NOISE IMPACT ASSESSMENT

84 Fraser Street, Narrabri NSW

Prepared by RCA Australia

Prepared for Rowan McClung

RCA ref 17118-401.1

April 2024

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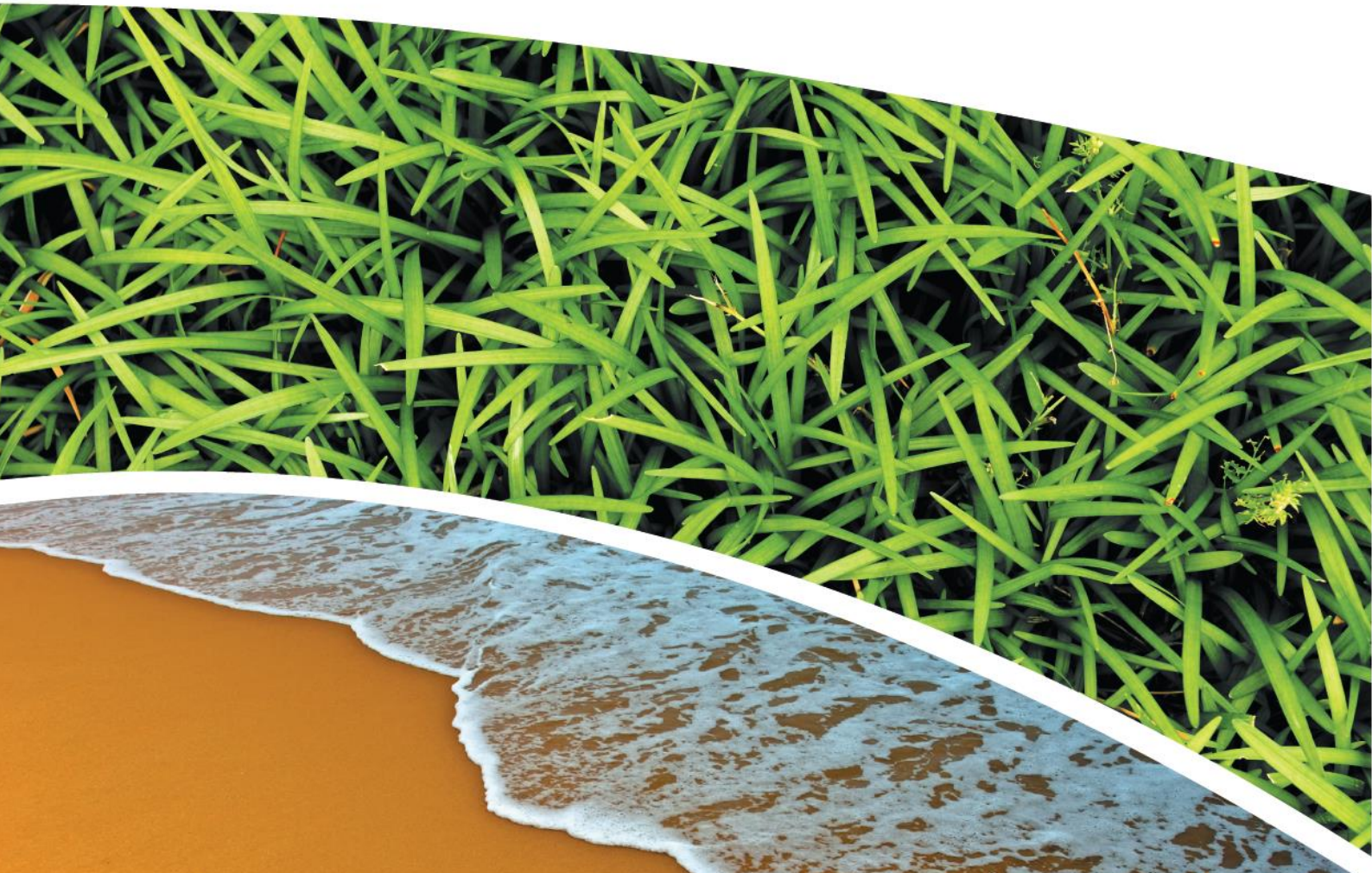

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Contents

ABBREVIATIONS

RBL	Rating Background Level
ABL	Assessment Background Level
LTM	Long Term Monitoring
STM	Short Term Monitoring
NPI	Noise Policy for Industry

RCA ref 17118-401.1

30 April 2024

Attention: Rowan McClung

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Geotechnical Engineering
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CARWASH NOISE IMPACT ASSESSMENT, 84 FRASER STREET, NARRABRI NSW

1 INTRODUCTION

RCA Australia Pty Ltd (RCA) have been engaged by Rowan McClung (the client) to undertake a noise impact assessment for a proposed carwash site at 84 Fraser Street Narrabri.

This report presents a noise impact assessment for the proposed car wash in accordance with the Noise Policy for Industry (NPI) (EPA, 2017). The proposal includes:

- An automatic wash bay.
- Three self-serve wash bays.
- A dog wash bay.
- Two vacuum bays, and
- An office

The dog wash bay and the office are not assessed as they won't be a significant noise source for the purpose of this assessment. The proposed carwash site plan is presented in **Appendix E**.

2 LIMITATIONS

This report has been prepared for the sole use of Rowan McClung and may not contain sufficient information for purposes of other uses or for parties other than Rowan McClung. This report shall only be presented in full and may not be used to support objectives other than those stated in the report without written permission from RCA Australia.

The services performed by RCA have been conducted in a manner consistent with that generally exercised by members of its profession and consulting practice.

The information in this report is considered accurate but can only represent the site conditions at the time of the noise survey. These conditions may change over time.

3 EXISTING ENVIRONMENT

3.1 NOISE MONITORING EQUIPMENT DETAILS

Noise measurements were undertaken with class 1 sound level meters. One of them was placed for several days of long term measurement (LTM) at Lot 5 DP9167, 84 Fraser Street, Narrabri to measure background noise (referred to as Rating Background Levels (RBLs)).

A single 15-minute short term measurement (STM) was also taken while onsite by an acoustic technician to assist to identify and document the local noise sources in the environment. Sound monitoring equipment details are provided in **Table 1**.

Table 1 *Sound monitoring equipment*

Monitoring	Sound monitoring equipment	Settings	Last NATA calibrated
Sound Level Meter (LTM)	Svan 971 / 61419	A weighting 'Fast' time response	April 2023
Sound Level Meter (STM)	Svan 971 / 55582	A weighting 'Fast' time response	June 2023
Calibrator	B&K 4230 / 1558684	-	May 2023

3.2 SITE AND RECEIVERS

The proposed carwash site is located at Lot 5 DP9167, 84 Fraser Street, Narrabri. The site is adjacent to the Kamilaroi – Newell Highway and shares the north and east boundaries with residential receivers.

The residential receivers are categorised as urban residential receivers according to the NPI. The area is defined as Mixed Use Zone (MU1) according to the Narrabri Local Environmental Plan (LEP) 2012.

Table 2 *Closest noise sensitive receivers*

Receiver ID	Receiver type	Address
R1	Residential	78 A39, Narrabri
R2	Residential	82 Fraser St, Narrabri
R3	Residential	77 Fraser St, Narrabri
R4	Residential	75 Fraser St, Narrabri
R5	Residential	80 A39, Narrabri
R6	Residential	80 Fraser St, Narrabri
C1	Commercial	79 A39, Narrabri
C2	Commercial	65 A39, Narrabri

A photo of the noise monitoring setup is provided in **Figure 1** (receiver R1 shown in the background) and an aerial of the site (shaded blue) and closest residential and commercial receivers is provided in **Figure 2**.

Figure 1 *Noise monitoring location*

Figure 2 *Aerial of the carwash site (shaded blue)*

3.3 ATTENDED NOISE MONITORING

A single 15-minute measurement was undertaken on site. Highway road traffic (including heavy vehicles) were found to be the dominant noise source in this environment. Weather conditions at the time included 1/8 cloud cover and wind blowing at 1-2 m/s. **Table 3** presents the results of the attended monitoring at the property.

Table 3 *Attended monitoring at the property*

Survey Date & Start Time	$L_{Amax\ 15min}$, dBA	$L_{Aeq\ 15min}$, dBA	$L_{A10\ 15min}$, dBA	$L_{A90\ 15min}$, dBA	Local Noise Sources and instantaneous sound pressure levels, dB(A)
05/03/2024 15:45	77	63	67	53	Birds ~46-52 Road Noise ~50-77

3.4 UNATTENDED MONITORING RESULTS

Background noise was measured in continuous 15-minute periods. Weather has been sourced from the Bureau of Meteorology (BoM) (Narrabri, station ID 95734).

and measured 15-minute noise descriptors for each day are graphed in **Appendix D**. Periods of rain or wind above 5 m/s at 1.5 m above ground level have been excluded prior to analysis and are shaded grey.

Table 4 *Daily summary of measured ambient noise levels, dB(A)*

DATE	Morning shoulder ABL	Day ABL	Eve ABL	Eve shoulder ABL	Night ABL	Day L_{Aeq}	Eve L_{Aeq}	Night L_{Aeq}
5-Mar-24	-	-	42	-	41	-	62	58
6-Mar-24	-	47	43	-	38	63	62	58
7-Mar-24	-	48	43	-	39	63	61	58
8-Mar-24	-	46	42	-	37	62	59	56
9-Mar-24	-	43	43	-	36	60	60	55
10-Mar-24	-	42	38	-	34	60	60	57
11-Mar-24	-	45	41	-	35	62	61	59
12-Mar-24	-	44	42	-	35	61	61	58
13-Mar-24	-	46	42	-	35	63	61	58
14-Mar-24	-	48	42	-	-	63	62	-
15-Mar-24	-	-	-	-	-	-	-	-
16-Mar-24	-	43	39	-	33	62	59	56
17-Mar-24	-	41	38	-	35	61	59	57
18-Mar-24	-	48	39	-	-	62	61	-
19-Mar-24	-	48	-	-	-	63	-	-
Overall levels	**36**	**46**	**42**	**43**	**35**	**62**	**61**	**57**

Note: `-` Denotes insufficient data due to either rain or wind >5 m/s.

The NPI defines the following periods: 'Day' is between 7 am – 6 pm, 'Evening' is between 6 pm – 10 pm and 'Night' is between 10 pm – 7 am, but allows for "shoulder periods" where appropriate.

'Morning shoulder' has been defined to be between 6 am – 7 am.
'Evening shoulder' has been defined to be between 6 pm – 8 pm.

4 NOISE IMPACT ASSESSMENT

4.1 NOISE TARGETS

The rating background level (RBL) is a description of the underlying noise levels for the area and is derived based on statistical analysis of continuous unattended noise monitoring taken over at least 7 days. We refer to the RBL when discussing noise criteria below.

The NPI provides a procedure for setting project specific noise trigger levels. The NPI states that these trigger levels are not meant to be mandatory limits, but rather they represent the point above which all feasible and reasonable noise mitigation must be explored. The NPI also makes the point that any exceedance of these trigger levels is to be considered in combination with the social and commercial benefits that the proposal may represent for the community.

The NPI sets an Intrusiveness Noise criterion (applicable for residential receivers only) which is $L_{Aeq,15min}$ equal to the RBL plus 5 dB. Amenity noise levels for a suburban residency are taken from Table 2.2 of the NPI. The most stringent of the project intrusiveness noise level and the project amenity noise level is adopted as the criteria after converting both criteria to a 15-minute period.

The NPI provides the following assessment periods: Day (7 am – 6 pm), Evening (6 pm – 10 pm) and Night (10 pm – 7 am). The NPI also allows criteria to be derived for a "shoulder period", which is defined as a transition between two assessment periods. For example, while 6 am is still technically "night time", the NPI recognises that an early morning shoulder period may be appropriate to capture the fact that the ambient noise environment is likely increasing and would not be fairly represented by the "night time" intrusiveness criterion. The proponent in this case would like to begin operations at 6 am, and so RCA have derived a morning shoulder period to assess these early morning operations. Similarly, the proponent is requesting to trade until 8 pm and so RCA have also determined an "evening shoulder period" between 6 pm – 8 pm.

The NPI also discusses sleep disturbance which are relevant to the night time and morning shoulder operational period of the facility. The sleep disturbance screening levels are:

- $L_{Aeq,\ 15min}$ of 40 dB(A) or RBL plus 5 dB, whichever is the greater; and/or
- $L_{Amax,\ 15min}$ of 52 dB(A) or RBL plus 15 dB, whichever is the greater.

The NPI states that a more detailed sleep disturbance investigation is required where the above screening levels are exceeded. The derived Intrusiveness and Amenity noise criteria for residential receivers is shown in **Table 5** below.

Table 5 *Residential Intrusiveness and Amenity Noise Criteria*

Period	RBL, dB(A)	Intrusiveness Noise Level, $L_{Aeq, 15min}$, dB	Urban Amenity Noise Level, L_{Aeq}, dB	Project Amenity Noise Level, $L_{Aeq, 15min}$, dB
Morning shoulder (6 am – 7 am)	36	41 (36 + 5)	-	-
Daytime	46	51 (46 + 5)	60	58 (60 – 5 + 3)
Evening shoulder (6 pm – 8 pm)	43	48 (43 + 5)	50	48 (50 – 5 + 3)
Night-time	35	40 (35 + 5)	45	43 (45 – 5 + 3)

The NPI sets a project amenity level of 63 dBA (after converting to a 15 minute period) for commercial premises 'when in use'.

A summary of the adopted project specific noise trigger levels for identified receivers and relevant assessment periods are presented in **Table 6**.

Table 6 *Project specific noise trigger levels, dB(A)*

Receiver type	Morning Shoulder	Day	Eve Shoulder	Sleep Disturbance (applicable to morning shoulder)	
	$L_{Aeq, 15-min}$	$L_{Aeq, 15-min}$	$L_{Aeq, 15-min}$	$L_{Aeq, 15-min}$	$L_{Amax, 15min}$
Residential	41	51	48	40	52
Commercial	63	63	63	-	-

4.2 ATTENDED MEASUREMENTS OF SIMILAR CARWASH

RCA have taken a series of noise samples of noise sources operating at a similar site to the proposal. The measured activities include a manual jet water nozzle in a self-serve carwash, a full wash cycle of an automatic carwash (the proposal does not include the dryer cycle), normal vacuum and turbo vacuum. These readings were taken by an acoustic technician while visiting a similar carwash site known as Taminda carwash in Tamworth. The sound power levels (SWL) for these activities were determined by distance loss calculations assuming hemispherical spreading and would later be used as noise model inputs.

Figure 3 shows the entry point of the two automatic carwash bay side by side at Tamworth carwash facility (similar to what is designed for the Narrabri carwash facility).

The calculated SWLs for noise sources at the Tamworth carwash facility are presented in **Table 7**. These will be used in the noise model to predict the noise levels for the Narrabri carwash facility at the closest sensitive receivers.

