Road Traffic Noise Assessment

Reconfiguration of Lot (ROL 4) Application
Monarch Glen Estate, Precinct 101 & 102

PLANS AND DOCUMENTS
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Prepared by:	Bojan Todorovski
Position:	Senior Engineer - Acoustics
Signed:	
Date:	3 April 2025

Approved by:	Sasho Temelkoski RPEQ 13551
Position:	Manager - Acoustics
Signed:	
Date:	3 April 2025

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Recipients are responsible for eliminating all superseded documents in their possession.

Gold Coast
34 Lakefront Crescent
Varsity Lakes, QLD 4227
Ph: (07) 5593 0487

Brisbane
Unit 34, 30 Anstey Street
Albion, QLD 4010
Ph: (07) 3256 1747

Melbourne
Brunswick East
VIC 3057
Ph: 0403 964 150

E-mail: admin@atpconsulting.com.au
Internet: www.atpconsulting.com.au

Executive Summary

ATP Consulting Engineers (ATP) was engaged to prepare a road traffic noise assessment in support of the Reconfiguration of Lot (RoL) application for ROL4 (Precincts 101 and 102) of the proposed residential subdivision in Monarch Glen.

The extent of the proposed development pertains to a portion of the land identified as Lot 1 on SP351245 at Homestead Drive in Monarch Glen.

The following report presents the results of the detailed road traffic noise propagation modelling considering the internal trunk road between Precinct 101 and 102, which is a major internal trunk connector road within the boundaries of the development, as well as the New Beith Road located along the development site.

Traffic noise propagation modelling was carried out considering the future traffic flows of the new arterial roads for the ultimate planning horizon of year 2041.

Conclusions and recommendations

Based on the results of the Road Traffic Noise Assessment for the Reconfiguration of Lot (RoL) application for ROL4 (Precincts 101 and 102) of the Monarch Glen Estate, the following is concluded:

- Without noise control measures, the proposed development will be impacted by traffic noise from the internal trunk road and the New Beith Road for the ultimate planning horizon (year 2041).
- ATP recommends construction of three (3) noise barrier fences (acoustic fences) to mitigate the road traffic noise from the internal trunk road and New Beith Road:
    - 1.8m high noise barrier fence (NBF 1) along the southern boundaries of Lots 11312 to 11320, on top of the proposed retaining wall;
    - 1.8m high noise barrier fence (NBF 2) along the eastern boundary of the estate, from Lots 11340 to 11348, Lots 11423 to 11437, Lots 11711 to 11714 and Lots 11720 to 11726, with returns along the southern boundary of Lot 11340 and the northern boundary of Lot 11427; and
    - 1.8m high noise barrier fence (NBF 3) along the southern boundary of Lots 11305 to 11307, on top of the proposed retaining wall.
- The design of the noise barrier fence should be subject to detailed design by structural and civil engineer.
- The noise barrier must be constructed so that the RL at the top of the noise barrier is equal to or greater than the RLs shown in Table 4.1.
- Detail views showing the alignment and RLs of the top of the noise barrier is presented in Figures 4.1 to 4.3 of this report.
- The noise barriers (acoustic fences) must be constructed as follows:

- In accordance with Queensland DTMR Specification MRS15 (Noise fences) and technical standard MRTS 15 (Noise fences); or
- In accordance with standard drawing *LCC 8-00390* in *Table 8.1.1.1 - Standard drawings for movement infrastructure of Part 8 - Standard Drawings* of the Logan Planning Scheme 2015.

- Acceptable form of construction for the noise barriers is as follows:
  - Material with minimum surface density of 12.5kg/m^2, e.g. timber palings with minimum thickness 20mm; fibre-cement sheeting with minimum thickness of 12mm; modular acoustic panels; masonry; and aerated concrete.
  - The noise barrier should be free of any gaps. If the noise barrier is constructed of timber palings, planks should have minimum 35mm overlap.
  - The noise barrier should be of durable construction.
- The results of the noise propagation modelling, presented in Table 3.6 of this report, indicate that even with the recommended noise barrier in place, a number of allotments are still traffic noise affected and will require compliance with QDC MP4.4.
- The future lots listed in Table 3.6 of this report are impacted by traffic noise that correspond with Noise Categories 1 and 2 of QDCMP4.4, therefore architectural treatment is required to the building façades. Where Noise Category 0 is applicable, no acoustic treatment is required.
- There are two options available for architectural treatment to the building façades, as follows:
  - **Option 1:** Implementation of the 'acceptable forms of construction' specified in Queensland Development Code (QDC) Mandatory Part 4.4 (Buildings in a Transport Noise Corridor) as per the noise categories presented in Table 3.6 of this report.
  - **Option 2:** Floor plan specific acoustic design, in accordance with AS3671-1989, to ensure compliance with the internal noise criteria.
- Front loaded lots facing the new internal trunk road will have traffic noise impacts on the most exposed façade. The noise affected lots with frontage to the internal trunk road are Lots 11101 to 11110, Lots 11240 to 11248, and Lot 12106.
- At the front-loaded lots facing the internal trunk road it is recommended to locate the private open spaces at the rear of the houses. Provided that the private open spaces are located along the protected rear façades (facing away from the road), or in a protected courtyard recessed into the side of the buildings, compliance with the traffic noise criterion will be achieved.

Provided the recommended planning and design traffic noise control measures are implemented in the construction of ROL4 (Precincts 101 and 102) within the Monarch Glen Estate, the road traffic noise from the internal trunk road and New Beith Road will not impose any further constraints on the establishment of the proposed development.

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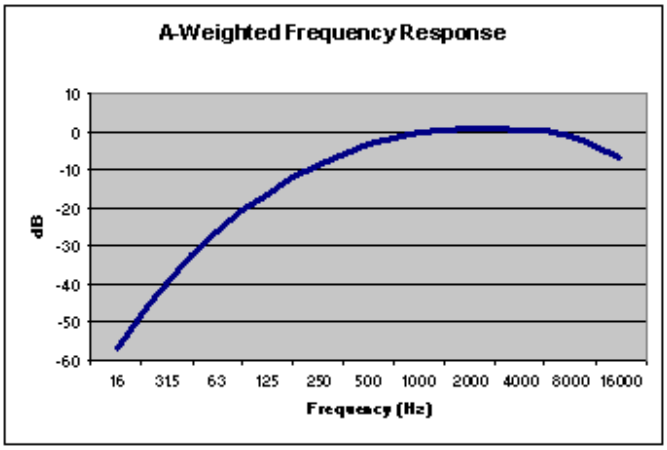
Acoustics Glossary

A-weighting

The A-weighting filter suppresses low frequency sounds and some of the higher frequency sounds to which the human ear is less sensitive. It is a correction to sound pressure levels to mimic the response of the human ear at low sound pressure levels. The A-weighted sound pressure level correlates well with the perceived loudness at low sound levels. The A-weighted sound pressure level is used extensively for general purpose noise measurements.



AADT

Annual average daily traffic. The total traffic flow over a 24-hour period along a specific segment of road.

Broadband sound

Sound distributed across the whole audible frequency range.

dB(A)

The A-weighted sound pressure level.

Façade adjusted

The noise level at 1m from a building façade is calculated by adding 2.5dB to the free-field noise level to account for sound reflected from the building façade. The external noise levels at the building's façades are "façade-adjusted".

Fast time-weighting

The Fast ("F") time-weighting is defined in AS 1259.1-1990. Instruments with F time weighting use a time constant of 125 milliseconds in their exponential averaging circuit.

Free-field

Noise level without any reflected sound from buildings or other hard, reflective surfaces (except for the ground plane).

Hz (Hertz)

Hertz is the standard measure of the frequency of oscillations in a wave motion. The frequency is most often measured in cycles per second (cps) or Hertz (Hz). Frequency of 1 Hz is one cycle per second.

Impulsive noise and impulsiveness adjustment

Noise having a high peak of short duration or a sequence of such peaks. Impulsive noise is present if the difference in A-weighted maximum noise levels between fast response and impulse response is greater than 2dB. Impulsiveness adjustment (penalty) of up to 5dB should be applied to the component noise level.

$L_{Aeq,T}$

"Average-energy" sound level used in situations where sound varies over time. $L_{Aeq,T}$ is the A-weighted sound pressure level that has the same energy as the fluctuating sound over the time period T sec.

$L_{A01,T}$	Measure of the maximum sound level. $L_{A01,T}$ is a statistical parameter that is the A-weighted sound pressure level that is exceeded for 1% of the measurement time T.
$L_{A10,T}$	$L_{A10,T}$ is a statistical parameter that is the A-weighted sound pressure level that is exceeded for 10% of the measurement time T. Used as a traffic noise descriptor in Queensland.
$L_{A10,18hr}$	The arithmetic average of the 18 individual $L_{A10,1hr}$ values between 6:00am and 12:00am (midnight). It is a derived descriptor which is used as a main traffic noise descriptor in the Calculation of Road Traffic Noise (CoRTN) procedure developed by the UK Department of Environment, Welsh Office, HMSO, 1988.
$L_{A90,T}$	Background sound level. $L_{A90,T}$ is a statistical parameter that is the A-weighted sound pressure level that is exceeded for 90% of the measurement time T.
Noise	Unwanted sound.
Octave bands and 1/3 octave bands	A range of frequencies whose upper frequency limit is twice that of its lower frequency limit. In acoustics, the audible spectrum (20Hz to 20kHz) is divided into 10 parts (octaves) with centre frequencies of 31.5Hz, 63Hz, 125Hz, 250Hz, 500Hz, 1kHz, 2kHz, 4kHz, 8kHz and 16kHz. For more detailed frequency analysis, octave bands are further divided into more discrete bands. For examples, 1/3 octaves bands are where each octave band is divided into three parts. IEC 61260:1995, *Electroacoustics — Octave-band and fractional-octave band filters*
Rating background level (RBL)	The overall single-figure background level representing each assessment period (e.g. standard hours, non-standard hours). The RBL is the background noise level for each work period using the tenth percentile method of measured $L_{A90,15\text{-minute}}$.
Sound power	The sound energy radiated per unit time by a sound source in all directions, measured in Watts (W).
Sound Power Level, L_w (SWL)	The sound power level in decibels (dB) is 10 times the base 10 logarithm of the ratio of the sound power in W to the reference sound power of 1×10^{-12} W (hearing threshold).
Sound pressure	The difference between the pressure caused by a sound wave and the ambient pressure of the medium the sound wave is passing through. Measured in Pascals (Pa).
Sound Pressure Level, L_p (SPL)	The sound power level in decibels (dB) is 20 times the base 10 logarithm of the ratio of the sound pressure in Pa to the reference sound pressure of 2×10^{-5} Pa (hearing threshold).
Tonal noise, tonality, and tonality adjustment	Tonal noise is characterised by one or more distinct frequency components (“tones”) that emerge audibly from the total sound. In accordance with the *NSW EPA Noise Policy for Industry* (2017), tonal noise is assessed with one-third octave band analysis using the “objective method for assessing the audibility of tones in noise – simplified method” (ISO 1996.2:2007 – Annex D). Tonal noise is penalised by the addition of up to 5dB to the component noise level.
Weighted Sound Reduction Index (R_w)	A single-number quantity which characterises the airborne sound insulation of a material or building element over a range of frequencies.

1. Introduction

1.1 Project Background

ATP Consulting Engineers (ATP) was engaged to prepare a road traffic noise assessment in support of the Reconfiguration of Lot (RoL) application for ROL4 (Precincts 101 and 102) of the proposed residential subdivision in Monarch Glen.

The extent of the proposed development pertains to a portion of the land identified as Lot 1 on SP351245 at Homestead Drive in Monarch Glen.

The following report presents the results of the detailed road traffic noise propagation modelling considering the internal trunk road between Precinct 101 and 102, which is a major internal trunk connector road within the boundaries of the development, as well as the New Beith Road located along the development site.

Traffic noise propagation modelling was carried out considering the future traffic flows of the new arterial roads for the ultimate planning horizon of year 2041.

1.2 Study Objectives

Study objectives are as follows:

- Development of a 3D traffic noise propagation model using SoundPLAN software and considering the latest development layout and civil engineering design of Precincts 101 and 102 of the Monarch Glen Estate and future traffic flows along the major arterial roads within and surrounding the development.
- Calculation of the traffic noise levels within the ultimate planning horizon (year 2041), at the facades and private open spaces of the future dwellings to be constructed within Precincts 101 and 102 of the Monarch Glen Estate.
- Recommendations for noise control measures (i.e. acoustic barriers) to ensure compliance with the relevant noise criteria as specified in the SDAP State Code 1.

1.3 Site Description

The proposed Precincts 101 and 102 of the Monarch Glen Estate is located in Monarch Glen within the local government area of Logan City Council (LCC) and the Greater Flagstone PDA, with a total area of approximately 42.27 ha.

The proposed development site will be subdivided into 574 new allotments as per the development layout presented in Appendix A.

2. Existing Noise Amenity

2.1 Site-specific Noise Measurements

Noise monitoring was carried out at the proposed development site at the Monarch Glen Estate to obtain information about the existing background noise levels.

It is important to note that, at the time the noise measurements were taken, the area was not yet developed. The noise monitoring site primarily consisted of bushland and uninhabited land. The background noise monitoring was conducted approximately 360m south of any developed land and more than 1km from any major transport noise corridor.

The background noise measurements were carried out to provide a base level of the noise amenity before Monarch Glen is developed. It is anticipated that, following the completion of the proposed development, the noise environment will no longer reflect the background noise measurements but will instead be characteristic of similar residential developments.

The noise measurement methodology is summarised in Table 2.1.

Table 2.1 Noise measurements

Relevant legislation, standards, and guidelines	The noise measurements were carried out in accordance with: • Australian Standard AS 1055-2018 (*Acoustics – Description and measurement of environmental noise*); • Australian Standard AS 2702-1984 (*Acoustics – Methods for measurement of road traffic noise*).
Measurement location	**Background noise monitoring** The noise measurements were carried out at the east boundary of the allotment (Lot 1 on SP351245). The noise measurement location is presented in Figure 2.1 and in Appendix B.
Measurement period	Continuous noise monitoring was carried out 24 hours a day from 27 April to 5 May 2024 for the overall masterplan of Monarch Glen Estate before the establishment of the development.
Measurement equipment	The noise measurements were carried out using the following equipment: • Environmental noise logger – ARL EL (Serial No. 15-203-537); and • Sound level calibrator – Rion NC 74. The noise measurement instruments conform to ASIEC61672.1-2004 and the measurements were undertaken in accordance with AS1055-1997 and AS2702-1984. Calibration was performed before and after field measurements, with a calibration drift of <0.1dB.
Meteorological conditions	The meteorological conditions during the monitoring period were mostly fine, with no inclement weather conditions. The meteorological data for the noise measurement period are presented in Appendix C.
Analysis of data	The noise measurement data was analysed to determine the following road traffic noise descriptor: • **$L_{10,18hr}$:** L_{10} is the level of noise exceeded for 10% of any time period; $L_{10,18hr}$ is the typical traffic noise descriptor, and is the arithmetic average of 18 hourly $L_{10,1hr}$ levels over consecutive hours between 6am and 12am.

Figure 2.1 Noise measurement location

2.2 Noise Measurement Results

The results of the unattended noise measurements, carried out at the subject site from 27 April to 5 May 2024 are presented in Table 2.2.

Table 2.2 Noise measurement results

Date	$L_{A10,T}$		$L_{Aeq,T}$		$L_{A90,T}$	
	18hr day 6am-12am	1hr max 6am-12am	18hr day 6am-12am	8hr night 10pm-6am	18hr day 6am-12am	8hr night 10pm-6am
27 Apr 2024 (Sat)	—	—	—	27	—	24
28 Apr 2024 (Sun)	39	46	37	27	31	24
29 Apr 2024 (Mon)	39	43	37	28	31	25
30 Apr 2024 (Tue)	38	44	37	27	30	24
1 May 2024 (Wed)	45	52	42	38	37	34
2 May 2024 (Thu)	42	49	40	36	35	32
3 May 2024 (Fri)	43	53	41	33	36	29
4 May 2024 (Sat)	39	42	37	27	32	23
5 May 2024 (Sun)	36	41	35	25	28	22
Arithmetic Average (Weekdays only)	**41**	**47**	**39**	**32**	**33**	**29**

Rainfall recorded on this day. Data measured during periods of inclement weather was disregarded in the determination of background noise levels.

Full summary of the noise measurement data, including full 1-hour measurement data is presented in Appendix D.

3. Road Traffic Noise Assessment

3.1 External Noise Criteria

The proposed residential subdivision development is located within the Greater Flagstone PDA, a priority development area designated by Economic Development Queensland (EDQ), within the local government of Logan City Council (LLC).

There are no traffic noise criteria specific to the Greater Flagstone PDA nor Logan City Council (LCC), therefore the traffic noise impact assessment should be carried out in accordance with the Department of Transport and Main Roads (TMR) *Road Traffic Noise Management: Code of Practice.*

The relevant traffic noise criteria are provided in the following documents:

- Department of State Development, Manufacturing, Infrastructure and Planning (DSDMIP), *State Development Assessment Provisions (SDAP) version 3.2 (February 2025), State code 1: Development in state-controlled road environment*; and
- Department of Transport and Main Roads (TMR), *Policy for Development on Land Affected by Environmental Emissions from Transport and Transport Infrastructure Version 4 (October 2017)*.

The applicable criteria from the TMR Policy and the SDAP are presented in Table 3.1.

Table 3.1 External noise criteria for new residential development

Transport infrastructure	Development type	Location within development	Environmental criteria
State-controlled Road	Accommodation activities[1]	All facades	≤60dB(A) $L_{10,18hr}$ facade corrected (measured $L_{90,8hr}$ free field between 10pm and 6am ≤ 40dB(A))
			≤63dB(A) $L_{10,18hr}$ facade corrected (measured $L_{90,8hr}$ free field between 10pm and 6am > 40dB(A))
		Outdoor spaces for passive recreation	≤57dB(A) $L_{10,18hr}$ free field (measured $L_{90,18hr}$ free field between 6am and 10pm ≤ 45dB(A))
			≤60dB(A) $L_{10,18hr}$ free field (measured $L_{90,18hr}$ free field between 6am and 10pm > 45dB(A))

The relevant façade adjusted[2] road traffic noise criterion for the building facades is 63dB(A)$L_{10,18hr}$[3].

The designated private open spaces (outdoor living areas) have to comply with the free-field traffic noise criterion of 60dB(A)$L_{10,18hr}$[4].

[1] Includes caretaker's accommodation, community residence, dual occupancy, dwelling house, dwelling unit, multiple dwelling, relocatable home park, residential care facility, resort complex, retirement facility, rooming accommodation, short-term accommodation, and tourist park.
[2] The façade adjusted noise criteria contains +2.5dB(A) adjustment factor for the sound energy that is result of the reflection of the sound wave from the hard surface of typical buildings. This adjustment is applicable for areas within 3m from a hard reflective vertical surface.
[3] Within the ultimate planning horizon (year 2041), as the development is established, background noise levels in the vicinity of the New Beith Road and the major arterial internal roads are expected to be greater than 40dB(A) $L_{90,8hr}$ between 10pm and 6am.
[4] Within the ultimate planning horizon (year 2041), as the development is established, background noise levels in the vicinity of the New Beith Road and the major arterial internal roads are expected to be greater than 45dB(A) $L_{90,18hr}$ between 6am and 10pm.

3.1.1 Queensland Development Code (QDC) MP4.4

In case of exceedance of the external traffic noise criteria, architectural treatment must be applied to the external façade of the future dwellings to protect the internal noise amenity.

The architectural treatments are specified in *Queensland Development Code* (QDC) *Mandatory Part 4.4 (Buildings in a Transport Noise Corridor)* (MP4.4). Depending on the calculated planning horizon road traffic noise, under the MP4.4, there are five road traffic noise categories and corresponding acceptable form of construction, as presented in Table 3.2.

Table 3.2 QDC MP4.4 noise categories

Noise category	Level of transport noise* $L_{A10,18hr}$ for State-controlled and designated local government roads
Category 4	≥ 73 dB(A)
Category 3	68 – 72 dB(A)
Category 2	63 – 67 dB(A)
Category 1	58 – 62 dB(A)
Category 0	≤ 57 dB(A)

**Measured at 1m from building façade*

QDCMP4.4 specifies acceptable forms of construction for the external walls, windows, and roof/ceiling.

The noise categories applicable to the allotments within the Monarch Glen Estate will be determined in this report.

3.2 Internal noise criteria

As an alternative to the deemed-to-comply construction specifications from QDC MP4.4, the buildings can be constructed as per the advice of a qualified acoustical engineer. At building approval stage, detailed acoustic design specifications, in accordance with AS3671-1989, can be provided for the construction of the external walls, windows and roof/ceilings.

When carrying out acoustic design as per AS3671, it is recommended to adopt the internal noise criteria specified in AS/NZS 2107:2016 as presented in Table 3.3.

Table 3.3 Internal noise criteria (dwellings)

Type of occupancy	Design sound level L_{Aeq}
Living areas	35 to 45 dB(A)
Sleeping areas	35 to 40 dB(A)

3.3 Traffic Noise Calculation Methodology

The traffic noise from the internal trunk road cutting between Precincts 101 and 102 was calculated using SoundPLAN noise propagation modelling software as per the procedure specified in the UK Department of Transport Welsh Office *Method of Calculation of Road Traffic Noise* (CoRTN'88). This is an accepted traffic noise calculation procedure applied widely in Australia[5].

The ultimate planning horizon of year 2041 was considered in the traffic noise propagation modelling. Detailed road traffic noise propagation modelling was carried out for the allotments located within both precincts (Precincts 101 and 102).

3.3.1 Modelling Assumptions (Road Traffic)

The assumptions and data used in development of the traffic noise propagation model are presented in Table 3.4.

Table 3.4 Data and assumptions – Traffic noise model

Terrain	• The model uses the finished surface levels (earthworks mode) of the proposed development prepared by Colliers (Project No. 24-0750, Rev G). • Ground surface absorption factor of 0 was applied to all paved surfaces and 1 for all grassed areas.
Development layout	• The model uses the lot boundaries presented in the development layout for the proposed subdivision made by Saunders Havill Group (11731 P27 Rev I) dated 2 April 2025. The development plans are presented in Appendix A.
Buildings	• Physical buildings at the proposed development are not included in the model as the application seeks approval for reconfiguration of lot only and no approval of building footprints are proposed.
Road traffic	• The internal trunk road and the New Beith Road was included in the modelling, with alignment determined based on road design contours provided by Colliers. • Traffic volumes, speed limits, and heavy vehicle percentage for the trunk road links were sourced from the traffic forecast report Ref:P6607.001T ROL4 by Bitzios Consulting, dated 4 September 2024 (Appendix E) • The CoRTN procedure requires traffic volume data input for 18 hours. Traffic volume for 18-hour period (6:00am to midnight) was considered as 94% of the 24-hour AADT, as per the procedure of the TMR CoP Vol. 1.
Calculation receivers	• 2m grid spacing was used for calculation of noise contour maps. • Free-field and facade-adjusted noise contour maps were generated: o Free-field: No adjustment for facade reflection. Represents the traffic noise levels that are applicable to private open spaces. o Facade-adjusted: +2.5dB(A) facade adjustment was applied to the calculated noise levels to account for noise reflection from building façades. Represents the traffic noise levels that are applicable to building façades. o Traffic noise levels were calculated at 1.5m above ground level (Ground floor private open spaces).

