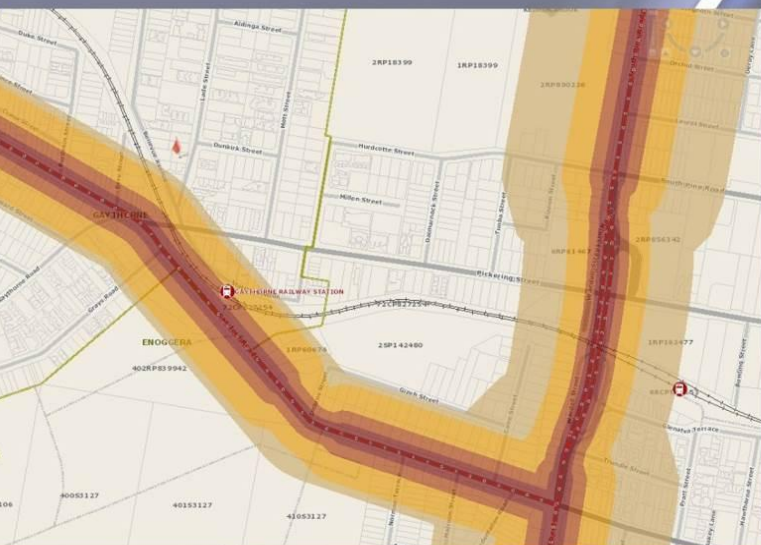




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NOISE MEASUREMENT SERVICES PTY LTD

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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REPORT FOR MullArch
CONTACT Aaron Muller

Signed



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



Matthew Fishburn
BE(Mech) Hons, MAAS, MIEAust, CPEng,
R.P.E.Q [14356]
Reviewer

DISCLAIMER

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Executive Summary

This Report is in response to a request from Mull Arch Pty Ltd for a noise impact assessment report on a proposed rooming accommodation residential development at 24 Wilton Street, Woolloongabba, QLD 4102 (Lot 4 on RP12250). The development is located in the Brisbane City Council local government area and are zoned Medium Density Residential, and is adjacent to Medium Density Residential zoned Lots. The site is also within 25 metres of the Pacific Motorway, which is a State Controlled Road.

The proposed development is an eight storey rooming accommodation building with 67 beds and a rooftop terrace. The lot will be cleared for this purpose. The development is subject to assessment from the State Assessment and Referral Agency (SARA), the State Development Assessment Provisions (SDAP), and the Queensland Development Code Mandatory Part 4.4.

The default Transport Noise Category for the State Controlled Road for this Lot is Category 2. The default categories are only valid at ground level. This has been reconsidered in this report which is prepared in accordance with the Department of Transport and Main Roads' *Code of Practice*.

Conclusions

It is concluded that that the development can meet State Assessment and Referral Agency (SARA) requirements of State Development Assessment Provision State Code 1.

It is concluded that the development can meet the Brisbane City Council City Plan 2015 Use Code for Rooming Accommodation.

A summary of the assessment follows.

Summary of State Development Assessment Provision (SDAP) Assessment

State Development Assessment Provisions v3.5

P039 Maximum Free Field Noise Level

The proposed rooming accommodation does not have designated ground floor private open space areas. There is a communal open space area on the Level 8 Terrace.

It is concluded that the SDAP performance outcome P039 maximum free field noise level for private open space does not apply. A Lot-boundary acoustic fence (for the mitigation of road traffic noise) is not proposed.

P042 Balconies, Podiums and Roof Decks

The proposed rooming accommodation has rooms with balconies and a communal terrace on level 6 of the development. These spaces require a continuous solid gap free structure or balustrade (excluding gaps required for drainage). For balconies with a soffit above, highly acoustically absorbent material treatment is required for the total area of the soffit above. The areas requiring acoustic treatment are summarised in **Summary Tables of Assessment Table ES1** following.

QDC MP4.4 Interior Amenity

The proposed dwellings can meet the internal amenity requirements by using building elements with an Rw of no less than the stated minimum in accordance with the Queensland Development Code MP4.4 and summarised in **Summary Tables of Assessment Table ES2 to ES3** following.

Summary of Brisbane City Council Criteria

BCC Use Code - Rooming Accommodation AO8.1 – Noise Nuisance

The development has the following noise emissions that may cause noise nuisance:

- Ground floor carpark with three spaces;
- Ground floor commercial vehicle parking space;
- Level 6 rooftop terrace with approximate max capacity of 50 people;
- Level 6 rooftop plant deck with approximate 49 plant.

Vehicle movements, crowd noise and plant noise have been modelled in depth. It is concluded that noise emission limits for nuisance noise can be met at all times at the nearest noise sensitive interface.

This is primarily because the Level 8 Terrace is significantly higher in elevation than the surrounding sensitive use, the modest sized ground floor car park, and high existing background sound levels (being in close proximity to the Pacific Motorway).

Although noise compliance could be met at all times, it is recommended that the rooftop terrace be restricted from 10:00 PM to 5:00 AM. Opening the Level 8 Terrace outdoor recreation area from 5:00 AM has been considered to be appropriate in this assessment.

The Level 6 communal terrace must have solid and gap free balustrades.

BCC Use Code - Rooming Accommodation AO8.2 – Acoustic Fence on Boundary

There are three car parks located internally at ground floor near the west boundary. It is not clear if the adjacent Lot (26 Wilton) will be developed in the future. Unless this lot is deemed non-sensitive, a 2.0 metre acoustic fence is required along part of the east boundary, for a distance of approximately 12 metres, as illustrated in **Plate ES1** following.

Ordinarily, to act as an acoustic barrier, it is recommended the fence have a linear density of at least 12.5 kg/m² and be continuous and gap free. However, the Department of Transport and Main Roads may request this fence to meet the requirements of the Transport and Main Roads Specifications *MRTS15 Noise Fences*.

Plate ES1: Showing the proposed location of an acoustic fence, at least 2.0m above ground level on boundary.*BCC Use Code - Rooming Accommodation AO8.3 – Acoustically Screened Mechanical Plant*

All mechanical plant is required to be acoustically screened. This means that the source of noise is completely screened from view of habitable rooms (including balconies, patios, decks and verandahs) of an adjoining sensitive use by solid, gap free material and construction e.g. acoustic fence, building, or enclosure.

For a MCU rooming accommodation in a Transport Noise Corridor Overlay

The proposed dwellings can meet the internal amenity requirements by using building elements with an Rw of no less than the stated minimum in accordance with the Queensland Development Code MP4.4 and summarised in **Table ES2 to ES3** following. This design is to the 2036 (10 year) design horizon.

Summary Tables of Assessment

The proposed rooming accommodation has rooms with balconies and a communal terrace on level 6 of the development. These spaces require a continuous solid gap free structure or balustrade (excluding gaps required for drainage). For balconies with a soffit above, highly acoustically absorbent material treatment is required for the total area of the soffit above.

The following balconies and open space in **Table ES1** require solid balustrades and acoustic treatments.

Table ES1: Balconies and terrace that require acoustic treatment.

Location	Acoustic Treatment Required
Ground	
LG Bed 1 S (BAL)	Solid balustrade and acoustic treatment to soffit.
LG Bed 2 S (BAL)	Solid balustrade and acoustic treatment to soffit.
LG Bed 3 S (BAL)	Solid balustrade and acoustic treatment to soffit.
Level 1	
L1 Communal Facilities N (BAL)	Solid balustrade and acoustic treatment to soffit.
L1 Bed 7 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L1 Bed 8 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L1 Bed 9 S (BAL)	Solid balustrade and acoustic treatment to soffit.
Level 2	
L2 Bed 10 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L2 Bed 11 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L2 Bed 12 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L2 Bed 17 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L2 Bed 18 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L2 Bed 19 S (BAL)	Solid balustrade and acoustic treatment to soffit.
Level 3	
L3 Bed 20 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L3 Bed 21 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L3 Bed 22 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L3 Bed 27 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L3 Bed 28 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L3 Bed 29 S (BAL)	Solid balustrade and acoustic treatment to soffit.
Level 4	
L4 Bed 30 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L4 Bed 31 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L4 Bed 32 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L4 Bed 37 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L4 Bed 38 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L4 Bed 39 S (BAL)	Solid balustrade and acoustic treatment to soffit.
Level 5	
L5 Bed 40 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L5 Bed 41 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L5 Bed 42 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L5 Bed 47 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L5 Bed 48 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L5 Bed 49 S (BAL)	Solid balustrade and acoustic treatment to soffit.
Level 6	
L6 Bed 50 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L6 Bed 51 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L6 Bed 52 N (BAL)	Solid balustrade and acoustic treatment to soffit.
Level 7	
L7 Bed 59 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L7 Bed 60 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L7 Bed 61 N (BAL)	Solid balustrade and acoustic treatment to soffit.

Table ES2.1: Forecast $L_{10, 18hr}$ and corresponding QDC Categories. Levels are in dB(A), façade-affected.

Room	L ₁₀ , 18hr	Category	Minimum R _w Required for each component (Schedule 1, QDC MP4.4)					
			Glazing ($<1.8m^2$)	Glazing ($>1.8m^2$)	Walls	Roof/ Ceiling	Floors	Entrance Doors
Ground Floor								
LG Communal Lounge W	66	Category 2	32	35	41	38	45	33
LG Communal Lounge E	46	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
LG Bed 1 W	67	Category 2	32	35	41	38	45	33
LG Bed 1 S (BAL)	63	Category 2	32	35	41	38	45	33
LG Bed 2 S (BAL)	62	Category 1	24	27	35	35	N/R	28
LG Bed 3 S (BAL)	62	Category 1	24	27	35	35	N/R	28
LG Bed 3 E	49	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
Level 1								
L1 Communal Facilities W	70	Category 3	35	38	47	41	45	33
L1 Communal Facilities N (BAL)	61	Category 1	24	27	35	35	N/R	28
L1 Communal Facilities E	45	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
L1 Bed 4 W	71	Category 3	35	38	47	41	45	33
L1 Bed 5 W	72	Category 3	35	38	47	41	45	33
L1 Bed 6 W	73	Category 4	43	43	52	45	51	35
L1 Bed 7 W	74	Category 4	43	43	52	45	51	35
L1 Bed 7 S (BAL)	70	Category 3	35	38	47	41	45	33
L1 Bed 8 S (BAL)	68	Category 3	35	38	47	41	45	33
L1 Bed 9 S (BAL)	67	Category 2	32	35	41	38	45	33
L1 Bed 9 E	50	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
Level 2								
L2 Bed 10 E	45	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
L2 Bed 10 N (BAL)	64	Category 2	32	35	41	38	45	33
L2 Bed 11 N (BAL)	65	Category 2	32	35	41	38	45	33
L2 Bed 12 N (BAL)	66	Category 2	32	35	41	38	45	33
L2 Bed 12 W	73	Category 4	43	43	52	45	51	35
L2 Bed 13 W	74	Category 4	43	43	52	45	51	35
L2 Bed 14 W	74	Category 4	43	43	52	45	51	35
L2 Bed 15 W	75	Category 4	43	43	52	45	51	35
L2 Bed 16 W	75	Category 4	43	43	52	45	51	35
L2 Bed 17 W	76	Category 4	43	43	52	45	51	35
L2 Bed 17 S (BAL)	71	Category 3	35	38	47	41	45	33
L2 Bed 18 S (BAL)	70	Category 3	35	38	47	41	45	33
L2 Bed 19 S (BAL)	70	Category 3	35	38	47	41	45	33
L2 Bed 19 E	54	Category 0	N/R	N/R	N/R	N/R	N/R	N/R

Note BAL = attenuation from solid balustrade for balcony included.

Table ES2.2: Forecast $L_{10, 18hr}$ and corresponding QDC Categories. Levels are in dB(A), façade-affected.

Room	L ₁₀ , 18hr	Category	Minimum R _w Required for each component (Schedule 1, QDC MP4.4)					
			Glazing (<1.8m²)	Glazing (>1.8m²)	Walls	Roof/ Ceiling	Floors	Entrance Doors
Level 3								
L3 Bed 20 E	45	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
L3 Bed 20 N (BAL)	65	Category 2	32	35	41	38	45	33
L3 Bed 21 N (BAL)	66	Category 2	32	35	41	38	45	33
L3 Bed 22 N (BAL)	67	Category 2	32	35	41	38	45	33
L3 Bed 22 W	74	Category 4	43	43	52	45	51	35
L3 Bed 23 W	75	Category 4	43	43	52	45	51	35
L3 Bed 24 W	75	Category 4	43	43	52	45	51	35
L3 Bed 25 W	76	Category 4	43	43	52	45	51	35
L3 Bed 26 W	76	Category 4	43	43	52	45	51	35
L3 Bed 27 W	77	Category 4	43	43	52	45	51	35
L3 Bed 27 S (BAL)	72	Category 3	35	38	47	41	45	33
L3 Bed 28 S (BAL)	71	Category 3	35	38	47	41	45	33
L3 Bed 29 S (BAL)	70	Category 3	35	38	47	41	45	33
L3 Bed 29 E	56	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
Level 4								
L4 Bed 30 E	45	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
L4 Bed 30 N (BAL)	65	Category 2	32	35	41	38	45	33
L4 Bed 31 N (BAL)	67	Category 2	32	35	41	38	45	33
L4 Bed 32 N (BAL)	68	Category 3	35	38	47	41	45	33
L4 Bed 32 W	75	Category 4	43	43	52	45	51	35
L4 Bed 33 W	76	Category 4	43	43	52	45	51	35
L4 Bed 34 W	76	Category 4	43	43	52	45	51	35
L4 Bed 35 W	76	Category 4	43	43	52	45	51	35
L4 Bed 36 W	76	Category 4	43	43	52	45	51	35
L4 Bed 37 W	77	Category 4	43	43	52	45	51	35
L4 Bed 37 S (BAL)	72	Category 3	35	38	47	41	45	33
L4 Bed 38 S (BAL)	72	Category 3	35	38	47	41	45	33
L4 Bed 39 S (BAL)	71	Category 3	35	38	47	41	45	33
L4 Bed 39 E	58	Category 1	24	27	35	35	N/R	28
Level 5								
L5 Bed 40 E	46	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
L5 Bed 40 N (BAL)	66	Category 2	32	35	41	38	45	33
L5 Bed 41 N (BAL)	67	Category 2	32	35	41	38	45	33
L5 Bed 42 N (BAL)	68	Category 3	35	38	47	41	45	33
L5 Bed 42 W	75	Category 4	43	43	52	45	51	35
L5 Bed 43 W	76	Category 4	43	43	52	45	51	35
L5 Bed 44 W	76	Category 4	43	43	52	45	51	35
L5 Bed 45 W	76	Category 4	43	43	52	45	51	35
L5 Bed 46 W	76	Category 4	43	43	52	45	51	35
L5 Bed 47 W	77	Category 4	43	43	52	45	51	35
L5 Bed 47 S (BAL)	72	Category 3	35	38	47	41	45	33
L5 Bed 48 S (BAL)	72	Category 3	35	38	47	41	45	33
L5 Bed 49 S (BAL)	71	Category 3	35	38	47	41	45	33
L5 Bed 49 E	59	Category 1	24	27	35	35	N/R	28

Note BAL = attenuation from solid balustrade for balcony included.

Table ES2.3: Forecast $L_{10, 18hr}$ and corresponding QDC Categories. Levels are in dB(A), façade-affected.

Room	L ₁₀ , 18hr	Category	Minimum R _w Required for each component (Schedule 1, QDC MP4.4)					
			Glazing (<1.8m²)	Glazing (>1.8m²)	Walls	Roof/ Ceiling	Floors	Entrance Doors
Level 6								
L6 Bed 50 E	49	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
L6 Bed 50 N (BAL)	66	Category 2	32	35	41	38	45	33
L6 Bed 51 N (BAL)	67	Category 2	32	35	41	38	45	33
L6 Bed 52 N (BAL)	68	Category 3	35	38	47	41	45	33
L6 Bed 52 W	75	Category 4	43	43	52	45	51	35
L6 Bed 53 W	76	Category 4	43	43	52	45	51	35
L6 Bed 54 W	76	Category 4	43	43	52	45	51	35
L6 Bed 55 W	76	Category 4	43	43	52	45	51	35
L6 Bed 56 W	76	Category 4	43	43	52	45	51	35
L6 Bed 57 W	77	Category 4	43	43	52	45	51	35
L6 Bed 57 S	76	Category 4	43	43	52	45	51	35
L6 Bed 58 S	74	Category 4	43	43	52	45	51	35
L6 Bed 58 E	60	Category 1	24	27	35	35	N/R	28
Level 7								
L7 Bed 59 E	52	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
L7 Bed 59 N (BAL)	66	Category 2	32	35	41	38	45	33
L7 Bed 60 N (BAL)	67	Category 2	32	35	41	38	45	33
L7 Bed 61 N (BAL)	68	Category 3	35	38	47	41	45	33
L7 Bed 61 W	75	Category 4	43	43	52	45	51	35
L7 Bed 62 W	76	Category 4	43	43	52	45	51	35
L7 Bed 63 W	76	Category 4	43	43	52	45	51	35
L7 Bed 64 W	76	Category 4	43	43	52	45	51	35
L7 Bed 65 W	76	Category 4	43	43	52	45	51	35
L7 Bed 66 W	77	Category 4	43	43	52	45	51	35
L7 Bed 66 S	76	Category 4	43	43	52	45	51	35
L7 Bed 67 S	74	Category 4	43	43	52	45	51	35
L7 Bed 67 E	61	Category 1	24	27	35	35	N/R	28

Note BAL = attenuation from solid balustrade for balcony included.

