record noise levels between 13th and 25th November 2025.

The environmental noise monitor was set to record noise levels in "A" Weighting, Fast response using 15 minute statistical intervals. Ambient noise monitoring was conducted generally in accordance with Australian Standard AS1055:2018 *Acoustics – Description and measurement of environmental noise*. Refer to Figure 2 for noise monitoring location.

5.1.2 Road Traffic Noise Monitoring (Monitor 2)

A Rion NL42 noise monitor was placed onsite at 35 University Drive, Meadowbrook, approximately 40m from the nearest lane of the Logan Motorway to measure road traffic noise levels. The monitor was located in a free field position with the microphone approximately 1.4 metres above ground level. The noise monitor was set to record noise levels between 13th and 25th November 2025

The environmental noise monitor was set to record noise levels in "A" Weighting, Fast response using 1 hour statistical intervals. Road traffic noise monitoring was conducted in accordance with Australian Standard AS2702:1984 *'Acoustics - Methods for the measurement of road traffic noise'*. Refer to Figure 2 for noise monitoring location.

6. Measured Noise Levels

The following table presents the measured road traffic noise levels from the unattended noise survey. Any periods of inclement weather or extraneous noise were omitted from the measured data prior to determining the results.

6.1 Meteorological Conditions

Meteorological observations during the unattended noise monitoring survey were obtained from the Bureau of Meteorology website (<http://www.bom.gov.au/climate/data>), shown in Table 1 below.

Table 1: Meteorological Conditions – Greenbank Defence

Day	Date	Rainfall (mm)	Wind			
			9am		3pm	
			Direction	Speed (km/h)	Direction	Speed (km/h)
Thursday	13/11/2025	0	NE	9	N	20
Friday	14/11/2025	4.4	Calm	-	NNE	6
Saturday	15/11/2025	18.6	NW	9	NE	13
Sunday	16/11/2025	30.8	N	2	NNW	7
Monday	17/11/2025	0.8	NNW	11	WSW	20
Tuesday	18/11/2025	0	SE	7	E	11
Wednesday	19/11/2025	0	NNE	6	NE	13
Thursday	20/11/2025	0	NNW	4	NE	13
Friday	21/11/2025	0	Calm	-	E	9
Saturday	22/11/2025	0	S	4	E	9
Sunday	23/11/2025	15	WSW	2	N	9
Monday	24/11/2025	0	NNW	7	SSE	20
Tuesday	25/11/2025	15.4	NNW	4	NNE	17

6.2 Road Traffic Noise Levels

The road traffic noise levels measured at the monitoring location are as follows;

Table 2: Measured Road Traffic Noise Levels - All Time Periods

Day	Date	L10(18h)	L10 (1h)	L10 (12h)	Leq(1h)	Leq(1h)	L90(8h)	L90(18h)
					Day	Night		
Thursday	13/11/2025	-	68.3	66.3	66.0	58.9	-	-
Friday	14/11/2025	67.7*	71.0*	68.7	67.8*	66.7	48.6	59.1
Saturday^	15/11/2025	65.8	67.6	66.0	64.6	63.6	49.7	58.1
Sunday^	16/11/2025	64.4	66.8	65.4	64.7	60.2	48.8	54.8
Monday	17/11/2025	67.5	70.0	69.1	67.3	67.7	50.3	59.4
Tuesday	18/11/2025	67.4	69.9	68.7	67.2	67.7	50.5	58.4
Wednesday	19/11/2025	67.4	69.5	68.8	67.1	67.1	49.8	58.4
Thursday	20/11/2025	67.3	69.5	68.6	66.8	67.2	49.7	58.1
Friday	21/11/2025	67.4	69.6	68.9	67.7	67.3	49.6	59.2
Saturday^	22/11/2025	65.2	67.7	66.6	65.8	64.1	47.7	57.2
Sunday^	23/11/2025	65.8	68.9	66.3	66.2	61.6	44.9	56.4
Monday	24/11/2025	69.0*	76.7*	70.6	84.7*	67.8	52.9*	61.4*
Tuesday	25/11/2025	-	70.3*	-	67.3	68.0	-	-
Overall value		67.4	69.5	68.7	67.1	66.5	49.8	58.8

* Note weather conditions recorded on 17th, 24th and 25th November 2025 the was found to have affected the results with data from these time periods omitted.

The proposed development is located within a state-controlled transport noise corridor overlay. To be consistent with the advice in Section 4.3.1.2 of the Transport Noise Management Code of Practice, road traffic data for weekend periods was not utilised in the assessment. The code specifies that measurements of traffic noise shall not be conducted during periods of atypical traffic flows. Periods of atypical traffic flows and patterns generally include weekends, school and public holidays.

6.1 Ambient Noise Levels

The ambient noise levels measured at the monitoring locations are as follows:

Table 3: Measured Ambient Noise Levels – Monday to Saturday

Day	Date	L90 dB(A)		
		Day	Evening	Night
Thursday	13/11/2025	-	41	35
Friday	14/11/2025	43	45	38
Monday	17/11/2025	48*	46*	42*
Tuesday	18/11/2025	47	43	43
Wednesday	19/11/2025	42	42	41
Thursday	20/11/2025	41	40	38
Friday	21/11/2025	46	45	39
Monday	24/11/2025	46	45	41*
Tuesday	25/11/2025	-		41*
Overall		44	43	39

Table 4: Measured Ambient Noise Levels – Sunday

Day	Date	L90 dB(A)		
		Day	Evening	Night
Saturday	15/11/2025	43	50*	40*
Sunday	16/11/2025	42	47	38
Saturday	22/11/2025	46	42	40
Sunday	23/11/2025	44	47*	36
Overall		44	44	38

Note weather conditions recorded on 17th, 24th and 25th November 2025 the was found to have affected the results with data from these time periods omitted.

Refer to the appendix for a graphical representation of the noise monitoring data.

7. Noise Criteria

7.1 Road Traffic Noise Criteria

As the development is located near a state-controlled road (Pacific Highway and Logan Motorway), the following criteria apply.

7.1.1 State Development Assessment Provisions (SDAP)

The criteria applied are in accordance with the *SDAP* Version 3.5 dated 12 December 2025 by the Department of State Development, Manufacturing, Infrastructure and Planning. The *SDAP State Code 1: Development in a state-controlled road environment* sets out matters of interest for the assessment of developments near state-controlled roads or multi-modal corridors. The applicable criteria for the development in the year 2034 (ten year planning horizon) requires road traffic noise to be assessed in accordance with Table 1.2.2 of the policy statement as follows;

Table 5: SDAP Road Traffic Noise Criteria

Performance Outcome	Acceptable Outcome
PO23 Development involving an accommodation activity or land for a future accommodation activity minimises noise intrusion from a state-controlled road or type 1 multi-modal corridor in habitable rooms.	A023.1 A noise barrier or earth mound is provided which is designed, sited and constructed: - to meet the following external noise criteria at all facades of the building envelope: ≤60 dB(A) L10 (18 hour) façade corrected (measured L90 (8 hour) free field between 10pm and 6am ≤40 dB(A)) ≤63 dB(A) L10 (18 hour) façade corrected (measured L90 (8 hour) free field between 10pm and 6am >40 dB(A)) - in accordance with chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013.
	OR all of the following acceptable outcomes apply
	A023.2 Buildings which include a habitable room are setback the maximum distance possible from a state-controlled road or type 1 multi-modal corridor.
	A023.3 Buildings are designed and oriented so that habitable rooms are located furthest from a state-controlled road or type 1 multi-modal corridor.
	A023.4 Buildings (other than a relevant residential building or relocated building) are designed and constructed using materials which ensure that habitable rooms meet the following internal noise criteria: 7.1.1.1.1.1.1. ≤35 dB(A) Leq (1 hour) (maximum hour over 24 hours). Note: Habitable rooms of relevant residential buildings located within a transport noise corridor must comply with the Queensland Development Code MP4.4 Buildings in a transport noise corridor, Queensland Government, 2015. Transport noise corridors are mapped on the State Planning Policy interactive mapping system.
PO24 Development involving an accommodation activity or land for a future accommodation activity minimises noise intrusion from a state-controlled road or type 1 multi-modal corridor in outdoor spaces for passive recreation.	A024.1 A noise barrier or earth mound is provided which is designed, sited and constructed: - to meet the following external noise criteria in outdoor spaces for passive recreation: ≤57 dB(A) L10 (18 hour) free field (measured L90 (18 hour) free field between 6am and 12 midnight ≤45 dB(A)) ≤60 dB(A) L10 (18 hour) free field (measured L90 (18 hour) free field between 6am and 12 midnight >45 dB(A)) - in accordance with chapter 7 integrated noise barrier design of the Transport

Performance Outcome	Acceptable Outcome
	Noise Management Code of Practice – Volume 1 Road Traffic Noise, Department of Transport and Main Roads, 2013.
	OR all of the following acceptable outcomes apply
	A024.2 Each dwelling has access to an outdoor space for passive recreation which is shielded from a state-controlled road or type 1 multi-modal corridor by a building, solid gap-free fence, or other solid gap-free structure.
	A024.3 Each dwelling with a balcony directly exposed to noise from a state-controlled road or type 1 multi-modal corridor has a continuous solid gap-free balustrade (other than gaps required for drainage purposes to comply with the Building Code of Australia).

7.1.2 Queensland Design Code MP4.4

To determine the minimum design requirements for any accommodation buildings located in a transport noise corridor (state-controlled roads), the Queensland Development Code Part 4.4 may be applied if no alternative solutions are provided. In accordance with MP4.4, the noise categories are stated in Table .

Table 6: Queensland Development Code Noise Categories – Road Traffic Noise

Category	Noise level L10 (18hr) dB(A) (including façade correction)
Category 4	≥ 73
Category 3	68-72
Category 2	63-67
Category 1	58-62
Category 0	≤ 57

The building treatment for any future development onsite shall be determined at Building Approval stage, in general accordance with the Queensland Development Code. Alternative solutions may be provided on request.

7.2 Logan City Council - Environmental Noise Criteria

The noise criteria for the nearest sensitive receivers to the proposed development is assessed under the Logan City Council in SC6.2.2 (Community Facilities Code) Planning Scheme Policy 3 of the Logan Planning Scheme 2015 v9. Relevant details from this criteria are as follows:

Table 7: Logan City Council noise criteria – Community Facilities Code

Performance Outcome	Acceptable Outcome
General Emissions	
P07 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. Note - Refer to Planning Scheme Policy – Integrated design for details and examples of noise attenuation structures.	E13.1 Development complies with the following emissions standard 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/s²) 1/80Hz.

7.2.1 Noise Emission Standards (All Receivers)

Table details the noise criteria for the protection of residential amenity. All receivers are located in low-medium density residential zones; therefore, the residential amenity criteria is applicable:

Table 8: Logan City Council noise criteria – Residential Amenity Table 3.2.1.1 (All Receivers)

Noise Type	Time Period	Monday to Saturday	Sunday and Public Holidays
Non-steady sound	Daytime (7am - 6pm)	$L_{Aeq\ adj,T} \leq L_{A90} \text{ plus } 5dB(A)$	$L_{Aeq\ adj,T} \leq L_{A90} \text{ plus } 5dB(A)$
	Evening (6pm - 10pm)	$L_{Aeq\ adj,T} \leq L_{A90} \text{ plus } 5dB(A)$	$L_{Aeq\ adj,T} \leq L_{A90} \text{ plus } 5dB(A)$
	Night (10pm - 7am)	$L_{Aeq\ adj,T} \leq L_{A90} \text{ plus } 0dB(A)$ and $L_{Amax} \leq 60dB(A)$	$L_{Aeq\ adj,T} \leq L_{A90} \text{ plus } 0dB(A)$ and $L_{Amax} \leq 60dB(A)$
Continuous noise	Anytime	$L_{A90,T} \text{ plus } 0dB(A)$	$L_{A90,T} \text{ plus } 0dB(A)$

Table 9: Logan City Council noise criteria – Site Specific Criteria

Noise Type	Time Period	Monday to Saturday $L_{Aeq\ adj,T} \text{ (dBA)}$	Sunday and Public Holidays $L_{Aeq\ adj,T} \text{ (dBA)}$
Non-steady sound	Daytime (7am - 6pm)	49	49
	Evening (6pm - 10pm)	48	49
	Night (10pm - 7am)	39 and $L_{Amax} \leq 60dB(A)$	38 and $L_{Amax} \leq 60dB(A)$
Continuous noise	Anytime	39	38

8. Road Traffic Noise Assessment

Road traffic noise associated with Logan Motorway for the ten-year planning horizon was assessed at the development to determine acoustic treatments required to comply with the relevant criteria (refer to Section 6.1).

8.1 Traffic Volumes

Traffic volumes for Logan Motorway were provided by TomTom Traffic, provided on the October 2025 and are presented in Table 10 below.

Table 10: Traffic Volumes

Location	Predicted 2025 AADT	2036 Predicted AADT	Annual Growth Rate	Percentage of Heavy Vehicles
Logan Motorway	28,270	34,029	1.7%	13%

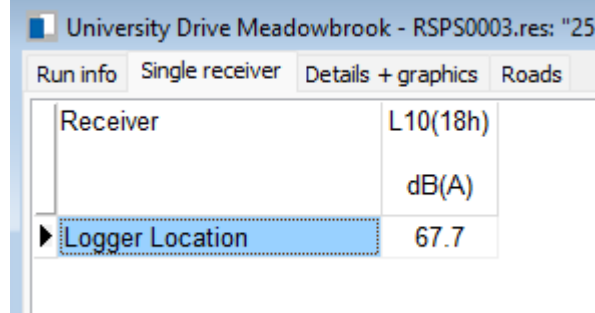
8.2 Road Traffic Noise Verification

To ensure the CoRTN noise model is accurate, a verification model of the predicted $L_{A10(18hr)}$ was created and compared to the measured noise level. The CoRTN method allows a 2dB(A) variation from the predicted and measured level, if the variation exceeds 2dB(A) a correction to the predicted level is required.

Table 11: Comparison of measured and predicted noise levels

Location	Measured $L_{A10(18hr)}$ dB(A)	Predicted $L_{A10(18hr)}$ dB(A)	Correction
Logan Motorway	67.4	67.7	0

Figure 4: SoundPlan verification of noise monitoring location



Inputs applied in the verification of the noise modelling are as follows:

- Logan Motorway speed limit of 100km/h.
- Road Surface correction: 0dB(A), as per the Transport Noise Code of Practice the road surface was identified as Dense Grade Asphalt.
- Width of each Lane: 3.5m.
- -0.7dB(A) (Free field) corrections for Queensland Conditions.

8.3 Predicted Road Traffic Noise Levels – 2036

Road traffic noise modelling for the proposed development was based on the following information:

- Architectural drawings provided by DKO, dated 28th November 2025 project ref: 00013982.
- Logan Motorway speed limit of 100km/h.
- Receiver heights were based on 1.5m above finished floor level.
- A 4.2 metre acoustic barrier along Logan Motorway (refer to Section 10.2)
- Base terrain data obtained from the Queensland Spatial Catalogue – Q Spatial.
- +2.5dB(A) Façade correction.

The 3D SoundPLAN CoRTN noise model predicts LA10,18hour noise levels at the façades of the development as presented in Table .