Table 7 *Sound power levels (SWL)*

Activity	Calculated SWL L_{Aeq}	Calculated SWL L_{Amax}
Vacuum	90 dBA	93 dBA
Turbo vacuum	95 dBA	98 dBA
Manual water nozzle	98 dBA	100 dBA
Auto carwash (1 full cycle without dryer)	100 dBA	103 dBA

Each noise source was checked for tonality and low frequency noise characteristics as these would attract a 5 dB penalty according to the NPI. RCA found that no penalties were applicable.

Figure 3 *Entry to automatic car wash bay, Tamworth NSW*

4.3 NOISE MODEL INPUTS

A 3D noise model was created using CadnaA incorporating the ISO 9613 algorithm for outdoor noise propagation. Noise predictions take account of barriers, ground topography, reflections and noise enhancing weather conditions.

A solid 1.8 m tall fence is modelled along the northern boundary and a solid 2.1 m tall fence is modelled along the eastern boundary of the proposed carwash site.

Receiver R1 (directly east of site) was noted to be a two level house, with windows and a sliding door that overlook the proposal. This receiver has been assessed at both ground floor and also at 4.5 m above ground level.

The adopted active duration for a typical 15-minute period is presented in **Table 8**. RCA have modelled the same operating conditions for both Day and Evening shoulder periods but have modelled reduced operations for the morning shoulder period.

Table 8 *Adopted active duration percentage for a typical 15-minute period*

Noise source	Morning shoulder period	Day period	Evening shoulder period
Vacuum	Not operating	33 % of 15 mins	33 % of 15 mins
Turbo vacuum	Not operating	33 % of 15 mins	33 % of 15 mins
3 x Manual super carwash	Not operating	33 % of 15 mins	33 % of 15 mins
Auto carwash	50 % of 15 mins	50 % of 15 mins	50 % of 15 mins
Car moving across site	100% of 15 mins	100% of 15 mins	100% of 15 mins

5 NOISE MODEL RESULTS

5.1 MORNING SHOULDER RESULTS

Predicted noise levels for the morning shoulder period (with reduced operations) are assessed against the project specific noise targets below. Results are discussed **Section 6**.

Table 9 *Assessment of morning shoulder noise levels*

Receiver ID	Project specific noise target, dBA		Predicted levels, dBA		Exceedance, dBA	
	LAeq,15 min (sleep disturbance)	LAmax (sleep disturbance)	LAeq,15 min	LAmax	LAeq,15 min	LAmax
C1	63	-	49	53	-	-
C2	63	-	45	49	-	-
R1_First_Floor	40	52	58	62	18	10
R1_Ground_Floor	40	52	52	56	12	4
R2_Ground_Floor	40	52	35	40	nil	nil
R3_Ground_Floor	40	52	52	57	12	5
R4_Ground_Floor	40	52	46	48	6	nil
R5_Ground	40	52	29	34	nil	Nil
R6_Ground	40	52	35	39	nil	nil

5.2 DAY TIME AND EVENING SHOULDER RESULTS

Predicted noise levels for typical day time and evening shoulder operations are presented against the project specific noise targets below.

Table 10 *Assessment of Day and Evening shoulder period noise levels*

Receiver ID	Project specific noise target, dBA		Predicted levels, dBA		Exceedance, dBA	
	Day LAeq,15 min	Eve shoulder LAeq,15 min	Day LAeq,15 min	Eve shoulder LAeq,15 min	Day LAeq,15 min	Eve shoulder LAeq,15 min
C1	63	63	49	49	nil	nil
C2	63	63	46	46	nil	nil
R1_First_Floor	51	48	63	63	12	15
R1_Ground_Floor	51	48	53	53	2	5
R2_Ground_Floor	51	48	43	43	nil	nil
R3_Ground_Floor	51	48	52	52	1	4
R4_Ground_Floor	51	48	46	46	nil	nil
R5_Ground	51	48	32	32	nil	nil
R6_Ground	51	48	46	46	nil	nil

6 DISCUSSION

6.1 OTHER RELEVANT GUIDELINES

Noting that the NPI states the project specific noise targets are not mandatory, RCA present information provided by other guidelines and standards to provide context to the predicted noise levels.

The Australian standard *AS/NZS 2107:2016 'Acoustics - Recommended design sound levels and reverberation times for building interiors'* provides internal design sound levels for residential building/houses in an urban area. This is presented in **Table 11** below.

Table 11 *Suburban internal design sound levels for residential buildings*

Type of Occupancy	Design sound level, L_{Aeq} range dBA
Living area	35 – 45
Sleeping area (night-time)	35 – 40
Work area	35 – 45

The Department of Planning published *"Development Near Rail Corridors and Busy Roads: An Interim Guideline"* in 2008, which states that we can assume a façade with a window sufficiently open to provide fresh air ventilation, will provide at least 10 dB noise reduction from outside to inside the room. The same guideline also provides a typical noise weighted reduction (Rw) value of 24 dB for standard 4 mm glazing with standard weather seals. Based on this, and taking "Living area" from **Table 11** as an example, we can then assume that external noise levels at R1, from the proposal, would need to be greater than 55 dBA before the upper limit of AS2107 was exceeded for living areas if the façade had an open window, or greater than 65 dBA before the upper limit of AS2107 was exceeded for living areas if the window or sliding door was closed. This advice then indicates that internal noise levels from the proposal would likely remain within the recommended design sound level range for "living areas" during the day time.

While the project specific noise targets from the NPI are not mandatory, the Protection of the Environment Operations Act (1997) and associated Noise Control Regulation (2018), make it an offense to cause "offensive noise". The 2013 EPA document *"Noise Guide for Local Government"* provides six questions to assist in determining whether a noise would likely be considered offensive or not. These questions are:

- Is the noise loud in an absolute or relative sense?
- Does the noise include characteristics that make it particularly irritating?
- Does the noise occur at times when people expect to enjoy peace and quiet?
- Is the noise atypical for the area?
- Does the noise occur often?
- Are a number of people affected by the noise?

These questions will be considered when discussing potential noise impacts for each of the assessed time periods.

6.2 MORNING SHOULDER DISCUSSION

RCA modelled reduced operations for the time period 6 am – 7 am and predicted significant exceedances of the LAeq sleep disturbance screening level at R1 first floor (18 dB), R1 ground floor (12 dB), R3 ground floor (12 dB) and R4 ground floor (6 dB). RCA predicted exceedances of the LAmax sleep disturbance screening level at: R1 first floor (10 dB), R1 ground floor (4 dB) and R3 ground floor (5 dB). Given the extent of these noise impacts, and the increased sensitivity of this time period (when people are likely trying to sleep), RCA recommend that trading begins at 7 am.

6.3 DAY TIME DISCUSSION

RCA predicted exceedances of the day time project specific noise target at the following two receivers: R1 first floor (12 dB), R1 ground floor (2 dB) and R3 ground floor (1 dB). RCA note that the NPI considers an exceedance up to 2 dB to be negligible since "the exceedance would not be discernible to the average listener". This means the R1 and R3 ground floor exceedances can be considered to be negligible.

The remaining first floor exceedance at R1 however is not negligible. We then consider the predicted site noise within the context of the existing ambient noise environment.

It should first be noted that this external first floor assessment location does not likely represent a location that a person typical occupies. This external assessment location then only serves to allow for an internal noise level to be estimated. Daily 15-minute unattended noise charts are provided in **Appendix D**. It is seen that the LAeq,15 minute level measured on site remains above 60 dBA from 6 am through until after 9 pm, and it was shown in **Table 4** that the day time LAeq,15 hr level due to road traffic was 62 dBA. Based on this, RCA suggest that if R1 has a habitable room on the first level that is used during the day and which faces the proposal, then any windows or doors on that exposed façade will likely already be kept closed due to the road noise. We find that a predicted external noise level from the proposal of 63 dBA is not expected to exceed the AS2107 internal noise objective of 35 dBA – 45 dBA for a living area, with windows and or doors closed.

With this in mind, we answer the questions likely to be asked when considering if this noise would be offensive during the day time.

Table 12 *Offensive noise questions and answers, day time*

Question	RCA comment
Is the noise loud in an absolute or relative sense?	53 dBA (at R1 ground floor) is not likely considered loud in either an absolute or relative sense. RCA considers that the R1 external first floor location does not likely represent a location that is typically occupied. The internal level (estimated to be approximately 39 dBA) does not exceed the range of acceptable internal noise levels from AS2107 for a living area. RCA also note that site level is approximately equal to the road noise, and so would not be considered loud in a relative sense.
Does the noise include characteristics that make it particularly irritating?	No. RCA tested sound power measurements taken at a similar site for tonality and low frequency characteristics as per NPI procedures and found no penalties were applicable.
Does the noise occur at times when people expect to enjoy peace and quiet?	We consider day time period here only. No.
Is the noise atypical for the area?	No. The Narrabri Local Environment Plan identifies the area as Mixed Use Zone, which allows commercial use. There is a commercial property directly across Fraser St and a service station is directly opposite the highway.
Does the noise occur often?	Yes.
Are a number of people affected by the noise?	No. Receiver R1 is the only receiver to experience noise impacts that are no negligible.

RCA also found that the predicted LAmax at R1 first level from the proposal was 66 dBA, while daily 15-minute unattended noise charts provided in **Appendix D** show that existing LAmax levels are typically above 75 dBA and occasionally surpass 90 dBA.

After considering the above questions, RCA believe that noise from the proposal would not be considered offensive during the day time. The evening period is considered in the following section.

6.4 EARLY EVENING DISCUSSION

RCA predicted exceedances of the early evening time (6 pm – 8 pm) project specific noise target at the following two receivers: R1 first floor (15 dB), R1 ground floor (5 dB) and R3 ground floor (4 dB).

Once again, we consider these noise impacts within the context of the offensive noise questions.

Table 13 *Offensive noise questions and answers, evening shoulder (6 pm - 8 pm)*

Question	RCA comment
Is the noise loud in an absolute or relative sense?	No. Reasons given in Table 12.
Does the noise include characteristics that make it particularly irritating?	No. Reasons given in Table 12.
Does the noise occur at times when people expect to enjoy peace and quiet?	RCA acknowledge that the evening time period is a more sensitive time period than day time, however, as noted in Table 12, RCA do not anticipate site noise to interfere with internal evening activities such as conversations or watching television.
Is the noise atypical for the area?	No. Reasons given in Table 12.
Does the noise occur often?	Yes.
Are a number of people affected by the noise?	No. Exceedances of the project specific noise target was identified at two receivers only.

After considering the above questions, RCA believe that noise from the proposal would not be considered offensive during the evening shoulder period, 6 pm – 8 pm, but recommend operations cease at 8 pm as a primary mitigation strategy to manage noise impacts.

7 RECOMMENDATIONS

RCA make the following recommendations:

- A 2.1 m high fence and a 1.8 m high fence is erected on the eastern and northern boundaries respectively. The fences must be solid, with no gaps from the ground to the design height. Commercial modular wall systems made from compressed fibre are available and would be suitable. Other materials with sufficient density would also be suitable.
- RCA would recommend that operations begin at 7 am and cease at 8 pm.

8 CONCLUSION

RCA were engaged by Mr Rowan McClung to undertake a noise impact assessment for a proposed carwash site at 84 Fraser Street Narrabri.

RCA found that morning operations (before 7 am) would likely cause significant disturbance to an adjacent residential neighbour but believe site noise would not be considered offensive between 7 am and 8 pm.

Yours sincerely
RCA AUSTRALIA

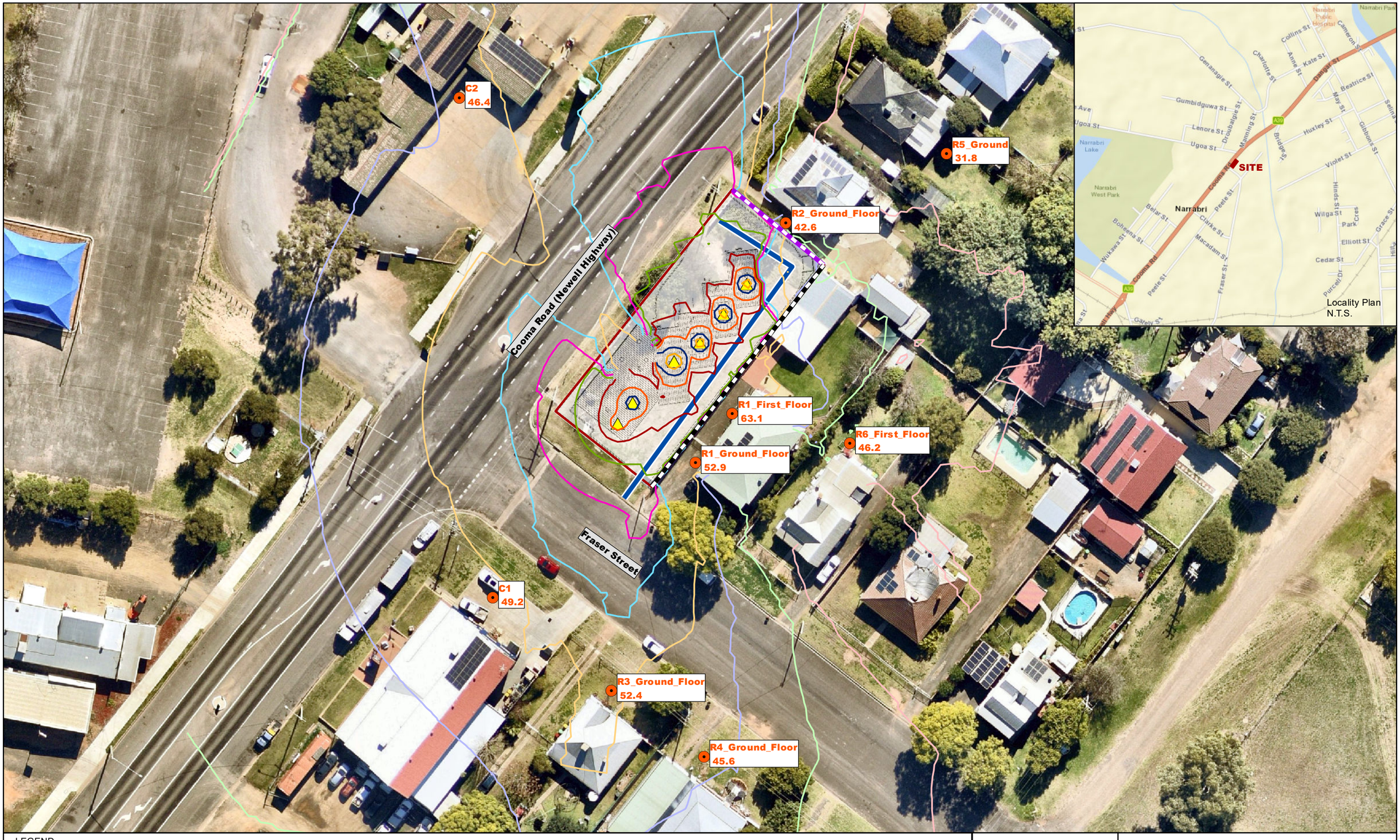
Alex Rees
Senior Acoustic Consultant

GLOSSARY

A-weighting	The ‘A-weighting’ filter is applied to the measured noise spectrum to better represent how humans perceive noise. It does this by attenuating the low and high frequencies that humans do not easily hear.
Decibel (dB)	The decibel is a logarithmic scale that compresses a very large range into a more comprehensible range. When used to represent sound pressure, it is the ratio of the square of the measured sound pressure to a reference sound pressure (20 micro pascals).
Fast time response	An averaging period that the sound level meter applies to the signal before further statistical analysis. The fast time response is 125 ms and is the common setting for environmental noise investigations.
LAeq	This is the A-weighted “average” noise level over some period. Note that the average is calculated as a log-average.
LAeq,15 hr	The A-weighted log-averaged noise level over 15 hours (from 7 am to 10 pm).
LAeq,9 hr	The A-weighted log-averaged noise level over 9 hours (from 10 pm to 7 am).
LAeq,8 hr	The A-weighted log-averaged noise level over 8 hours (from 10 pm to 6 am).
LAeq,24 hr	The A-weighted log-averaged noise level over 24 hours.