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1. Introduction

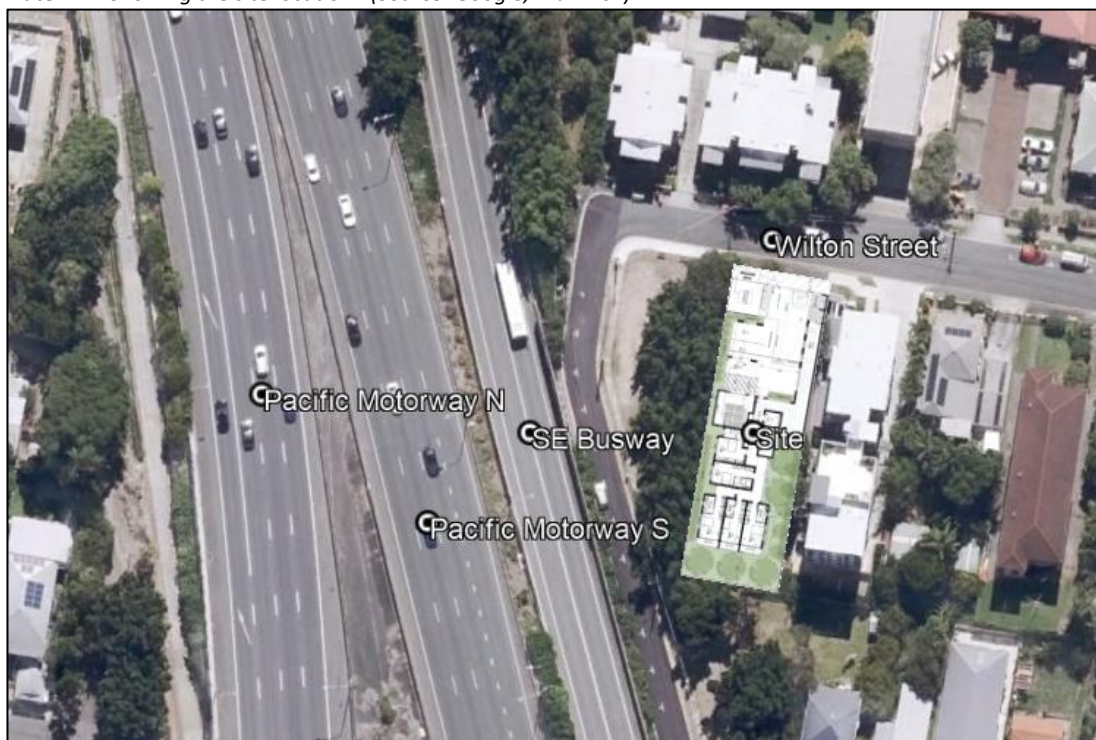
This Report is in response to a request from Mull Arch Pty Ltd for a noise impact assessment report on a proposed rooming accommodation residential development at 24 Wilton Street, Woolloongabba, QLD 4102 (Lot 4 on RP12250). The development is located in the Brisbane City Council local government area and are zoned Medium Density Residential, and is adjacent to Medium Density Residential zoned Lots. The site is also within 25 metres of the Pacific Motorway, which is a State Controlled Road.

The proposed development is an eight storey rooming accommodation building with 67 beds and a rooftop terrace. The lot will be cleared for this purpose. The development is subject to assessment from the State Assessment and Referral Agency (SARA), the State Development Assessment Provisions (SDAP), and the Queensland Development Code Mandatory Part 4.4.

The default Transport Noise Category for the State Controlled Road for this Lot is Category 2. The default categories are only valid at ground level. This has been reconsidered in this report which is prepared in accordance with the Department of Transport and Main Roads' *Code of Practice*.

The locality and development design are presented in the following **Plates, plan and photographs**. Further plans are set out in **Appendix A**. Terms and definitions used in this Report are found in **Appendix E**.

Plate 1.1: Showing the site location. (Source: Google, MullArch).



Plan 1.1: Showing the proposed elevation perspective plan. (Source: MulArch).



Plate 1.4: Showing the site with Brisbane City Council City Plan 2014 Zoning Overlay. (Source: Brisbane City Council).

The property lot report shows the zone, neighbourhood plan, overlays and related information that apply to the lot on plan selected.

Property Address
24 WILTON ST WOOLLOONGABBA 4102

Parcel Details
Lot No and Plan: Lot 4 on RP12250
Full Property Holding: Lot 4 on RP12250
Title Area *: 759 m²
Ward: THE GABBA
PDF Maps GRID Reference: Map 28
 * refer NOTES below
[Open Cityplan.Brisbane.qld.gov.au](http://Open.Cityplan.Brisbane.qld.gov.au)



Zones

Name	Description
MDR Medium density residential	The purpose of the Medium density residential zone code is to provide for a range and mix of dwelling types including dwelling houses and multiple dwellings supported by community uses and small-scale non-residential services and facilities that cater for local residents. Refer to Part 6 in the City Plan 2014 and the Factsheets.

Photo 1.1: View from Wilton Street, showing an existing multi unit development, a dwelling on site (to be removed), road traffic noise barrier and Pacific Motorway beyond. (Source: Google).



Photo 1.2: View from site showing the noise logger location, road traffic noise barrier and Pacific Motorway beyond.



Photo 1.3: The site as viewed from the Pacific Motorway (Source: Google).



2. Measurement of Ambient Noise Levels

2.1 Measurement Procedures

In order to assess the potential impact of noise, an ambient noise survey was conducted on site in December 2025. The location is referred to as measurement location ML1 in this report.

The microphone was located approximately 8 metres from the south boundary, 4 metres from the west boundary, and 1.5 metres above ground level in a free field location. This location is used to validate the noise prediction model presented in **Appendix B**. The measurement location is shown in **Photo 1.2** and **Plate 2.1** below.

The instrument was field calibrated before and after the measurement session and 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 831 Class 1 environmental noise logger;
- Larson Davis CAL200 Class 1 calibrator.

Plate 2.1: Showing the approximate measurement location (ML1).



2.2 Measured Road Traffic Noise Levels

Ambient sound pressure levels were measured generally in accordance with Australian Standard AS1055:2018 - *Acoustics-Description and measurement of environmental noise*. Ambient noise levels were recorded in 1 hour intervals between the 10th and 11th of December 2025 at ML1 shown in **Table 2.2.1** and **2.2.2**. The Bureau of Meteorology (Brisbane City) shows that weather was fine during the survey period, as shown in **Table 2.2.3**. High resolution data from a local weather station has been presented below. In accordance with the Department of Transport and Main Roads' *Code of Practice* weather affected data would be removed; however, in this instance there is no weather affected data and there are no periods of data removed.

Table 2.2.1: Measured ambient noise levels at ML1 on the 10th December 2025. Levels are dB(A), free field.

<

Graph Data

Date 10/12/2025

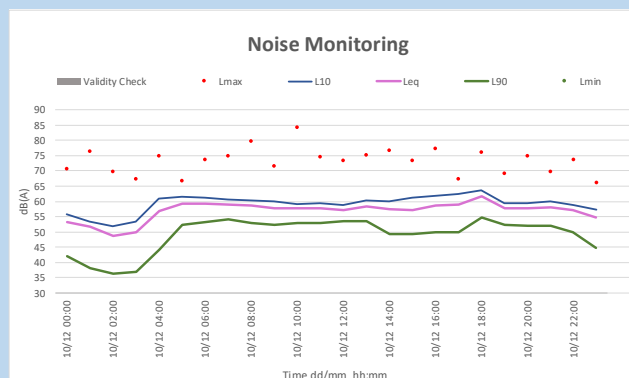
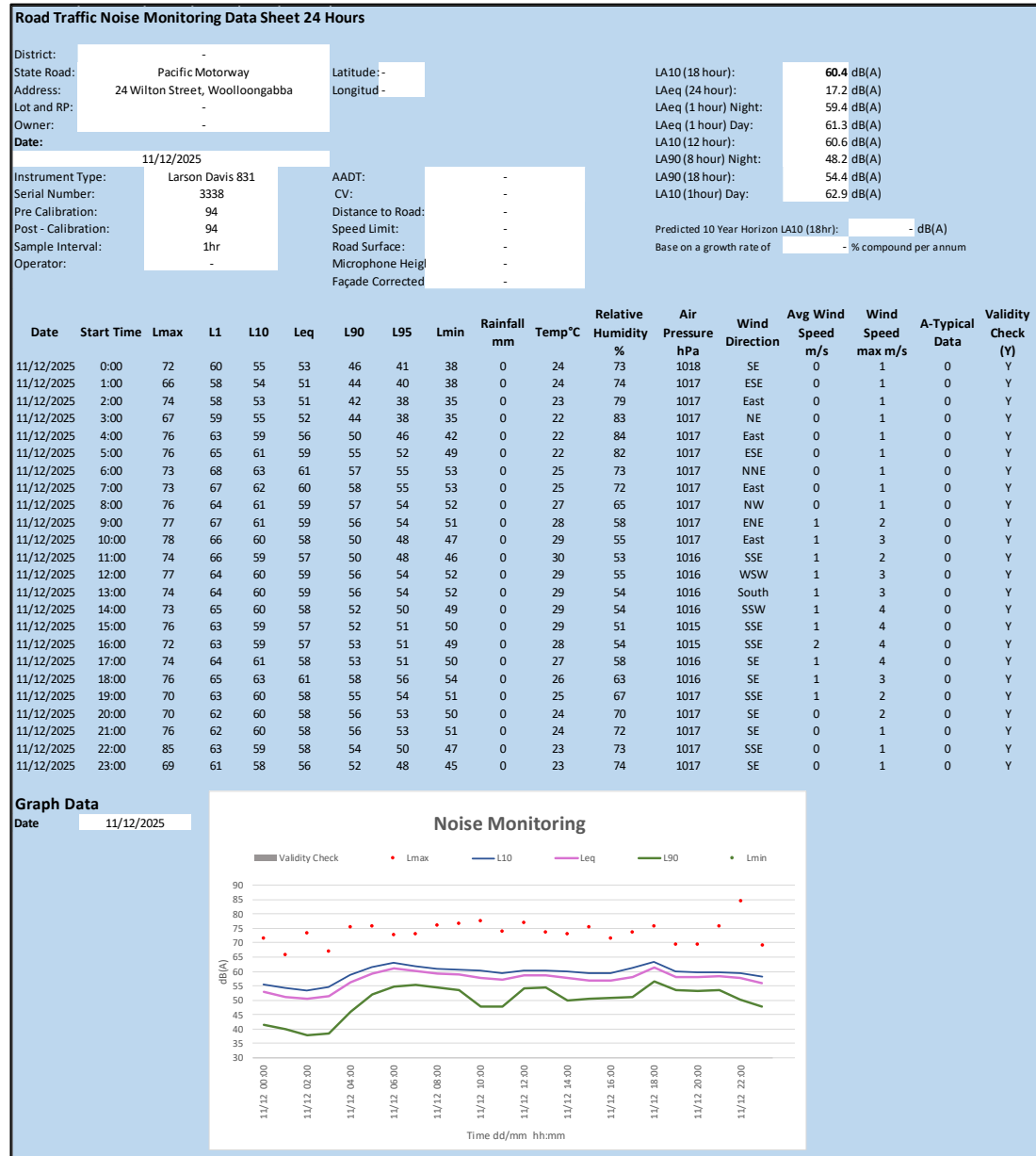


Table 2.2.2: Measured ambient noise levels at ML1 on the 11th December 2025. Levels are dB(A), free field.**Table 2.2.3: Bureau of Meteorology weather data for Brisbane in December 2025.**

Brisbane, Queensland																	
December 2025 Daily Weather Observations																	
Most observations from Brisbane City, but some from Brisbane Airport.																	
Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9:00 AM				3:00 PM			
		Min °C	Max °C				Dir	Spd	Time	Temp °C	RH %	Cld g th	Dir	Spd km/h	MSLP hPa	Temp °C	RH %
10	We	21.3	30.8	0	8.2	11.3	EN	28	15:30	28	61	4	NE	6	1018.2	28.8	57
11	Th	21.1	28.8	0	9	9.4	E	24	15:52	26.8	63	7	SSE	4	1016	27.6	52
12	Fr	20.3	27.7	0.2	7.6	6.4	EN	26	15:05	24	76	7	WNW	4	1015	25.6	65

The measured noise levels include noise from all sources, including road traffic, residential, wildlife and other local sources of noise. Road traffic noise was observed to be the dominant noise source in the environment, and the levels presented are considered to be consistent with an acoustic environment generally controlled by road traffic noise. As a conservative assumption, the measured L_{10, 18hr} from all sources is considered representative of road traffic noise intrusion. The measured L_{10(18hr)} for assessment purposes is **60.4 dB(A)**, free field.

2.3 Rating Background Sound Level

The calculation of rating background sound levels are presented in **Table 2.3.1** and **Table 2.3.2** below. The ABL and RBL are defined in the Brisbane City Council City Plan 2014.

Table 2.3.1: Calculation of ambient background level (ABL) and the rating background sound level (RBL) for Daytime, Evening and Nighttime. Levels in L90, 1hr dB(A), free field.

Calculation of Daytime Rating Background Level (As 1hr L90)							
Day	Wednesday	Thursday					
Hour	10/12/2025	11/12/2025					
7:00	57	58					
8:00	55	57					
9:00	55	56					
10:00	55	50					
11:00	55	50					
12:00	55	56					
13:00	56	56					
14:00	51	52					
15:00	51	52					
16:00	52	53					
17:00	52	53					
ABL	51	50					
RBL	51	L90 For Daytime					

Calculation of Evening Rating Background Level (As 1hr L90)							
Day	Wednesday	Thursday					
Hour	10/12/2025	11/12/2025					
18:00	57	58					
19:00	55	55					
20:00	55	56					
21:00	55	56					
ABL	55	55					
RBL	55	L90 For Evening					

Calculation of Nighttime Rating Background Level (As 1hr L90)							
Day	Wednesday	Thursday					
Hour	10/12/2025	11/12/2025					
22:00	53	54					
23:00	49	52					
0:00	46	46					
1:00	41	44					
2:00	39	42					
3:00	41	44					
4:00	49	50					
5:00	55	55					
6:00	56	57					
ABL	41	43					
RBL	42	L90 For Nighttime					

Table 2.3.2: Rating background noise levels.

Rating Background Sound Level L90			
Median	Day	7:00am – 6:00pm	51
	Evening	6:00pm – 10:00pm	55
	Night	10:00pm – 7:00am	42

3. Noise Criteria and Limits

3.1 Brisbane City Council City Plan 2014

The proposed rooming accommodation is located in the Brisbane City Council local government area and zoned Medium Density Residential. The lot is adjacent to Medium Density Residential zoned lots. The relevant parts of the City plan are reproduced following.

