

Appendix N

Traffic Noise Assessment



Southern Thornlands – Precinct 1

Preliminary Road Traffic Noise Assessment

Urbex Pty Ltd

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SLR Project No.: 620.040369.00001

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Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Urbex Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.



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Appendix B	Noise Monitoring Results
Appendix C	Schedule 2 of QDC MP4.4
Appendix D	Reference Noise Barrier Designs

1.0 Introduction

SLR Consulting Pty Ltd (SLR) has been engaged by Urbex Pty Ltd (Urbex) to prepare a preliminary road traffic noise intrusion assessment for the proposed Precinct 1 to be located adjacent from Springacre Road, Southern Thornlands (referred to as ‘the Project’). The purpose of this preliminary noise assessment is to provide a high-level review of the potential road traffic noise impacts in order to identify in-principle acoustic mitigation strategies required to reduce these to managed levels.

This road traffic noise assessment has been conducted following general guidance from the Department of Transport and Main Roads (TMR) – *Transport Noise Management: Code of Practice Volume 1 – Road Traffic Noise (CoP Vol 1)*, dated November 2013:

- Noise monitoring was conducted at the Project site to determine current road traffic noise levels from Springacre Road to verify a computational noise model developed to predict future road traffic noise intrusion.
- The computational noise model included the proposed site within the surrounding context and Springacre Road with the future traffic volume forecasts.
- Noise predictions were conducted at the future sensitive receptor locations (future land uses).

The purpose of this assessment is to present a set of noise prediction results and applicable Queensland Development Code Mandatory Part 4.4 (QDC MP4.4) Noise Categories for the Precinct 1 land use plan, following the noise modelling of road traffic noise.

The following noise mitigation approach has been adopted:

- Achieve suitable internal amenity via the implementation of QDC MP4.4 Noise Categories for the construction of residential facades without further noise mitigation.
- Achieve suitable internal amenity via the implementation of QDC MP4.4 Noise Categories for the construction of residential facades for the residual noise after the implementation of reasonable and feasible noise barriers, e.g. 2.0m in height.

A glossary of acoustic terms used in this report is provided in **Appendix A**.

This report comprises an early-stage assessment of the likely road traffic noise impacts based on early concept design inputs, including civil files and traffic inputs. The outcomes of this assessment are subject to change during the subsequent detailed design stages and the recommendations made in this report will need to be revised.

1.1 Assessment Standards and Policies

Standards and Policies referred to throughout this report are listed below:

- Department of Transport and Main Roads (TMR) Transport Management Code of Practice Volume 1: Road traffic noise (CoP Vol 1).
- Queensland Development Code, Mandatory Part MP 4.4 – Buildings in a Transport Noise Corridor (QDC MP4.4).

2.0 Development Overview

The proposed Southern Thornlands Precinct 1 development comprising of the initial release area will be a residential community consisting of:

- Mixed use precinct.
- Integrated residential precinct.
- Open space and conservation area.
- Future provision for the upgrade of Springacre Road as part of the overall PDA, assumed to require a four-lane road (from the current two lanes).

The Project site is bounded by Springacre Road to the west and, according to the Redland City Plan Red-e-Map tool (last accessed November 2023), is located within Rural zone and surrounded by Rural zones to the North, West and South and adjoins Low Density Residential uses to the East. The site is shown in its current (2023) local context in **Figure 1**.

Figure 1 Site Location – Local Context



The Project is expected to be delivered incrementally with completion by 2029. The proposed land uses are shown in **Figure 2**:

- Mixed-use areas will have small retail occupancy on the ground floor, with residential uses located above.
- Integrated residential areas are to comprise of individual allotments.
- There will also be open space areas and lots with retained vegetation, which are a transition area from Rural Residential lots to the east of the development.

3.0 Existing Acoustic Environment

Ambient noise monitoring was conducted at three (3) locations adjacent to Springacre Road, as shown in **Figure 3**, with the purpose of quantifying the existing acoustic environment, as well as to validate a computer noise model used to predict the road traffic noise levels onto the future lots.

Noise monitoring was conducted between 12th September and 20th September 2023 during a concurrent road traffic count conducted by Austraffic.

Noise measurements were conducted in accordance with CoP Vol 1 with the instruments setup as follows:

- A-weighting frequency response and “Fast” time response.
- Microphone height of 1.8m above the ground, aimed vertically upwards.
- 1-hour intervals.

The instrumentation used at all noise monitoring locations consisted of ARL Ngara Type 1 sound level meters (S/N 878202, 8781DD & 8781CE) and complied with the requirements of *AS IEC 61672.1 - 2019 Electroacoustics - Sound Level Meters - Specifications* and carried appropriate and current calibration certificates by a NATA¹ accredited laboratory.

The instruments were programmed to record a range of statistical noise levels, including the LA10 noise descriptor, over consecutive 1-hour intervals. The loggers were checked for calibration (using G.R.A.S 42AG calibrator, S/N 279304) before and after the monitoring, with no drift in calibration exceeding 1.0 dBA, which is within the 1.0 dB tolerance allowed for in AS 2702²; therefore, the measurements are considered valid in accordance with CoP Vol 1.

Weather data sourced from local weather station (ID14007) at Redlands, where no rain fall was recorded or wind exceeding 3.0 m/s during the selected verification measurement period. The weather conditions over the measurement period are considered acceptable for noise monitoring in accordance with AS 1055, AS 2702 and CoP Vol 1.

The **Table 1** results are the average noise levels measured over the monitoring period. Detailed monitoring results and plots are provided in **Appendix C**.

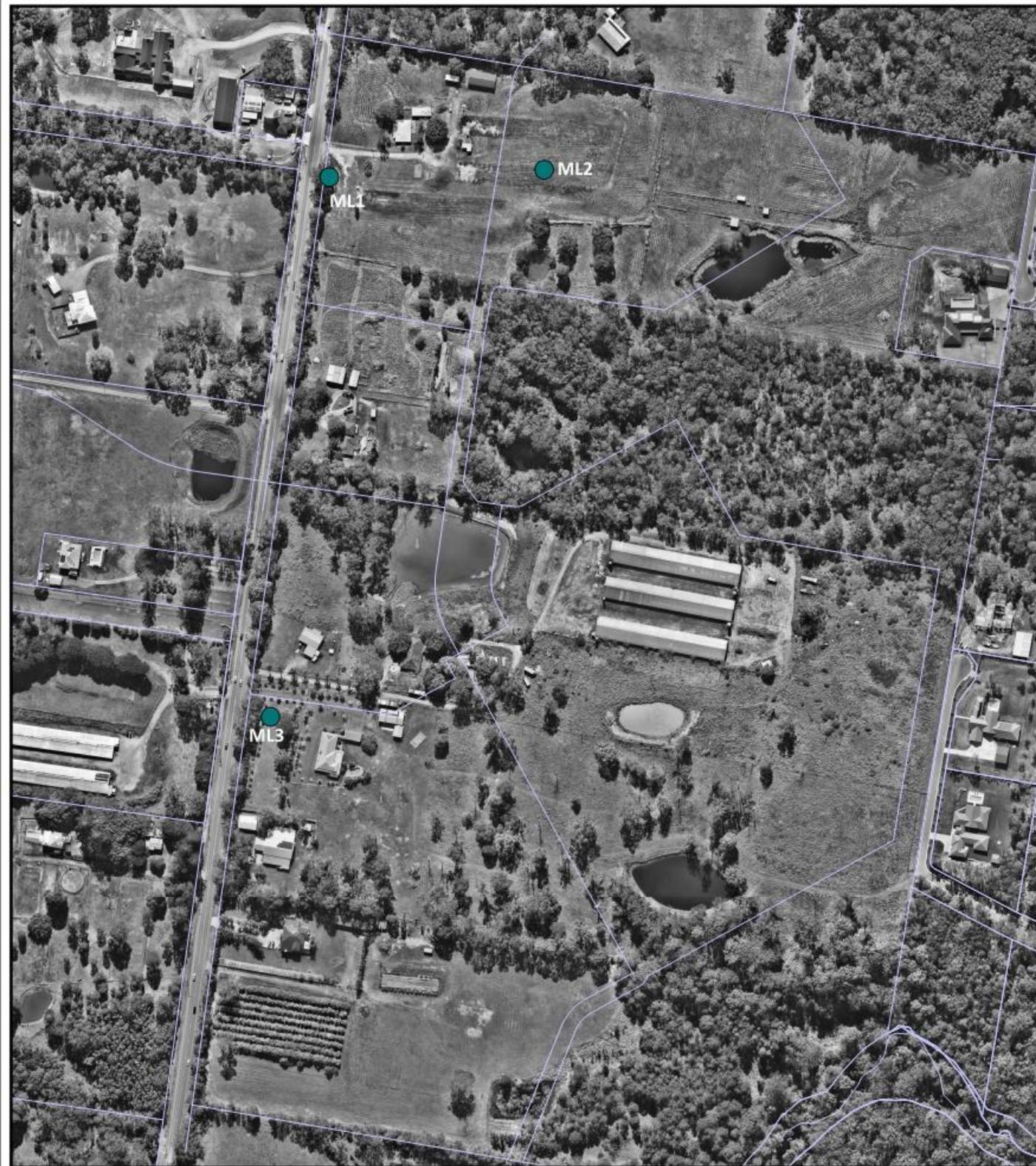
Table 1 Unattended noise logging results

Location ID	Measurement purpose	Coordinates, UTM, Zone: 56 J		Average Measured Noise Levels (dBA) during concurrent road traffic count		
		X (m)	Y (m)	L _{A10,18hr}	L _{A90,18hr}	L _{Aeq,1hr}
ML1	Verification measurement	525378.76	6949590.53	67	44	67
ML2	Background measurement	525546.00	6949604.48	49	43	60
ML3	Verification measurement	525334.51	6949188.44	56	42	57

¹ National Association of Testing Authorities.

² AS 2702-1984 - Acoustics - Methods for the measurement of road traffic noise.

Figure 3
Noise Monitoring Locations



Legend

- Proposed Development
- Noise Monitoring Locations



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4.0 Noise Assessment Criteria

4.1 QDC MP4.4

In the absence of Acceptable Outcomes (AO) in the Redland City Plan 2018 and in consideration of the application for a potential Priority Development Area (PDA) to Economic Development Queensland (EDQ), the QDC MP4.4 has been considered for this assessment, as referred to by EDQ at other QLD subdivision projects.

Under QDC MP4.4, when building in a Transport Noise Corridor, a residential building needs to achieve certain levels of noise reduction which can be achieved through incorporating appropriate building materials to the building envelope to achieve the required noise reduction in habitable rooms.

Reproduced from QDC MP4.4, the Noise Categories and associated minimum noise reduction requirements and minimum Sound Reduction Index (Rw) for external building elements are shown in **Table 2**. The Rw is a measure of the sound insulation properties of a specific building material element.

QDC MP4.4 provides acceptable forms of construction for the external elements of the building to assist in achieving a building design and construction which meets the required noise reduction for each Noise Category. The acceptable forms of construction in MP4.4 are reproduced in **Appendix C**, noting that other forms of construction are acceptable where they achieve the required Rw rating.

Table 2 QDC MP4.4 Noise Categories and Minimum Noise Reduction for Road Transport Noise

Noise Category	Transport Noise Level, Facade Corrected	Minimum Transport Noise Reduction for Habitable Rooms	Building External Envelope Component	Minimum Rw Required for Each Component	
4	Road traffic noise ≥73 dBA LA10(18hour)	40 dBA	Glazing	43	
			External walls	52	
			Roof	45	
			Floors	51	
			Entry doors	35	
3	Road traffic noise 68 – 72 dBA LA10(18hour)	35 dBA	Glazing	38	where total area of glazing for a habitable room is greater than 1.8 m ²
				35	where total area of glazing for a habitable room is less than or equal to than 1.8 m ²
			External walls	47	
			Roof	41	
			Floors	45	
			Entry doors	33	



Noise Category	Transport Noise Level, Facade Corrected	Minimum Transport Noise Reduction for Habitable Rooms	Building External Envelope Component	Minimum Rw Required for Each Component	
2	Road traffic noise 63 – 67 dBA LA10(18hour)	30 dBA	Glazing	35	where total area of glazing for a habitable room is greater than 1.8 m ²
				32	where total area of glazing for a habitable room is less than or equal to than 1.8 m ²
			External walls	41	
			Roof	38	
			Floors	45	
			Entry doors	33	
			1	Road traffic noise 58 – 62 dBA LA10(18hour)	25 dBA
24	where total area of glazing for a habitable room is less than or equal to than 1.8 m ²				
External walls	35				
Roof	35				
Entry doors	28				
0	Road traffic noise ≤57 dBA LA10(18hour)	No additional acoustic treatment required – standard building assessment provisions apply.			



5.0 Road Traffic Noise Modelling

Road traffic noise modelling was conducted following guidance from the CoP Vol 1. A three-dimensional noise model of the study area was developed within SoundPLAN 8.2 acoustic software to predict road traffic noise levels on the proposed precinct based on traffic volumes on the nearby roads. A 3D computer model was created as a representation of the existing and future site, which incorporates the following inputs:

- Calculation algorithms – SoundPLAN implementation of the UK Department of Transport Welsh Office Calculation of Road Traffic Noise 1988 (CoRTN) algorithm. CoRTN is widely accepted in Australia for the calculation of road traffic noise and, in addition with SoundPLAN, and is recommended in the CoP Vol 1.
- 2014 LiDAR representation of the existing terrain obtained from a Queensland Government website using 0.2 m contour lines, and
- A 3D model of the Project site provided by Urbex and civil earthworks drawings as follows:
 - MP 220525 from LUP.dxf - Allotment file, received June 2025.
 - GDA94 Design Super Entire area.DXF 3D terrain file, dated 24 October 2023.

5.1 Road Traffic Model Inputs

Road traffic volumes were sourced from traffic counts supplied by Austraffic conducted concurrently with the onsite noise monitoring and processed by the SLR Transport Advisory team.

SLR Transport Advisory team has forecasted road traffic volumes for the 10-year horizon assessment. The methodology is detailed in SLR document *620.040303 Transport – EDQ Briefing 2023 11 23 PDF*, dated 23 November 2023.

5.1.1 Current (2023) Road Traffic Volumes

A summary of the data used in modelling road traffic noise for the purpose of validating the road traffic noise model is presented in **Table 3**.

Table 3 2023 Noise Model Verification Road Traffic Volume

Road	18-Hour Traffic Volume (6:00am-12:00am)			Road Surface Type
	Total traffic volume	Heavy Vehicle %	Speed, Km/h	
Springacre Road	7,500	4.7	80	Dense Graded Asphalt, DGA

5.1.2 Future (2039) Road Traffic Volumes 10-years After Development Construction

With reference to the CoP Vol 1, traffic noise predictions are to represent noise levels for a 10-year horizon following completion date of construction. Following advice from Urbex, the estimated time at which full traffic volumes will be generated by the Project is 2029; therefore, road traffic noise predictions has been conducted for a 10-year horizon (after development completion and full traffic operation) year of 2039.



Future road traffic volumes were forecasted by SLR’s Transport Advisory team and are presented in **Table 4**. The following is noted:

- An annual traffic growth of 3.1% has been applied linearly. This includes allowance for other future developments in the area.
- Estimated traffic volumes are based on the functional need for Springacre Road to be a sub-arterial with 4-lanes and assuming a similar development pattern on the western side of Springacre Road.
- One (1) intersection is expected to be required for the development to assist with traffic movements.
- A road traffic speed limit of 60 km/h (i.e. reduced from the current 80 km/hr as noted in **Table 3**) has been adopted which is considered consistent with current Safe System practice (as determined by SLR’s Transport Advisory team).

Table 4 10-Year Horizon (2039) Forecast Traffic Volumes

Road	Section	18-Hour Traffic Volume (6:00am-12:00am)	Heavy Vehicle %	Speed, km/h	Road Surface Type
Springacre Road (upgraded to 4 lanes)	North of intersection	17,263	5.0	60	Dense Graded Asphalt, DGA
	South of intersection	17,263			

5.1.3 Other Noise Prediction Parameters

A -0.7 dBA (free field) or -1.7 dBA (1m from façade) road traffic calibration factor was applied, where applicable, in accordance with the CoP Vol 1 with a further +2.5 dB facade correction factor in accordance with the CoRTN.

For the assessment of the applicable Noise Categories, road traffic noise levels were predicted at 1.8 m for the ground floor level and assuming 2.8 m high ceilings for subsequent floors, up to five storey buildings.

Noise contours were generated from noise predictions using a grid spacing of 1.0 m.

A Dense Graded Asphalt (DGA) pavement surface has been used for all other current and future roads with a 0 dB correction.

5.2 Road Traffic Noise Model Verification

With reference to the CoP Vol 1, a road traffic noise model is deemed to be verified if the average difference between the measured and calculated values of the noise descriptors is no more than ± 2.0 dBA. Further, this document states that:

“If the average difference between existing measured and calculated noise descriptors values is positive (i.e. average measured values exceed the calculated values), then the calculated values shall be adjusted upwards by this average difference before determining the predicted values.”

“If the average difference between existing measured and calculated noise descriptors values is negative (i.e. average calculated values exceed the measured values), then no adjustment shall be made to the calculated values before determining the predicted values.”



The daily average of the noise levels measured during the traffic volume count and the calculated results are summarised in **Table 5**. The road traffic verification model calculated an average difference (measured minus calculated value) of -1.3 dBA for the $L_{A10,18hr}$ noise descriptor. Since the average difference is a negative value (ie average measured value exceeds the calculated value), no noise level correction is deemed required (in accordance with CoP Vol 1) as the noise model is considered conservative and meets the above verification requirements (within the CoP Vol 1 ± 2 dBA tolerance).

Table 5 Road Traffic Noise Model Verification

Measurement Location	$L_{A10,18hr}$ Noise Levels (dBA)		Difference between measured and calculated values
	Measured	Calculated	
ML1, 62-74 Springacre Road	67.2	67.4	-0.2
ML3, 110-118 Springacre Road	56.1	58.4	-2.3
Overall Average difference			-1.3



6.0 Road Traffic Noise Predictions

Noise predictions are presented in the following sections. Noise contour map calculations were conducted to predict 2039 road traffic noise levels across the proposed development for the following scenarios:

- QDC MP4.4 Noise Categories without noise mitigation (discussed in **Section 6.1**).
- QDC MP4.4 Noise Categories without reasonable and feasible noise barriers (discussed in **Section 6.2**).

6.1 Road Traffic Noise Levels Without Noise Mitigation

QDC MP4.4 noise maps are presented in **Figure 4** to **Figure 8** to show the predicted ground floor noise levels for 2039 across the proposed development without the implementation of noise mitigation.

The worst-case (first row dwelling) QDC MP4.4 Noise Categories are:

- Ground Floor - Noise Category 2-3
- First Floor - Noise Category 3
- Second Floor - Noise Category 3
- Third Floor - Noise Category 3
- Fourth Floor - Noise Category 3



Figure 4
2039 facade-corrected $L_{A10,18hr}$
Ground Floor Noise Contours at 1.8m
Above Ground Without Noise Mitigation

Legend

Springacre Road

LA10,18hr in dBA	QDC MP4.4 Category
≤ 57	Category 0
$57 <$	≤ 62 Category 1
$62 <$	≤ 67 Category 2
$67 <$	≤ 72 Category 3
$72 <$	Category 4