[5] CoRTN (Calculation of Road Traffic Noise) is a widely accepted procedure in Australia for calculation of traffic noise and it is specifically recommended in QLD TMR's Code of Practice Volume 1, Section 4.3.2, Page 29.

	• CoRTN Calibration Factors for Queensland Conditions was considered in this assessment, as per the procedure from the TMR CoP Vol. 1[6]: o Adjustment of -1.7 dB was applied to the calculated facade traffic noise levels; and o Adjustment of -0.7 dB was applied to the calculated free-field traffic noise levels.
Calculation procedure	• CoRTN '88.
Noise mitigation measures	• Traffic noise levels were calculated with the noise control measures recommended in Section 4 of this report.

3.3.2 Traffic Noise Model Planning Horizon (Year 2041)

Traffic noise calculations were carried out for an ultimate planning horizon of year 2041. Traffic volumes for the internal trunk roads were sourced from the traffic forecast report Ref:P6607.001T ROL4 by Bitzios Consulting, dated 4 September 2024.

The daily traffic volumes for 2041 are presented in Table 3.5 and in Appendix E.

Table 3.5 Traffic flow data – 2041 planning horizon

Road	2041 Traffic Flow AADT		Heavy Vehicles (%)
	From connection to New Beith Road to roundabout	From Roundabout to end of road of ROL4	
Internal Trunk Road	12,480	8,774	1.7
New Beith Road	15,711		2.4

An excerpt from the 3D SoundPLAN traffic noise model for the planning horizon (year 2041) is presented in Figure 3.1.

[6] Source: Australian Road Research Board, 1982, *An Evaluation of the UK DoE Traffic Noise Prediction* (Report No. 122, ARRB – NAASRA Planning Group). Referenced in the TMR CoP Vol. 1.

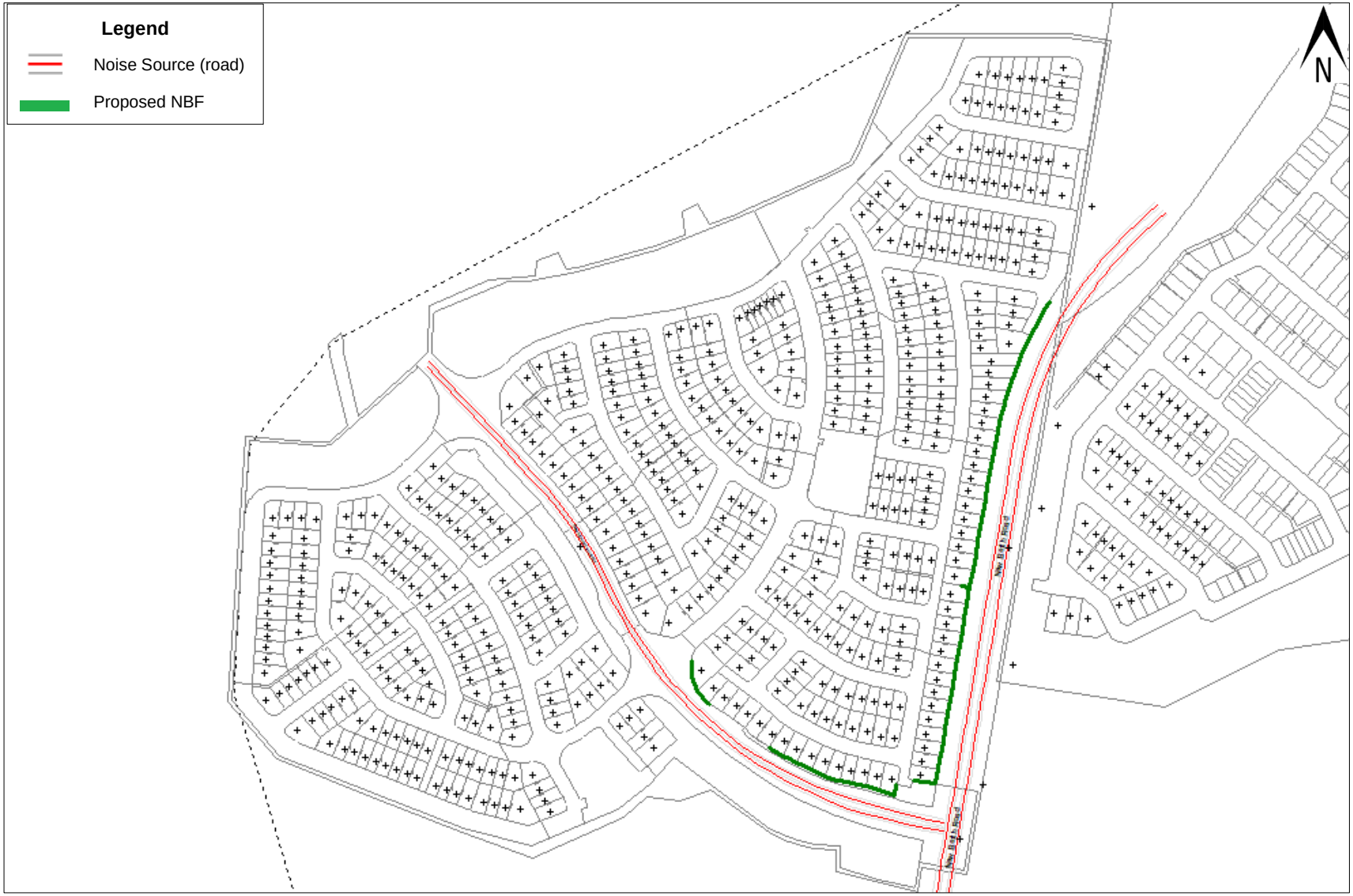


Figure 3.1 Excerpt from 3D SoundPLAN traffic noise model (year 2041)

3.4 Calculated Traffic Noise Levels

The road traffic noise levels were calculated at heights representative of the ground and upper floor façades of future dwellings, and at the representative private open spaces on the ground floors of future dwellings. The traffic noise levels were calculated considering the noise control measures recommended in Section 4 of this report.

The calculated noise levels were then assessed against the traffic noise criterion ≤60dB(A) $L_{10,18hr}$ free-field for private open spaces.

The traffic noise levels are presented as noise contour maps and are tabulated relative to compliance with the traffic noise criteria, along with the corresponding QDC MP4.4 Noise Categories applicable at the façades of future dwellings.

Summary of the results are presented in Table 3.6.

Table 3.6 Traffic noise calculation results (Year 2041)

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
Sub-Precinct 101.01					
11101	No	Category 2	No	Category 2	Yes
11102	No	Category 2	No	Category 2	Yes
11103	No	Category 2	No	Category 2	Yes
11104	No	Category 2	No	Category 2	Yes
11105	No	Category 2	No	Category 2	Yes
11106	No	Category 2	No	Category 2	Yes
11107	No	Category 2	No	Category 2	Yes
11108	No	Category 2	No	Category 2	Yes
11109	No	Category 2	No	Category 2	Yes
11110	No	Category 2	No	Category 2	Yes
11111	Yes	Category 0	Yes	Category 0	Yes
11112	Yes	Category 0	Yes	Category 0	Yes
11113	Yes	Category 0	Yes	Category 0	Yes
11114	Yes	Category 0	Yes	Category 0	Yes
11115	Yes	Category 0	Yes	Category 0	Yes
11116	Yes	Category 0	Yes	Category 0	Yes
11117	Yes	Category 0	Yes	Category 0	Yes
11118	Yes	Category 0	Yes	Category 0	Yes
11119	Yes	Category 0	Yes	Category 1	Yes
11120	Yes	Category 0	Yes	Category 1	Yes

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
11121	Yes	Category 0	Yes	Category 1	Yes
11122	Yes	Category 0	Yes	Category 1	Yes
11123	Yes	Category 0	Yes	Category 1	Yes
11124	Yes	Category 0	Yes	Category 1	Yes
11125	Yes	Category 0	Yes	Category 1	Yes
11126	Yes	Category 0	Yes	Category 0	Yes
11127	Yes	Category 0	Yes	Category 0	Yes
11128	Yes	Category 0	Yes	Category 0	Yes
11129	Yes	Category 0	Yes	Category 0	Yes
11130	Yes	Category 0	Yes	Category 0	Yes
11131	Yes	Category 0	Yes	Category 0	Yes
11132	Yes	Category 0	Yes	Category 0	Yes
11133	Yes	Category 0	Yes	Category 0	Yes
11134	Yes	Category 0	Yes	Category 0	Yes
11135	Yes	Category 0	Yes	Category 0	Yes
11136	Yes	Category 0	Yes	Category 0	Yes
11137	Yes	Category 0	Yes	Category 0	Yes
11138	Yes	Category 0	Yes	Category 0	Yes
11139	Yes	Category 0	Yes	Category 0	Yes
11140	Yes	Category 0	Yes	Category 0	Yes
11141	Yes	Category 0	Yes	Category 0	Yes
11142	Yes	Category 0	Yes	Category 0	Yes
11143	Yes	Category 0	Yes	Category 0	Yes
11144	Yes	Category 0	Yes	Category 0	Yes
11145	Yes	Category 0	Yes	Category 0	Yes
11146	Yes	Category 0	Yes	Category 0	Yes
11147	Yes	Category 0	Yes	Category 0	Yes
11148	Yes	Category 0	Yes	Category 0	Yes
11149	Yes	Category 0	Yes	Category 0	Yes
11150	Yes	Category 0	Yes	Category 0	Yes
11151	Yes	Category 0	Yes	Category 0	Yes
11152	Yes	Category 0	Yes	Category 0	Yes
11153	Yes	Category 0	Yes	Category 0	Yes
11154	Yes	Category 0	Yes	Category 0	Yes

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
Sub-Precinct 101.02					
11201	Yes				
11202	Yes	Category 0	Yes	Category 0	Yes
11203	Yes	Category 0	Yes	Category 0	Yes
11204	Yes	Category 0	Yes	Category 0	Yes
11205	Yes	Category 0	Yes	Category 0	Yes
11206	Yes	Category 0	Yes	Category 0	Yes
11207	Yes	Category 0	Yes	Category 0	Yes
11208	Yes	Category 0	Yes	Category 0	Yes
11209	Yes	Category 0	Yes	Category 0	Yes
11210	Yes	Category 0	Yes	Category 0	Yes
11211	Yes	Category 0	Yes	Category 0	Yes
11212	Yes	Category 0	Yes	Category 0	Yes
11213	Yes	Category 0	Yes	Category 0	Yes
11214	Yes	Category 0	Yes	Category 0	Yes
11215	Yes	Category 0	Yes	Category 0	Yes
11216	Yes	Category 1	Yes	Category 1	Yes
11217	Yes	Category 1	Yes	Category 1	Yes
11218	Yes	Category 1	Yes	Category 1	Yes
11219	Yes	Category 1	Yes	Category 1	Yes
11220	Yes	Category 1	Yes	Category 1	Yes
11221	Yes	Category 1	Yes	Category 1	Yes
11222	Yes	Category 1	Yes	Category 1	Yes
11223	Yes	Category 1	Yes	Category 1	Yes
11224	Yes	Category 0	Yes	Category 0	Yes
11225	Yes	Category 0	Yes	Category 0	Yes
11226	Yes	Category 0	Yes	Category 0	Yes
11227	Yes	Category 0	Yes	Category 0	Yes
11228	Yes	Category 0	Yes	Category 0	Yes
11229	Yes	Category 0	Yes	Category 0	Yes
11230	Yes	Category 0	Yes	Category 0	Yes
11231	Yes	Category 0	Yes	Category 0	Yes
11232	Yes	Category 0	Yes	Category 0	Yes
11233	Yes	Category 0	Yes	Category 0	Yes

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
11234	Yes	Category 0	Yes	Category 0	Yes
11235	Yes	Category 0	Yes	Category 0	Yes
11236	Yes	Category 0	Yes	Category 0	Yes
11237	Yes	Category 0	Yes	Category 0	Yes
11238	Yes	Category 0	Yes	Category 0	Yes
11239	Yes	Category 1	Yes	Category 1	Yes
11240	No	Category 2	No	Category 2	Yes
11241	No	Category 2	No	Category 2	Yes
11242	No	Category 2	No	Category 2	Yes
11243	No	Category 2	No	Category 2	Yes
11244	No	Category 2	No	Category 2	Yes
11245	No	Category 2	No	Category 2	Yes
11246	No	Category 2	No	Category 2	Yes
11247	No	Category 2	No	Category 2	Yes
11248	No	Category 2	No	Category 2	Yes
11249	Yes	Category 0	Yes	Category 0	Yes
11250	Yes	Category 0	Yes	Category 0	Yes
11251	Yes	Category 0	Yes	Category 0	Yes
11252	Yes	Category 0	Yes	Category 0	Yes
11253	Yes	Category 0	Yes	Category 0	Yes
11254	Yes	Category 0	Yes	Category 0	Yes
11255	Yes	Category 0	Yes	Category 0	Yes
11256	Yes	Category 0	Yes	Category 0	Yes
11257	Yes	Category 0	Yes	Category 0	Yes
11258	Yes	Category 0	Yes	Category 1	Yes
Sub-Precinct 101.03					
11301	Yes	Category 0	Yes	Category 0	Yes
11302	Yes	Category 0	Yes	Category 0	Yes
11303	Yes	Category 0	Yes	Category 0	Yes
11304	Yes	Category 0	Yes	Category 1	Yes
11305	Yes	Category 1	No	Category 2	Yes
11306	Yes	Category 1	No	Category 2	Yes
11307	Yes	Category 1	No	Category 2	Yes
11308	Yes	Category 1	No	Category 2	Yes

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
11309	Yes	Category 1	No	Category 2	Yes
11310	Yes	Category 1	No	Category 2	Yes
11311	Yes	Category 1	No	Category 2	Yes
11312	Yes	Category 1	No	Category 2	Yes
11313	Yes	Category 1	No	Category 2	Yes
11314	Yes	Category 1	No	Category 2	Yes
11315	Yes	Category 1	No	Category 2	Yes
11316	Yes	Category 1	No	Category 2	Yes
11317	Yes	Category 1	No	Category 2	Yes
11318	Yes	Category 1	No	Category 2	Yes
11319	Yes	Category 1	No	Category 2	Yes
11320	Yes	Category 1	No	Category 2	Yes
11321	Yes	Category 0	Yes	Category 1	Yes
11322	Yes	Category 0	Yes	Category 1	Yes
11323	Yes	Category 0	Yes	Category 1	Yes
11324	Yes	Category 0	Yes	Category 0	Yes
11325	Yes	Category 0	Yes	Category 0	Yes
11326	Yes	Category 0	Yes	Category 0	Yes
11327	Yes	Category 0	Yes	Category 0	Yes
11328	Yes	Category 0	Yes	Category 0	Yes
11329	Yes	Category 0	Yes	Category 0	Yes
11330	Yes	Category 0	Yes	Category 0	Yes
11331	Yes	Category 0	Yes	Category 0	Yes
11332	Yes	Category 0	Yes	Category 0	Yes
11333	Yes	Category 0	Yes	Category 0	Yes
11334	Yes	Category 0	Yes	Category 0	Yes
11335	Yes	Category 0	Yes	Category 0	Yes
11336	Yes	Category 0	Yes	Category 0	Yes
11337	Yes	Category 0	Yes	Category 0	Yes
11338	Yes	Category 0	Yes	Category 0	Yes
11339	Yes	Category 0	Yes	Category 1	Yes
11340	Yes	Category 1	No	Category 2	Yes
11341	Yes	Category 1	No	Category 2	Yes
11342	Yes	Category 1	No	Category 2	Yes

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
11343	Yes	Category 1	No	Category 2	Yes
11344	Yes	Category 1	No	Category 2	Yes
11345	Yes	Category 1	No	Category 2	Yes
11346	Yes	Category 1	No	Category 2	Yes
11347	Yes	Category 1	No	Category 2	Yes
11348	Yes	Category 1	No	Category 2	Yes
11349	Yes	Category 0	Yes	Category 1	Yes
11350	Yes	Category 0	Yes	Category 1	Yes
11351	Yes	Category 0	Yes	Category 0	Yes
11352	Yes	Category 0	Yes	Category 0	Yes
11353	Yes	Category 0	Yes	Category 0	Yes
11354	Yes	Category 0	Yes	Category 0	Yes
11355	Yes	Category 0	Yes	Category 0	Yes
11356	Yes	Category 0	Yes	Category 0	Yes
11357	Yes	Category 0	Yes	Category 0	Yes
11358	Yes	Category 0	Yes	Category 0	Yes
11359	Yes	Category 0	Yes	Category 0	Yes
Sub-Precinct 101.04					
11401	Yes	Category 0	Yes	Category 0	Yes
11402	Yes	Category 0	Yes	Category 0	Yes
11403	Yes	Category 0	Yes	Category 0	Yes
11404	Yes	Category 0	Yes	Category 0	Yes
11405	Yes	Category 0	Yes	Category 0	Yes
11406	Yes	Category 0	Yes	Category 0	Yes
11407	Yes	Category 0	Yes	Category 0	Yes
11408	Yes	Category 0	Yes	Category 0	Yes
11409	Yes	Category 0	Yes	Category 1	Yes
11410	Yes	Category 0	Yes	Category 1	Yes
11411	Yes	Category 0	Yes	Category 1	Yes
11412	Yes	Category 0	Yes	Category 1	Yes
11413	Yes	Category 0	Yes	Category 0	Yes
11414	Yes	Category 0	Yes	Category 0	Yes
11415	Yes	Category 0	Yes	Category 0	Yes
11416	Yes	Category 0	Yes	Category 0	Yes

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
11417	Yes	Category 0	Yes	Category 0	Yes
11418	Yes	Category 0	Yes	Category 0	Yes
11419	Yes	Category 0	Yes	Category 0	Yes
11420	Yes	Category 0	Yes	Category 0	Yes
11421	Yes	Category 0	Yes	Category 0	Yes
11422	Yes	Category 0	Yes	Category 1	Yes
11423	Yes	Category 1	No	Category 2	Yes
11424	Yes	Category 1	No	Category 2	Yes
11425	Yes	Category 1	No	Category 2	Yes
11426	Yes	Category 1	No	Category 2	Yes
11427	Yes	Category 1	No	Category 2	Yes
11428	Yes	Category 1	No	Category 2	Yes
11429	Yes	Category 1	No	Category 2	Yes
11430	Yes	Category 1	No	Category 2	Yes
11431	Yes	Category 1	No	Category 2	Yes
11432	Yes	Category 1	No	Category 2	Yes
11433	Yes	Category 1	No	Category 2	Yes
11434	Yes	Category 1	No	Category 2	Yes
11435	Yes	Category 1	No	Category 2	Yes
11436	Yes	Category 1	No	Category 2	Yes
11437	Yes	Category 1	No	Category 2	Yes
11438	Yes	Category 0	Yes	Category 0	Yes
11439	Yes	Category 0	Yes	Category 0	Yes
11440	Yes	Category 0	Yes	Category 0	Yes
11441	Yes	Category 0	Yes	Category 0	Yes
11442	Yes	Category 0	Yes	Category 1	Yes
11443	Yes	Category 0	Yes	Category 1	Yes
11444	Yes	Category 0	Yes	Category 1	Yes
11445	Yes	Category 0	Yes	Category 1	Yes
11446	Yes	Category 0	Yes	Category 1	Yes
11447	Yes	Category 0	Yes	Category 0	Yes
11448	Yes	Category 0	Yes	Category 0	Yes
11449	Yes	Category 0	Yes	Category 0	Yes
11450	Yes	Category 0	Yes	Category 0	Yes

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
11451	Yes	Category 0	Yes	Category 0	Yes
11452	Yes	Category 0	Yes	Category 1	Yes
Sub-Precinct 101.05					
11501	Yes	Category 0	Yes	Category 0	Yes
11502	Yes	Category 0	Yes	Category 0	Yes
11503	Yes	Category 0	Yes	Category 0	Yes
11504	Yes	Category 0	Yes	Category 0	Yes
11505	Yes	Category 0	Yes	Category 0	Yes
11506	Yes	Category 0	Yes	Category 0	Yes
11507	Yes	Category 0	Yes	Category 0	Yes
11508	Yes	Category 0	Yes	Category 0	Yes
11509	Yes	Category 0	Yes	Category 0	Yes
11510	Yes	Category 0	Yes	Category 0	Yes
11511	Yes	Category 0	Yes	Category 0	Yes
11512	Yes	Category 0	Yes	Category 0	Yes
11513	Yes	Category 0	Yes	Category 0	Yes
11514	Yes	Category 0	Yes	Category 0	Yes
11515	Yes	Category 0	Yes	Category 0	Yes
11516	Yes	Category 0	Yes	Category 0	Yes
11517	Yes	Category 0	Yes	Category 0	Yes
11518	Yes	Category 0	Yes	Category 0	Yes
11519	Yes	Category 0	Yes	Category 0	Yes
11520	Yes	Category 0	Yes	Category 0	Yes
11521	Yes	Category 0	Yes	Category 0	Yes
11522	Yes	Category 0	Yes	Category 0	Yes
11523	Yes	Category 0	Yes	Category 0	Yes
11524	Yes	Category 0	Yes	Category 0	Yes
11525	Yes	Category 0	Yes	Category 0	Yes
11526	Yes	Category 0	Yes	Category 0	Yes
11527	Yes	Category 0	Yes	Category 0	Yes
11528	Yes	Category 0	Yes	Category 0	Yes
11529	Yes	Category 0	Yes	Category 0	Yes
11530	Yes	Category 0	Yes	Category 0	Yes
11531	Yes	Category 0	Yes	Category 0	Yes

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
11532	Yes	Category 0	Yes	Category 0	Yes
11533	Yes	Category 0	Yes	Category 0	Yes
11534	Yes	Category 0	Yes	Category 0	Yes
11535	Yes	Category 0	Yes	Category 0	Yes
11536	Yes	Category 0	Yes	Category 0	Yes
11537	Yes	Category 0	Yes	Category 0	Yes
11538	Yes	Category 0	Yes	Category 0	Yes
11539	Yes	Category 0	Yes	Category 0	Yes
11540	Yes	Category 0	Yes	Category 0	Yes
11541	Yes	Category 0	Yes	Category 0	Yes
11542	Yes	Category 0	Yes	Category 0	Yes
11543	Yes	Category 0	Yes	Category 0	Yes
11544	Yes	Category 0	Yes	Category 0	Yes
11545	Yes	Category 0	Yes	Category 0	Yes
11546	Yes	Category 0	Yes	Category 0	Yes
11547	Yes	Category 0	Yes	Category 0	Yes
11548	Yes	Category 0	Yes	Category 0	Yes
11549	Yes	Category 0	Yes	Category 0	Yes
11550	Yes	Category 0	Yes	Category 0	Yes
11551	Yes	Category 0	Yes	Category 0	Yes
11552	Yes	Category 0	Yes	Category 0	Yes
11553	Yes	Category 0	Yes	Category 0	Yes
11554	Yes	Category 0	Yes	Category 0	Yes
11555	Yes	Category 0	Yes	Category 0	Yes
11556	Yes	Category 0	Yes	Category 0	Yes
11557	Yes	Category 0	Yes	Category 0	Yes
11558	Yes	Category 0	Yes	Category 0	Yes
Sub-Precinct 101.06					
11601	Yes	Category 0	Yes	Category 0	Yes
11602	Yes	Category 0	Yes	Category 0	Yes
11603	Yes	Category 0	Yes	Category 0	Yes
11604	Yes	Category 0	Yes	Category 0	Yes
11605	Yes	Category 0	Yes	Category 0	Yes
11606	Yes	Category 0	Yes	Category 0	Yes