3.1.1 Use Code - Rooming Accommodation

PO8 Development ensures that noise from the use does not exceed the following criteria: a. $L_{Aeq,adj,T}$ emitted from <u>rooming accommodation</u> is not greater than the rating background level plus 3 at a <u>sensitive use</u>; Where T is: Day (7am to 6pm): 11hr Evening (6pm to 10pm): 4hr Night (10pm to 6am): 9hr Note—Where $L_{Aeq,adj,T}$ is the adjusted A-weighted equivalent continuous sound pressure level during measurement time T, determined in accordance with the methodology described in the <u>Noise impact assessment planning scheme policy</u>. Note—Rating background level is to be determined in accordance with the methodology described in the Noise impact assessment planning scheme policy.	AO8.1 Development: a. is on a site located in one of the following zones: i. Principal centre zone; ii. Major centre zone; iii. District centre zone; iv. High density residential zone; v. Medium density residential zone; vi. Low-medium density residential zone; b. does not emit noise from communal recreation, dining or cooking areas that is clearly audible and disturbing within a nearby <u>sensitive use</u>. AO8.2 Development provides a 2m high <u>acoustic fence</u> along a boundary between on-site car parking areas and adjoining <u>sensitive uses</u>. AO8.3 Development ensures mechanical plant or equipment is <u>acoustically screened</u> from adjoining <u>sensitive uses</u>. Note—Mechanical plant includes generators, motors, compressors and pumps such as air-conditioning, refrigeration or coldroom motors.
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3.1.2 Transport Noise Corridor Overlay

Table 5.10.23—Transport noise corridor overlay

MCU	Assessable development—Code assessment	
MCU for a <u>dual occupancy, multiple dwelling, residential care facility, retirement facility or rooming accommodation</u> where accommodating 6 or more people, involving a new premises or an existing premises with an increase in <u>gross floor area</u> if assessable development in the zone or neighbourhood plan	- Note—If the MCU is impact assessable in the zone or neighbourhood plan, then the category of assessment is not lowered to code assessment.	<u>Transport noise corridor overlay code</u>

3.2 State Development Assessment Provisions

The development site is located within 25m of state controlled road infrastructure (see **Plate 1.2**). The Department of State Development, Manufacturing, Infrastructure and Planning mandates assessment criteria for road traffic noise impacts within the State Development Assessment Provisions (SDAP). The provisions were developed with the active participation of the Department of Main Roads and Transport, and it is therefore concluded that meeting the relevant SDAP noise criteria achieves the recommendations contained in the various DTMR traffic noise codes of practice. **Table 3.2.1** and **Table 3.2.2** below show the performance outcomes and acceptable outcomes for accommodation activities affected by noise from state controlled roads.

Table 3.2.1: State Development Assessment Provisions v3.5 (in part).

Material change of use (accommodation activity)	
Ground floor level requirements adjacent to a state-controlled road or type 1 multi-modal corridor	
PO39 Development minimises noise intrusion from a state-controlled road in private open space .	AO39.1 Development provides a noise barrier or earth mound which is designed, sited and constructed: 1. to achieve the maximum free field acoustic levels in reference table 2 (item 2.2) for private open space at the ground floor level; 2. in accordance with: a. 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; b. Technical Specification-MRTS15 Noise Fences, Transport and Main Roads, 2019; c. Technical Specification-MRTS04 General Earthworks, Transport and Main Roads, 2020. OR
	AO39.2 Development achieves the maximum free field acoustic level in reference table 2 (item 2.2) for private open space by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.
Above ground floor level requirements (accommodation activity) adjacent to a state-controlled road or type 1 multi-modal corridor	
PO42 Balconies, podiums, and roof decks include: 1. a continuous solid gap-free structure or balustrade (excluding gaps required for drainage purposes to comply with the Building Code of Australia); 2. highly acoustically absorbent material treatment for the total area of the soffit above balconies, podiums, and roof decks.	No acceptable outcome is provided.

Table 3.2.2: State Development Assessment Provisions v3.5 Reference Tables (in part).

Table 2: Maximum free field acoustic levels	
Applicable use	Acoustic levels
2.1: Private open space for residential lots	a. ≤ 57 dB(A) L_{10} (18 hour) free field (measured L_{90} (18 hour) free field between 6am and 12 midnight ≤ 45 dB(A))
2.2: Private open space for an accommodation activity (including lots created for a future accommodation activity)	OR b. ≤ 60 dB(A) L_{10} (18 hour) free field (measured L_{90} (18 hour) free field between 6am and 12 midnight > 45 dB(A))

The measured background sound level set out in **Section 2** of this Report, shows that the higher maximum façade and free field sound levels (Table 2 b. of **Table 3.2** above) apply.

3.3 QDC MP4.4 – Road and Rail Traffic Noise

QDC MP4.4 is intended to ensure that habitable rooms of residential buildings located in a transport noise corridor are designed and constructed to reduce transport noise. Noise reduction requirements fall into categories, based on $L_{10,18hr}$ noise levels along the façades of the proposed development (see **Table 3.3.1**). Construction of the dwelling is then to “deemed to satisfy” solutions, see **Table 3.4**.

The proposed development will sit within Noise Category 2 of the designated road *Transport Noise Corridor* at ground level, based on the published noise contours (see **Plate 1.3**). These are calculated rather than measured, and provision is made for a noise impact assessment to incorporate acoustic measurements to more accurately determine the relevant noise category for the dwelling.

Table 3.3.1: Noise levels associated with QDC MP4.4 Noise Categories.

Noise Category	Level of Transport Noise $L_{A10,18hr}$ for State Controlled Roads	Level of Transport Noise $L_{A10,18hr}$ for Designated Local Government Roads	Single event maximum noise L_{Amax} for railway
Category 4	≥ 73 dB(A)	≥ 73 dB(A)	≥ 85 dB(A)
Category 3	68 - 72 dB(A)	68 - 72 dB(A)	80 - 84 dB(A)
Category 2	63 - 67 dB(A)	63 - 67 dB(A)	75 - 79 dB(A)
Category 1	58 - 62 dB(A)	58 - 62 dB(A)	70 - 74 dB(A)
Category 0	≤ 57 dB(A)	≤ 57 dB(A)	≤ 69 dB(A)

Table 3.3.2: Performance requirements of QDC MP4.4.

Performance Requirements	Acceptable Solutions
Residential Buildings	
P1 Habitable rooms in a relevant residential building are adequately protected from transport noise to safeguard occupants' health and amenity.	A1 The external envelope of each habitable room in a relevant residential building must comply with the minimum R_w for each building component specified in Schedule 1 to achieve a minimum transport noise reduction level for the relevant noise category by: a) Using materials specified in Schedule 2; OR b) Using materials with <i>manufacturer's specifications</i> that, in combination, achieve the minimum R_w value for the relevant building component and acceptable noise category.

3.4 Environmental Protection Act 1994

3.4.1 Noise from Air Conditioning

State requirements for air conditioning noise are set out under Section 440U of the Environmental Protection Act 1994. In that Act noise from air conditioning must not exceed the following noise levels when measured as the LA90 dB(A) level over a period of 15 minutes at an affected building:

- Between 10pm and 7am: 3 dB(A) above the background level
- From 7am to 10pm: 5 dB(A) above the background level

3.4.2 Summary of Plant and Equipment Noise Limits

Noise emission limits for installed plant and equipment, including air conditioning equipment and heat pumps, should not exceed the following in **Table 3.4.2**, when measured at an affected building. The noise limits are derived from the measured background sound levels and noise limits as set out in the Environmental Protection Act 1994.

Table 3.4.2: Noise emission limits for plant equipment when measured or assessed at an affected building.

Noise Source	Descriptor	Noise Criteria		
		Day	Evening	Night
Air conditioning equipment; Heat pump	L _{90,T}	56 (51+5)	60 (55+5)	45 (42+3)

4. Noise Impact Assessment – Road Traffic Noise

4.1 SDAP – PO39 Maximum Free Field Noise Level PO39

The proposed rooming accommodation does not have designated ground floor private open space areas. There is a communal open space area on the Level 8 Terrace.

It is concluded that the SDAP performance outcome P039 maximum free field noise level for private open space does not apply. A Lot-boundary acoustic fence (for the mitigation of road traffic noise) is not proposed.

4.2 SDAP – PO42 Balconies

The proposed rooming accommodation has rooms with balconies and a communal terrace on level 6 of the development. These spaces require a continuous solid gap free structure or balustrade (excluding gaps required for drainage). For balconies with a soffit above, highly acoustically absorbent material treatment is required for the total area of the soffit above.

The following balconies and open space in **Table 4.2.1** require solid balustrades and acoustic treatments.

Table 4.2.1: Balconies and terrace that require acoustic treatment.

Location	Acoustic Treatment Required
Ground	
LG Bed 1 S (BAL)	Solid balustrade and acoustic treatment to soffit.
LG Bed 2 S (BAL)	Solid balustrade and acoustic treatment to soffit.
LG Bed 3 S (BAL)	Solid balustrade and acoustic treatment to soffit.
Level 1	
L1 Communal Facilities N (BAL)	Solid balustrade and acoustic treatment to soffit.
L1 Bed 7 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L1 Bed 8 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L1 Bed 9 S (BAL)	Solid balustrade and acoustic treatment to soffit.
Level 2	
L2 Bed 10 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L2 Bed 11 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L2 Bed 12 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L2 Bed 17 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L2 Bed 18 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L2 Bed 19 S (BAL)	Solid balustrade and acoustic treatment to soffit.
Level 3	
L3 Bed 20 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L3 Bed 21 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L3 Bed 22 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L3 Bed 27 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L3 Bed 28 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L3 Bed 29 S (BAL)	Solid balustrade and acoustic treatment to soffit.

Table continued on following page...

Table 4.2.1 continued:

Location	Acoustic Treatment Required
Level 4	
L4 Bed 30 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L4 Bed 31 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L4 Bed 32 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L4 Bed 37 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L4 Bed 38 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L4 Bed 39 S (BAL)	Solid balustrade and acoustic treatment to soffit.
Level 5	
L5 Bed 40 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L5 Bed 41 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L5 Bed 42 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L5 Bed 47 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L5 Bed 48 S (BAL)	Solid balustrade and acoustic treatment to soffit.
L5 Bed 49 S (BAL)	Solid balustrade and acoustic treatment to soffit.
Level 6	
L6 Bed 50 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L6 Bed 51 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L6 Bed 52 N (BAL)	Solid balustrade and acoustic treatment to soffit.
Level 7	
L7 Bed 59 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L7 Bed 60 N (BAL)	Solid balustrade and acoustic treatment to soffit.
L7 Bed 61 N (BAL)	Solid balustrade and acoustic treatment to soffit.

4.3 QDC Mandatory Part 4.4

New dwellings subject to Queensland Development Code Mandatory Part 4.4 – Buildings in a Transport Noise Corridor (“QDC MP4.4”) are built to the Category calculated on the basis of the $L_{10, 18hr}$ at its façade (this is height dependant, so different levels may have different Categories). This Code relates to the Habitable Rooms of a dwelling, and bedrooms are not differentiated from living rooms.

The assessment includes noise attenuation from solid balustrades to all balconies listed in **Section 4.2** of this Report.

The proposed development is forecast to be within Noise Categories 4, 3, 2, 1 and 0 in the 2036 (10 year) design horizon, depending on façade location and screening. Forecast noise levels and corresponding QDC Categories are presented in **Table 4.3.1 to 4.3.2** following, while details of the road traffic noise model used in predictions are presented in **Appendix B**. “Deemed to Satisfy” building solutions for all noise categories are presented in **Appendix C**.

Table 4.3.1: Forecast $L_{10, 18hr}$ and corresponding QDC Categories. Levels are in dB(A), façade-affected.

Room	L ₁₀ , 18hr	Category	Minimum R _w Required for each component (Schedule 1, QDC MP4.4)					
			Glazing ($<1.8m^2$)	Glazing ($>1.8m^2$)	Walls	Roof/ Ceiling	Floors	Entrance Doors
Ground Floor								
LG Communal Lounge W	66	Category 2	32	35	41	38	45	33
LG Communal Lounge E	46	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
LG Bed 1 W	67	Category 2	32	35	41	38	45	33
LG Bed 1 S (BAL)	63	Category 2	32	35	41	38	45	33
LG Bed 2 S (BAL)	62	Category 1	24	27	35	35	N/R	28
LG Bed 3 S (BAL)	62	Category 1	24	27	35	35	N/R	28
LG Bed 3 E	49	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
Level 1								
L1 Communal Facilities W	70	Category 3	35	38	47	41	45	33
L1 Communal Facilities N (BAL)	61	Category 1	24	27	35	35	N/R	28
L1 Communal Facilities E	45	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
L1 Bed 4 W	71	Category 3	35	38	47	41	45	33
L1 Bed 5 W	72	Category 3	35	38	47	41	45	33
L1 Bed 6 W	73	Category 4	43	43	52	45	51	35
L1 Bed 7 W	74	Category 4	43	43	52	45	51	35
L1 Bed 7 S (BAL)	70	Category 3	35	38	47	41	45	33
L1 Bed 8 S (BAL)	68	Category 3	35	38	47	41	45	33
L1 Bed 9 S (BAL)	67	Category 2	32	35	41	38	45	33
L1 Bed 9 E	50	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
Level 2								
L2 Bed 10 E	45	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
L2 Bed 10 N (BAL)	64	Category 2	32	35	41	38	45	33
L2 Bed 11 N (BAL)	65	Category 2	32	35	41	38	45	33
L2 Bed 12 N (BAL)	66	Category 2	32	35	41	38	45	33
L2 Bed 12 W	73	Category 4	43	43	52	45	51	35
L2 Bed 13 W	74	Category 4	43	43	52	45	51	35
L2 Bed 14 W	74	Category 4	43	43	52	45	51	35
L2 Bed 15 W	75	Category 4	43	43	52	45	51	35
L2 Bed 16 W	75	Category 4	43	43	52	45	51	35
L2 Bed 17 W	76	Category 4	43	43	52	45	51	35
L2 Bed 17 S (BAL)	71	Category 3	35	38	47	41	45	33
L2 Bed 18 S (BAL)	70	Category 3	35	38	47	41	45	33
L2 Bed 19 S (BAL)	70	Category 3	35	38	47	41	45	33
L2 Bed 19 E	54	Category 0	N/R	N/R	N/R	N/R	N/R	N/R

Note BAL = attenuation from solid balustrade for balcony included.

Table 4.3.2: Forecast $L_{10, 18hr}$ and corresponding QDC Categories. Levels are in dB(A), façade-affected.

Room	L ₁₀ , 18hr	Category	Minimum R _w Required for each component (Schedule 1, QDC MP4.4)					
			Glazing (<1.8m²)	Glazing (>1.8m²)	Walls	Roof/ Ceiling	Floors	Entrance Doors
Level 3								
L3 Bed 20 E	45	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
L3 Bed 20 N (BAL)	65	Category 2	32	35	41	38	45	33
L3 Bed 21 N (BAL)	66	Category 2	32	35	41	38	45	33
L3 Bed 22 N (BAL)	67	Category 2	32	35	41	38	45	33
L3 Bed 22 W	74	Category 4	43	43	52	45	51	35
L3 Bed 23 W	75	Category 4	43	43	52	45	51	35
L3 Bed 24 W	75	Category 4	43	43	52	45	51	35
L3 Bed 25 W	76	Category 4	43	43	52	45	51	35
L3 Bed 26 W	76	Category 4	43	43	52	45	51	35
L3 Bed 27 W	77	Category 4	43	43	52	45	51	35
L3 Bed 27 S (BAL)	72	Category 3	35	38	47	41	45	33
L3 Bed 28 S (BAL)	71	Category 3	35	38	47	41	45	33
L3 Bed 29 S (BAL)	70	Category 3	35	38	47	41	45	33
L3 Bed 29 E	56	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
Level 4								
L4 Bed 30 E	45	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
L4 Bed 30 N (BAL)	65	Category 2	32	35	41	38	45	33
L4 Bed 31 N (BAL)	67	Category 2	32	35	41	38	45	33
L4 Bed 32 N (BAL)	68	Category 3	35	38	47	41	45	33
L4 Bed 32 W	75	Category 4	43	43	52	45	51	35
L4 Bed 33 W	76	Category 4	43	43	52	45	51	35
L4 Bed 34 W	76	Category 4	43	43	52	45	51	35
L4 Bed 35 W	76	Category 4	43	43	52	45	51	35
L4 Bed 36 W	76	Category 4	43	43	52	45	51	35
L4 Bed 37 W	77	Category 4	43	43	52	45	51	35
L4 Bed 37 S (BAL)	72	Category 3	35	38	47	41	45	33
L4 Bed 38 S (BAL)	72	Category 3	35	38	47	41	45	33
L4 Bed 39 S (BAL)	71	Category 3	35	38	47	41	45	33
L4 Bed 39 E	58	Category 1	24	27	35	35	N/R	28
Level 5								
L5 Bed 40 E	46	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
L5 Bed 40 N (BAL)	66	Category 2	32	35	41	38	45	33
L5 Bed 41 N (BAL)	67	Category 2	32	35	41	38	45	33
L5 Bed 42 N (BAL)	68	Category 3	35	38	47	41	45	33
L5 Bed 42 W	75	Category 4	43	43	52	45	51	35
L5 Bed 43 W	76	Category 4	43	43	52	45	51	35
L5 Bed 44 W	76	Category 4	43	43	52	45	51	35
L5 Bed 45 W	76	Category 4	43	43	52	45	51	35
L5 Bed 46 W	76	Category 4	43	43	52	45	51	35
L5 Bed 47 W	77	Category 4	43	43	52	45	51	35
L5 Bed 47 S (BAL)	72	Category 3	35	38	47	41	45	33
L5 Bed 48 S (BAL)	72	Category 3	35	38	47	41	45	33
L5 Bed 49 S (BAL)	71	Category 3	35	38	47	41	45	33
L5 Bed 49 E	59	Category 1	24	27	35	35	N/R	28

Note BAL = attenuation from solid balustrade for balcony included.