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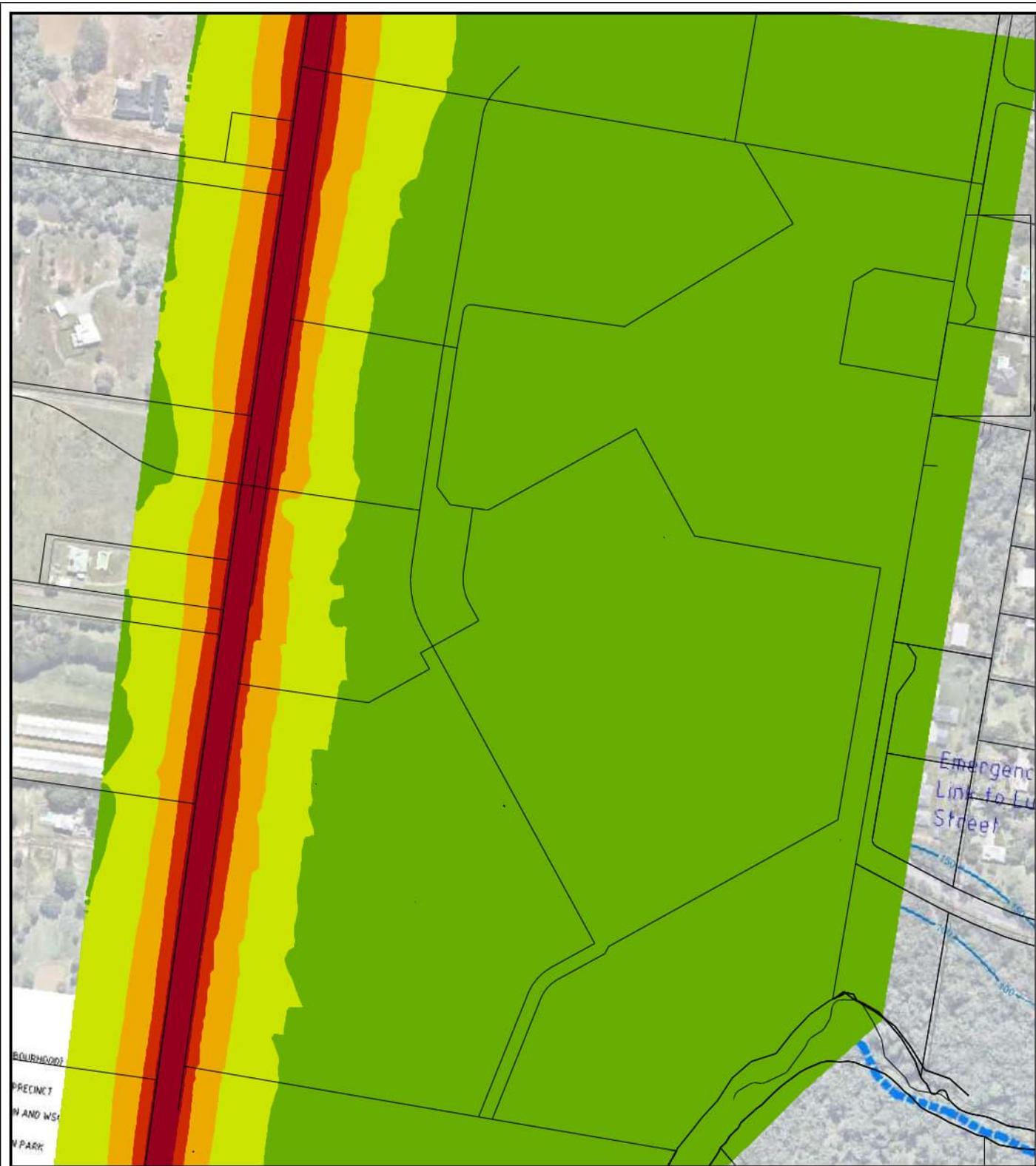
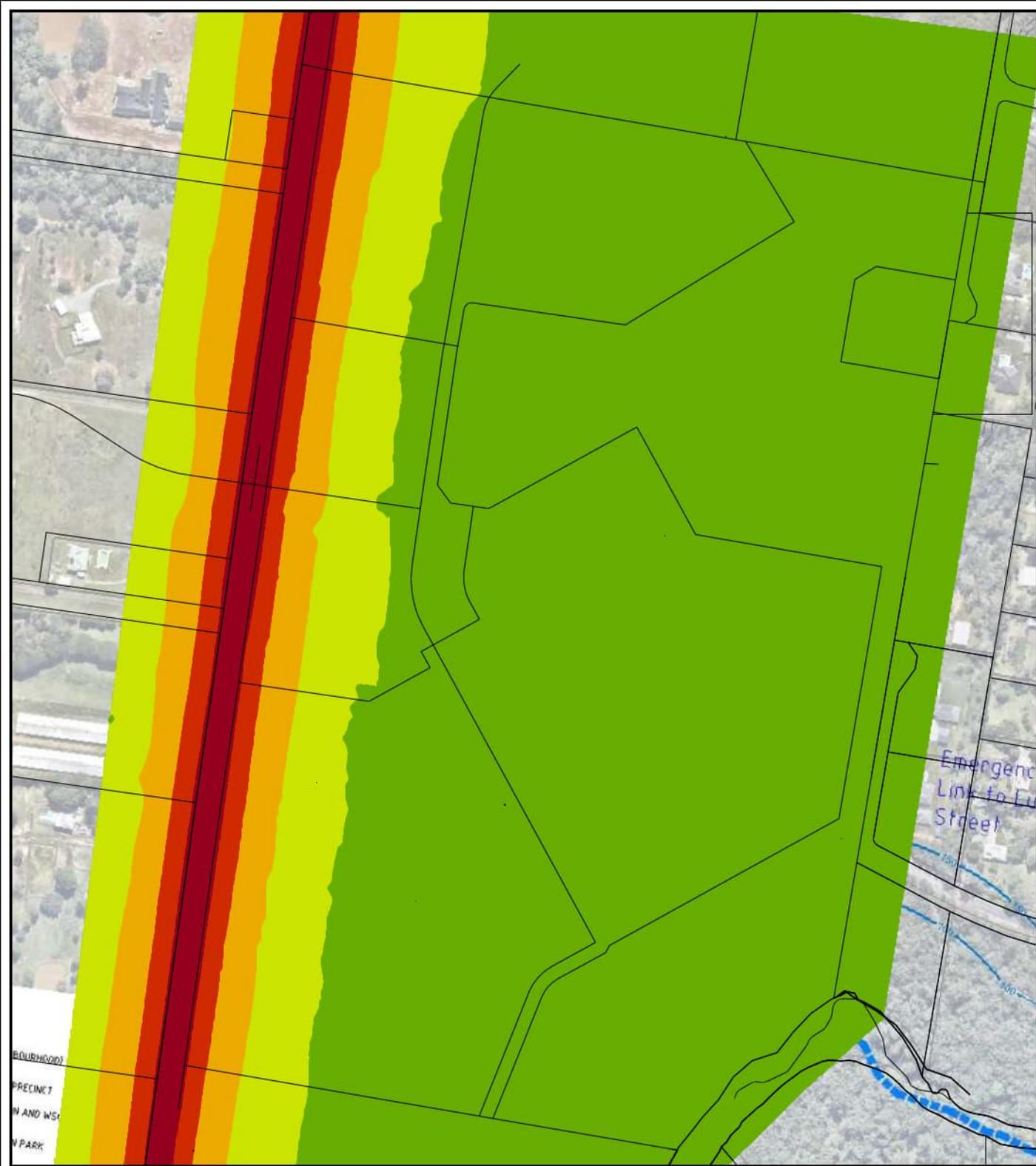


Figure 5
2039 facade-corrected $L_{A10,18hr}$
First Floor Noise Contours at 4.6m
Above Ground Without Noise Mitigation

Legend

Springacre Road

LA10,18hr in dBA	QDC MP4.4 Category
≤ 57	Category 0
$57 <$	≤ 62 Category 1
$62 <$	≤ 67 Category 2
$67 <$	≤ 72 Category 3
$72 <$	Category 4



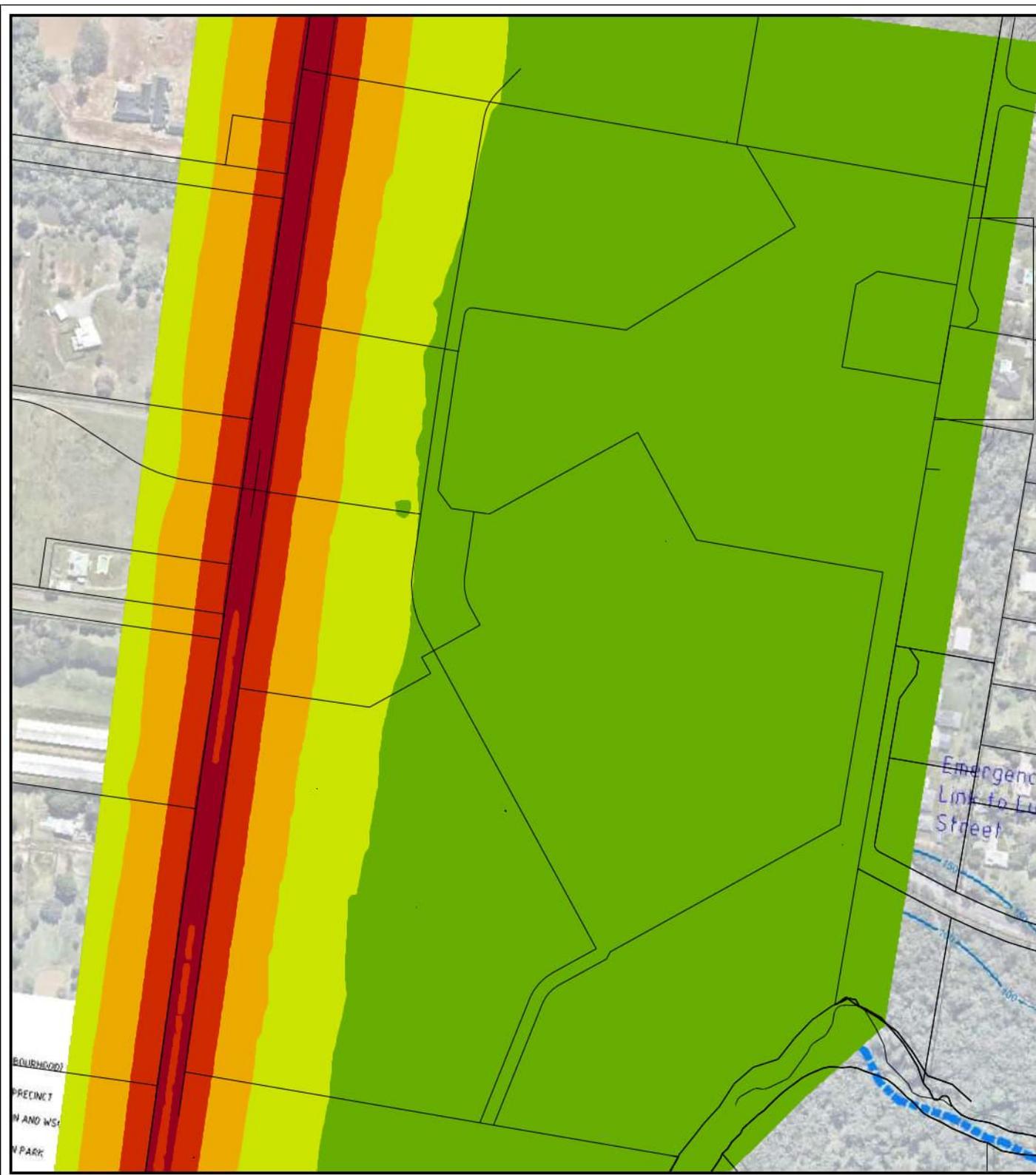
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Figure 6
2039 facade-corrected $L_{A10,18hr}$
Second Floor Noise Contours at 7.4m
Above Ground Without Noise Mitigation

Legend
 Springacre Road

$L_{A10,18hr}$ in dBA	QDC MP4.4 Category
 ≤ 57	Category 0
$57 <$  ≤ 62	Category 1
$62 <$  ≤ 67	Category 2
$67 <$  ≤ 72	Category 3
$72 <$ 	Category 4



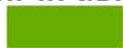
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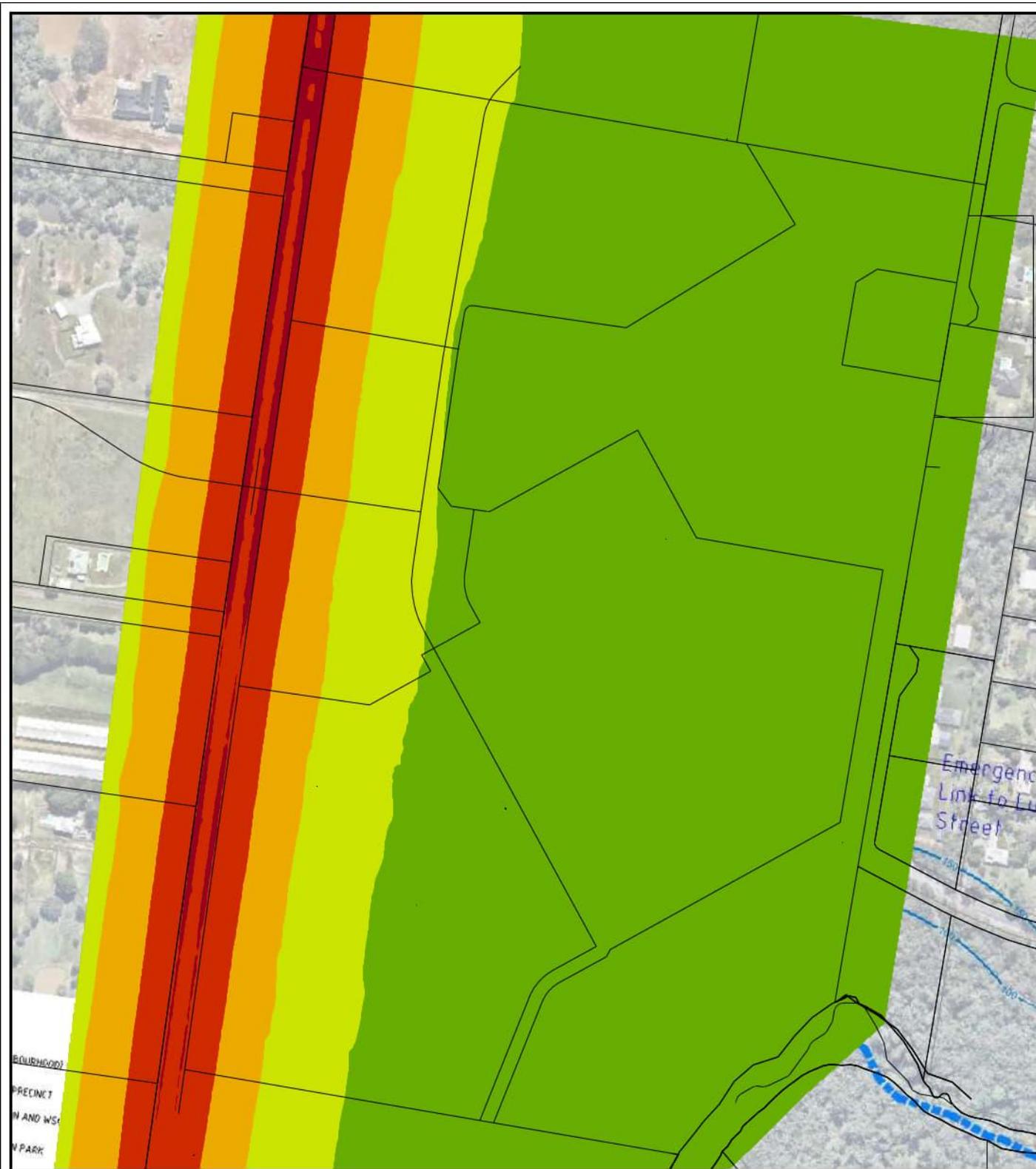


Figure 7
2039 facade-corrected $L_{A10,18hr}$
Third Floor Noise Contours at 10.2m
Above Ground Without Noise Mitigation

Legend

Springacre Road

LA10,18hr in dBA		QDC MP4.4 Category	
		<= 57	Category 0
57 <		<= 62	Category 1
62 <		<= 67	Category 2
67 <		<= 72	Category 3
72 <			Category 4



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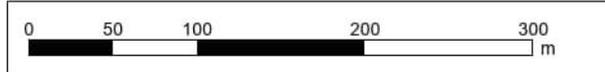
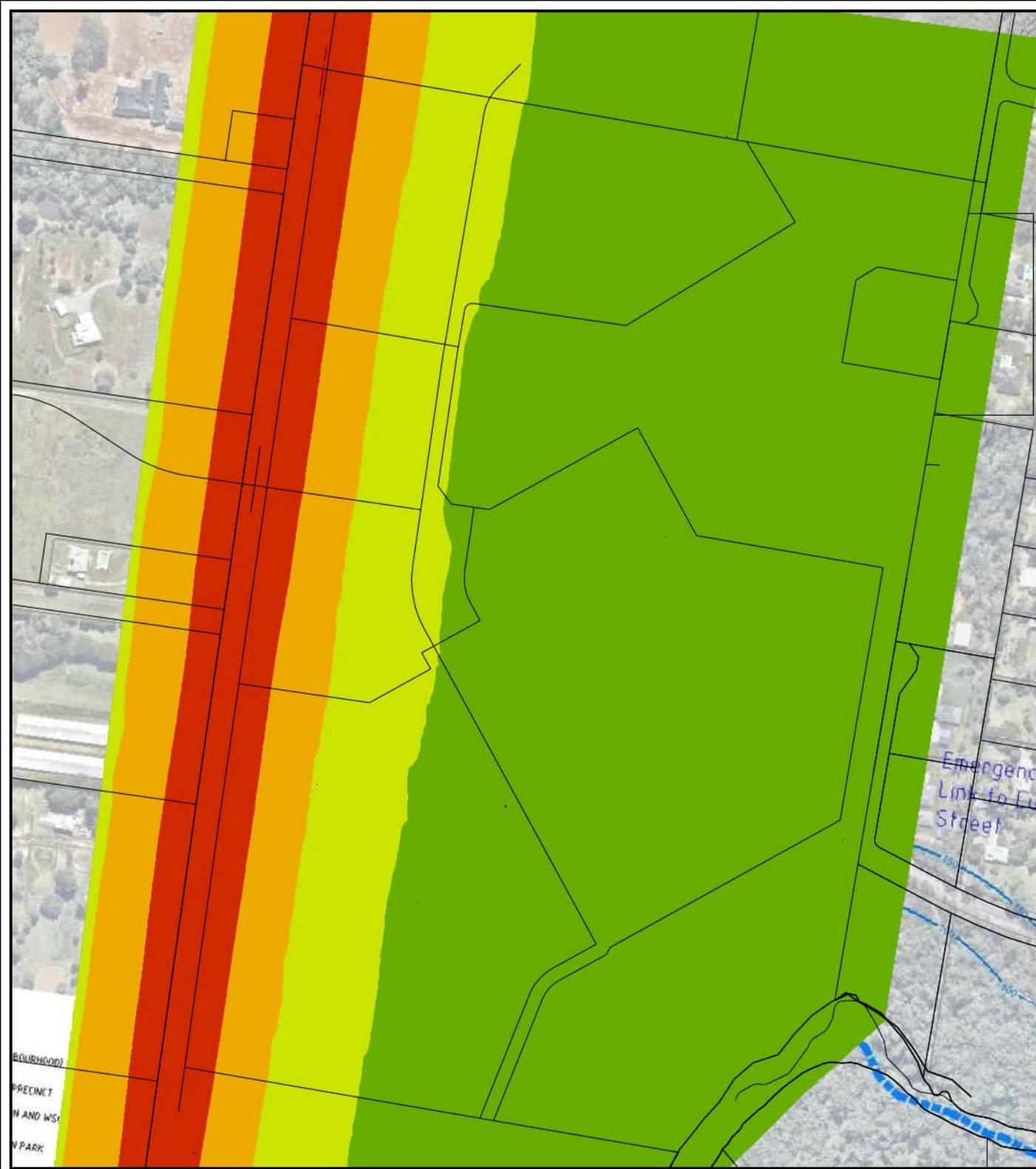


Figure 8
2039 facade-corrected $L_{A10,18hr}$
Fourth Floor Noise Contours at 13m
Above Ground Without Noise Mitigation

Legend

Springacre Road

LA10,18hr in dBA	QDC MP4.4 Category
≤ 57	Category 0
$57 < \leq 62$	Category 1
$62 < \leq 67$	Category 2
$67 < \leq 72$	Category 3
$72 <$	Category 4



6.2 Road Traffic Noise Levels With Noise Barriers

A preliminary noise assessment was conducted to predict the residual noise levels after the implementation of noise barriers located along the western boundary of the proposed residential land uses fronting Springacre Road.

Noise contours showing the results of predicted road traffic noise levels after the implementation of a nominal 2.0m high noise barrier are presented in **Figure 10** to **Figure 14**.

The worst-case (first row dwelling) QDC MP4.4 Noise Categories are:

- Ground Floor - Noise Category 1-2
- First Floor - Noise Category 2-3
- Second Floor - Noise Category 2-3
- Third Floor - Noise Category 3
- Fourth Floor - Noise Category 3



Figure 9
Preliminary Noise Barrier

Legend

- Springacre Road
- 2.0m High Noise Barrier

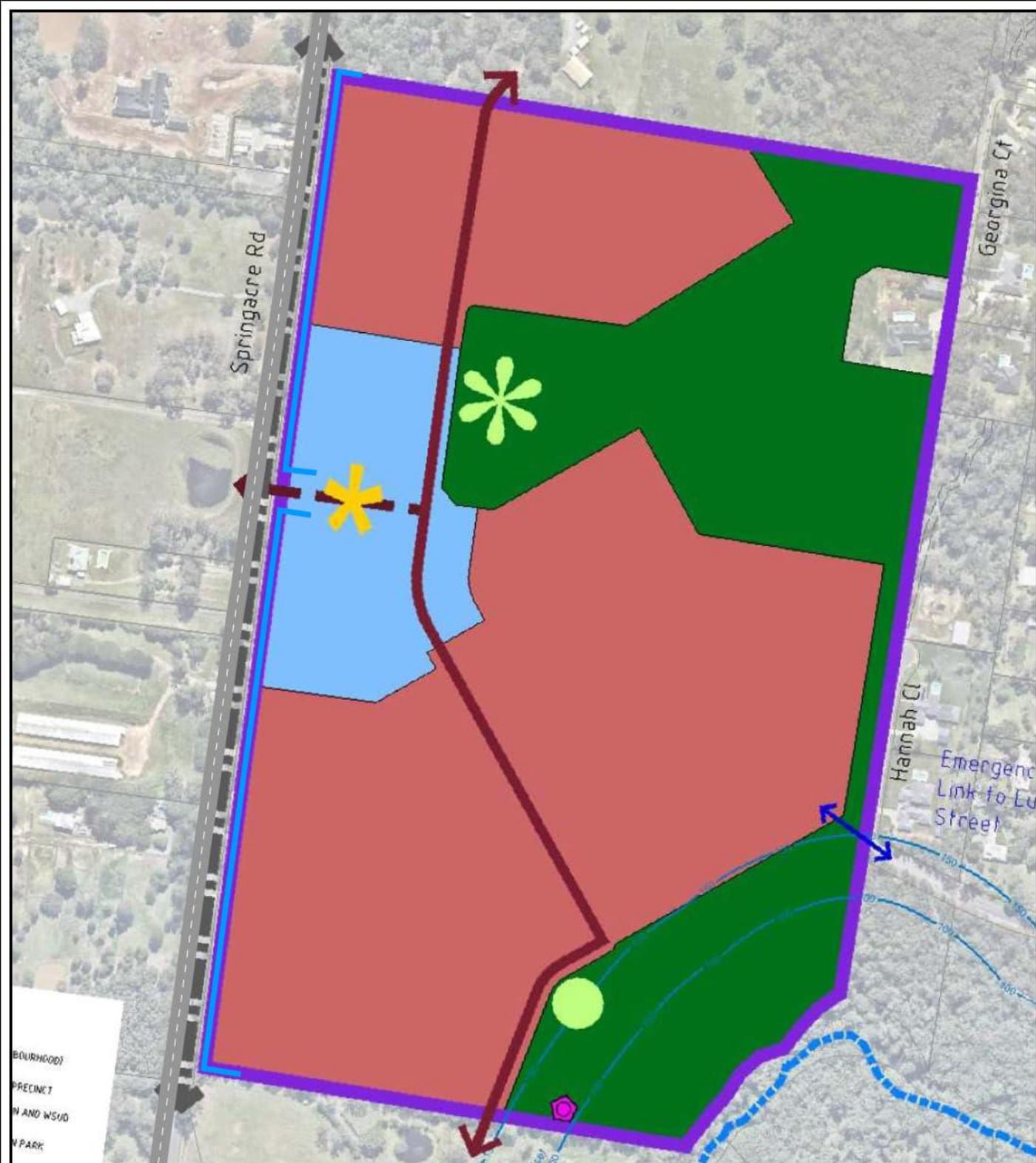
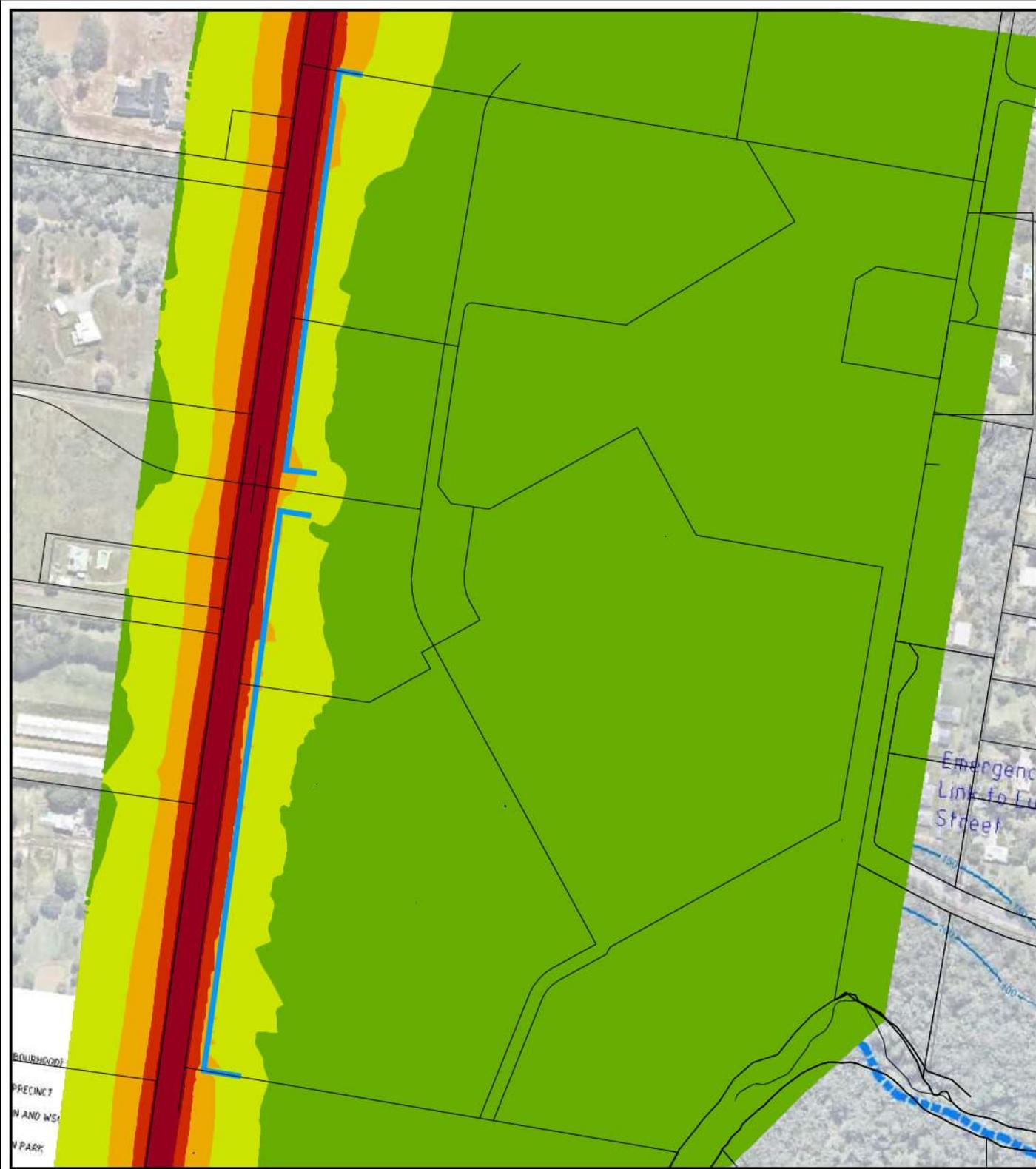