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
11607	Yes	Category 0	Yes	Category 0	Yes
11608	Yes	Category 0	Yes	Category 0	Yes
11609	Yes	Category 0	Yes	Category 0	Yes
11610	Yes	Category 0	Yes	Category 0	Yes
11611	Yes	Category 0	Yes	Category 0	Yes
11612	Yes	Category 0	Yes	Category 1	Yes
11613	Yes	Category 1	Yes	Category 1	Yes
11614	Yes	Category 1	Yes	Category 1	Yes
11615	Yes	Category 1	Yes	Category 1	Yes
11616	Yes	Category 0	Yes	Category 0	Yes
11617	Yes	Category 0	Yes	Category 0	Yes
11618	Yes	Category 0	Yes	Category 0	Yes
11619	Yes	Category 0	Yes	Category 0	Yes
11620	Yes	Category 0	Yes	Category 0	Yes
11621	Yes	Category 0	Yes	Category 0	Yes
11622	Yes	Category 0	Yes	Category 0	Yes
11623	Yes	Category 0	Yes	Category 0	Yes
11624	Yes	Category 0	Yes	Category 0	Yes
11625	Yes	Category 0	Yes	Category 0	Yes
11626	Yes	Category 0	Yes	Category 0	Yes
11627	Yes	Category 0	Yes	Category 0	Yes
11628	Yes	Category 0	Yes	Category 0	Yes
11629	Yes	Category 0	Yes	Category 0	Yes
11630	Yes	Category 0	Yes	Category 0	Yes
11631	Yes	Category 0	Yes	Category 0	Yes
11632	Yes	Category 0	Yes	Category 0	Yes
11633	Yes	Category 0	Yes	Category 0	Yes
11634	Yes	Category 0	Yes	Category 0	Yes
11635	Yes	Category 0	Yes	Category 0	Yes
11636	Yes	Category 0	Yes	Category 0	Yes
11637	Yes	Category 0	Yes	Category 0	Yes
11638	Yes	Category 0	Yes	Category 1	Yes
11639	Yes	Category 0	Yes	Category 0	Yes
11640	Yes	Category 0	Yes	Category 0	Yes

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
11641	Yes	Category 0	Yes	Category 0	Yes
11642	Yes	Category 0	Yes	Category 0	Yes
11643	Yes	Category 0	Yes	Category 0	Yes
11644	Yes	Category 0	Yes	Category 0	Yes
11645	Yes	Category 0	Yes	Category 0	Yes
11646	Yes	Category 0	Yes	Category 0	Yes
11647	Yes	Category 0	Yes	Category 0	Yes
11648	Yes	Category 0	Yes	Category 0	Yes
11649	Yes	Category 0	Yes	Category 0	Yes
11650	Yes	Category 0	Yes	Category 0	Yes
11651	Yes	Category 0	Yes	Category 0	Yes
11652	Yes	Category 0	Yes	Category 0	Yes
11653	Yes	Category 0	Yes	Category 0	Yes
11654	Yes	Category 0	Yes	Category 0	Yes
11655	Yes	Category 0	Yes	Category 0	Yes
11656	Yes	Category 0	Yes	Category 0	Yes
Sub-Precinct 101.07					
11701	Yes	Category 1	Yes	Category 1	Yes
11702	Yes	Category 1	No	Category 2	Yes
11703	Yes	Category 0	Yes	Category 1	Yes
11704	Yes	Category 0	Yes	Category 0	Yes
11705	Yes	Category 0	Yes	Category 0	Yes
11706	Yes	Category 0	Yes	Category 0	Yes
11707	Yes	Category 0	Yes	Category 0	Yes
11708	Yes	Category 0	Yes	Category 0	Yes
11709	Yes	Category 0	Yes	Category 0	Yes
11710	Yes	Category 0	Yes	Category 0	Yes
11711	Yes	Category 1	No	Category 2	Yes
11712	Yes	Category 1	No	Category 2	Yes
11713	Yes	Category 1	No	Category 2	Yes
11714	Yes	Category 1	No	Category 2	Yes
11715	Yes	Category 0	Yes	Category 0	Yes
11716	Yes	Category 0	Yes	Category 1	Yes
11717	Yes	Category 0	Yes	Category 1	Yes

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
11718	Yes	Category 0	Yes	Category 1	Yes
11719	Yes	Category 0	Yes	Category 1	Yes
11720	Yes	Category 1	No	Category 2	Yes
11721	Yes	Category 1	No	Category 2	Yes
11722	Yes	Category 1	No	Category 2	Yes
11723	Yes	Category 1	No	Category 2	Yes
11724	Yes	Category 1	No	Category 2	Yes
11725	Yes	Category 1	No	Category 2	Yes
11726	Yes	Category 1	No	Category 2	Yes
11727	Yes	Category 0	Yes	Category 1	Yes
11728	Yes	Category 0	Yes	Category 1	Yes
11729	Yes	Category 0	Yes	Category 1	Yes
11730	Yes	Category 0	Yes	Category 1	Yes
11731	Yes	Category 0	Yes	Category 0	Yes
11732	Yes	Category 0	Yes	Category 0	Yes
11733	Yes	Category 0	Yes	Category 0	Yes
11734	Yes	Category 0	Yes	Category 0	Yes
11735	Yes	Category 0	Yes	Category 0	Yes
11736	Yes	Category 0	Yes	Category 0	Yes
11737	Yes	Category 0	Yes	Category 0	Yes
11738	Yes	Category 0	Yes	Category 0	Yes
11739	Yes	Category 0	Yes	Category 0	Yes
11740	Yes	Category 0	Yes	Category 0	Yes
11741	Yes	Category 0	Yes	Category 0	Yes
11742	Yes	Category 0	Yes	Category 0	Yes
11743	Yes	Category 0	Yes	Category 0	Yes
11744	Yes	Category 0	Yes	Category 0	Yes
11745	Yes	Category 0	Yes	Category 0	Yes
11746	Yes	Category 0	Yes	Category 0	Yes
11747	Yes	Category 0	Yes	Category 0	Yes
11748	Yes	Category 0	Yes	Category 0	Yes
11749	Yes	Category 0	Yes	Category 0	Yes
11750	Yes	Category 0	Yes	Category 0	Yes
11751	Yes	Category 0	Yes	Category 0	Yes

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
11752	Yes	Category 0	Yes	Category 0	Yes
11753	Yes	Category 0	Yes	Category 0	Yes
11754	Yes	Category 0	Yes	Category 0	Yes
11755	Yes	Category 0	Yes	Category 0	Yes
11756	Yes	Category 0	Yes	Category 0	Yes
Sub-Precinct 102.01					
12101	Yes	Category 1	No	Category 2	Yes
12102	Yes	Category 1	Yes	Category 1	Yes
12103	Yes	Category 0	Yes	Category 1	Yes
12104	Yes	Category 1	No	Category 2	Yes
12105	Yes	Category 1	No	Category 2	Yes
12106	Yes	Category 1	No	Category 2	Yes
12107	Yes	Category 1	Yes	Category 1	Yes
12108	Yes	Category 0	Yes	Category 1	Yes
12109	Yes	Category 0	Yes	Category 0	Yes
12110	Yes	Category 0	Yes	Category 0	Yes
12111	Yes	Category 0	Yes	Category 0	Yes
12112	Yes	Category 0	Yes	Category 0	Yes
12113	Yes	Category 0	Yes	Category 0	Yes
12114	Yes	Category 0	Yes	Category 0	Yes
12115	Yes	Category 0	Yes	Category 1	Yes
12116	Yes	Category 1	No	Category 2	Yes
12117	Yes	Category 1	Yes	Category 1	Yes
12118	Yes	Category 1	Yes	Category 1	Yes
12119	Yes	Category 1	Yes	Category 1	Yes
12120	Yes	Category 1	Yes	Category 1	Yes
12121	Yes	Category 1	Yes	Category 1	Yes
12122	Yes	Category 1	Yes	Category 1	Yes
12123	Yes	Category 1	Yes	Category 1	Yes
12124	Yes	Category 1	Yes	Category 1	Yes
12125	Yes	Category 1	Yes	Category 0	Yes
12126	Yes	Category 0	Yes	Category 0	Yes
12127	Yes	Category 0	Yes	Category 0	Yes
12128	Yes	Category 0	Yes	Category 0	Yes

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
12129	Yes	Category 0	Yes	Category 0	Yes
12130	Yes	Category 0	Yes	Category 0	Yes
12131	Yes	Category 0	Yes	Category 0	Yes
12132	Yes	Category 0	Yes	Category 0	Yes
12133	Yes	Category 0	Yes	Category 0	Yes
12134	Yes	Category 0	Yes	Category 0	Yes
12135	Yes	Category 0	Yes	Category 0	Yes
12136	Yes	Category 0	Yes	Category 0	Yes
12137	Yes	Category 0	Yes	Category 0	Yes
12138	Yes	Category 0	Yes	Category 0	Yes
12139	Yes	Category 0	Yes	Category 0	Yes
12140	Yes	Category 0	Yes	Category 0	Yes
12141	Yes	Category 0	Yes	Category 0	Yes
12142	Yes	Category 0	Yes	Category 0	Yes
12143	Yes	Category 0	Yes	Category 0	Yes
12144	Yes	Category 0	Yes	Category 0	Yes
12145	Yes	Category 0	Yes	Category 0	Yes
12146	Yes	Category 0	Yes	Category 0	Yes
12147	Yes	Category 0	Yes	Category 0	Yes
12148	Yes	Category 0	Yes	Category 0	Yes
12149	Yes	Category 0	Yes	Category 0	Yes
Sub-Precinct 102.02					
12201	Yes	Category 0	Yes	Category 0	Yes
12202	Yes	Category 0	Yes	Category 0	Yes
12203	Yes	Category 0	Yes	Category 0	Yes
12204	Yes	Category 0	Yes	Category 0	Yes
12205	Yes	Category 0	Yes	Category 0	Yes
12206	Yes	Category 0	Yes	Category 0	Yes
12207	Yes	Category 0	Yes	Category 0	Yes
12208	Yes	Category 0	Yes	Category 0	Yes
12209	Yes	Category 0	Yes	Category 0	Yes
12210	Yes	Category 0	Yes	Category 0	Yes
12211	Yes	Category 0	Yes	Category 0	Yes
12212	Yes	Category 0	Yes	Category 0	Yes

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
12213	Yes	Category 0	Yes	Category 0	Yes
12214	Yes	Category 0	Yes	Category 0	Yes
12215	Yes	Category 0	Yes	Category 0	Yes
12216	Yes	Category 0	Yes	Category 0	Yes
12217	Yes	Category 0	Yes	Category 0	Yes
12218	Yes	Category 0	Yes	Category 0	Yes
12219	Yes	Category 0	Yes	Category 0	Yes
12220	Yes	Category 0	Yes	Category 0	Yes
12221	Yes	Category 0	Yes	Category 0	Yes
12222	Yes	Category 0	Yes	Category 0	Yes
12223	Yes	Category 0	Yes	Category 0	Yes
12224	Yes	Category 0	Yes	Category 0	Yes
12225	Yes	Category 0	Yes	Category 0	Yes
12226	Yes	Category 0	Yes	Category 0	Yes
12227	Yes	Category 0	Yes	Category 0	Yes
12228	Yes	Category 0	Yes	Category 0	Yes
12229	Yes	Category 0	Yes	Category 0	Yes
12230	Yes	Category 0	Yes	Category 0	Yes
12231	Yes	Category 0	Yes	Category 0	Yes
12232	Yes	Category 0	Yes	Category 0	Yes
12233	Yes	Category 0	Yes	Category 0	Yes
12234	Yes	Category 0	Yes	Category 0	Yes
12235	Yes	Category 0	Yes	Category 0	Yes
12236	Yes	Category 0	Yes	Category 0	Yes
12237	Yes	Category 0	Yes	Category 0	Yes
12238	Yes	Category 0	Yes	Category 0	Yes
12239	Yes	Category 0	Yes	Category 0	Yes
12240	Yes	Category 0	Yes	Category 0	Yes
12241	Yes	Category 0	Yes	Category 0	Yes
12242	Yes	Category 0	Yes	Category 0	Yes
12243	Yes	Category 0	Yes	Category 0	Yes
12244	Yes	Category 0	Yes	Category 0	Yes
12245	Yes	Category 0	Yes	Category 0	Yes
12246	Yes	Category 0	Yes	Category 0	Yes

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
12247	Yes	Category 0	Yes	Category 0	Yes
12248	Yes	Category 0	Yes	Category 0	Yes
12249	Yes	Category 0	Yes	Category 0	Yes
12250	Yes	Category 0	Yes	Category 0	Yes
12251	Yes	Category 0	Yes	Category 0	Yes
12252	Yes	Category 0	Yes	Category 0	Yes
12253	Yes	Category 0	Yes	Category 0	Yes
12253A	Yes	Category 0	Yes	Category 0	Yes
12254	Yes	Category 0	Yes	Category 0	Yes
12255	Yes	Category 0	Yes	Category 0	Yes
12256	Yes	Category 0	Yes	Category 0	Yes
12257	Yes	Category 0	Yes	Category 0	Yes
12258	Yes	Category 0	Yes	Category 0	Yes
12259	Yes	Category 0	Yes	Category 0	Yes
12260	Yes	Category 0	Yes	Category 0	Yes
12261	Yes	Category 0	Yes	Category 0	Yes
12262	Yes	Category 0	Yes	Category 0	Yes
12263	Yes	Category 0	Yes	Category 0	Yes
12264	Yes	Category 0	Yes	Category 0	Yes
12265	Yes	Category 0	Yes	Category 0	Yes
12266	Yes	Category 0	Yes	Category 0	Yes
12267	Yes	Category 0	Yes	Category 0	Yes
12301	Yes	Category 0	Yes	Category 0	Yes
Sub-Precinct 102.03					
12302	Yes	Category 0	Yes	Category 0	Yes
12303	Yes	Category 0	Yes	Category 0	Yes
12304	Yes	Category 0	Yes	Category 0	Yes
12305	Yes	Category 0	Yes	Category 0	Yes
12306	Yes	Category 0	Yes	Category 0	Yes
12307	Yes	Category 0	Yes	Category 0	Yes
12308	Yes	Category 0	Yes	Category 0	Yes
12309	Yes	Category 0	Yes	Category 0	Yes
12310	Yes	Category 0	Yes	Category 0	Yes
12311	Yes	Category 0	Yes	Category 0	Yes

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
12312	Yes	Category 0	Yes	Category 0	Yes
12313	Yes	Category 0	Yes	Category 0	Yes
12314	Yes	Category 0	Yes	Category 0	Yes
12315	Yes	Category 0	Yes	Category 0	Yes
12316	Yes	Category 0	Yes	Category 0	Yes
12317	Yes	Category 0	Yes	Category 0	Yes
12318	Yes	Category 0	Yes	Category 0	Yes
12319	Yes	Category 0	Yes	Category 0	Yes
12320	Yes	Category 0	Yes	Category 0	Yes
12321	Yes	Category 0	Yes	Category 0	Yes
12322	Yes	Category 0	Yes	Category 0	Yes
12323	Yes	Category 0	Yes	Category 0	Yes
12324	Yes	Category 0	Yes	Category 0	Yes
12325	Yes	Category 0	Yes	Category 0	Yes
12326	Yes	Category 0	Yes	Category 0	Yes
12327	Yes	Category 0	Yes	Category 0	Yes
12328	Yes	Category 0	Yes	Category 0	Yes
12329	Yes	Category 0	Yes	Category 0	Yes
12330	Yes	Category 0	Yes	Category 0	Yes
12331	Yes	Category 0	Yes	Category 0	Yes
12332	Yes	Category 0	Yes	Category 0	Yes
12333	Yes	Category 0	Yes	Category 0	Yes
12334	Yes	Category 0	Yes	Category 0	Yes
12335	Yes	Category 0	Yes	Category 0	Yes
12336	Yes	Category 0	Yes	Category 0	Yes
12337	Yes	Category 0	Yes	Category 0	Yes
12338	Yes	Category 0	Yes	Category 0	Yes
12339	Yes	Category 0	Yes	Category 0	Yes
12340	Yes	Category 0	Yes	Category 0	Yes
12341	Yes	Category 0	Yes	Category 0	Yes
12342	Yes	Category 0	Yes	Category 0	Yes
12343	Yes	Category 0	Yes	Category 0	Yes
12344	Yes	Category 0	Yes	Category 0	Yes
12345	Yes	Category 0	Yes	Category 0	Yes

Lot no.	Building façades (facade-adjusted)				Private open spaces (free-field) (1.5m AGL)
	Ground floor (1.8m AGL)		Upper floor (4.6m AGL)		
	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤63dB(A) criterion	Noise Category QDC MP4.4	Compliance with ≤60dB(A) criterion
12346	Yes	Category 0	Yes	Category 0	Yes
12347	Yes	Category 0	Yes	Category 0	Yes
12348	Yes	Category 0	Yes	Category 0	Yes
12349	Yes	Category 0	Yes	Category 0	Yes
12350	Yes	Category 0	Yes	Category 0	Yes
12351	Yes	Category 0	Yes	Category 0	Yes
12352	Yes	Category 0	Yes	Category 0	Yes
12353	Yes	Category 0	Yes	Category 0	Yes
12354	Yes	Category 0	Yes	Category 0	Yes
12355	Yes	Category 0	Yes	Category 0	Yes
12356	Yes	Category 0	Yes	Category 0	Yes
12357	Yes	Category 0	Yes	Category 0	Yes
12358	Yes	Category 0	Yes	Category 1	Yes
12359	Yes	Category 0	Yes	Category 0	Yes
12360	Yes	Category 0	Yes	Category 1	Yes
12361	Yes	Category 0	Yes	Category 1	Yes
12362	Yes	Category 0	Yes	Category 1	Yes
12363	Yes	Category 0	Yes	Category 1	Yes
12364	Yes	Category 0	Yes	Category 1	Yes
12365	Yes	Category 0	Yes	Category 1	Yes

4. Discussions and Recommendations

Traffic noise propagation modelling was carried out considering the future traffic flows on the internal trunk road and the New Beith Road for the ultimate planning horizon (year 2041). The results of the noise propagation modelling indicate that, without noise mitigation measures, the proposed development site will be impacted by traffic noise from the internal trunk road and the New Beith Road.

Under PO38 of the SDAP State Code 1, compliance with the façade and private open space criteria is required at the ground level site boundaries of all allotments within the proposed development.

4.1 Noise Mitigation Measures

4.1.1 Noise Barrier Fence

ATP recommends construction of three (3) noise barrier fences (acoustic fences) to mitigate the road traffic noise from the internal trunk road and New Beith Road:

- 1.8m high noise barrier fence (NBF 1) along the southern boundaries of Lots 11312 to 11320, on top of the proposed retaining wall;
- 1.8m high noise barrier fence (NBF 2) along the eastern boundary of the estate, from Lots 11340 to 11348, Lots 11423 to 11437, Lots 11711 to 11714 and Lots 11720 to 11726, with returns along the southern boundary of Lot 11340 and the northern boundary of Lot 11427; and
- 1.8m high noise barrier fence (NBF 3) along the southern boundary of Lots 11305 to 11307, on top of the proposed retaining wall.

The design of the noise barrier fence should be subject to detailed design by structural and civil engineer.

The RLs at the base and top of the proposed noise barriers are presented in Table 4.1.

