Noise Assessment

21 Honeysuckle Drive
Newcastle, NSW.

Prepared for: KDC Pty Ltd
March 2019
MAC190841RP1

MAC
Muller Acoustic Consulting

Document Information

Noise Assessment

21 Honeysuckle Drive, Newcastle, NSW

Prepared for: KDC Pty Ltd

Suite 2B, 125 Bull Street

Newcastle West NSW 2302

Prepared by: Muller Acoustic Consulting Pty Ltd
PO Box 262, Newcastle NSW 2300
ABN: 36 602 225 132
P: +61 2 4920 1833
www.mulleracoustic.com

Document ID	Status	Date	Prepared By	Signed	Reviewed By	Signed
MAC190841RP1	Final	29 March 2019	Oliver Muller		Rod Linnett	

CONTENTS

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1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) has been commissioned by KDC Pty Ltd to conduct a Noise Assessment (NA) to quantify noise emissions from mechanical air conditioning plant associated with the proposed multi storey development to be established at 21 Honeysuckle Drive, Newcastle, NSW (the 'project').

This assessment has quantified noise emissions associated with mechanical plant (air conditioning condensers and ventilation fans) on the proposed multi-storey development. The mechanical plant consists of 148 rooftop air conditioning condensers and several ventilation fans.

Taking into consideration the acoustic elements considered in this assessment, the following policies and guidelines have been adopted:

- Environment Protection Authority (EPA) 2017, NSW Noise Policy for Industry (NPI);
- Standards Australia AS 1055:2018, Acoustics - Description and measurement of environmental noise - General Procedures; and
- Standards Australia AS 2107:2016, Acoustics - Recommended design sound levels and reverberation times for building interiors.

Figure 1 presents the project site and nearest surrounding receivers that have been considered in this assessment. A glossary of terms, definitions and abbreviations used in this report is provided in **Appendix A**.

FIGURE 1

LOCALITY PLAN

REF: MAC190841

0 40m

KEY

R6 RECEIVER LOCATION

PROJECT SITE

MAC
Muller Acoustic Consulting

*Imagery Source : nearmap

2 Existing Noise Environment

2.1 Attended Noise Monitoring

To gain a better understanding of the existing noise environment surrounding the project, MAC conducted attended noise monitoring in the vicinity of the project site during calm clear weather conditions. The purpose of the measurements was to ascertain dominant ambient noise sources to quantify any existing commercial or industrial noise contributions. The results of attended noise measurements and observations are summarised in **Table 1.** The monitoring positions were west of the project site at 50 Honeysuckle Drive, Honeysuckle, NSW.

Table 1 Ambient Noise Monitoring Summary – Attended Monitoring

Location	Date/ Time	Primary Noise Descriptor (dB(A) re 20 µPa)			Meteorology	Description and SPL dBA
		L_{Amax}	L_{Aeq}	L_{A90}		
NM1 Harbourside	31/01/18 15:44	68	53	50	Temp 27°C WD: W WS: 1.5m/s	Local traffic 48-62 Harbour noise <42 Intermittent Construction 50-53
	31/01/18 20:27	65	51	48	Temp 20°C WD: SW WS: 1.5m/s	Local traffic 48-60 Birds 50-52 Urban hum 40-42
	01/02/18 00:15	86	50	42	Temp 17°C WD: S WS: 1.5m/s	Local traffic 42-48 Pedestrians 43-48 Urban hum/harbour <42
NM2 Roadside	31/01/18 16:02	68	60	56	Temp 27°C WD: W WS: 1.5m/s	Local traffic 55-72 Harbour noise <40
	31/01/18 20:45	77	60	47	Temp 20°C WD: SW WS: 1.5m/s	Local traffic 43-77 Birds 52-59 Urban hum/harbour <42
	01/02/18 00:38	86	50	42	Temp 17°C WD: S WS: 1.5m/s	Local traffic 40-69 Birds 39-44 Urban hum/harbour <42

Ambient sources included traffic noise from Honeysuckle Drive, pedestrian noise, birds, urban hum and minor levels of harbour noise. Notwithstanding, it was noted that during the noise survey, winds were from the south directing harbour noise emissions away from this location. Detailed analysis of noise logging data identified that harbour noise contributions were generally at or below 40dBA at the project site.

3 Noise Policy and Criteria

3.1 Noise Policy for Industry

The EPA released the Noise Policy for Industry (NPI) in October 2017 which provides a process for establishing noise criteria for consents and licenses enabling the EPA to regulate noise emissions from scheduled premises under the Protection of the Environment Operations Act 1997. The objectives of the NPI are to:

- provide noise criteria that is used to assess the change in both short term and long term noise levels;
- provide a clear and consistent framework for assessing environmental noise impacts from industrial premises and industrial development proposals;
- promote the use of best-practice noise mitigation measures that are feasible and reasonable where potential impacts have been identified; and
- support a process to guide the determination of achievable noise limits for planning approvals and/or licences, taking into account the matters that must be considered under the relevant legislation (such as the economic and social benefits and impacts of industrial development).

The policy sets out a process for industrial noise management involving the following key steps:

1. Determine the Project Noise Trigger Levels (PNTLs) (ie criteria) for a development. These are the levels (criteria), above which noise management measures are required to be considered. They are derived by considering two factors: shorter-term intrusiveness due to changes in the noise environment; and maintaining the noise amenity of an area.
2. Predict or measure the noise levels produced by the development with regard to the presence of annoying noise characteristics and meteorological effects such as temperature inversions and wind.
3. Compare the predicted or measured noise level with the PNTL, assessing impacts and the need for noise mitigation and management measures.
4. Consider residual noise impacts - that is, where noise levels exceed the PNTLs after the application of feasible and reasonable noise mitigation measures. This may involve balancing economic, social and environmental costs and benefits from the proposed development against the noise impacts, including consultation with the affected community where impacts are expected to be significant.

5. Set statutory compliance levels that reflect the best achievable and agreed noise limits for the development.

6. Monitor and report environmental noise levels from the development.

3.1.1 Project Noise Trigger Levels

The policy sets out the procedure to determine the PNTLs relevant to an industrial development. The PNTL is the lower (that is, the more stringent) value of the **Project Intrusiveness Noise Level** (PINL) and **Project Amenity Noise Level** (PANL) determined in accordance with Section 2.3 and Section 2.4 of the NPI.

3.1.2 Project Intrusiveness Noise Level

The PINL ($LA_{eq,15min}$) is the RBL + 5dB and seeks to limit the degree of change a new noise source introduces to an existing environment. Hence, when assessing intrusiveness, background noise levels needs to be measured:

- to provide a formal process to guide the determination of feasible and reasonable noise limits for consents or licences that reconcile noise impacts with the economic, social and environmental considerations of industrial development; and
- to carry out functions relating to the prevention, minimisation and control of noise from premises scheduled under the Act.

Unattended Noise Monitoring

Unattended noise monitoring was completed west if the project site, at 50 Honeysuckle Drive, between Friday 23 March 2018 to Thursday 29 March 2018 to quantify the noise environment and the influence of road noise.

Unattended noise monitoring was conducted using a Svantek 957 Type 1 octave sound analyser, programmed to collect samples at 15-minute intervals with 'Fast' time weighting and 'A' frequency weighting. The analyser was calibrated before and after the monitoring period with no drift in calibration noted. Monitoring was conducted in general accordance with the procedures described in Australian Standard AS1055:2018 Acoustics - Description and Measurement of Environmental Noise. Data affected by adverse meteorological conditions has been excluded from the results in accordance with methodologies provided in the NPI.

The results of the unattended monitoring are provided in **Table 2**. **Appendix B** presents the results graphically for the assessment period.