Table 12: Predicted Road traffic noise impacts

Façade location				Predicted Road Traffic Noise 2036	
Unit	Floor	FFL (m)	Room	L _{A10(18hr)} dBA	QDC Noise Category
1	GF	12.5	Bed 1	59.4	1
1	GF	12.5	Bed 2	54.0	0
1	GF	12.5	Living	58.5	1
2	GF	12.5	Bed	59.1	1
2	GF	12.5	Living	58.4	1
3	GF	12.5	Bed	58.2	1
3	GF	12.5	Living	55.3	0
4	GF	12.5	Bed 1	59.5	1
4	GF	12.5	Bed 2	42.0	0
4	GF	12.5	Living	51.2	0
5	GF	12.5	Bed	58.4	1
5	GF	12.5	Living	42.1	0
6	GF	12.5	Bed	42	0
6	GF	12.5	Living	42	0
1	1	15.7	Bed 1	40.3	0
1	1	15.7	Bed 2	39.4	0
1	1	15.7	Living	40.3	0
2	1	15.7	Bed 1	61.3	1
2	1	15.7	Bed 2	51.5	0
2	1	15.7	Living	40.3	0
3	1	15.7	Bed 1	62.7	1
3	1	15.7	Bed 2	55.4	0
3	1	15.7	Living	62.3	1
4	1	15.7	Bed	63.1	2
4	1	15.7	Living	62.6	1
5	1	15.7	Bed	63.2	2
5	1	15.7	Living	61.5	1
6	1	15.7	Bed 1	64.6	2
6	1	15.7	Bed 2	41.9	0
6	1	15.7	Living	56.6	0
7	1	15.7	Bed 1	67.4	2
7	1	15.7	Bed 2	67.3	2
7	1	15.7	Living	38.7	0
8	1	15.7	Bed 1	67	2
8	1	15.7	Bed 2	62.5	1
8	1	15.7	Living	67.1	2
9	1	15.7	Bed 1	66.9	2
9	1	15.7	Bed 2	66.9	2
9	1	15.7	Living	61.2	1

Façade location				Predicted Road Traffic Noise 2036	
Unit	Floor	FFL (m)	Room	L _{A10(18hr)} dBA	QDC Noise Category
10	1	15.7	Bed	60.1	1
10	1	15.7	Living	52.6	0
11	1	15.7	Bed	42	0
11	1	15.7	Living	42.2	0
12	1	15.7	Bed	54.3	0
12	1	15.7	Living	54.9	0
13	1	15.7	Bed	56.2	0
13	1	15.7	Living	55.5	0
14	1	15.7	Bed 2	57.8	0
14	1	15.7	Bed 1	56.3	0
14	1	15.7	Living	51	0
1	2	18.9	Bed 1	41.8	0
1	2	18.9	Bed 2	58.9	1
1	2	18.9	Living	41.8	0
2	2	18.9	Bed 1	41.8	0
2	2	18.9	Bed 2	41.9	0
2	2	18.9	Living	41.8	0
3	2	18.9	Bed 1	62.6	1
3	2	18.9	Bed 2	61.1	1
3	2	18.9	Living	41.9	0
4	2	18.9	Bed 1	64.2	2
4	2	18.9	Bed 2	52.5	0
4	2	18.9	Living	54.9	0
5	2	18.9	Bed	64.7	2
5	2	18.9	Living	64.3	2
6	2	18.9	Bed	65	2
6	2	18.9	Living	61.7	1
7	2	18.9	Bed 1	66	2
7	2	18.9	Bed 2	43.3	0
7	2	18.9	Living	63.9	2
8	2	18.9	Bed 1	69.3	3
8	2	18.9	Bed 2	65.1	2
8	2	18.9	Living	66.6	2
9	2	18.9	Bed 1	69	3
9	2	18.9	Bed 2	67.1	2
9	2	18.9	Living	69	3
10	2	18.9	Bed 1	68.9	3
10	2	18.9	Bed 2	68.9	3
10	2	18.9	Living	62.7	1
11	2	18.9	Bed	61.9	1
11	2	18.9	Living	50.1	0
12	2	18.9	Bed	43.5	0
12	2	18.9	Living	43.4	0
13	2	18.9	Bed	55.8	0
13	2	18.9	Living	56.5	0
14	2	18.9	Bed	57.8	0
14	2	18.9	Living	57.1	0
15	2	18.9	Bed 1	59	1
15	2	18.9	Bed 2	54.8	0
15	2	18.9	Living	52.5	0
1	3	22.1	Bed 1	44	0
1	3	22.1	Bed 2	60.1	1
1	3	22.1	Living	44	0
2	3	22.1	Bed 1	44	0
2	3	22.1	Bed 2	44.1	0
2	3	22.1	Living	44	0
3	3	22.1	Bed 1	63.3	2
3	3	22.1	Bed 2	61.9	1

Façade location				Predicted Road Traffic Noise 2036	
Unit	Floor	FFL (m)	Room	L _{A10(18hr)} dBA	QDC Noise Category
3	3	22.1	Living	44.1	0
4	3	22.1	Bed 1	65	2
4	3	22.1	Bed 2	52.9	0
4	3	22.1	Living	55.8	0
5	3	22.1	Bed	65.4	2
5	3	22.1	Living	65	2
6	3	22.1	Bed	65.8	2
6	3	22.1	Living	62.3	1
7	3	22.1	Bed 1	66.8	2
7	3	22.1	Bed 2	45.5	0
7	3	22.1	Living	64.7	2
8	3	22.1	Bed 1	70.4	3
8	3	22.1	Bed 2	65.8	2
8	3	22.1	Living	67.9	2
9	3	22.1	Bed 1	70.2	3
9	3	22.1	Bed 2	68	3
9	3	22.1	Living	70.2	3
10	3	22.1	Bed 1	70.1	3
10	3	22.1	Bed 2	70.1	3
10	3	22.1	Living	64.7	2
11	3	22.1	Bed	63.9	2
11	3	22.1	Living	52	0
12	3	22.1	Bed	45.6	0
12	3	22.1	Living	45.5	0
13	3	22.1	Bed	57.5	0
13	3	22.1	Living	58	1
14	3	22.1	Bed	59.2	1
14	3	22.1	Living	58.7	1
15	3	22.1	Bed 1	60.4	1
15	3	22.1	Bed 2	56.2	0
15	3	22.1	Living	53.7	0
1	4	25.3	Bed 1	47	0
1	4	25.3	Bed 2	61.5	1
1	4	25.3	Living	47	0
2	4	25.3	Bed 1	47	0
2	4	25.3	Bed 2	47.1	0
2	4	25.3	Living	47	0
3	4	25.3	Bed 1	63.9	2
3	4	25.3	Bed 2	62.6	1
3	4	25.3	Living	47.1	0
4	4	25.3	Bed 1	65.5	2
4	4	25.3	Bed 2	54.5	0
4	4	25.3	Living	57	0
5	4	25.3	Bed	66	2
5	4	25.3	Living	65.6	2
6	4	25.3	Bed	66.3	2
6	4	25.3	Living	62.9	1
7	4	25.3	Bed 1	67.3	2
7	4	25.3	Bed 2	48.5	0
7	4	25.3	Living	65.3	2
8	4	25.3	Bed 1	71.2	3
8	4	25.3	Bed 2	66.4	2
8	4	25.3	Living	68.8	3
9	4	25.3	Bed 1	71.1	3
9	4	25.3	Bed 2	68.6	3
9	4	25.3	Living	71.1	3
10	4	25.3	Bed 1	71.1	3
10	4	25.3	Bed 2	71.1	3

Façade location				Predicted Road Traffic Noise 2036	
Unit	Floor	FFL (m)	Room	L _{A10(18hr)} dBA	QDC Noise Category
10	4	25.3	Living	66.4	2
11	4	25.3	Bed	65.4	2
11	4	25.3	Living	53.9	0
12	4	25.3	Bed	48.6	0
12	4	25.3	Living	48.5	0
13	4	25.3	Bed	59	1
13	4	25.3	Living	59.5	1
14	4	25.3	Bed	60.8	1
14	4	25.3	Living	60.2	1
15	4	25.3	Bed 1	61.9	1
15	4	25.3	Bed 2	58	1
15	4	25.3	Living	55.6	0
1	5	28.5	Bed 1	52.1	0
1	5	28.5	Bed 2	62.7	1
1	5	28.5	Living	52.1	0
2	5	28.5	Bed 1	52.1	0
2	5	28.5	Bed 2	52.2	0
2	5	28.5	Living	52.1	0
3	5	28.5	Bed 1	64.5	2
3	5	28.5	Bed 2	63.3	2
3	5	28.5	Living	52.2	0
4	5	28.5	Bed 1	66	2
4	5	28.5	Bed 2	57.5	0
4	5	28.5	Living	58.7	1
5	5	28.5	Bed	66.5	2
5	5	28.5	Living	66.1	2
6	5	28.5	Bed	66.9	2
6	5	28.5	Living	63.7	2
7	5	28.5	Bed 1	67.8	2
7	5	28.5	Bed 2	53.7	0
7	5	28.5	Living	65.9	2
8	5	28.5	Bed 1	71.8	3
8	5	28.5	Bed 2	67	2
8	5	28.5	Living	69.4	3
9	5	28.5	Bed 1	71.7	3
9	5	28.5	Bed 2	69.1	3
9	5	28.5	Living	71.7	3
10	5	28.5	Bed 1	71.7	3
10	5	28.5	Bed 2	71.7	3
10	5	28.5	Living	67.4	2
11	5	28.5	Bed	66.6	2
11	5	28.5	Living	57.4	0
12	5	28.5	Bed	53.9	0
12	5	28.5	Living	53.8	0
13	5	28.5	Bed	61.4	1
13	5	28.5	Living	61.6	1
14	5	28.5	Bed	62.5	1
14	5	28.5	Living	62.1	1
15	5	28.5	Bed 1	63.2	2
15	5	28.5	Bed 2	60.1	1
15	5	28.5	Living	57.7	0

Based on the predicted noise impacts, the highest noise category is Category 3. Refer to Section 10 for façade treatment recommendations.

Figure 5 to 7 show the predicted road traffic noise contours for the development (Façade corrected).

Figure 5: Predicted Road Traffic Noise Impacts LA10,18h – Ground Floor – Façade Corrected

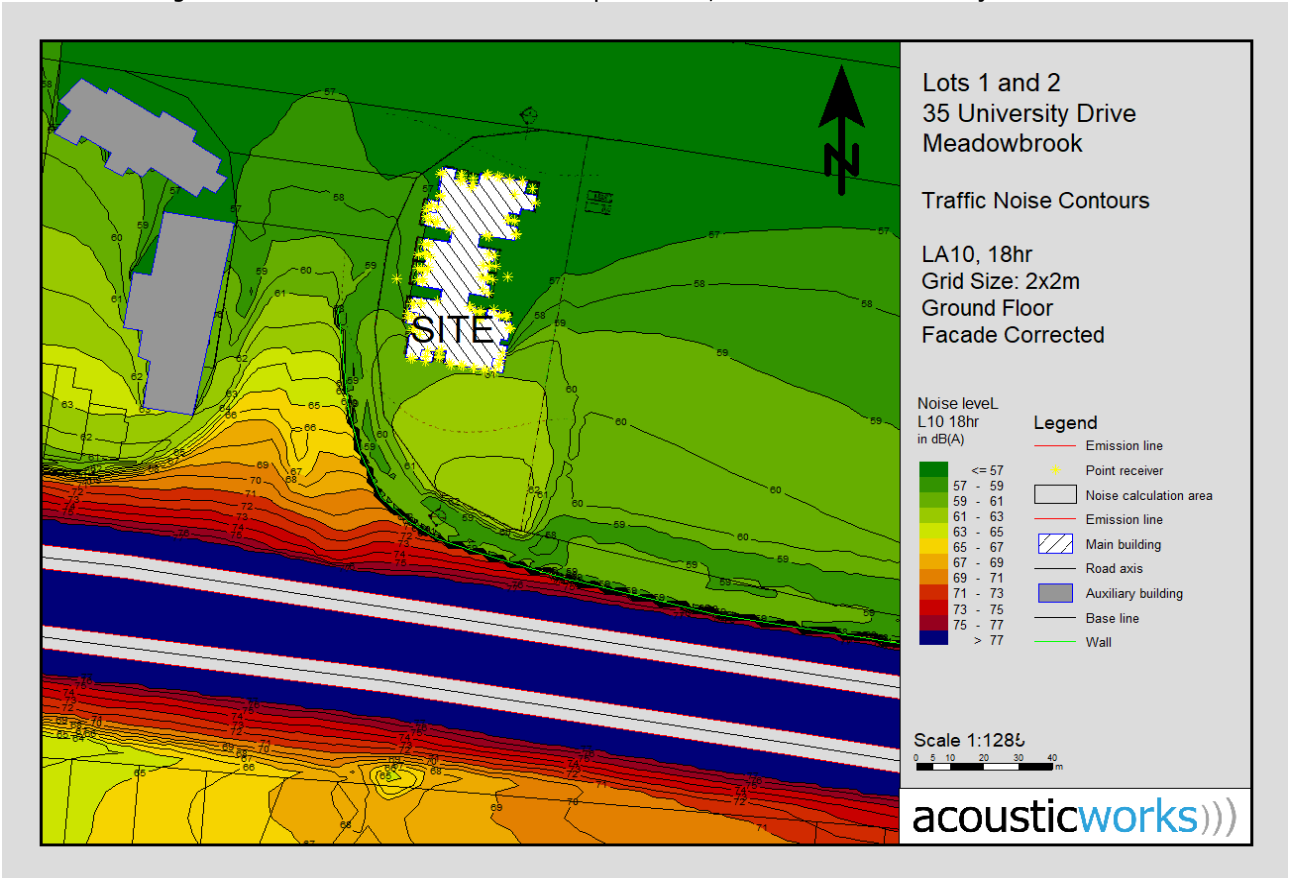


Figure 6: Predicted Road Traffic Noise Impacts LA10,18h – Level 1 – Façade Corrected