Appendix A

Predicted day and evening LAeq,15 min noise level at ground level



LEGEND

- Approximate site boundary
- Receivers
- Point noise source
- Moving cars
- 1.8m noise barrier
- 2.1m noise barrier

LAeq 15min.dBA

35 40 45 50 55 60 65 70 75 80 85

Note: Aerial image taken from Nearmap, 19 July 2023
(used in accordance with commercial licence)

0 5 10 20 30 40
metres

N

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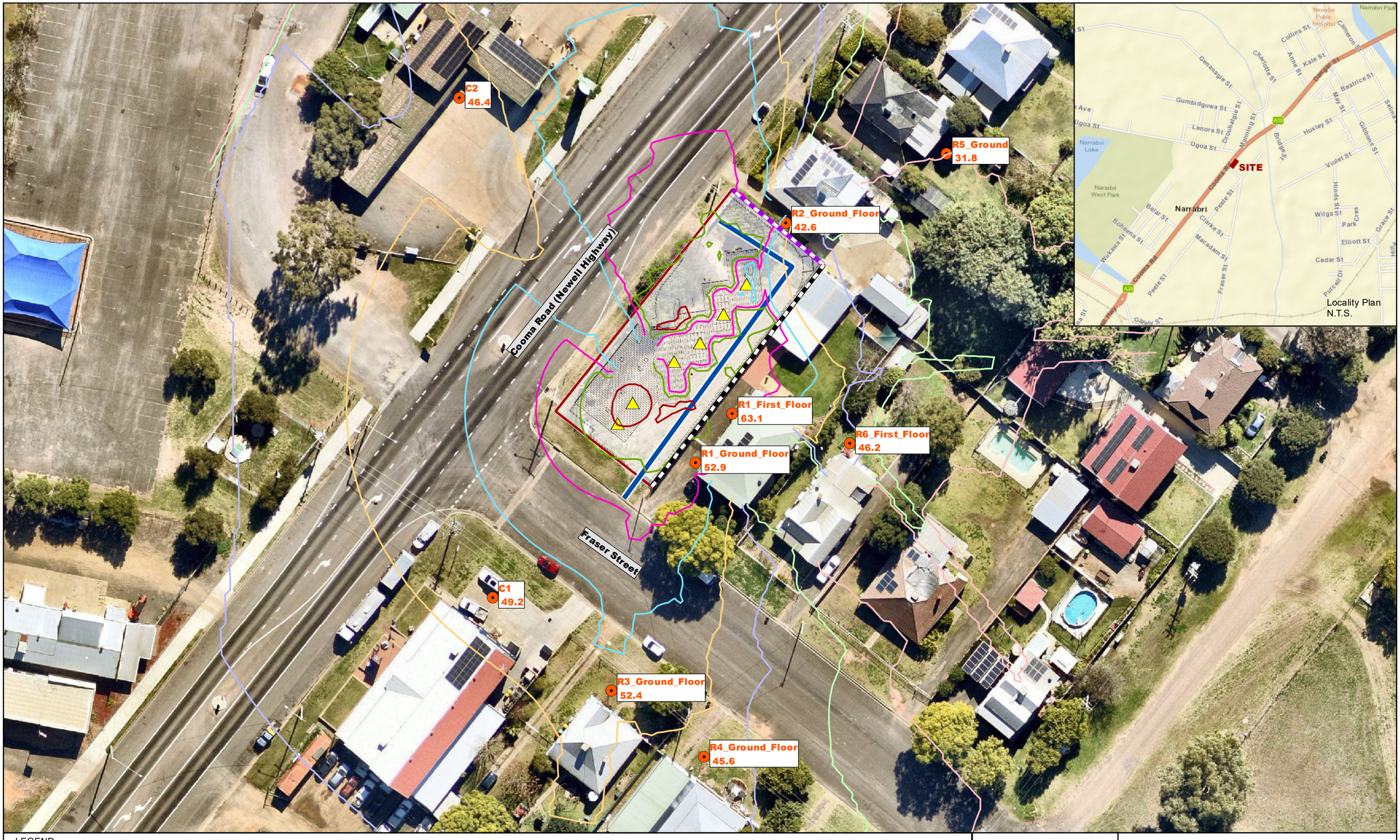
DAY & EVE TIME LAeq, 15MIN LEVELS GROUND FLOOR 84 FRASER STREET NARRABRI

CLIENT	Rowan McClung			RCA Ref	17118-401/0
DRAWN BY	AR	SCALE	1:600 (A3)	APPENDIX A	REV 0
APPROVED BY	AR	DATE	29/04/2024	OFFICE	NEWCASTLE

Appendix B

Predicted day and evening LAeq,15 min noise level at first floor level



LEGEND

- Approximate site boundary
- Receivers
- Point noise source
- Moving cars
- 1.8m noise barrier
- 2.1m noise barrier

LAeq 15min.dBA

35	55
40	60
45	65
50	70

Note: Aerial image taken from Nearmap, 19 July 2023
(used in accordance with commercial licence)

0 5 10 20 30 40
metres

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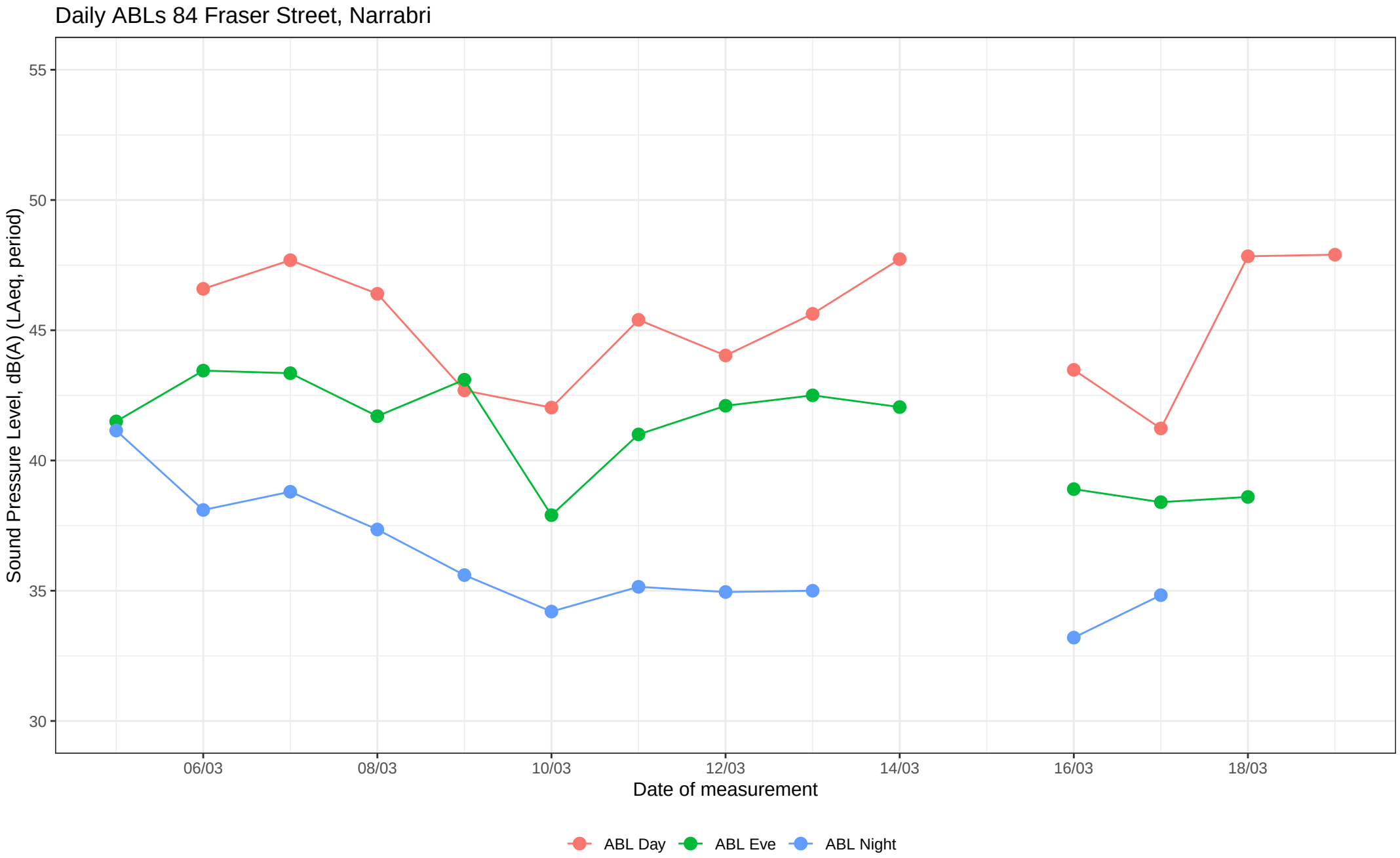
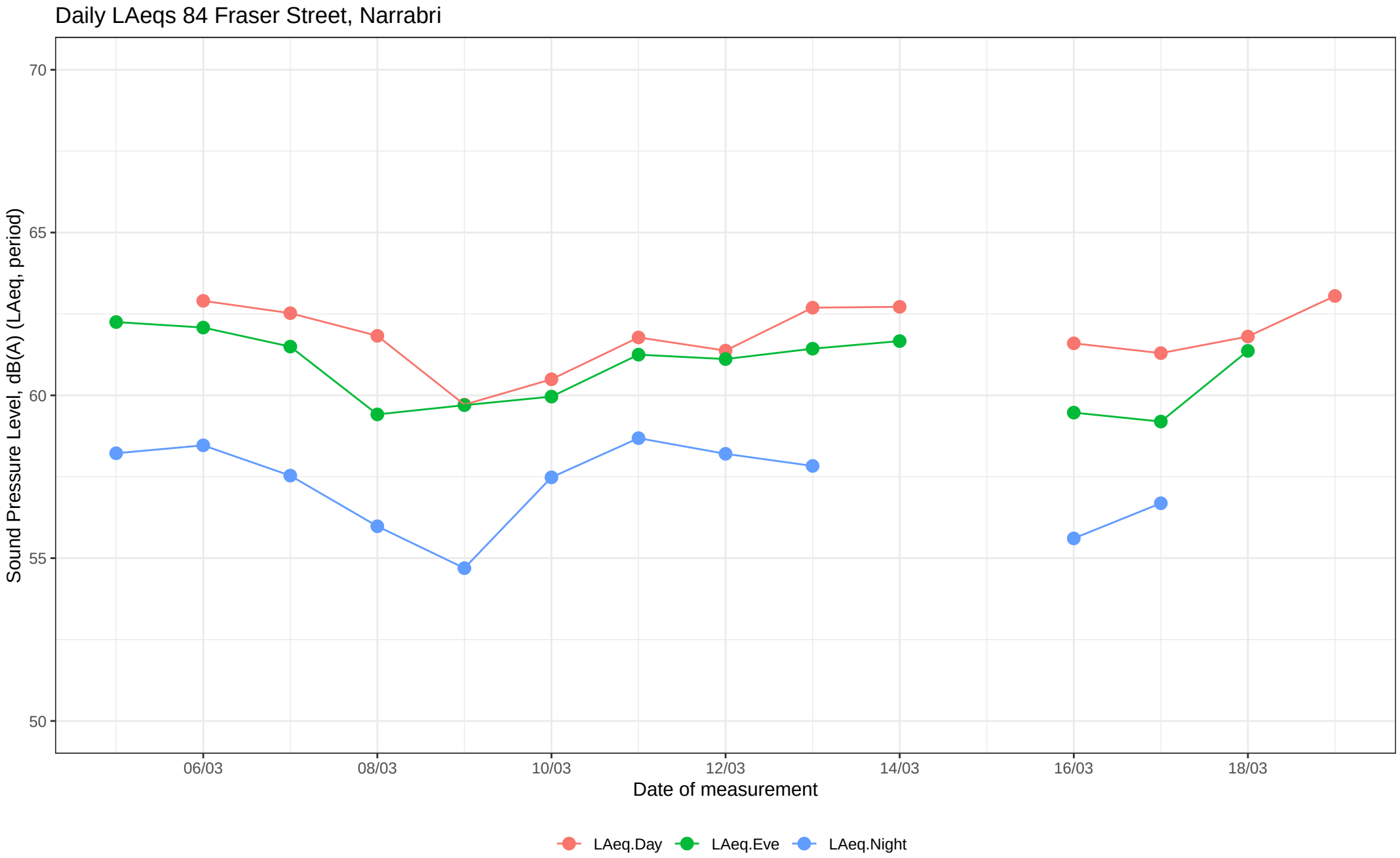
DAY & EVE TIME LAeq, 15MIN LEVELS FIRST FLOOR 84 FRASER STREET NARRABRI

CLIENT	Rowan McClung			RCA Ref	17118-401/0
DRAWN BY	AR	SCALE	1:600 (A3)	APPENDIX B	REV 0
APPROVED BY	AR	DATE	29/04/2024	OFFICE	NEWCASTLE

Appendix C

Summary of long-term noise monitoring


Daily ABLs 84 Fraser Street, Narrabri
Sound Pressure Level, dB(A) (LAeq, period)
55
50
45
40
35
30
06/03
08/03
10/03
12/03
14/03
16/03
18/03
Date of measurement
ABL Day
ABL Eve
ABL Night