Table 2 Unattended Noise Monitoring Results

Measurement Location	Measured Background Noise Level, dB LA_{90}			Measured, dB $LA_{eq(period)}$		
	Day	Evening	Night	Day	Evening	Night
L1	53	49	43	62	59	56

Note: Excludes periods of wind or rain affected data, meteorological data obtained from the Bureau of Meteorology at Nobbys Pilot Station AWS (32.9184°S 151.7985°E.).

Note: Monday to Saturday: Day 7am to 6pm; Evening 6pm to 10pm; Night the remaining periods. On Sundays and Public Holidays, Day 8am to 6pm; Evening 6pm to 10pm; Night the remaining periods.

The unattended monitoring confirms that the ambient noise environment surrounding the project is dominated by road traffic and urban noise.

A summary of the intrusive noise criteria is provided in **Table 3**.

Table 3 Project Intrusiveness Noise Levels

Location	Assessment Period[1]	RBL dB LA_{90}	Intrusiveness Noise Level dB $LA_{eq(15min)}$
All Residential Receivers	Day	53	58
	Evening	49	54
	Night	43	48

Note 1: Monday to Saturday: Day 7am to 6pm; Evening 6pm to 10pm; Night the remaining periods. On Sundays and Public Holidays, Day 8am to 6pm; Evening 6pm to 10pm; Night the remaining periods.

3.1.3 Project Amenity Noise Levels

PANLs are relevant to a specific land use or locality. To limit continuing increases in intrusiveness levels, the ambient noise level within an area from all combined industrial sources should remain below the recommended Amenity Noise Levels specified in Table 2.2 (of the NPI). The NPI defines two categories of amenity noise levels:

- **Amenity Noise Levels (ANL)** – are determined considering all current and future industrial noise within a receiver area.
- **Project Amenity Noise Levels (PANL)** – is the recommended levels for a receiver area, specifically focusing the project under investigation.

As per Section 2.4 of the NPI, ANLs and PANLs consider:

- areas with high traffic noise levels;
- proposed developments in major industrial clusters;
- existing industrial noise; and
- greenfield sites.

The NPI states with respect to high traffic noise areas:

The level of transport noise, road traffic noise in particular, may be high enough to make noise from an industrial source effectively inaudible, even though the LAeq noise level from that industrial noise source may exceed the project amenity noise level. In such cases the project amenity noise level may be derived from the LAeq, period(traffic) minus 15 dB(A).

Where relevant this assessment has considered influences of traffic with respect to amenity noise levels (ie areas where existing traffic noise levels are 10dB greater than the recommended amenity noise level).

The recommended amenity noise levels as per Table 2.2 of the NPI reproduced in Table 4.

Table 4 Amenity Criteria			
Receiver Type	Noise Amenity Area	Time of day	Recommended amenity noise level L_{Aeq}, dBA
Residential	Rural	Day	50
		Evening	45
		Night	40
	Suburban	Day	55
		Evening	45
		Night	40
	Urban	Day	60
		Evening	50
		Night	45
Hotels, motels, caretakers' quarters, holiday accommodation, permanent resident caravan parks	See column 4	See column 4	5dBA above the recommended amenity noise level for a residence for the relevant noise amenity area and time of day
School classroom – internal	All	Noisiest 1 hour period when in use	35
Hospital ward - internal - external	All	 Noisiest 1 hour Noisiest 1 hour	 35 50
Place of worship – internal	All	When in use	40
Area specifically reserved for passive recreation (e.g. national park)	All	When in use	50
Active recreation area (e.g. school playground, golf course)	All	When in use	55
Commercial premises	All	When in use	65
Industrial premises	All	When in use	70
Industrial interface (applicable only to residential noise amenity areas)	All	All	Add 5dBA to recommended noise amenity area

Notes: The recommended amenity noise levels refer only to noise from industrial noise sources. However, they refer to noise from all such sources at the receiver location, and not only noise due to a specific project under consideration. The levels represent outdoor levels except where otherwise stated.

Types of receivers are defined as rural residential; suburban residential; urban residential; industrial interface; commercial; industrial – see Table 2.3 and Section 2.7.

Time of day is defined as follows: (These periods may be varied where appropriate, for example, see A3 in Fact Sheet A.)

- day – the period from 7 am to 6 pm Monday to Saturday or 8 am to 6 pm on Sundays and public holidays;
- evening – the period from 6 pm to 10 pm;
- night – the remaining periods.

In the case where existing schools are affected by noise from existing industrial noise sources, the acceptable LAeq noise level may be increased to 40dB LAeq(1hr).

The PANLs for residential receivers and other sensitive receivers potentially affected by the project are presented in **Table 5.**

Table 5 Amenity Noise Levels and Project Amenity Noise Levels

Receiver Type	Noise Amenity Area	Assessment Period[1]	Recommended ANL dB $LA_{eq(period)}$[2]	PANL dB $LA_{eq(period)}$[3]	PANL dB $LA_{eq(15min)}$[4]
Residential	Urban	Day	60	55	58
		Evening	50	50	53
		Night	45	40	43
Commercial	All	When in use	65	60	63

Note 1: Monday to Saturday: Day 7am to 6pm; Evening 6pm to 10pm; Night the remaining periods. On Sundays and Public Holidays, Day 8am to 6pm; Evening 6pm to 10pm; Night the remaining periods.

Note 2: Recommended amenity noise levels as per Table 2.2 of the NPI.

Note 3: Project Amenity Noise Level -5dB due to other adjoining industry.

Note 4: Includes a +3dB adjustment to the amenity period level to convert to a fifteen-minute assessment period as per Section 2.2 of the NPI.

3.1.4 Project Noise Trigger Levels

The PNTLs is the lower of either the PINL or the PANL. **Table 6** presents the derivation of the PNTL's in accordance with the methodologies outlined in the NPI.

Table 6 Project Noise Trigger Levels

Receiver	Period[1]	PINL dB $L_{Aeq(15min)}$	PANL dB $L_{Aeq(15min)}$	PNTL dB $L_{Aeq(15min)}$
Residential	Day	58	58	58
	Evening	54	53	53
	Night	48	43	43
Commercial	All	N/A	63	63

Note 1: Monday to Saturday: Day 7am to 6pm; Evening 6pm to 10pm; Night the remaining periods. On Sundays and Public Holidays, Day 8am to 6pm; Evening 6pm to 10pm; Night the remaining periods.

3.2 Maximum Noise Level Assessment Criteria

The potential for sleep disturbance from maximum noise level events from a project during the night-time period needs to be considered. The NPI considers sleep disturbance to be both awakenings and disturbance to sleep stages.

Where night-time noise levels from a development/premises at a residential location exceed:

- $L_{Aeq,15min}$ 40dBA or the prevailing RBL plus 5dB, whichever is the greater, and/or
- L_{Amax} 52dBA or the prevailing RBL plus 15dB, whichever is the greater,

a detailed maximum noise level event assessment should be undertaken.

A detailed assessment should cover the maximum noise level, the extent to which the maximum noise level exceeds the rating background noise level, and the number of times this happens during the night-time period.

Other factors that may be important in assessing the impacts on sleep disturbance include:

- how often the events would occur;
- the distribution of likely events across the night-time period and the existing ambient maximum events in the absence of the development;

- whether there are times of day when there is a clear change in the noise environment (such as during early morning shoulder periods); and
- current understanding of effects of maximum noise level events at night.

The maximum noise level screening criteria shown in **Table 7** is based on night time RBLs.

Table 7 Maximum Noise Level Assessment Screening Criteria

Residential Receivers R1-R6			
$L_{Aeq(15min)}$		L_{Amax}	
40dB $L_{Aeq(15min)}$ or RBL + 5dB		52dB L_{Amax} or RBL + 15dB	
Trigger	40	Trigger	52
RBL 43+5dB	48	RBL 43+15dB	58
Highest	**48**	**Highest**	**58**

Note 1: As per Section 2.5 of the NPI, the highest of each metric are adopted as the screening criteria.