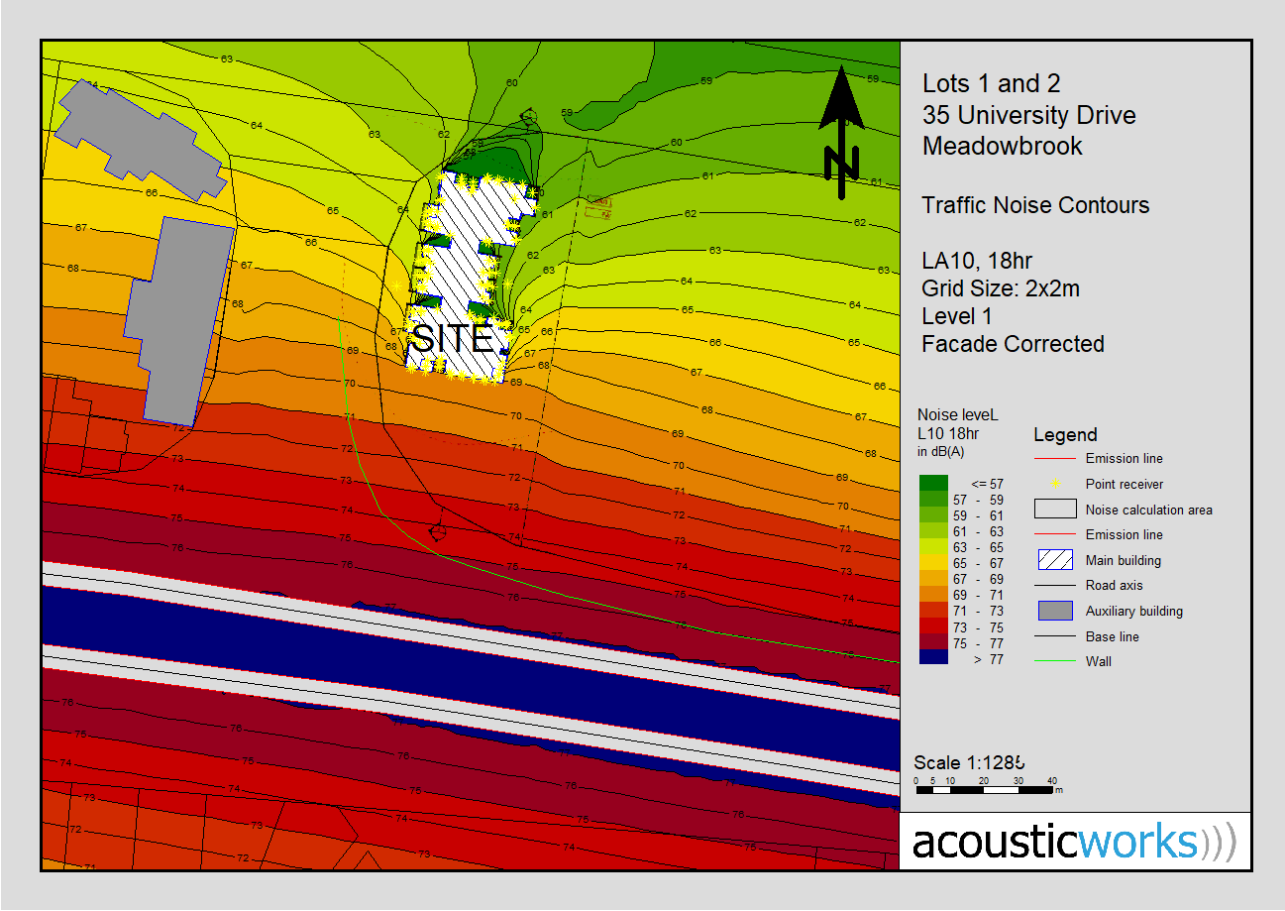
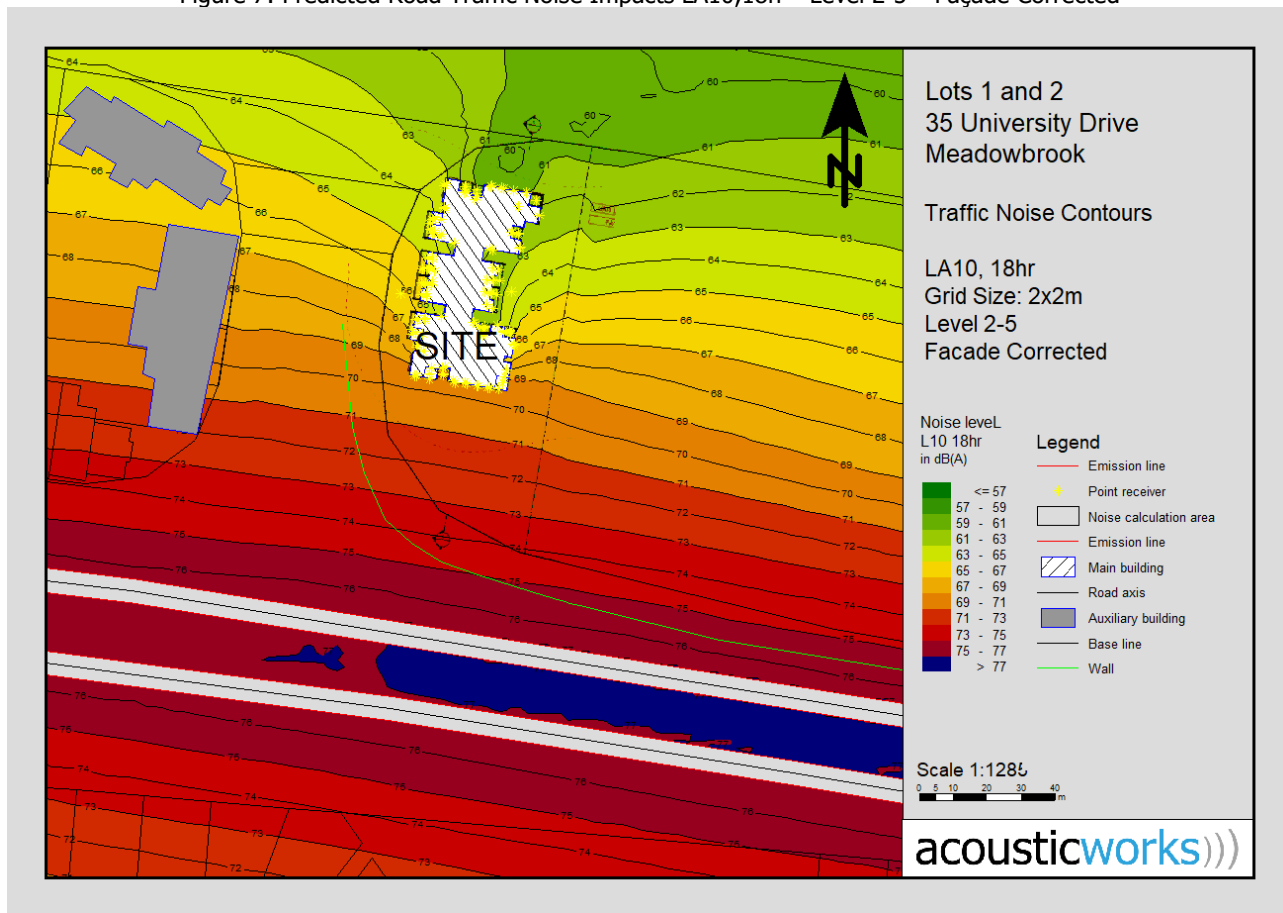


Figure 7: Predicted Road Traffic Noise Impacts LA10,18h – Level 2-5 – Façade Corrected



Road traffic noise impacts to private and communal open spaces are shown in Table 13.

Table 13: Road Traffic Noise Impacts to Passive Recreation Areas

Location				Predicted Road Traffic Noise Impacts (Free Field) 2035	Compliance with private open space Criteria LA10 (18h) ≤60dB(A) (yes/no)
Area/Unit	Floor	FFL	Location	LA10(18hr) dB(A)	
1	GF	12.5	Balcony	59.4	Yes
2	GF	12.5	Balcony	59.2	Yes
3	GF	12.5	Balcony	59	Yes
4	GF	12.5	Balcony	56	Yes
5	GF	12.5	Balcony	55.1	Yes
6	GF	12.5	Balcony	42.1	Yes
Communal Garden East	GF	12.5	Outdoor	54.3	Yes
Communal Forecourt	GF	12.5	Outdoor	53.6	Yes
Communal Garden West	GF	12.5	Outdoor	58.1	Yes
1	1	15.7	Balcony	40.7	Yes
2	1	15.7	Balcony	41	Yes
3	1	15.7	Balcony	62.7	No
4	1	15.7	Balcony	63.3	No
5	1	15.7	Balcony	63.4	No
6	1	15.7	Balcony	61.4	No
7	1	15.7	Balcony	63.4	No
8	1	15.7	Balcony	65.4	No
9	1	15.7	Balcony	57.8	Yes

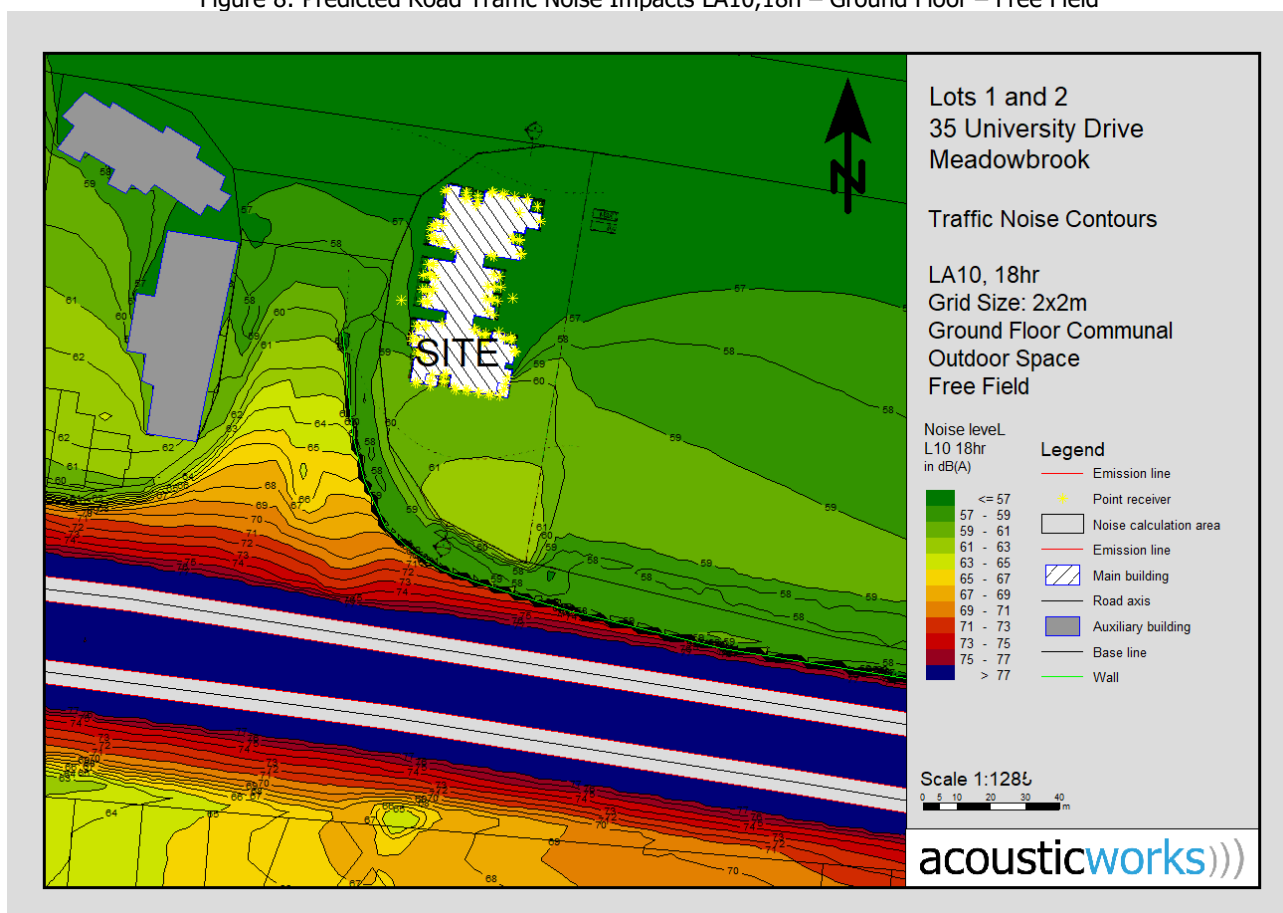
Location				Predicted Road Traffic Noise Impacts (Free Field) 2035	Compliance with private open space Criteria LA10 (18h) ≤60dB(A) (yes/no)
Area/Unit	Floor	FFL	Location	LA10(18hr) dB(A)	
10	1	15.7	Balcony	56.3	Yes
11	1	15.7	Balcony	42.5	Yes
12	1	15.7	Balcony	55.7	Yes
13	1	15.7	Balcony	56.2	Yes
14	1	15.7	Balcony	54.5	Yes
10	1	15.7	Balcony	56.3	Yes
1	2	18.9	Balcony	54.9	Yes
2	2	18.9	Balcony	42.8	Yes
3	2	18.9	Balcony	42.8	Yes
4	2	18.9	Balcony	62	No
5	2	18.9	Balcony	65	No
6	2	18.9	Balcony	65.2	No
7	2	18.9	Balcony	66.4	No
8	2	18.9	Balcony	68.5	No
9	2	18.9	Balcony	68.5	No
10	2	18.9	Balcony	67.1	No
11	2	18.9	Balcony	56.5	Yes
12	2	18.9	Balcony	44.2	Yes
13	2	18.9	Balcony	57.3	Yes
14	2	18.9	Balcony	57.8	Yes
15	2	18.9	Balcony	56.3	Yes
1	3	22.1	Balcony	56	Yes
2	3	22.1	Balcony	45.2	Yes
3	3	22.1	Balcony	45.2	Yes
4	3	22.1	Balcony	62.8	No
5	3	22.1	Balcony	65.8	No
6	3	22.1	Balcony	66	No
7	3	22.1	Balcony	67.1	No
8	3	22.1	Balcony	69.6	No
9	3	22.1	Balcony	69.6	No
10	3	22.1	Balcony	68.6	No
11	3	22.1	Balcony	58.4	Yes
12	3	22.1	Balcony	46.5	Yes
13	3	22.1	Balcony	58.9	Yes
14	3	22.1	Balcony	59.4	Yes
15	3	22.1	Balcony	57.5	Yes
1	4	25.3	Balcony	57.5	Yes
2	4	25.3	Balcony	48.6	Yes
3	4	25.3	Balcony	48.7	Yes
4	4	25.3	Balcony	63.4	No
5	4	25.3	Balcony	66.4	No
6	4	25.3	Balcony	66.6	No
7	4	25.3	Balcony	67.7	No
8	4	25.3	Balcony	70.5	No
9	4	25.3	Balcony	70.3	No
10	4	25.3	Balcony	69.7	No
11	4	25.3	Balcony	60	Yes
12	4	25.3	Balcony	50	Yes
13	4	25.3	Balcony	60.5	No
14	4	25.3	Balcony	61	No
15	4	25.3	Balcony	59.3	Yes
1	5	28.5	Balcony	59.3	Yes
2	5	28.5	Balcony	54.6	Yes

Location				Predicted Road Traffic Noise Impacts (Free Field) 2035	Compliance with private open space Criteria LA10 (18h) $\leq 60\text{dB(A)}$ (yes/no)
Area/Unit	Floor	FFL	Location	LA10(18hr) dB(A)	
3	5	28.5	Balcony	54.7	Yes
4	5	28.5	Balcony	64.1	No
5	5	28.5	Balcony	66.9	No
6	5	28.5	Balcony	67.1	No
7	5	28.5	Balcony	68.2	No
8	5	28.5	Balcony	71.1	No
9	5	28.5	Balcony	70.8	No
10	5	28.5	Balcony	70.4	No
11	5	28.5	Balcony	62.3	No
12	5	28.5	Balcony	56	Yes
13	5	28.5	Balcony	62.6	No
14	5	28.5	Balcony	62.9	No
15	5	28.5	Balcony	60.7	No

Based on the results of the assessment, compliance with the private open space criteria for the ground floor private open spaces are predicted without the need for further acoustic treatments.

Figure 8 shows the predicted road traffic noise contours for the development (Free field).

Figure 8: Predicted Road Traffic Noise Impacts LA10,18h – Ground Floor – Free Field



9. Environmental Assessment

9.1 Onsite Activities

Noise associated with the development was assessed based on previous measurements of similar activities. The calculations assume that the nominated activities are located at a representative distance within the development site to each receiver location. Any relevant shielding or building transmission loss is taken into account for these activities.