Table 4.1 Noise barrier RLs

x, m (Easting)	y, m (Northing)	Lot no.	RL, m Centre of lot	RL, m Base of noise barrier	Height of noise barrier, m	RL, m Top of noise barrier
NBF 1						
493131.1	6924137	11320	78.66	78.66	1.8	80.46
493129.3	6924127	11320	78.66	78.66	1.8	80.46
493113.1	6924132	11319	78.78	79.05	1.8	80.85
493099.5	6924136	11318	79.27	79.77	1.8	81.57
493085.9	6924139	11317	79.75	80.5	1.8	82.3
493072.2	6924142	11316	80.16	81.18	1.8	82.98
493067.8	6924142	11316	80.16	81.39	1.8	83.19

x, m (Easting)	y, m (Northing)	Lot no.	RL, m Centre of lot	RL, m Base of noise barrier	Height of noise barrier, m	RL, m Top of noise barrier
493057	6924147	11315	80.55	81.86	1.8	83.66
493042.3	6924153	11314	80.94	82.42	1.8	84.22
493034.7	6924157	11314	80.16	82.68	1.8	84.48
493027.5	6924160	11313	81.53	82.9	1.8	84.7
493020.1	6924164	11313	81.53	83.11	1.8	84.91
493012.9	6924168	11312	81.65	83.28	1.8	85.08
492999	6924176	11312	81.65	83.55	1.8	85.35
NBF 2						
493289.6	6924639.7	11714	61.09	62.73	1.8	64.53
493284.3	6924630.6	11713	62.41	63.17	1.8	64.97
493276.7	6924616.8	11712	63.46	63.84	1.8	65.64
493270.0	6924603.5	11711	64.28	64.46	1.8	66.26
493269.4	6924602.2	11711	64.28	64.52	1.8	66.32
493262.3	6924586.7	11711	64.28	65.24	1.8	67.04
493261.5	6924584.9	11720	65.15	65.32	1.8	67.12
493257.0	6924573.8	11720	65.15	65.83	1.8	67.63
493256.2	6924571.9	11721	65.85	65.91	1.8	67.71
493252.0	6924560.7	11721	65.85	66.42	1.8	68.22
493251.3	6924558.8	11722	66.55	66.51	1.8	68.31
493247.5	6924547.4	11722	66.55	67.01	1.8	68.81
493246.9	6924545.5	11723	67.19	67.09	1.8	68.89
493243.4	6924534.1	11723	67.19	67.60	1.8	69.40
493242.8	6924532.1	11724	67.79	67.68	1.8	69.48
493239.2	6924518.6	11724	67.79	68.27	1.8	70.07
493239.0	6924517.6	11725	68.39	68.32	1.8	70.12
493236.0	6924505.0	11725	68.39	68.86	1.8	70.66
493235.8	6924504.0	11726	69.06	68.91	1.8	70.71
493232.9	6924489.3	11726	69.06	69.54	1.8	71.34
493232.7	6924488.3	11437	69.82	69.58	1.8	71.38
493230.5	6924475.5	11437	69.82	70.16	1.8	71.96

x, m (Easting)	y, m (Northing)	Lot no.	RL, m Centre of lot	RL, m Base of noise barrier	Height of noise barrier, m	RL, m Top of noise barrier
493230.3	6924474.5	11436	70.46	70.21	1.8	72.01
493228.1	6924461.7	11436	70.46	70.79	1.8	72.59
493227.9	6924460.7	11435	71.04	70.84	1.8	72.64
493225.7	6924447.9	11435	71.04	71.42	1.8	73.22
493225.6	6924446.9	11434	71.57	71.46	1.8	73.26
493223.4	6924434.1	11434	71.57	72.02	1.8	73.82
493223.2	6924433.1	11433	72.06	72.06	1.8	73.86
493220.6	6924418.3	11433	72.06	72.66	1.8	74.46
493220.5	6924417.4	11432	72.61	72.70	1.8	74.50
493218.2	6924404.6	11432	72.61	73.18	1.8	74.98
493218.1	6924403.6	11431	73.06	73.21	1.8	75.01
493215.9	6924390.8	11431	73.06	73.66	1.8	75.46
493215.7	6924389.8	11430	73.21	73.69	1.8	75.49
493213.5	6924377.0	11430	73.21	74.10	1.8	75.90
493213.3	6924376.0	11429	73.47	74.13	1.8	75.93
493210.8	6924361.2	11429	73.47	74.55	1.8	76.35
493210.6	6924360.2	11428	74.19	74.58	1.8	76.38
493207.2	6924343.4	11428	74.19	74.19	1.8	75.99
493207.0	6924342.4	11427	75.77	75.77	1.8	77.57
493204.1	6924325.7	11427	75.77	75.77	1.8	77.57
493204.0	6924324.7	11426	75.81	75.81	1.8	77.61
493201.4	6924309.9	11426	75.81	75.81	1.8	77.61
493201.2	6924308.9	11425	76.40	76.39	1.8	78.19
493199.0	6924296.1	11425	76.40	76.40	1.8	78.20
493198.9	6924295.1	11424	76.67	76.67	1.8	78.47
493196.6	6924282.3	11424	76.67	76.67	1.8	78.47
493196.5	6924281.3	11423	76.75	76.75	1.8	78.55
493194.3	6924268.5	11423	76.75	76.75	1.8	78.55
493194.1	6924267.5	11348	76.85	76.85	1.8	78.65
493191.5	6924252.7	11348	76.85	76.85	1.8	78.65

x, m (Easting)	y, m (Northing)	Lot no.	RL, m Centre of lot	RL, m Base of noise barrier	Height of noise barrier, m	RL, m Top of noise barrier
493191.4	6924251.8	11347	76.98	76.98	1.8	78.78
493189.2	6924238.9	11347	76.98	76.98	1.8	78.78
493189.0	6924238.0	11346	77.08	77.08	1.8	78.88
493186.8	6924225.2	11346	77.08	77.08	1.8	78.88
493186.6	6924224.2	11345	77.19	77.19	1.8	78.99
493184.4	6924211.4	11345	77.19	77.19	1.8	78.99
493184.2	6924210.4	11344	77.29	77.29	1.8	79.09
493181.7	6924195.6	11344	77.29	77.29	1.8	79.09
493181.5	6924194.6	11343	77.43	77.43	1.8	79.23
493179.3	6924181.8	11343	77.43	77.43	1.8	79.23
493179.1	6924180.8	11342	77.66	77.66	1.8	79.46
493176.9	6924168.0	11342	77.66	77.66	1.8	79.46
493176.7	6924167.0	11341	77.92	77.92	1.8	79.72
493174.5	6924154.2	11341	77.92	77.92	1.8	79.72
493174.4	6924153.2	11340	78.01	78.01	1.8	79.81
493171.8	6924138.4	11340	78.01	78.01	1.8	79.81
493148.2	6924142.5	11340	78.01	78.01	1.8	79.81
Return along northern boundary of Lot 11427						
493207.0	6924342.4	11427	75.77	75.77	1.8	77.57
493198.2	6924344.0	11427	75.77	75.77	1.8	77.57
NBF 3						
492918.3	6924266.2	11305	79.76	79.34	1.8	81.14
492918.8	6924252.6	11305	79.76	80.57	1.8	82.37
492920.4	6924244.8	11305	79.76	81.58	1.8	83.38
492922.4	6924239.5	11305	79.76	82.20	1.8	84.00
492924.2	6924234.7	11305	79.76	82.62	1.8	84.42
492924.5	6924234.2	11306	81.55	82.66	1.8	84.46
492929.2	6924228.6	11306	81.55	83.09	1.8	84.89
492933.7	6924224.3	11306	81.55	83.32	1.8	85.12
492937.4	6924221.3	11307	81.46	83.48	1.8	85.28

The noise barrier must be constructed so that the RL at the top of the noise barrier is equal to or greater than the RLs shown in Table 4.1.

Detail views showing the alignment and RLs of the top of the noise barrier is presented in Figures 4.1 to 4.3.

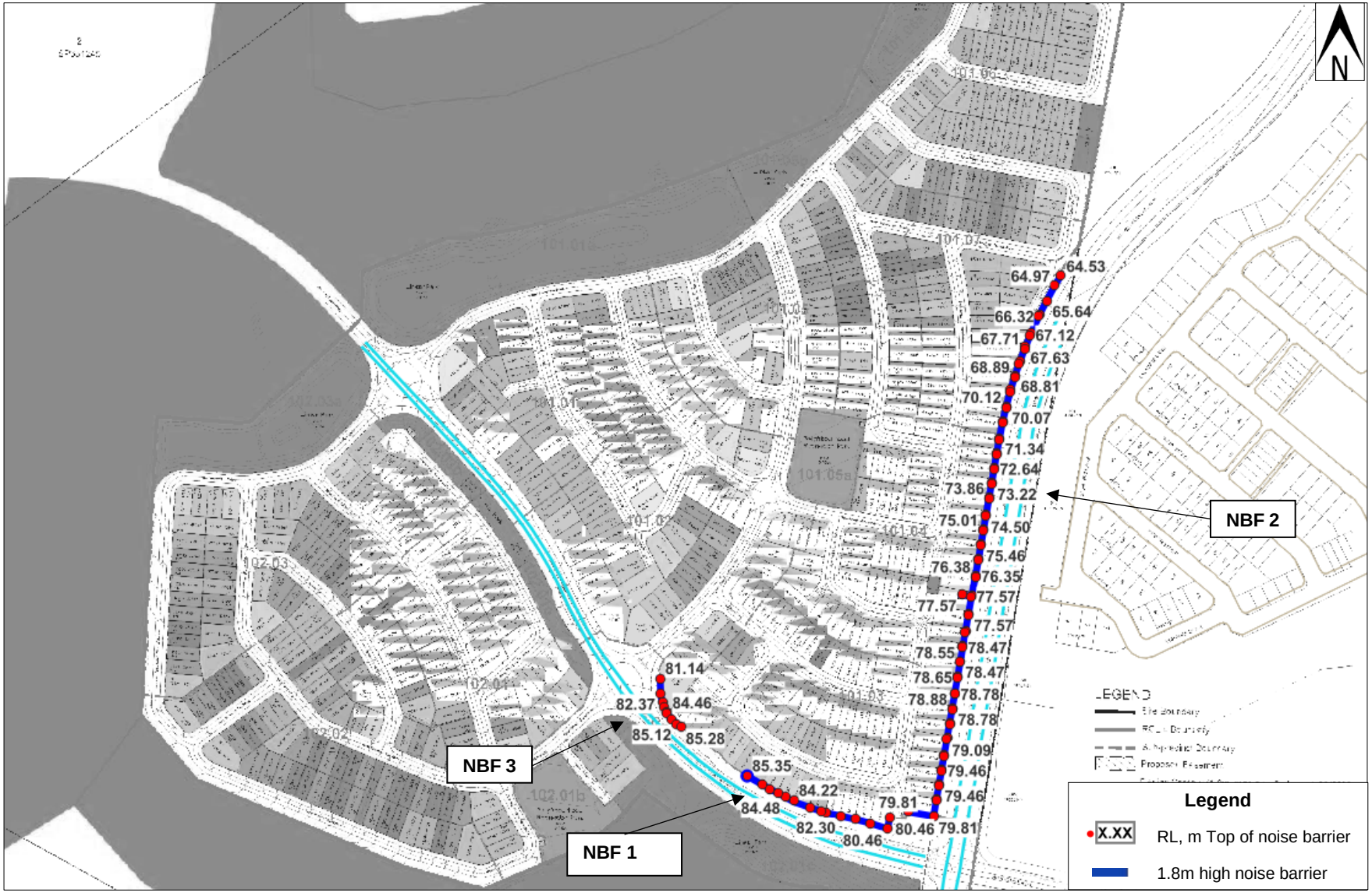


Figure 4.1 Noise barrier alignment – Full extent

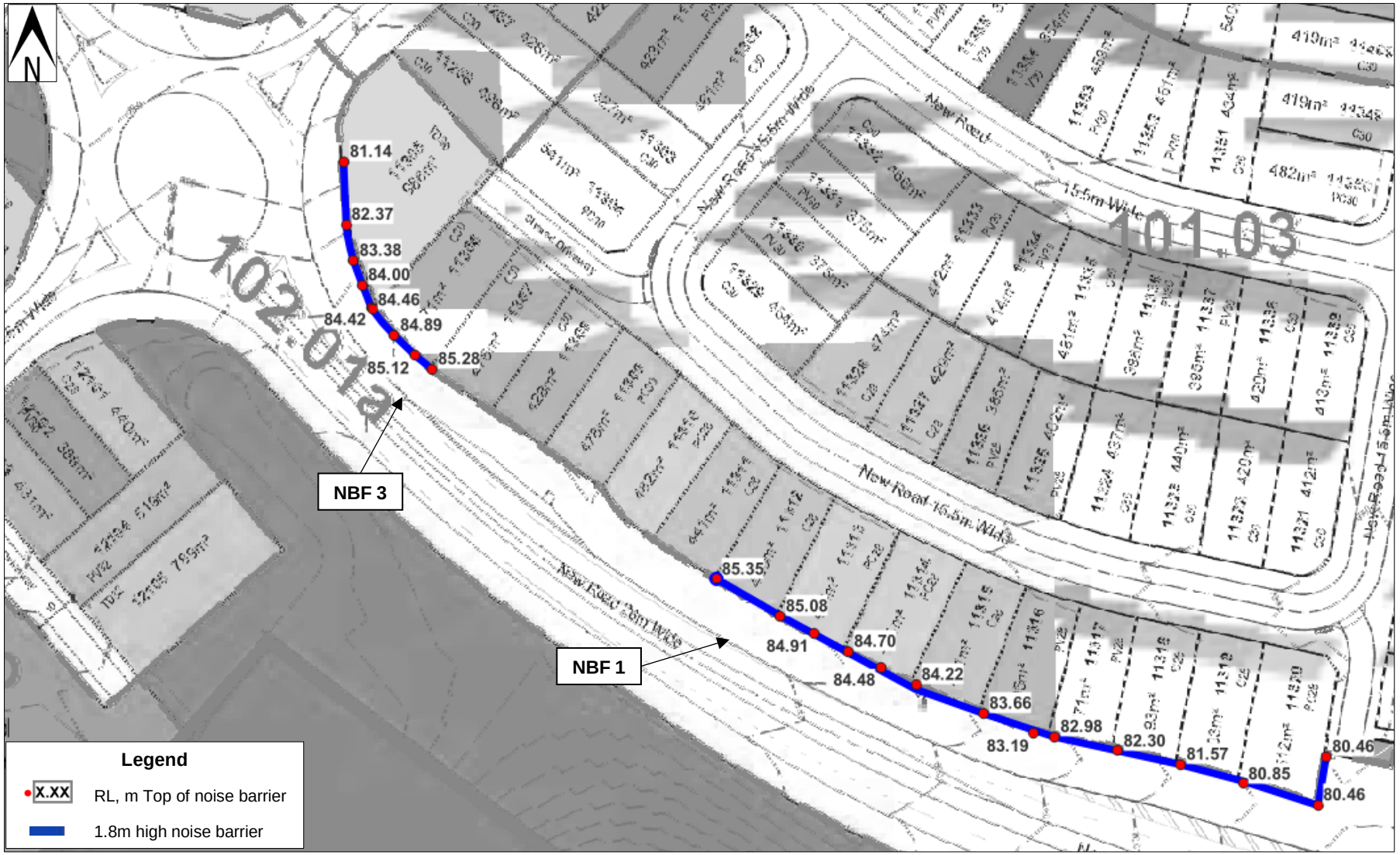


Figure 4.2 Noise barrier alignment – Zoom view – NBF 1 & NBF 3

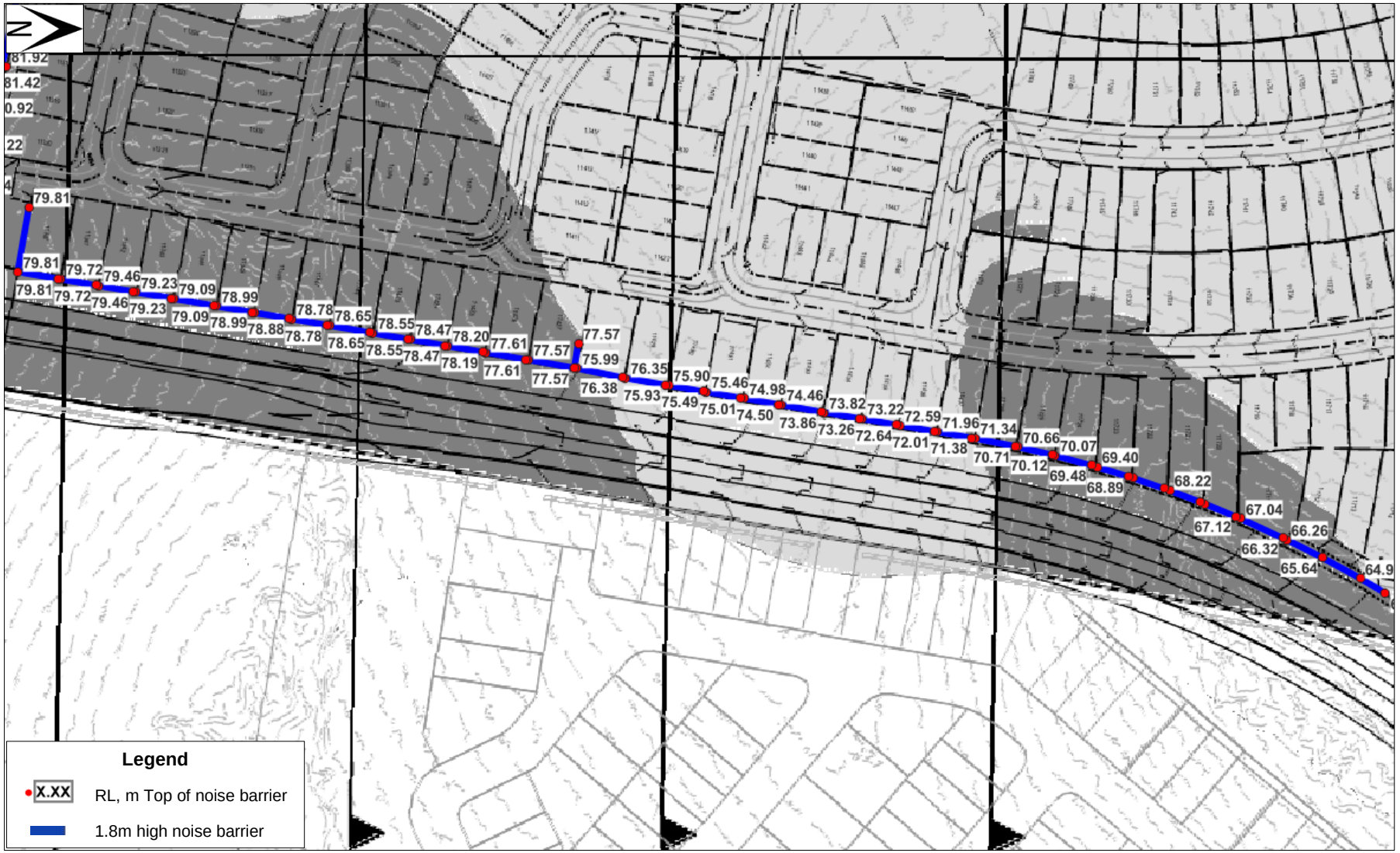


Figure 4.3 Noise barrier alignment – Zoom view – NBF 2

The noise barriers (acoustic fences) must be constructed as follows:

- In accordance with Queensland DTMR Specification MRS15 (Noise fences) and technical standard MRTS 15 (Noise fences); or
- In accordance with standard drawing *LCC 8-00390* in *Table 8.1.1.1 - Standard drawings for movement infrastructure of Part 8 - Standard Drawings* of the Logan Planning Scheme 2015.

Acceptable form of construction for the noise barriers is as follows:

- Material with minimum surface density of 12.5kg/m^2, e.g. timber palings with minimum thickness 20mm; fibre-cement sheeting with minimum thickness of 12mm; modular acoustic panels; masonry; and aerated concrete.
- The noise barrier should be free of any gaps. If the noise barrier is constructed of timber palings, planks should have minimum 35mm overlap.
- The noise barrier should be of durable construction.

A typical timber noise barrier fence construction is illustrated in Figure 4.4.

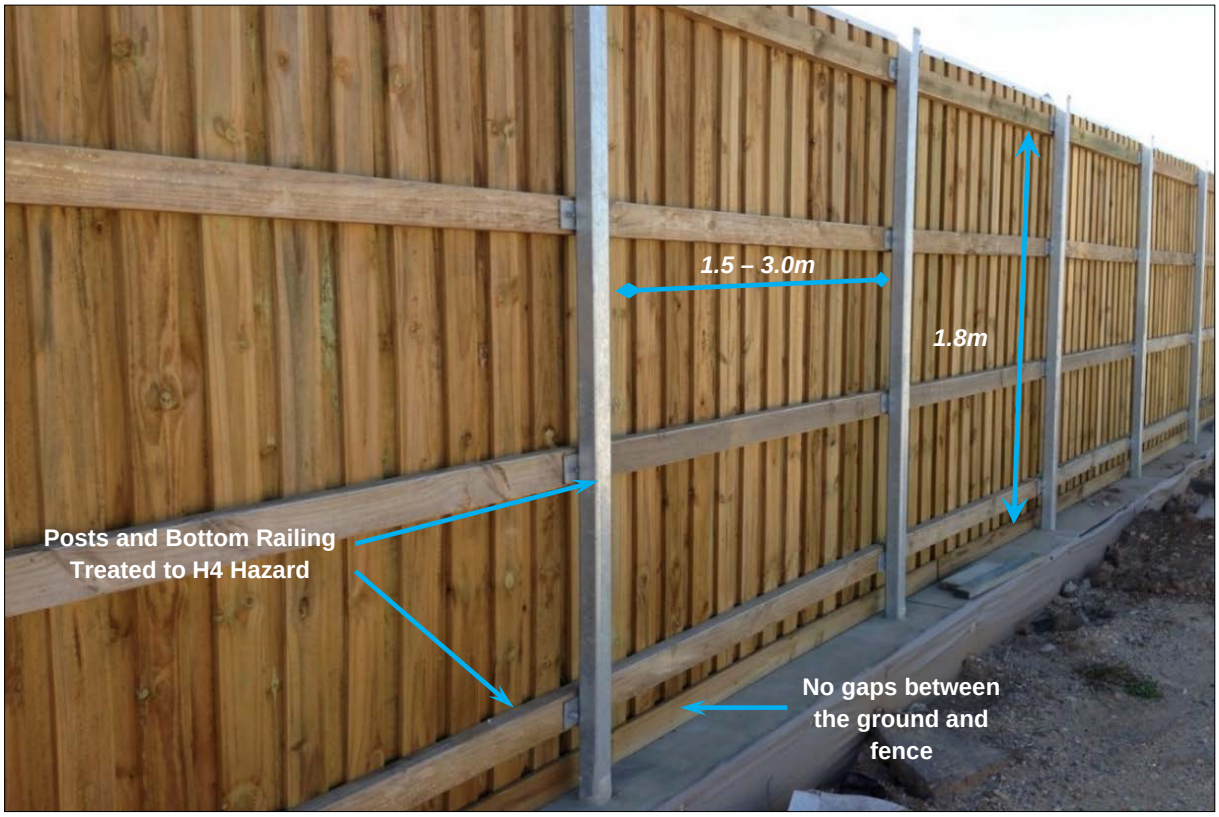


Figure 4.4 Typical timber noise barrier fence

4.1.2 Architectural Treatment of Building Envelope

The results of the noise propagation modelling, presented in Table 3.6 of this report, indicate that even with the recommended noise barrier in place, a number of allotments are still traffic noise affected and will require compliance with QDC MP4.4. The future dwellings, low-set or high-set, which are affected by traffic noise of ≥58dB(A) $L_{10,18hr}$ (facade adjusted), must be constructed to mitigate road traffic noise intrusion.

There are two options available for architectural treatment to the building façades, as follows:

- **Option 1:** Implementation of the 'acceptable forms of construction' specified in Queensland Development Code (QDC) Mandatory Part 4.4 (*Buildings in a Transport Noise Corridor*) as per the noise categories presented in Table 3.6 of this report.
- **Option 2:** Floor plan specific acoustic design, in accordance with AS3671-1989, to ensure compliance with the internal noise criteria.

4.1.3 Front loaded lots facing Internal Trunk Road

Front loaded lots facing the new internal trunk road will have traffic noise impacts on the most exposed façade. The noise affected lots with frontage to the internal trunk road are Lots 11101 to 11110, Lots 11240 to 11248, and Lot 12106. These are presented in Figure 4.5.

Figure 4.5 Front loaded noise affected lots

At the building approval stage, future houses at the noise affected lots should be designed and constructed as per AS 3671-1989 (floor-plan specific acoustic design) or using acceptable forms of construction from QDC MP4.4 to mitigate intrusion of traffic noise into habitable rooms.

At the front-loaded lots facing the internal trunk road, it is recommended to locate the private open spaces at the rear of the houses. Provided that the private open spaces are located along the protected rear façades (facing away from the road), or in a protected courtyard recessed into the side of the buildings, compliance with the traffic noise criterion will be achieved.

Typical layout showing outdoor living area located on the protected façade is presented in Figure 4.6.