Table 4.3.3: Forecast $L_{10, 18hr}$ and corresponding QDC Categories. Levels are in dB(A), façade-affected.

Room	L _{10, 18hr}	Category	Minimum R _w Required for each component (Schedule 1, QDC MP4.4)					
			Glazing ($<1.8m^2$)	Glazing ($>1.8m^2$)	Walls	Roof/ Ceiling	Floors	Entrance Doors
Level 6								
L6 Bed 50 E	49	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
L6 Bed 50 N (BAL)	66	Category 2	32	35	41	38	45	33
L6 Bed 51 N (BAL)	67	Category 2	32	35	41	38	45	33
L6 Bed 52 N (BAL)	68	Category 3	35	38	47	41	45	33
L6 Bed 52 W	75	Category 4	43	43	52	45	51	35
L6 Bed 53 W	76	Category 4	43	43	52	45	51	35
L6 Bed 54 W	76	Category 4	43	43	52	45	51	35
L6 Bed 55 W	76	Category 4	43	43	52	45	51	35
L6 Bed 56 W	76	Category 4	43	43	52	45	51	35
L6 Bed 57 W	77	Category 4	43	43	52	45	51	35
L6 Bed 57 S	76	Category 4	43	43	52	45	51	35
L6 Bed 58 S	74	Category 4	43	43	52	45	51	35
L6 Bed 58 E	60	Category 1	24	27	35	35	N/R	28
Level 7								
L7 Bed 59 E	52	Category 0	N/R	N/R	N/R	N/R	N/R	N/R
L7 Bed 59 N (BAL)	66	Category 2	32	35	41	38	45	33
L7 Bed 60 N (BAL)	67	Category 2	32	35	41	38	45	33
L7 Bed 61 N (BAL)	68	Category 3	35	38	47	41	45	33
L7 Bed 61 W	75	Category 4	43	43	52	45	51	35
L7 Bed 62 W	76	Category 4	43	43	52	45	51	35
L7 Bed 63 W	76	Category 4	43	43	52	45	51	35
L7 Bed 64 W	76	Category 4	43	43	52	45	51	35
L7 Bed 65 W	76	Category 4	43	43	52	45	51	35
L7 Bed 66 W	77	Category 4	43	43	52	45	51	35
L7 Bed 66 S	76	Category 4	43	43	52	45	51	35
L7 Bed 67 S	74	Category 4	43	43	52	45	51	35
L7 Bed 67 E	61	Category 1	24	27	35	35	N/R	28

5. Proposed Acoustic Treatment

5.1 SARA - Acoustic Fence (Road Traffic Noise Mitigation)

There is an existing acoustic barrier along the Pacific Motorway and Busway. The construction of a lot boundary acoustic fence or barrier will not offer further material benefit for the mitigation of road traffic noise. A boundary acoustic boundary fence is not recommended in this report (for the mitigation of road traffic noise).

5.2 BCC Use Code - Rooming Accommodation AO8.2 – Acoustic Fence on Boundary

Brisbane City Council requires a 2 metre high acoustic fence along any boundary between on-site car parking and adjoining sensitive uses.

The development includes a central driveway with delivery vehicle parking near the east boundary. The proposed design includes an enclosed entry foyer and wall that is built to the east boundary, screening the adjacent lot from delivery vehicles and vehicle movement areas. Therefore, an acoustic fence is not required along the east boundary.

There are three car parks located internally near the west boundary. It is not clear if the adjacent lot (26 Wilton) will be developed in the future. Unless this lot is deemed non-sensitive, a 2.0 metre acoustic fence is required along part of the east boundary, for a distance of approximately 12 metres, as illustrated in **Plate 6.1** below.

Ordinarily, to act as an acoustic barrier, it is recommended the fence have a linear density of at least 12.5 kg/m² and be continuous and gap free. However, the Department of Transport and Main Roads may request this fence to meet the requirements of the Transport and Main Roads Specifications *MRTS15 Noise Fences*.

Plate 5.1: Showing the proposed location of an acoustic fence.



6. Noise Impact Assessment – Noise Emissions

6.1 Criteria Summary

Applicable noise emission criteria have been applied from Council's Use Code - Rooming Accommodation Amenity Criteria for rooming accommodation, as presented in **Section 3**, and derived rating background sound levels from **Section 2**. Noise emission criteria are summarised in **Table 6.1** below.

Table 6.1: Summary of noise limits when assessed at a sensitive use. Levels are in dB(A), free field.

Noise Emission Limits		
Descriptor	Time period	Monday to Saturday
At Noise Sensitive Use		
L _{Aeq,adj,T}	7:00am – 6:00pm	54 (51+3)
	6:00pm to 10:00pm	58 55+3
	10:00pm – 7:00am	45 42+3

6.2 Sensitive Receivers

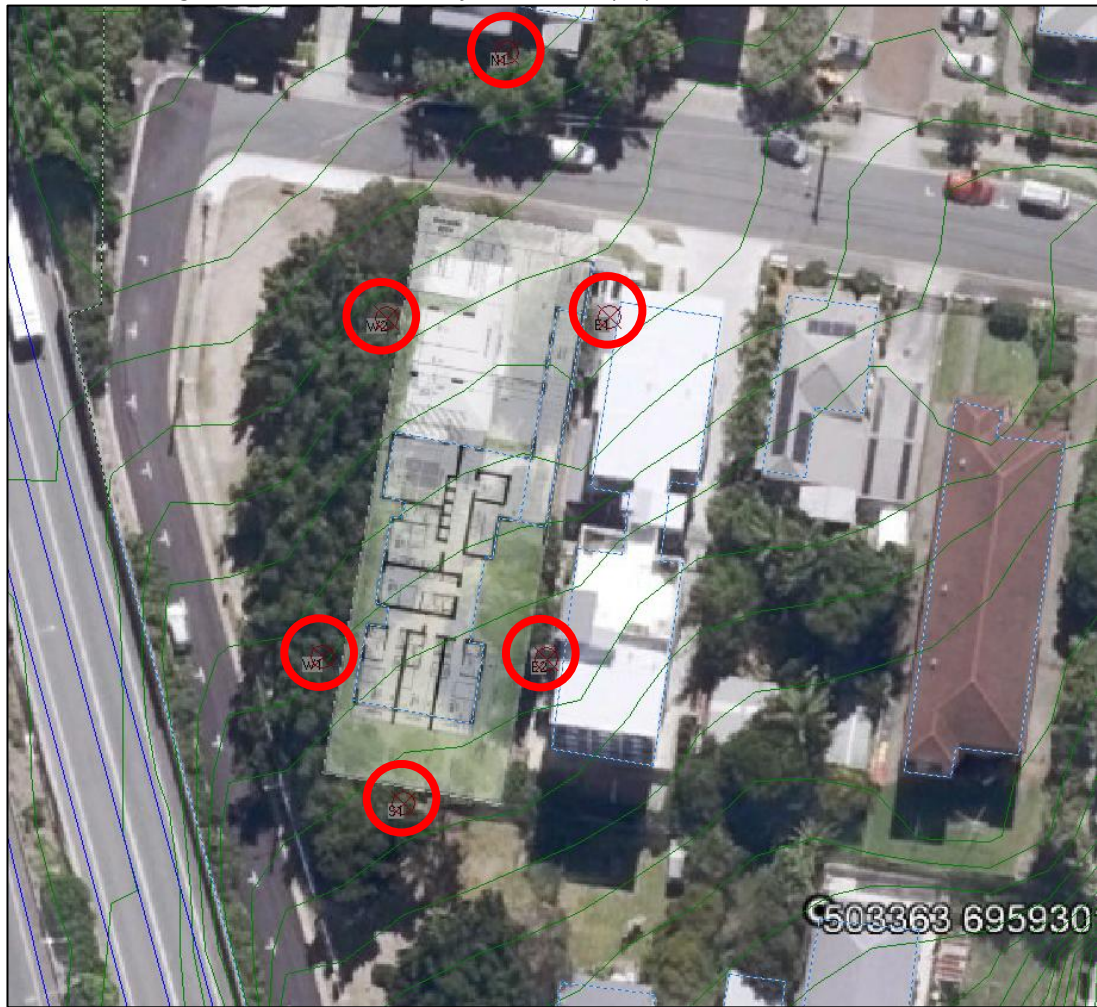
The development site is located in a predominantly residential area. Noise sensitive neighbouring properties are considered in this Report, representing the most exposed external façades of these uses. The receiver locations for assessment purposes are presented in **Table 7.2** and **Plate 7.2** followign. The height of the receiver is the maximum receiver height of the sensitive use.

Table 6.2: Nearest noise sensitive receivers for assessment purposes. (Coordinates are UTM format).

Receiver (Direction from Site)	Address	Sensitive Use	Zone	Coordinates		Receiver Height (REL)
				Easting	Northing	
N1	23A Wilton Street, Woolloongabba	Yes	Medium Density Residential	503337	6959375	10.2
E1	22 Wilton Street, Woolloongabba	Yes	Medium Density Residential	503343	6959353	10.2
E2	22 Wilton Street, Woolloongabba	Yes	Medium Density Residential	503338	6959323	10.2
S1 (*)	35 Henry Street, Woolloongabba	Yes	Medium Density Residential	503327	6959311	1.5
W1 (*)	26 Wilton Street, Woolloongabba	Yes	Medium Density Residential	503322	6959322	1.5
W2 (*)	26 Wilton Street, Woolloongabba	Yes	Medium Density Residential	503326	6959352	1.5

Note: (*) Although zoned medium density residential, these lots have never been developed and it is not clear if they will be developed in the future.

Plate 6.2: Showing sensitive receiver locations for assessment purposes.



6.3 Noise Sources

The following sources of potential noise emission have been identified with the proposed residential activities:

- Vehicle movements of 6 vehicles per hour (2x maximum carpark capacity at 5km/h as Leq, 1hr);
- Delivery vehicles one per hour during daytime and evening (at 5 km/h as Leq, 1hr);
- 50 people on communal terrace (seated capacity);
- 49 x rooftop air conditioning plant.

Potential noise impacts from the above sources have been forecast to sensitive receivers using the environmental noise model presented in **Appendix D**.

Noise emissions from crowds or groups of people have been derived from prediction calculation methodology presented by M.J. Hayne et al. *Prediction of Noise from Small to Medium Sized Crowds* (Paper Number 133, Proceedings of Acoustics 2011). Where the A-weighted sound power levels from a crowd size, **N**, can be approximated by:

$$L_{WAeq} = 15 \text{ Log}N + 64 \text{ dB(A)}.$$

This prediction methodology applies for a crowd in an outdoor social setting.

Design sound power levels are presented in **Table 6.3** below. Discussion and assessment of noise impacts from these sources are presented in the sections following.

Table 6.3: Design Leq sound power levels, as modelled.

Source	Descriptor	Sound Power Levels in dB(Z)								Total in dB(Z)	Total in dB(A)
		63 Hz	125 Hz	250 Hz	500 Hz	1kHz	2 kHz	4 kHz	8 kHz		
Vehicle Movement ¹	LAeq,T	74	81	75	72	75	76	72	69	85	81
Commercial Vehicle ¹	LAeq,T	79	86	80	77	80	81	77	74	90	86
Air Conditioner	LAeq,T	66	69	66	65	61	57	53	45	73	67
Crowd of 10 people ²	LAeq,T	54	59	64	69	73	74	73	64	79	79

¹ As per the Association of Australasian Acoustical Consultants – Guideline for Child Care Centre Acoustic Assessment v3.0

² As per M.J. Hayne et al. *Prediction of Noise from Small to Medium Sized Crowds* (Paper Number 133, Proceedings of Acoustics 2011)

6.4 Proposed Acoustic Treatments

The following acoustic treatments are proposed and are included in the assessment following:

- Large gatherings and loud activities be prohibited on the Level 6 communal terrace before 5:00 AM and after 10:00 PM;
- The level 6 communal terrace must have solid and gap free balustrades;
- Acoustic fence on east boundary as discussed in **Section 6.2**.

The risk of noise nuisance from atypical residential activity – such as social events and parties – is considered to be best addressed through the Queensland Police Service as per the standard response in residential areas, and as would apply to activity at private outdoor spaces within the development.

6.5 Noise Assessment

6.5.1 Vehicle Movements – LAeq – T (Day, Evening, Night)

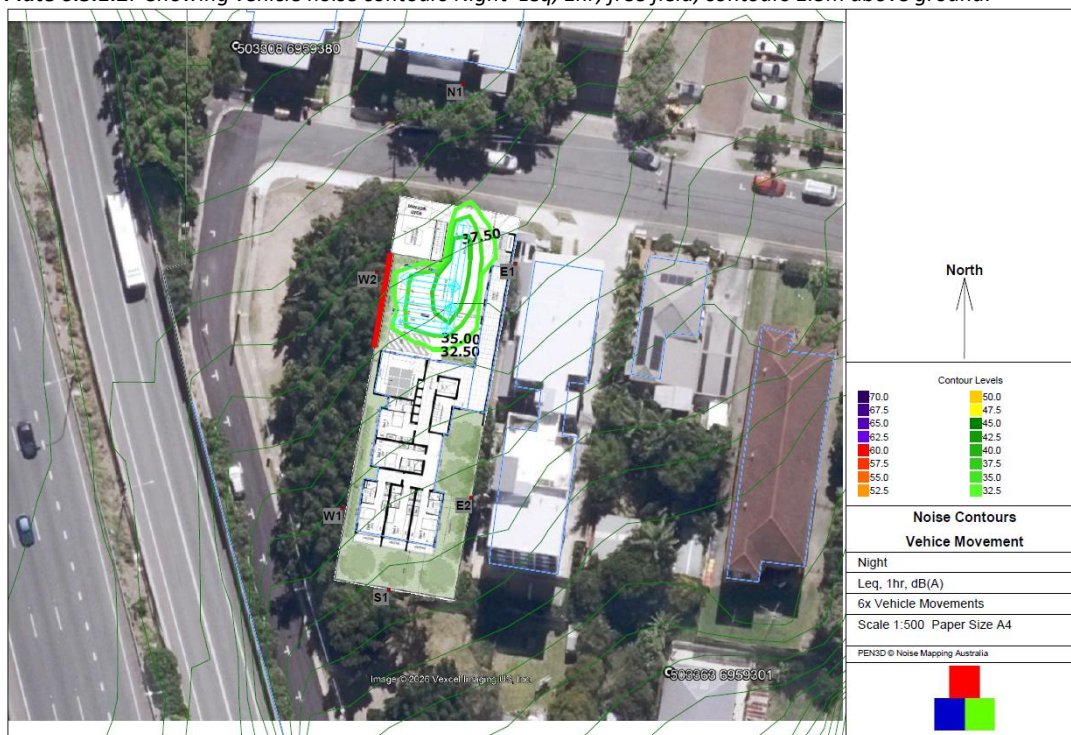
For assessment purposes, noise emission from vehicle movement includes the following:

- Vehicle movements of 6 vehicles per hour (2x maximum carpark capacity at 5 km/h as Leq, 1hr);
- Delivery vehicles one per hour during daytime and evening (at 5 km/h as Leq, 1hr);

Ground Floor moving line source locations – as modelled – are presented in **Plate 6.5.1.1** and **6.5.1.2** below, with calculation results presented in **Table 6.5.1** following.

Plate 6.5.1.1: Showing vehicle noise contours Day and Evening Leq, 1hr, free field, contours 1.5m above ground.



Plate 6.5.1.2: Showing vehicle noise contours Night Leq, 1hr, free field, contours 1.5m above ground.**Table 6.5.1:** Noise forecasts, vehicle movements per hour. Leq, 1h, free field.