9.1.1 Onsite Activities (Monday to Saturday incl. Night Lmax) – All Receivers

The noise source levels and predicted impacts at the receiver locations are shown in Table 14 as follows:

Table 14: Predicted Noise Impacts (All Receivers) – All time periods, Monday to Saturday

Receiver	Receivers		Source Leq@1m dB(A)	Correction dB(A)*	Corrected Leq@1m dB(A)	No. of events per 15min Day	No. of events per 15min Eve	No. of events per 15min Night	Duration per event	Distance (m)	No Barrier (height (m))	Barrier screening dB	Building Screening dB	Building Transmission Loss dB	Dist atten. @-6dB/dd	Source L10-Leq dB	Source Lmax-Leq dB	LAeq adj,T ext. dB(A) Day	LAeq adj,T ext. dB(A) Eve	LAeq adj,T ext. dB(A) Night	Lmax, ext. dB(A) Night	Noise Emission Standards LAeq 15 min Compliance				Lmax Compliance
	Description																					Day	Eve	Night	Night	
																						Criteria				
1	Car passby		69		69	6	4	4	15	102					-41	3	5	18	16	16	33	Yes	Yes	Yes	Yes	
	Car start		74	2	76	6	4	4	2	118					-42	4	6	15	13	13	40	Yes	Yes	Yes	Yes	
	Car door closure		75	2	77	6	4	4	2	118					-42	3	6	16	14	14	41	Yes	Yes	Yes	Yes	
	Voice conversation Communal West area)		70		70	1	1	1	900	100					-40	3	7	30	30	30	37	Yes	Yes	Yes	Yes	
	Voice conversation (Communal Forecourt area)		70		70	1	1	1	900	99					-40	3	7	30	30	30	37	Yes	Yes	Yes	Yes	
	Voice conversation (Communal Garden East are		70		70	1	1	1	900	115					-42	3	7	28	28	28	35	Yes	Yes	Yes	Yes	
Total																	34	34	34		Yes	Yes	Yes	Yes		
2	Criteria																					49	48	39	60	
	Car passby		69		69	6	4	4	15	40					-33	3	5	26	24	24	41	Yes	Yes	Yes	Yes	
	Car start		74	2	76	6	4	4	2	70					-37	4	6	20	18	18	45	Yes	Yes	Yes	Yes	
	Car door closure		75	2	77	6	4	4	2	70					-37	3	6	21	19	19	46	Yes	Yes	Yes	Yes	
	Voice conversation Communal West area)		70		70	1	1	1	900	90					-40	3	7	30	30	30	37	Yes	Yes	Yes	Yes	
	Voice conversation (Communal Forecourt area)		70		70	1	1	1	900	59					-36	3	7	34	34	34	41	Yes	Yes	Yes	Yes	
Voice conversation (Communal Garden East are		70		70	1	1	1	900	76					-38	3	7	32	32	32	39	Yes	Yes	Yes	Yes		
Total																	38	37	37		Yes	Yes	Yes	Yes		
3	Criteria																					49	48	39	60	
	Car passby		69		69	6	4	4	15	65					-37	3	5	22	20	20	37	Yes	Yes	Yes	Yes	
	Car start		74	2	76	6	4	4	2	91					-40	4	6	17	15	15	42	Yes	Yes	Yes	Yes	
	Car door closure		75	2	77	6	4	4	2	91					-40	3	6	18	16	16	43	Yes	Yes	Yes	Yes	
	Voice conversation Communal West area)		70		70	1	1	1	900	124					-42	3	7	28	28	28	35	Yes	Yes	Yes	Yes	
	Voice conversation (Communal Forecourt area)		70		70	1	1	1	900	87					-39	3	7	31	31	31	38	Yes	Yes	Yes	Yes	
Voice conversation (Communal Garden East are		70		70	1	1	1	900	101					-41	3	7	29	29	29	36	Yes	Yes	Yes	Yes		
Total																	35	35	35		Yes	Yes	Yes	Yes		

*Correction due to tonality and impulsiveness as per AS1055:2018.

Compliance is predicted with the criteria on the condition the recommendations in Section 10 are implemented.

9.1.2 Onsite Activities (Sunday and Public Holidays) – All Receivers

The noise source levels and predicted impacts at the receiver locations are shown in Table 15 as follows:

Table 15: Predicted Noise Impacts (All Receivers) – All time periods, Sunday and Public Holidays

Receiver	Receivers		Source Leq@1m dB(A)	Correction dB(A)*	Corrected Leq@1m dB(A)	No. of events per 15min Day	No. of events per 15min Eve	No. of events per 15min Night	Duration per event	Distance (m)	No Barrier (height (m))	Barrier screening dB	Building Screening dB	Building Transmission Loss dB	Dist atten. @-6dB/dd	Source L10-Leq dB	Source Lmax-Leq dB	Laeq adj,T ext. dB(A) Day	Laeq adj,T ext. dB(A) Eve	Laeq adj,T ext. dB(A) Night	Lamax, ext. dB(A) Night	Noise Emission Standards LAeq 15 min Compliance				Lamax Compliance
	Description	Day																				Eve	Night	Night		
Criteria																						49	49	38	60	
1	Car passby	69		69	6	4	4	15	102						-41	3	5	18	16	16	33	Yes	Yes	Yes	Yes	
	Car start	74	2	76	6	4	4	2	118						-42	4	6	15	13	13	40	Yes	Yes	Yes	Yes	
	Car door closure	75	2	77	6	4	4	2	118						-42	3	6	16	14	14	41	Yes	Yes	Yes	Yes	
	Voice conversation Communal West area)	70		70	1	1	1	900	100						-40	3	7	30	30	30	37	Yes	Yes	Yes	Yes	
	Voice conversation (Communal Forecourt area)	70		70	1	1	1	900	99						-40	3	7	30	30	30	37	Yes	Yes	Yes	Yes	
	Voice conversation (Communal Garden East are	70		70	1	1	1	900	115						-42	3	7	28	28	28	35	Yes	Yes	Yes	Yes	
	Total																34	34	34		Yes	Yes	Yes	Yes		
2	Criteria																						49	49	38	60
	Car passby	69		69	6	4	4	15	40						-33	3	5	26	24	24	41	Yes	Yes	Yes	Yes	
	Car start	74	2	76	6	4	4	2	70						-37	4	6	20	18	18	45	Yes	Yes	Yes	Yes	
	Car door closure	75	2	77	6	4	4	2	70						-37	3	6	21	19	19	46	Yes	Yes	Yes	Yes	
	Voice conversation Communal West area)	70		70	1	1	1	900	90						-40	3	7	30	30	30	37	Yes	Yes	Yes	Yes	
	Voice conversation (Communal Forecourt area)	70		70	1	1	1	900	59						-36	3	7	34	34	34	41	Yes	Yes	Yes	Yes	
	Voice conversation (Communal Garden East are	70		70	1	1	1	900	76						-38	3	7	32	32	32	39	Yes	Yes	Yes	Yes	
	Total																38	37	37		Yes	Yes	Yes	Yes		
3	Criteria																						49	49	38	60
	Car passby	69		69	6	4	4	15	65						-37	3	5	22	20	20	37	Yes	Yes	Yes	Yes	
	Car start	74	2	76	6	4	4	2	91						-40	4	6	17	15	15	42	Yes	Yes	Yes	Yes	
	Car door closure	75	2	77	6	4	4	2	91						-40	3	6	18	16	16	43	Yes	Yes	Yes	Yes	
	Voice conversation Communal West area)	70		70	1	1	1	900	124						-42	3	7	28	28	28	35	Yes	Yes	Yes	Yes	
	Voice conversation (Communal Forecourt area)	70		70	1	1	1	900	87						-39	3	7	31	31	31	38	Yes	Yes	Yes	Yes	
	Voice conversation (Communal Garden East are	70		70	1	1	1	900	101						-41	3	7	29	29	29	36	Yes	Yes	Yes	Yes	
	Total																35	35	35		Yes	Yes	Yes	Yes		

*Correction due to tonality and impulsiveness as per AS1055:2018.

Compliance is predicted with the criteria on the condition the recommendations in Section 10 are implemented.

10. Recommendations

10.1 Road Traffic Noise

All building treatments for the development shall be determined at the Building Approval stage in accordance with QDC MP4.4.

10.1.1 Glazing

The minimum glazing treatments presented in Table are required to comply with the following:

- The minimum glass thickness specified shall not be reduced regardless of the Rw performance of the glass unless the glazier can provide a specific (non-generic) NATA Test report proving the proposed glazing system complies (the test report must be based on the same configuration proposed for the development). Note an estimation or calculated performance will not be accepted.
- If compliance cannot be achieved with the minimum Rw ratings for the glass thickness nominated, then glazing system shall be upgraded until compliance is achieved.
- Glazing specified with acoustic seals requires a seal that has been tested with a glazing system or door to achieve an Rw in accordance with AS/NZS ISO 717.1, mohair seals are not acceptable.
- The glazier shall provide NATA test reports on request to verify compliance with the minimum Rw ratings. Generic reports are not acceptable.

Refer to the appendices for the calculation of the façade treatments.

Table 16: Required façade acoustic ratings

Unit	Floor	Room	QDC Category	Rw Ratings			QDC Glazing	Acoustic seals
				Wall	Roof	Glazing		
1	GF	Bed 1	1	35	-	27	4mm float	Yes
1	GF	Bed 1	1	-	-	-	standard	no
1	GF	Living	1	35	-	27	4mm float	Yes
2	GF	Bed	1	35	-	27	4mm float	Yes
2	GF	Living	1	35	-	27	4mm float	Yes
3	GF	Bed	1	35	-	27	4mm float	Yes
3	GF	Living	0	-	-	-	standard	no
4	GF	Bed 1	1	35	-	27	4mm float	Yes
4	GF	Bed 2	0	-	-	-	standard	no
4	GF	Living	0	-	-	-	standard	no
5	GF	Bed	1	35	-	27	4mm float	Yes
5	GF	Living	0	-	-	-	standard	no
6	GF	Bed	0	-	-	-	standard	no
6	GF	Living	0	-	-	-	standard	no
1	1	Bed 1	0	-	-	-	standard	no
1	1	Bed 2	0	-	-	-	standard	no
1	1	Living	0	-	-	-	standard	no
2	1	Bed 1	1	35	-	27	4mm float	Yes
2	1	Bed 2	0	-	-	-	standard	no
2	1	Living	0	-	-	-	standard	no
3	1	Bed 1	1	35	-	27	4mm float	Yes
3	1	Bed 2	0	-	-	-	standard	no
3	1	Living	1	35	-	27	4mm float	Yes
4	1	Bed	2	41	-	35	10.38 lam	yes
4	1	Living	1	35	-	27	4mm float	Yes

Unit	Floor	Room	QDC Category	Rw Ratings			QDC Glazing	Acoustic seals
				Wall	Roof	Glazing		
5	1	Bed	2	41	-	35	10.38 lam	yes
5	1	Living	1	35	-	27	4mm float	Yes
6	1	Bed 1	2	41	-	35	10.38 lam	yes
6	1	Bed 1	0	-	-	-	standard	no
6	1	Living	0	-	-	-	standard	no
7	1	Bed 1	2	41	-	35	10.38 lam	yes
7	1	Bed 2	2	41	-	35	10.38 lam	yes
7	1	Living	0	-	-	-	standard	no
8	1	Bed 1	2	41	-	35	10.38 lam	yes
8	1	Bed 2	1	35	-	27	4mm float	Yes
8	1	Living	2	41	-	35	10.38 lam	yes
9	1	Bed 1	2	41	-	35	10.38 lam	yes
9	1	Bed 2	2	41	-	35	10.38 lam	yes
9	1	Living	1	35	-	27	4mm float	Yes
10	1	Bed	1	35	-	27	4mm float	Yes
10	1	Living	0	-	-	-	standard	no
11	1	Bed	0	-	-	-	standard	no
11	1	Living	0	-	-	-	standard	no
12	1	Bed	0	-	-	-	standard	no
12	1	Living	0	-	-	-	standard	no
13	1	Bed	0	-	-	-	standard	no
13	1	Living	0	-	-	-	standard	no
14	1	Bed 2	0	-	-	-	standard	no
14	1	Bed 1	0	-	-	-	standard	no
14	1	Living	0	-	-	-	standard	no
1	2	Bed 1	0	-	-	-	standard	no
1	2	Bed 2	1	35	-	27	4mm float	Yes
1	2	Living	0	-	-	-	standard	no
2	2	Bed 1	0	-	-	-	standard	no
2	2	Bed 2	0	-	-	-	standard	no
2	2	Living	0	-	-	-	standard	no
3	2	Bed 1	1	35	-	27	4mm float	Yes
3	2	Bed 2	1	35	-	27	4mm float	Yes
3	2	Living	0	-	-	-	standard	no
4	2	Bed 1	2	41	-	35	10.38 lam	yes
4	2	Bed 2	0	-	-	-	standard	no
4	2	Living	0	-	-	-	standard	no
5	2	Bed	2	41	-	35	10.38 lam	yes
5	2	Living	2	41	-	35	10.38 lam	yes
6	2	Bed	2	41	-	35	10.38 lam	yes
6	2	Living	1	35	-	27	4mm float	Yes
7	2	Bed 1	2	41	-	35	10.38 lam	yes
7	2	Bed 2	0	-	-	-	standard	no
7	2	Living	2	41	-	35	10.38 lam	yes
8	2	Bed 1	3	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
8	2	Bed 2	2	41	-	35	10.38 lam	yes
8	2	Living	2	41	-	35	10.38 lam	yes
9	2	Bed 1	3	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
9	2	Bed 2	2	41	-	35	10.38 lam	yes
9	2	Living	3	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
10	2	Bed 1	3	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
10	2	Bed 2	3	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
10	2	Living	1	35	-	27	4mm float	Yes
11	2	Bed	1	35	-	27	4mm float	Yes
11	2	Living	0	-	-	-	standard	no
12	2	Bed	0	-	-	-	standard	no

Unit	Floor	Room	QDC Category	Rw Ratings			QDC Glazing	Acoustic seals
				Wall	Roof	Glazing		
12	2	Living	0	-	-	-	standard	no
13	2	Bed	0	-	-	-	standard	no
13	2	Living	0	-	-	-	standard	no
14	2	Bed	0	-	-	-	standard	no
14	2	Living	0	-	-	-	standard	no
15	2	Bed 1	1	35	-	27	4mm float	Yes
15	2	Bed 2	0	-	-	-	standard	no
15	2	Living	0	-	-	-	standard	no
1	3	Bed 1	0	-	-	-	standard	no
1	3	Bed 2	1	35	-	27	4mm float	Yes
1	3	Living	0	-	-	-	standard	no
2	3	Bed 1	0	-	-	-	standard	no
2	3	Bed 2	0	-	-	-	standard	no
2	3	Living	0	-	-	-	standard	no
3	3	Bed 1	2	41	-	35	10.38 lam	yes
3	3	Bed 2	1	35	-	27	4mm float	Yes
3	3	Living	0	-	-	-	standard	no
4	3	Bed 1	2	41	-	35	10.38 lam	yes
4	3	Bed 2	0	-	-	-	standard	no
4	3	Living	0	-	-	-	standard	no
5	3	Bed	2	41	-	35	10.38 lam	yes
5	3	Living	2	41	-	35	10.38 lam	yes
6	3	Bed	2	41	-	35	10.38 lam	yes
6	3	Living	1	35	-	27	4mm float	Yes
7	3	Bed 1	2	41	-	35	10.38 lam	yes
7	3	Bed 2	0	-	-	-	standard	no
7	3	Living	2	41	-	35	10.38 lam	yes
8	3	Bed 1	3	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
8	3	Bed 2	2	41	-	35	10.38 lam	yes
8	3	Living	2	41	-	35	10.38 lam	yes
9	3	Bed 1	3	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
9	3	Bed 2	3	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
9	3	Living	3	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
10	3	Bed 1	3	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
10	3	Bed 2	2	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
10	3	Living	2	41	-	35	10.38 lam	yes
11	3	Bed	2	41	-	35	10.38 lam	yes
11	3	Living	0	-	-	-	standard	no
12	3	Bed	0	-	-	-	standard	no
12	3	Living	0	-	-	-	standard	no
13	3	Bed	0	-	-	-	standard	no
13	3	Living	1	35	-	27	4mm float	Yes
14	3	Bed	1	35	-	27	4mm float	Yes
14	3	Living	1	35	-	27	4mm float	Yes
15	3	Bed 1	1	35	-	27	4mm float	Yes
15	3	Bed 2	0	-	-	-	standard	no
15	3	Living	0	-	-	-	standard	no
1	4	Bed 1	0	-	-	-	standard	no
1	4	Bed 2	1	35	-	27	4mm float	Yes
1	4	Living	0	-	-	-	standard	no
2	4	Bed 1	0	-	-	-	standard	no
2	4	Bed 2	0	-	-	-	standard	no
2	4	Living	0	-	-	-	standard	no
3	4	Bed 1	2	41	-	35	10.38 lam	yes
3	4	Bed 2	1	35	-	27	4mm float	Yes
3	4	Living	0	-	-	-	standard	no