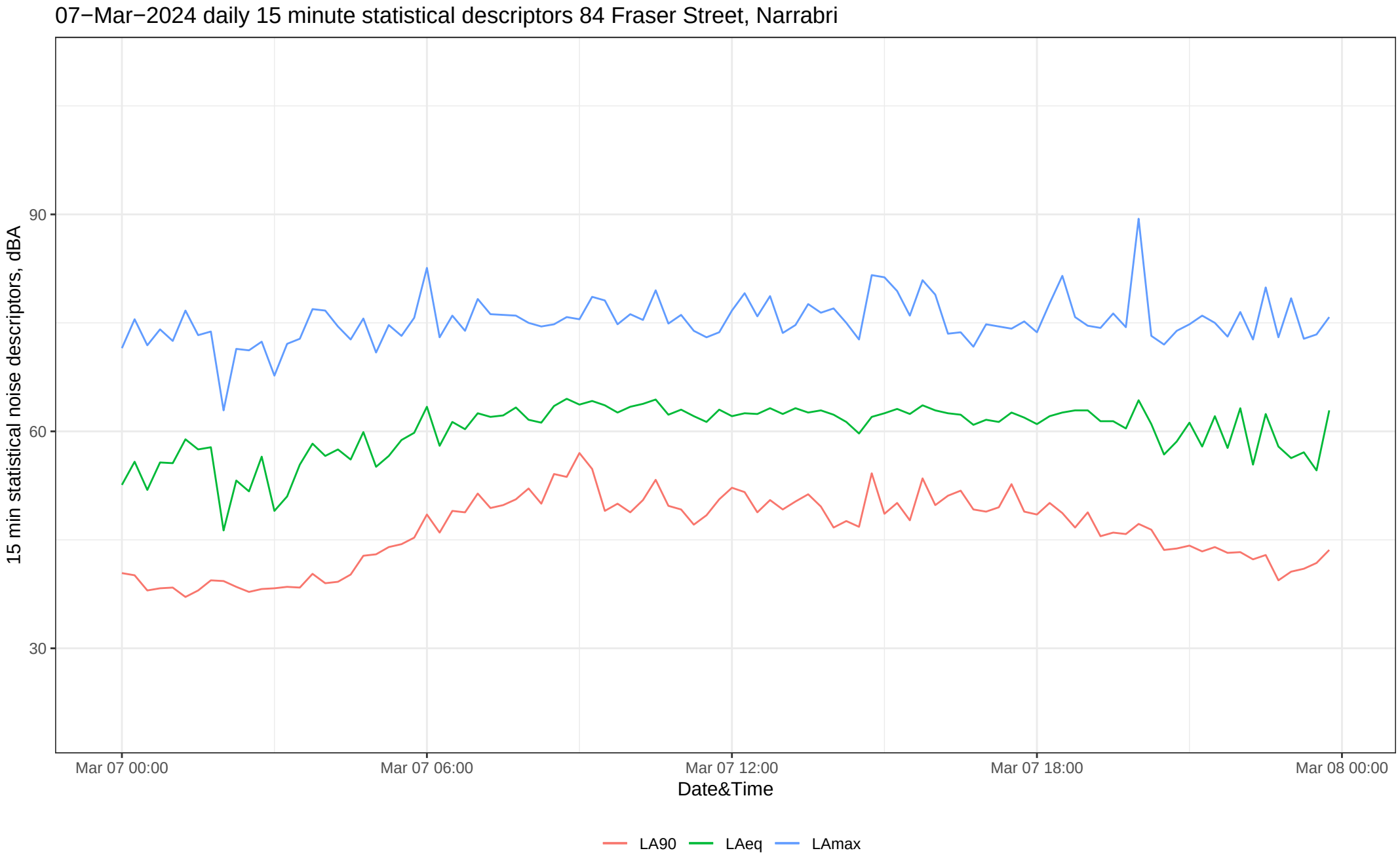

Daily LAeqs 84 Fraser Street, Narrabri
Sound Pressure Level, dB(A) (LAeq, period)
70
65
60
55
50
06/03
08/03
10/03
12/03
14/03
16/03
18/03
Date of measurement
LAeq.Day
LAeq.Eve
LAeq.Night

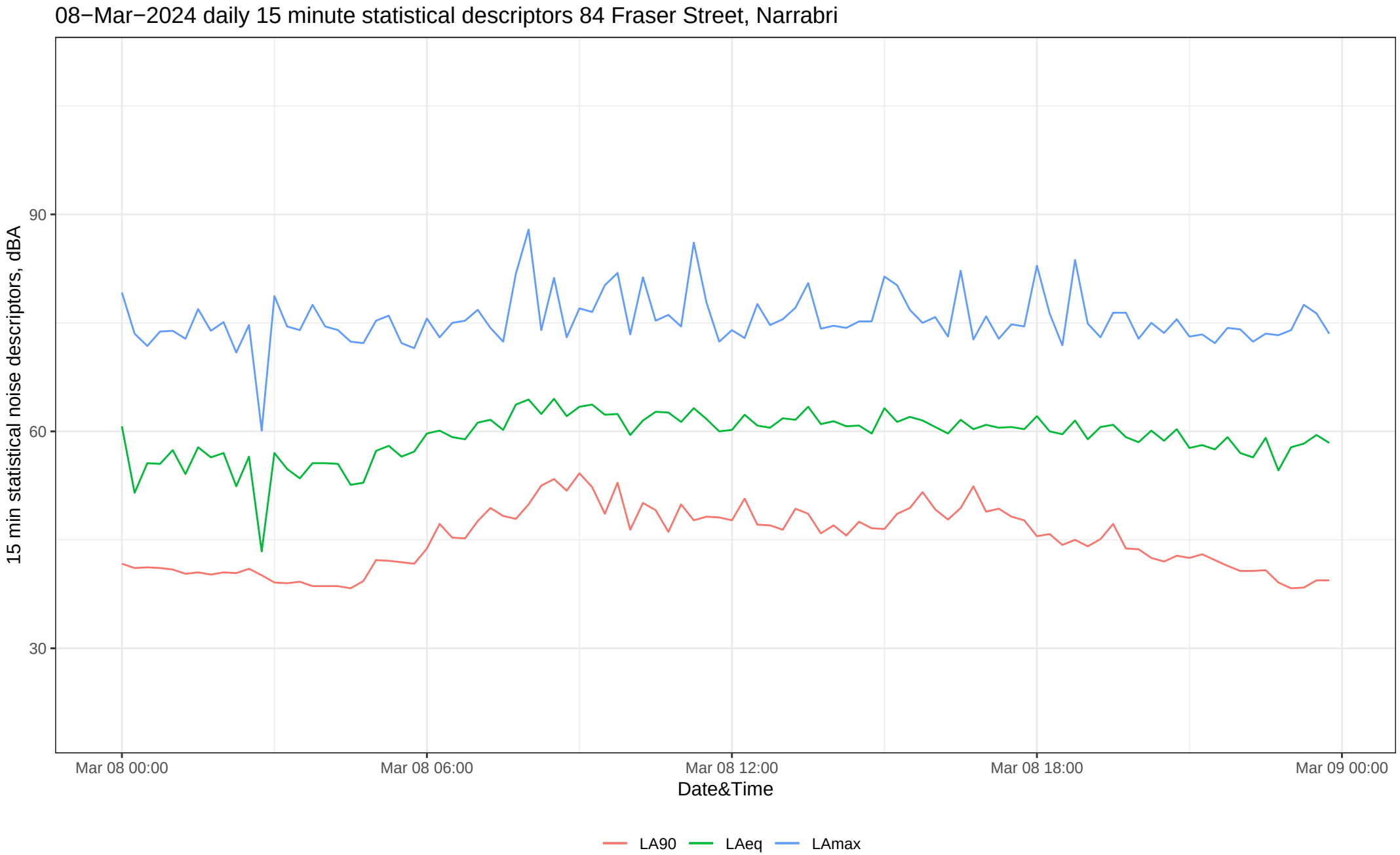
Appendix D

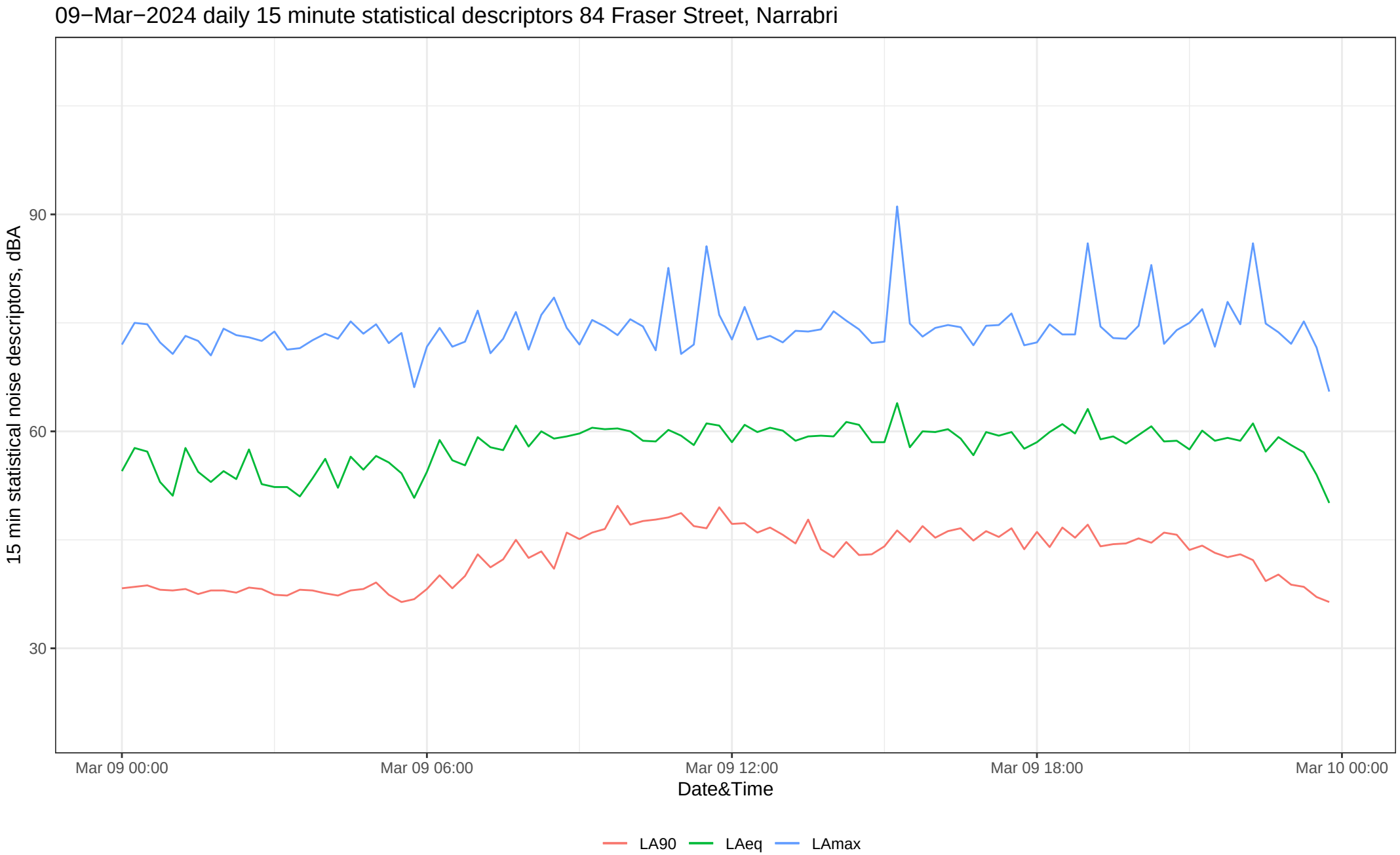
Daily noise graphs


05−Mar−2024 daily 15 minute statistical descriptors 84 Fraser Street, Narrabri
15 min statistical noise descriptors, dBA
90
60
30
18:00
21:00
00:00
Date&Time
LA90
LAeq
LAmax


06−Mar−2024 daily 15 minute statistical descriptors 84 Fraser Street, Narrabri
15 min statistical noise descriptors, dBA
90
60
30
Mar 06 00:00
Mar 06 06:00
Mar 06 12:00
Mar 06 18:00
Mar 07 00:00
Date&Time
LA90
LAeq
LAmax

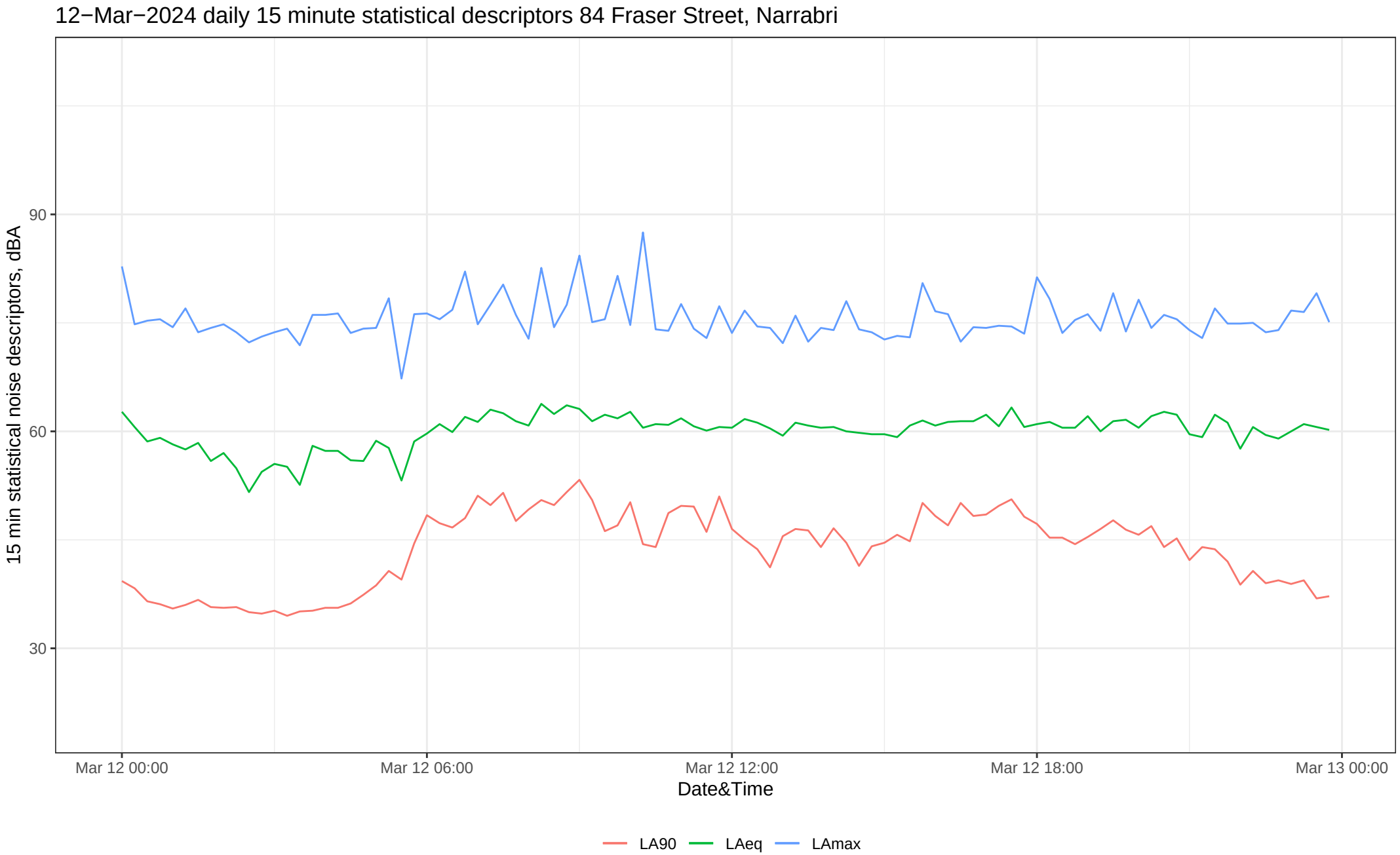

07−Mar−2024 daily 15 minute statistical descriptors 84 Fraser Street, Narrabri
15 min statistical noise descriptors, dBA
90
60
30
Mar 07 00:00
Mar 07 06:00
Mar 07 12:00
Mar 07 18:00
Mar 08 00:00
Date&Time
LA90
LAeq
LAmax