Receiver Location	L _{Aeq}
Daytime (with Commercial Vehicles)	
N1	28
E1	36
E2	0
S1	0
W1	0
W2	25
Evening and Night-Time (without Commercial Vehicles)	
N1	27
E1	33
E2	0
S1	0
W1	0
W2	23

6.5.2 Terrace – Level 8 – Common Open Space and Plant Noise – LAeq – 1hr (Day, Evening, Night)

For assessment purposes, noise emissions from social activity includes the following:

For Daytime, Evening:

- 60 x people socialising (simultaneously);
- 50 x air conditioning plant (simultaneously).

For Night-time:

- Large crowds and noisy activities should be avoided in this area at night-time. Assumed minimal activity between 10:00 PM and 5:00 AM allowing for some outdoor activities from 5:00AM is reasonable for this location given the general high background sound levels.
- 50 x air conditioning plant (simultaneously).

Noise contours from crowds of people in the common open space – as modelled - are presented in **Plate 6.5.2.1** and **6.5.2.2**. The calculation results presented with criteria presented in **Table 7.5.2** following.

Plate 6.5.2.1: Showing social activity noise and plant contours on Level 8, as modelled day, evening (and partial night time). Leq, 1hr, free field, contours 10.2m above ground (height of tallest receiver).

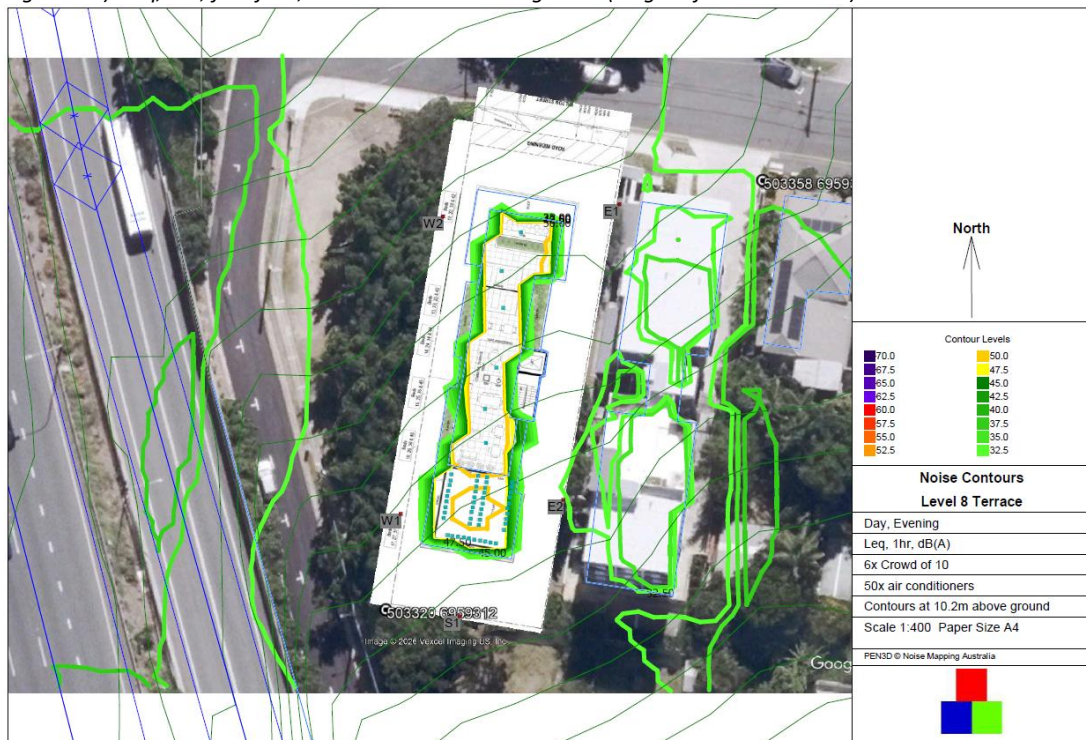


Plate 6.5.2.2: Showing plant contours on Level 8, as modelled night. Leq, 1hr, free field, contours 10.2m above ground (height of tallest receiver).



Table 6.5.2: Noise forecasts Level 8 Terrace, crowd noise and plant noise. Leq, 1h, free field.

Receiver Location	LAeq
Daytime and Evening (and partial night time) (Crowd and Plant Noise)	
N1	27
E1	29
E2	32
S1	27
W1	26
W2	23
Night Time (Plant Noise Only)	
N1	26
E1	28
E2	32
S1	27
W1	25
W2	20

6.6 Cumulative Assessment – Noise Emissions

The noise emissions of all sources are cumulatively assessed in **Table 6.6.1** to **6.6.3** for LAeq.

Table 6.6.1: Cumulative total noise emissions from daytime activities assessed to Brisbane City Council Use Code Rooming Accommodation Criteria.

Time Period	Daytime					
Receiver Height	1.5 to 10.2 metres				Mon-Sat	Mon-Sun
Noise Source	Vehicle Movement	Social + Plant Noise	-	Cumulative	Criteria	Compliance
Duration (hr)	11h	11h	-	11h	11h	
Receiver Location	LAeq	LAeq	-	LAeq	LAeq	
N1	28	27		31	54	Yes
E1	36	29		37	54	Yes
E2	0	32		32	54	Yes
S1	0	27		27	54	Yes
W1	0	26		26	54	Yes
W2	25	23		27	54	Yes

Table 6.6.2: Cumulative total noise emissions from evening activities assessed to Brisbane City Council Use Code Rooming Accommodation Criteria.

Time Period	Evening					
Receiver Height	1.5 to 10.2 metres				Mon-Sat	Mon-Sun
Noise Source	Vehicle Movement	Social + Plant Noise	-	Cumulative	Criteria	Compliance
Duration (hr)	4h	4h	-	4h	4h	
Receiver Location	LAeq	LAeq	-	LAeq	LAeq	
N1	28	27		31	58	Yes
E1	36	29		37	58	Yes
E2	0	32		32	58	Yes
S1	0	27		27	58	Yes
W1	0	26		26	58	Yes
W2	25	23		27	58	Yes

Table 6.6.3: Cumulative total noise emissions from night activities assessed to Brisbane City Council Use Code Rooming Accommodation Criteria.

Time Period	Night					
Receiver Height	1.5 to 10.2 metres				Mon-Sun	Mon-Sun
Noise Source	Vehicle Movement (night)	Plant Noise Only	Social + Plant Noise (from 5 AM)	Cumulative	Criteria	Compliance
Duration (hr)	9h	7h	2h	9h	9h	
Receiver Location	LAeq	LAeq	LAeq	LAeq	LAeq	
N1	27	26	27	30	55	Yes
E1	33	28	29	34	55	Yes
E2	0	32	32	32	55	Yes
S1	0	27	27	27	55	Yes
W1	0	25	26	25	55	Yes
W2	23	20	23	25	55	Yes

Note: Proposed terrace common open space open from 5:00 AM.

With the recommended acoustic treatments in place, it is concluded that noise emissions from vehicle movements, crowds on the Level 8 Terrace, and rooftop plant noise, can be met at all times. This is primarily because the building height and envelope screens adjacent sensitive uses from activity, and high existing background sound levels.

7. Assessment Conclusions

7.1 State Development Assessment Provisions v3.5

7.1.1 PO39 Maximum Free Field Noise Level

The proposed rooming accommodation does not have designated ground floor private open space areas. There is a communal open space area on the Level 8 Terrace.

It is concluded that the SDAP performance outcome P039 maximum free field noise level for private open space does not apply.

A Lot-boundary acoustic fence (for the mitigation of road traffic noise) is not proposed.

7.1.2 PO42 Balconies, Podiums and Roof Decks

The proposed rooming accommodation has rooms with balconies and a communal terrace on level 6 of the development. These spaces require a continuous solid gap free structure or balustrade (excluding gaps required for drainage). For balconies with a soffit above, highly acoustically absorbent material treatment is required for the total area of the soffit above. The balconies that require acoustic treatment is discussed in **Section 4.2** of this Report.

7.2 QDC MP4.4 Interior Amenity

The proposed dwellings can meet the internal amenity requirements by using building elements with an R_w of no less than the stated minimum in accordance with the Queensland Development Code MP4.4 and summarised in **Table 4.2.1 to 4.2.3**.

7.3 Brisbane City Council Use Code – Rooming Accommodation Criteria

7.3.1 BCC Use Code - Rooming Accommodation PO8 and A08.1 – Noise Nuisance

The development has the following noise emissions that may cause noise nuisance:

- Ground floor carpark with three spaces;
- Ground floor commercial vehicle parking space;
- Level 8 rooftop terrace with approximate max capacity of 60 people;
- Level 8 rooftop plant deck with approximate 67 plant.

Vehicle movements, crowd noise and plant noise have been modelled in depth. It is concluded that noise emission limits for nuisance noise can be met at all times at the nearest noise sensitive interface.

This is primarily because the Level 8 Terrace is significantly higher in elevation than the surrounding sensitive use, the modest sized ground floor car park, and high existing background sound levels (being in close proximity to the Pacific Motorway).

Although noise compliance could be met at all times, it is recommended that the rooftop terrace be restricted from 10:00 PM to 5:00 AM. Opening the Level 8 Terrace outdoor recreation area from 5:00 AM has been considered to be appropriate in this assessment.

The Level 6 communal terrace must have solid and gap free balustrades.

7.3.2 BCC Use Code - Rooming Accommodation PO8 and A08.2 – Acoustic Fence on Boundary.

Brisbane City Council requires a 2 metre high acoustic fence along any boundary between on-site car parking and adjoining sensitive uses.

There are three car parks located internally near the west boundary. It is not clear if the adjacent lot (26 Wilton) will be developed in the future. Unless this lot is deemed non-sensitive, a 2.0 metre acoustic fence is required along part of the east boundary, for a distance of approximately 12 metres, as illustrated in **Plate 6.1** of this Report.

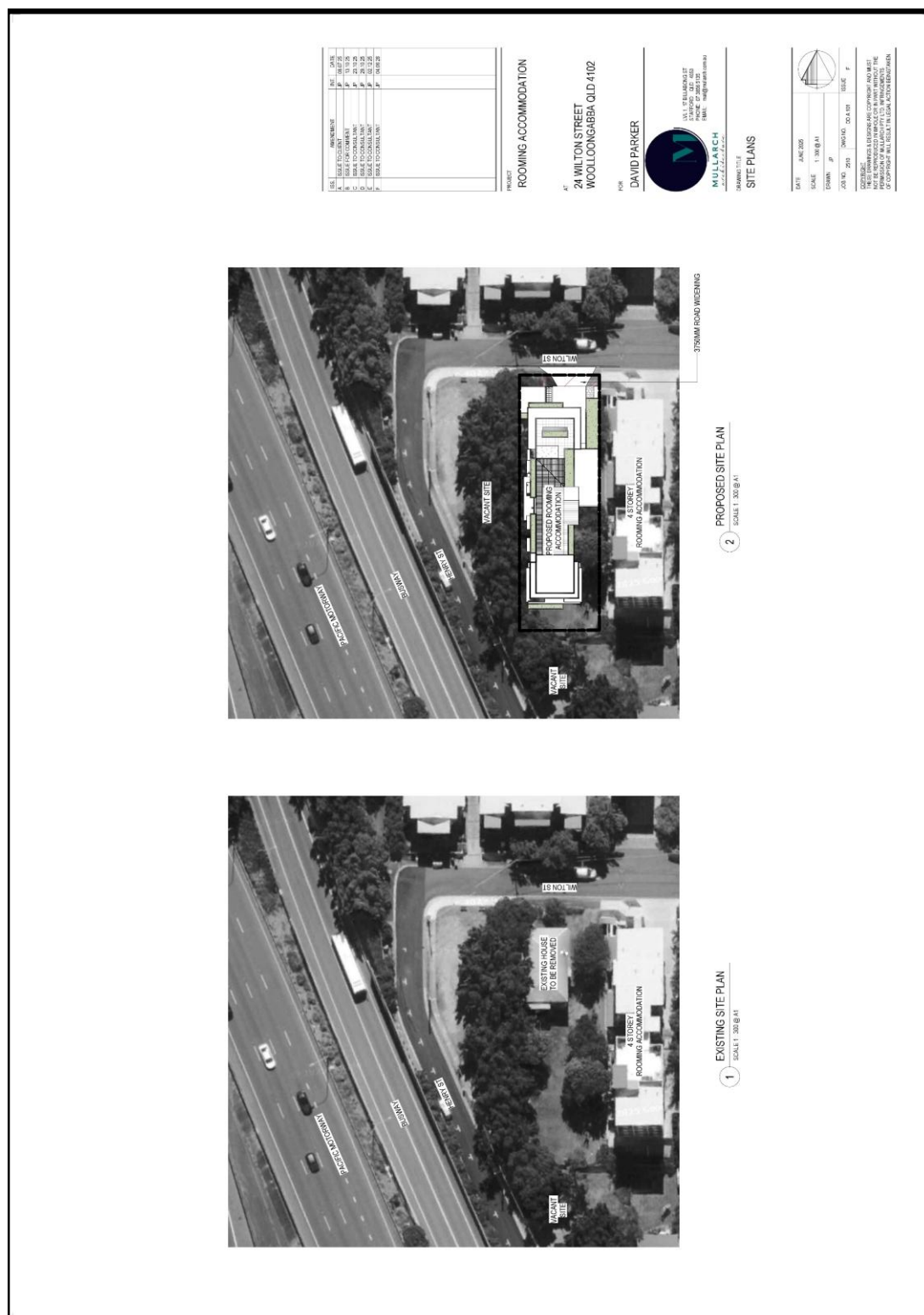
Ordinarily, to act as an acoustic barrier, it is recommended the fence have a linear density of at least 12.5 kg/m² and be continuous and gap free. However, the Department of Transport and Main Roads may request this fence to meet the requirements of the Transport and Main Roads Specifications *MRTS15 Noise Fences*.

7.3.3 BCC Use Code - Rooming Accommodation PO8 – Acoustically Screened Mechanical Plant.

All mechanical plant is required to be acoustically screened. This means that the source of noise is completely screened from view of habitable rooms (including balconies, patios, decks and verandahs) of an adjoining sensitive use by solid, gap free material and construction e.g. acoustic fence, building, or enclosure.

7.3.4 BCC Use Code - Rooming Accommodation - Transport Noise Corridor Overlay.

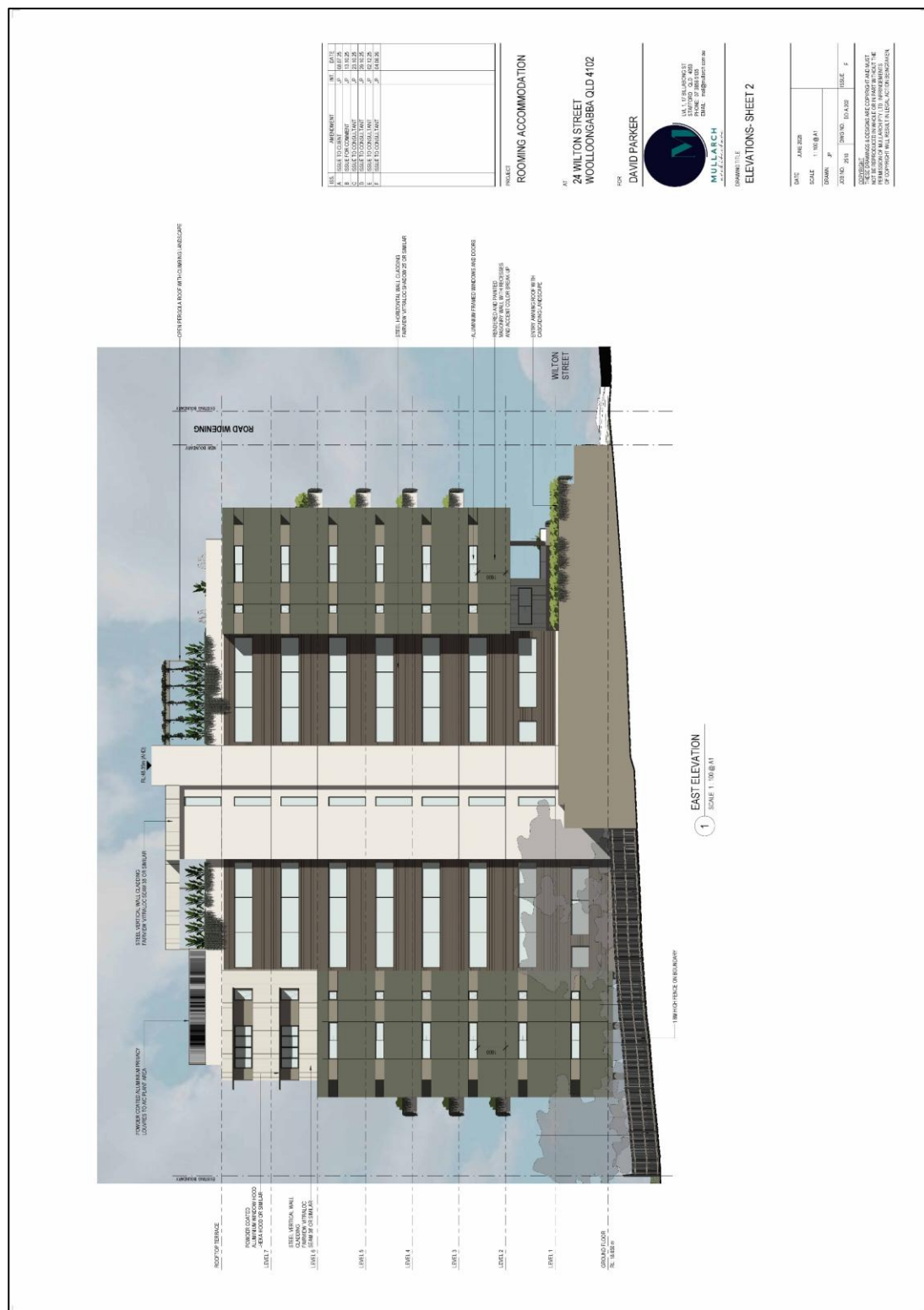
The proposed dwellings can meet the internal amenity requirements by using building elements with an *R_w* of no less than the stated minimum in accordance with the Queensland Development Code MP4.4 and summarised in **Table 4.2.1 to 4.2.**













Appendix B: Traffic Noise Calculations

B.1 Noise Model Parameters

The 10-year design levels for traffic noise are calculated for the proposed development. Calculations are performed in accordance with Australian Standard AS2702-1984 *Acoustics-Methods for the measurement of road traffic noise* and 'Calculation of Road Traffic Noise', 1975-1988.