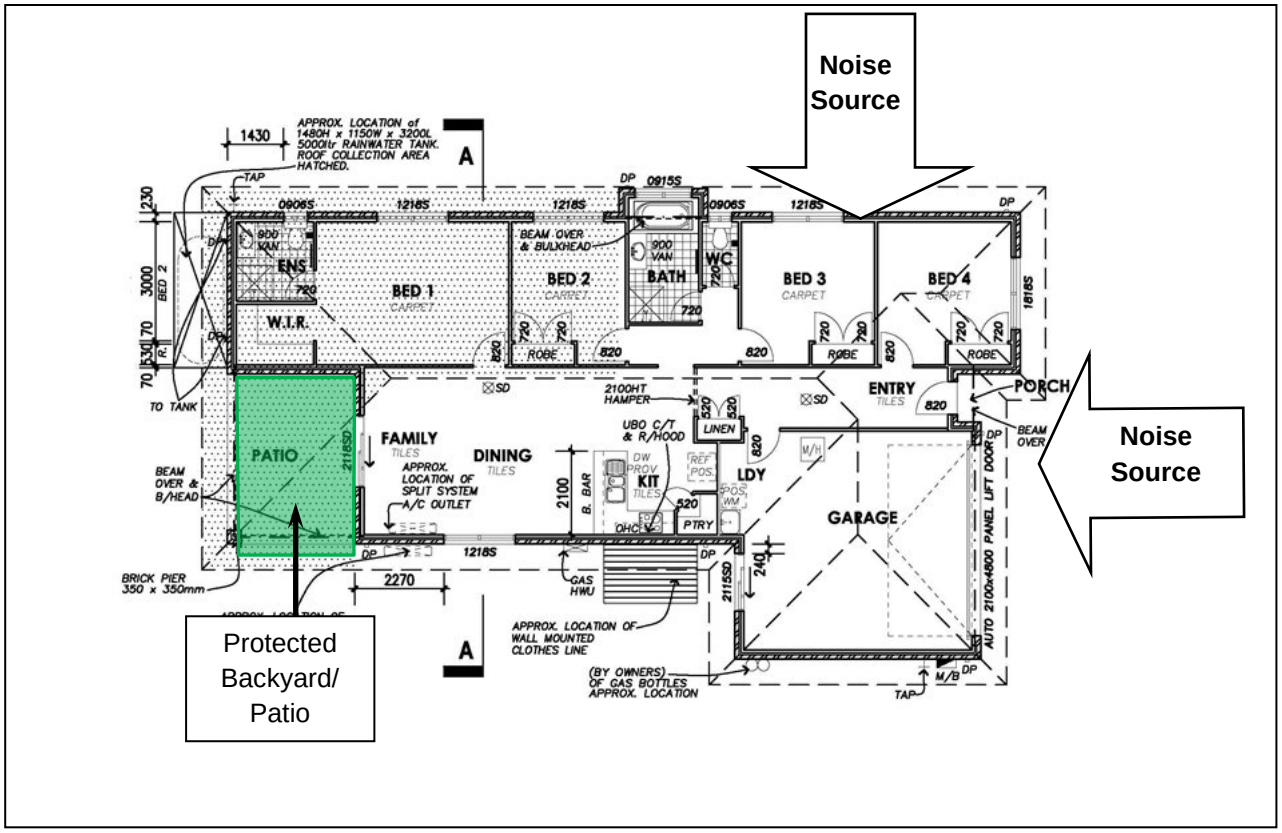


Figure 4.6 Outdoor living area on protected facade

5. Conclusions

Based on the results of the Road Traffic Noise Assessment for the Reconfiguration of Lot (RoL) application for ROL4 (Precincts 101 and 102) of the Monarch Glen Estate, the following is concluded:

- Without noise control measures, the proposed development will be impacted by traffic noise from the internal trunk road as per the traffic flows predicted within a 10-year planning horizon to year 2041.
- ATP recommends construction of three (3) noise barrier fences (acoustic fences) to mitigate the road traffic noise from the internal trunk road and New Beith Road:
    - 1.8m high noise barrier fence (NBF 1) along the southern boundaries of Lots 11312 to 11320, on top of the proposed retaining wall;
    - 1.8m high noise barrier fence (NBF 2) along the eastern boundary of the estate, from Lots 11340 to 11348, Lots 11423 to 11437, Lots 11711 to 11714 and Lots 11720 to 11726, with returns along the southern boundary of Lot 11340 and the northern boundary of Lot 11427; and
    - 1.8m high noise barrier fence (NBF 3) along the southern boundary of Lots 11305 to 11307, on top of the proposed retaining wall.
- The design of the noise barrier fence should be subject to detailed design by structural and civil engineer.
- The noise barrier must be constructed so that the RL at the top of the noise barrier is equal to or greater than the RLs shown in Table 4.1.
- Detail views showing the alignment and RLs of the top of the noise barrier is presented in Figures 4.1 to 4.3.
- The noise barriers (acoustic fences) must be constructed as follows:
    - In accordance with Queensland DTMR Specification MRS15 (Noise fences) and technical standard MRTS 15 (Noise fences); or
    - In accordance with standard drawing *LCC 8-00390* in *Table 8.1.1.1 - Standard drawings for movement infrastructure of Part 8 - Standard Drawings* of the Logan Planning Scheme 2015.
- Acceptable form of construction for the noise barriers is as follows:
    - Material with minimum surface density of 12.5kg/m^2, e.g. timber palings with minimum thickness 20mm; fibre-cement sheeting with minimum thickness of 12mm; modular acoustic panels; masonry; and aerated concrete.
    - The noise barrier should be free of any gaps. If the noise barrier is constructed of timber palings, planks should have minimum 35mm overlap.

- The noise barrier should be of durable construction.

- The results of the noise propagation modelling, presented in Table 3.6 of this report, indicate that even with the recommended noise barrier in place, a number of allotments are still traffic noise affected and will require compliance with QDC MP4.4.

- The future lots listed in Table 3.6 of this report are impacted by traffic noise that correspond with Noise Categories 1 and 2 of QDCMP4.4, therefore architectural treatment is required to the building façades. Where Noise Category 0 is applicable, no acoustic treatment is required.

- There are two options available for architectural treatment to the building façades, as follows:

  - **Option 1:** Implementation of the 'acceptable forms of construction' specified in Queensland Development Code (QDC) Mandatory Part 4.4 (Buildings in a Transport Noise Corridor) as per the noise categories presented in Table 3.6 of this report.

  - **Option 2:** Floor plan specific acoustic design, in accordance with AS3671-1989, to ensure compliance with the internal noise criteria.

- Front loaded lots facing the new internal trunk road will have traffic noise impacts on the most exposed façade. The noise affected lots with frontage to the internal trunk road are Lots 11101 to 11110, Lots 11240 to 11248, and Lot 12106.

- At the front-loaded lots facing the internal trunk road, it is recommended to locate the private open spaces at the rear of the houses. Provided that the private open spaces are located along the protected rear façades (facing away from the road), or in a protected courtyard recessed into the side of the buildings, compliance with the traffic noise criterion will be achieved.

Provided the recommended planning and design traffic noise control measures are implemented in the construction of ROL4 (Precincts 101 and 102) within the Monarch Glen Estate, the road traffic noise from the internal trunk road and New Beith Road will not impose any further constraints on the establishment of the proposed development.

6. References

- Australian Standard AS1055-2018 (*Acoustics - Description and Measurement of Environmental Noise)*
- Australian Standard AS2702-1984 (*Acoustics – Methods for the Measurement of Road Traffic Noise)*
- Australian Standard AS/NZS IEC61672.1-2019 (*Electroacoustics - Sound level meters – Specifications*)
- Department of Environment and Heritage Protection, 2020, *Noise Measurement Manual*
- Department of Transport and Main Roads, 2013, *Transport Noise Management: Code of Practice, Volume 1 – Road Traffic Noise*
- Department of State Development, Manufacturing, Infrastructure and Planning, 2020, *State Development Assessment Provisions* (Version 3.0), effective February 2022
- Department of Transport and Main Roads, 2013*, Transport Noise Management Code of Practice: Volume 1 – Road Traffic Noise*
- Department of Transport and Main Roads, 2017*, Development Affected by Environmental Emissions from Transport Policy* (Version 4)
- Economic Development Queensland - *Greater Flagstone PDA Development Scheme*
- Logan City Council - *Logan Planning Scheme 2015*
- International Standard ISO9613 (*Acoustics – Attenuation of sound during propagation outdoors*)
- Queensland Government, 2015, '*Queensland Development Code (QDC) MP4.4 (Buildings in a Transport Noise Corridor)*
- *State Code 1: Development in a state-controller road environment SDAP v3.2*

7. Appendices

Appendix A – Development Layout
Appendix B – Site Photos
Appendix C – Meteorological Data
Appendix D – Noise Measurement Results
Appendix E – Traffic Forecast Report
Appendix F – RTNA Noise Contours (Year 2041)

Appendix A – Development Layout

ROL 4: PRECINCT 101 & 102

NOT TO BE USED FOR ENGINEERING DESIGN OR CONSTRUCTION

NOTES

This plan was prepared as a conceptual layout only. The information on this plan is not suitable for any other purpose.

Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions.

No reliance should be placed on the information on this plan for detailed subdivision design or for any financial dealings involving the land.

Pavements and centrelines shown are indicative only and are subject to Engineering Design.

Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Net residential density means the total number of dwellings divided by the combined area of residential lots, Neighbourhood Recreation Parks, internal local roads and half the width of local roads bordering the site.
Average net residential density means net residential density calculated for a whole neighbourhood.

PROJECTION - GDA2020 MGA56
SUBJECT BOUNDARIES SP351245 PROVIDED BY VERIS
DRAWING REFERENCE "402971 ROL4 LOT CALC REVISION C"
DATED 13/03/2025

BULK EARTHWORKS INFORMATION PROVIDED BY COLLIERS
DRAWING REFERENCE "24-0750_X_BASE_DESIGN"
DATED 20/03/2025

THIS RAL & POD PACKAGE WAS PREPARED AS A CONCEPTUAL LAYOUT ONLY. THE INFORMATION HEREON IS NOT SUITABLE FOR ANY OTHER PURPOSE.

LEGEND

- Site Boundary
- ROL 4 Boundary

RP DESCRIPTION: Lots 1-3 on SP351245

SCALE @A1 1:10000 @A3 1:20000 - LENGTHS ARE IN METRES

100 0 100 200 300 400 500 600 700 800 900 1000 1100 1200

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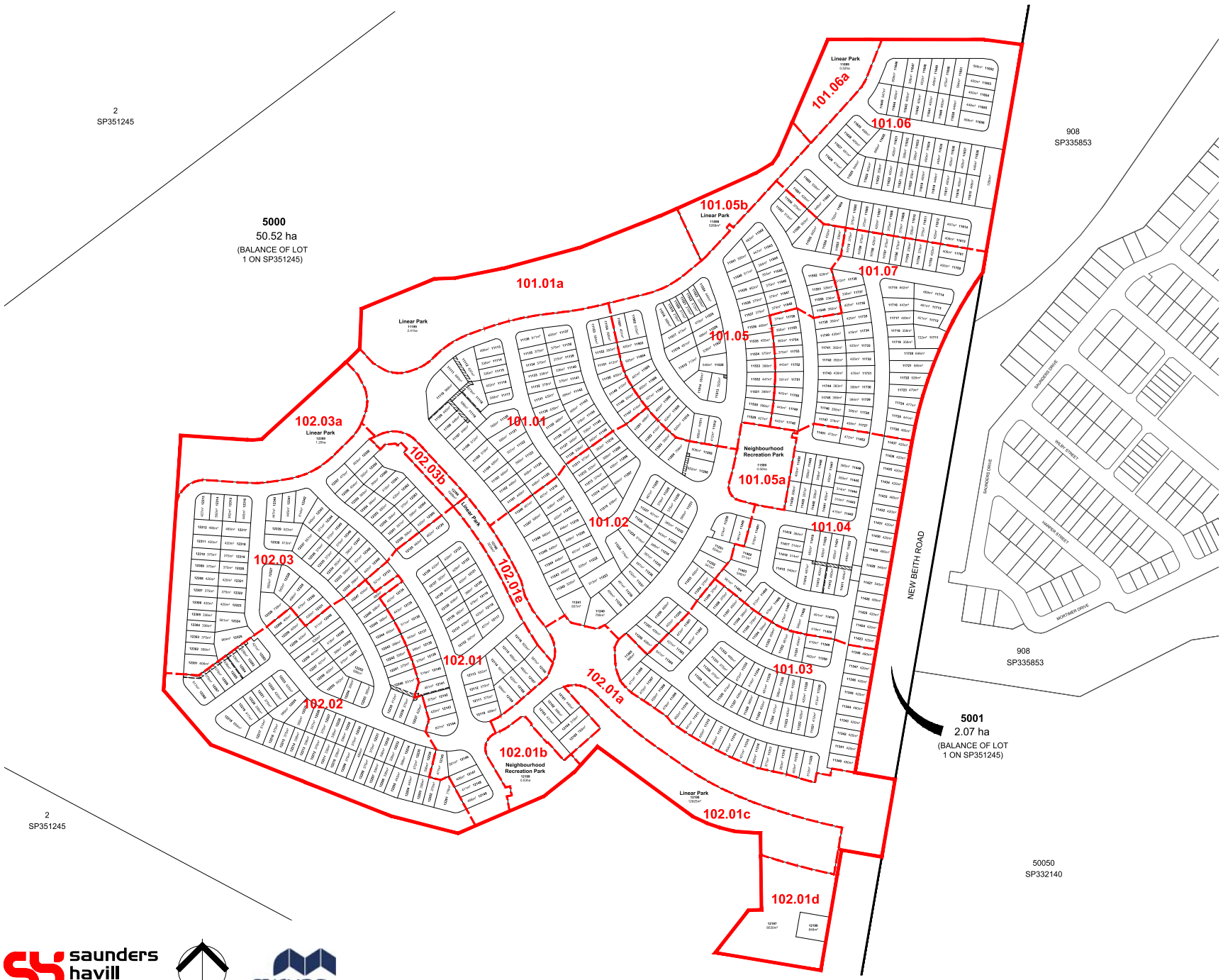
mirvac

HOMESTEAD DRIVE, MONARCH GLEN • 03/04/2025 • 11731 P 27 Rev I - PRO 01

ROL 4: PRECINCT 101 & 102 - PRELIMINARY SUB-PRECINCT PLAN



NOT TO BE USED FOR ENGINEERING DESIGN OR CONSTRUCTION

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Average net residential density means net residential density calculated for a whole neighbourhood.

PROJECTION - GDA2020 MGA56
SUBJECT BOUNDARIES SP351245 PROVIDED BY VERIS
DRAWING REFERENCE "402971 ROL4 LOT CALC REVISION C"
DATED 13/03/2025

BULK EARTHWORKS INFORMATION PROVIDED BY COLLIERS
DRAWING REFERENCE "24-0750_X_BASE_DESIGN"
DATED 20/03/2025

THIS RAL & POD PACKAGE WAS PREPARED AS A CONCEPTUAL LAYOUT ONLY. THE INFORMATION HEREON IS NOT SUITABLE FOR ANY OTHER PURPOSE.

LEGEND

- Site Boundary
- ROL 4 Boundary
- Sub-precinct Boundary
- Proposed Easement

RP DESCRIPTION: Lots 1-3 on SP351245

SCALE @A1 1:2000 @A3 1:4000 - LENGTHS ARE IN METRES

20 0 20 40 60 80 100 120 140 160 180 200 220

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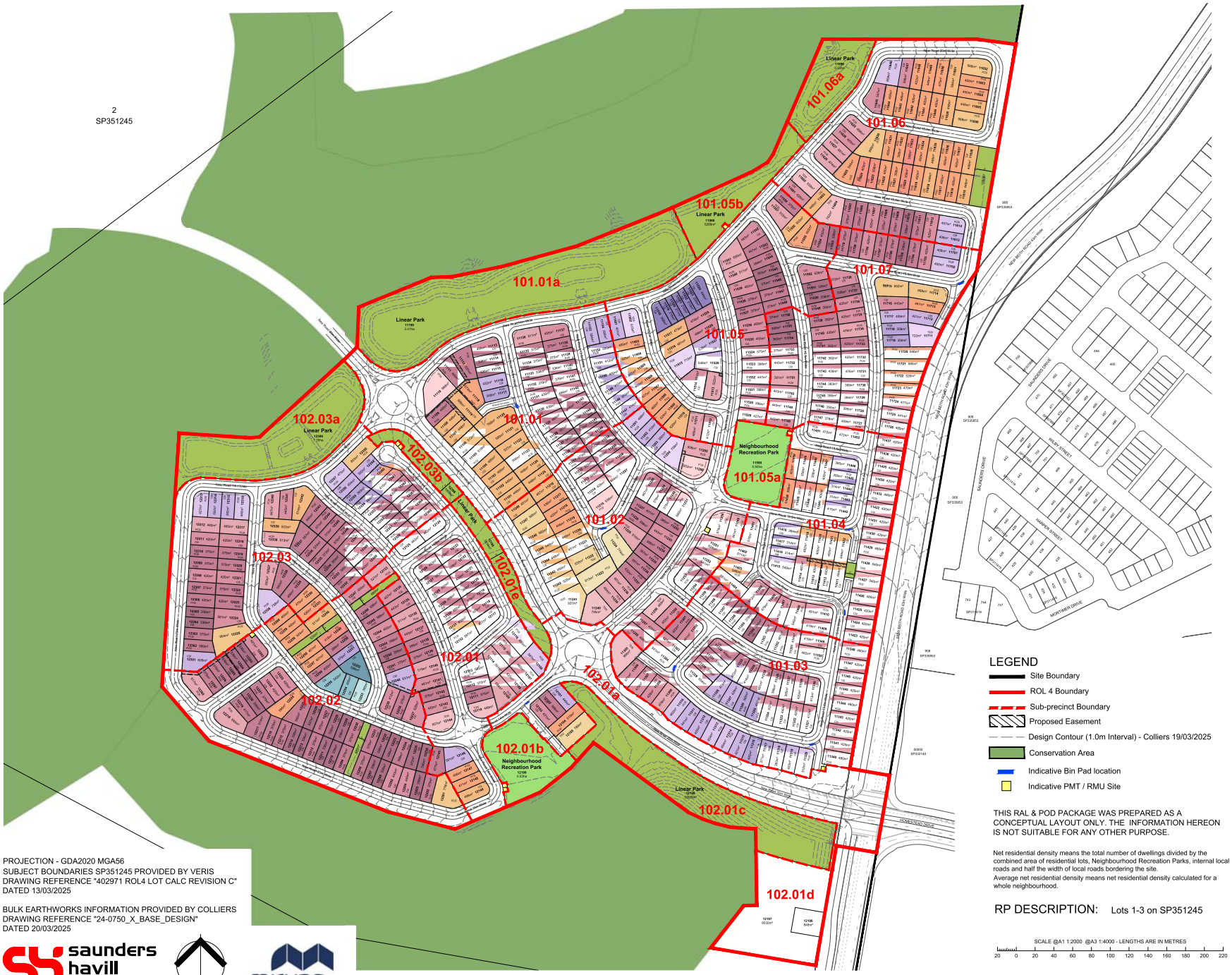
HOMESTEAD DRIVE, MONARCH GLEN ● 03/04/2025 ● 11731 P 27 Rev I - PRO 02

ROL 4: RECONFIGURATION OF A LOT PLAN

NOT TO BE USED FOR ENGINEERING DESIGN OR CONSTRUCTION



LEGEND

- Site Boundary
- ROL 4 Boundary
- Sub-precinct Boundary
- Proposed Easement
- Design Contour (1.0m Interval) - Colliers 19/03/2025
- Conservation Area
- Indicative Bin Pad location
- Indicative PMT / RMU Site

THIS RAL & POD PACKAGE WAS PREPARED AS A CONCEPTUAL LAYOUT ONLY. THE INFORMATION HEREON IS NOT SUITABLE FOR ANY OTHER PURPOSE.

Net residential density means the total number of dwellings divided by the combined area of residential lots, Neighbourhood Recreation Parks, internal local roads and half the width of local roads bordering the site.
Average net residential density means net residential density calculated for a whole neighbourhood.

RP DESCRIPTION: Lots 1-3 on SP351245

SCALE @A1 1:2000 @A3 1:4000 - LENGTHS ARE IN METRES

20 0 20 40 60 80 100 120 140 160 180 200 220

PROJECTION - GDA2020 MGA56
SUBJECT BOUNDARIES SP351245 PROVIDED BY VERIS
DRAWING REFERENCE "402971 ROL4 LOT CALC REVISION C"
DATED 13/03/2025

BULK EARTHWORKS INFORMATION PROVIDED BY COLLIERS
DRAWING REFERENCE "24-0750_X_BASE_DESIGN"
DATED 20/03/2025

NOTES

This plan was prepared as a conceptual layout only. The information on this plan is not suitable for any other purpose.

Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions.

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Pavements and centrelines shown are indicative only and are subject to Engineering Design.

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DEVELOPMENT STATISTICS					
RESIDENTIAL ALLOTMENTS	**Typical Width**	**No. Lots**	**%**	**Net Area**	
25m Deep Lots					
Villa	V25	11.2m	1	0.2%	0.059 ha
Courtyard	C25	14m	2	0.3%	0.089 ha
Premium Courtyard	PC25	16m	1	0.2%	0.039 ha
Sub Total			**4**	**0.7%**	**0.187 ha**
RESIDENTIAL ALLOTMENTS	**Typical Width**	**No. Lots**	**%**	**Net Area**	
28m Deep Lots					
Terrace - Front Loaded	T28	7.5m	7	1.2%	0.191 ha
Villa	V28	11.2m	4	0.7%	0.126 ha
Premium Villa	PV28	12.5m	17	3.0%	0.636 ha
Courtyard	C28	14m	32	5.6%	1.396 ha
Premium Courtyard	PC28	16m	14	2.4%	0.719 ha
Traditional	TD28	18m	4	0.7%	0.266 ha
Premium Traditional	PT28	20m	1	0.2%	0.065 ha
Sub Total			**79**	**13.7%**	**3.399 ha**
RESIDENTIAL ALLOTMENTS	**Typical Width**	**No. Lots**	**%**	**Net Area**	
30m Deep Lots					
Villa	V30	11.2m	48	8.3%	1.651 ha
Premium Villa	PV30	12.5m	136	23.7%	5.431 ha
Courtyard	C30	14m	115	20.0%	5.140 ha
Premium Courtyard	PC30	16m	50	8.7%	2.548 ha
Traditional	TD30	18m	11	1.9%	0.684 ha
Premium Traditional	PT30	20m	5	0.9%	0.343 ha
Sub Total			**365**	**63.5%**	**15.797 ha**
RESIDENTIAL ALLOTMENTS	**Typical Width**	**No. Lots**	**%**	**Net Area**	
32m Deep Lots					
Villa	V32	11.2m	9	1.6%	0.333 ha
Premium Villa	PV32	12.5m	57	9.9%	2.484 ha
Courtyard	C32	14m	41	7.1%	2.008 ha
Premium Courtyard	PC32	16m	14	2.4%	0.863 ha
Traditional	TD32	18m	4	0.7%	0.295 ha
Premium Traditional	PT32	20m	2	0.3%	0.169 ha
Sub Total			**127**	**22.1%**	**6.152 ha**
Total Allotments			**575**	**100%**	**25.535 ha**
Land Budget			**Area (Ha)**	**%**	
Area of Subject Site / Stage			**48.211 ha**	—	
Net Residential Allotments			**25.535 ha**	53.0%	
Linear Park / Pedestrian Linkage			6.762 ha	14.0%	
Neighbourhood Recreation Park			1.026 ha	2.1%	
Local Road Areas			10.983 ha	22.8%	
Major Road Areas			2.967 ha	6.2%	
Balance Lot 12196			0.085 ha	0.2%	
Balance Lot 12197			0.853 ha	1.8%	
Total Area			**48.211 ha**	**100%**	
Average Lot Size (m²)			**444.1 m²**		
Net Density (dw/ha)			**15.3 dw/ha**		

Appendix B – Site Photos

Photo 1: Noise Measurement Location

Photo 2: Noise Measurement Location

Appendix C – Meteorological Data

Beaudesert, Queensland
April 2024 Daily Weather Observations

Observations from a site in Drumley Street, about 1.5 km northwest of the town centre.