Figure 10
2039 facade-corrected $L_{A10,18hr}$
Ground Floor Noise Contours at 1.8m
Above Ground With 2.0m Noise Barrier

Legend

-  Springacre Road
-  2.0m High Noise Barrier

LA10,18hr in dBA	QDC MP4.4 Category
 <= 57	Category 0
57 <  <= 62	Category 1
62 <  <= 67	Category 2
67 <  <= 72	Category 3
72 < 	Category 4



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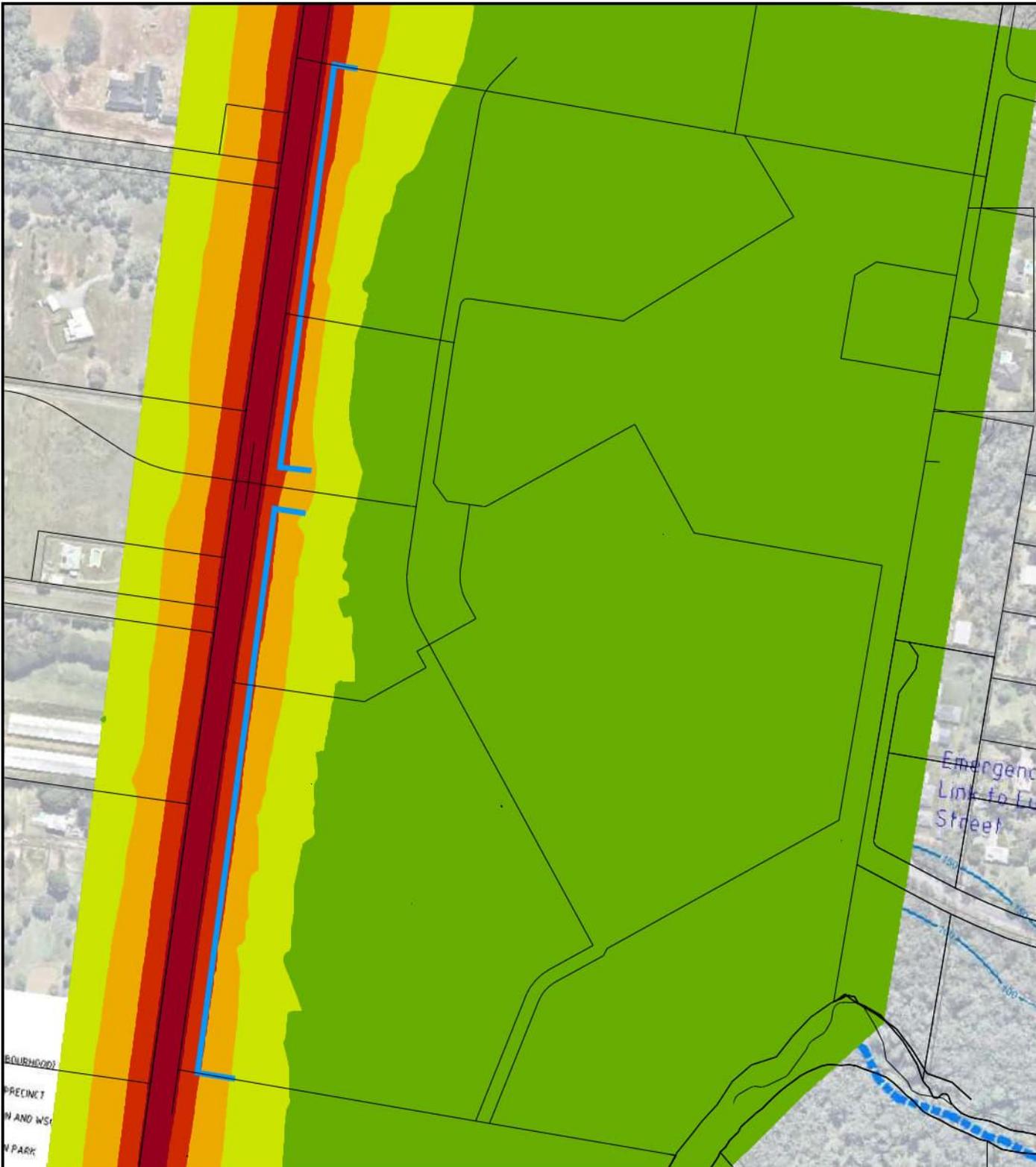


Figure 11
2039 facade-corrected $L_{A10,18hr}$
First Floor Noise Contours at 4.6m
Above Ground With 2.0m Noise Barrier

Legend

-  Springacre Road
-  2.0m High Noise Barrier

$L_{A10,18hr}$ in dBA	QDC MP4.4 Category
 ≤ 57	Category 0
$57 <$  ≤ 62	Category 1
$62 <$  ≤ 67	Category 2
$67 <$  ≤ 72	Category 3
$72 <$ 	Category 4



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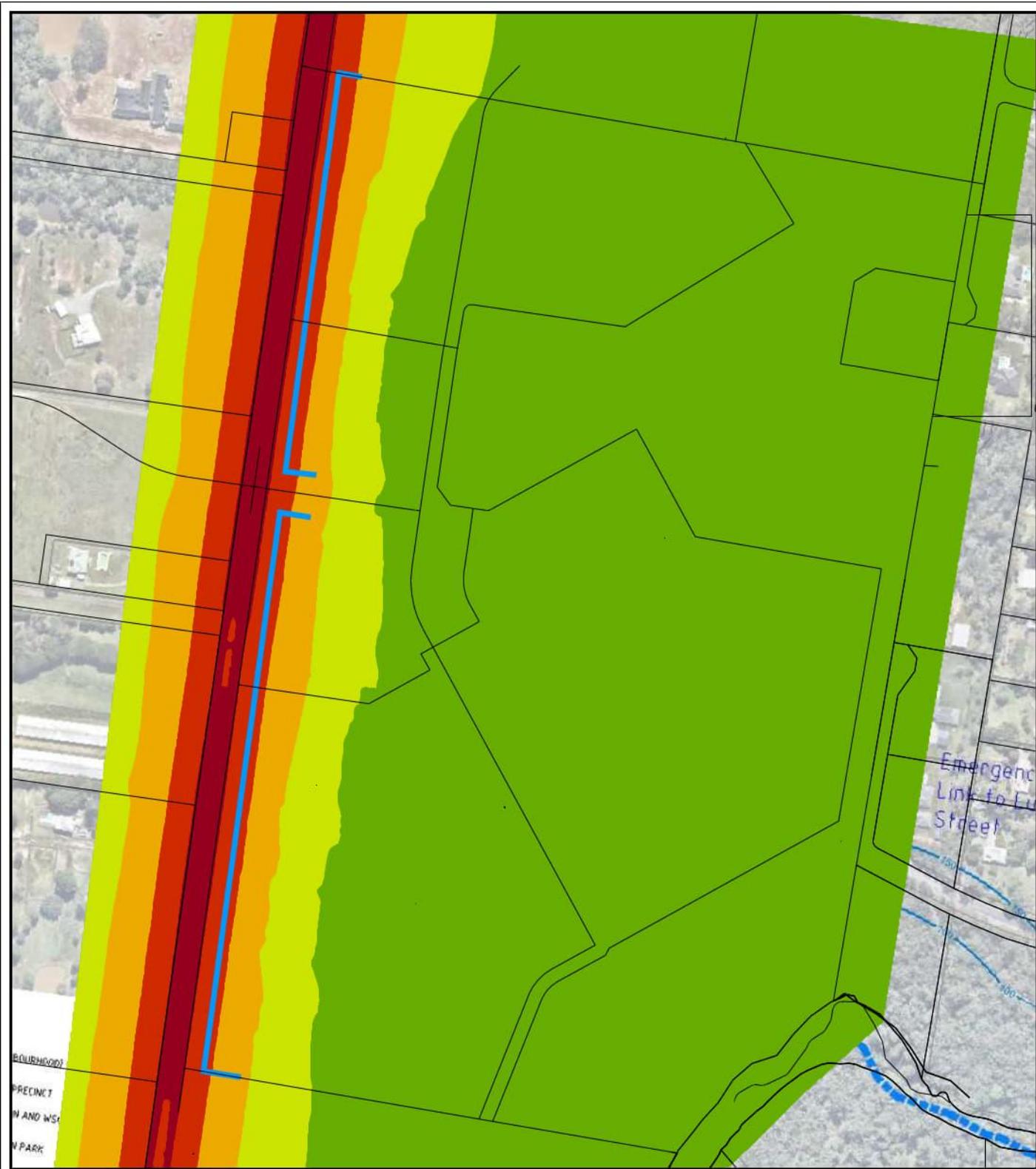


Figure 12
2039 facade-corrected $L_{A10,18hr}$
Second Floor Noise Contours at 7.4m
Above Ground With 2.0m Noise Barrier

Legend

-  Springacre Road
-  2.0m High Noise Barrier

LA10,18hr in dBA	QDC MP4.4 Category
 ≤ 57	Category 0
$57 <$  ≤ 62	Category 1
$62 <$  ≤ 67	Category 2
$67 <$  ≤ 72	Category 3
$72 <$ 	Category 4



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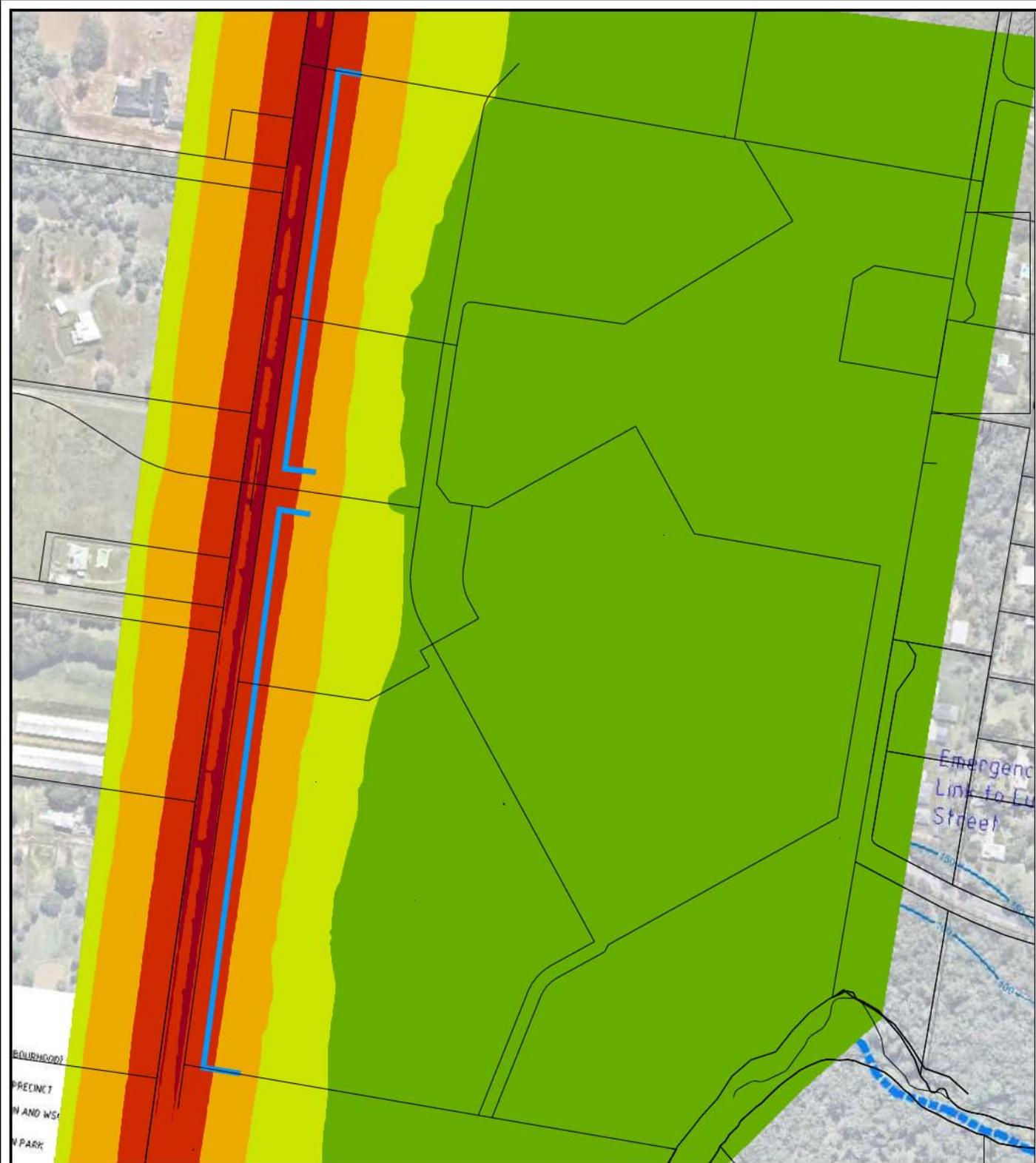


Figure 13
2039 facade-corrected $L_{A10,18hr}$
Third Floor Noise Contours at 10.2m
Above Ground With 2.0m Noise Barrier

Legend

-  Springacre Road
-  2.0m High Noise Barrier

LA10,18hr in dBA	QDC MP4.4 Category
 <= 57	Category 0
57 <  <= 62	Category 1
62 <  <= 67	Category 2
67 <  <= 72	Category 3
72 <  <= 72	Category 4



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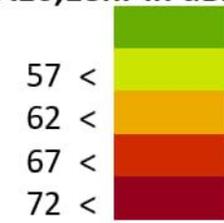


Figure 14
2039 facade-corrected $L_{A10,18hr}$
Fourth Floor Noise Contours at 13m
Above Ground With 2.0m Noise Barrier

Legend

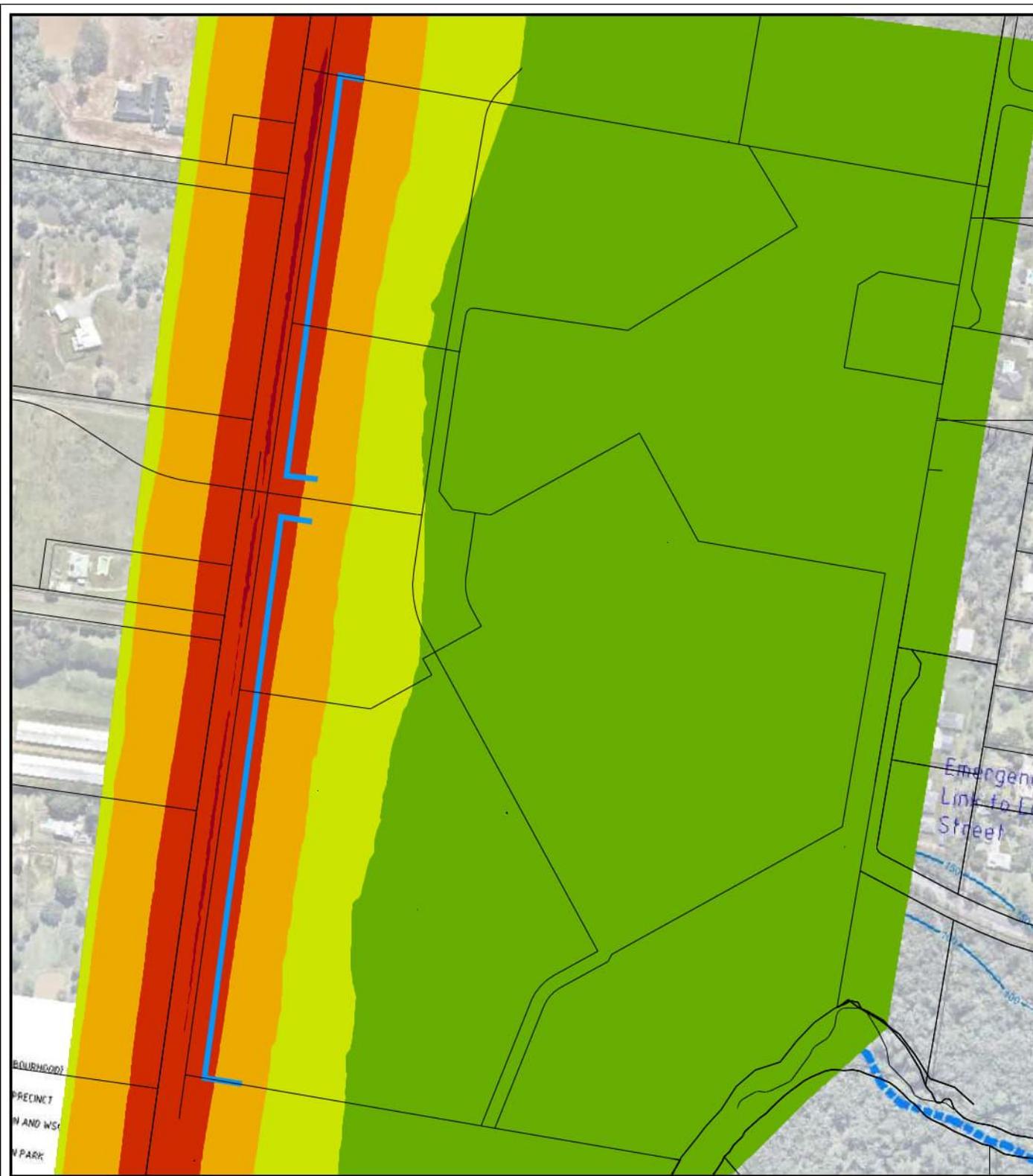
-  Springacre Road
-  2.0m High Noise Barrier

LA10,18hr in dBA

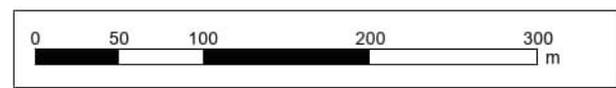


QDC MP4.4 Category

-  <= 57 Category 0
-  57 < <= 62 Category 1
-  62 < <= 67 Category 2
-  67 < <= 72 Category 3
-  72 < Category 4



SLR Consulting Australia Pty Ltd



7.0 Discussion and Recommendations

The assessment presented in **Section 6.0** is summarised in **Table 6**. A comparison is made for the QDC MP4.4 Noise Categories required with and without the implementation of further noise barriers.

Table 6 Worst-case predicted QDC MP4.4 Noise Categories at first row dwellings

Floor	QDC MP4.4 Noise category without Noise Barrier	QDC MP4.4 Noise category with 2.0m Noise Barrier
Ground	2-3	1-2
First	3	2-3
Second	3	2-3
Third	3	3
Fourth	3	3

The results above show that there is a potential to reduce the Noise Category on the Ground Floor of residential lots from Noise Category 2-3 to Noise Category 1-2. The noise reduction of the Noise Category via noise barriers is beneficial for the following reasons:

- Noise barriers provide visual privacy and, if required, a transparent section may be incorporated at the upper sections of the noise barrier to address crime prevention issues.
- Noise barriers provide improved outdoor amenity.
- Noise barriers result in a reduction of the acoustic performance required for the facade elements, particularly the glazing systems:
 - The higher the required acoustic performance, the greater the weight of the window element and the greater the difficulty for large area sliding doors to be operated by elderly people or people with a physical disability.
 - High acoustic performances in operable window systems are difficult to achieve. Therefore, the higher the performance, the greater the window costs.

It is noteworthy that high performance sliding windows can be expected on the Ground Level of first row dwellings given the close distance to the road and the future traffic growth due to the upgrade of Springacre Road into a four-lane road.

At upper floors, the reduction of the Noise Category may be investigated for the following mitigation measures:

- Incorporation of solid balustrades to balconies to provide ‘noise barrier’ screening and/or the implementation of sound absorbing balcony soffits.
- Staggering of floor levels versus distance from the road, e.g. first row dwellings are single storey only.