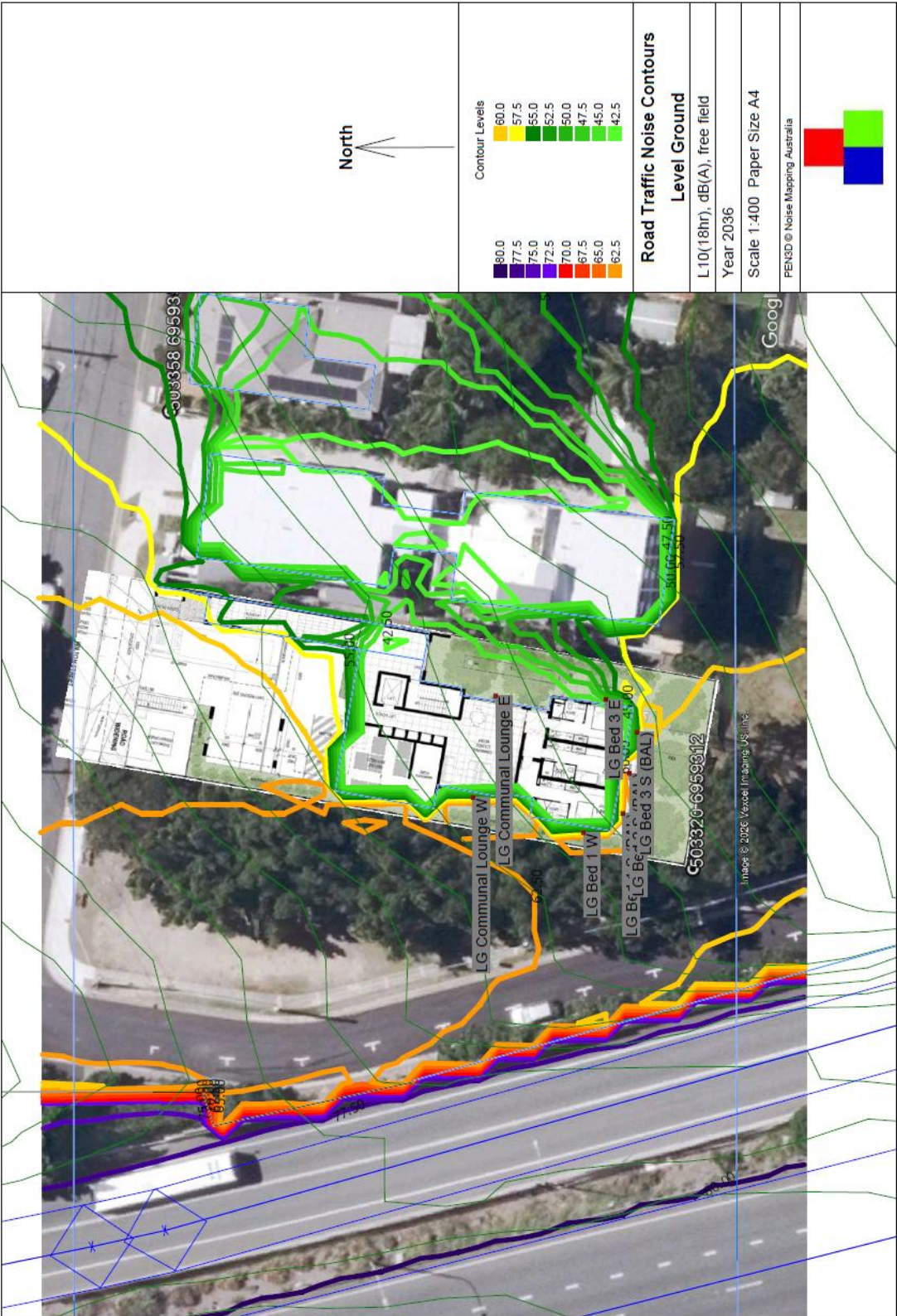
Predicted levels for this report have been calculated using CRTN prediction models PEN3D2000 and have been converted to free field. Existing and future traffic volumes have been calculated from data provided by the DSDIP SPP Interactive Mapping Service and published DTMR traffic counts (year 2015 and 2024 site ID 130037). Ground contours have been sourced from Geoscience Australia in 0.5m contours. The assumptions that were made for the calculations included:

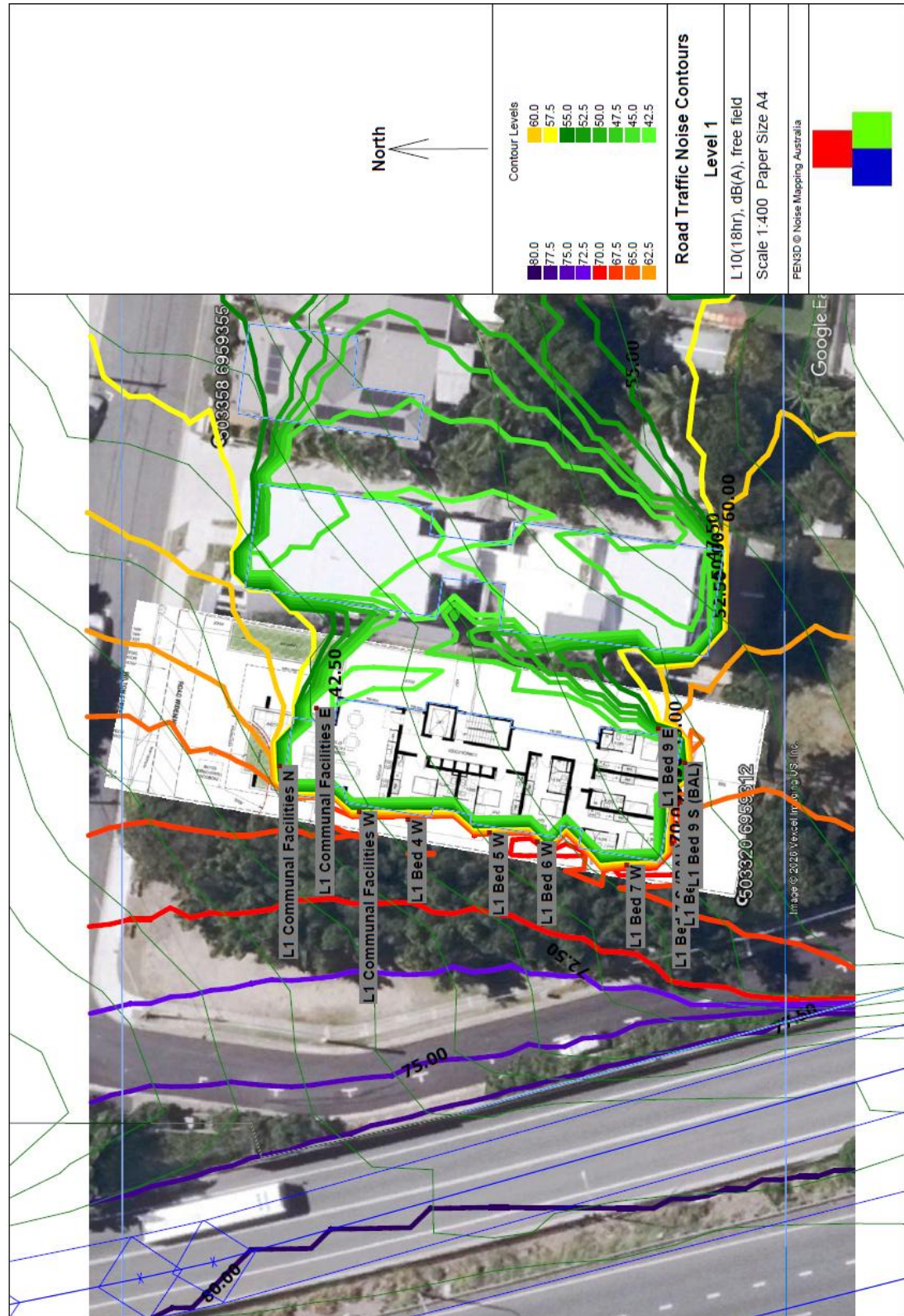
Road	Vehicles per 24hr (18hr volume is 94% of 24hr)			Growth (%p.a.)	HV %	Speed (km/hr)	Source Height (m)	Surface
	2024	2025	2036					
Pacific Motorway N	64,901	65,180	68,330	0.43%	4.00%	90	0.5	SMA
Pacific Motorway S	62,005	62,098	63,130	0.15%	4.0%	90	0.5	SMA
Busway			3000	-	100%	80	0.5	SMA

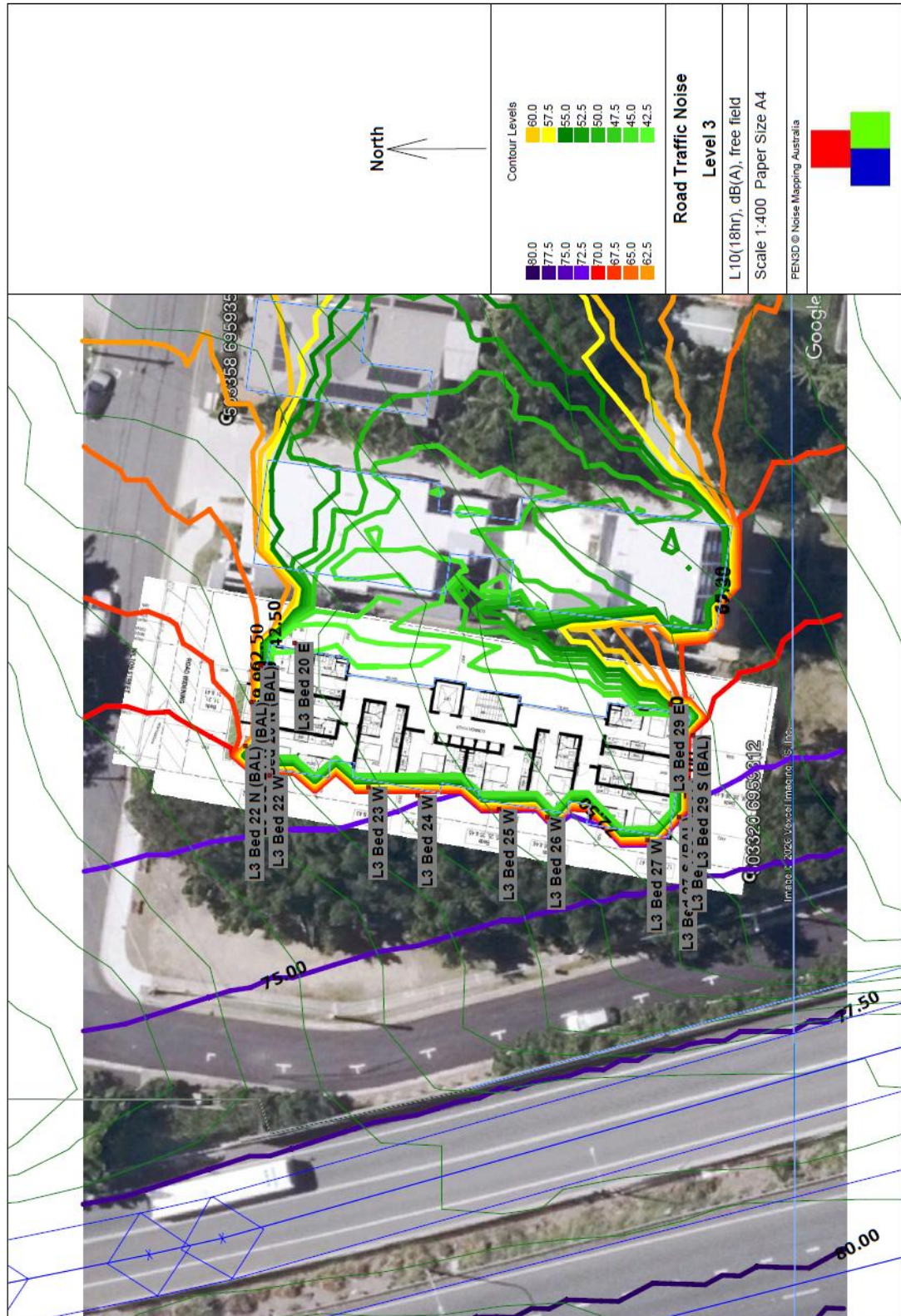
- Source height 0.5m;
- DTMR CoRTN calculation calibration factor adjustment -0.7 dB(A) for free field (as per *Transport Noise Management CoP Volume 1*);
- Road surface adjustment for SMA sites is -1 dB(A) as per the Transport (as per *Transport Noise Management CoP Volume 1*);
- PEN3D CoRTN manual removal of built in façade adjustment in model;
- Measured noise level year 2025 for ML1, 60.4 dB(A) L10, 18hr free field (including all sources);
- Calculated noise level year 2025 for ML1, 61.4 dB(A) L10, 18hr free field (within 0.6 dB(A));
- Predicted design level year 2036 for ML1, 61.5 dB(A) L10, 18hr free field;
- Predicted increase in road traffic noise over the ten year design horizon is +0.1 dB(A);
- Topographic data was obtained from Geoscience Australia (0.5m contours) and finished floor levels from the supplied plans;
- Calculation points at 1.5m above finished floor level.