Unit	Floor	Room	QDC Category	Rw Ratings			QDC Glazing	Acoustic seals
				Wall	Roof	Glazing		
4	4	Bed 1	2	41	-	35	10.38 lam	yes
4	4	Bed 2	0	-	-	-	standard	no
4	4	Living	0	-	-	-	standard	no
5	4	Bed	2	41	-	35	10.38 lam	yes
5	4	Living	2	41	-	35	10.38 lam	yes
6	4	Bed	2	41	-	35	10.38 lam	yes
6	4	Living	1	35	-	27	4mm float	Yes
7	4	Bed 1	2	41	-	35	10.38 lam	yes
7	4	Bed 2	0	-	-	-	standard	no
7	4	Living	2	41	-	35	10.38 lam	yes
8	4	Bed 1	3	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
8	4	Bed 2	2	41	-	35	10.38 lam	yes
8	4	Living	3	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
9	4	Bed 1	3	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
9	4	Bed 2	3	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
9	4	Living	3	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
10	4	Bed 1	3	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
10	4	Bed 2	3	47	-	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
10	4	Living	2	41	-	35	10.38 lam	yes
11	4	Bed	2	41	-	35	10.38 lam	yes
11	4	Living	0	-	-	-	standard	no
12	4	Bed	0	-	-	-	standard	no
12	4	Living	0	-	-	-	standard	no
13	4	Bed	1	35	-	27	4mm float	Yes
13	4	Living	1	35	-	27	4mm float	Yes
14	4	Bed	1	35	-	27	4mm float	Yes
14	4	Living	1	35	-	27	4mm float	Yes
15	4	Bed 1	1	35	-	27	4mm float	Yes
15	4	Bed 2	1	35	-	27	4mm float	Yes
15	4	Living	0	-	-	-	standard	no
1	5	Bed 1	0	-	-	-	standard	no
1	5	Bed 2	1	35	35	27	4mm float	Yes
1	5	Living	0	-	-	-	standard	no
2	5	Bed 1	0	-	-	-	standard	no
2	5	Bed 2	0	-	-	-	standard	no
2	5	Living	0	-	-	-	standard	no
3	5	Bed 1	2	41	38	35	10.38 lam	yes
3	5	Bed 2	2	41	38	35	10.38 lam	yes
3	5	Living	0	-	-	-	standard	no
4	5	Bed 1	2	41	38	35	10.38 lam	yes
4	5	Bed 2	0	-	-	-	standard	no
4	5	Living	1	35	35	27	4mm float	Yes
5	5	Bed	2	41	38	35	10.38 lam	yes
5	5	Living	2	41	38	35	10.38 lam	yes
6	5	Bed	2	41	38	35	10.38 lam	yes
6	5	Living	2	41	38	35	10.38 lam	yes
7	5	Bed 1	2	41	38	35	10.38 lam	yes
7	5	Bed 2	0	-	-	-	standard	no
7	5	Living	2	41	38	35	10.38 lam	yes
8	5	Bed 1	3	47	41	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
8	5	Bed 2	2	41	38	35	10.38 lam	yes
8	5	Living	3	47	41	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
9	5	Bed 1	3	47	41	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
9	5	Bed 2	3	47	41	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
9	5	Living	3	47	41	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
10	5	Bed 1	3	47	41	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes

Unit	Floor	Room	QDC Category	Rw Ratings			QDC Glazing	Acoustic seals
				Wall	Roof	Glazing	Glazing	
10	5	Bed 2	3	47	41	38	12.5 Vlam or 13.52 lam or 14.38 lam	Yes
10	5	Living	2	41	38	35	10.38 lam	yes
11	5	Bed	2	41	38	35	10.38 lam	yes
11	5	Living	0	-	-	-	standard	no
12	5	Bed	0	-	-	-	standard	no
12	5	Living	0	-	-	-	standard	no
13	5	Bed	1	35	35	27	4mm float	Yes
13	5	Living	1	35	35	27	4mm float	Yes
14	5	Bed	1	35	35	27	4mm float	Yes
14	5	Living	1	35	35	27	4mm float	Yes
15	5	Bed 1	2	41	38	35	10.38 lam	yes
15	5	Bed 2	1	35	35	27	4mm float	Yes
15	5	Living	0	-	-	-	standard	no

Any locations not identified in Table 16 would require 4mm float for windows (minimum R_w 22) and 4mm toughened for sliding doors (minimum R_w 22).

10.1.2 Alternative Ventilation

We recommend that all locations nominated in Table as QDC Noise Category 1 to 3 have the provision for an alternative ventilation system similar to air-conditioning or mechanical ventilation to allow windows and doors to be closed.

10.1.3 Wall Construction

The wall construction recommendations from QDC MP4.4 are included in the table below. Note that these are not the only allowable methods of construction for the development, and alternative constructions to achieve the required R_w ratings may also be provided. QDC Noise Categories are nominated in Table 17.

Table 17: QDC typical wall construction

QDC Noise Category	Wall R_w	QDC Acceptable forms of construction
3	47	Two leaves of clay brick masonry at least 110mm thick with: (i) cavity not less than 50mm between leaves; and (ii) 50mm thick mineral insulation or 50mm thick glass wool insulation with a density of 11kg/m ³ or 50mm thick polyester insulation with a density of 20kg/m ³ in the cavity. OR Two leaves of clay brick masonry at least 110mm thick with: (i) cavity not less than 50mm between leaves; and (ii) at least 13mm thick cement render on each face OR Single leaf of clay brick masonry at least 110mm thick with: (i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and (ii) Mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11 kg/m ³ positioned between studs; and (iii) One layer of plasterboard at least 13mm thick fixed to outside face of studs. OR Single leaf of minimum 150mm thick masonry of hollow, dense concrete blocks, with mortar joints laid to prevent moisture bridging.
		Single leaf of clay brick masonry at least 110mm thick with: (i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres,
2	41	Single leaf of clay brick masonry at least 110mm thick with: (i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres,

QDC Noise Category	Wall Rw	QDC Acceptable forms of construction
		spaced at least 20mm from the masonry wall; and (ii) mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11kg/m ³ positioned between studs; and (iii) One layer of plasterboard at least 10mm thick fixed to outside face of studs OR Single leaf of brick masonry at least 110mm thick with at least 13mm thick render on each face OR Concrete brickwork at least 110mm thick OR In-situ concrete at least 100mm thick OR Precast concrete at least 100mm thick and without joints. OR 1 layer of 9mm FC, 90mm timber stud with 75mm glasswool batts (density 11kg/m ³) and 1 layer of 13mm plasterboard internally.
1	35	Single leaf of clay brick masonry at least 110mm thick with: (i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and (ii) One layer of plasterboard at least 10mm thick fixed to outside face of studs OR Minimum 6mm thick fibre cement sheeting or weatherboards or plank cladding externally, minimum 90mm deep timber stud or 92mm metal stud, standard plasterboard at least 13mm thick internally.
0	N/A	Standard Construction

10.1.4 Roof Construction

The roof construction recommendations from QDC MP4.4 are included in the table below. Note that these are not the only allowable methods of construction for the development, and alternative constructions to achieve the required Rw ratings may also be provided. QDC Noise Categories are nominated in Table 18.

Table 18: QDC typical wall construction

QDC Noise Category	Roof Rw	QDC Acceptable forms of construction
3	41	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling joists, glass wool insulation at least 50mm thick with a density of at least 11kg/m ³ or polyester insulation at least 50mm thick with a density of at least 20kg/m ³ in the cavity. OR Concrete suspended slab at least 100mm thick.
2	38	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling cavity, mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11 kg/m ³ .
1	35	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling cavity
0	N/A	Standard Construction

10.1.5 Balcony Balustrades

In accordance with Performance Outcome PO42 of "*State Code 1: Development in a state-controlled environment*", all balconies exceeding the free field criteria shall be constructed with a solid balustrade excluding gaps required for drainage purposes and highly acoustically absorbent material treatment for the total area of the soffit above balconies, podiums, and roof decks.

Table 19: Recreation areas – Solid gap-free balustrades

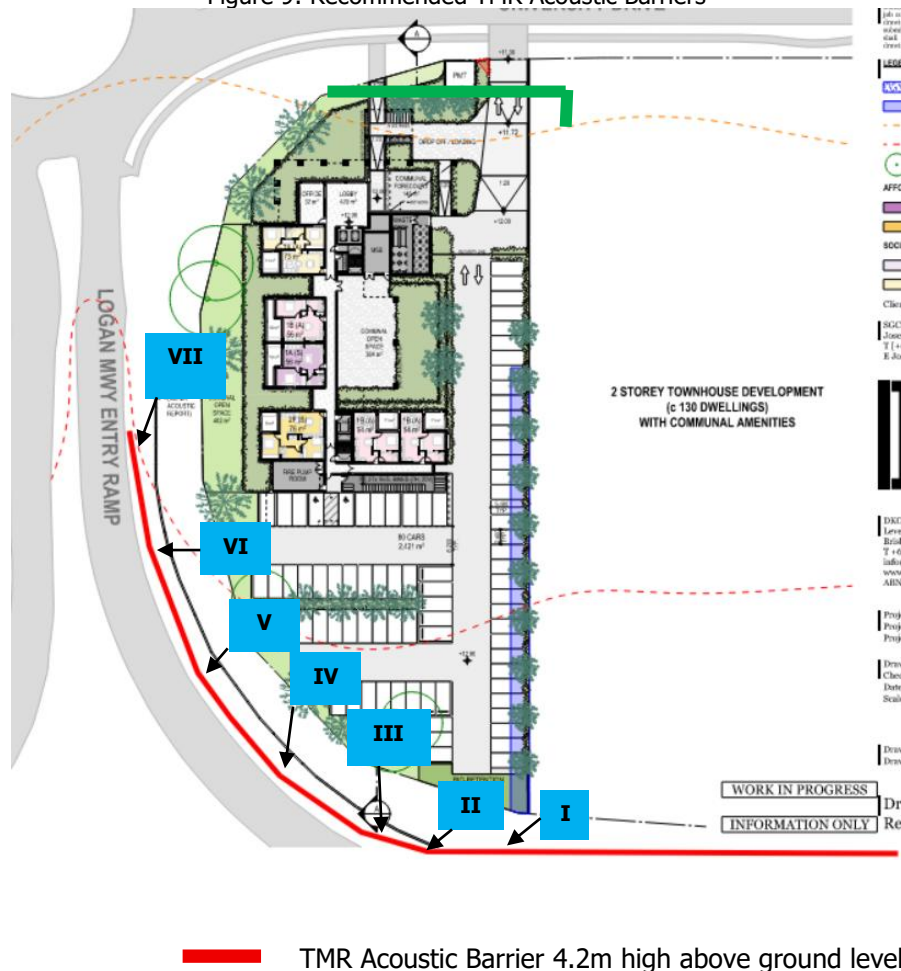
Location			Solid gap free-balustrade and absorbent material to the balcony soffit Yes/No
Unit	Level	Area	
1	GF	Balcony	No
2	GF	Balcony	No
3	GF	Balcony	No
4	GF	Balcony	No
5	GF	Balcony	No
6	GF	Balcony	No
Communal Garden East	GF	Outdoor	No
Communal Forecourt	GF	Outdoor	No
Communal Garden West	GF	Outdoor	No
1	1	Balcony	No
2	1	Balcony	No
3	1	Balcony	Yes
4	1	Balcony	Yes
5	1	Balcony	Yes
6	1	Balcony	Yes
7	1	Balcony	Yes
8	1	Balcony	Yes
9	1	Balcony	No
10	1	Balcony	No
11	1	Balcony	No
12	1	Balcony	No
13	1	Balcony	No
14	1	Balcony	No
10	1	Balcony	No
1	2	Balcony	No
2	2	Balcony	No
3	2	Balcony	No
4	2	Balcony	Yes
5	2	Balcony	Yes
6	2	Balcony	Yes
7	2	Balcony	Yes
8	2	Balcony	Yes
9	2	Balcony	Yes
10	2	Balcony	Yes
11	2	Balcony	No
12	2	Balcony	No
13	2	Balcony	No
14	2	Balcony	No
15	2	Balcony	No

Location			Solid gap free-balustrade and absorbent material to the balcony soffit Yes/No
Unit	Level	Area	
1	3	Balcony	No
2	3	Balcony	No
3	3	Balcony	No
4	3	Balcony	Yes
5	3	Balcony	Yes
6	3	Balcony	Yes
7	3	Balcony	Yes
8	3	Balcony	Yes
9	3	Balcony	Yes
10	3	Balcony	Yes
11	3	Balcony	No
12	3	Balcony	No
13	3	Balcony	No
14	3	Balcony	No
15	3	Balcony	No
1	4	Balcony	No
2	4	Balcony	No
3	4	Balcony	No
4	4	Balcony	Yes
5	4	Balcony	Yes
6	4	Balcony	Yes
7	4	Balcony	Yes
8	4	Balcony	Yes
9	4	Balcony	Yes
10	4	Balcony	Yes
11	4	Balcony	No
12	4	Balcony	No
13	4	Balcony	Yes
14	4	Balcony	Yes
15	4	Balcony	No
1	5	Balcony	No
2	5	Balcony	No
3	5	Balcony	No
4	5	Balcony	Yes
5	5	Balcony	Yes
6	5	Balcony	Yes
7	5	Balcony	Yes
8	5	Balcony	Yes
9	5	Balcony	Yes
10	5	Balcony	Yes
11	5	Balcony	Yes
12	5	Balcony	No
13	5	Balcony	Yes
14	5	Balcony	Yes
15	5	Balcony	Yes

10.2 TMR Acoustic Barriers

Acoustic barriers are recommended to be constructed along the nominated locations as shown in Figure 9. The height of the acoustic barrier is to be 4.2 metres. The base RL of the barrier is taken to be at the ground level of the site. The barrier shall be constructed using materials that achieve a minimum surface density of 15kg/m². The barriers shall be constructed in accordance with Main Roads Standard Specification MRTS15 "*Noise Fences*". The barrier shall be free of gaps and holes.

Figure 9: Recommended TMR Acoustic Barriers



Refer to Table 20 for barrier RL requirements.

Table 20: Recommended Acoustic Barrier Height

Reference Point	Approximate Finished Ground Level (m)	Recommended Barrier Height (m)	Approximate Finished Top Barrier Level (m)
I	12.22	4.2	16.42
II	12.21	4.2	16.42
III	12.21	4.2	16.42
IV	12.21	4.2	16.42
V	12.21	4.2	16.42
VI	12.21	4.2	16.42
VII	12.21	4.2	16.42

10.3 Onsite Activities

Based on the predicted noise levels and subjective assessment of the site and surrounds for all time periods, noise impacts at the residential receiver locations are predicted to comply with the assessment criteria on the condition the following acoustic treatments are implemented.

- Delivers are to be limited to the daytime period (7am-6pm).
- Use of the workshop plus any onsite maintenance activities are to be limited to the daytime and evening periods only, between 7am and 10pm.

10.3.1 Onsite Mechanical Plant

No information regarding mechanical services was available at the time of the assessment. We recommend that any new mechanical plant is designed to comply with the noise criteria stated in Section 6 with an assessment by qualified acoustic consultant to be conducted prior to installation.

10.3.2 Waste collection

We recommend that waste collection be conducted in accordance with the surrounding residential properties, with recommended hours between 7am-6pm Monday to Saturday and 8am-6pm Sunday.