4 Noise Assessment Methodology

4.1 Operational Noise Modelling Methodology

An assessment of potential operational noise emissions from the project has been completed. Mechanical plant including air conditioning condensers and ventilation exhaust has been assessed against relevant NPI criteria. **Table 8** presents the sound power levels for the source assessed in this report.

Table 8 Sound Power Levels[1]

Item	Octave Band Sound Power Level, dBA									Total
	31.5	63	125	250	500	1000	2000	4000	8000	dBA
Operational Assessment (LA_{eq})										
Air Conditioning Condensers (x148)	40	48	51	57	66	62	64	64	49	71
Ventilation Exhaust (x4)	30	35	44	70	73	68	61	51	31	76
Maximum Level (LA_{max})										
Air Conditioning Condensers (x148)	43	51	54	60	69	65	67	67	52	74
Ventilation Exhaust (x4)	33	38	47	73	76	71	64	54	34	79

Note 1: Source - MAC database.

DGMR (iNoise, Version 2019) noise modelling software was used to assess potential noise impacts associated with the project. A three-dimensional digital terrain map providing all relevant topographic information of the surrounding built environment was used in the modelling process.

Additionally, the model uses relevant noise source data, ground type, attenuation from barrier or buildings and atmospheric information to predict noise levels at the nearest potentially affected receivers. Mechanical plant noise was modelled on the rooftop of the development (see Site Plans in **Appendix C**) (SJB Architects, 2019).

The calculation method used to predict noise levels was in accordance with ISO 9613-1 'Acoustics - Attenuation of sound during propagation outdoors. Part 1: Calculation of the absorption of sound by the atmosphere' and ISO 9613-2 'Acoustics - Attenuation of sound during propagation outdoors. Part 2: General method of calculation'.

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5 Noise Modelling Assumptions and Recommendations

Noise emissions from the project have been quantified to surrounding receivers and include the following assumptions and noise controls:

- the acoustic screens surrounding the mechanical plant consist of impervious material (ie colourbond or equivalent) and will not be louvred; and
- the acoustic screens will be at the height as shown in the architectural drawings (see Site Plans in **Appendix C**) (SJB Architects, 2019).

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6 Results

6.1 Operational Noise Prediction Results (NPI Assessment)

Operational noise levels from the rooftop terrace (mechanical plant) for the project have been predicted to the nearest proposed residential receivers adjacent to the project at 21 Honeysuckle Drive, Newcastle, NSW and adjacent commercial receivers (see **Figure 1**).

Table 9 presents the single point calculation results and demonstrate that operational noise emissions from the project remain below the relevant PNTLs for all assessed receivers.

Table 9 Predicted Operational Noise Levels

Location	Period[1]	Predicted Noise Level dB $LA_{eq(15min)}$	PNTL dB $LA_{eq(15min)}$
R1	Day	40	58
	Evening	40	53
	Night	40	43
R2	Day	40	58
	Evening	40	53
	Night	40	43
R3	Day	40	58
	Evening	40	53
	Night	40	43
R4	Day	36	58
	Evening	36	53
	Night	36	43
R5	Day	38	58
	Evening	38	53
	Night	38	43
R6	Day	38	58
	Evening	38	53
	Night	38	43
C1	Day	41	63
C2	Day	43	63
C3	Day	41	63
C4	Day	37	63

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

6.2 Maximum Noise Level Assessment

Predicted noise levels from constant operation of mechanical plant ($L_{Aeq(15min)}$), and maximum events of mechanical plant (L_{Amax}) for assessed receivers are presented in **Table 10**. Results identify that the maximum noise events screening criterion will be satisfied for all assessed receivers.

Table 10 Maximum Noise Levels Assessment (Night)[1]

Receiver	Predicted Noise Level		Screening Criteria		Compliant
	dB $L_{Aeq(15min)}$	dB L_{Amax}	dB $L_{Aeq(15min)}$	dB L_{Amax}	
R1	40	42	48	58	✓
R2	40	42	48	58	✓
R3	40	42	48	58	✓
R4	36	38	48	58	✓
R5	38	41	48	58	✓
R6	38	39	48	58	✓

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

7 Conclusion

Muller Acoustic Consulting Pty Ltd (MAC) has completed an assessment of potential noise impacts from mechanical air conditioning plant associated with the proposed multi storey development to be established at 21 Honeysuckle Drive, Newcastle, NSW.

Noise emission from the project are demonstrated to remain below relevant operational and sleep disturbance criteria for all assessed receivers with the implementation of the noise controls described in Section 5.

Following the findings of the Noise Assessment, it is recommended that the development is approved based on noise control assumptions/recommendations and referenced architectural plans provided in this report.

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Appendix A – Glossary of Terms

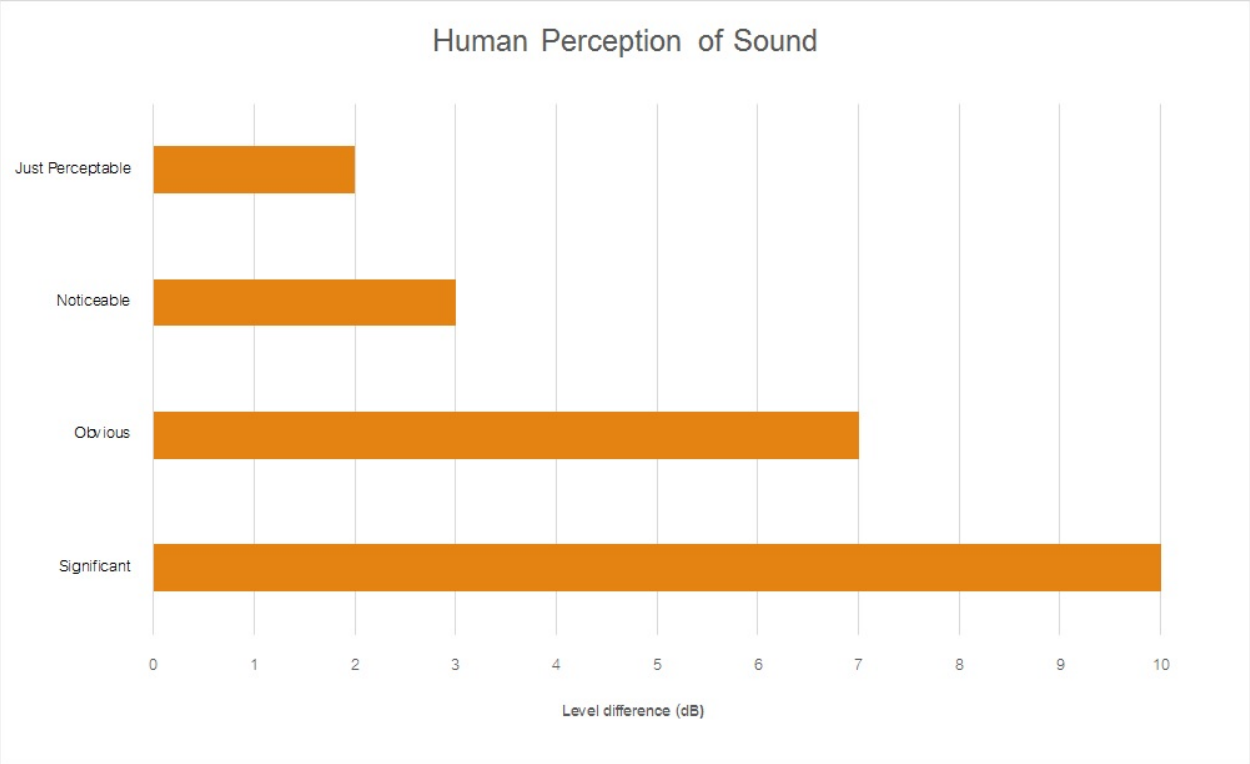
Table A1 provides a number of technical terms have been used in this report.