Australian Government
Bureau of Meteorology

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C	mm	mm	hours		km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	Mo	17.9	27.3	0			ENE	17	15:58	22.4	81			Calm	1020.6	23.8	75		NE	6	1017.4
2	Tu	17.9	29.9	0.6			N	19	15:06	24.1	74		SSW	2	1019.0	29.1	52		N	6	1013.9
3	We	19.3	31.9	0			E	31	17:45	25.3	77		WNW	2	1017.4	30.0	57		N	6	1014.1
4	Th	20.5	26.0	32.0			SW	26	11:06	20.7	95		SSW	11	1019.0	21.6	88		WNW	7	1016.6
5	Fr	18.8	24.0	6.0			SSW	15	01:48	22.4	87		S	4	1017.8	23.4	91		E	4	1014.4
6	Sa	20.2	29.8	8.6			SW	15	10:58	23.1	88		SW	2	1017.1	28.4	63		NNE	4	1012.7
7	Su	21.9	30.2	2.8			NNE	24	08:51	22.1	91		NE	11	1012.8	28.4	65		NW	4	1008.0
8	Mo	18.8	30.4	2.2			SSW	17	10:25	24.1	64		SSW	6	1011.8	30.1	41		WSW	2	1008.0
9	Tu	17.9	29.2	0			SW	31	12:13	22.9	78		WSW	6	1008.7	28.4	41		SW	11	1004.7
10	We	10.7	27.2	0			SW	30	12:03	19.9	50		SW	4	1011.3	26.7	36		SSW	11	1009.6
11	Th	11.2	27.6	0			SW	24	15:04	21.2	54		SSW	7	1017.6	27.0	48		SSW	13	1015.1
12	Fr	12.4	27.6	0			WSW	26	13:45	21.8	67		SSW	13	1020.2	26.9	49		SE	7	1016.8
13	Sa	12.4	28.2	0			ENE	26	14:49	21.0	77			Calm	1022.1	25.4	60		ENE	13	1018.7
14	Su	16.5	28.7	0			E	22	15:43	23.1	71			Calm	1023.8	28.1	47		ESE	7	1020.2
15	Mo	13.9	29.0	0			ENE	19	16:16	21.4	76		SW	2	1024.7	28.1	45		NNW	6	1021.4
16	Tu	14.2	28.9	0			NNE	15	16:42	21.9	84		SW	2	1024.3	28.3	48		N	6	1019.6
17	We	14.2	28.8	0			ENE	24	15:35	21.6	79		SSW	4	1023.1	26.9	58		NE	9	1019.0
18	Th	15.6	26.9	0			WSW	28	21:11	20.3	91		SSW	2	1019.1	26.4	56		N	6	1013.9
19	Fr	12.6	28.2	9.2			E	22	15:37	19.9	86		SW	2	1015.8	27.3	41		WSW	2	1012.8
20	Sa	12.1	24.3	0			SSW	31	18:28	21.1	68		S	13	1018.6	21.2	65		SSW	7	1016.9
21	Su	16.5	21.0	11.8			SSW	20	09:04	21.1	78		SSW	11	1020.2	19.8	88		SW	11	1019.5
22	Mo	15.1	25.1	8.0			S	37	12:31	19.2	88		S	9	1024.0	23.9	61		SE	11	1021.5
23	Tu	13.9	25.7	0.4			ENE	26	14:32	20.9	84		WSW	7	1023.8	24.5	58		E	11	1020.7
24	We	13.1	27.2	0			SW	13	09:59	20.8	79		SW	7	1020.7	25.8	44		W	6	1016.4
25	Th	11.5	27.2	0			SW	24	13:01	19.8	78			Calm	1017.6	25.6	52		SSW	11	1014.3
26	Fr	14.8	24.3	0			SW	22	10:36	20.5	75		S	7	1020.1	23.0	59		E	7	1018.5
27	Sa	12.0	24.2	0.4			SE	28	16:03	20.6	67		S	15	1024.3	22.3	66		S	7	1022.2
28	Su	12.6	25.8	6.4			ESE	33	16:24	20.7	77		SSW	11	1026.1	24.3	59		ESE	13	1022.8
29	Mo	12.4	26.8	0			ESE	20	12:40	20.7	81		SSW	6	1025.2	24.8	53		ENE	6	1021.2
30	Tu	10.6	27.1	0			NE	20	15:46	18.6	84		SSW	2	1022.9	23.5	60		ENE	11	1019.6
Statistics for April 2024																					
	Mean	15.1	27.3							21.4	77			5	1019.7	25.8	57			7	1016.4
	Lowest	10.6	21.0							18.6	50			Calm	1008.7	19.8	36		WSW	2	1004.7
	Highest	21.9	31.9	32.0			S	37		25.3	95		S	15	1026.1	30.1	91		#	13	1022.8
	Total			88.4																	

Observations were drawn from Beaudesert Drumley Street {station 040983}

IDCJDW4141.202404 Prepared at 13:02 UTC on 5 Sep 2024

Beaudesert, Queensland
May 2024 Daily Weather Observations

Observations from a site in Drumley Street, about 1.5 km northwest of the town centre.

Australian Government
Bureau of Meteorology

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C	mm	mm	hours		km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	We	12.4	23.8	0			S	39	11:42	20.8	67		S	17	1023.8	22.8	58		S	13	1021.9
2	Th	16.3	24.3	0			SE	33	15:06	20.1	69		S	13	1024.9	24.0	52		S	15	1022.9
3	Fr	16.0	22.7	0			E	30	12:44	19.0	75		S	11	1025.4	19.8	80		SE	4	1022.4
4	Sa	13.7	23.6	3.0			ENE	22	15:20	18.4	87		S	7	1022.1	23.1	65		E	6	1018.4
5	Su	14.8	26.2	0.6			S	20	19:26	18.7	87		SW	6	1020.1	25.4	55		NNE	6	1015.9
6	Mo	12.5	24.5	0.4			S	31	13:35	20.3	79		SW	7	1020.5	23.4	51		SSW	15	1018.4
7	Tu	14.6	23.9	0			SE	31	15:52	20.8	75		SSW	11	1023.3	22.0	69		SE	15	1021.6
8	We	13.3	23.8	0.2			SW	28	10:50	19.6	73		SSW	11	1026.7	23.1	52		SE	15	1023.6
9	Th	14.4	24.3	0			ESE	28	12:54	20.5	73		SSW	9	1027.0	21.6	68		SE	9	1025.5
10	Fr	13.0	25.1	0			S	31	12:41	19.9	78		SW	11	1027.3	24.2	50		ESE	9	1023.7
11	Sa	13.3	25.9	0			WSW	17	10:09	18.7	86		SW	6	1024.2	23.9	67		ENE	9	1020.2
12	Su	15.5	24.5	0.2			S	39	18:04	17.6	95			Calm	1020.7	23.4	70		NW	4	1016.2
13	Mo	9.5	24.6	0.4			NNW	13	15:01	13.2	97			Calm	1019.8	24.4	42		N	6	1016.7
14	Tu	8.8	25.6	1.8			SSW	22	10:31	17.6	80		W	2	1024.1	24.9	53		SSW	13	1021.7
15	We	10.8	25.8	11.2			ESE	20	12:24	20.3	77		SW	7	1026.8	23.4	56		ESE	11	1024.3
16	Th	15.4	20.6	0			SE	15	15:46	17.6	97		SW	4	1027.6	20.4	84		S	2	1024.3
17	Fr	11.5	22.9	4.8			SSW	22	14:13	19.1	88		SW	6	1023.3	20.4	79		SSW	4	1019.5
18	Sa	9.7	24.7	3.2			S	35	21:07	16.6	94			Calm	1017.9	23.6	43		S	9	1012.5
19	Su	11.3	21.2	0			SSW	43	10:48	17.4	52		SSW	15	1018.1	20.6	46		SSW	15	1015.8
20	Mo	6.4	22.7	0			WSW	22	10:38	15.2	72		SW	7	1021.0	22.1	33		SSW	6	1018.1
21	Tu	4.8	23.5	0			SW	26	14:45	16.4	71			Calm	1022.8	21.8	52		SW	17	1020.7
22	We	10.4	23.2	0			SW	26	12:08	17.2	72		SW	6	1024.4	22.5	51		SW	11	1021.1
23	Th	5.5	23.7	0			SW	22	14:51	15.8	84		W	4	1025.5	22.6	41		SW	15	1022.9
24	Fr	6.0	24.3	0			SE	20	14:22	14.9	84		SSW	2	1025.9	21.8	58		SE	7	1023.1
25	Sa	12.6	22.0	0			WNW	13	15:03	17.1	83		NW	4	1026.6	21.2	69		W	9	1023.3
26	Su	10.8	24.3	4.2			ENE	13	14:21	17.1	88		SSW	2	1025.1	22.2	59		NE	6	1021.6
27	Mo	9.3	24.8	0.2			NE	15	16:14	15.4	88			Calm	1025.1	23.9	46			Calm	1021.8
28	Tu	10.3	24.7	0			SW	15	11:37	15.3	89			Calm	1027.1	23.0	55		ESE	4	1024.6
29	We	9.7	24.7	0			E	24	15:48	17.9	85			Calm	1028.8	23.3	55		ESE	11	1025.8
30	Th	10.1	24.3	0			E	22	14:22	16.7	83		SSW	4	1028.7	20.1	81		N	9	1024.9
31	Fr	13.8	25.8	0.4			NNE	19	13:55	18.0	97			Calm	1024.9	23.8	59		NNE	7	1020.9
Statistics for May 2024																					
Mean		11.5	24.1							17.8	81			5	1024.2	22.7	58			9	1021.1
Lowest		4.8	20.6							13.2	52			Calm	1017.9	19.8	33			Calm	1012.5
Highest		16.3	26.2	11.2			SSW	43		20.8	97		S	17	1028.8	25.4	84		SW	17	1025.8
Total				30.6																	

Observations were drawn from Beaudesert Drumley Street {station 040983}

IDCJDW4141.202405 Prepared at 13:02 UTC on 4 Sep 2024

Appendix D – Noise Measurement Results

Unattended Noise Measurements
Monarch Glen, Undullah

Noise Levels - 18hr Day (Traffic Noise)

Logger Location - Eastern boundary of overall development

ARL Environmental Noise Logger	
Logger Serial Number	15-203-537
Measurement Title	Undullah Monarh Glen
Measurement started at	27/04/2024 9:19
Measurement stopped at	7/05/2024 8:57
Frequency Weighting	A
Time Averaging	Fast
Statistical Interval	15 min
Pre-measurement Ref.	94.0
Post-measurement Ref.	94.0
Engineering Units	dB SPL

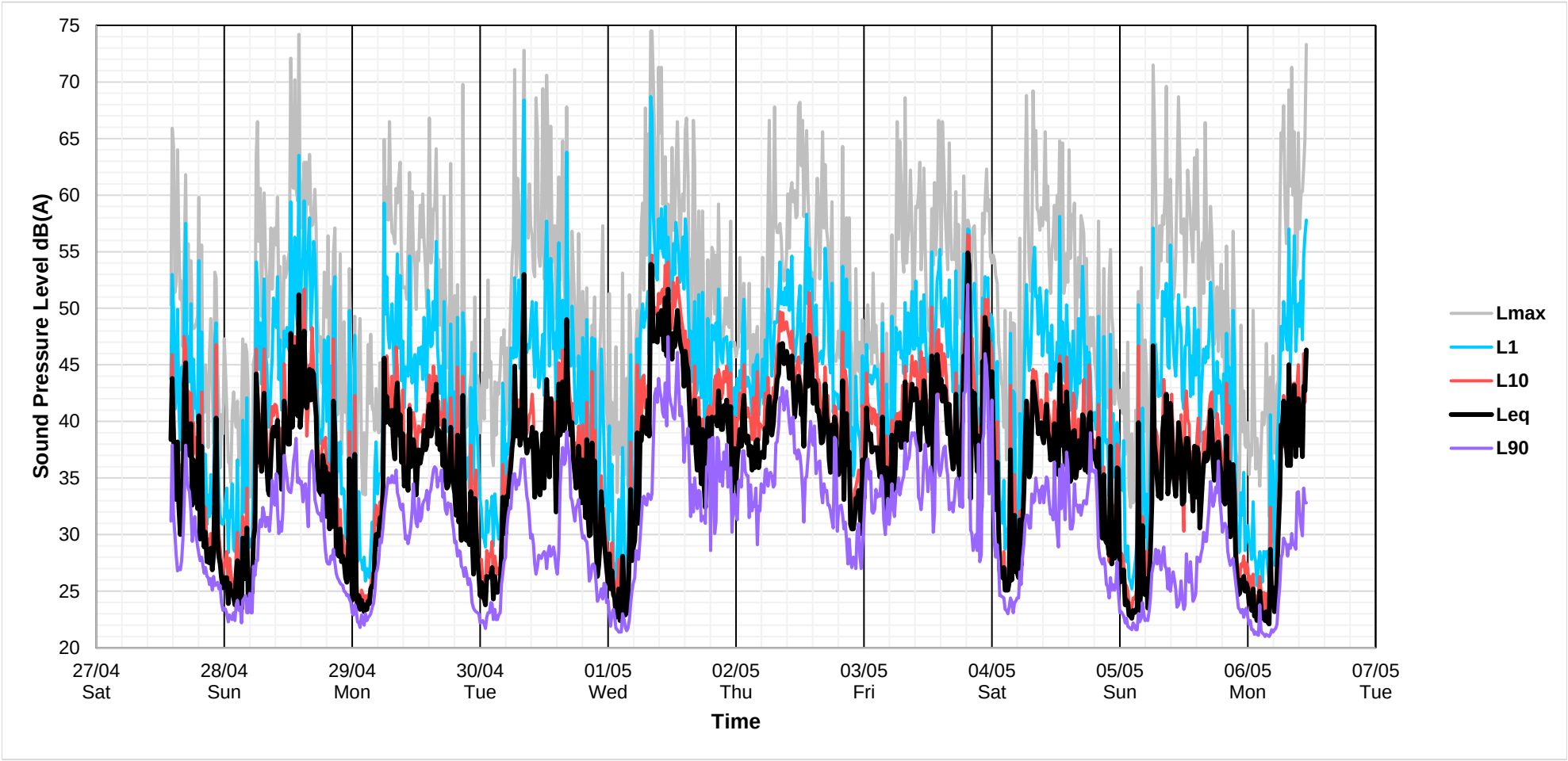
		$L_{A10,T}$			$L_{Aeq,T}$		$L_{A90,T}$	
Date	**Day**	**18hr day 6am-12am**	**1hr max 6am-12am**	**Time for 1hr max**	**18hr day 6am-12am**	**8hr night 10pm-6am**	**18hr day 6am-12am**	**8hr night 10pm-6am**
27/04/2024	Saturday	—	—	—	—	27	—	24
28/04/2024	Sunday	39	46	16:00	37	27	31	24
29/04/2024	Monday	39	43	15:00	37	28	31	25
30/04/2024	Tuesday	38	44	16:00	37	27	30	24
1/05/2024	Wednesday	45	52	10:00	42	38	37	34
2/05/2024	Thursday	42	49	08:00	40	36	35	32
3/05/2024	Friday	43	53	19:00	41	33	36	29
4/05/2024	Saturday	39	42	08:00	37	27	32	23
5/05/2024	Sunday	36	41	08:00	35	25	28	22
Average		**40**	**45**		**38**	**30**	**32**	**26**
Average (weekdays only)		**41**	**47**		**39**	**32**	**33**	**29**

Note

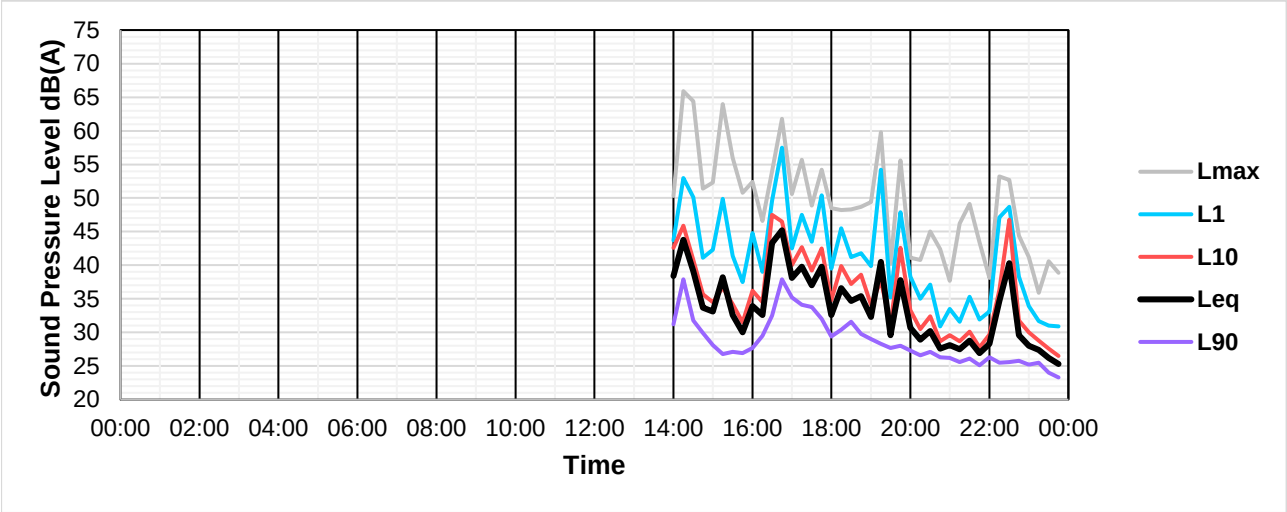
— No noise data available

Rainfall recorded on this day

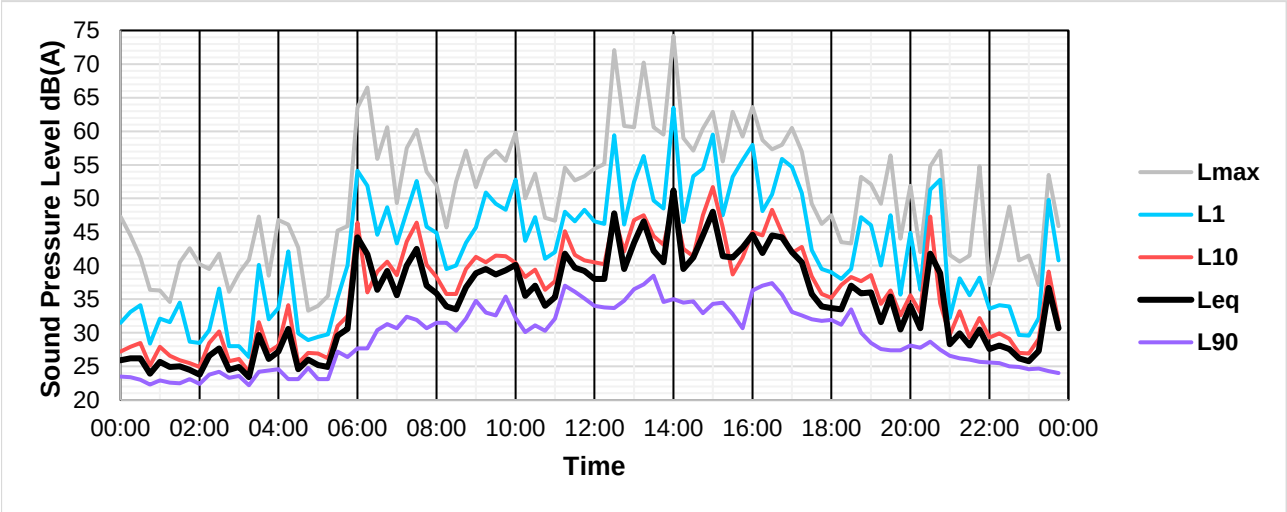
Unattended Noise Measurements
27 April to 6 May 2024



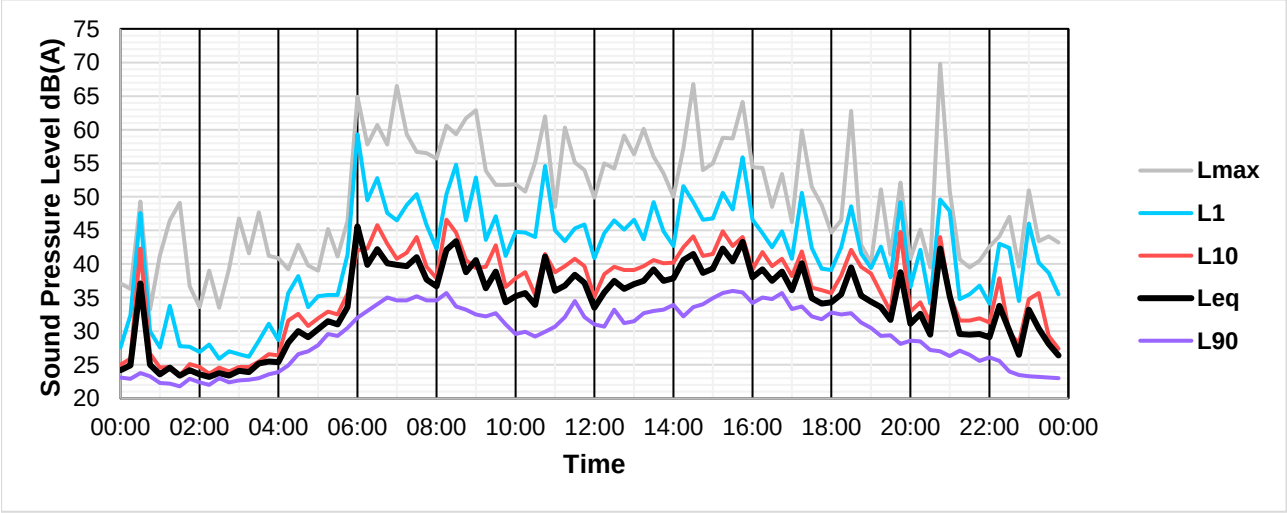
Unattended Noise Measurements
Saturday 27 April 2024