It is noted that the noise contour maps presented in this noise assessment do not consider the potential noise reduction provided by other lot boundary fences (albeit not necessarily built to an acoustic standard where overlapped timber fence) and/or by the future buildings. As a result, the predicted noise levels do not account for the screening (barrier effect) that will be produced by intervening structures (other than the noise barrier alignment currently modelled); therefore, the predicted noise levels are considered conservative for second row lots and beyond.



7.1 Noise Barriers

Noise barriers are recommended to reduce the QDC MP4.4 Noise Category applicable to the Ground Floor (and to a lesser extent on First Floor) of the residential uses adjoining Springacre Road.

For the external noise levels to meet reduced QDC MP4.4 noise categories, noise barriers are recommended to be considered and built as follows:

- Noise barrier extents and heights defined via detailed acoustic modelling. Preliminary, a noise barrier alignment is provided in **Figure 9**.
- The noise barriers can be made of an earth mound, acoustic fence or a combination thereof.
- The noise barriers are built on top of retaining walls. This applies regardless of whether the receptor lot is in a cut or in fill (i.e. lot at a lower elevation than the assessed road immediately adjoining, and vice versa).
- The noise barriers must generally be installed without gaps between panels and posts. Small gaps between the bottom of the panels are permissible if required for drainage. However, these must be minimised.
- The noise barriers must have a minimum surface density of 12.5 kg/m² (excluding structural components):
 - Overlapped timber barriers are suitable. Brisbane City Council drawings [BSD-7021](#) and Moreton Bay Regional Council drawings [SF-1520](#) are provided for reference (also reproduced in **Appendix D**). Note the noise barriers must be built to the specified height, nominally 2.0m in this study, but to be revised in future.
 - Other construction materials are also suitable where the panels (structural components excluded) meet the minimum surface density, and the barrier is built following the above guidance.

Alternatively, noise barriers may be designed and constructed in accordance with DTMR Specification *MRTS15 Noise Fences*. However, noise barriers built to meet Council standard is considered sufficient.

7.2 QDC MP4.4 Noise Category Requirements

The R_w rating applicable to the dwelling facade elements for each of the QDC MP4.4 Categories shown in the noise maps presented in **Section 6.0** are presented in **Table 2**. Acceptable forms of construction are reproduced from *Schedule 2* of QDC MP4.4 in **Appendix C**, noting that other forms of construction are acceptable where they meet the required R_w rating.

The noise attenuation provided by the dwelling facade will be largely controlled by the window elements; therefore, it is recommended that:

- Facade glazing systems (window + frame + seals) required to achieve a minimum R_w performance following further detailed acoustic assessment,
- Facade glazing systems are supplied with an acoustic test report conducted in Australia by a qualified consultant who is a member of the Australian Acoustical Society (AAS), or an acoustic consultant who works for a member firm of the Association of Australasian Acoustical Consultants (AAAC).



The acoustic test report should address the requirements in the following standards:

- AS 1191-2002 *Acoustics – Method for laboratory measurement of airborne sound transmission insulation of building elements*
- ISO 717-1:2013 *Acoustics – Rating of sound insulation in buildings and of building elements – Part 1: Airborne sound insulation*

It should be noted that, as stated in QDC MP4.4:

“the part applies to building work for the construction or renovation of a residential building in a designated transport noise corridor”;

therefore, it is only relevant at the Building Application stage of the individual lots being the building owner responsible for obtaining certification.

A lower Noise Category should also be achievable at specific facades of the future dwellings and multi storey buildings depending on the location of habitable spaces relative to Springacre Road. For example, a lower Noise Category may be demonstrated for facades facing away from Springacre Road via detailed acoustic modelling based on architectural drawings.



7.3 Conclusion

SLR Consulting Pty Ltd (SLR) have completed a preliminary road traffic noise assessment for Precinct 1 at Springacre Road, Southern Thornlands.

The assessment was conducted following general guidance from the TMR CoP Vol 1:

- Noise monitoring was conducted on the Project site to determine current road traffic noise levels from Springacre Road to verify a computational acoustic model developed to predict future road traffic noise intrusion onto the proposed development site.
- The computational noise model was developed to predict road traffic noise levels for Springacre Road for a future (2039) road traffic volume forecast.

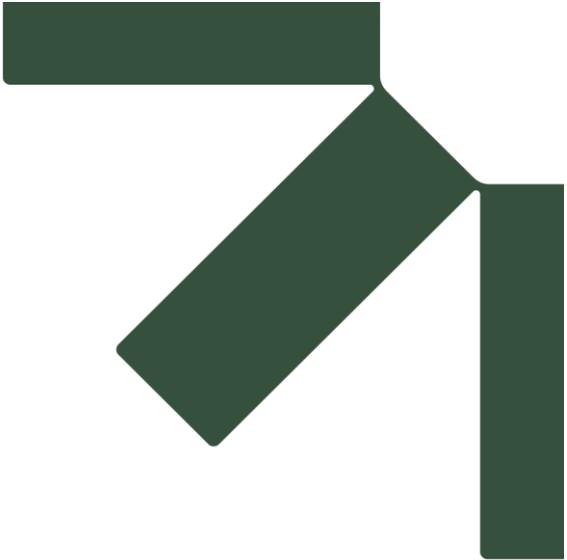
The noise assessment demonstrated the potential to reduce Noise Categories applicable to the construction of residential building facades, in particular on the Ground Floor and First Floor of first row lots adjoining Springacre Road.

A discussion of the benefits of implementing the noise barrier and a recommended construction has been presented, noting that the development of Precinct 1 without noise barriers can be expected to be non-prejudicial to the future design and implementation of alternative acoustic mitigation measures via higher QDC MP4.4 Noise Categories, outside the considerations presented in this report.

In summary, following the noise assessment results presented in this report, it is concluded that the Southern Thornlands Precinct 1 can be developed to control road traffic noise intrusion to achieve suitable internal noise amenity using reasonable and feasible noise mitigation.

This report comprised an early-stage noise assessment of the potential road traffic noise impacts based on early concept design inputs, including civil files and traffic volume inputs. The outcomes of this assessment are subject to change during the subsequent detailed design stages and the recommendations made in this report will need to be revisited.





Appendix A Acoustic Glossary

Southern Thornlands – Precinct 1

Preliminary Road Traffic Noise Assessment

Urbex Pty Ltd

SLR Project No.: 620.040369.00001

10 June 2025

Sound Level (or Noise Level)

The terms sound and noise are almost interchangeable, except that in common usage noise is often used to refer to unwanted sound.

Sound (or noise) consists of minute fluctuations in atmospheric pressure capable of evoking the sense of hearing. The human ear (and those of other species) responds to changes in sound pressure over a very wide range. The loudest sound pressure to which the human ear responds is ten million times greater than the softest. The decibel (dB or dBL) scale reduces this ratio to a more manageable size by the use of logarithms.

A-weighted Sound Pressure Level

The overall level of a sound is usually expressed in terms of dBA, which is measured using a sound level meter with an ‘A-weighting’ filter. This is an electronic filter having a frequency response corresponding approximately to human hearing.

Change in Sound Pressure Levels

For human perception, a change of 1 dBA or 2 dBA in the level of a sound is considered to be indiscernible, while a 3 dBA to 5 dBA change corresponds to a small but noticeable change in loudness. A 10 dBA change corresponds to an approximate doubling or halving in loudness. As noted in Section 2.4 of the TMR CoP Vol 1, while the above noted changes in sound pressure level are *not precisely verifiable for road traffic noise, it is useful in understanding the significance of change in environmental noise exposure.*

Additional facts about road traffic noise as stated in Section 2.4 of the TMR CoP Vol 1:

- A 3 dBA change in noise level is equivalent to halving or doubling the traffic volumes.
- A 10 dBA change in noise level is equivalent to halving or doubling the subjective or perceived loudness or a tenfold increase or decrease in traffic volume.
- A 10 km/h increase in speed will increase the noise level by approximately 1 dBA.
- A 3.5% compound annual growth rate in traffic will increase the noise level by approximately 1.5 dBA over a 10-year horizon.
- An 8% compound annual growth rate in traffic will increase the noise level by approximately 3.0 dBA over a 10-year horizon.

Typical Sound Pressure Levels

The table below lists examples of typical sound pressure levels.

Table A-1 Examples of Perceived Sound Pressure Levels

Sound pressure level (dBA)	Typical example
130	Threshold of pain
120	Metal hammering
110	Grinding on steel
100	Loud car horn at 3 metres (m)
90	Dog bark at 1 m
80	Cicadas at 1 m
70	Noise level directly adjacent to a busy main road
60	Ambient noise level in urban area close to main roads



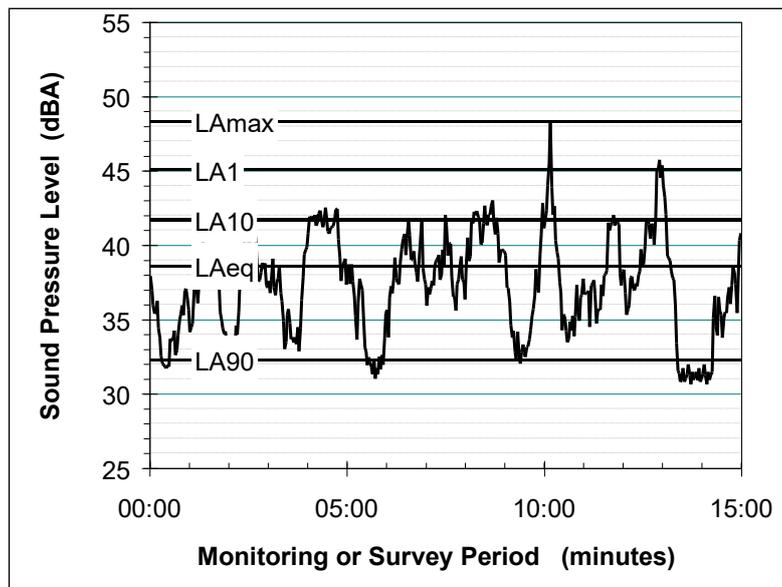
Sound pressure level (dBA)	Typical example
50	Day time in a quiet suburban environment with background or distant road traffic noise
40	Night-time in a quiet suburban environment with background or distant road traffic noise Ambient noise level in rural to semi-rural environments with light breezes and some noise from insects, birds and distant traffic
30	Ambient noise level in a typical rural noise environment in the absence of insect noise and wind. Inside bedroom
20	Ambient noise level in remote rural environment away from main roads with no wind and no insect noise

Statistical Noise Levels

Sounds that vary in level over time, such as road traffic noise and most community noise, are commonly described in terms of the statistical exceedance levels (LAN), where LAN is the A-weighted sound pressure level exceeded for N% of a given measurement period. For example, the LA1 is the noise level exceeded for 1% of the time and LA10 the noise exceeded for 10% of the time.

Figure A-1 below presents a hypothetical 15-minute noise measurement, illustrating various common statistical indices of interest.

Figure A-1 Hypothetical 15-minute Noise Measurement



Of particular relevance to this study, are:

- LA10: The A-weighted noise level exceeded for 10% during any given measurement period. This is commonly referred to as the average maximum noise level.



Additionally:

- **LA_{10(18hour)} Road Traffic Noise Level:** the level exceeded for 10% of any measurement period; the usual period of measurement is 1 hour. The hourly LA₁₀ level, therefore, is the traffic noise level exceeded for 6 minutes in the hour. The 18-hour LA₁₀ level (LA_{10(18hour)}) is the arithmetic average of 18, hourly LA₁₀ traffic noise levels measured in consecutive hours between 6:00 am and 12:00 midnight.
- **LA_{10(12hour)} Road Traffic Noise Level** – is the arithmetic average of 12 hourly LA₁₀ traffic noise levels measured in consecutive hours between 6:00 am and 6:00 pm.
- **LA_{1(1hour)} Road Traffic Noise Level** – the level exceeded for n% of a 1-hour period.

Noise Propagation

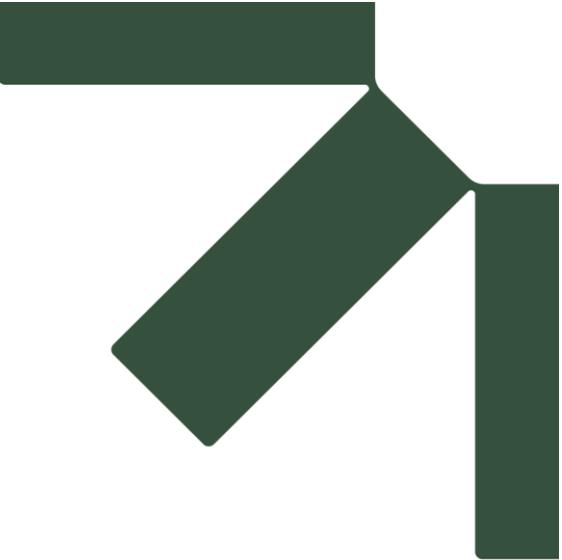
Provided the receptor is in the far-field of the noise source, noise levels will reduce as a receptor moves further away from the source. This is due to spreading of the noise source energy over distance. For a simple point source (for example, a motor) the theoretical reduction in noise levels is 6 dBA per doubling of distance. For a line source (for example, a busy road) the theoretical reduction is 3 dBA per doubling of distance. In reality however other factors affect noise propagation. These include ground absorption, air absorption, acoustic screening, and meteorological effects.

Facade Corrected versus Free field

A 'facade corrected' measurement/monitoring location is a location which is influenced by facade reflections. Measurements at facades are typically taken at a distance of 1 m away and the measured noise level generally regarded as being +2.5 dB higher than in the 'free field'.

A 'free field' measurement/monitoring location is a location where the microphone is positioned sufficiently far from nearby surfaces for the measured data to not be influenced by reflected noise. This is typically regarded as a position 3.5 m or greater from a reflective surface





Appendix B Noise Monitoring Results

Southern Thornlands – Precinct 1

Preliminary Road Traffic Noise Assessment

Urbex Pty Ltd

SLR Project No.: 620.040369.00001

10 June 2025

Road Traffic Noise Management - Noise Monitoring Data Sheet

District Thornlands QLD 4164
 State Road Springacre Road
 Address ML1 - 62-74 Springacre Road
 Lot and RP numbers 12/RP53653
 Site Contact _____
 Date 13/09/2022
 Instrument Type ARL Ngara
 Serial Number 878202
 Pre Calibration _____ dBA
 Post Calibration _____ dBA
 Sample Interval 60 minutes
 Operator Daniel Lee

Purpose Verification and New Road Criteria

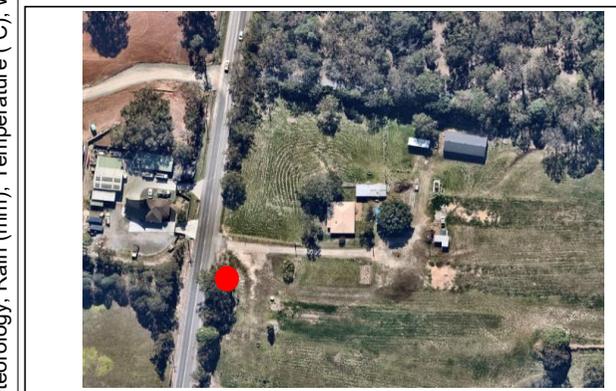
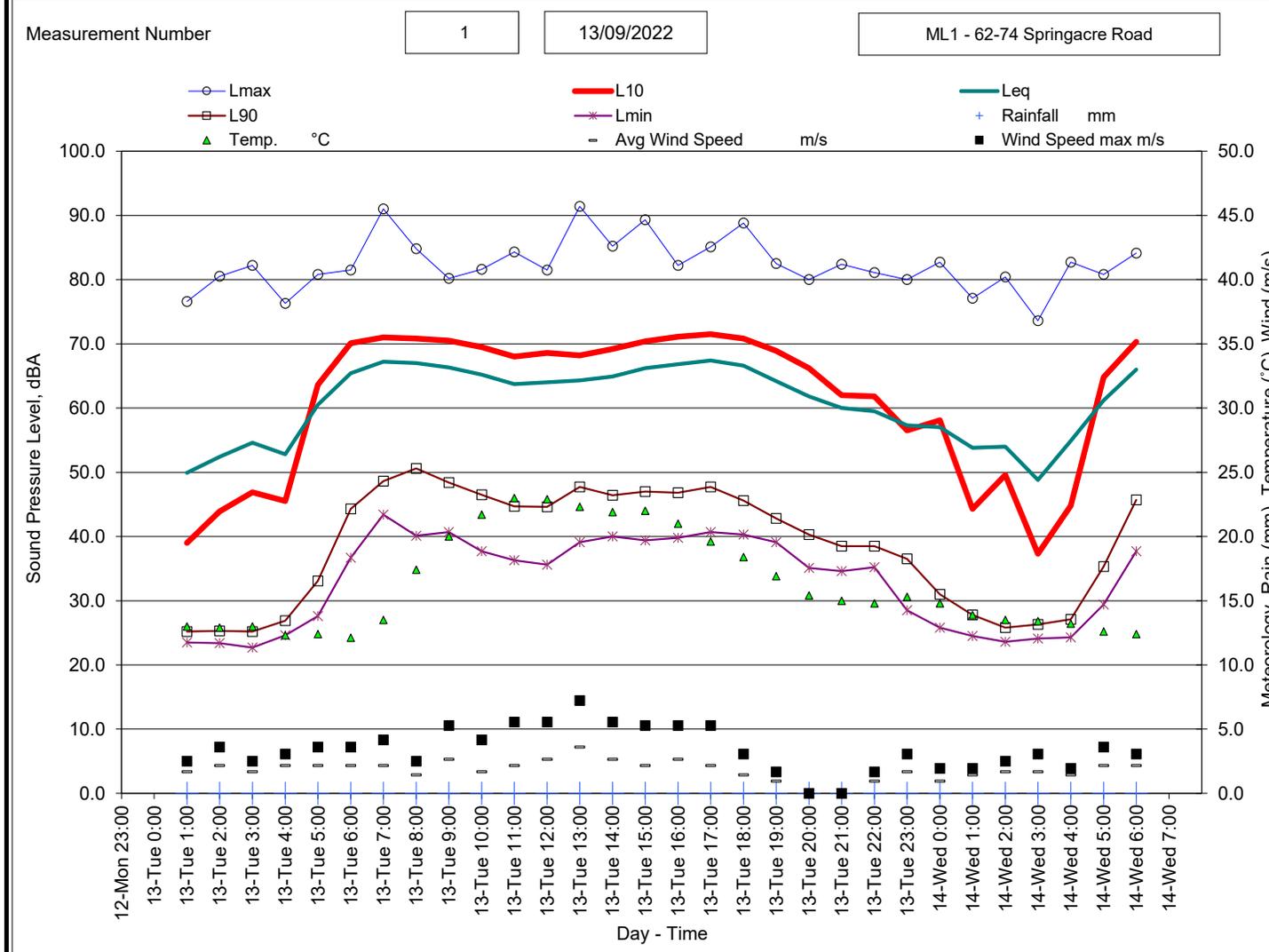


L _{A10} (18 hour)	67.4 dBA
L _{Aeq} (24 hour)	64.0 dBA
L _{Aeq} (1 hour) Night	66.0 dBA
L _{Aeq} (1 hour) Day	67.4 dBA
L _{A10} (12 hour)	70.0 dBA
L _{A90} (8 hour)	31.9 dBA
L _{A90} (18 hour)	44.0 dBA
L _{A10} (1 hour) Day	71.5 dBA

Daily Traffic Volume 7,500
 C.V 4.7 %
 Distance _____
 Speed Limit _____
 Road Surface _____
 Microphone Ht. 1.8 m (minimum 1.5 m above FFL)
 Façade Corrected? Free-field, inaccessible façade & obstructions

Date	End Time	Lmax	L1	L10	Leq	L90	L99	Lmin	Rainfall mm	Temp. °C	Relative Humidity %	Air Pressure hPa	Wind Direction	Avg Wind Speed m/s	Wind Speed max m/s	Validity Check
13/09/2022	1:00	76.6	63.5	39.0	49.9	25.2	24.1	23.5	0.0	13	86	1002	SW	1.7	2.5	Yes
13/09/2022	2:00	80.5	64.9	43.9	52.4	25.3	24.2	23.4	0.0	13	84	1001	SW	2.2	3.6	Yes
13/09/2022	3:00	82.2	67.4	46.9	54.6	25.2	23.9	22.7	0.0	13	83	1001	SW	1.7	2.5	Yes
13/09/2022	4:00	76.3	67.5	45.5	52.8	26.9	25.4	24.6	0.0	12	84	1002	SW	2.2	3.1	Yes
13/09/2022	5:00	80.8	72.9	63.6	60.5	33.1	29.4	27.6	0.0	12	83	1002	SW	2.2	3.6	Yes
13/09/2022	6:00	81.5	75.4	70.1	65.4	44.3	39.4	36.7	0.0	12	84	1003	SW	2.2	3.6	Yes
13/09/2022	7:00	91.0	75.9	71.0	67.2	48.6	45.1	43.4	0.0	14	81	1004	SW	2.2	4.2	Yes
13/09/2022	8:00	84.8	75.4	70.8	67.0	50.6	44.2	40.1	0.0	17	67	1005	SW	1.4	2.5	Yes
13/09/2022	9:00	80.2	75.0	70.5	66.3	48.4	43.5	40.7	0.0	20	54	1005	S	2.6	5.3	Yes
13/09/2022	10:00	81.6	74.6	69.5	65.2	46.5	41.9	37.7	0.0	22	52	1005	S	1.7	4.2	Yes
13/09/2022	11:00	84.3	73.5	68.0	63.7	44.7	39.9	36.3	0.0	23	42	1005	E	2.2	5.6	Yes
13/09/2022	12:00	81.5	74.0	68.6	64.0	44.6	38.8	35.6	0.0	23	41	1005	ESE	2.6	5.6	Yes
13/09/2022	13:00	91.4	74.2	68.2	64.3	47.7	41.7	39.1	0.0	22	45	1005	ENE	3.6	7.2	Yes
13/09/2022	14:00	85.2	75.1	69.2	64.9	46.4	42.9	40.0	0.0	22	46	1005	E	2.6	5.6	Yes
13/09/2022	15:00	89.3	75.0	70.4	66.2	47.0	41.6	39.4	0.0	22	47	1005	E	2.2	5.3	Yes
13/09/2022	16:00	82.2	75.3	71.1	66.8	46.8	42.1	39.8	0.0	21	51	1005	ESE	2.6	5.3	Yes
13/09/2022	17:00	85.1	76.6	71.5	67.4	47.7	43.6	40.7	0.0	20	57	1006	ESE	2.2	5.3	Yes
13/09/2022	18:00	88.8	75.2	70.8	66.6	45.6	41.9	40.3	0.0	18	64	1006	ESE	1.4	3.1	Yes
13/09/2022	19:00	82.5	74.3	68.9	64.2	42.8	40.8	39.1	0.0	17	73	1007	ESE	1.0	1.7	Yes
13/09/2022	20:00	80.0	73.5	66.2	61.8	40.3	37.7	35.1	0.0	15	82	1007	N	0.0	0.0	Yes
13/09/2022	21:00	82.4	72.7	62.0	60.0	38.5	36.3	34.6	0.0	15	85	1008	N	0.0	0.0	Yes
13/09/2022	22:00	81.1	72.1	61.8	59.5	38.5	36.6	35.2	0.0	15	85	1008	ESE	1.0	1.7	Yes
13/09/2022	23:00	80.0	70.8	56.5	57.3	36.5	31.7	28.5	0.0	15	82	1008	S	1.7	3.1	Yes
14/09/2022	0:00	82.7	71.0	58.1	57.0	31.0	27.6	25.8	0.0	15	92	1008	SW	1.0	1.9	Yes
14/09/2022	1:00	77.1	68.2	44.3	53.8	27.8	25.7	24.5	0.0	14	90	1008	SSW	1.4	1.9	Yes
14/09/2022	2:00	80.4	66.7	49.6	54.0	25.8	24.4	23.6	0.0	14	94	1007	WSW	1.7	2.5	Yes
14/09/2022	3:00	73.6	62.0	37.3	48.8	26.3	25.1	24.1	0.0	13	93	1008	SW	1.7	3.1	Yes
14/09/2022	4:00	82.7	68.8	44.8	54.9	27.1	25.5	24.3	0.0	13	92	1008	WSW	1.4	1.9	Yes
14/09/2022	5:00	80.8	73.2	64.8	61.2	35.3	32.0	29.4	0.0	13	94	1008	SW	2.2	3.6	Yes
14/09/2022	6:00	84.1	76.4	70.3	66.0	45.7	40.2	37.7	0.0	12	93	1009	SW	2.2	3.1	Yes

Road Traffic Noise Management - Noise Monitoring Data Sheet



Comments
Free-field measurement location selected, due to inaccessible façade (logger not permitted to be placed within the garden).