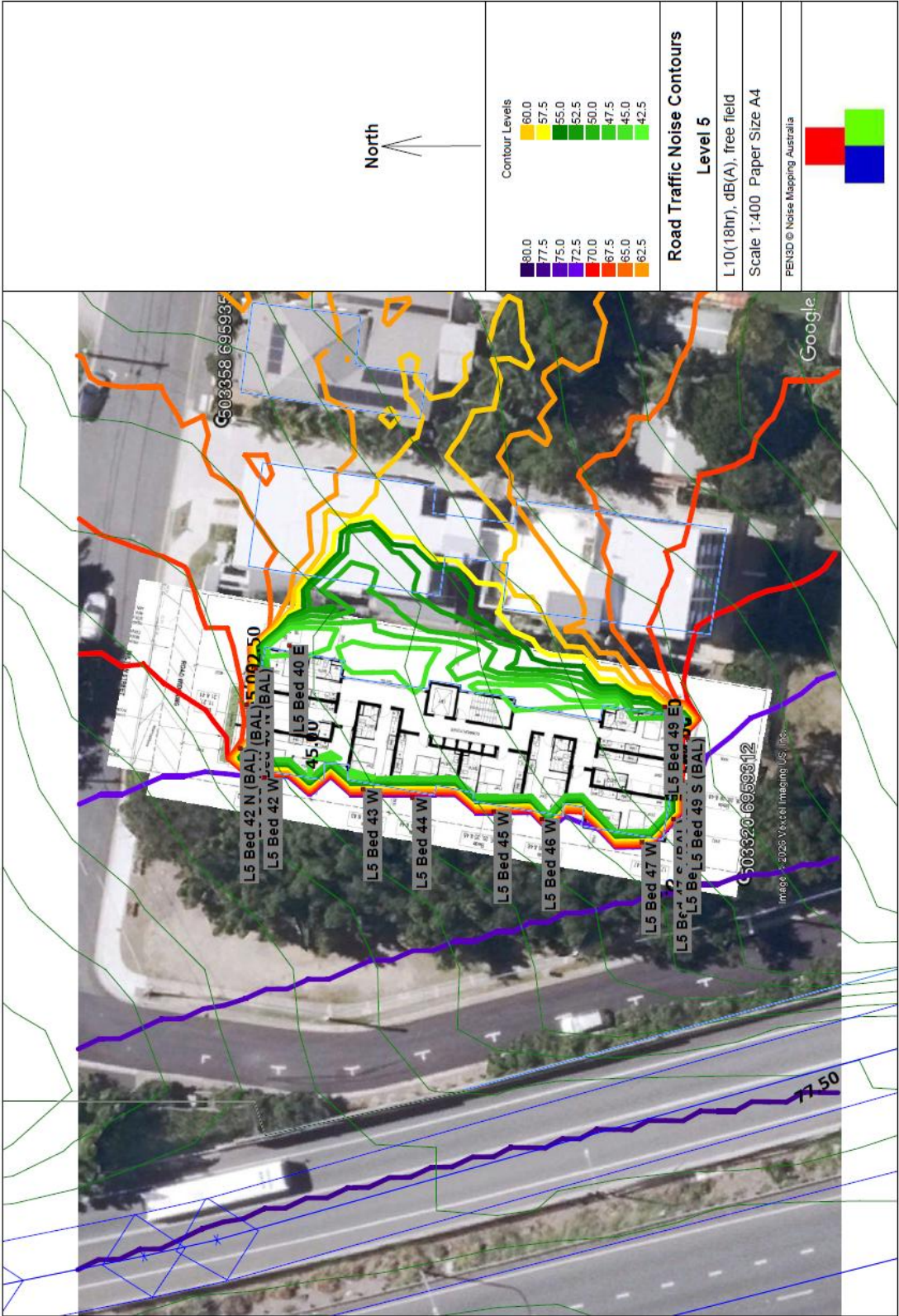
Results from the road traffic noise model are presented in the following **Plates** and **Tables**.

B.2 Noise Contours and Calculations









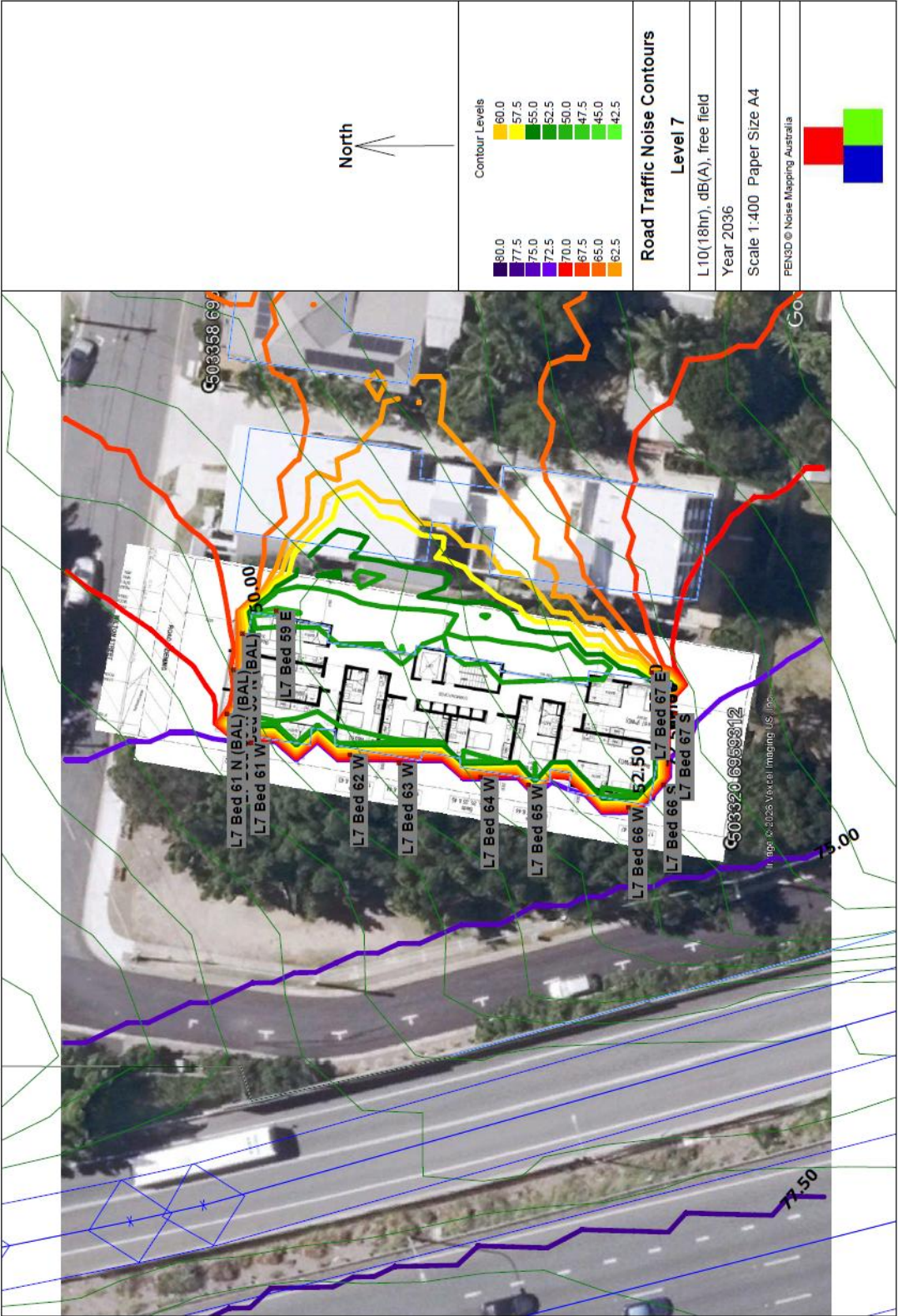


Table B2.1: Noise model validation year 2025 to 2036.

POINT CALCULATIONS						
Pen3D2000 V 1.9.32						
Project Code:8082						
Project Description:						
File:Z:\Projects 8050 - 8099\8082 24 Wilton St, Woolloongabba - residential MUD\Model\8082 Road Traffic Year 2025.PEN						
Wednesday 21 Jan, 2026 at 15:04:41						
CoRTN Calculations						
All road segments included. Segmentation angle: 10degrees. Rc Measured						
Receptor	X Posn	Y Posn	Height	L10(18hour)	L10(18hour)	
	(m)	(m)	(m)	(dB(A))	(dB(A))	
ML1	503325.9	6959320	1.5	61.4	60.4	
POINT CALCULATIONS						
Pen3D2000 V 1.9.32						
Project Code:8082						
Project Description:						
File:Z:\Projects 8050 - 8099\8082 24 Wilton St, Woolloongabba - residential MUD\Model\8082 Road Traffic Year 2036 Future.PEN						
File Description:8082 Road Traffic Year 2036 Future						
Wednesday 21 Jan, 2026 at 15:05:40						
CoRTN Calculations						
All road segments included. Segmentation angle: 10degrees. Road elevations apply.						
Receptor	X Posn	Y Posn	Height	L10(18hour)	Traffic	
	(m)	(m)	(m)	(dB(A))	Growth dB(A)	
ML1	503325.9	6959320	1.5	61.5	0.1	

Table B2.2: Point Calculations.

POINT CALCULATIONS							
Pen3D2000 V 1.9.32							
Project Code:8082							
Project Description:							
File:Z:\Projects 8050 - 8099\8082 24 Wilton St, Woolloongabba - residential MUD\Model\8082-1 Road Traffic Year 2036 Ground.PEN							
File Description:8082-1 Road Traffic Year 2036 Ground							
Tuesday 14 Jul, 2026 at 11:55:34							
CoRTN Calculations							
All road segments included. Segmentation angle: 10degrees. Road elevations apply.							
Receptor	X Posn	Y Posn	Height	L10(18hour)	Balcony	Façade Adj	
	(m)	(m)	(m)	(dB(A))	Adjustment	L10(18hour)	
LG Communal Lounge W	503325.9	6959330.1	1.5	63.5		66	
LG Communal Lounge E	503334.3	6959328.2	1.5	43.1		45.6	
LG Bed 1 W	503322.9	6959321	1.5	64.2		66.7	
LG Bed 1 S (BAL)	503324.5	6959317.7	1.5	63.7	-3	63.2	
LG Bed 2 S (BAL)	503327.8	6959317.1	1.5	62.7	-3	62.2	
LG Bed 3 S (BAL)	503331.2	6959316.5	1.5	62.3	-3	61.8	
LG Bed 3 E	503334	6959319.1	1.5	46		48.5	

POINT CALCULATIONS								
Pen3D2000 V 1.9.32								
Project Code:8082								
Project Description:								
File:Z:\Projects 8050 - 8099\8082 24 Wilton St, Woolloongabba - residential MUD\Model\8082-1 Road Traffic Year 2036 Level 2.PEN								
File Description:8082-1 Road Traffic Year 2036 Level 2								
Tuesday 14 Jul, 2026 at 12:18:29								
CoRTN Calculations								
All road segments included. Segmentation angle: 10degrees. Road elevations apply.							Façade Adj	
Receptor	X Posn (m)	Y Posn (m)	Height (m)	L10(18hour) (dB(A))	Balcony Adjustment	L10(18hour) (dB(A))		
L2 Bed 10 E	503339.3	6959349.5	8.3	42.1		44.6		
L2 Bed 10 N (BAL)	503337.4	6959352.3	8.3	64.1	-3	63.6		
L2 Bed 11 N (BAL)	503334.4	6959353	8.3	65.4	-3	64.9		
L2 Bed 12 N (BAL)	503330.8	6959353.6	8.3	66.5	-3	66		
L2 Bed 12 W	503328.4	6959351.6	8.3	70.8		73.3		
L2 Bed 13 W	503327.4	6959343.4	8.3	71.3		73.8		
L2 Bed 14 W	503326.7	6959339.4	8.3	71.6		74.1		
L2 Bed 15 W	503325.5	6959332.6	8.3	72.1		74.6		
L2 Bed 16 W	503324.8	6959328.7	8.3	72.4		74.9		
L2 Bed 17 W	503322.9	6959320.4	8.3	73.2		75.7		
L2 Bed 17 S (BAL)	503324.8	6959317.8	8.3	71.7	-3	71.2		
L2 Bed 18 S (BAL)	503328	6959317	8.3	70.8	-3	70.3		
L2 Bed 19 S (BAL)	503331.5	6959316.6	8.3	70	-3	69.5		
L2 Bed 19 E	503334.1	6959318.5	8.3	51.1		53.6		

POINT CALCULATIONS								
Pen3D2000 V 1.9.32								
Project Code:8082								
Project Description:								
File:Z:\Projects 8050 - 8099\8082 24 Wilton St, Woolloongabba - residential MUD\Model\8082-1 Road Traffic Year 2036 Level 3.PEN								
File Description:8082-1 Road Traffic Year 2036 Level 3								
Tuesday 14 Jul, 2026 at 12:26:18								
CoRTN Calculations								
All road segments included. Segmentation angle: 10degrees. Road elevations apply.							Façade Adj	
Receptor	X Posn (m)	Y Posn (m)	Height (m)	L10(18hour) (dB(A))	Balcony Adjustment	L10(18hour) (dB(A))		
L3 Bed 20 E	503339.3	6959349.5	11.3	42.1		44.6		
L3 Bed 20 N (BAL)	503337.4	6959352.3	11.3	65.1	-3	64.6		
L3 Bed 21 N (BAL)	503334.4	6959353	11.3	66.1	-3	65.6		
L3 Bed 22 N (BAL)	503330.8	6959353.6	11.3	67.2	-3	66.7		
L3 Bed 22 W	503328.4	6959351.6	11.3	71.5		74		
L3 Bed 23 W	503327.4	6959343.4	11.3	72.1		74.6		
L3 Bed 24 W	503326.7	6959339.4	11.3	72.4		74.9		
L3 Bed 25 W	503325.5	6959332.6	11.3	73.2		75.7		
L3 Bed 26 W	503324.8	6959328.7	11.3	73.7		76.2		
L3 Bed 27 W	503322.9	6959320.4	11.3	74.3		76.8		
L3 Bed 27 S (BAL)	503324.8	6959317.8	11.3	72.7	-3	72.2		
L3 Bed 28 S (BAL)	503328	6959317	11.3	71.6	-3	71.1		
L3 Bed 29 S (BAL)	503331.5	6959316.6	11.3	70.5	-3	70		
L3 Bed 29 E	503334.1	6959318.5	11.3	53.5		56		

POINT CALCULATIONS							
Pen3D2000 V 1.9.32							
Project Code:8082							
Project Description:							
File:Z:\Projects 8050 - 8099\8082 24 Wilton St, Woolloongabba - residential MUD\Model\8082-1 Road Traffic Year 2036 Level 4.PEN							
File Description:8082-1 Road Traffic Year 2036 Level 4							
Tuesday 14 Jul, 2026 at 15:32:28							
CoRTN Calculations							
All road segments included. Segmentation angle: 10degrees. Road elevations apply. Façade Adj							
Receptor	X Posn	Y Posn	Height	L10(18hour)	Balcony	L10(18hour)	
(m)	(m)	(m)		(dB(A))	Adjustment	(dB(A))	
L4 Bed 30 E	503339.3	6959349.5	14.3	42		44.5	
L4 Bed 30 N (BAL)	503337.4	6959352.3	14.3	65.9	-3	65.4	
L4 Bed 31 N (BAL)	503334.4	6959353	14.3	67	-3	66.5	
L4 Bed 32 N (BAL)	503330.8	6959353.6	14.3	68.3	-3	67.8	
L4 Bed 32 W	503328.4	6959351.6	14.3	72.4		74.9	
L4 Bed 33 W	503327.4	6959343.4	14.3	73		75.5	
L4 Bed 34 W	503326.7	6959339.4	14.3	73.2		75.7	
L4 Bed 35 W	503325.5	6959332.6	14.3	73.6		76.1	
L4 Bed 36 W	503324.8	6959328.7	14.3	73.9		76.4	
L4 Bed 37 W	503322.9	6959320.4	14.3	74.4		76.9	
L4 Bed 37 S (BAL)	503324.8	6959317.8	14.3	73	-3	72.5	
L4 Bed 38 S (BAL)	503328	6959317	14.3	72.1	-3	71.6	
L4 Bed 39 S (BAL)	503331.5	6959316.6	14.3	71.3	-3	70.8	
L4 Bed 39 E	503334.1	6959318.5	14.3	55.5		58	

POINT CALCULATIONS							
Pen3D2000 V 1.9.32							
Project Code:8082							
Project Description:							
File:Z:\Projects 8050 - 8099\8082 24 Wilton St, Woolloongabba - residential MUD\Model\8082-1 Road Traffic Year 2036 Level 5.PEN							
File Description:8082-1 Road Traffic Year 2036 Level 5							
Tuesday 14 Jul, 2026 at 15:17:53							
CoRTN Calculations							
All road segments included. Segmentation angle: 10degrees. Road elevations apply. Façade Adj							
Receptor	X Posn	Y Posn	Height	L10(18hour)	Balcony	L10(18hour)	
(m)	(m)	(m)		(dB(A))	Adjustment	(dB(A))	
L5 Bed 40 E	503339.3	6959349.5	17.4	43.5		46	
L5 Bed 40 N (BAL)	503337.4	6959352.3	17.4	66.4	-3	65.9	
L5 Bed 41 N (BAL)	503334.4	6959353	17.4	67.4	-3	66.9	
L5 Bed 42 N (BAL)	503330.8	6959353.6	17.4	68.5	-3	68	
L5 Bed 42 W	503328.4	6959351.6	17.4	72.8		75.3	
L5 Bed 43 W	503327.4	6959343.4	17.4	73.1		75.6	
L5 Bed 44 W	503326.7	6959339.4	17.4	73.3		75.8	
L5 Bed 45 W	503325.5	6959332.6	17.4	73.6		76.1	
L5 Bed 46 W	503324.8	6959328.7	17.4	73.8		76.3	
L5 Bed 47 W	503322.9	6959320.4	17.4	74.3		76.8	
L5 Bed 47 S (BAL)	503324.8	6959317.8	17.4	72.9	-3	72.4	
L5 Bed 48 S (BAL)	503328	6959317	17.4	72.1	-3	71.6	
L5 Bed 49 S (BAL)	503331.5	6959316.6	17.4	71.4	-3	70.9	
L5 Bed 49 E	503334.1	6959318.5	17.4	56.8		59.3	