11. Conclusion

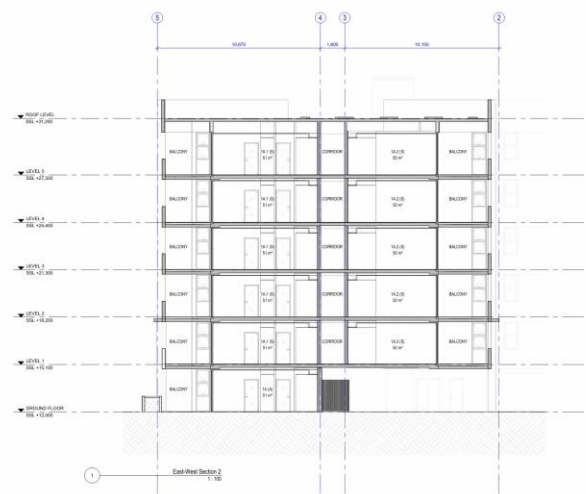
A road traffic and environmental noise assessment was conducted for the proposed residential development located at Subdivision Lots 1 and 2 at 35 University Drive, Meadowbrook. On the condition the recommendations detailed in Section 10 are implemented, compliance is predicted with QDC and Logan City Council assessment criteria.

If you should have any queries, please do not hesitate to contact us.

Yours faithfully,



Shauna Livingstone
Acoustic Consultant
acousticworks)))



No.	Date	By	Check	Description
1	2022-04-08	Acoustic Works	DKO	Initial Construction

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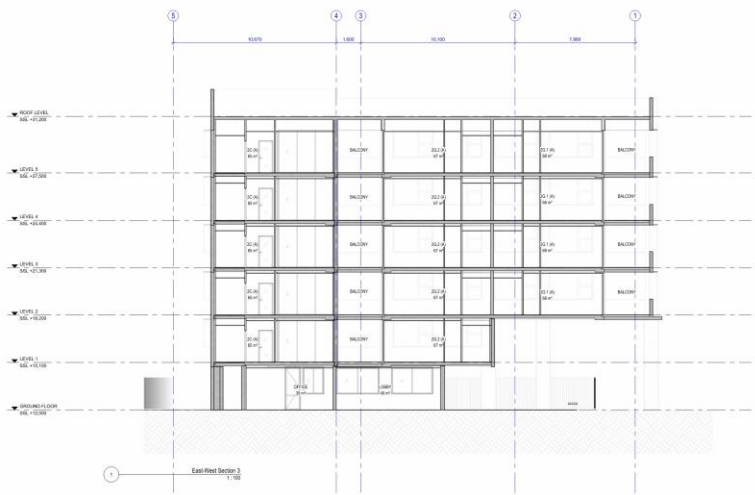
Acoustic Works LLC
1700 University Drive
Meadowbrook, CA 94552

DKO

Project Name: 1700
Project Number: 2022-04-08
Project Address: 1700 University Drive Meadowbrook, CA 94552
County: Alameda
Architect: Acoustic Works LLC

PRELIMINARY

Section Name: Sections
Drawing Title: A3103
Drawing Scale: P1
1/8" = 1'-0"



No.	Date	By	Check	Description
1	2022-04-08	Acoustic Works	DKO	Initial Construction

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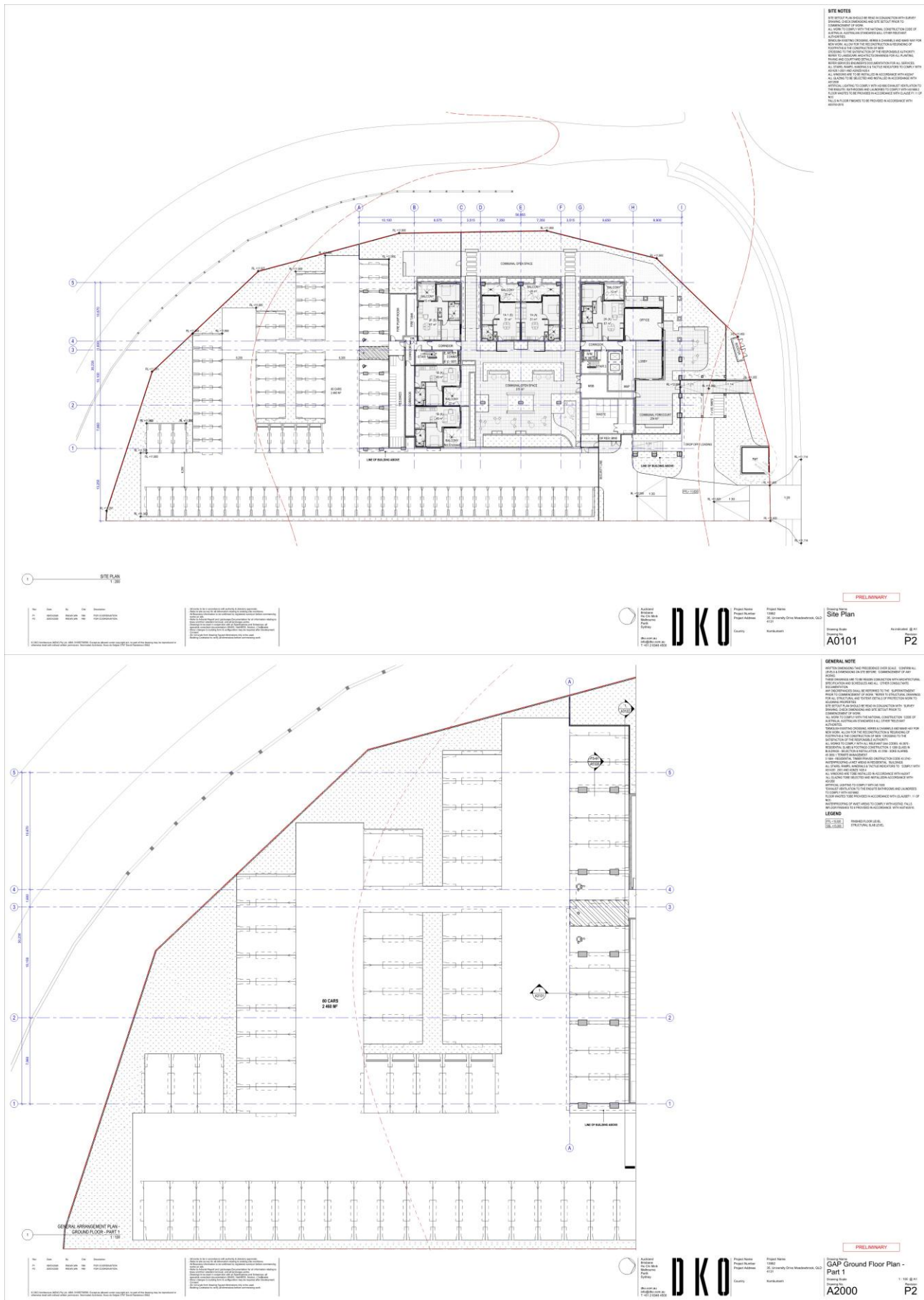
Acoustic Works LLC
1700 University Drive
Meadowbrook, CA 94552

DKO

Project Name: 1700
Project Number: 2022-04-08
Project Address: 1700 University Drive Meadowbrook, CA 94552
County: Alameda
Architect: Acoustic Works LLC

PRELIMINARY

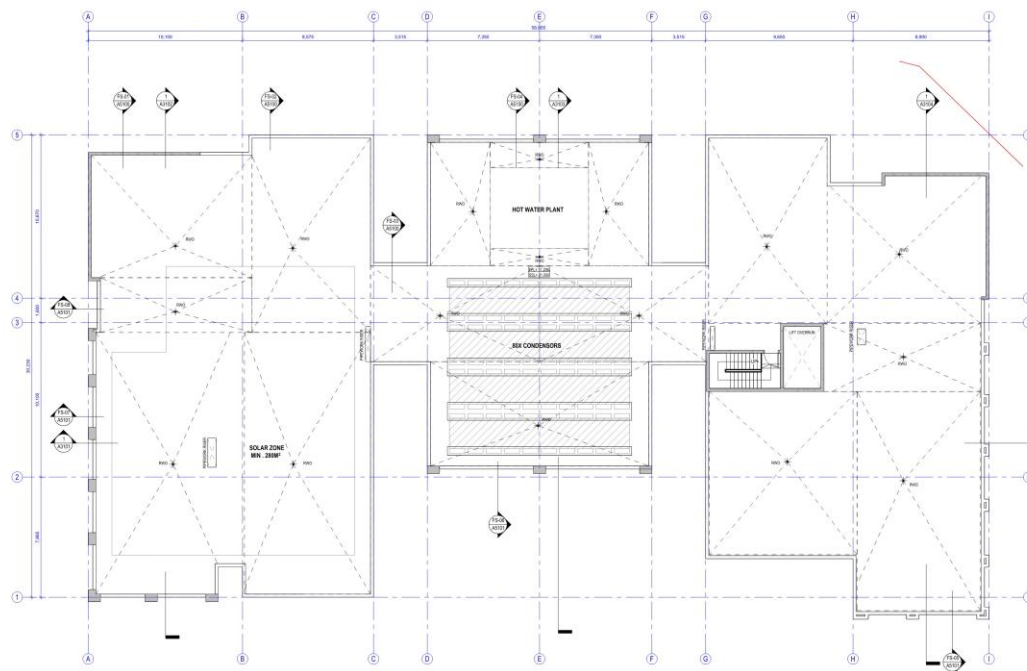
Section Name: Sections
Drawing Title: A3104
Drawing Scale: P1
1/8" = 1'-0"









[illegible]

1 GENERAL ARRANGEMENT PLAN - ROOF LEVEL
1:100

[illegible]

Auckland
Brisbane
Melbourne
Perth
Sydney

D K O

0800 200 200
www.dko.co.nz

Project Name	Project Name
Project Number	13862
Project Address	35 University 4121
Country	Namibia

PRELIMINARY

Drawing Name
GAP Roof Plan

Drawing Scale
Drawing No.
A2007

FINISHES LEGEND	
	SP-01 TERRAZZO BRICK TILE
	SP-02 PRECAST CONCRETE
	SP-03 TEXTURED CONCRETE
	SP-04 TERRAZZO PRECAST CONCRETE
	SP-05 UNIT PRECAST CONCRETE
	SP-06 DARK BRONZE POWDERCOAT
	SP-07 WHITE POWDERCOAT



1 DOC400 - NORTH ELEVATION
1/18/02

Year	Date	No.	Cost	Description	Remarks
2011	April 2012	March 1990	1000	1000	1000



Auckland
Brisbane
Melbourne
Perth
Sydney

Project Name	Project Name
Project Number	13862
Project Address	35 University 4121
Country	Kanikuliak

Drawing Name
North Elevation
 Drawing Scale
 Drawing No.
A3001

[illegible]

**Australian
Institute
for the City of
Melbourne
Pavilion
Sydney**

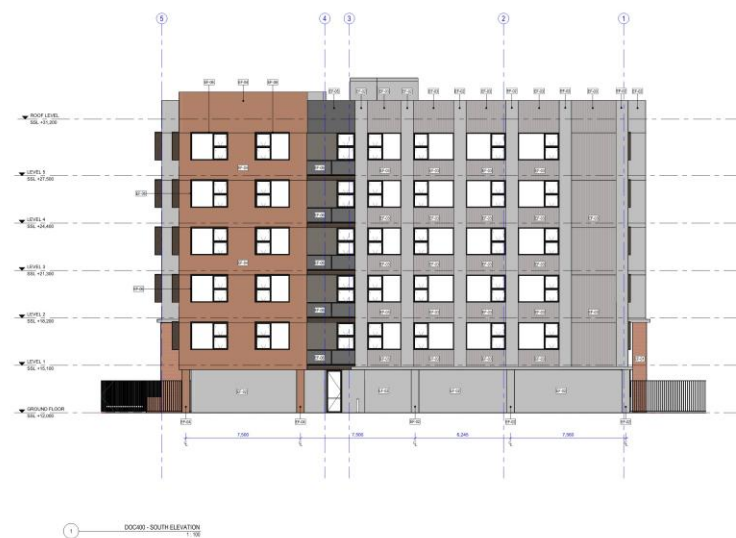
DKO

Project Name	Project Name
Project Number	13862
Project Address	25, University C 6121
Country	Kumkuluw

PRELIMINARY

Drawing Name
East Elevation

Drawing Scale
Drawing No.
A3002

[illegible]

Auckland
 Brisbane
 Ho Chi Minh
 Melbourne
 Perth
 Sydney

We want
 you to call

DKO

Project Name	Project Name
Project Number	13862
Project Address	25, University C 4121
Country	Kumbakonam