Road Traffic Noise Management - Noise Monitoring Data Sheet

District Thornlands QLD 4164
State Road Springacre Road
Address ML1 - 62-74 Springacre Road
Lot and RP numbers 12/RP53653
Site Contact 0
Date 14/09/2022
Instrument Type ARL Ngara
Serial Number 878202
Pre Calibration dBA
Post Calibration dBA
Sample Interval 60 minutes
Operator Daniel Lee

Purpose Verification and New Road Criteria

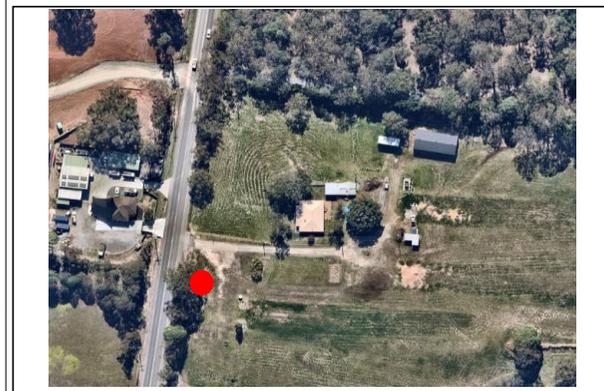
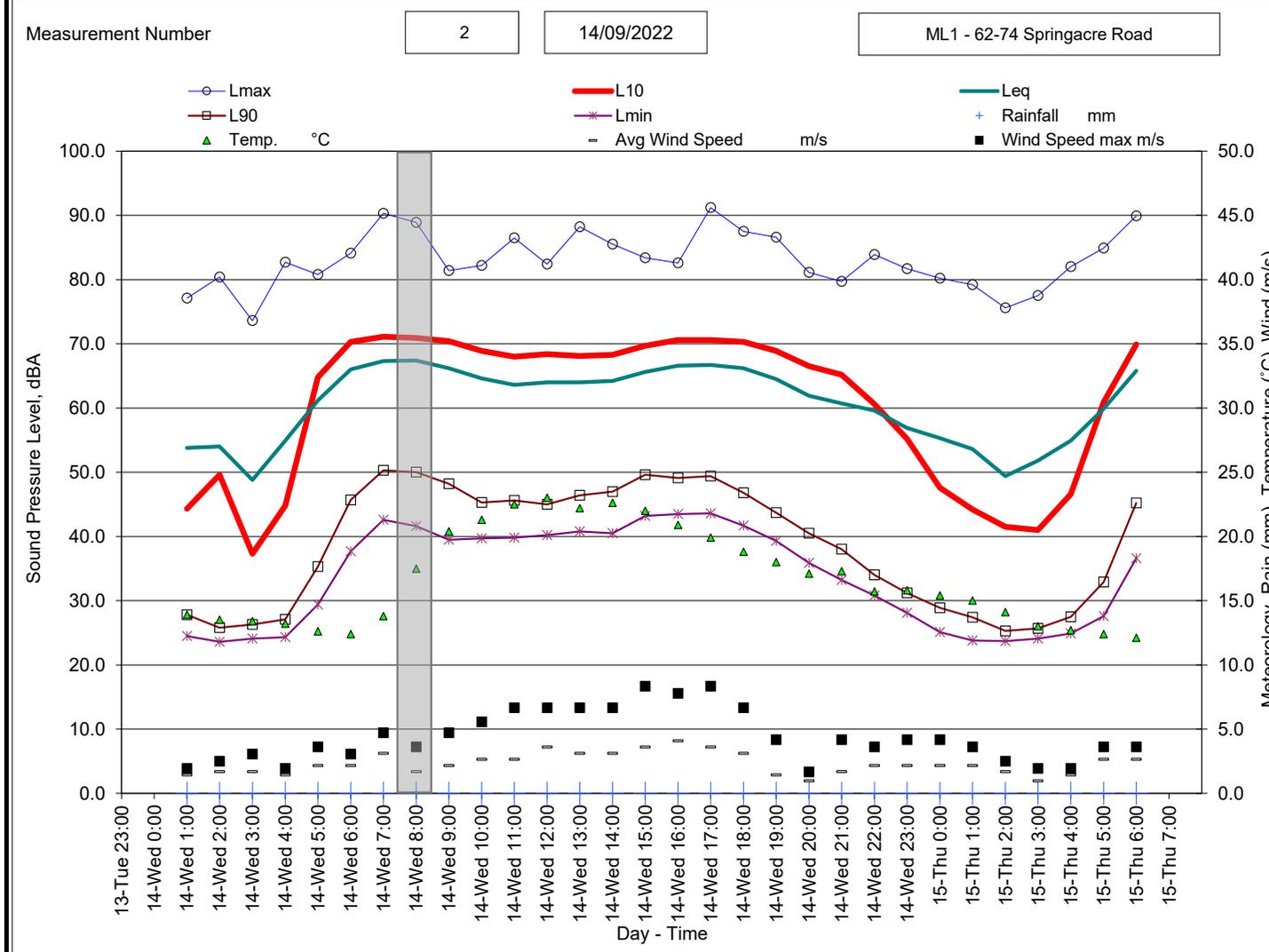


Daily Traffic Volume 7,500
C.V 4.7 %
Distance 0
Speed Limit
Road Surface 0
Microphone Ht. 1.8 m (minimum 1.5 m above FFL)
Façade Corrected? Free-field, inaccessible façade & obstructions

L _{A10} (18 hour)	66.6 dBA
L _{Aeq} (24 hour)	63.9 dBA
L _{Aeq} (1 hour) Night	65.8 dBA
L _{Aeq} (1 hour) Day	67.4 dBA
L _{A10} (12 hour)	69.6 dBA
L _{A90} (8 hour)	30.5 dBA
L _{A90} (18 hour)	43.8 dBA
L _{A10} (1 hour) Day	71.1 dBA

Date	End Time	Lmax	L1	L10	Leq	L90	L99	Lmin	Rainfall mm	Temp. °C	Relative Humidity %	Air Pressure hPa	Wind Direction	Avg Wind Speed m/s	Wind Speed max m/s	Validity Check
14/09/2022	1:00	77.1	68.2	44.3	53.8	27.8	25.7	24.5	0.0	14	90	1008	SSW	1.4	1.9	Yes
14/09/2022	2:00	80.4	66.7	49.6	54.0	25.8	24.4	23.6	0.0	14	94	1007	WSW	1.7	2.5	Yes
14/09/2022	3:00	73.6	62.0	37.3	48.8	26.3	25.1	24.1	0.0	13	93	1006	SW	1.7	3.1	Yes
14/09/2022	4:00	82.7	68.8	44.8	54.9	27.1	25.5	24.3	0.0	13	92	1006	WSW	1.4	1.9	Yes
14/09/2022	5:00	80.8	73.2	64.8	61.2	35.3	32.0	29.4	0.0	13	94	1006	SW	2.2	3.6	Yes
14/09/2022	6:00	84.1	76.4	70.3	66.0	45.7	40.2	37.7	0.0	12	93	1006	SW	2.2	3.1	Yes
14/09/2022	7:00	90.3	75.9	71.1	67.3	50.3	45.4	42.6	0.0	14	90	1007	WSW	3.1	4.7	Yes
14/09/2022	8:00	88.9	75.5	70.9	67.4	50.0	44.7	41.6	0.0	18	77	1007	SW	1.7	3.6	Yes
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14/09/2022	10:00	82.2	73.9	68.9	64.6	45.3	41.7	39.7	0.0	21	56	1007	SE	2.6	5.6	Yes
14/09/2022	11:00	86.5	73.5	68.0	63.6	45.6	42.0	39.8	0.0	23	50	1006	ESE	2.6	6.7	Yes
14/09/2022	12:00	82.4	74.2	68.4	64.0	45.0	41.5	40.2	0.0	23	48	1005	ESE	3.6	6.7	Yes
14/09/2022	13:00	88.2	73.9	68.1	64.0	46.4	43.1	40.8	0.0	22	44	1005	SE	3.1	6.7	Yes
14/09/2022	14:00	85.5	74.3	68.3	64.2	47.0	43.2	40.5	0.0	23	46	1004	SE	3.1	6.7	Yes
14/09/2022	15:00	83.4	74.9	69.7	65.6	49.6	45.1	43.2	0.0	22	51	1003	SE	3.6	8.3	Yes
14/09/2022	16:00	82.6	75.3	70.6	66.6	49.1	45.4	43.5	0.0	21	54	1003	SE	4.1	7.8	Yes
14/09/2022	17:00	91.2	75.3	70.6	66.7	49.4	45.5	43.6	0.0	20	51	1003	SE	3.6	8.3	Yes
14/09/2022	18:00	87.5	75.5	70.3	66.2	46.8	43.4	41.7	0.0	19	56	1003	SE	3.1	6.7	Yes
14/09/2022	19:00	86.6	74.4	68.9	64.5	43.7	40.8	39.3	0.0	18	58	1004	SE	1.4	4.2	Yes
14/09/2022	20:00	81.1	73.0	66.5	61.9	40.5	37.6	35.9	0.0	17	61	1004	SE	1.0	1.7	Yes
14/09/2022	21:00	79.7	72.2	65.2	60.7	38.0	35.2	33.2	0.0	17	58	1005	SSE	1.7	4.2	Yes
14/09/2022	22:00	83.9	72.3	60.6	59.6	34.0	32.2	30.8	0.0	16	66	1005	S	2.2	3.6	Yes
14/09/2022	23:00	81.7	70.3	55.2	56.9	31.2	29.6	28.1	0.0	16	66	1004	S	2.2	4.2	Yes
15/09/2022	0:00	80.2	69.3	47.6	55.3	28.9	26.2	25.1	0.0	15	66	1004	S	2.2	4.2	Yes
15/09/2022	1:00	79.2	67.7	44.2	53.6	27.4	25.3	23.8	0.0	15	68	1004	S	2.2	3.6	Yes
15/09/2022	2:00	75.6	63.2	41.5	49.4	25.3	24.3	23.7	0.0	14	75	1003	SSW	1.7	2.5	Yes
15/09/2022	3:00	77.5	65.3	41.0	51.8	25.7	24.7	24.1	0.0	13	77	1002	SW	1.0	1.9	Yes
15/09/2022	4:00	82.0	68.2	46.6	54.9	27.5	25.8	24.9	0.0	13	77	1002	SW	1.4	1.9	Yes
15/09/2022	5:00	84.9	72.0	60.9	59.9	32.9	29.0	27.6	0.0	12	78	1002	SW	2.6	3.6	Yes
15/09/2022	6:00	89.9	76.4	69.9	65.8	45.2	38.8	36.6	0.0	12	79	1003	SW	2.6	3.6	Yes

Road Traffic Noise Management - Noise Monitoring Data Sheet



Comments

Extraneous noise from mowing was measured during the hourly 8:00 am period. Noise data for this period has been interpolated.
 The original noise data measured 59.9 dBA LA10, 61.5 dBA Leq and 48.4 dBA L90.
 LA10(18hr) is approx. 3 to 4 dBA less compared to other days, due to wind direction shifting to the east during Day 2 compared to Day 1 and 3 being westerly's.

Road Traffic Noise Management - Noise Monitoring Data Sheet

District Thornlands QLD 4164
State Road Springacre Road
Address ML1 - 62-74 Springacre Road
Lot and RP numbers 12/RP53653
Site Contact 0
Date 15/09/2022
Instrument Type ARL Ngara
Serial Number 878202
Pre Calibration dBA
Post Calibration dBA
Sample Interval 60 minutes
Operator Daniel Lee

Purpose Verification and New Road Criteria

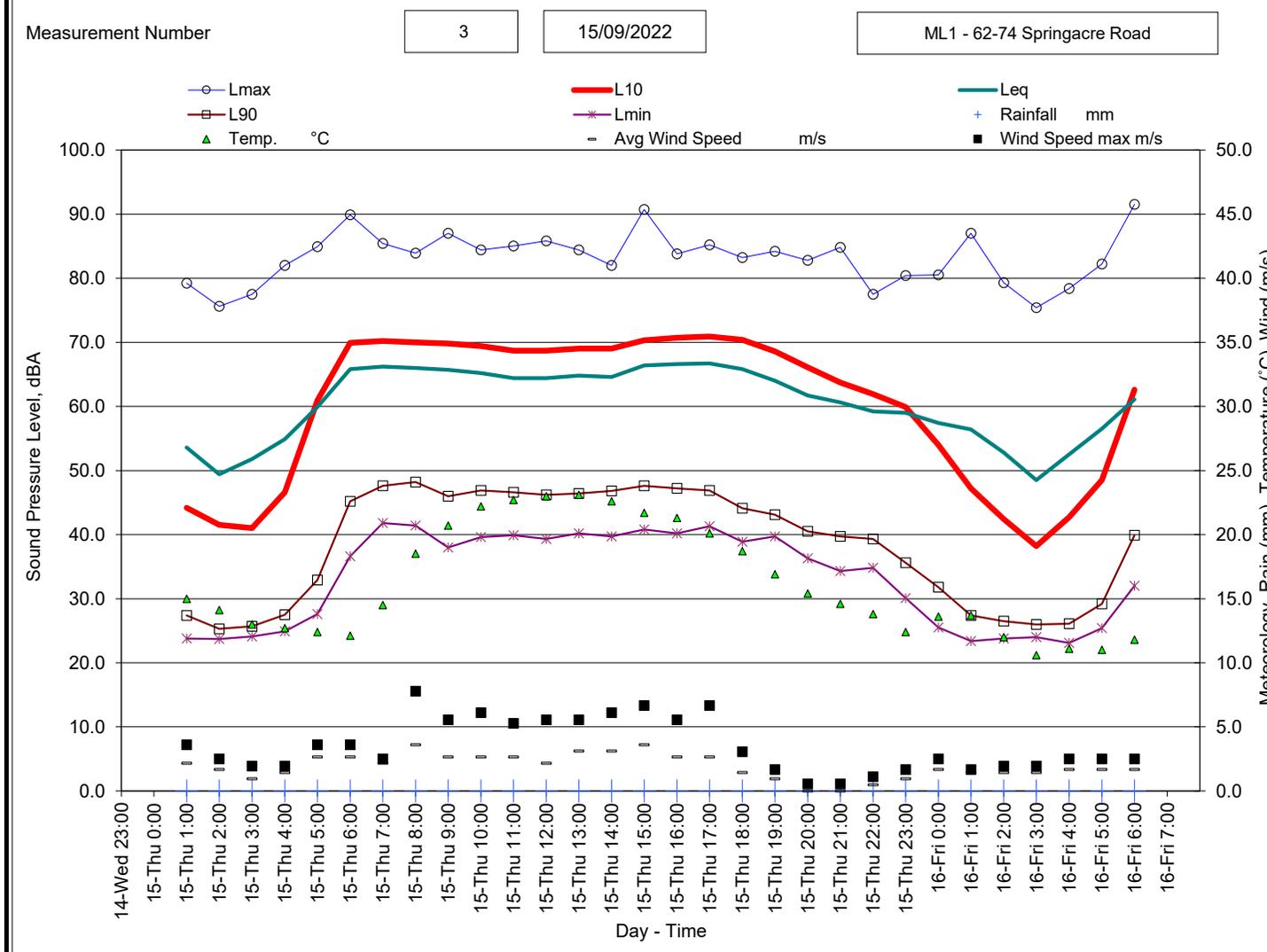


Daily Traffic Volume 7,500
C.V 4.7 %
Distance 0
Speed Limit
Road Surface 0
Microphone Ht. 1.8 m (minimum 1.5 m above FFL)
Façade Corrected? Free-field, inaccessible façade & obstructions

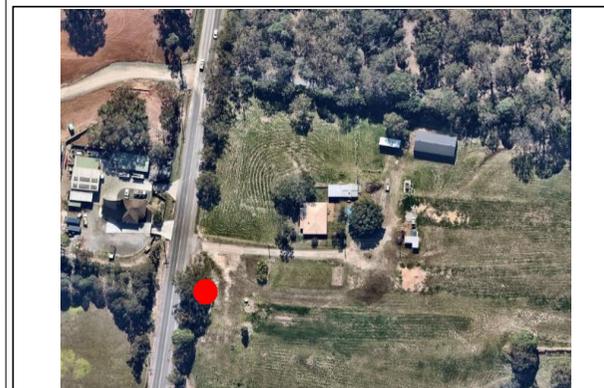
L _{A10} (18 hour)	67.3 dBA
L _{Aeq} (24 hour)	63.7 dBA
L _{Aeq} (1 hour) Night	61.1 dBA
L _{Aeq} (1 hour) Day	66.7 dBA
L _{A10} (12 hour)	69.8 dBA
L _{A90} (8 hour)	30.3 dBA
L _{A90} (18 hour)	43.9 dBA
L _{A10} (1 hour) Day	70.9 dBA

Date	End Time	Lmax	L1	L10	Leq	L90	L99	Lmin	Rainfall mm	Temp. °C	Relative Humidity %	Air Pressure hPa	Wind Direction	Avg Wind Speed m/s	Wind Speed max m/s	Validity Check
15/09/2022	1:00	79.2	67.7	44.2	53.6	27.4	25.3	23.8	0.0	15	68	1004	S	2.2	3.6	Yes
15/09/2022	2:00	75.6	63.2	41.5	49.4	25.3	24.3	23.7	0.0	14	75	1003	SSW	1.7	2.5	Yes
15/09/2022	3:00	77.5	65.3	41.0	51.8	25.7	24.7	24.1	0.0	13	77	1002	SW	1.0	1.9	Yes
15/09/2022	4:00	82.0	68.2	46.6	54.9	27.5	25.8	24.9	0.0	13	77	1002	SW	1.4	1.9	Yes
15/09/2022	5:00	84.9	72.0	60.9	59.9	32.9	29.0	27.6	0.0	12	78	1002	SW	2.6	3.6	Yes
15/09/2022	6:00	89.9	76.4	69.9	65.8	45.2	38.8	36.6	0.0	12	79	1003	SW	2.6	3.6	Yes
15/09/2022	7:00	85.4	75.8	70.2	66.2	47.6	44.2	41.8	0.0	15	73	1003	WSW	2.2	2.5	Yes
15/09/2022	8:00	83.9	74.3	70.0	66.0	48.2	43.9	41.4	0.0	19	56	1003	S	3.6	7.8	Yes
15/09/2022	9:00	87.0	74.4	69.8	65.7	46.0	41.2	38.0	0.0	21	54	1003	SSE	2.6	5.6	Yes
15/09/2022	10:00	84.4	75.3	69.4	65.2	46.9	42.5	39.6	0.0	22	49	1002	SSE	2.6	6.1	Yes
15/09/2022	11:00	85.0	73.8	68.7	64.4	46.6	43.3	39.9	0.0	23	44	1002	ESE	2.6	5.3	Yes
15/09/2022	12:00	85.8	74.0	68.7	64.4	46.2	42.8	39.3	0.0	23	47	1001	SE	2.2	5.6	Yes
15/09/2022	13:00	84.4	74.6	69.0	64.8	46.4	41.9	40.2	0.0	23	44	1000	ESE	3.1	5.6	Yes
15/09/2022	14:00	82.0	74.4	69.0	64.6	46.8	43.2	39.7	0.0	23	49	999	SE	3.1	6.1	Yes
15/09/2022	15:00	90.7	75.9	70.3	66.4	47.6	42.5	40.8	0.0	22	52	999	E	3.6	6.7	Yes
15/09/2022	16:00	83.8	75.5	70.7	66.6	47.2	42.8	40.2	0.0	21	53	998	E	2.6	5.6	Yes
15/09/2022	17:00	85.2	76.0	70.9	66.7	46.9	42.8	41.3	0.0	20	59	998	ESE	2.6	6.7	Yes
15/09/2022	18:00	83.2	75.2	70.4	65.8	44.1	40.9	38.9	0.0	19	64	999	ESE	1.4	3.1	Yes
15/09/2022	19:00	84.2	74.2	68.6	64.0	43.1	41.1	39.7	0.0	17	69	999	ESE	1.0	1.7	Yes
15/09/2022	20:00	82.8	73.0	66.1	61.7	40.5	38.1	36.3	0.0	15	76	1000	N	0.0	0.6	Yes
15/09/2022	21:00	84.8	72.8	63.7	60.6	39.7	37.2	34.3	0.0	15	82	1001	N	0.0	0.6	Yes
15/09/2022	22:00	77.5	71.9	61.9	59.2	39.3	36.7	34.8	0.0	14	86	1003	SSE	0.5	1.1	Yes
15/09/2022	23:00	80.4	72.0	59.9	59.0	35.6	32.7	30.1	0.0	12	90	1003	S	1.0	1.7	Yes
16/09/2022	0:00	80.5	71.5	54.0	57.4	31.8	27.7	25.5	0.0	14	85	1003	SSW	1.7	2.5	Yes
16/09/2022	1:00	87.0	68.0	47.2	56.4	27.4	24.8	23.4	0.0	14	85	1003	S	1.4	1.7	Yes
16/09/2022	2:00	79.3	66.8	42.4	52.8	26.5	24.8	23.8	0.0	12	91	1002	SW	1.4	1.9	Yes
16/09/2022	3:00	75.4	60.7	38.2	48.5	26.0	24.7	24.0	0.0	11	93	1002	SW	1.4	1.9	Yes
16/09/2022	4:00	78.4	67.1	42.7	52.5	26.1	24.4	23.1	0.0	11	92	1003	WSW	1.7	2.5	Yes
16/09/2022	5:00	82.2	70.1	48.5	56.5	29.2	26.5	25.4	0.0	11	93	1003	WSW	1.7	2.5	Yes
16/09/2022	6:00	91.5	72.2	62.6	61.1	39.9	35.7	32.0	0.0	12	90	1004	WSW	1.7	2.5	Yes