POINT CALCULATIONS								
Pen3D2000 V 1.9.32								
Project Code:8082								
Project Description:								
File:Z:\Projects 8050 - 8099\8082 24 Wilton St, Woolloongabba - residential MUD\Model\8082-1 Road Traffic Year 2036 Level 6.PEN								
File Description:8082-1 Road Traffic Year 2036 Level 6								
Tuesday 14 Jul, 2026 at 15:30:46								
CoRTN Calculations								
All road segments included. Segmentation angle: 10degrees. Road elevations apply. Façade Adj								
Receptor	X Posn (m)	Y Posn (m)	Height (m)	L10(18hour) (dB(A))	Balcony Adjustment	L10(18hour) (dB(A))		
L6 Bed 50 E	503339.3	6959349.5	20.4	46		48.5		
L6 Bed 50 N (BAL)	503337.4	6959352.3	20.4	66.6	-3	66.1		
L6 Bed 51 N (BAL)	503334.4	6959353	20.4	67.6	-3	67.1		
L6 Bed 52 N (BAL)	503330.8	6959353.6	20.4	68.6	-3	68.1		
L6 Bed 52 W	503328.4	6959351.6	20.4	72.8		75.3		
L6 Bed 53 W	503327.4	6959343.4	20.4	73.1		75.6		
L6 Bed 54 W	503326.7	6959339.4	20.4	73.3		75.8		
L6 Bed 55 W	503325.5	6959332.6	20.4	73.6		76.1		
L6 Bed 56 W	503324.8	6959328.7	20.4	73.8		76.3		
L6 Bed 57 W	503322.9	6959320.4	20.4	74.2		76.7		
L6 Bed 57 S	503324.8	6959317.5	20.4	73.3		75.8		
L6 Bed 58 S	503330.7	6959316.5	20.4	71.6		74.1		
L6 Bed 58 E	503334.1	6959318.5	20.4	57.7		60.2		

POINT CALCULATIONS								
Pen3D2000 V 1.9.32								
Project Code:8082								
Project Description:								
File:Z:\Projects 8050 - 8099\8082 24 Wilton St, Woolloongabba - residential MUD\Model\8082-1 Road Traffic Year 2036 Level 7.PEN								
File Description:8082-1 Road Traffic Year 2036 Level 7								
Tuesday 14 Jul, 2026 at 15:46:06								
CoRTN Calculations								
All road segments included. Segmentation angle: 10degrees. Road elevations apply. Façade Adj								
Receptor	X Posn (m)	Y Posn (m)	Height (m)	L10(18hour) (dB(A))	Balcony Adjustment	L10(18hour) (dB(A))		
L7 Bed 59 E	503339.3	6959349.5	23.4	49.8		52.3		
L7 Bed 59 N (BAL)	503337.4	6959352.3	23.4	66.7	-3	66.2		
L7 Bed 60 N (BAL)	503334.4	6959353	23.4	67.6	-3	67.1		
L7 Bed 61 N (BAL)	503330.8	6959353.6	23.4	68.7	-3	68.2		
L7 Bed 61 W	503328.4	6959351.6	23.4	72.8		75.3		
L7 Bed 62 W	503327.4	6959343.4	23.4	73.1		75.6		
L7 Bed 63 W	503326.7	6959339.4	23.4	73.2		75.7		
L7 Bed 64 W	503325.5	6959332.6	23.4	73.5		76		
L7 Bed 65 W	503324.8	6959328.7	23.4	73.7		76.2		
L7 Bed 66 W	503322.9	6959320.4	23.4	74.1		76.6		
L7 Bed 66 S	503324.8	6959317.5	23.4	73.2		75.7		
L7 Bed 67 S	503330.7	6959316.5	23.4	71.5		74		
L7 Bed 67 E	503334.1	6959318.5	23.4	58.3		60.8		

Appendix C: Building Construction – QDC MP4.4

This Annex is based on the building construction guidelines of ‘Queensland Development Code Mandatory Part 4.4 – Buildings in Transport Noise Corridors’. The Code provides information for new houses, townhouses, units, hotel and motels (Class 1-4 buildings) as well as renovations at any existing Class 1 to 4 buildings achieve certain levels of noise mitigation through the use of appropriate materials for floors, walls, roofs, windows and doors for the relevant noise category presented in **Section 4** of this Report.

Under the State government criteria the site is considered to be in the following Categories based on the measured or calculated $L_{10, 18hr}$ or $L_{Amax, 24hr}$ value or distance from the road, depending on the property definition given by QDC. The relationships are set out in **Table C1**:

Table C1: Noise Categories, related to noise levels.

Noise Category	Level of Transport Noise $L_{A10,18hr}$ for State Controlled Roads	Level of Transport Noise $L_{A10,18hr}$ for Designated Local Government Roads	Single event maximum noise L_{Amax} for railway
Category 4	≥ 73 dB(A)	≥ 73 dB(A)	≥ 85 dB(A)
Category 3	68 - 72 dB(A)	68 - 72 dB(A)	80 - 84 dB(A)
Category 2	63 - 67 dB(A)	63 - 67 dB(A)	75 - 79 dB(A)
Category 1	58 - 62 dB(A)	58 - 62 dB(A)	70 - 74 dB(A)
Category 0	≤ 57 dB(A)	≤ 57 dB(A)	≤ 69 dB(A)

Note* the sound levels are measured at 1 metre from the façade.

Performance Requirements	Acceptable Solutions
Residential Buildings	
P1 <i>Habitable rooms in a relevant residential building are adequately protected from transport noise to safeguard occupants' health and amenity.</i>	A1 The <i>external envelope</i> of each habitable room in a <i>relevant residential building</i> must comply with the minimum R_w for each building component specified in Schedule 1 to achieve a minimum <i>transport noise reduction</i> level for the relevant <i>noise category</i> by: b) Using materials specified in Schedule 2; OR b) Using materials with <i>manufacturer's specifications</i> that, in combination, achieve the minimum R_w value for the relevant building component and acceptable <i>noise category</i>.

SCHEDULE 1

Noise category	Minimum transport noise reduction (dB(A)) required for habitable rooms	Component of building's external envelope	Minimum R_w required for each component
Category 4	40	Glazing	43
		External walls	52
		Roof	45
		Floors	51
		Entry doors	35
Category 3	35	Glazing	38 (where total area of glazing for a habitable room is greater than 1.8m ²)
			35 (where total area of glazing for a habitable room is less than or equal to 1.8m ²)
		External walls	47
		Roof	41
		Floors	45
		Entry doors	33

Noise category	Minimum transport noise reduction (dB(A)) required for habitable rooms	Component of building's external envelope	Minimum R_w required for each component
Category 2	30	Glazing	35 (where total area of glazing for a habitable room is greater than 1.8m ²)
			32 (where total area of glazing for a habitable room is less than or equal to 1.8m ²)
		External walls	41
		Roof	38
		Floors	45
		Entry doors	33
Category 1	25	Glazing	27 (where total area of glazing for a habitable room is greater than 1.8m ²)
			24 (where total area of glazing for a habitable room is less than or equal to 1.8m ²)
		External walls	35
		Roof	35
		Entry doors	28
Category 0	No additional acoustic treatment required – standard building assessment provisions apply		

SCHEDULE 2

Component of building's external envelope	Minimum R_w	Acceptable forms of constructions
Glazing	43	Double glazing consisting of two panes of minimum 5mm thick glass with at least 100mm air gap and full perimeter <i>acoustically rated seals</i> .
	38	Minimum 14.38mm thick laminated glass, with full perimeter <i>acoustically rated seals</i> ; OR Double glazing consisting of one pane of minimum 5mm thick glass and one pane of minimum 6mm thick glass with at least 44mm air gap, and full perimeter <i>acoustically rated seals</i> .
	35	Minimum 10.38mm thick laminated glass, with full perimeter <i>acoustically rated seals</i> .
	32	Minimum 6.38mm thick laminated glass with full perimeter <i>acoustically rated seals</i> .
	27	Minimum 4mm thick glass with full perimeter <i>acoustically rated seals</i> .
	24	Minimum 4mm thick glass with standard weather seals

Component of building's external envelope	Minimum R_w	Acceptable forms of constructions
External walls	52	Two leaves of clay brick masonry, at least 270mm in total, with subfloor vents fitted with noise attenuators
	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/m³ or 50mm thick polyester insulation with a density of 20kg/m³ 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 11kg/m³ 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.

Component of building's external envelope	Minimum R_w	Acceptable forms of constructions
External walls	41	Two leaves of clay brick masonry at least 110mm thick with cavity not less than 50mm between leaves 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 11kg/m³ positioned between studs; and (ii) 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.
	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 the 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.

Component of building's external envelope	Minimum R_w	Acceptable forms of constructions
Roof	45	Concrete or terracotta tile or sheet metal roof with sarking, <i>acoustically rated plasterboard</i> ceiling at least 13mm thick fixed to ceiling joists, cellulose fibre insulation at least 100mm thick with a density of at least 45kg/m ³ in the cavity OR Concrete or terracotta tile or sheet metal roof with sarking, 2 layers of <i>acoustically rated plasterboard</i> at least 16mm 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.
	41	Concrete or terracotta tile or sheet metal 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.
	38	Concrete or terracotta tile or sheet metal 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 11kg/m ³
	35	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling cavity
Floors	51	Concrete slab at least 150mm thick
	45	Concrete slab at least 100mm thick OR Tongued and grooved boards at least 19mm thick with: (i) Timber joists not less than 175mm x 50mm; and (ii) Mineral insulation or glass wool insulation at least 75mm thick with a density of at least 11kg/m³ positioned between joists and laid on plasterboard at least 10mm thick fixed to underside of joists; and (iii) Mineral insulation or glass wool insulation at least 25mm thick with a density of at least 11kg/m³ laid over entire floor, including tops of joists before flooring is laid; and (iv) Secured to battens at least 75mm x 50mm; and (v) The assembled flooring laid over the joists, but not fixed to them, with battens lying between the joists.

Component of building's external envelope	Minimum R_w	Acceptable forms of constructions
Entry Doors	35	Solid core timber not less than 45mm thick, fixed so as to overlap the frame or rebate of the frame by not less than 10mm, with full perimeter <i>acoustically rated seals</i> .
	33	Fixed so as to overlap the frame or rebate of the frame by not less than 10mm, fitted with full perimeter <i>acoustically rated seals</i> and constructed of: (i) Solid core wood, particleboard or blockboard not less than 45mm thick; and/or (ii) Acoustically laminated glass not less than 10.38mm thick
	28	Fixed so as to overlap the frame or rebate of the frame, constructed of: (i) Wood, particleboard or blockboard not less than 33mm thick; or (ii) Compressed fibre reinforced sheeting not less than 9mm thick; or (iii) Other suitable material with a mass per unit area not less than 24.4kg/m², or (iv) Solid core timber door not less than 35mm thick fitted with full perimeter <i>acoustically rated seals</i>.

Appendix D: Environmental Noise Model

Forecasts noise emissions from expected activities at the proposed development have been calculated with PEN3D2000, a software program implementing a prediction model based on the method described in Bies & Hansen, *ISO 9613-2 (1996) Acoustics – Attenuation of sound propagation outdoors Part 2: General Method of Calculation* and *CONCAWE*. The basic equation adopted is-

$$L_p = L_w - 20 \log_{10}(r) - 10 \log_{10}(4\pi) + AE$$

Where

- L_p is the sound pressure level at an observer
- L_w is the sound power level of the source
- $20 \log_{10}r - 10 \log_{10}(4\pi)$ is the Distance attenuation (spherical)
- AE is the excess attenuation factors and is determined as the sum of the contributions

All prediction models have limits to their accuracy of prediction. This is due to the inherent nature of the calculation algorithms that go into the design of the models, the assumptions made in the implementation of the model, and the availability of good source sound power data. ISO 9613-2 has an estimated accuracy for broadband noise of ± 3 dB at 1000 metres. Neutral atmospheric and meteorological conditions have been assumed.

Noise source design sound power levels (SWL) of activities considered representative of those at the development have been sourced from the NMS database and various published papers, and are discussed in **Section 7**. Topographic data was sourced from Geosciences Australia, extracted in 0.5m contours. Calculations include screening from the recommended acoustic barriers. The sound power levels used in the environmental noise model are presented in **Table B1** below. Results from the environmental noise calculations are presented in the **Tables** following.

Table B1: Design L_{eq} sound power levels, as modelled.

Source	Descriptor	Sound Power Levels in dB(Z)								Total in dB(Z)	Total in dB(A)
		63 Hz	125 Hz	250 Hz	500 Hz	1kHz	2 kHz	4 kHz	8 kHz		
Vehicle Movement ¹	$L_{Aeq,T}$	74	81	75	72	75	76	72	69	85	81
Commercial Vehicle ¹	$L_{Aeq,T}$	79	86	80	77	80	81	77	74	90	86
Air Conditioner	$L_{Aeq,T}$	66	69	66	65	61	57	53	45	73	67
Crowd of 10 people ²	$L_{Aeq,T}$	54	59	64	69	73	74	73	64	79	79

¹ As per the Association of Australasian Acoustical Consultants – Guideline for Child Care Centre Acoustic Assessment v3.0

² As per M.J. Hayne et al. *Prediction of Noise from Small to Medium Sized Crowds* (Paper Number 133, Proceedings of Acoustics 2011)



Appendix E: Statement of Qualifications

The Signatory to this Report is Qualified under the Australian Qualifications Framework at Level 8 (Post-Graduate) in Monitoring and Evaluating Noise and Noise Management:

Mr Max Thorne, LLB (Otago), Principal NMS

Mr Josh Dyer, B.Env.Tech (Griffith), MSS025008A and MSS027008A (Acoustar), Senior Acoustician NMS

Mr Matt Dever, B.Audio (SAE), Senior Acoustician NMS

Mr Matt Fishburn, B.E., RPEQ, Reviewer

Mr Geoff Renison, Acoustician NMS

NMS Specific Project Reviewer

Dr Bob Thorne PhD, FRSPH, MIOA

Projects and Studies by NMS

- Assessment of transportation noise to QDC MP4.4 and Queensland State Development guidelines
- Assessment of noise from light industry onto noise sensitive places
- Assessment of quarry noise on residential neighbours
- Mine site, blasting and drilling assessments
- Environmental noise impact assessment and prediction modelling for residential estates and residential developments
- Traffic noise impact assessments for residential developments
- Remote telemetry systems for noise monitoring
- Industrial noise impact assessments and associated noise management plans
- Occupational noise assessment
- Industrial surveys for noise exposure and noise management
- The effects of noise from patrons and music on residential neighbours
- Building acoustics (in association with Alpha Acoustics)
- Vehicle noise compliance (ADR)
- Research investigations into the effects of various noise sources on sensitive and non-sensitive communities

Appendix F: Glossary

“Peak” maximum level ($LA_{max,T}$).

The peak maximum level is the absolute highest (1 second or less) sound level within the whole of the measurement time.

Event maximum sound pressure level ($LA\%,adj,T$), 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.

In this Report, the measured L01 levels for day/evening/night are not averaged but are arranged from low to high in the relevant day/evening/night interval and the value that is found at the 90th percentile (L10 of L01 sample) in the interval is recorded as its “L01” level.

Average maximum sound pressure level ($LA\%,adj,T$), 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 ($LA_{90,T}$), 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.

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

Commonly called the “ Leq ” level it is the logarithmic average noise level from all sources far and near. The maximum 1-hour levels within the day/evening/night time intervals are referenced for building design. The level can be adjusted for tonality.

Façade-adjusted level

A sound level that is measured at a distance of 1.0 metre from a wall or facade. The level is nominally 2.5 dB higher than the free-field level.

Free-field level

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