08−Mar−2024 daily 15 minute statistical descriptors 84 Fraser Street, Narrabri
15 min statistical noise descriptors, dBA
90
60
30
Mar 08 00:00
Mar 08 06:00
Mar 08 12:00
Mar 08 18:00
Mar 09 00:00
Date&Time
LA90
LAeq
LAmax

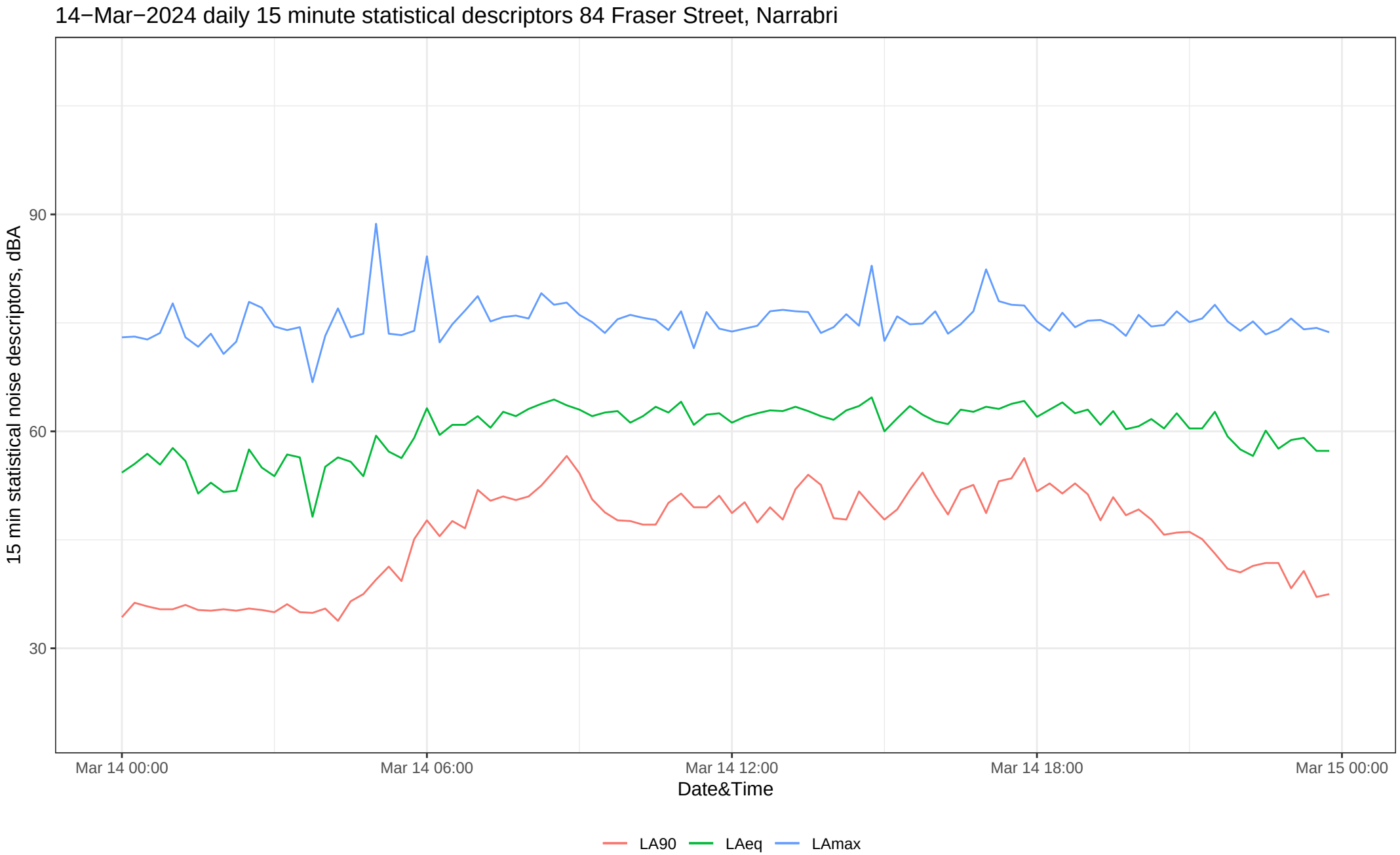

09−Mar−2024 daily 15 minute statistical descriptors 84 Fraser Street, Narrabri
15 min statistical noise descriptors, dBA
90
60
30
Mar 09 00:00
Mar 09 06:00
Mar 09 12:00
Mar 09 18:00
Mar 10 00:00
Date&Time
LA90
LAeq
LAmax


10−Mar−2024 daily 15 minute statistical descriptors 84 Fraser Street, Narrabri
15 min statistical noise descriptors, dBA
90
60
30
Mar 10 00:00
Mar 10 06:00
Mar 10 12:00
Mar 10 18:00
Mar 11 00:00
Date&Time
LA90
LAeq
LAmax

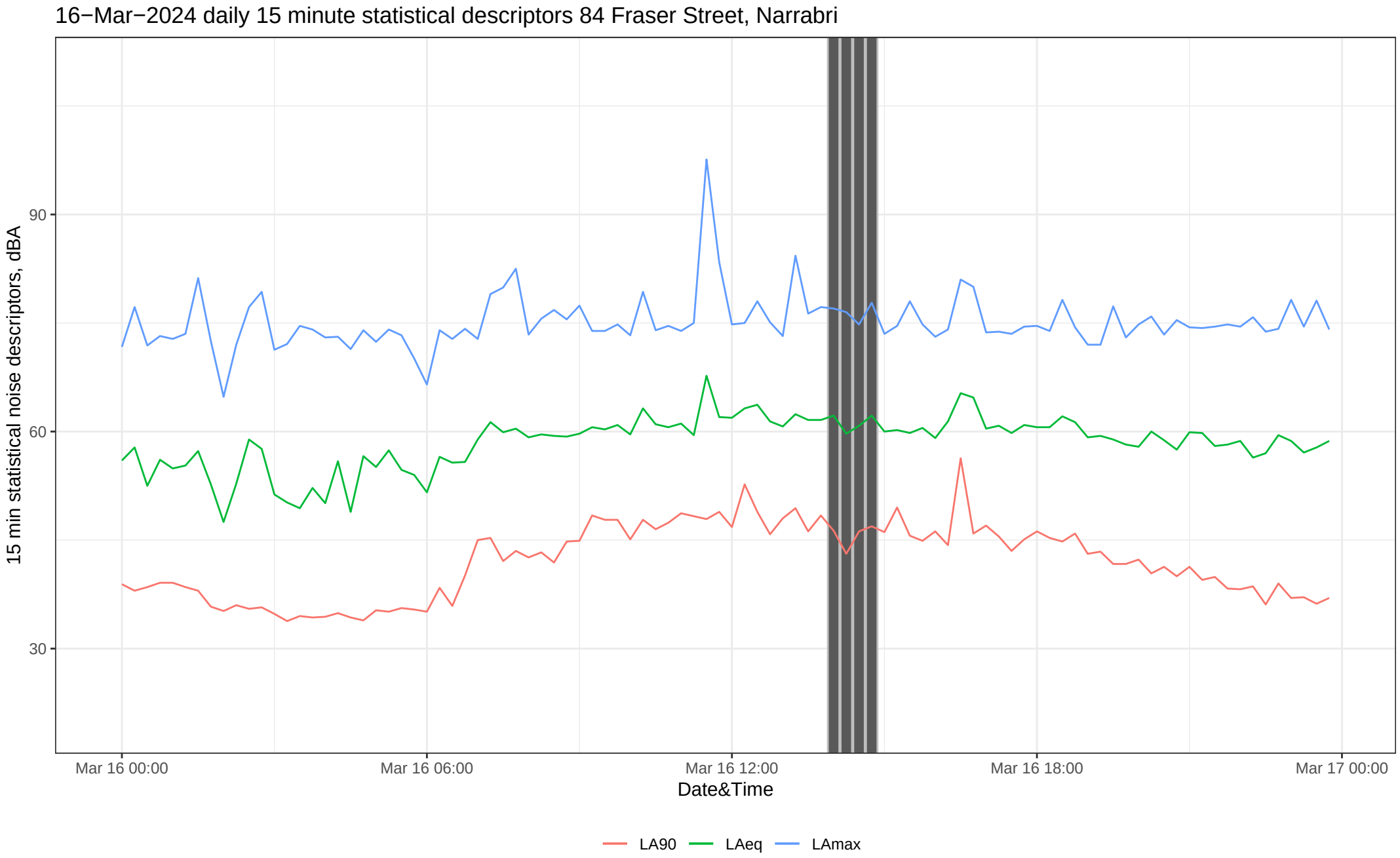

11−Mar−2024 daily 15 minute statistical descriptors 84 Fraser Street, Narrabri
15 min statistical noise descriptors, dBA
90
60
30
Mar 11 00:00
Mar 11 06:00
Mar 11 12:00
Mar 11 18:00
Mar 12 00:00
Date&Time
LA90
LAeq
LAmax


12−Mar−2024 daily 15 minute statistical descriptors 84 Fraser Street, Narrabri
15 min statistical noise descriptors, dBA
90
60
30
Mar 12 00:00
Mar 12 06:00
Mar 12 12:00
Mar 12 18:00
Mar 13 00:00
Date&Time
LA90
LAeq
LAmax

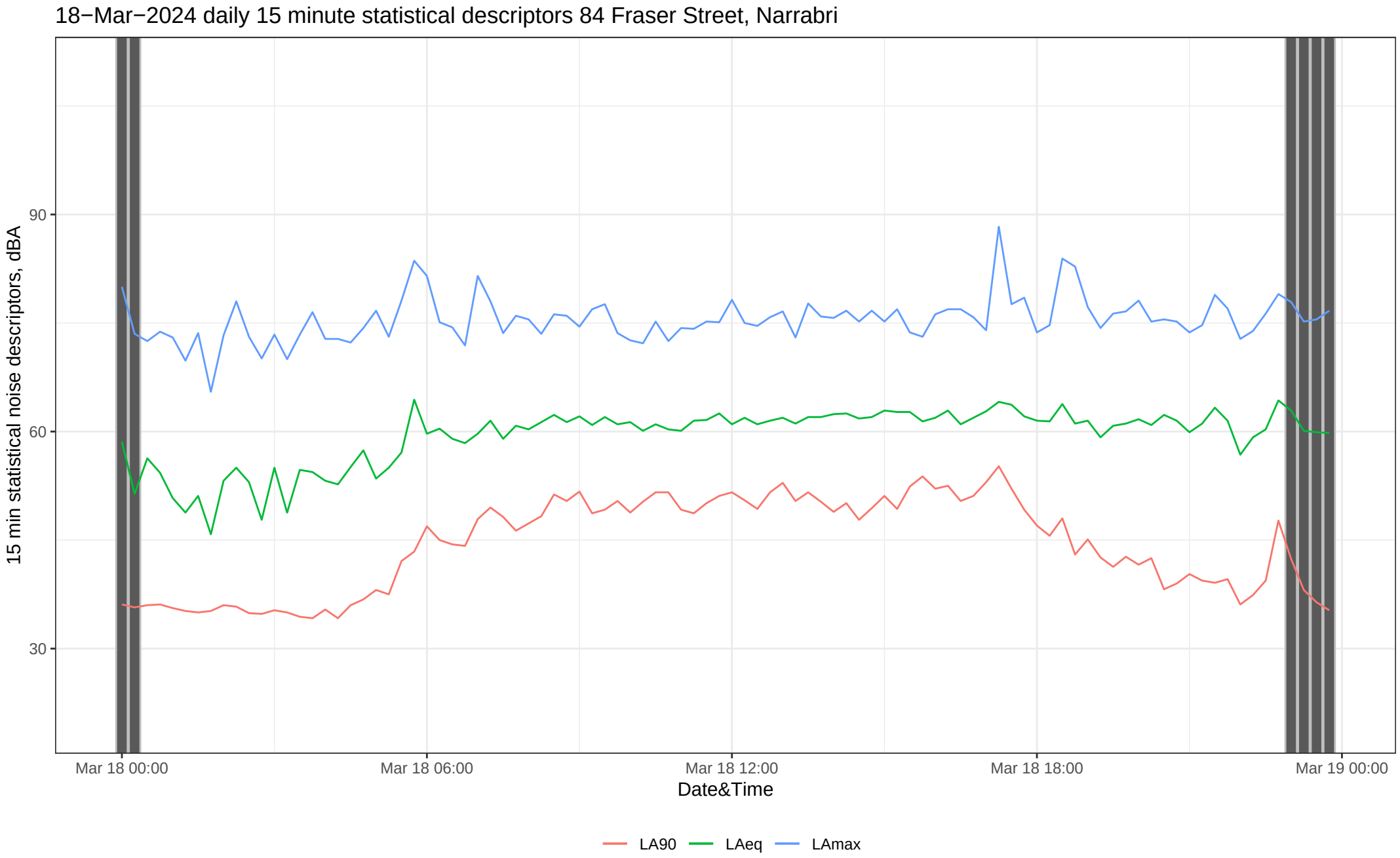

13−Mar−2024 daily 15 minute statistical descriptors 84 Fraser Street, Narrabri
15 min statistical noise descriptors, dBA
90
60
30
Mar 13 00:00
Mar 13 06:00
Mar 13 12:00
Mar 13 18:00
Mar 14 00:00
Date&Time
LA90
LAeq
LAmax