Road Traffic Noise Management - Noise Monitoring Data Sheet



Comments



Road Traffic Noise Management - Noise Monitoring Data Sheet

District Thornlands QLD 4164
 State Road Springacre Road
 Address ML3 - 110-118 Springacre Road
 Lot and RP numbers 2/RP128089
 Site Contact _____
 Date 13/09/2022
 Instrument Type ARL Ngara
 Serial Number 8781CE
 Pre Calibration _____ dBA
 Post Calibration _____ dBA
 Sample Interval 60 minutes
 Operator Daniel Lee

Purpose Verification and New Road Criteria

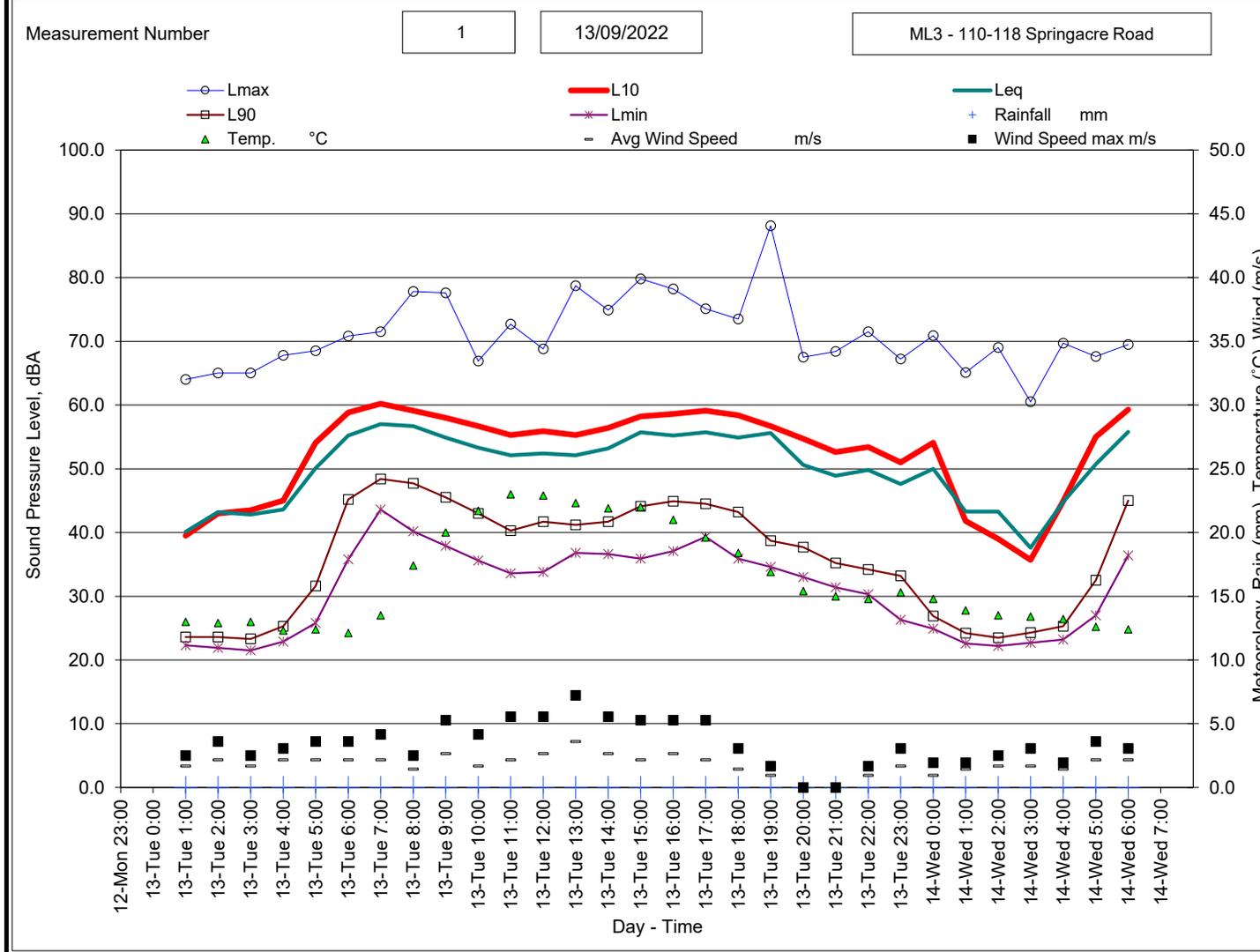


Daily Traffic Volume 7,500
 C.V 4.7 %
 Distance _____
 Speed Limit _____
 Road Surface _____
 Microphone Ht. 1.8 m (minimum 1.5 m above FFL)
 Façade Corrected? Free-field, inaccessible façade & obstructions

L _{A10} (18 hour)	56.3 dBA
L _{Aeq} (24 hour)	53.1 dBA
L _{Aeq} (1 hour) Night	55.8 dBA
L _{Aeq} (1 hour) Day	57.0 dBA
L _{A10} (12 hour)	57.6 dBA
L _{A90} (8 hour)	29.4 dBA
L _{A90} (18 hour)	40.7 dBA
L _{A10} (1 hour) Day	60.2 dBA

Date	End Time	Lmax	L1	L10	Leq	L90	L99	Lmin	Rainfall mm	Temp. °C	Relative Humidity %	Air Pressure hPa	Wind Direction	Avg Wind Speed m/s	Wind Speed max m/s	Validity Check
13/09/2022	1:00	64.0	53.1	39.5	40.1	23.6	23.0	22.3	0.0	13	86	1002	SW	1.7	2.5	Yes
13/09/2022	2:00	65.0	56.0	43.0	43.2	23.6	22.7	21.9	0.0	13	84	1001	SW	2.2	3.6	Yes
13/09/2022	3:00	65.0	56.6	43.5	42.8	23.3	22.0	21.5	0.0	13	83	1001	SW	1.7	2.5	Yes
13/09/2022	4:00	67.8	55.7	45.0	43.6	25.3	23.9	22.9	0.0	12	84	1002	SW	2.2	3.1	Yes
13/09/2022	5:00	68.5	60.5	54.1	50.1	31.6	28.6	25.8	0.0	12	83	1002	SW	2.2	3.6	Yes
13/09/2022	6:00	70.8	63.5	58.8	55.2	45.2	40.2	35.8	0.0	12	84	1003	SW	2.2	3.6	Yes
13/09/2022	7:00	71.5	65.2	60.2	57.0	48.4	45.6	43.6	0.0	14	81	1004	SW	2.2	4.2	Yes
13/09/2022	8:00	77.8	65.0	59.1	56.7	47.7	43.1	40.2	0.0	17	67	1005	SW	1.4	2.5	Yes
13/09/2022	9:00	77.6	63.3	58.0	54.9	45.5	41.7	37.9	0.0	20	54	1005	S	2.6	5.3	Yes
13/09/2022	10:00	66.9	61.6	56.7	53.3	43.0	38.9	35.6	0.0	22	52	1005	S	1.7	4.2	Yes
13/09/2022	11:00	72.7	61.4	55.3	52.1	40.3	36.7	33.6	0.0	23	42	1005	E	2.2	5.6	Yes
13/09/2022	12:00	68.8	61.0	55.9	52.4	41.7	37.1	33.8	0.0	23	41	1005	ESE	2.6	5.6	Yes
13/09/2022	13:00	78.7	60.9	55.3	52.1	41.2	38.1	36.8	0.0	22	45	1005	ENE	3.6	7.2	Yes
13/09/2022	14:00	74.9	62.6	56.4	53.2	41.7	38.2	36.6	0.0	22	46	1005	E	2.6	5.6	Yes
13/09/2022	15:00	79.8	64.0	58.2	55.7	44.1	40.0	35.9	0.0	22	47	1005	E	2.2	5.3	Yes
13/09/2022	16:00	78.2	63.1	58.6	55.2	44.9	40.5	37.1	0.0	21	51	1005	ESE	2.6	5.3	Yes
13/09/2022	17:00	75.1	64.2	59.1	55.7	44.5	40.7	39.3	0.0	20	57	1006	ESE	2.2	5.3	Yes
13/09/2022	18:00	73.5	63.0	58.4	54.9	43.2	38.7	35.9	0.0	18	64	1006	ESE	1.4	3.1	Yes
13/09/2022	19:00	88.1	61.9	56.7	55.6	38.7	36.2	34.6	0.0	17	73	1007	ESE	1.0	1.7	Yes
13/09/2022	20:00	67.5	60.2	54.7	50.6	37.7	34.7	33.0	0.0	15	82	1007	N	0.0	0.0	Yes
13/09/2022	21:00	68.4	59.8	52.6	48.9	35.2	32.6	31.4	0.0	15	85	1008	N	0.0	0.0	Yes
13/09/2022	22:00	71.5	60.3	53.4	49.8	34.2	31.9	30.3	0.0	15	85	1008	ESE	1.0	1.7	Yes
13/09/2022	23:00	67.2	58.3	51.0	47.6	33.2	29.4	26.3	0.0	15	82	1008	S	1.7	3.1	Yes
14/09/2022	0:00	70.9	61.2	54.1	50.0	26.9	25.6	24.9	0.0	15	92	1008	SW	1.0	1.9	Yes
14/09/2022	1:00	65.1	57.2	41.8	43.3	24.2	23.1	22.6	0.0	14	90	1008	SSW	1.4	1.9	Yes
14/09/2022	2:00	69.0	57.3	39.0	43.3	23.5	22.7	22.2	0.0	14	94	1007	WSW	1.7	2.5	Yes
14/09/2022	3:00	60.5	51.7	35.7	37.6	24.3	23.3	22.7	0.0	13	93	1008	SW	1.7	3.1	Yes
14/09/2022	4:00	69.7	58.1	44.9	44.8	25.3	23.9	23.2	0.0	13	92	1008	WSW	1.4	1.9	Yes
14/09/2022	5:00	67.6	61.2	55.0	50.7	32.5	29.0	27.0	0.0	13	94	1008	SW	2.2	3.6	Yes
14/09/2022	6:00	69.5	64.8	59.3	55.8	45.0	39.6	36.4	0.0	12	93	1009	SW	2.2	3.1	Yes

Road Traffic Noise Management - Noise Monitoring Data Sheet



Comments
Free-field measurement location selected, due to inaccessible façade (logger not permitted to be placed within the garden).

Road Traffic Noise Management - Noise Monitoring Data Sheet

District Thornlands QLD 4164
State Road Springacre Road
Address ML3 - 110-118 Springacre Road
Lot and RP numbers 2/RP128089
Site Contact 0
Date 14/09/2022
Instrument Type ARL Ngara
Serial Number 8781CE
Pre Calibration dBA
Post Calibration dBA
Sample Interval 60 minutes
Operator Daniel Lee

Purpose Verification and New Road Criteria

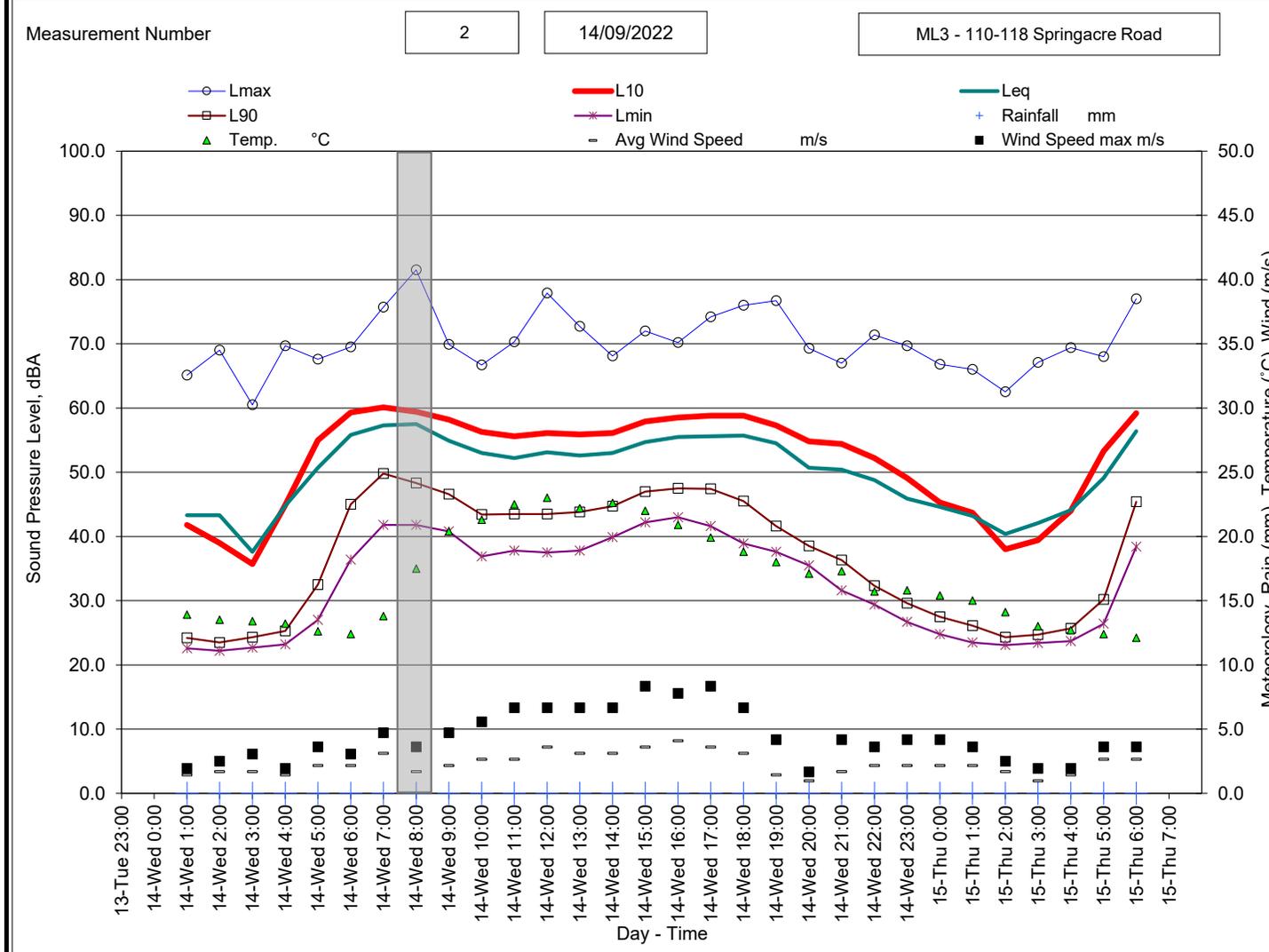


L _{A10} (18 hour)	55.8 dBA
L _{Aeq} (24 hour)	53.2 dBA
L _{Aeq} (1 hour) Night	56.4 dBA
L _{Aeq} (1 hour) Day	57.5 dBA
L _{A10} (12 hour)	57.6 dBA
L _{A90} (8 hour)	42.0 dBA
L _{A90} (18 hour)	29.2 dBA
L _{A10} (1 hour) Day	60.1 dBA

Daily Traffic Volume 7,500
C.V 4.7 %
Distance 0
Speed Limit
Road Surface 0
Microphone Ht. 1.8 m (minimum 1.5 m above FFL)
Façade Corrected? Free-field, inaccessible façade & obstructions

Date	End Time	Lmax	L1	L10	Leq	L90	L99	Lmin	Rainfall mm	Temp. °C	Relative Humidity %	Air Pressure hPa	Wind Direction	Avg Wind Speed m/s	Wind Speed max m/s	Validity Check
14/09/2022	1:00	65.1	57.2	41.8	43.3	24.2	23.1	22.6	0.0	14	90	1008	SSW	1.4	1.9	Yes
14/09/2022	2:00	69.0	57.3	39.0	43.3	23.5	22.7	22.2	0.0	14	94	1007	WSW	1.7	2.5	Yes
14/09/2022	3:00	60.5	51.7	35.7	37.6	24.3	23.3	22.7	0.0	13	93	1006	SW	1.7	3.1	Yes
14/09/2022	4:00	69.7	58.1	44.9	44.8	25.3	23.9	23.2	0.0	13	92	1006	WSW	1.4	1.9	Yes
14/09/2022	5:00	67.6	61.2	55.0	50.7	32.5	29.0	27.0	0.0	13	94	1006	SW	2.2	3.6	Yes
14/09/2022	6:00	69.5	64.8	59.3	55.8	45.0	39.6	36.4	0.0	12	93	1006	SW	2.2	3.1	Yes
14/09/2022	7:00	75.7	64.8	60.1	57.3	49.8	45.3	41.8	0.0	14	90	1007	WSW	3.1	4.7	Yes
14/09/2022	8:00	81.5	66.2	59.4	57.5	48.3	44.5	41.8	0.0	18	77	1007	SW	1.7	3.6	Yes
14/09/2022	9:00	69.9	62.3	58.2	54.9	46.6	43.7	40.8	0.0	20	64	1007	SSE	2.2	4.7	Yes
14/09/2022	10:00	66.7	61.4	56.3	53.0	43.4	40.3	36.9	0.0	21	56	1007	SE	2.6	5.6	Yes
14/09/2022	11:00	70.3	60.3	55.6	52.2	43.5	40.1	37.8	0.0	23	50	1006	ESE	2.6	6.7	Yes
14/09/2022	12:00	77.9	62.4	56.1	53.1	43.5	40.3	37.5	0.0	23	48	1005	ESE	3.6	6.7	Yes
14/09/2022	13:00	72.7	61.5	55.9	52.6	43.8	40.9	37.8	0.0	22	44	1005	SE	3.1	6.7	Yes
14/09/2022	14:00	68.1	62.1	56.1	53.0	44.7	41.5	39.9	0.0	23	46	1004	SE	3.1	6.7	Yes
14/09/2022	15:00	72.0	62.4	57.9	54.7	47.0	44.5	42.2	0.0	22	51	1003	SE	3.6	8.3	Yes
14/09/2022	16:00	70.2	62.4	58.5	55.5	47.5	44.7	43.0	0.0	21	54	1003	SE	4.1	7.8	Yes
14/09/2022	17:00	74.2	63.0	58.8	55.6	47.4	43.7	41.6	0.0	20	51	1003	SE	3.6	8.3	Yes
14/09/2022	18:00	76.0	64.1	58.8	55.7	45.5	41.1	38.9	0.0	19	56	1003	SE	3.1	6.7	Yes
14/09/2022	19:00	76.7	64.2	57.3	54.5	41.6	38.9	37.6	0.0	18	58	1004	SE	1.4	4.2	Yes
14/09/2022	20:00	69.3	60.4	54.8	50.7	38.5	36.3	35.5	0.0	17	61	1004	SE	1.0	1.7	Yes
14/09/2022	21:00	67.0	61.4	54.4	50.4	36.3	33.1	31.6	0.0	17	58	1005	SSE	1.7	4.2	Yes
14/09/2022	22:00	71.4	59.7	52.2	48.8	32.3	30.7	29.4	0.0	16	66	1005	S	2.2	3.6	Yes
14/09/2022	23:00	69.7	57.1	49.1	45.9	29.6	27.9	26.7	0.0	16	66	1004	S	2.2	4.2	Yes
15/09/2022	0:00	66.8	57.3	45.3	44.6	27.5	25.7	24.8	0.0	15	66	1004	S	2.2	4.2	Yes
15/09/2022	1:00	66.0	55.9	43.7	43.2	26.1	24.3	23.5	0.0	15	68	1004	S	2.2	3.6	Yes
15/09/2022	2:00	62.5	54.1	38.0	40.4	24.3	23.5	23.1	0.0	14	75	1003	SSW	1.7	2.5	Yes
15/09/2022	3:00	67.1	54.4	39.4	42.1	24.7	23.9	23.4	0.0	13	77	1002	SW	1.0	1.9	Yes
15/09/2022	4:00	69.4	56.9	44.0	44.1	25.7	24.5	23.7	0.0	13	77	1002	SW	1.4	1.9	Yes
15/09/2022	5:00	68.0	59.7	53.3	49.1	30.2	28.0	26.4	0.0	12	78	1002	SW	2.6	3.6	Yes
15/09/2022	6:00	77.0	66.2	59.2	56.4	45.4	40.7	38.4	0.0	12	79	1003	SW	2.6	3.6	Yes

Road Traffic Noise Management - Noise Monitoring Data Sheet



Comments

Extraneous noise from mowing was measured during the hourly 8:00 am period. Noise data for this period has been interpolated.
 The original noise data measured 59.9 dBA LA10, 61.5 dBA Leq and 48.4 dBA L90.
 LA10(18hr) is approx. 3 to 4 dBA less compared to other days, due to wind direction shifting to the east during Day 2 compared to Day 1 and 3 being westerly's.