Table A1 Glossary of Terms	
Term	Description
1/3 Octave	Single octave bands divided into three parts
Octave	A division of the frequency range into bands, the upper frequency limit of each band being twice the lower frequency limit.
ABL	Assessment Background Level (ABL) is defined in the NPI as a single figure background level for each assessment period (day, evening and night). It is the tenth percentile of the measured LA90 statistical noise levels.
Adverse Weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient Noise	The noise associated with a given environment. Typically a composite of sounds from many sources located both near and far where no particular sound is dominant.
A Weighting	A standard weighting of the audible frequencies designed to reflect the response of the human ear to noise.
dBA	Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear. In some cases the overall change in noise level is described in dB rather than dBA, or dBZ which relates to the weighted scale.
dB(Z)	Linear Z-weighted decibels.
Hertz (Hz)	The measure of frequency of sound wave oscillations per second - 1 oscillation per second equals 1 hertz.
LA10	A noise level which is exceeded 10 % of the time. It is approximately equivalent to the average of maximum noise levels.
LA90	Commonly referred to as the background noise, this is the level exceeded 90 % of the time.
LAeq	The summation of noise over a selected period of time. It is the energy average noise from a source, and is the equivalent continuous sound pressure level over a given period.
LAmax	The maximum root mean squared (rms) sound pressure level received at the microphone during a measuring interval.
RBL	The Rating Background Level (RBL) is an overall single figure background level representing each assessment period over the whole monitoring period. The RBL is used to determine the intrusiveness criteria for noise assessment purposes and is the median of the ABL's.
Sound power level (LW)	This is a measure of the total power radiated by a source. The sound power of a source is a fundamental location of the source and is independent of the surrounding environment. Or a measure of the energy emitted from a source as sound and is given by : = 10.log10 (W/Wo) Where : W is the sound power in watts and Wo is the sound reference power at 10-12 watts.

Table A2 provides a list of common noise sources and their typical sound level.

Table A2 Common Noise Sources and Their Typical Sound Pressure Levels (SPL), dBA	
Source	Typical Sound Level
Threshold of pain	140
Jet engine	130
Hydraulic hammer	120
Chainsaw	110
Industrial workshop	100
Lawn-mower (operator position)	90
Heavy traffic (footpath)	80
Elevated speech	70
Typical conversation	60
Ambient suburban environment	40
Ambient rural environment	30
Bedroom (night with windows closed)	20
Threshold of hearing	0

Figure A1 – Human Perception of Sound



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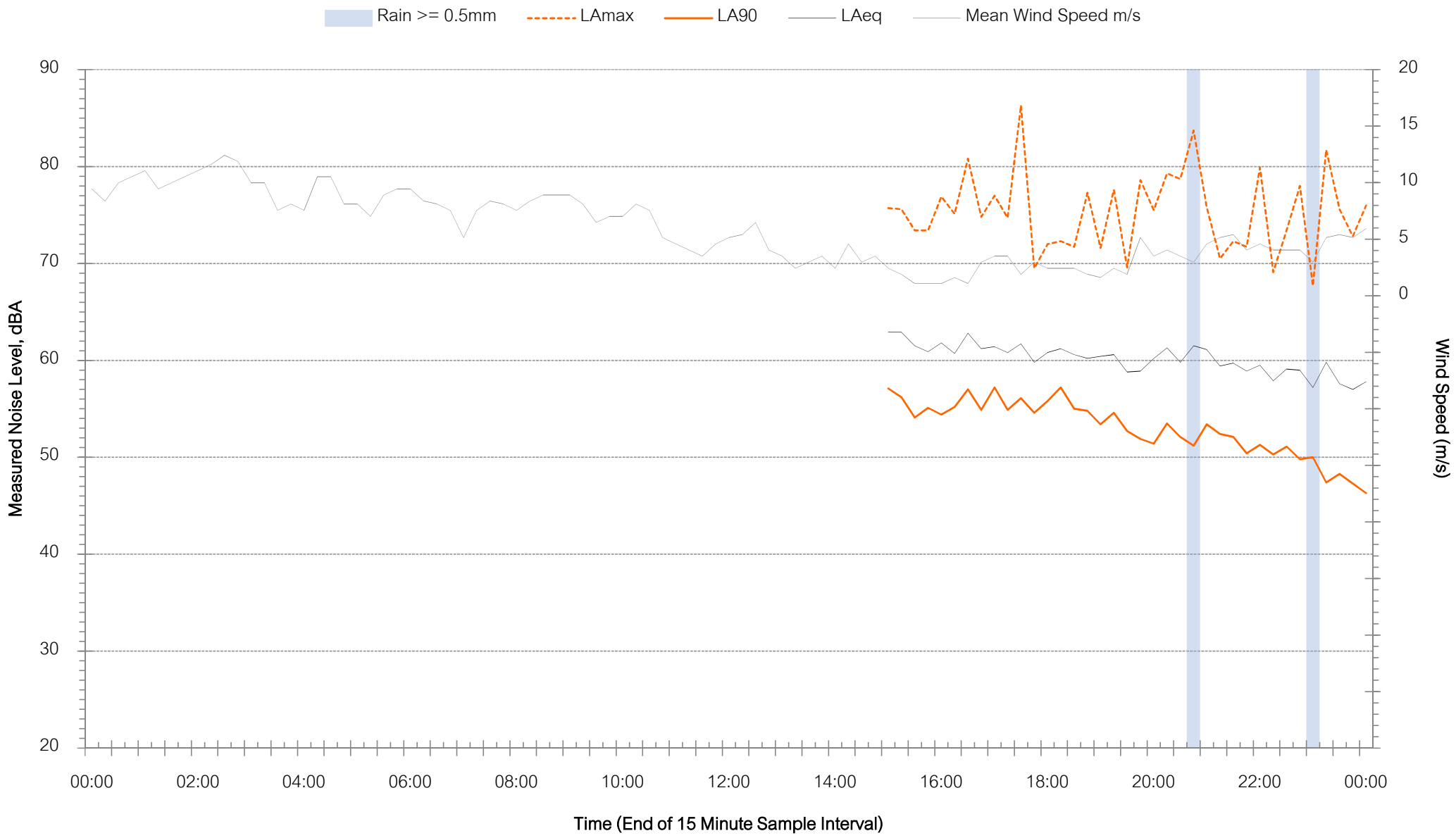
Appendix B – Noise Logging Data