14−Mar−2024 daily 15 minute statistical descriptors 84 Fraser Street, Narrabri
15 min statistical noise descriptors, dBA
90
60
30
Mar 14 00:00
Mar 14 06:00
Mar 14 12:00
Mar 14 18:00
Mar 15 00:00
Date&Time
LA90
LAeq
LAmax


15−Mar−2024 daily 15 minute statistical descriptors 84 Fraser Street, Narrabri
15 min statistical noise descriptors, dBA
90
60
30
Mar 15 00:00
Mar 15 06:00
Mar 15 12:00
Mar 15 18:00
Mar 16 00:00
Date&Time
LA90
LAeq
LAmax


16−Mar−2024 daily 15 minute statistical descriptors 84 Fraser Street, Narrabri
15 min statistical noise descriptors, dBA
90
60
30
Mar 16 00:00
Mar 16 06:00
Mar 16 12:00
Mar 16 18:00
Mar 17 00:00
Date&Time
LA90
LAeq
LAmax


17−Mar−2024 daily 15 minute statistical descriptors 84 Fraser Street, Narrabri
15 min statistical noise descriptors, dBA
90
60
30
Mar 17 00:00
Mar 17 06:00
Mar 17 12:00
Mar 17 18:00
Mar 18 00:00
Date&Time
LA90
LAeq
LAmax


18−Mar−2024 daily 15 minute statistical descriptors 84 Fraser Street, Narrabri
15 min statistical noise descriptors, dBA
90
60
30
Mar 18 00:00
Mar 18 06:00
Mar 18 12:00
Mar 18 18:00
Mar 19 00:00
Date&Time
LA90
LAeq
LAmax


19−Mar−2024 daily 15 minute statistical descriptors 84 Fraser Street, Narrabri
15 min statistical noise descriptors, dBA
90
60
30
Mar 19 00:00
Mar 19 06:00
Mar 19 12:00
Mar 19 18
Date&Time
LA90
LAeq
LAmax

Appendix E

Carwash Site Plan

PROPOSED CAR WASH FACILITY

LOT 5 DP9167 - No. 84 FRASER STREET

NARRABRI NSW 2390

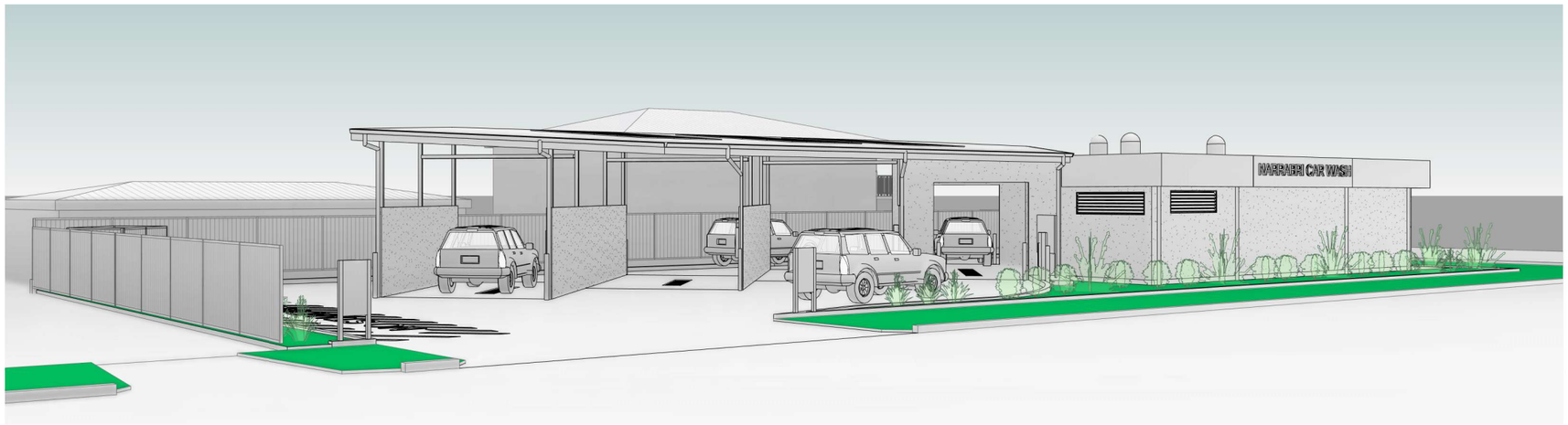
FOR

MR ROWAN McCLUNG

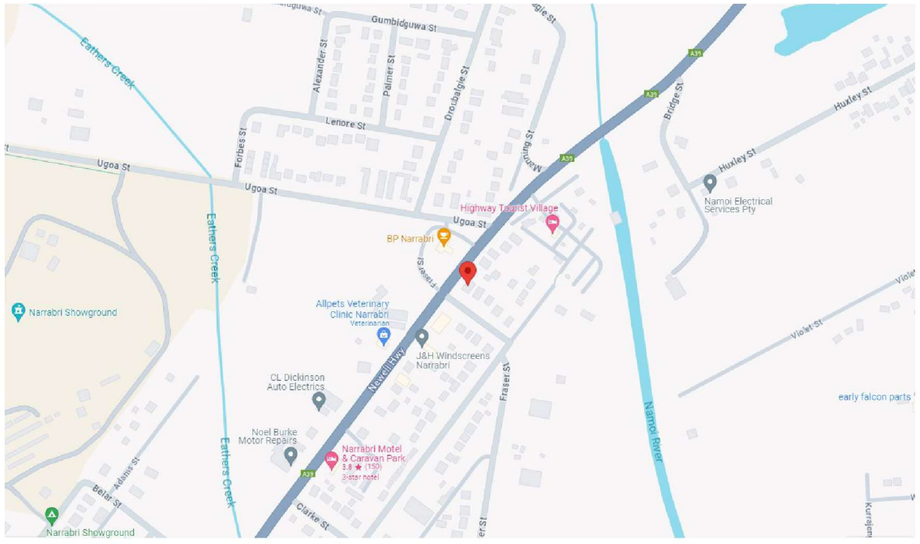
PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

OASIS
Building Design Pty Ltd

BUILDING DESIGNERS
AUSTRALIA
MEMBER No. : 1656-14
ACCREDITATION :
UNRESTRICTED
ACCREDITATION No: 6315



DRAWING SCHEDULE



LOCATION MAP

STREET MAP IMAGE
COURTESY Google Maps®

LOCATION MAP

STREET MAP IMAGE
COURTESY Google Maps®

GENERAL NOTE

1. REFER TO FYFE NARRABRI SURVEY REF. 95452_ DETAIL PLAN FOR FULL SITE SURVEY DETAILS.

COOMA ROAD

EXISTING COOMA ROAD AND FRASERS STREET BOUNDARY FENCE TO BE REMOVED.

PORTION OF EXISTING KERB AND GUTTER AND VERGE TO BE REMOVED TO MAKE WAY FOR EXISTING DRIVEWAY CROSS OVER EXTENSION.

BOUNDARY LINE — 47.878m — 218°19'59"

METAL FENCE

METAL PANEL

DENOTES LOCATION OF EXISTING NON SIGNIFICANT TREES TO BE REMOVED . TOTAL 9 TO BE REMOVED.

STREET

BOUNDARY LINE — 20.921m — 128°19'59"

ACCESS TRACK

METAL FENCE 61.821m

METAL PANEL

SINGLE STOREY WB RESIDENCE METAL ROOF

SITE TO BE GRADED TO SUIT NEW LEVELS AND CONTOURS. REFER TO STORMWATER DRAWINGS FOR DETAILS.

BM (CUT IN KERB) RL:212.16

FRASER

BOUNDARY LINE

Lot 5
DP9167

EXISTING CLOTHES LINES TO BE REMOVED. 2 OFF.

Lot 3
DP9167

CONCRETE RETAINING WALL

METAL FENCE

PANEL

BOUNDARY LINE — 47.878m — 218°19'59"

EXISTING BOUNDARY FENCING TO REMAIN.

CARPORT

FIBRO GARAGE METAL ROOF

Lot 6
DP9167

PORTION OF EXISTING TO BE REMOVED TO MAKE WAY FOR NEW DRIVEWAY CROSS OVER.

VERENDAH

2 STOREY BRICK AND WB RESIDENCE METAL ROOF

EXISTING SITE PLAN & DEMOLITION PLAN

SCALE BAR 1 : 1 On A1 Size Origional

0 10 20 30 40 50 60 70 80 90 100

SCALE BAR 1 : 2 On A3 Size Reduction

0 20 40 60 80 100 120 140 160 180 200

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"Solutions focused Multi-Disciplined Design"

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E info@oasisbuildingdesign.com.au
W www.oasisbuildingdsgn.com.au
M PO Box 160 Shellharbour City Centre, NSW, 2529

ABN: 41626779235

Project
PROPOSED CAR WASH FACILITY
LOT 5 DP9167 - No. 84 FRASER STREET
NARRABRI NSW 2390
FOR
MR ROWAN McCLUNG

Drawing Title
EXISTING SITE PLAN & DEMOLITION PLAN

Approved	Designed: VP
Date: March 2024	Drawn: VP
Scale: 1 : 100 @ A1 & 1 : 200 @ A3	Checked
Project No.: 22 - 032	Drawing No.: A - 01
	Amdt.: P3

SITE ANALYSIS

TOTAL SITE AREA :	1,001m²
OFFICE/PLANTROOM :	63m²
SELF-SERVE BAYS :	102m²
AUTOMATIC BAY :	53m²
VACUUM BAYS :	50m²
DOG WASH BAYS :	6m²
TOTAL GFA :	274m²
PROPOSED LANDSCAPED AREA :	65m²
PARKING :	
CUSTOMER PARKING SPACES :	1
STAFF PARKING SPACES :	1
TOTAL SPACES :	2

COOMA ROAD

PLANTROOM EQUIMENT LAYOUT AND DETAILS TO FUTURE DETAILS.

PAINTED PRECAST CONCRETE WALLS. REFER TO ELEVATIONS AND SECTIONS FOR DETAILS.

SHADING DENOTES EXTENT OF NEW LANDSCAPED AREAS. ALL TO FUTURE DETALS.

150 x 150 CONCRETE KERBS AROUND NEW LANDSCAPED AREA.

POWER COATED ALUMINUM PALISADE FENCING TO DOG WASH AREA.

OUTLINE OF AWNING ROOF OVER. REFER TO ROOF PLAN FOR DETAILS.

RAISED CONCRETE PLINTHS HOUSING VACUUM UNITS, BINS ETC.

DENOTES LOCATIONS OF PAINTED STEEL COLUMNS.

"NO ENTRY/EXIT" DIRECTION SIGNAGE . REFER TO SIGNAGE DRAWINGS FOR DETAILS.

DENOTES APPROX. LOCATION OF UNDERGROUND WASH WATER HOLDING TANK. REFER TO TRADE WASTE DRAWINGS FOR DETAILS.

CONTRUCT NEWDRIVEWAY CROSS OVER TO LOCAL AUTHORITY REQUIREMENTS.

AUTO WASH MENU BOARD.

AUTO WASH ACTIVATION PANEL.

RAISED CONCRETE PLINTH.

ENTRY ONLY CROSSOVER

WIDEN EXISTING DRIVEWAY CROSS OVER TO LOCAL AUTHORITY REQUIREMENTS.

"ENTRY/NO EXIT" DIRECTION SIGNAGE. REFER TO SIGNAGE DRAWINGS FOR DETAILS.

PAVEMENT PAINTED NO STANDING LINE MARKING.

SHADING DENOTES EXTENT OF NEW LANDSCAPED AREAS. ALL TO FUTURE DETALS.

OUTLINE OF BUILDING ROOF OVER. REFER TO ROOF PLAN FOR DETAILS.

DENOTES LOCATIONS OF PAINTED STEEL FRAMED CONCRETE FILLED BOLLARDS. TYPICAL.

CONCRETE FORECOURT PAVEMENT THROUGHOUT

150 x 150 CONCRETE KERBS AROUND NEW LANDSCAPED AREA.

2.4m HIGH PAINTED PRECAST CONCRETE WALLS WITH PAINTED STEEL COLUMNS OVER. REFER TO ELEVATIONS AND SECTIONS FOR DETAILS.

WASH HALL DRAINAGE TRENCHES TO BE CONNECTED TO TRADE WASTE SYSTEM. REFER TO TRADE WASTE DRAWINGS FOR DETAILS.

1800 COLORBOND BIN ENCLOSURE COMPLETE WITH LOCKABLE GATES.

PAVEMENT PAINTED DIRECTIONAL ARROWS. TYPICAL.

BOUNDARY LINE — 47.878m — 218°19'59"

BOUNDARY LINE — 20.921m — 128°19'59"

STREET

FRASER

BOUNDARY LINE

STAFF PARKING

STAFF W/C

OFFICE

PLANTROOM

DOG WASH

VACUUM BAY

VACUUM BAY

DOG WASH PARKING

AUTOMATIC WASH BAY

SELF-SERVE WASH BAY

SELF-SERVE WASH BAY

SELF-SERVE WASH BAY

PASSING LANE

BIN STORE

NO STANDING

EXIT ONLY CROSSOVER

Lot 5 DP9167

PROPOSED CAR WASH PLAN

SCALE BAR 1 : 1 On A1 Size Origional

0 10 20 30 40 50 60 70 80 90 100

SCALE BAR 1 : 2 On A3 Size Reduction

0 20 0 60 80 100 120 140 160 180 200

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P3	PRELIMINARY ISSUE. FOR DEVELOPMENT APPROVAL ONLY. NOT FOR CONSTRUCTION.	VP	30.04.2024

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PO Box 160
Shellharbour City Centre, NSW, 2529
ABN: 41626779235

Project
PROPOSED CAR WASH FACILITY
LOT 5 DP9167 - No. 84 FRASER STREET
NARRABRI NSW 2390
FOR
MR ROWAN McCLUNG

Drawing Title
PROPOSED CAR WASH PLAN

Approved		Designed	VP
Date	March 2024	Drawn	VP
Scale	1 : 100 @ A1 & 1 : 200 @ A3	Checked	
Project No.	22 - 032	Drawing No. A - 02	Amdt. P3