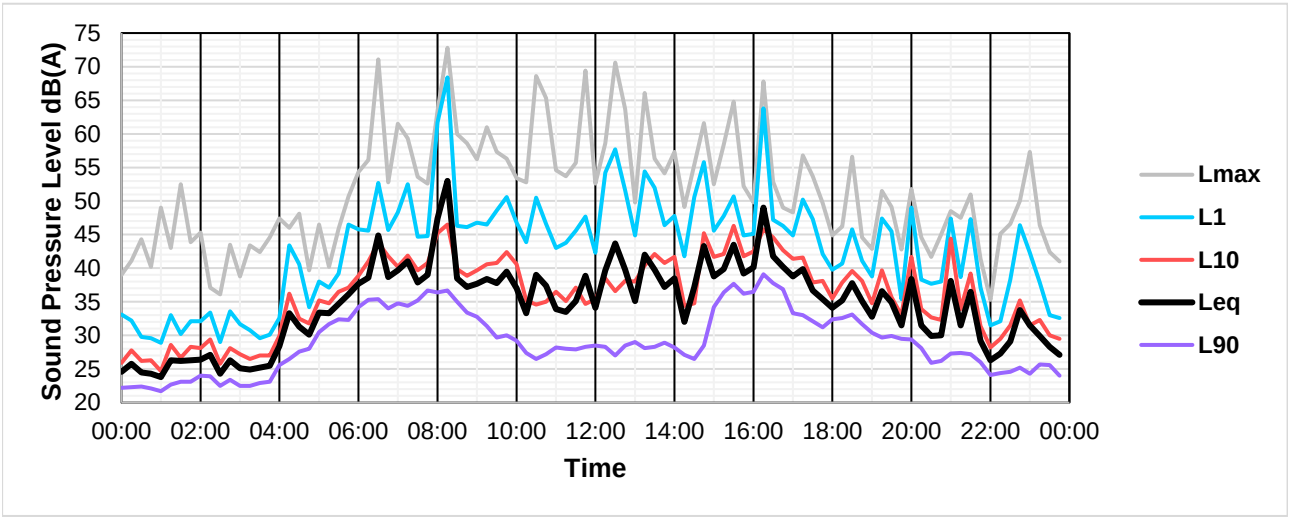
Unattended Noise Measurements
Sunday 28 April 2024



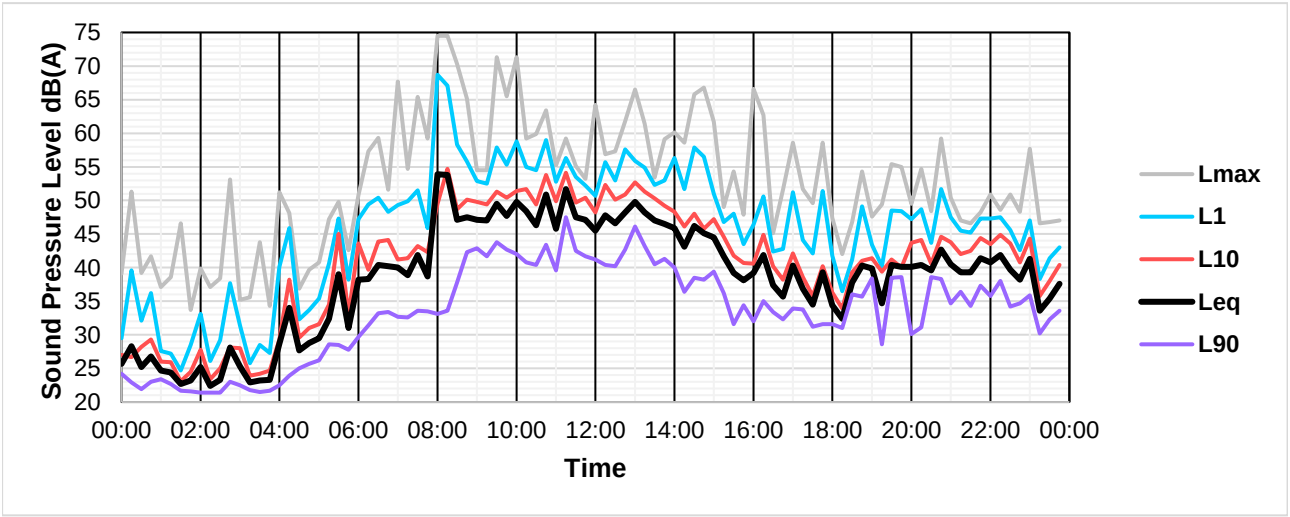
Unattended Noise Measurements
Monday 29 April 2024



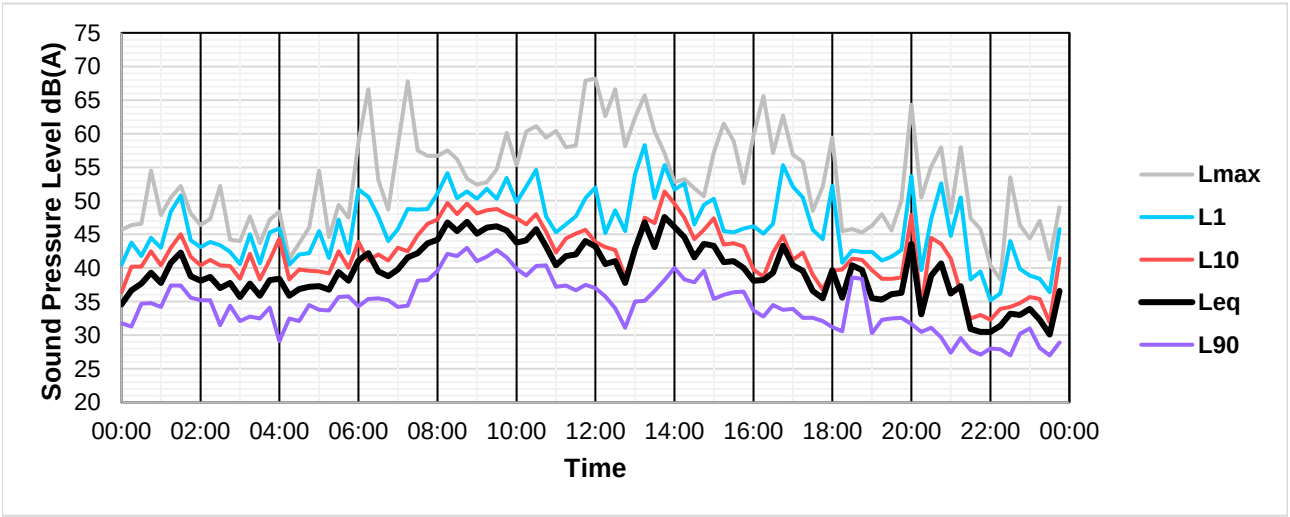
Unattended Noise Measurements
Tuesday 30 April 2024



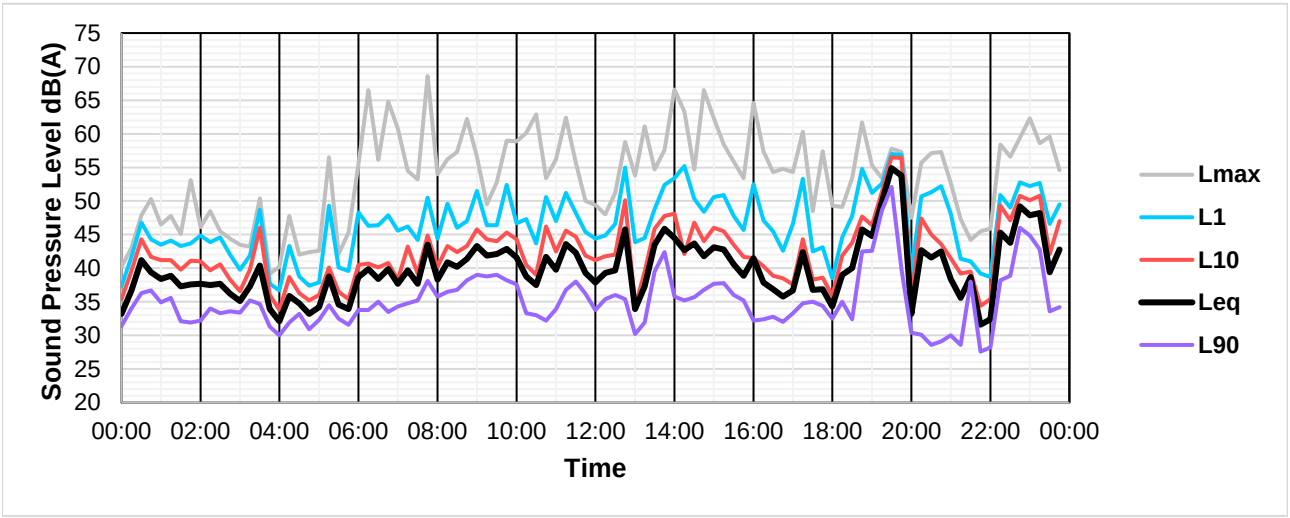
Unattended Noise Measurements
Wednesday 1 May 2024



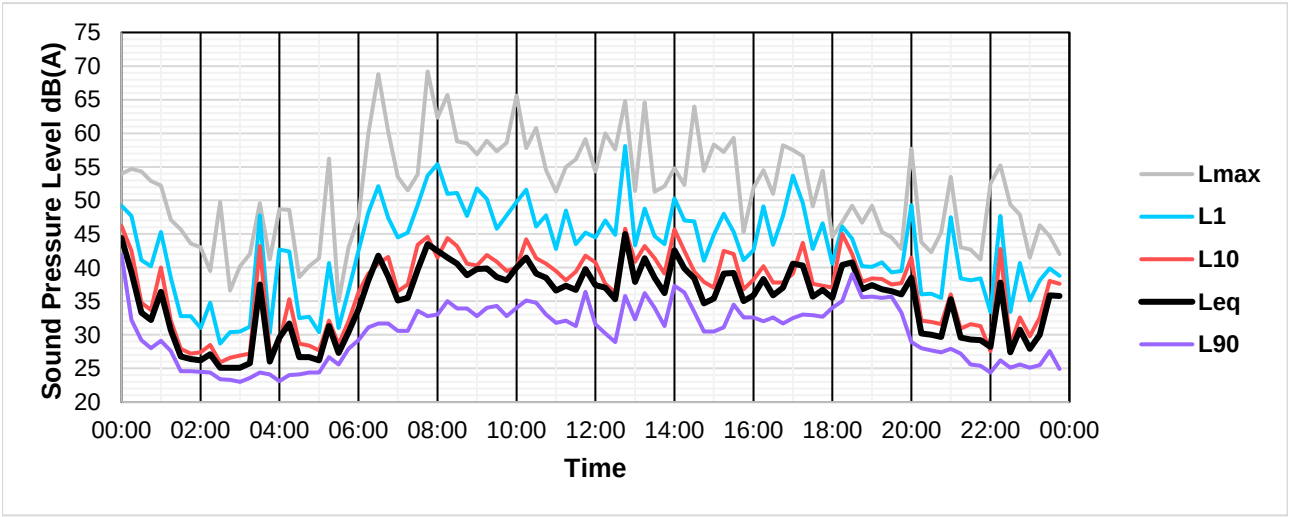
Unattended Noise Measurements
Thursday 2 May 2024



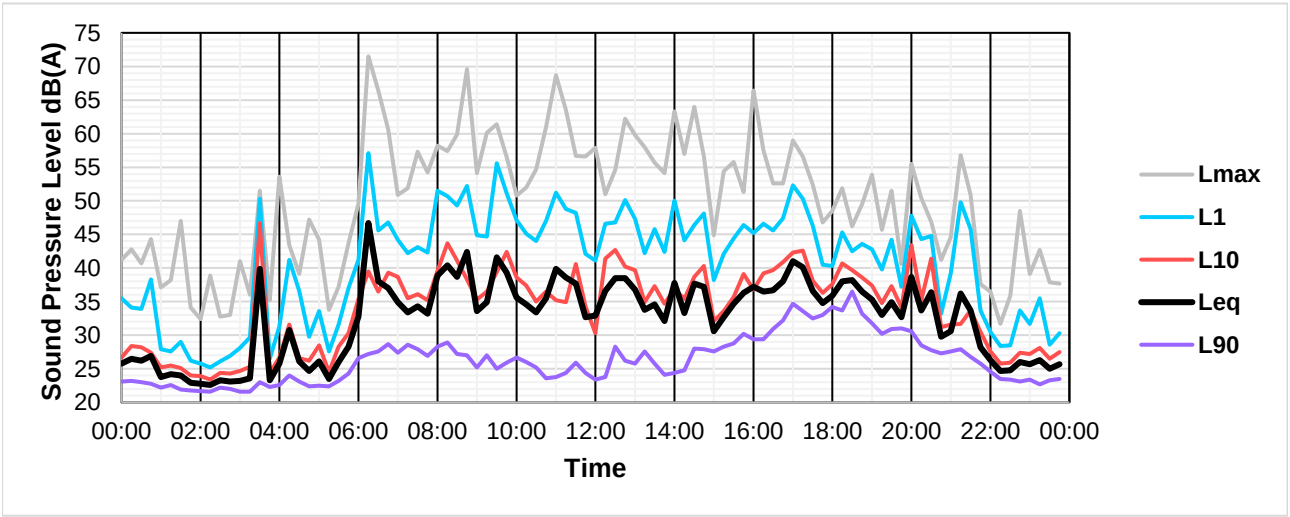
Unattended Noise Measurements
Friday 3 May 2024



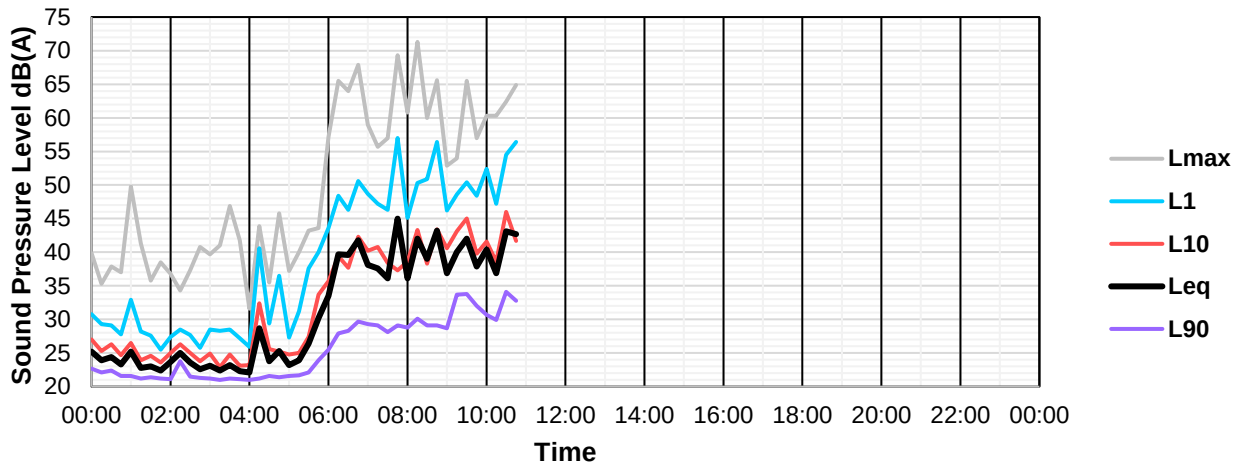
Unattended Noise Measurements
Saturday 4 May 2024



Unattended Noise Measurements
Sunday 5 May 2024



Unattended Noise Measurements
Monday 6 May 2024



Appendix E – Traffic Forecast Report

Issue History Table (Internal Use Only)

File Name	Version	Prepared	Reviewed	Date Issued	Issued to
P6607.001T ROL4 Traffic Volume Forecast for Acoustics	001	A. Payne	A. Payne	04.09.2024	Mirvac ROL4 SharePoint

MONARCH GLEN PRECINCT 101 & 102
Daily Traffic Volume Forecasts

1. Traffic Forecasts

Daily traffic volume forecasts have been sourced for trunk road links in the vicinity of Precinct 101 & 102. Background information and assumptions relating to these traffic volume forecasts are as follows:

- 2031 and 2041 daily traffic volumes are sourced from the South Logan Strategic Transport Model (SLSTM), accepted by EDQ as the current accepted strategic transport model
- 2036 daily traffic volumes are interpolated from 2031 ad 2041 traffic volumes assuming linear traffic growth
- Traffic volumes on the trunk road through Precinct 101 & 102 is dependant on the extent of development within Monarch Glen
- Traffic volumes on New Bieth Road are highly dependant on the connection of this road to south of Precinct 101 and 102. In the 2031 SLSTM model New Beith Road does not continue south of Homestead Drive, whereas New Beith Road continues south in the 2041 model
- New Bieth Road is expected to have a posted speed limit of 70km/h, the internal trunk road through Precinct 101 & 102 would have a posted speed of 60km/h and all other proposed roads would have a 50km/h posted speed.

Considering the above, forecast vehicles per day (vpd) and heavy vehicle percentages for each trunk road link are provided at Figure 1.1, Figure 1.2 and Figure 1.3 for the years 2031, 2036 and 2041.