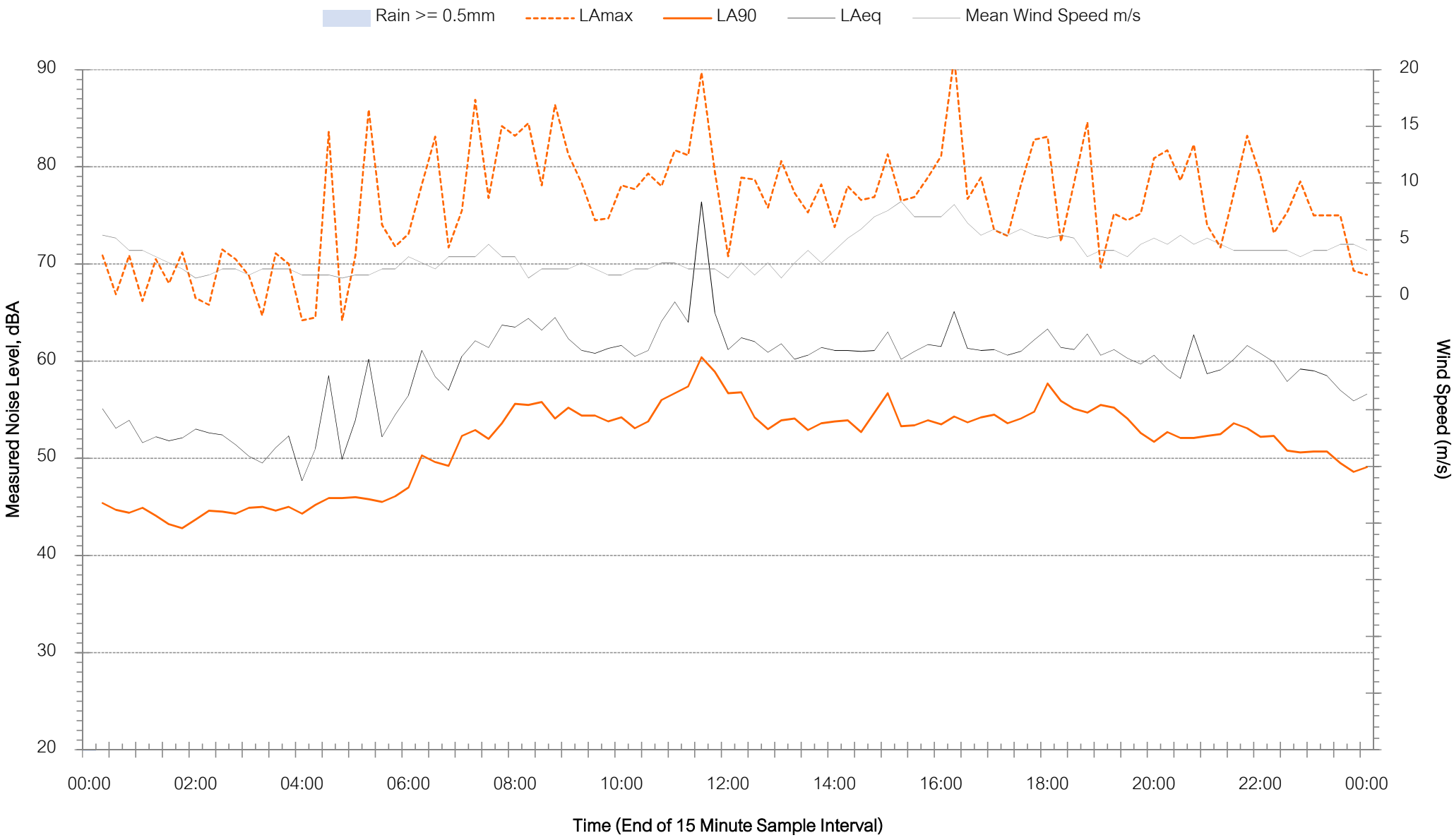
Background Noise Levels

Honeysuckle Drive, Newcastle - Friday 23 March 2018



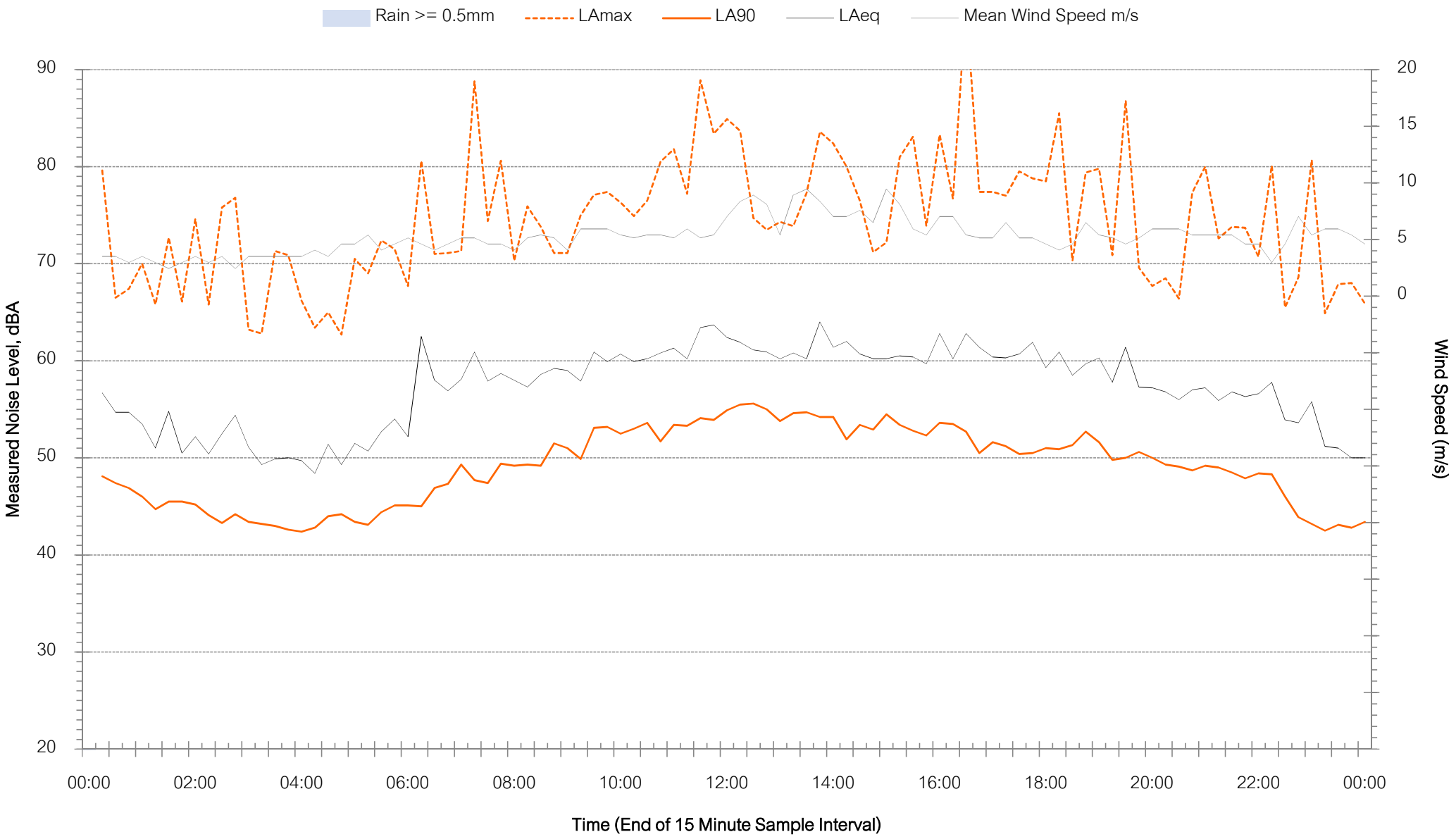
Background Noise Levels

Honeysuckle Drive, Newcastle - Saturday 24 March 2018



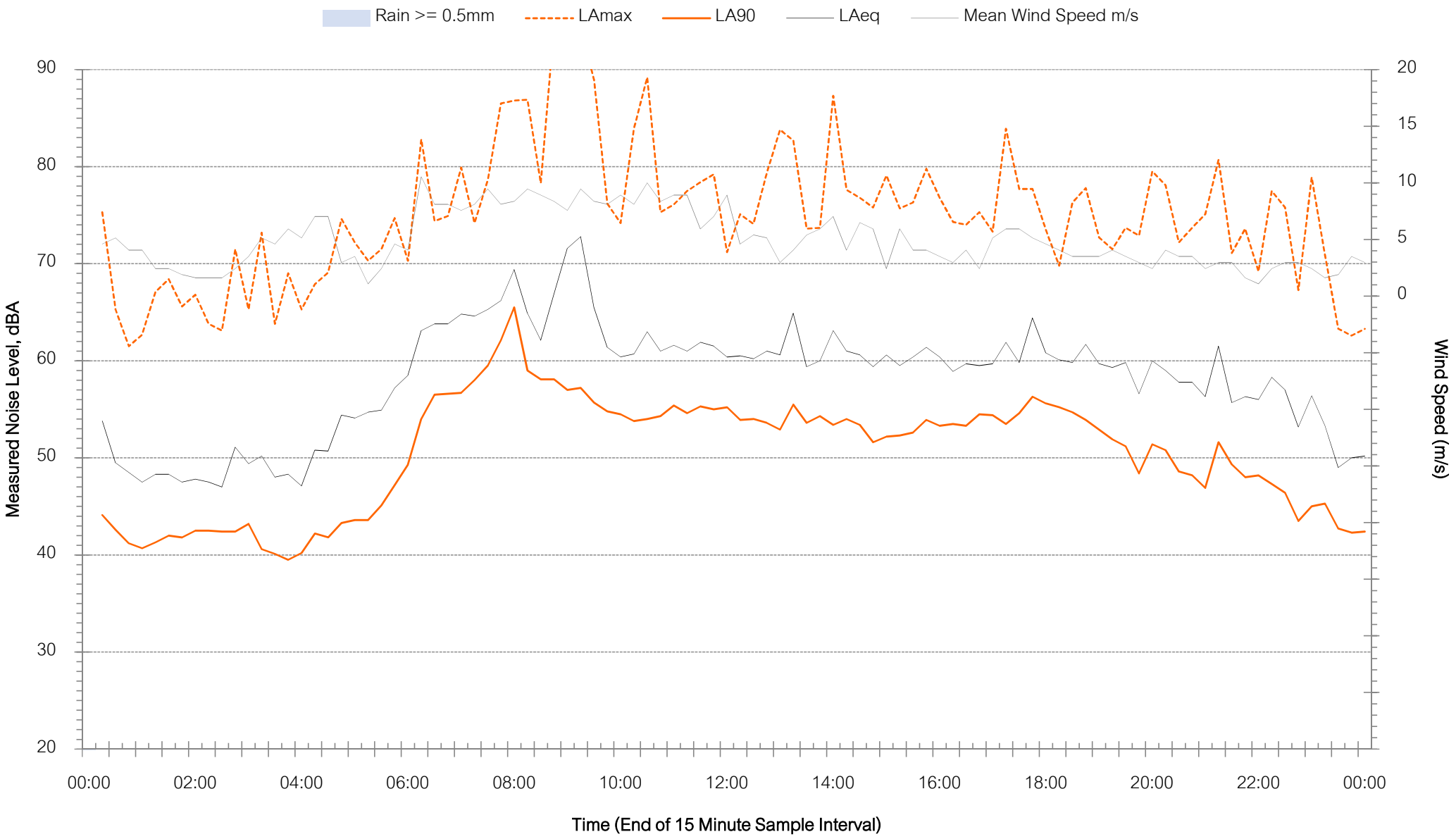
Background Noise Levels

Honeysuckle Drive, Newcastle - Sunday 25 March 2018



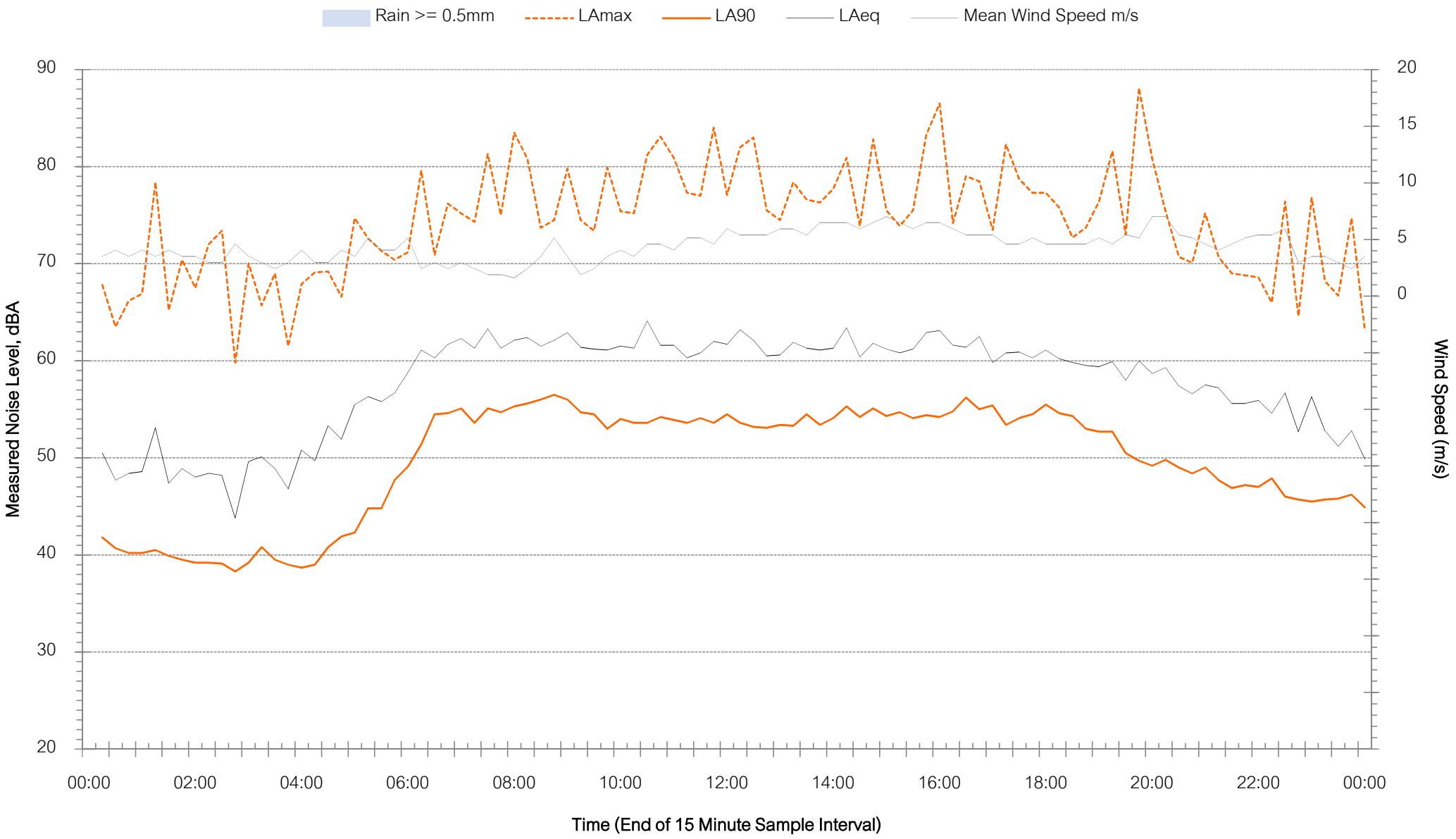
Background Noise Levels

Honeysuckle Drive, Newcastle - Monday 26 March 2018