PROPOSED DIMENSIONED PLAN

SCALE BAR 1 : 1 On A1 Size Origional

0 10 20 30 40 50 60 70 80 90 100

SCALE BAR 1 : 2 On A3 Size Reduction

0 20 0 60 80 100 120 140 160 180 200

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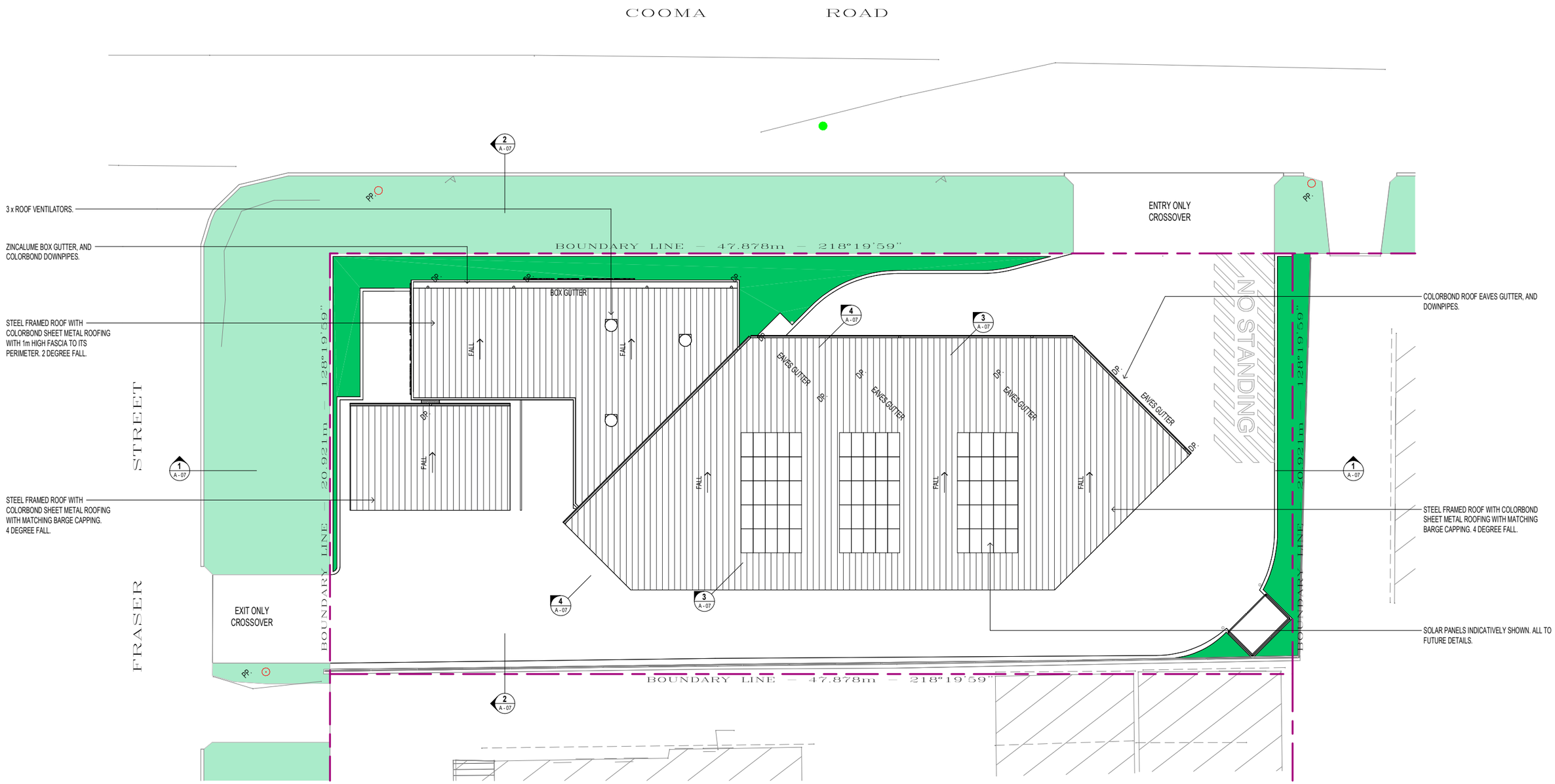
Project
PROPOSED CAR WASH FACILITY
LOT 5 DP9167 - No. 84 FRASER STREET
NARRABRI NSW 2390
FOR
MR ROWAN McCLUNG

Drawing Title
PROPOSED DIMENSIONED PLAN

Approved	Designed: VP
Date: March 2024	Drawn: VP
Scale: 1 : 100 @ A1 & 1 : 100 @ A3	Checked
Project No.: 22 - 032	Drawing No.: A - 03
	Amdt.: P3



PROPOSED ROOF PLAN

SCALE BAR 1 : 1 On A1 Size Origional

0 10 20 30 40 50 60 70 80 90 100

0 20 40 60 80 100 120 140 160 180 200

SCALE BAR 1 : 2 On A3 Size Reduction

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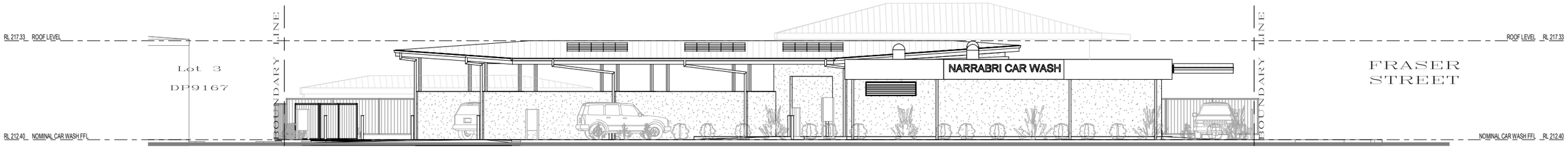
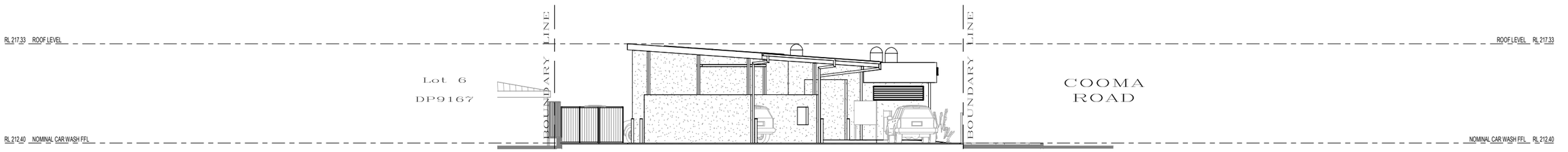
Project
PROPOSED CAR WASH FACILITY
LOT 5 DP9167 - No. 84 FRASER STREET
NARRABRI NSW 2390
FOR
MR ROWAN McCLUNG

Drawing Title
PROPOSED ROOF PLAN

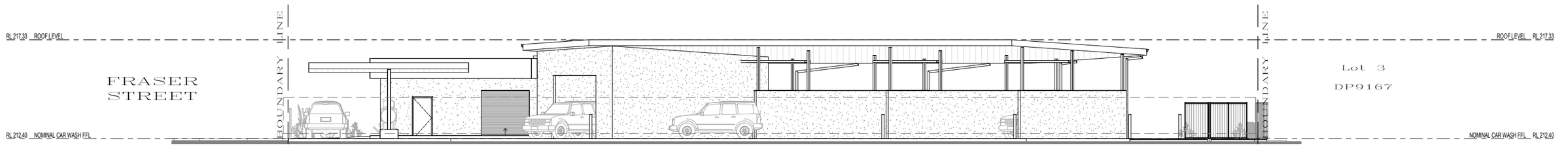
Approved	Designed: VP
Date: March 2024	Drawn: VP
Scale: 1 : 100 @ A1 & 1 : 200 @ A3	Checked
Project No.: 22 - 032	Drawing No.: A - 04
	Amdt.: P3



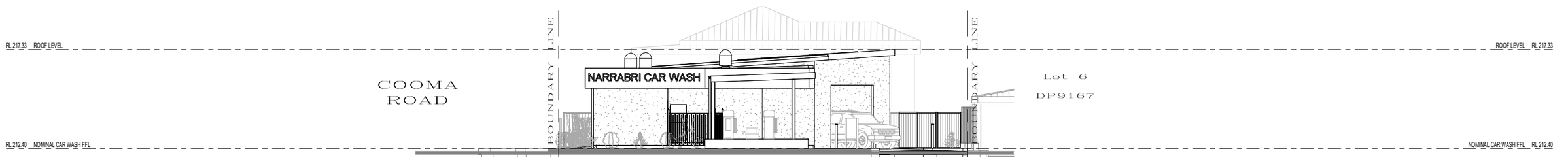
SITE NORTH WESTERN ELEVATION



SITE NORTH EASTERN ELEVATION



SITE SOUTH EASTERN ELEVATION



SITE SOUTH WESTERN ELEVATION

SCALE BAR 1 : 1 On A1 Size Origional

0 10 20 30 40 50 60 70 80 90 100

SCALE BAR 1 : 2 On A3 Size Reduction

0 20 0 60 80 100 120 140 160 180 200

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BUILDING DESIGNERS AUSTRALIA MEMBER No.: 1656-14 ACCREDITATION (UNRESTRICTED) ACCREDITATION No: 6315

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PRELIMINARY ISSUE
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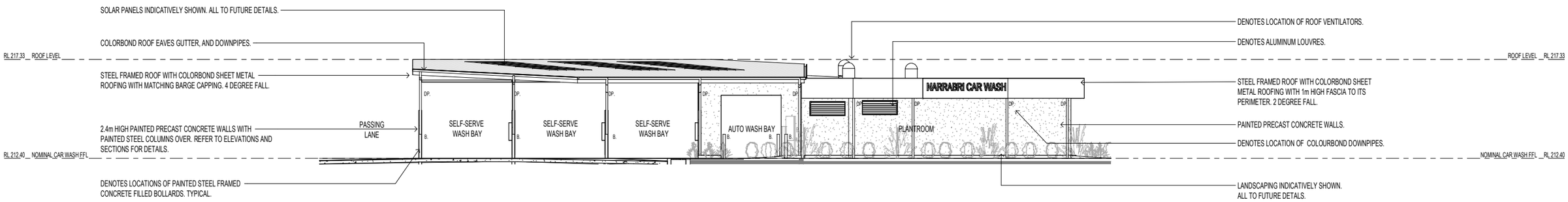
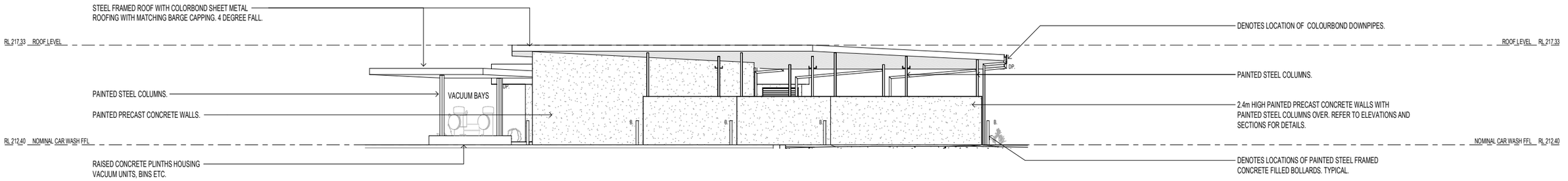
Project
PROPOSED CAR WASH FACILITY
LOT 5 DP9167 - No. 84 FRASER STREET
NARRABRI NSW 2390
FOR
MR ROWAN McCLUNG

Drawing Title
PROPOSED SITE ELEVATIONS

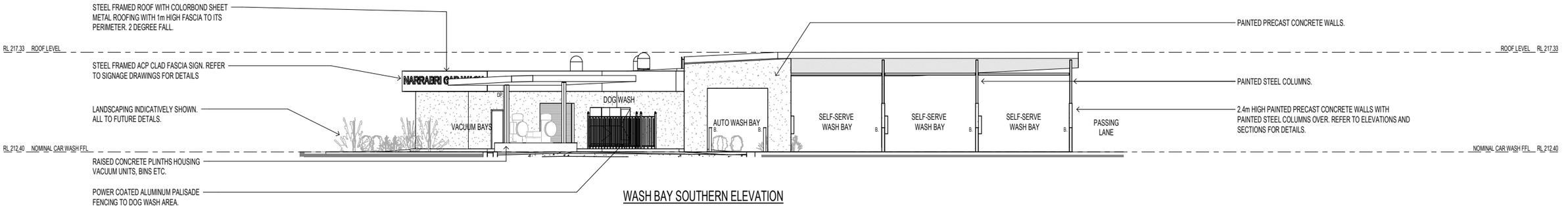
Approved	Designed: VP
Date: March 2024	Drawn: VP
Scale: 1 : 100 @ A1 & 1 : 200 @ A3	Checked
Project No.: 22 - 032	Drawing No.: A - 05
	Amdt.: P3



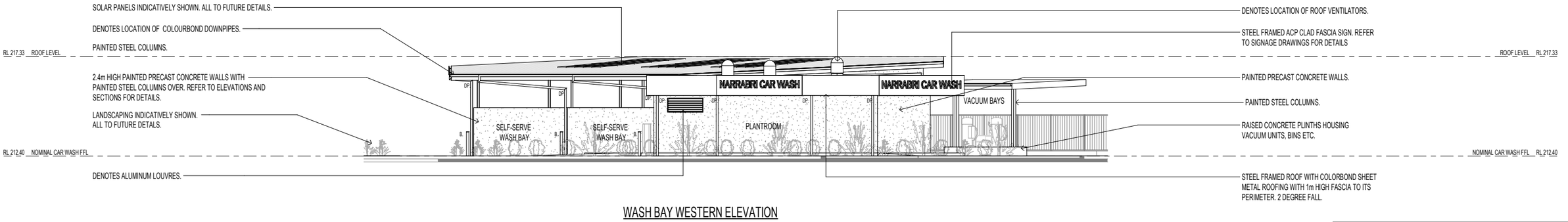
WASH BAY NORTHERN ELEVATION



WASH BAY EASTERN ELEVATION



WASH BAY SOUTHERN ELEVATION



WASH BAY WESTERN ELEVATION

SCALE BAR 1 : 1 On A1 Size Origional

SCALE BAR 1 : 2 On A3 Size Reduction

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P3	PRELIMINARY ISSUE. FOR DEVELOPMENT APPROVAL ONLY. NOT FOR CONSTRUCTION.	VP	30.04.2024

BUILDING DESIGNERS AUSTRALIA MEMBERSHIP No: 1856-14 ACCREDITATION: UNRESTRICTED ACCREDITATION No: 0315

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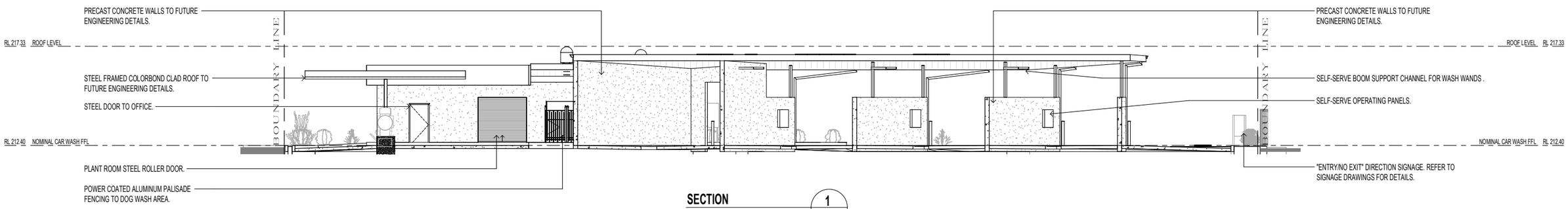
ABN: 41626779235