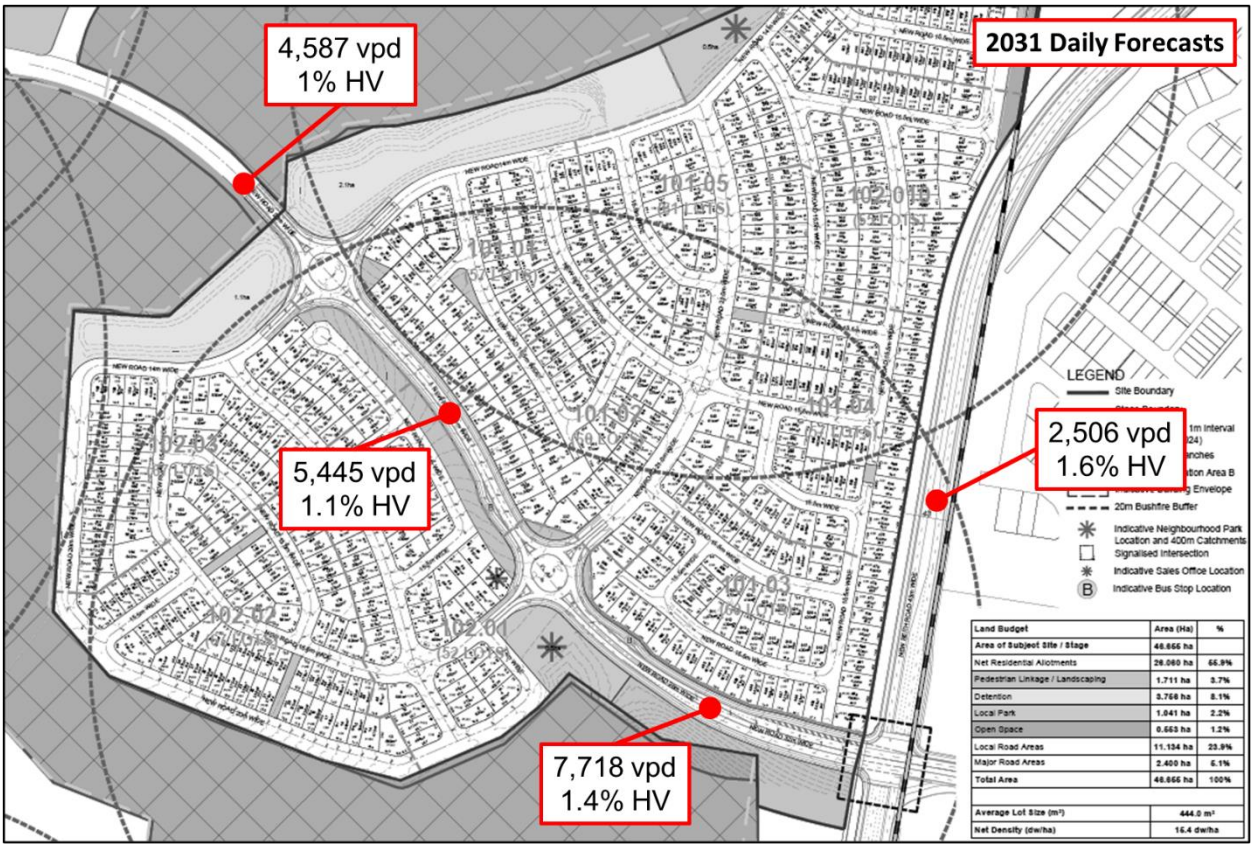


Figure 1.1: 2031 Daily Traffic Forecasts

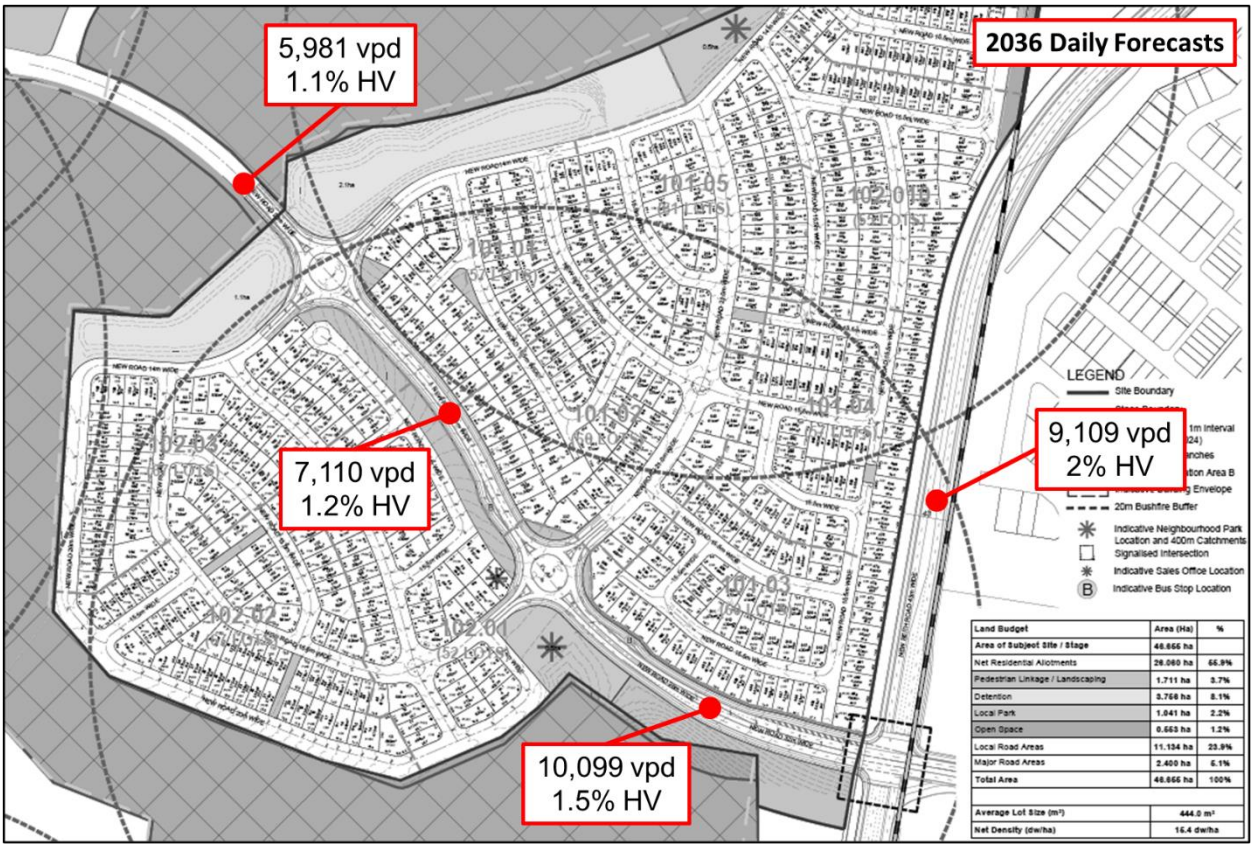


Figure 1.2: 2036 Daily Traffic Forecasts

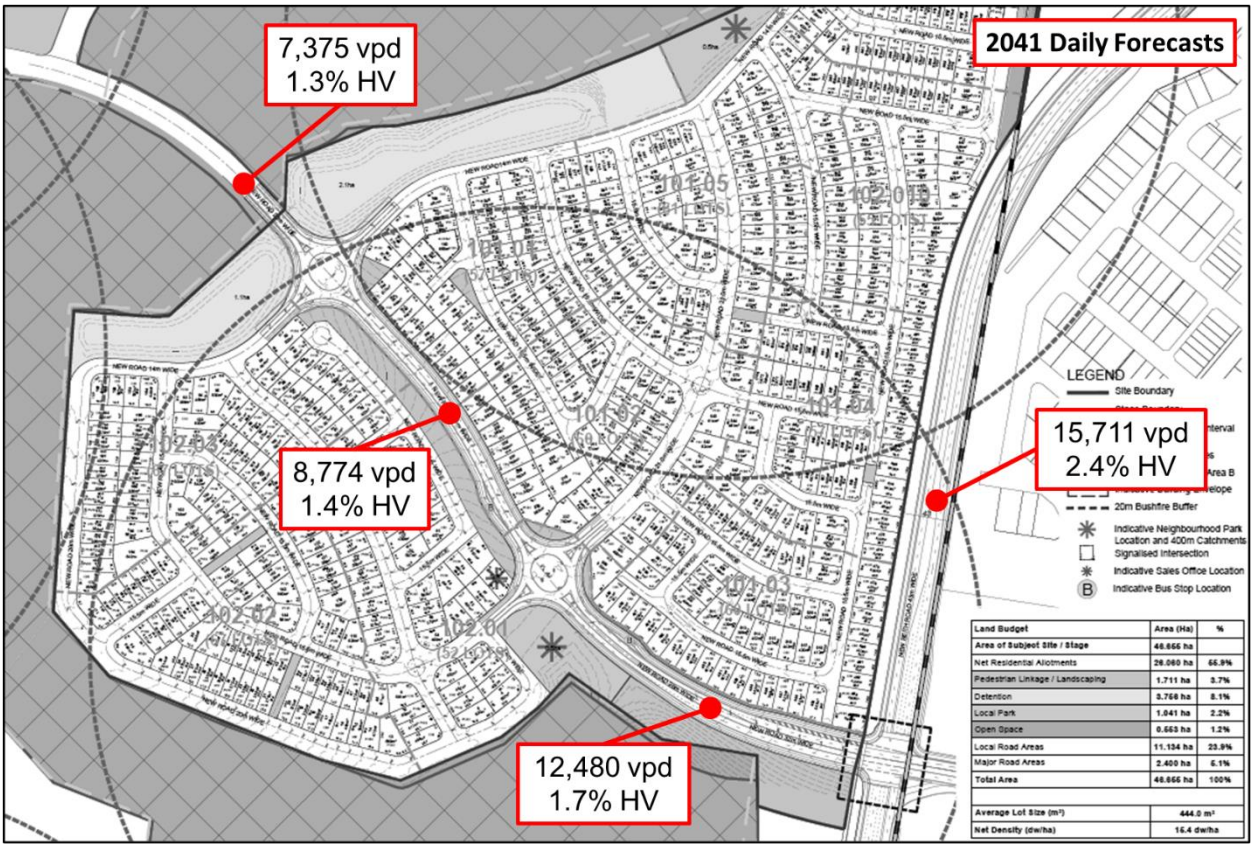
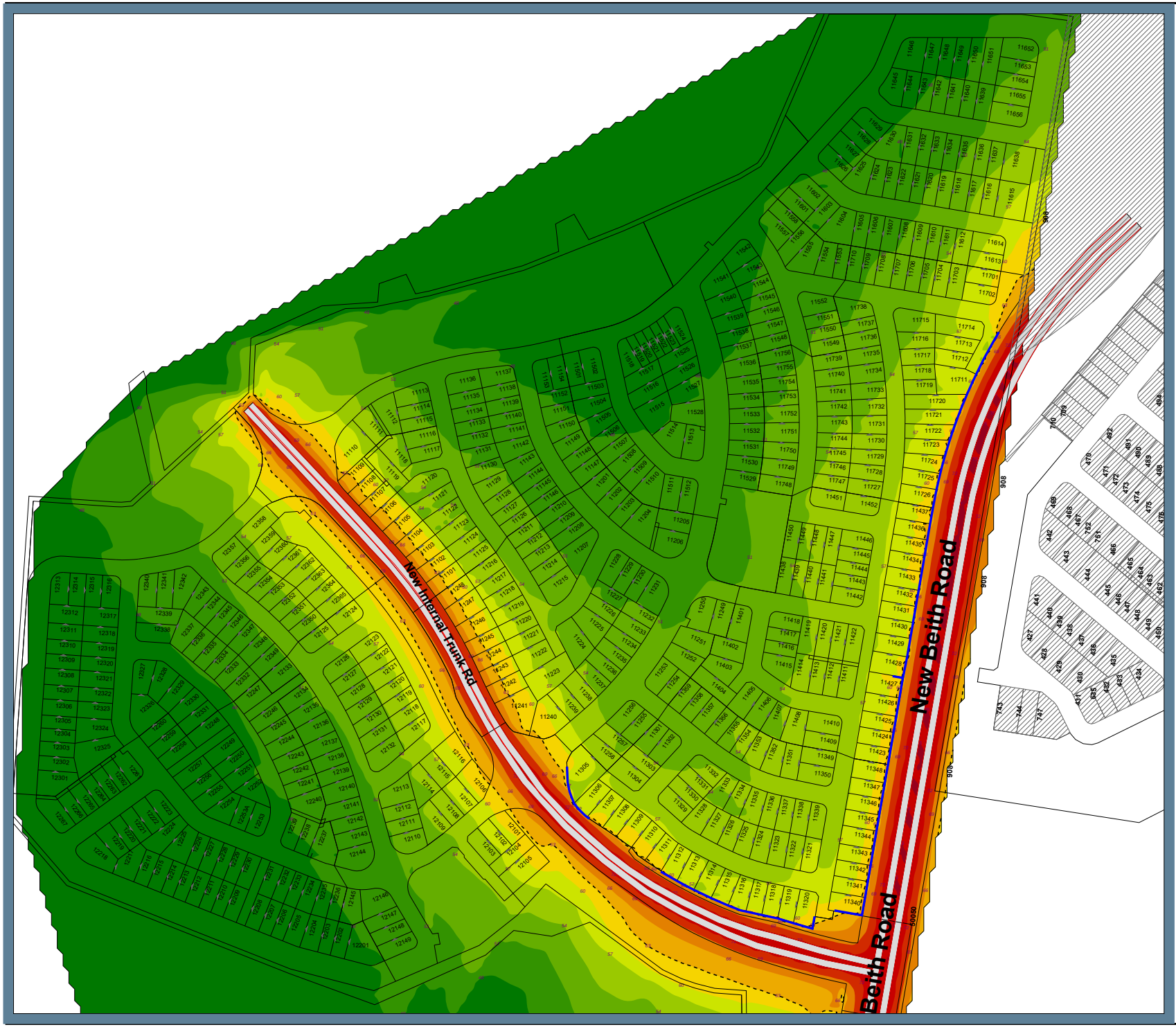


Figure 1.3: 2041 Daily Traffic Forecasts

Appendix F – RTNA Noise Contours (Year 2041)



ATP240148

Proposed Development
Monarch Glen, Precincts 101 and 102

Traffic Noise Modelling
Year 2041

Ground Floor (1.8m AGL)

Traffic noise level
Facade-adjusted
Adjusted for Queensland Conditions[1]
$L_{10,18hr}$ dB(A)

	<= 48
48 <	<= 51
51 <	<= 54
54 <	<= 57
57 <	<= 60
60 <	<= 63
63 <	<= 66
66 <	<= 69
69 <	<= 72
72 <	<= 75
75 <	<= 78
78 <	<= 81
81 <	

Legend

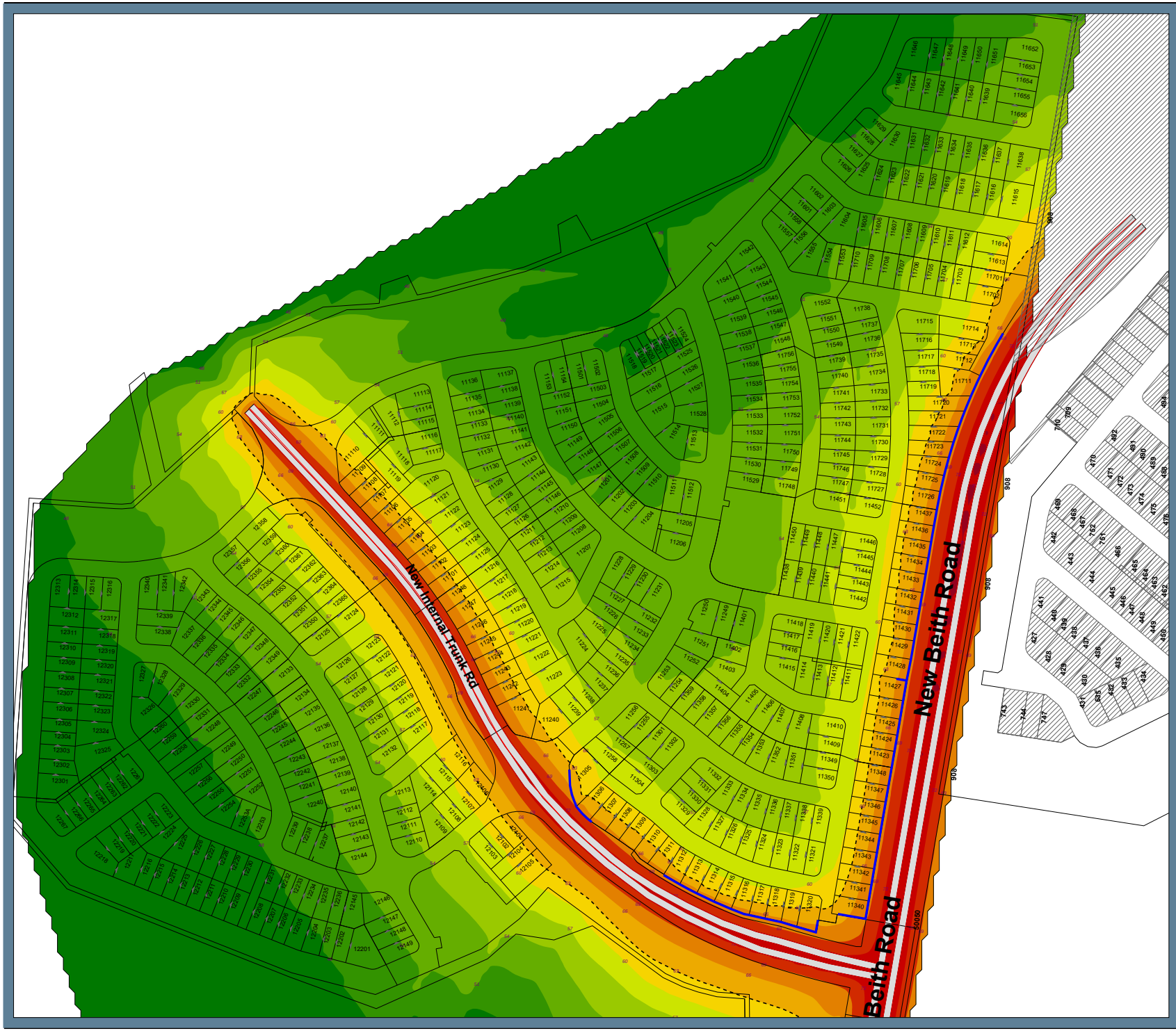
- Limit line - 63dB(A) criteria
- Noise barrer fence
- Road noise emission line
- Road surface
- Line
- Batter

SCALE @ A4 1:4500

0 20 40 80 120 160 200 m

Grid Spacing: 2m
Project Engineer: Bojan Todorovski
Created: 3/04/2025
Processed with SoundPLAN 9.1

[1] As per procedure of TMR Code of Practice Volume 1



ATP240148

Proposed Development
Monarch Glen, Precincts 101 and 102

Traffic Noise Modelling
Year 2041

First Floor (4.6m AGL)

Traffic noise level
Facade-adjusted
Adjusted for Queensland Conditions[1]
$L_{10,18hr}$ dB(A)

	<= 48
48 <	<= 51
51 <	<= 54
54 <	<= 57
57 <	<= 60
60 <	<= 63
63 <	<= 66
66 <	<= 69
69 <	<= 72
72 <	<= 75
75 <	<= 78
78 <	<= 81
81 <	

Legend

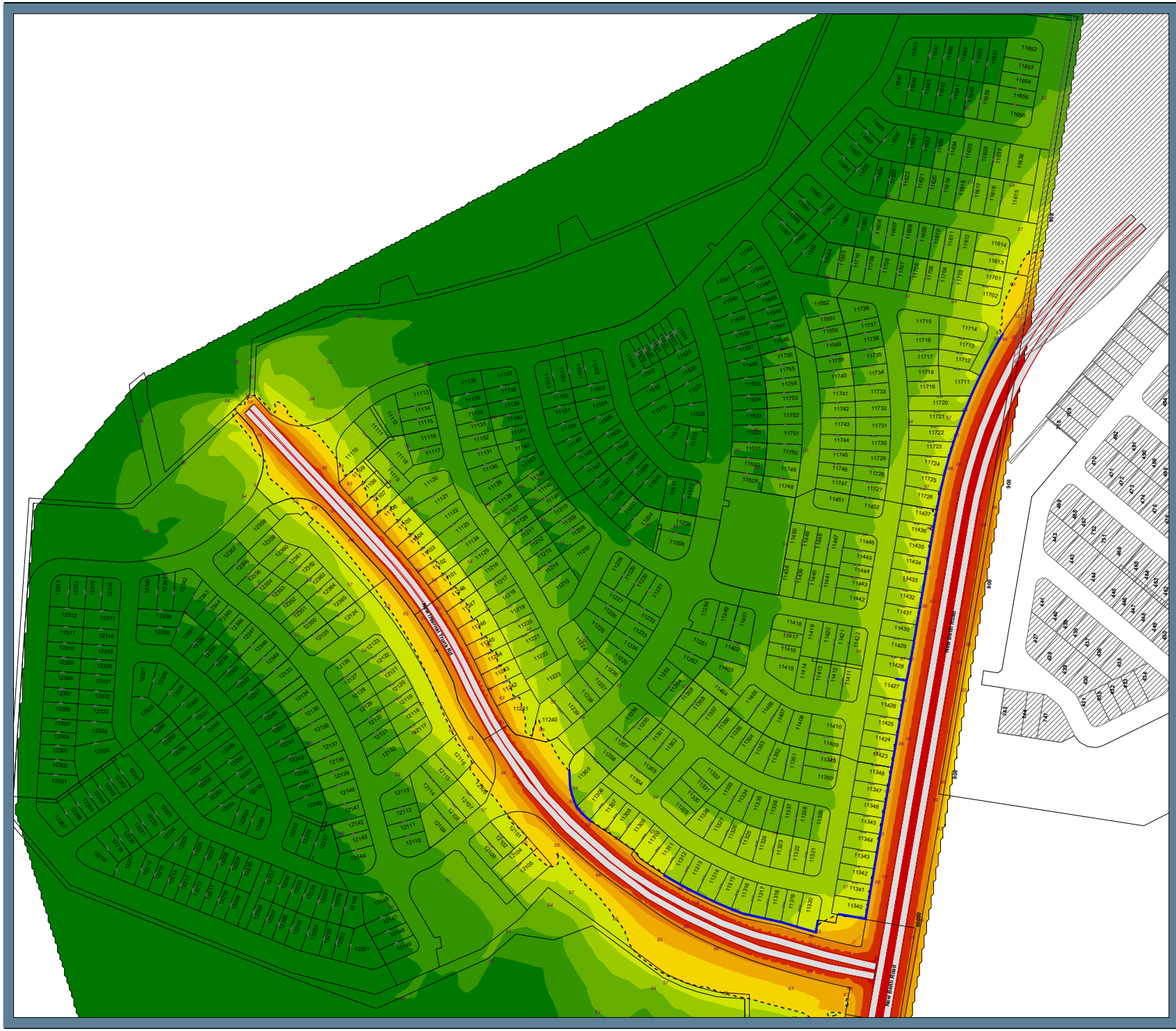
- Limit line - 63dB(A) criteria
- Noise barrer fence
- Road noise emission line
- Road surface
- Line
- Batter

SCALE @ A4 1:4500

0 20 40 80 120 160 200 m

Grid Spacing: 2m
Project Engineer: Bojan Todorovski
Created: 3/04/2025
Processed with SoundPLAN 9.1

[1] As per procedure of TMR Code of Practice Volume 1



ATP240148

Proposed Development
Monarch Glen, Precincts 101 and 102

Traffic Noise Modelling
Year 2041

POS (1.5m AGL)

Traffic noise level
Free-field
Adjusted for Queensland Conditions[1]
$L_{10,18hr}$ dB(A)

	<= 48
48 <	<= 51
51 <	<= 54
54 <	<= 57
57 <	<= 60
60 <	<= 63
63 <	<= 66
66 <	<= 69
69 <	<= 72
72 <	<= 75
75 <	<= 78
78 <	<= 81
81 <	

Legend

- Limit line - 60dB(A) criteria
- Noise barrer fence
- Road noise emission line
- Road surface
- Line
- Batter

SCALE @ A4 1:4500

0 20 40 80 120 160 200 m

N

Grid Spacing: 2m
Project Engineer: Bojan Todorovski
Created: 3/04/2025
Processed with SoundPLAN 9.1

[1] As per procedure of TMR Code of Practice Volume 1

ATP240148

Proposed Development
Monarch Glen, Precincts 101 and 102

Traffic Noise Modelling
Year 2041

Ground Floor (1.8m AGL)

QDC MP4.4 Noise Category
Facade-adjusted
Adjusted for Queensland Conditions[1]

- Category 0
- Category 1
- Category 2
- Category 3
- Category 4

Legend

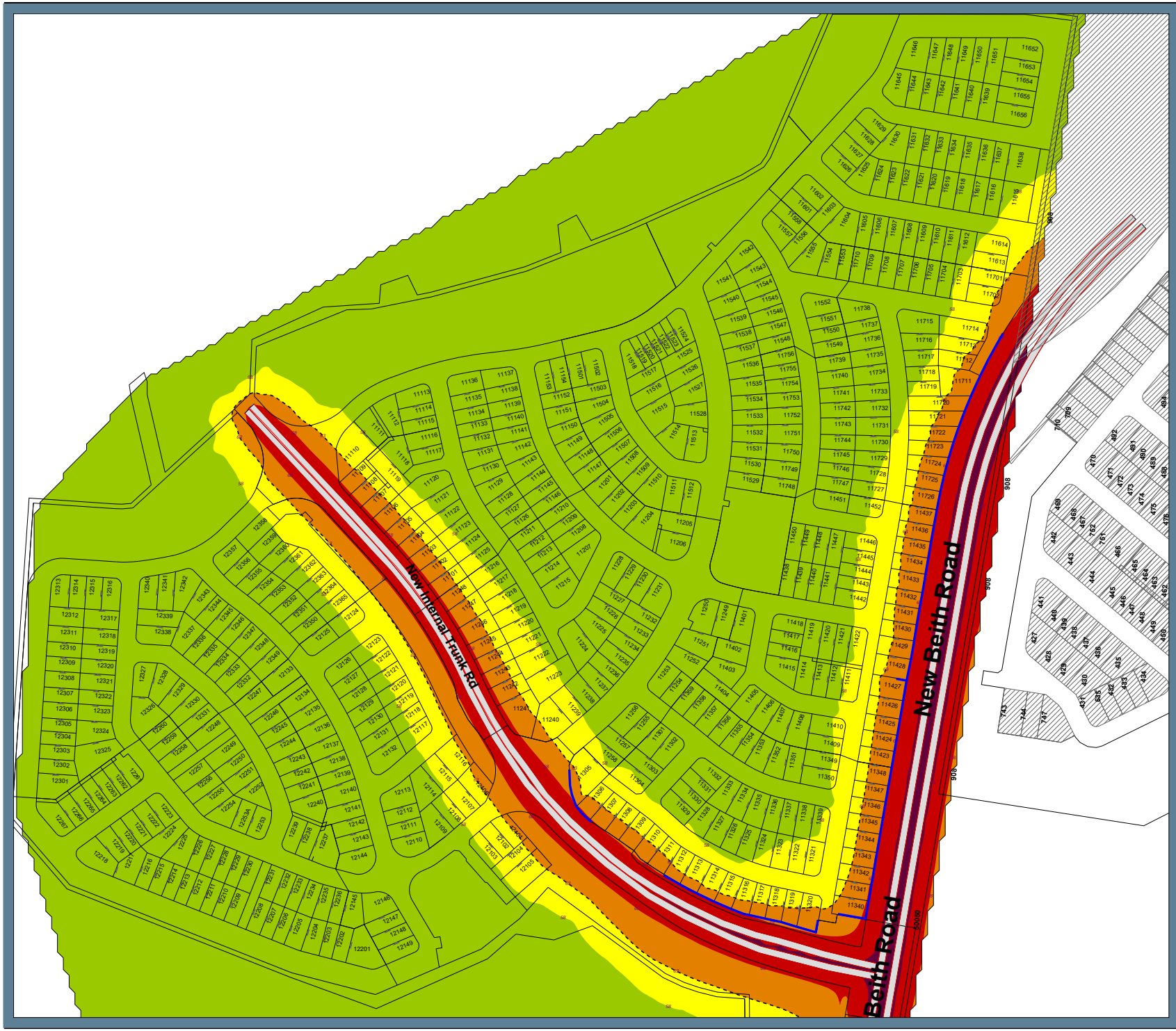
- Noise barrer fence
- Road noise emission line
- Road surface
- Line

SCALE @ A4 1:4500

0 20 40 80 120 160 200 m

Grid Spacing: 2m
Project Engineer: Bojan Todorovski
Created: 3/04/2025
Processed with SoundPLAN 9.1

[1] As per procedure of TMR Code of Practice Volume 1



ATP240148

Proposed Development
Monarch Glen, Precincts 101 and 102

Traffic Noise Modelling
Year 2041

First Floor (4.6m AGL)

QDC MP4.4 Noise Category
Facade-adjusted
Adjusted for Queensland Conditions[1]

- Category 0
- Category 1
- Category 2
- Category 3
- Category 4

Legend

- Noise barrer fence
- Road noise emission line
- Road surface
- Line

SCALE @ A4 1:4500

0 20 40 80 120 160 200 m

Grid Spacing: 2m
Project Engineer: Bojan Todorovski
Created: 3/04/2025
Processed with SoundPLAN 9.1

[1] As per procedure of TMR Code of Practice Volume 1