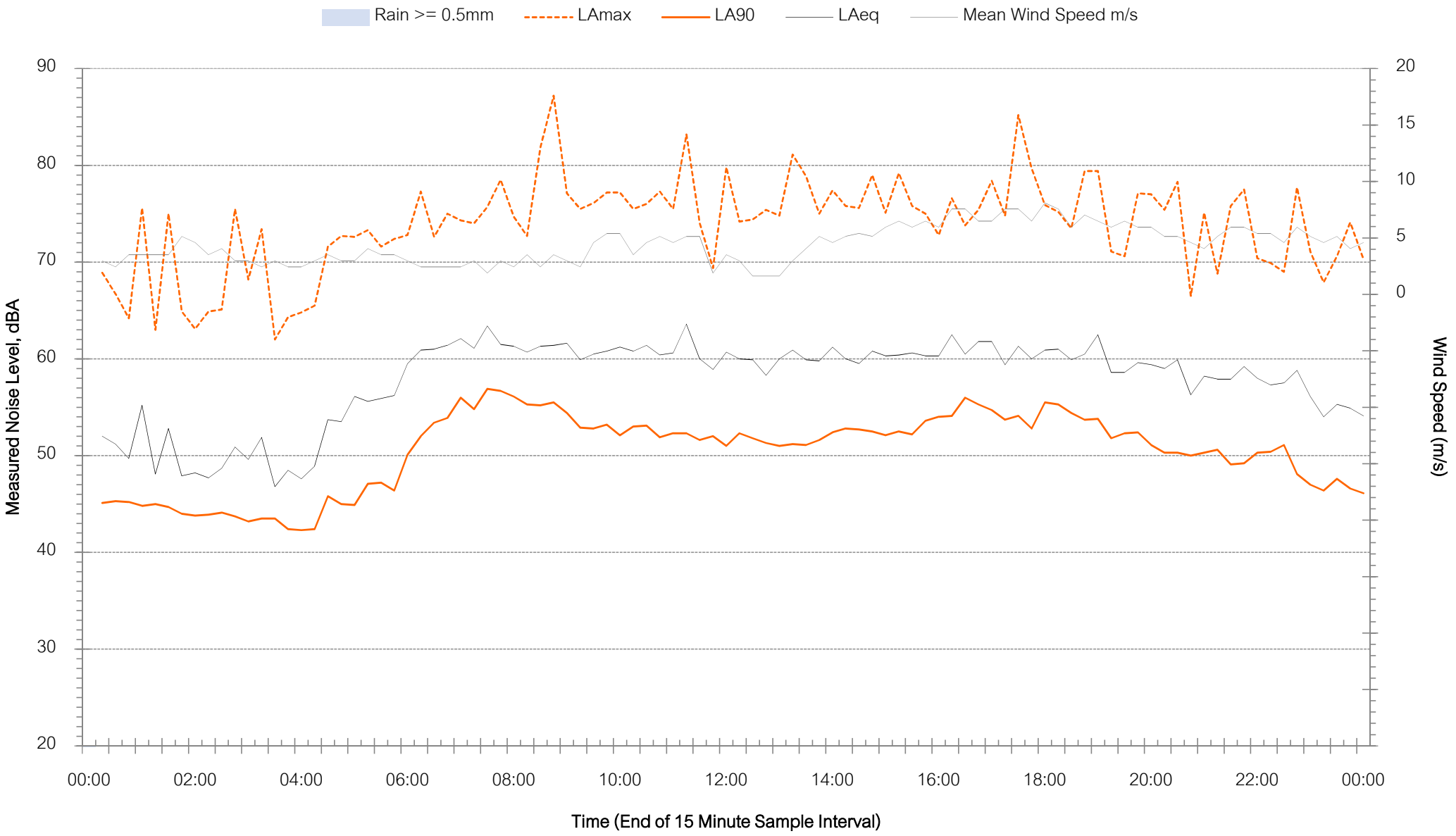
Background Noise Levels

Honeysuckle Drive, Newcastle - Tuesday 27 March 2018



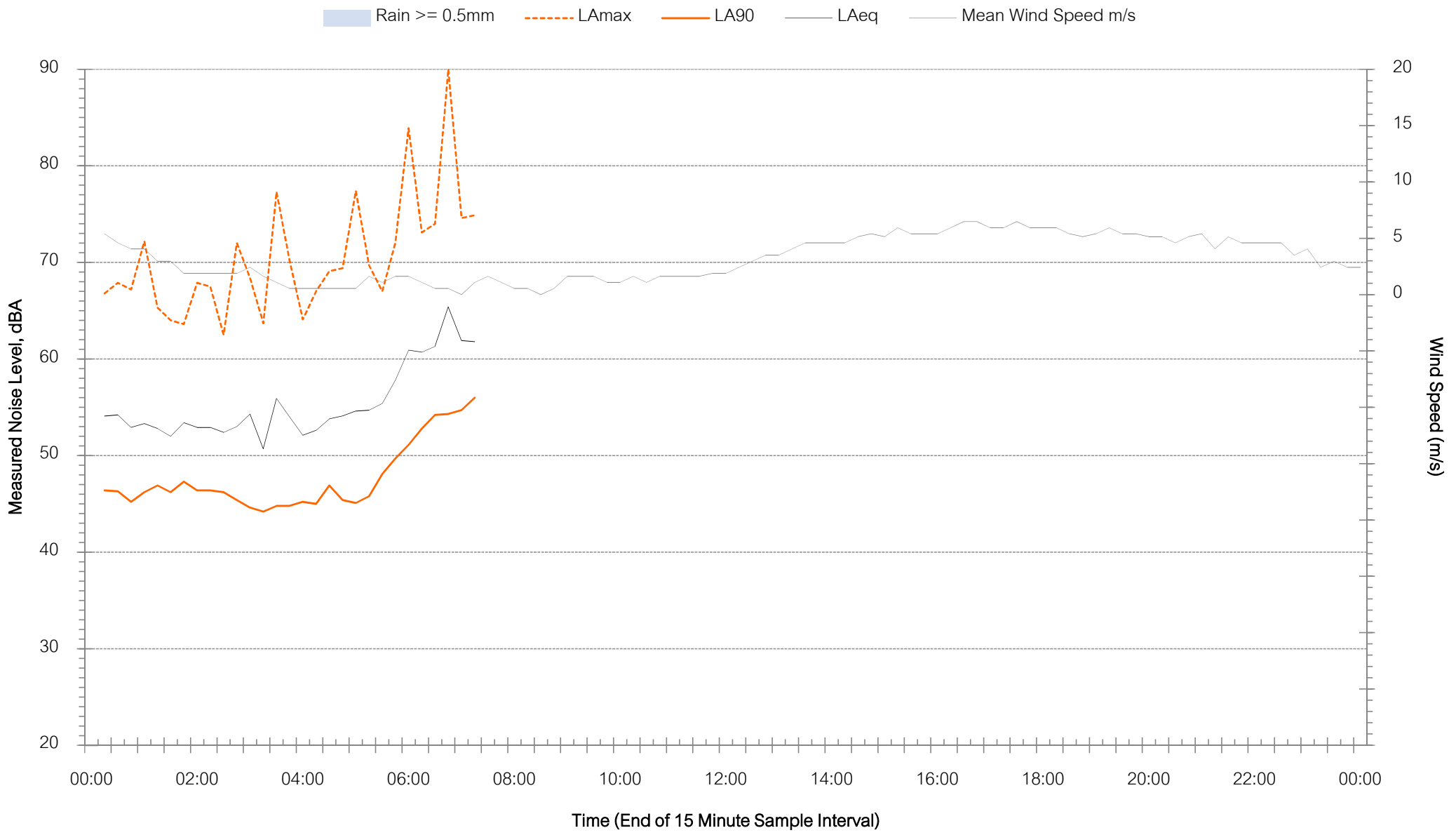
Background Noise Levels

Honeysuckle Drive, Newcastle - Wednesday 28 March 2018



Background Noise Levels

Honeysuckle Drive, Newcastle - Thursday 29 March 2018

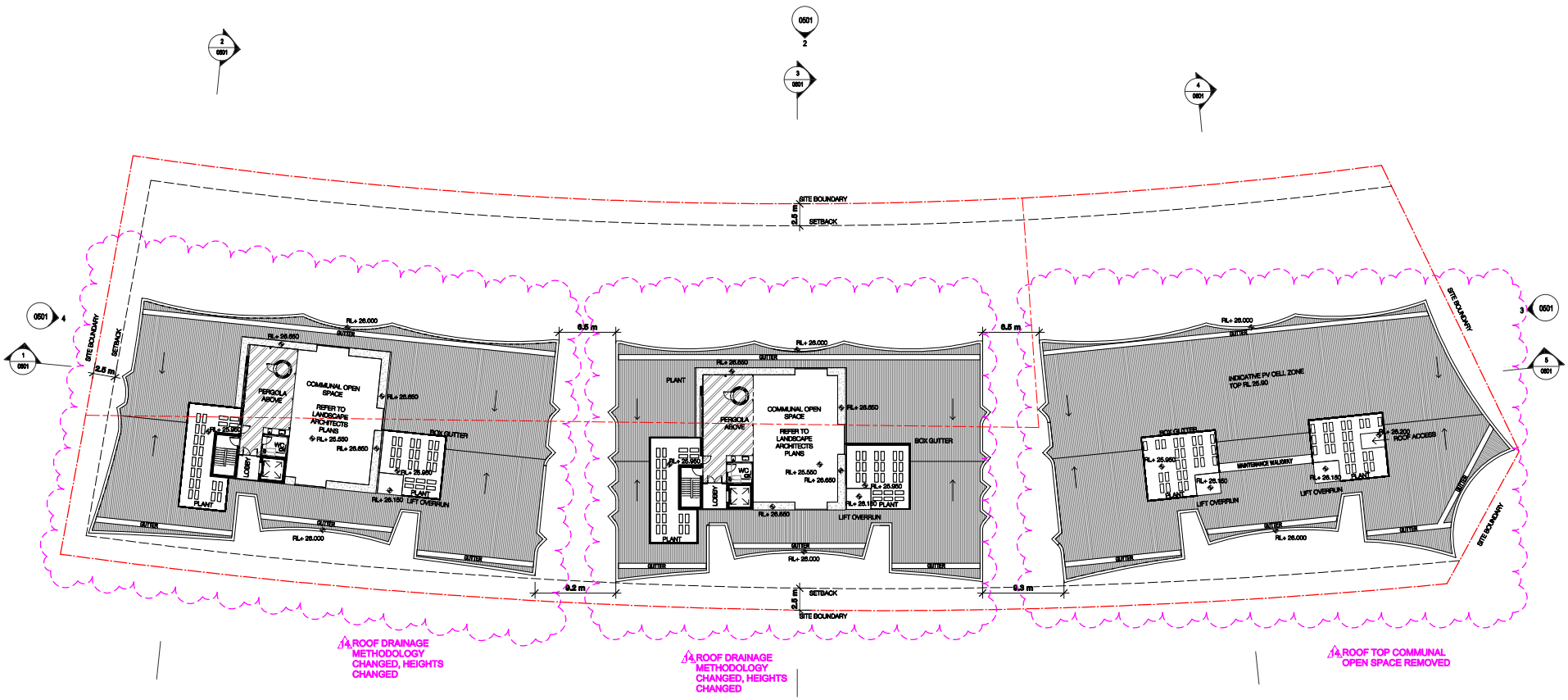


Appendix C – Site Plans

Nominated Architects: Adam Haddow-7188 | John Pradel-7004

FOR INFORMATION