Project
PROPOSED CAR WASH FACILITY
LOT 5 DP9167 - No. 84 FRASER STREET
NARRABRI NSW 2390
FOR
MR ROWAN McCLUNG

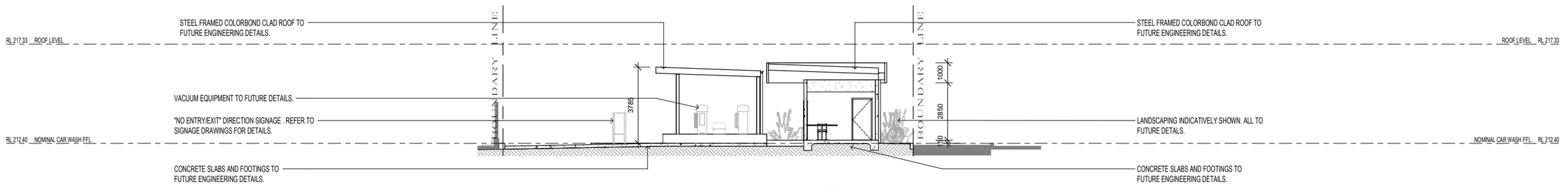
Drawing Title
PROPOSED ELEVATIONS

Approved	Designed: VP
Date: March 2024	Drawn: VP
Scale: 1 : 100 @ A1 & 1 : 100 @ A3	Checked
Project No.: 22 - 032	Drawing No.: A - 06
	Amdt.: P3



SECTION 1 / A - 02

SCALE: 1 : 100



SECTION 2 / A - 02

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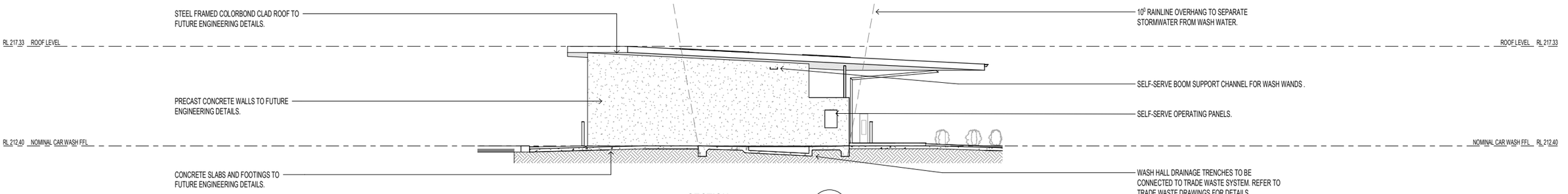
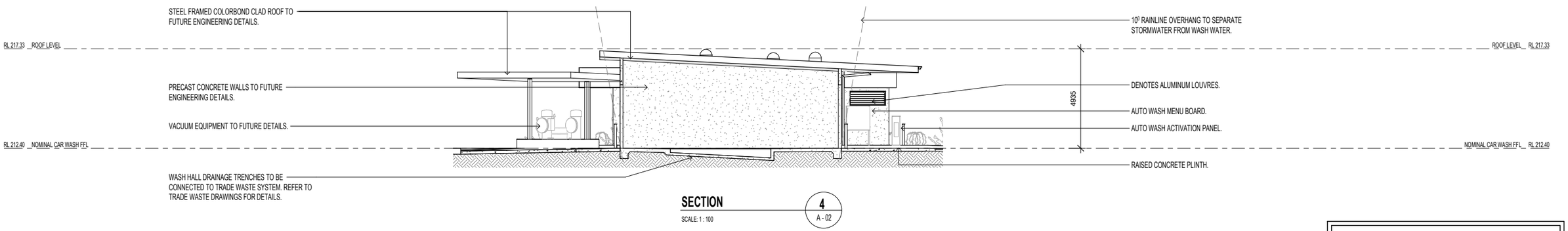


SECTION 3 / A - 02

SCALE: 1 : 100



SECTION 4 / A - 02

SCALE: 1 : 100

SCALE BAR 1 : 1 On A1 Size Origional

0 10 20 30 40 50 60 70 80 90 100

0 20 0 60 80 100 120 140 160 180 200

SCALE BAR 1 : 2 On A3 Size Reduction

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	Amendment	By	Date
P1	PRELIMINARY ISSUE. FOR CLIENT REVIEW AND APPROVAL ONLY. NOT FOR CONSTRUCTION.	VP	15.03.2024
P2	PRELIMINARY ISSUE. FOR CLIENT REVIEW AND APPROVAL ONLY. NOT FOR CONSTRUCTION.	VP	12.04.2024
P3	PRELIMINARY ISSUE. FOR DEVELOPMENT APPROVAL ONLY. NOT FOR CONSTRUCTION.	VP	30.04.2024

BUILDING DESIGNERS AUSTRALIA MEMBERSHIP No: 1656-14 ACCREDITATION: UNRESTRICTED ACCREDITATION No: 6315

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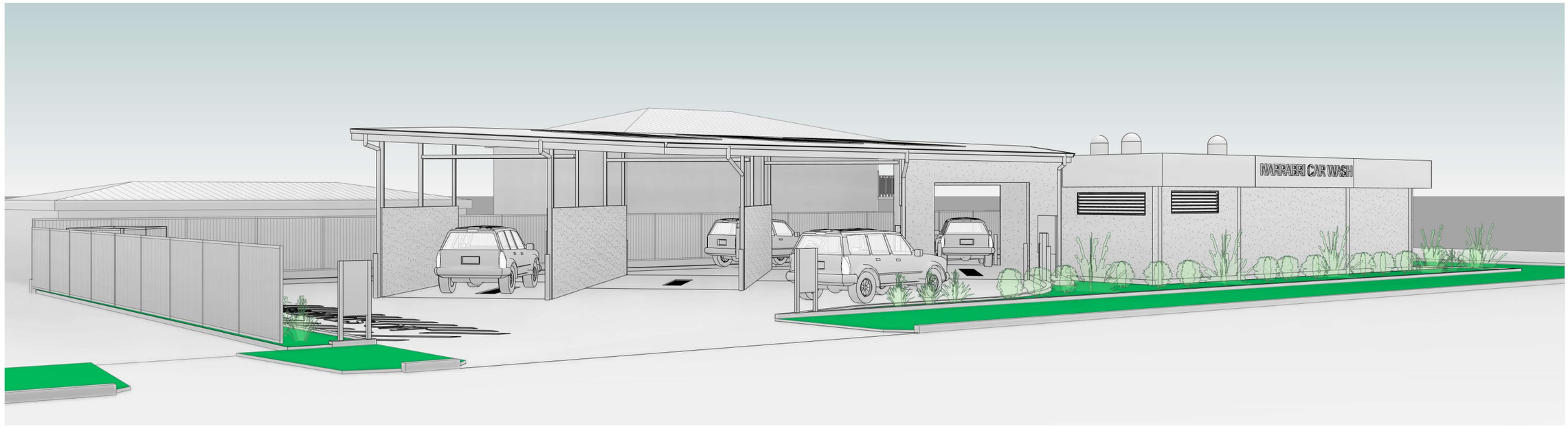
Project	PROPOSED CAR WASH FACILITY LOT 5 DP9167 - No. 84 FRASER STREET NARRABRI NSW 2390 FOR MR ROWAN McCLUNG
Drawing Title	PROPOSED SECTIONS
Approved	
Designed	VP
Date	March 2024
Drawn	VP
Scale	1 : 100
Checked	
Project No.	22 - 032
Drawing No.	A - 07
Amdt.	P3



SITE - PERSPECTIVE 1

GENERAL NOTE

1. NEIGHBOURING DWELLINGS AND STRUCTURES NOMINALLY SHOWN.
2. LANDSCAPING NOMINALLY SHOWN ALL TO FUTURE DETAILS.

SITE - PERSPECTIVE 2

SCALE BAR 1 : 1 On A1 Size Origional

0 10 20 30 40 50 60 70 80 90 100

SCALE BAR 1 : 2 On A3 Size Reduction

0 20 0 60 80 100 120 140 160 180 200

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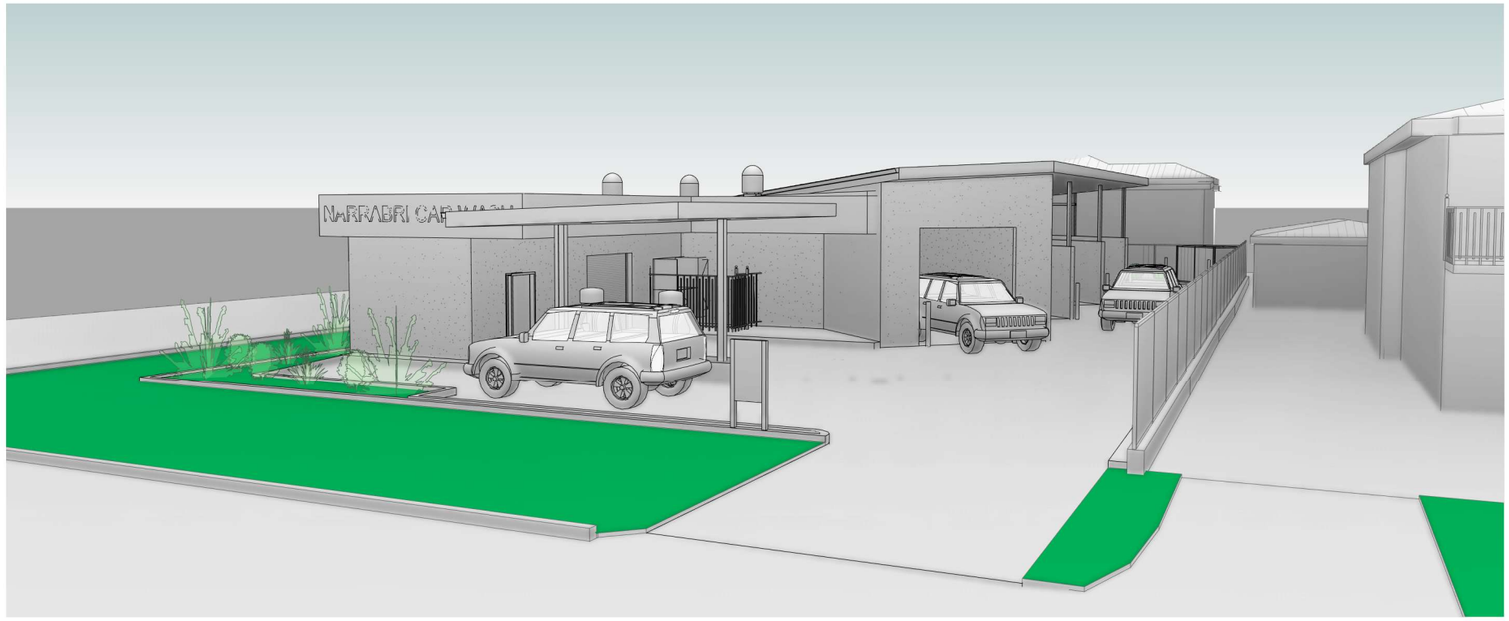
Project
PROPOSED CAR WASH FACILITY
LOT 5 DP9167 - No. 84 FRASER STREET
NARRABRI NSW 2390
FOR
MR ROWAN McCLUNG

Drawing Title
SITE PERSPECTIVES - SHEET 1

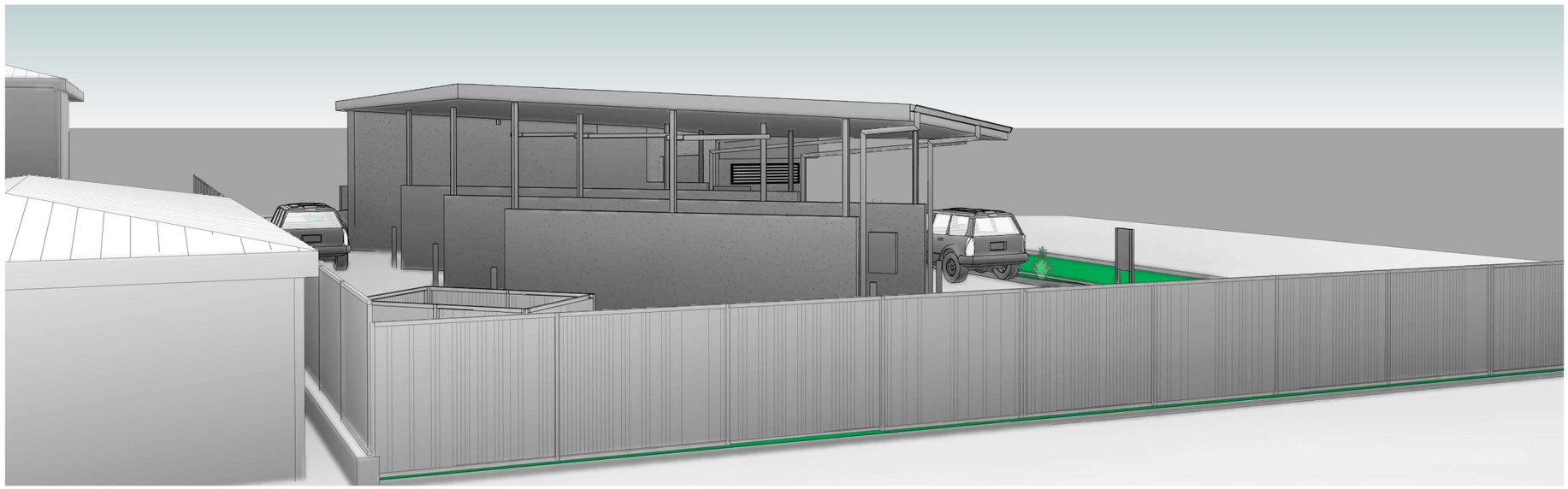
Approved	Designed: VP
Date: March 2024	Drawn: VP
Scale: NTS	Checked
Project No.: 22 - 032	Drawing No.: A - 08
	Amdt.: P3

GENERAL NOTE

1. NEIGHBOURING DWELLINGS AND STRUCTURES NOMINALLY SHOWN.
2. LANDSCAPING NOMINALLY SHOWN ALL TO FUTURE DETAILS.



SITE - PERSPECTIVE 3



SITE - PERSPECTIVE 4

SCALE BAR 1 : 1 On A1 Size Origional

SCALE BAR 1 : 2 On A3 Size Reduction

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NARRABRI NSW 2390
FOR
MR ROWAN McCLUNG

Drawing Title
SITE PERSPECTIVES - SHEET 2

Approved			Designed VP
Date March 2024			Drawn VP
Scale NTS			Checked
Project No. 22 - 032	Drawing No. A - 09		Amdt. P3