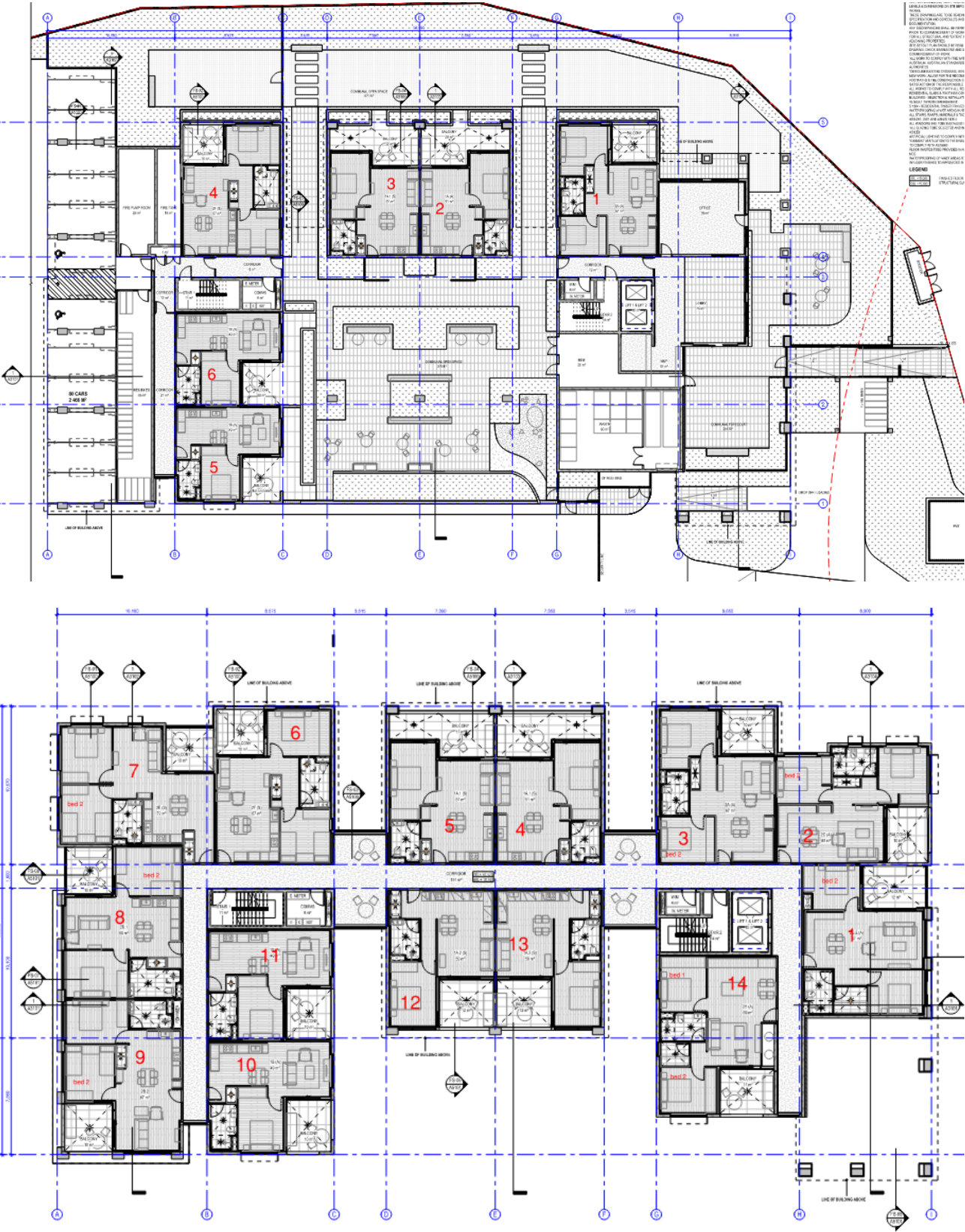
PRELIMINARY

Drawing Name
South Elevation

Drawing Scale
Drawing No.
A3003

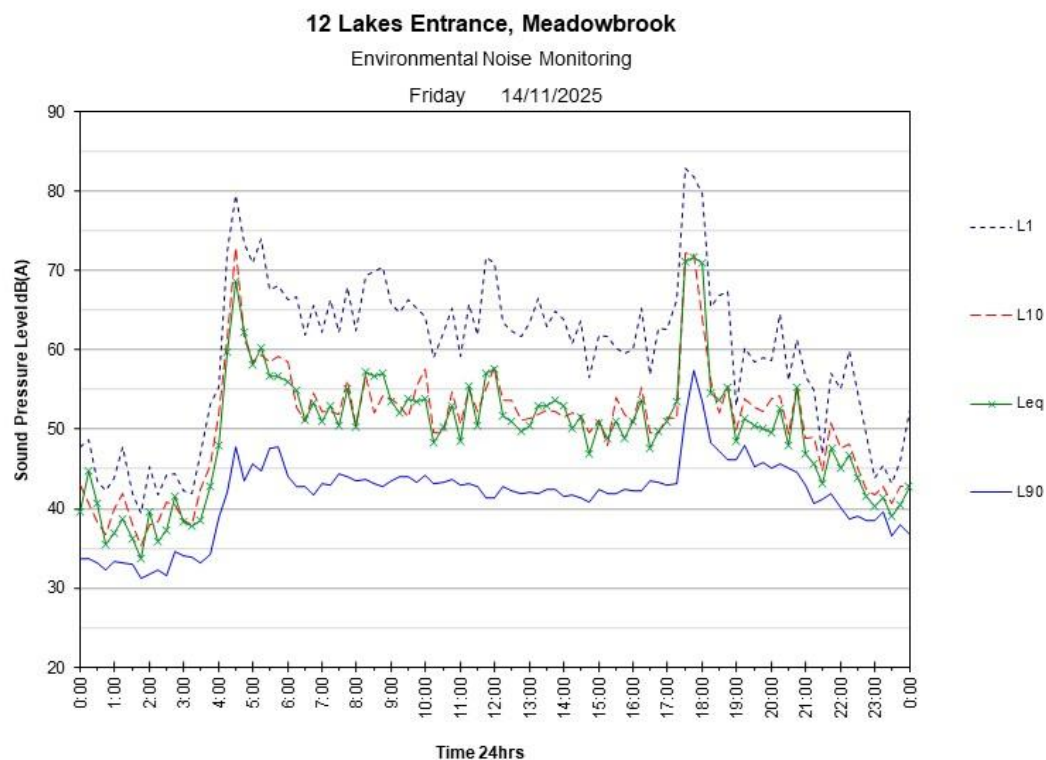
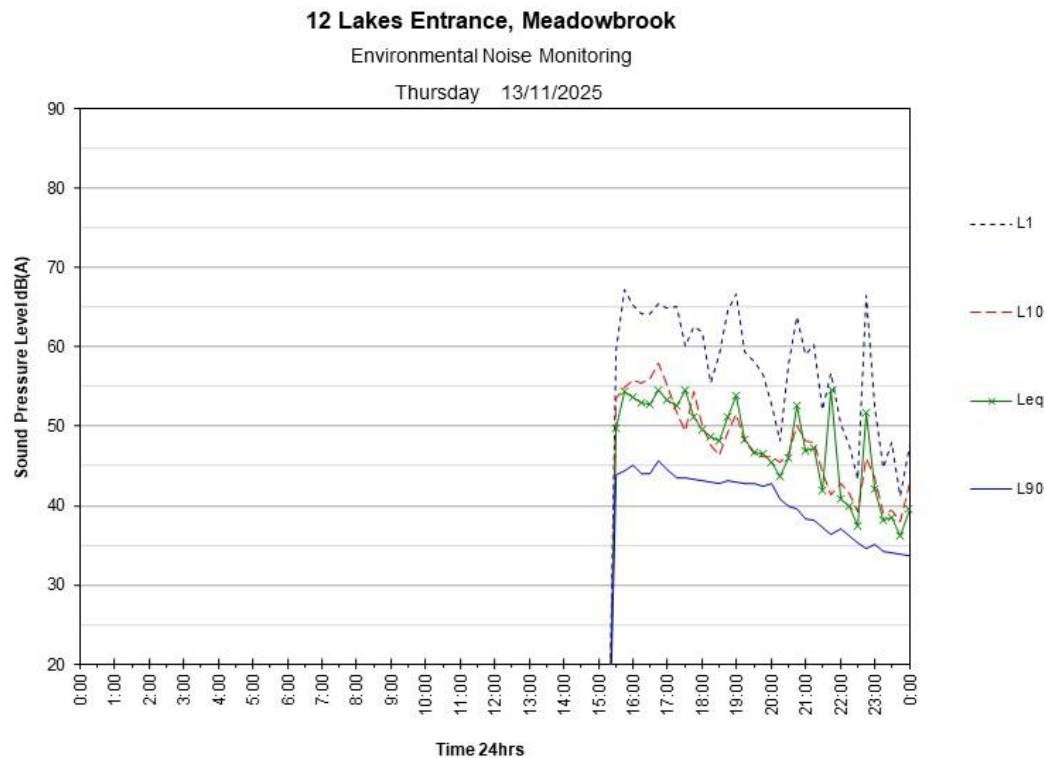


12.2 Unit Numbering

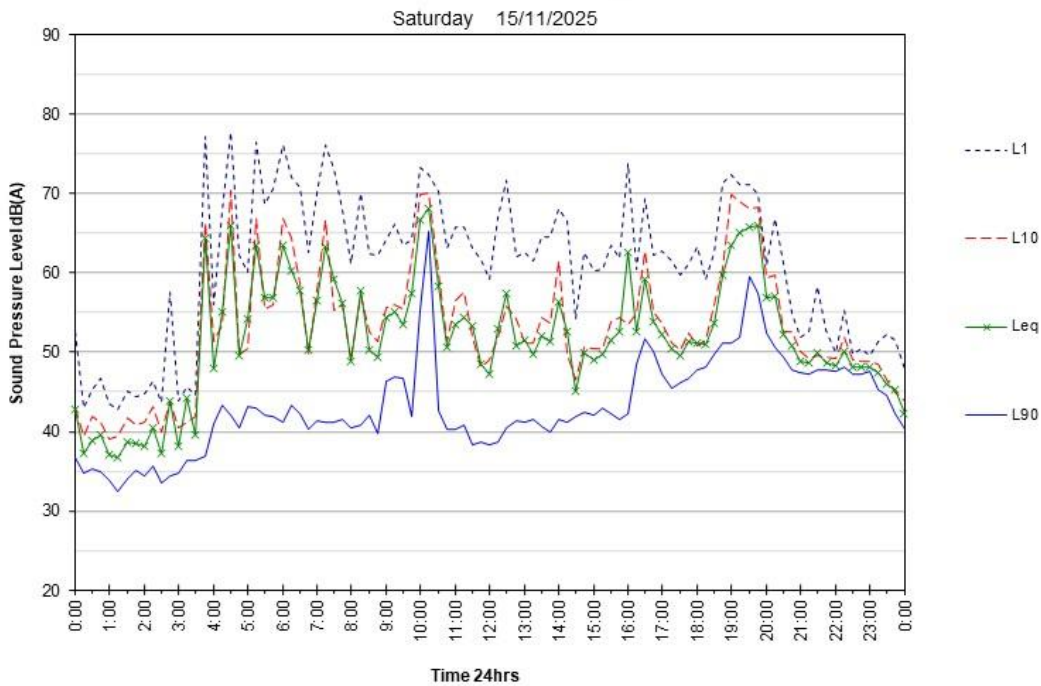




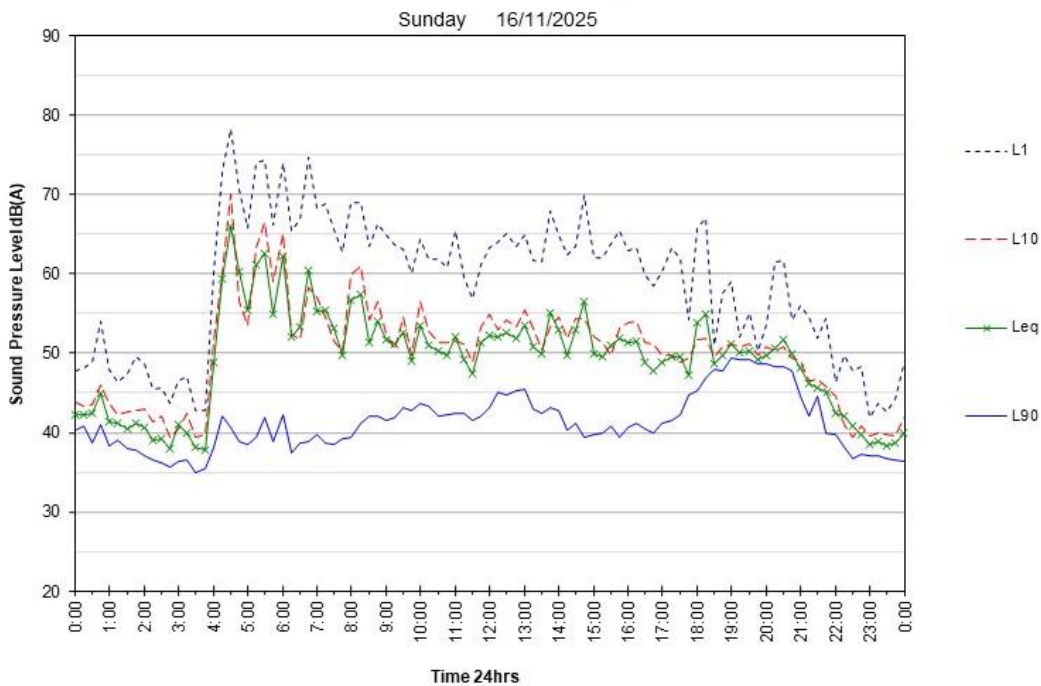
12.3 Environmental Noise Monitoring Charts



12 Lakes Entrance, Meadowbrook
Environmental Noise Monitoring



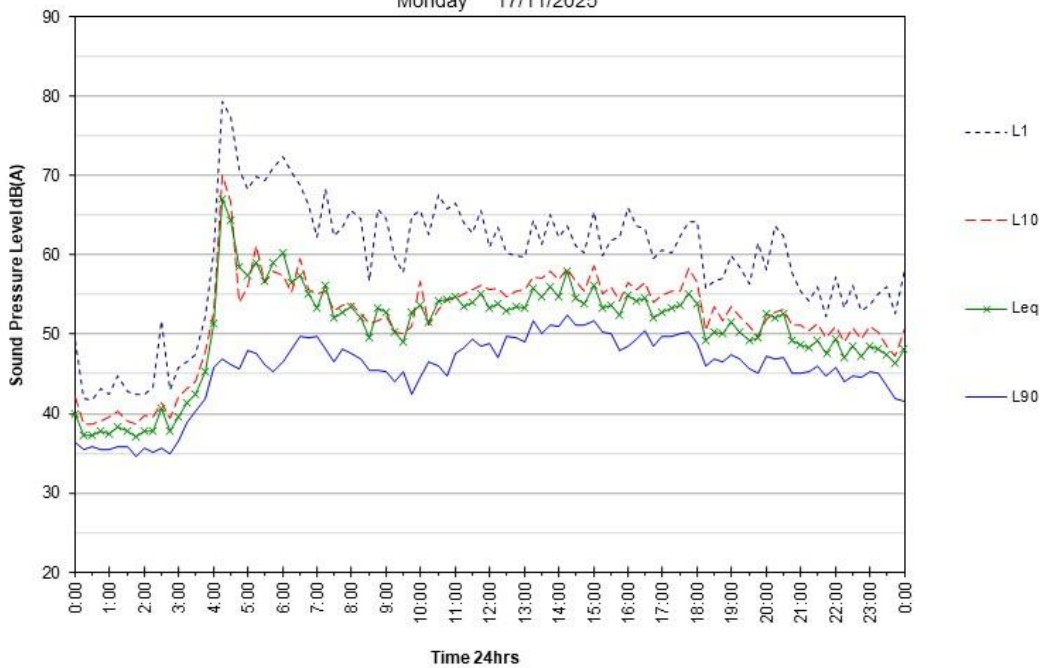
12 Lakes Entrance, Meadowbrook
Environmental Noise Monitoring