Road Traffic Noise Management - Noise Monitoring Data Sheet

District Thornlands QLD 4164
State Road Springacre Road
Address ML3 - 110-118 Springacre Road
Lot and RP numbers 2/RP128089
Site Contact 0
Date 15/09/2022
Instrument Type ARL Ngara
Serial Number 8781CE
Pre Calibration dBA
Post Calibration dBA
Sample Interval 60 minutes
Operator Daniel Lee

Purpose Verification and New Road Criteria

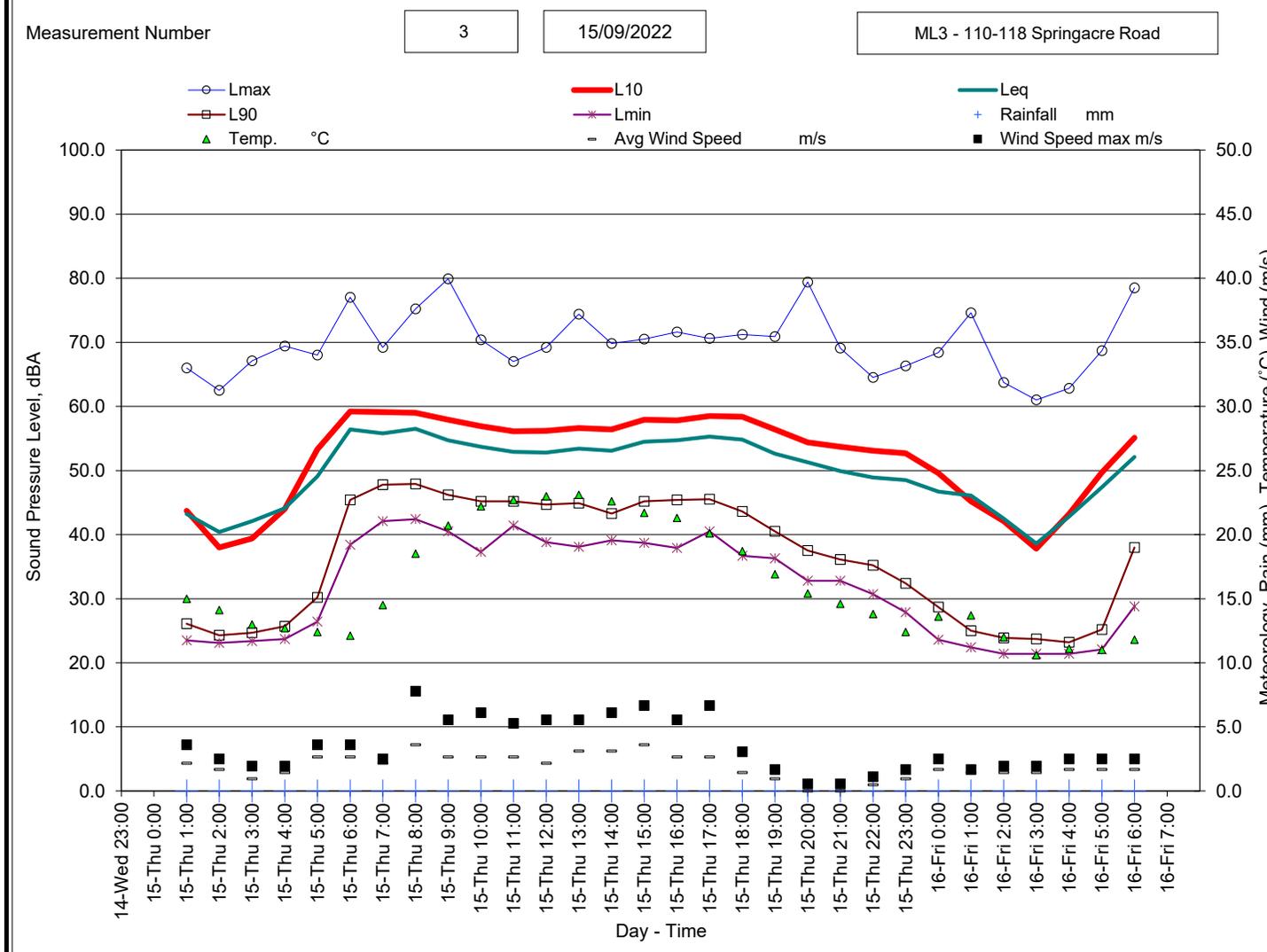


Daily Traffic Volume 7,500
C.V 4.7 %
Distance 0
Speed Limit 0
Road Surface 0
Microphone Ht. 1.8 m (minimum 1.5 m above FFL)
Façade Corrected? Free-field, inaccessible façade & obstructions

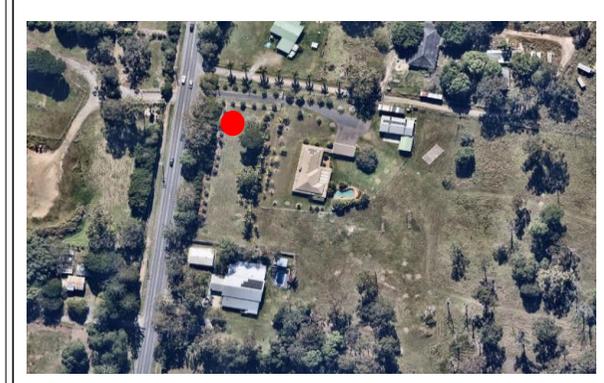
L _{A10} (18 hour)	56.2 dBA
L _{Aeq} (24 hour)	52.8 dBA
L _{Aeq} (1 hour) Night	52.1 dBA
L _{Aeq} (1 hour) Day	56.5 dBA
L _{A10} (12 hour)	57.6 dBA
L _{A90} (8 hour)	27.5 dBA
L _{A90} (18 hour)	42.0 dBA
L _{A10} (1 hour) Day	59.1 dBA

Date	End Time	Lmax	L1	L10	Leq	L90	L99	Lmin	Rainfall mm	Temp. °C	Relative Humidity %	Air Pressure hPa	Wind Direction	Avg Wind Speed m/s	Wind Speed max m/s	Validity Check
15/09/2022	1:00	66.0	55.9	43.7	43.2	26.1	24.3	23.5	0.0	15	68	1004	S	2.2	3.6	Yes
15/09/2022	2:00	62.5	54.1	38.0	40.4	24.3	23.5	23.1	0.0	14	75	1003	SSW	1.7	2.5	Yes
15/09/2022	3:00	67.1	54.4	39.4	42.1	24.7	23.9	23.4	0.0	13	77	1002	SW	1.0	1.9	Yes
15/09/2022	4:00	69.4	56.9	44.0	44.1	25.7	24.5	23.7	0.0	13	77	1002	SW	1.4	1.9	Yes
15/09/2022	5:00	68.0	59.7	53.3	49.1	30.2	28.0	26.4	0.0	12	78	1002	SW	2.6	3.6	Yes
15/09/2022	6:00	77.0	66.2	59.2	56.4	45.4	40.7	38.4	0.0	12	79	1003	SW	2.6	3.6	Yes
15/09/2022	7:00	69.2	63.1	59.1	55.8	47.8	44.0	42.1	0.0	15	73	1003	WSW	2.2	2.5	Yes
15/09/2022	8:00	75.2	65.3	59.0	56.5	47.9	44.4	42.4	0.0	19	56	1003	S	3.6	7.8	Yes
15/09/2022	9:00	79.9	62.5	57.9	54.7	46.2	42.8	40.5	0.0	21	54	1003	SSE	2.6	5.6	Yes
15/09/2022	10:00	70.4	62.2	56.9	53.7	45.2	41.1	37.3	0.0	22	49	1002	SSE	2.6	6.1	Yes
15/09/2022	11:00	67.0	60.8	56.1	52.9	45.2	42.6	41.4	0.0	23	44	1002	ESE	2.6	5.3	Yes
15/09/2022	12:00	69.2	60.6	56.2	52.8	44.7	41.2	38.8	0.0	23	47	1001	SE	2.2	5.6	Yes
15/09/2022	13:00	74.4	61.6	56.6	53.4	44.9	41.5	38.1	0.0	23	44	1000	ESE	3.1	5.6	Yes
15/09/2022	14:00	69.8	62.3	56.4	53.1	43.3	40.8	39.1	0.0	23	49	999	SE	3.1	6.1	Yes
15/09/2022	15:00	70.5	63.1	57.9	54.5	45.2	41.6	38.7	0.0	22	52	999	E	3.6	6.7	Yes
15/09/2022	16:00	71.6	62.0	57.8	54.7	45.4	40.6	37.9	0.0	21	53	998	E	2.6	5.6	Yes
15/09/2022	17:00	70.6	63.6	58.5	55.3	45.5	42.1	40.5	0.0	20	59	998	ESE	2.6	6.7	Yes
15/09/2022	18:00	71.2	62.6	58.4	54.8	43.6	38.8	36.7	0.0	19	64	999	ESE	1.4	3.1	Yes
15/09/2022	19:00	70.9	61.9	56.4	52.6	40.5	37.7	36.3	0.0	17	69	999	ESE	1.0	1.7	Yes
15/09/2022	20:00	79.4	60.3	54.4	51.3	37.5	34.0	32.8	0.0	15	76	1000	N	0.0	0.6	Yes
15/09/2022	21:00	69.1	60.1	53.7	49.9	36.1	34.0	32.8	0.0	15	82	1001	N	0.0	0.6	Yes
15/09/2022	22:00	64.5	59.1	53.1	48.9	35.2	32.2	30.7	0.0	14	86	1003	SSE	0.5	1.1	Yes
15/09/2022	23:00	66.3	59.5	52.7	48.5	32.4	29.7	27.9	0.0	12	90	1003	S	1.0	1.7	Yes
16/09/2022	0:00	68.4	58.0	49.6	46.7	28.7	25.0	23.6	0.0	14	85	1003	SSW	1.7	2.5	Yes
16/09/2022	1:00	74.6	57.2	45.2	46.1	25.0	23.4	22.4	0.0	14	85	1003	S	1.4	1.7	Yes
16/09/2022	2:00	63.7	56.0	42.1	42.5	23.9	22.7	21.4	0.0	12	91	1002	SW	1.4	1.9	Yes
16/09/2022	3:00	61.0	52.0	37.8	38.6	23.7	22.3	21.4	0.0	11	93	1002	SW	1.4	1.9	Yes
16/09/2022	4:00	62.8	56.0	43.2	42.8	23.2	22.0	21.4	0.0	11	92	1003	WSW	1.7	2.5	Yes
16/09/2022	5:00	68.7	59.8	49.7	47.4	25.2	23.0	22.1	0.0	11	93	1003	WSW	1.7	2.5	Yes
16/09/2022	6:00	78.5	60.2	55.1	52.1	38.0	32.7	28.8	0.0	12	90	1004	WSW	1.7	2.5	Yes

Road Traffic Noise Management - Noise Monitoring Data Sheet



Comments



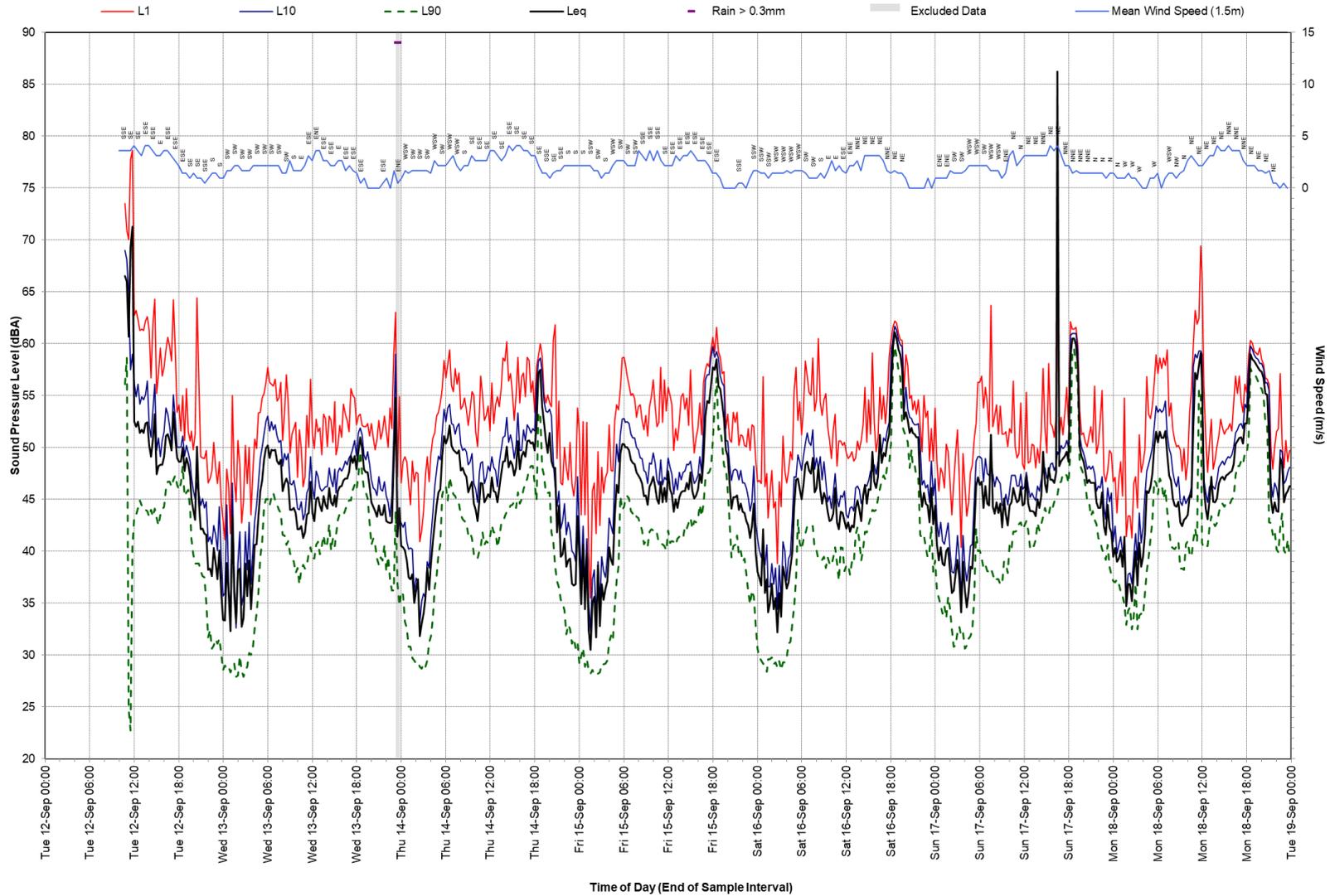
ML2 – Background Noise Monitoring Results

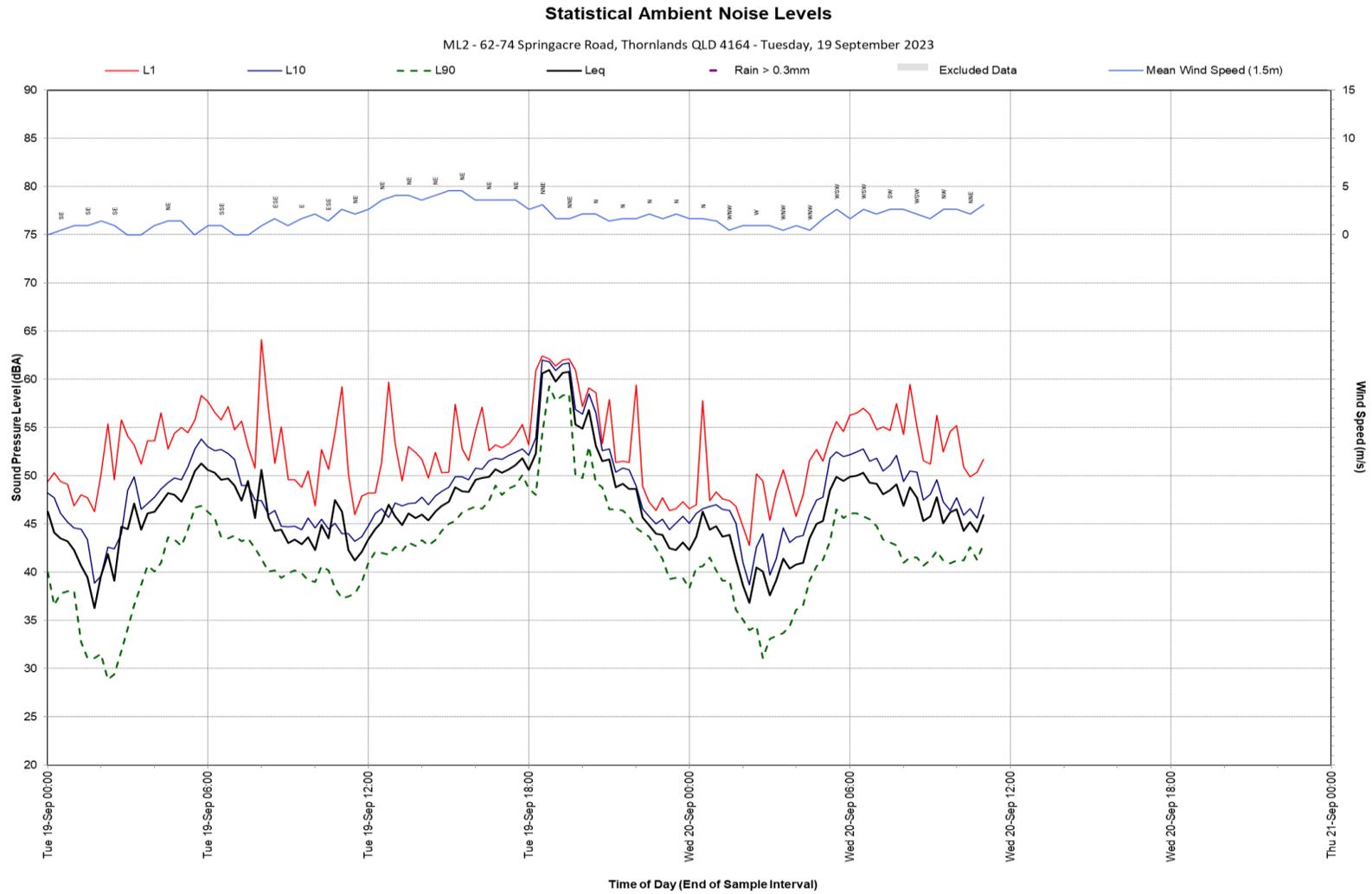
Date	L10 18hr	Leq 24hr	L10, 1hr Day	Leq 1hr Day	Leq 1hr Night	L10 12hr	L90 18hr	L90 8hr
Tuesday, 12 September 2023	50	58	69	68	49	54	41	34
Wednesday, 13 September 2023	48	46	51	50	50	48	41	36
Thursday, 14 September 2023	49	48	58	56	49	50	42	33
Friday, 15 September 2023	49	49	58	57	46	50	43	34
Saturday, 16 September 2023	49	50	61	60	46	48	44	36
Sunday, 17 September 2023	48	66	61	80	50	48	43	39
Monday, 18 September 2023	51	51	59	58	50	50	45	39
Tuesday, 19 September 2023	49	51	60	59	49	49	45	40
Wednesday, 20 September 2023	49	46	51	50	-	49	43	-
Overall	49	58	61	80	50	50	43	36



Statistical Ambient Noise Levels

ML2 - 62-74 Springacre Road, Thornlands QLD 4164 - Tuesday, 12 September 2023







Appendix C Schedule 2 of QDC MP4.4

Southern Thornlands – Precinct 1

Preliminary Road Traffic Noise Assessment

Urbex Pty Ltd

SLR Project No.: 620.040369.00001

10 June 2025

Table C-1 Schedule 2 of QDC MP4.4

Component of Building's External Envelope	Minimum R_w	Acceptable Forms of Construction
Glazing	43	Double glazing consisting of two panes of minimum 5mm thick glass with at least 100mm air gap and full perimeter <i>acoustically rated seals</i> .
	38	Minimum 14.38mm thick laminated glass, with full perimeter <i>acoustically rated seals</i> ; or Double glazing consisting of one pane of minimum 5mm thick glass and one pane of minimum 6mm thick glass with at least 44mm air gap, and full perimeter <i>acoustically rated seals</i>
	35	Minimum 10.38mm thick laminated glass, with full perimeter <i>acoustically rated seals</i> .
	32	Minimum 6.38mm thick laminated glass with full perimeter <i>acoustically rated seals</i> .
	27	Minimum 4mm thick glass with full perimeter <i>acoustically rated seals</i>
	24	Minimum 4mm thick glass with standard weather seals
External Walls	52	Two leaves of clay brick masonry, at least 270mm in total, with subfloor vents fitted with noise attenuators.
	47	Two leaves of clay brick masonry at least 110mm thick with: (i) cavity not less than 50mm between leaves; and (ii) 50mm thick mineral insulation or 50mm thick glass wool insulation with a density of 11kg/m ³ or 50mm thick polyester insulation with a density of 20kg/m ³ in the cavity. or Two leaves of clay brick masonry at last 110mm thick with: (i) cavity not less than 50mm between leaves; and (ii) at least 13mm thick cement render on each face or Single leaf of clay brick masonry at least 110mm thick with: (i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and (ii) Mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11 kg/m ³ positioned between studs; and (iii) One layer of plasterboard at least 13mm thick fixed to outside face of studs. or Single leaf of minimum 150mm thick masonry of hollow, dense concrete blocks, with mortar joints laid to prevent moisture bridging.
	41	Two leaves of clay brick masonry at least 110mm thick with cavity not less than 50mm between leaves or



Component of Building's External Envelope	Minimum R_w	Acceptable Forms of Construction
		<p>Single leaf of clay brick masonry at least 110mm thick with:</p> <ul style="list-style-type: none"> (i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and (ii) mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11 kg/m³ positioned between studs; and (iii) One layer of plasterboard at least 10mm thick fixed to outside face of studs <p>or</p> <p>Single leaf of brick masonry at least 110mm thick with at least 13mm thick render on each face</p> <p>or</p> <p>Concrete brickwork at least 110mm thick</p> <p>or</p> <p>In-situ concrete at least 100mm thick</p> <p>or</p> <p>Precast concrete at least 100mm thick and without joints.</p>
	35	<p>Single leaf of clay brick masonry at least 110mm thick with:</p> <ul style="list-style-type: none"> (i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and (ii) One layer of plasterboard at least 10mm thick fixed to outside face of studs <p>or</p> <p>Minimum 6mm thick fibre cement sheeting or weatherboards or plank cladding externally, minimum 90mm deep timber stud or 92mm metal stud, standard plasterboard at least 13mm thick internally.</p>
Roof	45	<p>Concrete or terracotta tile or sheet metal roof with sarking, <i>acoustically rated plasterboard</i> ceiling at least 13mm thick fixed to ceiling joists, cellulose fibre insulation at least 100mm thick with a density of at least 45kg/m³ in the cavity.</p> <p>or</p> <p>Concrete or terracotta tile or sheet metal roof with sarking, 2 layers of <i>acoustically rated plasterboard</i> at least 16mm thick fixed to ceiling joists, glass wool insulation at least 50mm thick with a density of at least 11kg/m³ or polyester insulation at least 50mm thick with a density of at least 20kg/m³ in the cavity.</p>
	41	<p>Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling joists, glass wool insulation at least 50mm thick with a density of at least 11kg/m³ or polyester insulation at least 50mm thick with a density of at least 20kg/m³ in the cavity.</p> <p>or</p> <p>Concrete suspended slab at least 100mm thick.</p>
	38	<p>Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling</p>



Component of Building's External Envelope	Minimum R_w	Acceptable Forms of Construction
		cavity, mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11 kg/m ³ .
	35	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling cavity.
Floors	51	Concrete slab at least 150mm thick.
	45	Concrete slab at least 100mm thick or Tongued and grooved boards at least 19mm thick with: (i) timber joists not less than 175mm x 50mm; and (ii) mineral insulation or glass wool insulation at least 75mm thick with a density of at least 11kg/m ³ positioned between joists and laid on plasterboard at least 10mm thick fixed to underside of joists; and (iii) mineral insulation or glass wool insulation at least 25mm thick with a density of at least 11kg/m ³ laid over entire floor, including tops of joists before flooring is laid; and (iv) secured to battens at least 75mm x 50mm; and (v) the assembled flooring laid over the joists, but not fixed to them, with battens lying between the joists.