12 Lakes Entrance, Meadowbrook

Environmental Noise Monitoring

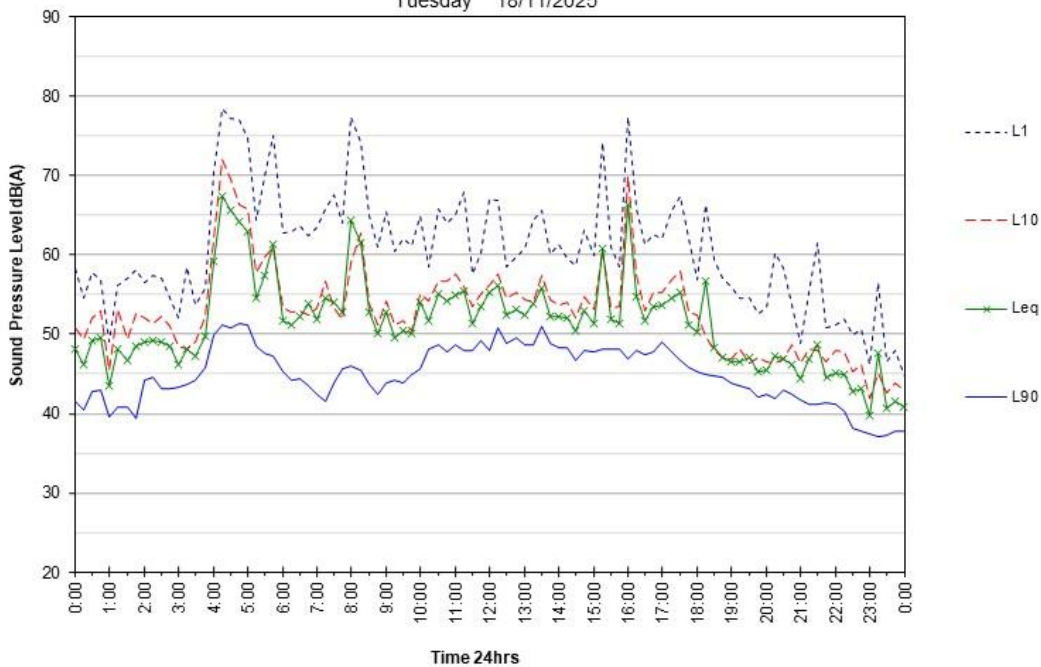
Monday 17/11/2025



12 Lakes Entrance, Meadowbrook

Environmental Noise Monitoring

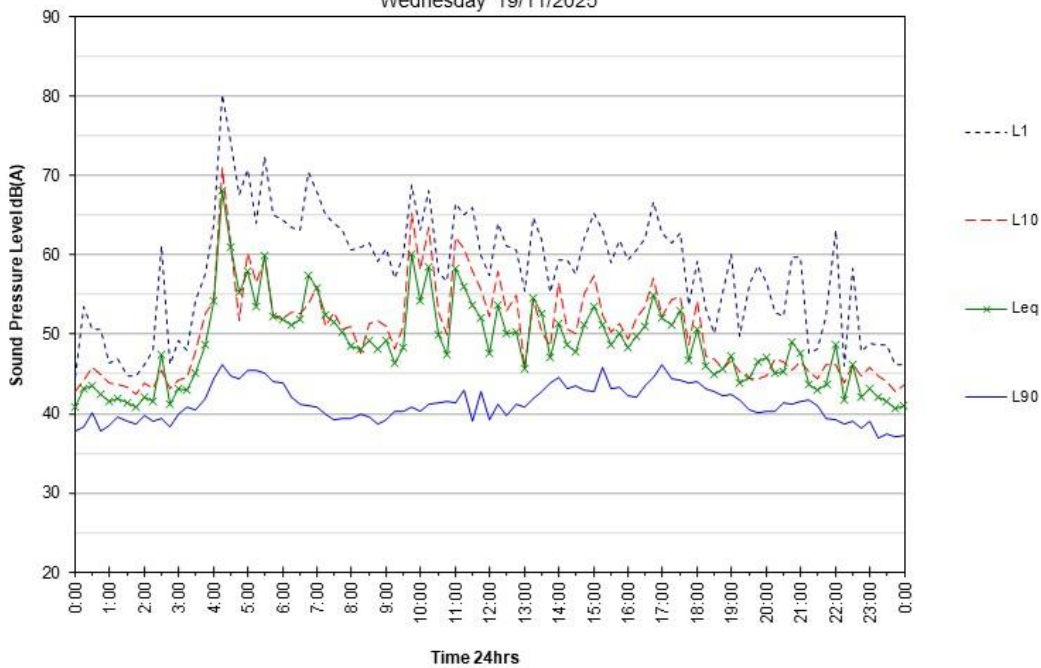
Tuesday 18/11/2025



12 Lakes Entrance, Meadowbrook

Environmental Noise Monitoring

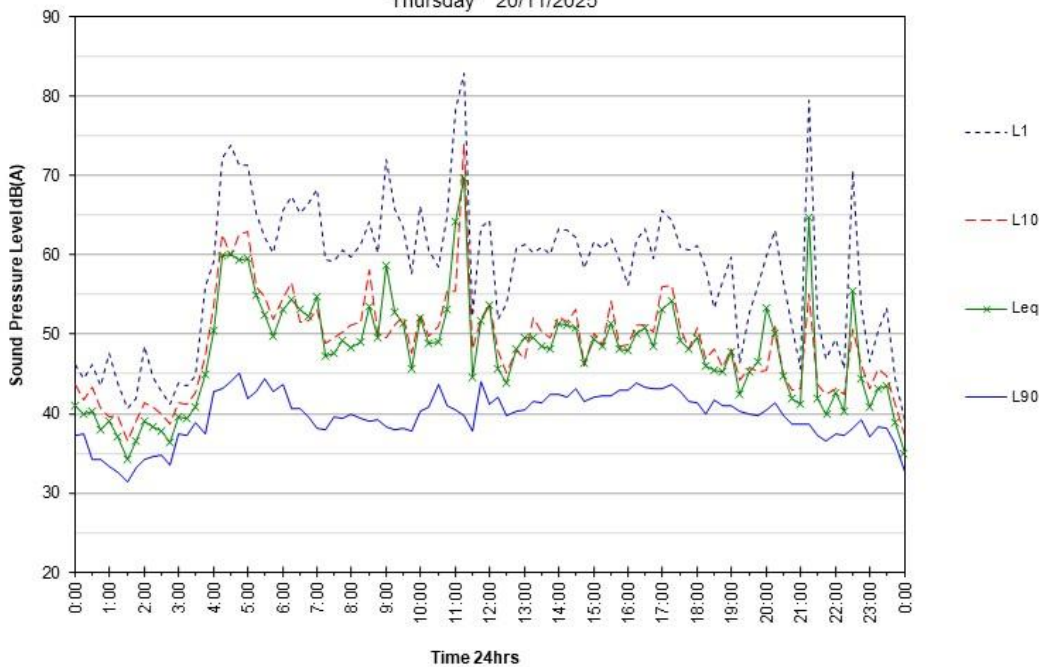
Wednesday 19/11/2025



12 Lakes Entrance, Meadowbrook

Environmental Noise Monitoring

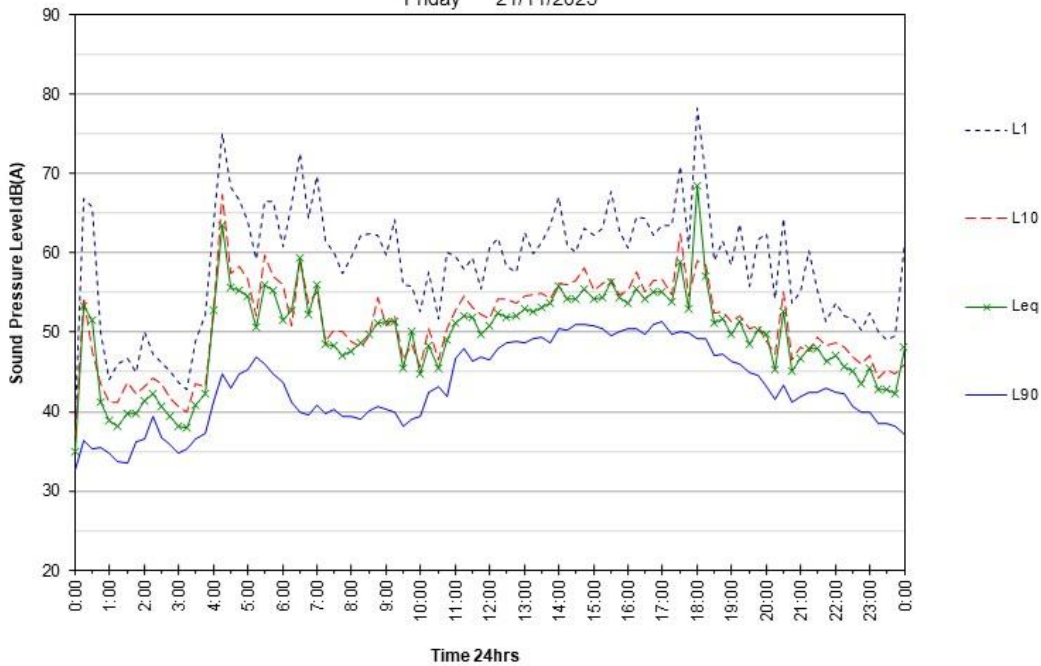
Thursday 20/11/2025



12 Lakes Entrance, Meadowbrook

Environmental Noise Monitoring

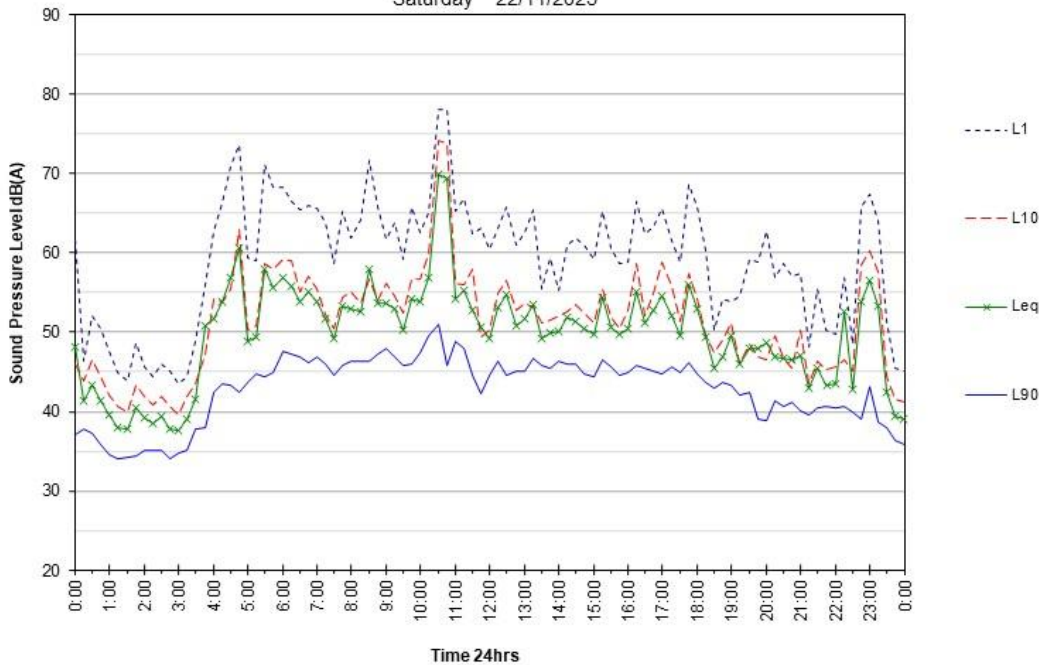
Friday 21/11/2025



12 Lakes Entrance, Meadowbrook

Environmental Noise Monitoring

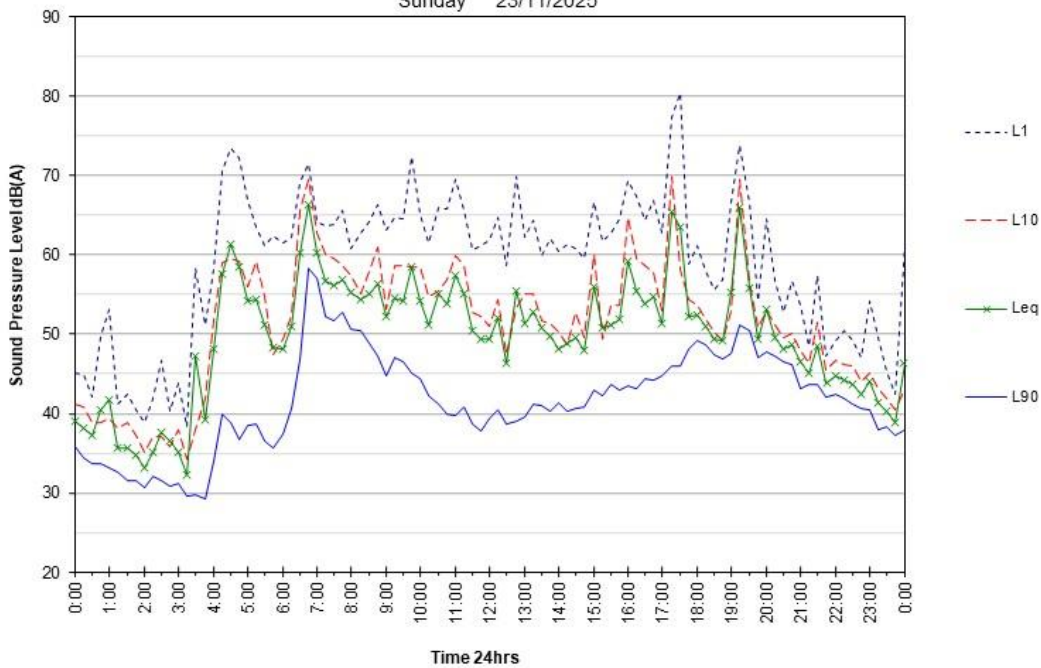
Saturday 22/11/2025



12 Lakes Entrance, Meadowbrook

Environmental Noise Monitoring

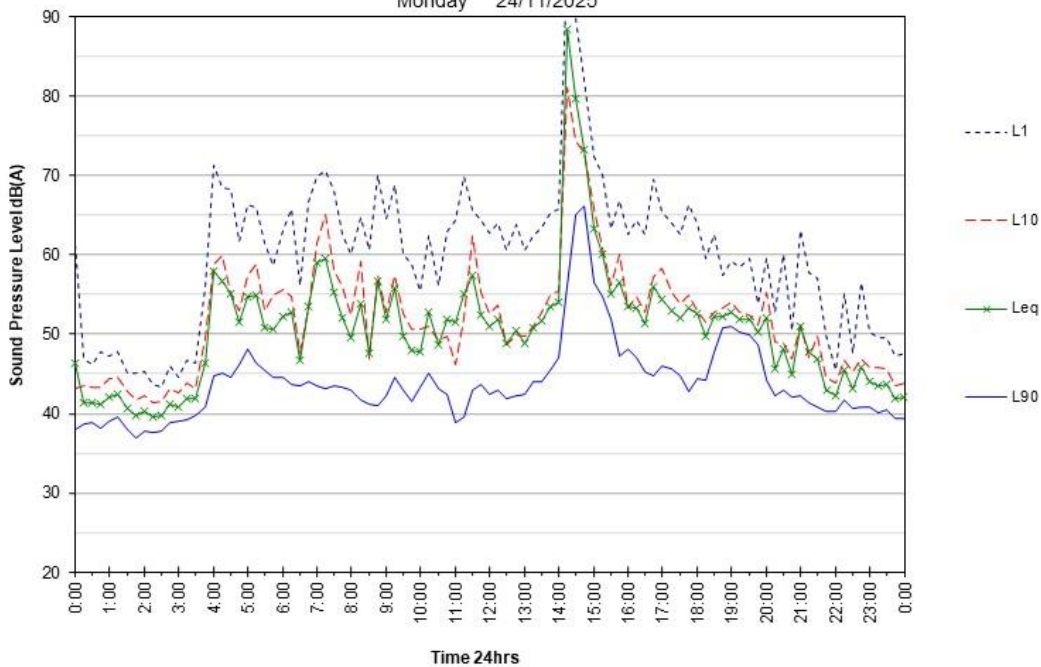
Sunday 23/11/2025

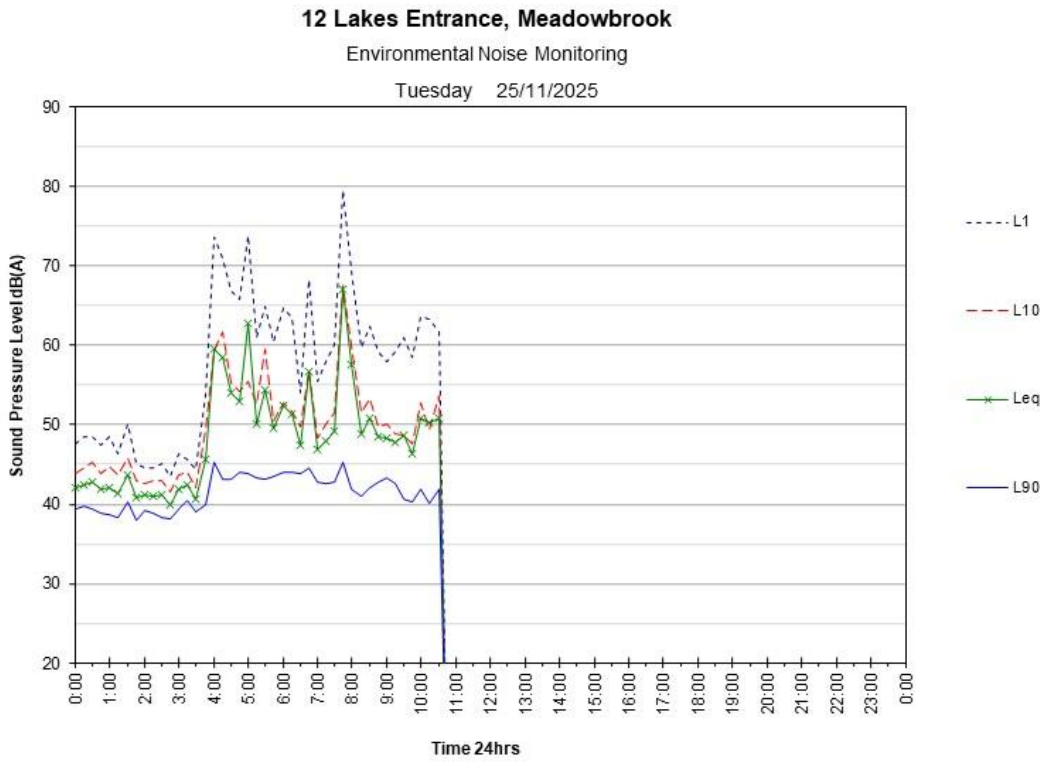


12 Lakes Entrance, Meadowbrook

Environmental Noise Monitoring

Monday 24/11/2025





12.4 Noise Monitoring Charts Road Traffic