Appendix D Reference Noise Barrier Designs

Southern Thornlands – Precinct 1

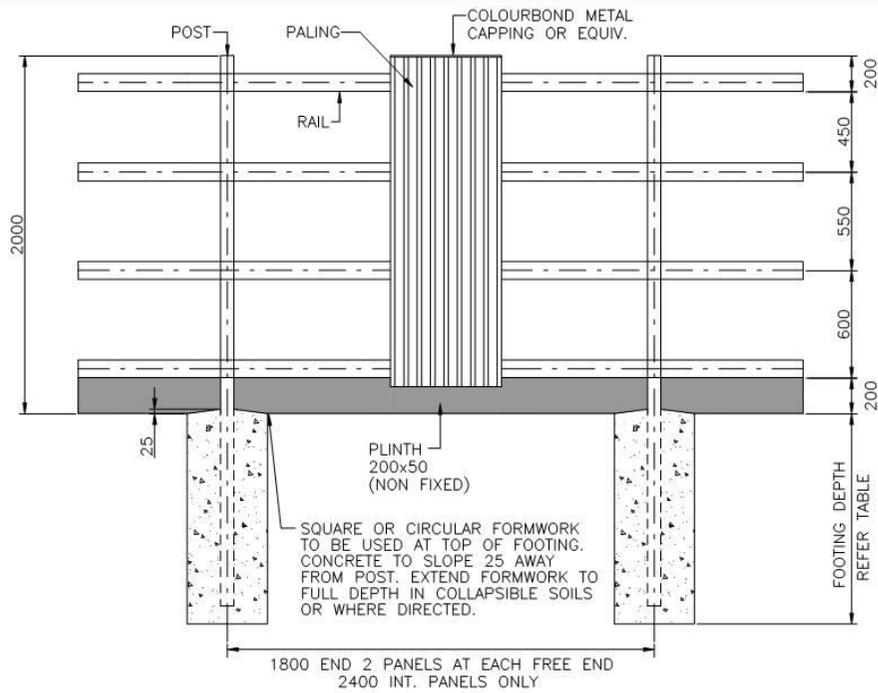
Preliminary Road Traffic Noise Assessment

Urbex Pty Ltd

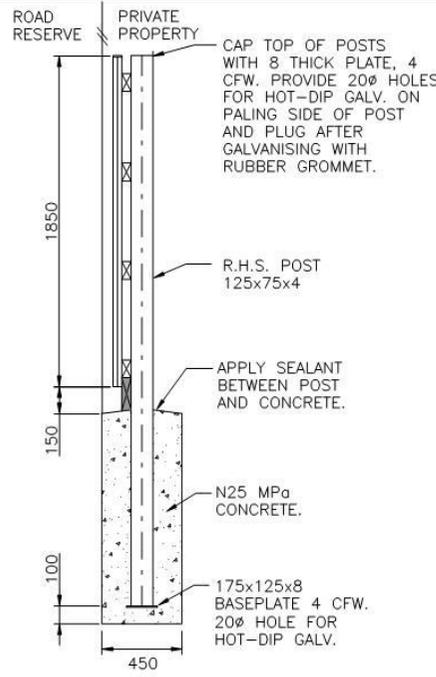
SLR Project No.: 620.040369.00001

10 June 2025

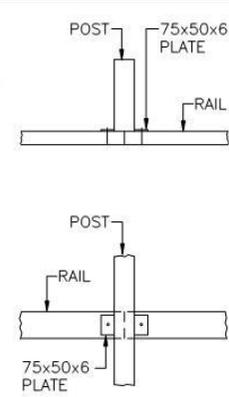




ELEVATION



SECTION

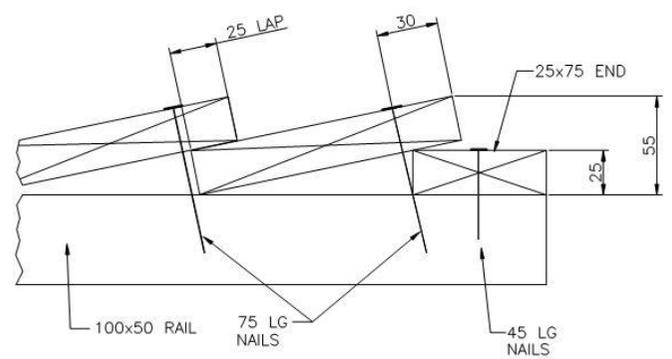


POST & RAIL CONNECTION

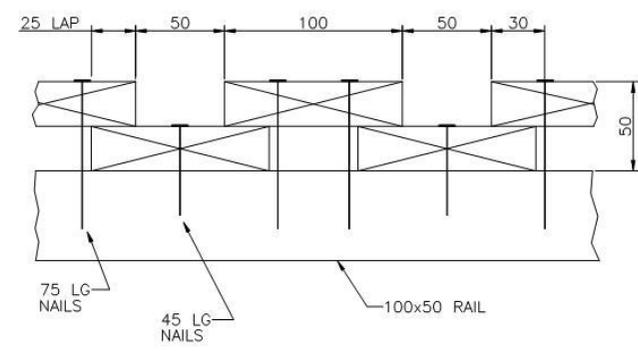
FOOTING DEPTH	
SOIL TYPE	FOOTING DEPTH
SOFT CLAY (Cu = 25 kPa)	1600
FIRM CLAY (Cu = 50 kPa)	1300
STIFF CLAY (Cu = 100 kPa)	1100
MEDIUM DENSE NON-COHESSIVE SOIL	1200

NOTES:

- THIS DRAWING DEPICTS A TYPICAL 2000 HIGH ACOUSTIC BARRIER AND DOES NOT NECESSARILY REPRESENT A NOISE ATTENUATION SOLUTION FOR ALL DEVELOPMENTS. NOISE ATTENUATION SOLUTION FOR EACH DEVELOPMENT IS SITE SPECIFIC AND SHALL BE ADDRESSED IN ACCORDANCE WITH THE "NOISE IMPACT ASSESSMENT PLANNING SCHEME POLICY" OF THE BRISBANE CITY PLAN.
- MAXIMUM PERMISSIBLE STRESS DESIGN WIND VELOCITY IS 33m/s (W33) WHICH CORRESPONDS TO A SUBURBAN ENVIRONMENT WITH NO EXPOSURE TO OPEN AREAS AND NOT LOCATED IN CLOSE PROXIMITY TO HILLS, RIDGES OR ESCARPMENTS, AS THE NATURAL SURFACE 2m EITHER SIDE OF THE FENCE IS ASSUMED FLAT FOR DESIGN OF FOOTING. IF THESE CONDITIONS ARE NOT MET AN ALTERNATIVE CERTIFIED ENGINEERING DESIGN MUST BE SUBMITTED FOR APPROVAL.
- FOR NEW SUBDIVISIONS/DEVELOPMENTS, THE ENTIRE FENCE SHALL BE CONTAINED WITHIN THE PRIVATE PROPERTY AND MAINTAINED BY THE PROPERTY OWNER.
- ALL PALINGS, RAILS AND PLINTH SHALL BE C.C.A TREATED PINE TO H5 LEVEL IN ACCORDANCE WITH AS 1604.
- ALL FIXINGS SHALL BE HOT-DIP GALVANISED OR EQUIVALENT.
- CAPPING: COLOURBOND METAL, 30 DEEP WITH OVERFOLDED EDGES. FIX WITH No.10 x 12 LONG GALV. TYPE 17 SCREWS AT 300 CRS AND STAGGERED EACH SIDE. CAPPING TO FIT SNUGLY OVER PALINGS.
- PALINGS: F5 TREATED PINE. REFER PALING DETAILS FOR SIZES. NAILS SHALL BE 2.8Ø HOT-DIP GALVANISED FLAT HEAD CLOUTS (OR SIMILAR GUN-DRIVEN NAILS). STAGGER NAIL PATTERN ALONG LENGTH OF PALING TO AVOID SPLITTING AND DRIVE NAILS SQUARE TO FACE OF BOARD. RING SHANK NAILS TO BE USED.
- RAILS: 100 x 50 F5 TREATED PINE. FIX WITH No.14-10 x 50 GALVANISED HEX HD TYPE 17 SCREW.
- POSTS: 125 x 75 x 4 R.H.S. HOT-DIP GALVANISED AFTER FABRICATION.
- PLINTH: 200 x 50 F5 TREATED PINE (NON FIXED).
- DIMENSIONS IN MILLIMETRES (UNO).



SYSTEM 1 (150x25)



SYSTEM 2 (100x25)

TREATED PINE PALING

B	Drawing Title Amended	FEB'16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14
ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE

DRAWING AUTHORISED FOR PUBLICATION
 B BALL SIGNATURE ON ORIGINAL
 DATED 29/06/01 R.P.E.G 3852
 ASSET ENGINEERING MANAGER
 STRATEGIC ASSET MANAGEMENT
 DESIGN APPROVED
 B.HANSEN SIGNATURE ON ORIGINAL
 DATED 27/06/01
 PRINCIPAL ASSET OFFICER
 ROADS & DRAINAGE

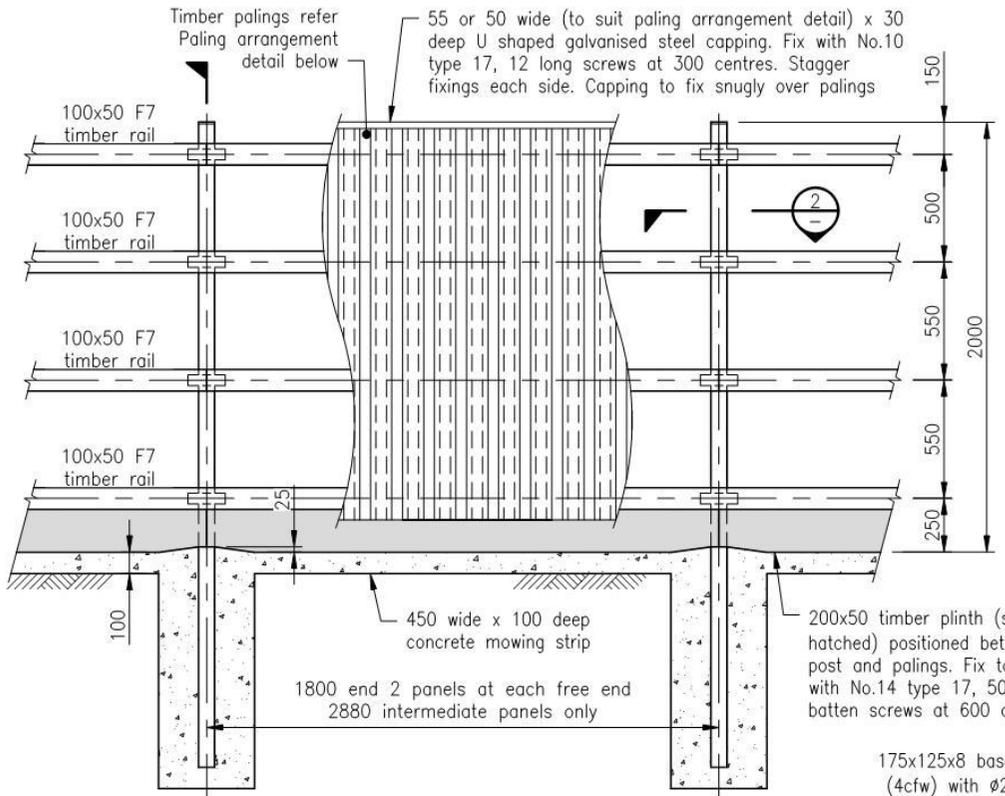
DESIGN	Std Dwgs Group	DATE	APRIL '01
DRAWN	CITY DESIGN	DATE	APRIL '01
CHECKED	M. STEER	DATE	MAY '01
DRAWING FILENAME	BSD-7021 (B) Noise barrier fence 2.0m high - Post and paling.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-245		



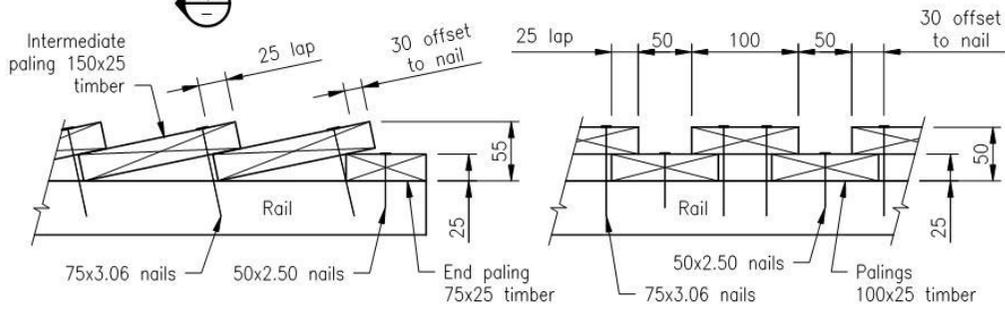
BRISBANE CITY COUNCIL STANDARD DRAWING

**NOISE BARRIER FENCE
 2.0m HIGH
 POST AND PALING**

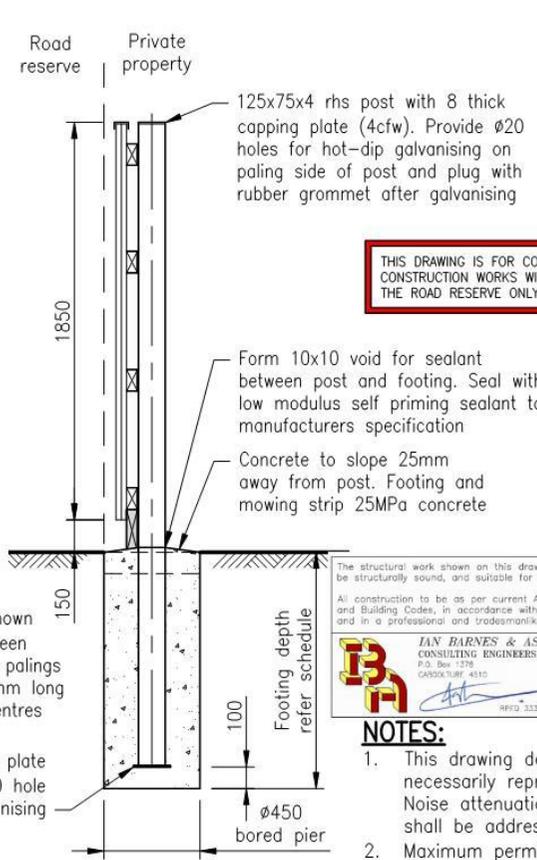
SCALE: NOT TO SCALE
 DWG NO: **BSD-7021**
 ORIGINAL SIZE: A3 REVISION: B



ELEVATION
Scale A



PALING ARRANGEMENT DETAILS
Scale C



SECTION 1
Scale A

THIS DRAWING IS FOR COUNCIL CONSTRUCTION WORKS WITHIN THE ROAD RESERVE ONLY

The structural work shown on this drawing is considered to be structurally sound, and suitable for the design loads.

All construction to be as per current Australian Standards and Building Codes, in accordance with MBRC requirements, and in a professional and tradesmanlike manner

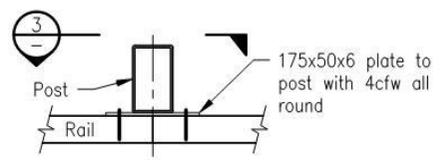
IAN BARNES & ASSOCIATES P/Ltd
CONSULTING ENGINEERS
P.O. Box 1278
CANTONMENT 4510
ABN 76 057802490
Office : 07 5485 8644
Mobile : 0418 973 328
RFP3-2333 Date : 13/09/2017

NOTES:

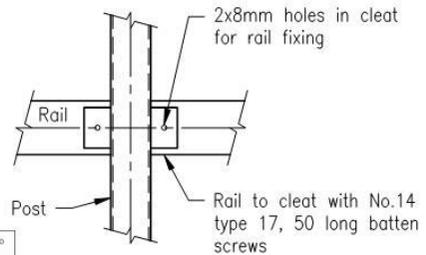
- This drawing depicts a typical 2000 high acoustic barrier and does not necessarily represent a noise attenuation solution for all developments. Noise attenuation solution for each development is site specific and shall be addressed by a qualified acoustic engineer.
- Maximum permissible stress design wind velocity is 33m/s (w33) which corresponds to a suburban environment with no exposure to open areas and not located in close proximity to hills, ridges or escarpments, as the natural surface 2m either side of the fence is assumed flat for design of footing. If these conditions are not met an alternative certified engineering design must be submitted for approval.
- For new subdivisions/developments, the entire fence shall be contained within the private property and maintained by the property owner.
- All palings, rails and plinths shall be ACQ or CCA treated pine to H5 level in accordance with AS 1604. Rails min. F7 Stress Grade.
- All fixings (apart from nails) shall be 'Zenith-Tufcote' or 'Buildex-Climacoat' or approved equivalent (unless noted otherwise).
- All nails shall be ring shank type and hot dipped galvanised.
- Stagger nail pattern along length of paling to avoid splitting and drive nails square to face of board.
- Posts shall be hot-dip galvanised after fabrication.
- Noise barrier fence shall be screened with vegetation.
- Dimensions are in millimetres unless stated otherwise.

FOOTING DEPTH SCHEDULE

SOIL TYPE	FOOTING DEPTH
Soft clay (Cu = 25kPa)	1600
Firm clay (Cu = 50kPa)	1300
Stiff clay (Cu = 100kPa)	1100
Medium dense non-cohesive soil medium	1200



SECTION 3
Scale B



SECTION 2
Scale B

REVISIONS	INT	DATE
E		
D		
C	Approved by Structural Engineer	TC 7/17
B	Structural Design Note Changed	RH 12/16
A	Add note - For council construction works only, change landscape note	BW 08/16
X	ORIGINAL ISSUE	BW 07/16

SCALES
A 0mm 100 200 300 400 500 1:25
B 0mm 50 100 150 200 1:10
C 0mm 25 50 75 100 1:5

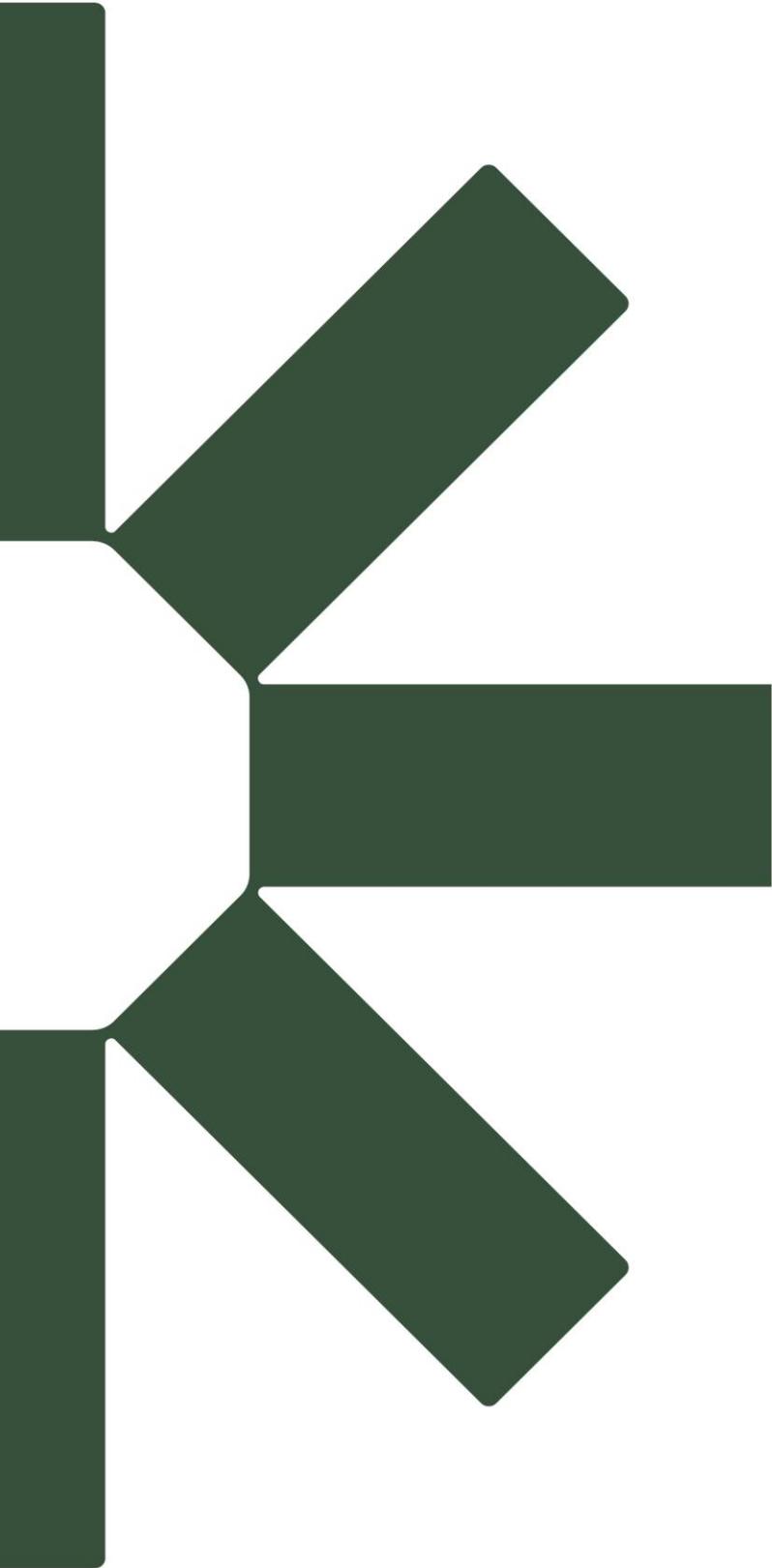
Drawn	BW	Date	07/16
Coordinator	PP	Date	07/16
AUTHORISED			
SYD JERRAM 07/07/16			
Manager Integrated Transport Planning & Design RPEQ 6872			

**NOISE BARRIER FENCE
2.0m HIGH POST AND PALING**

Moreton Bay Regional Council

DRG No: **SF-1520**

ORIGINAL SIZE **A3** REVISION **C**



Making Sustainability Happen