Rev	Date	Revision	By	Chk.
1	17.03.17	DEVELOPMENT APPLICATION ISSUE		
4	10.04.17	DA SUBMISSION		
10	28.06.17	ISSUED FOR DA	JO	ML
11	04.07.17	FOR COORDINATION	JO	ML
12	09.11.17	REVISED DA ISSUE		
13	27.11.17	REVISED DA ISSUE		
14	28.08.18	FOR REVIEW	SC	ML
15	11.12.18	SECTION 4.55	SC	ML



14 ROOF DRAINAGE METHODOLOGY CHANGED, HEIGHTS CHANGED

14 ROOF DRAINAGE METHODOLOGY CHANGED, HEIGHTS CHANGED

14 ROOF TOP COMMUNAL OPEN SPACE REMOVED

Client

DOMAGROUP

Project

Honeysuckle

50 Honeysuckle Drive,
Newcastle NSW 2300

Drawing Name

ROOF PLAN

Date	Scale	Sheet Size
11.12.18	1 : 250	@ A1

Drawn	Chk.
JO	ML

Job No.	Drawing No.	Revision
5485	DA-0208	/ 15

SJB Architects
Level 2
490 Crown Street
Surry Hills NSW
2010 Australia
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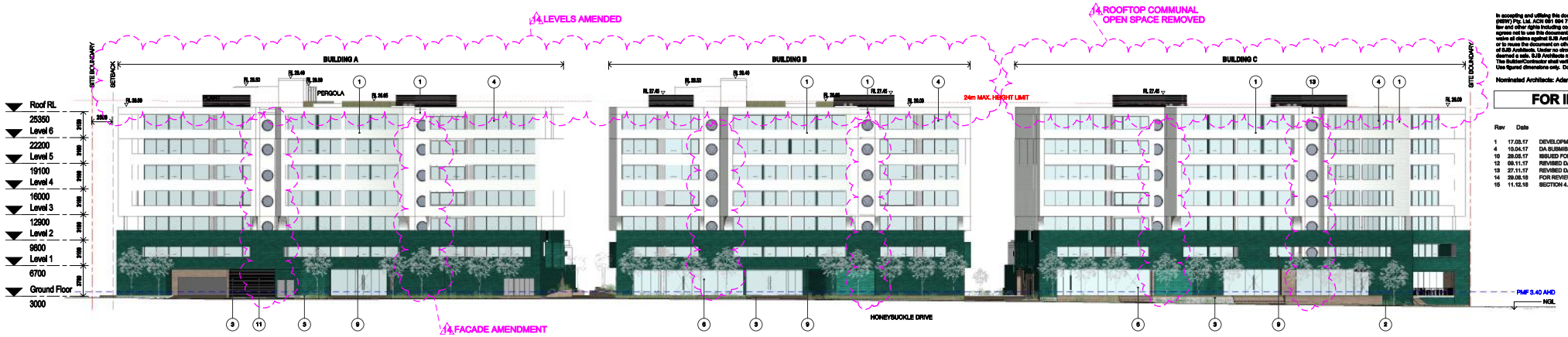
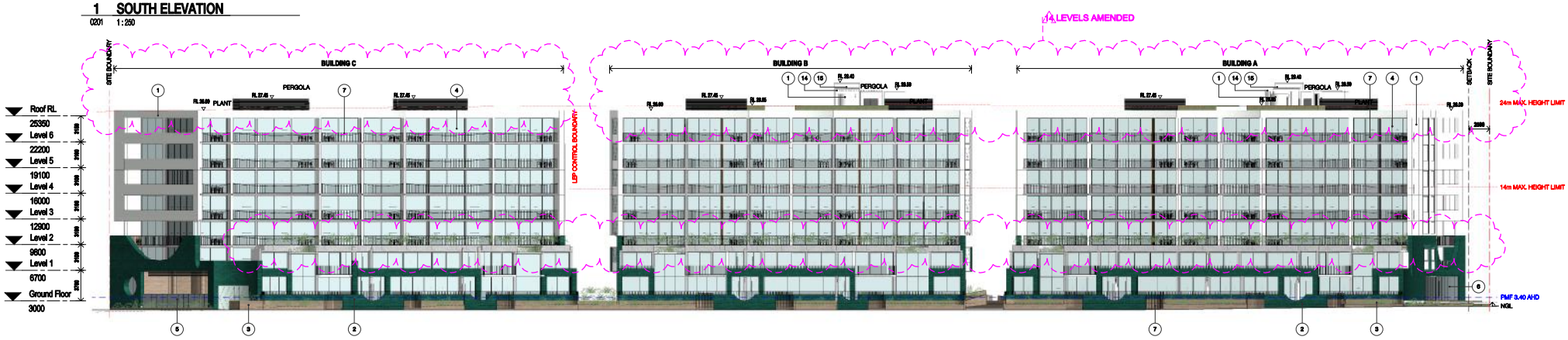


1 SOUTH ELEVATION

0201 1:250



2 NORTH ELEVATION

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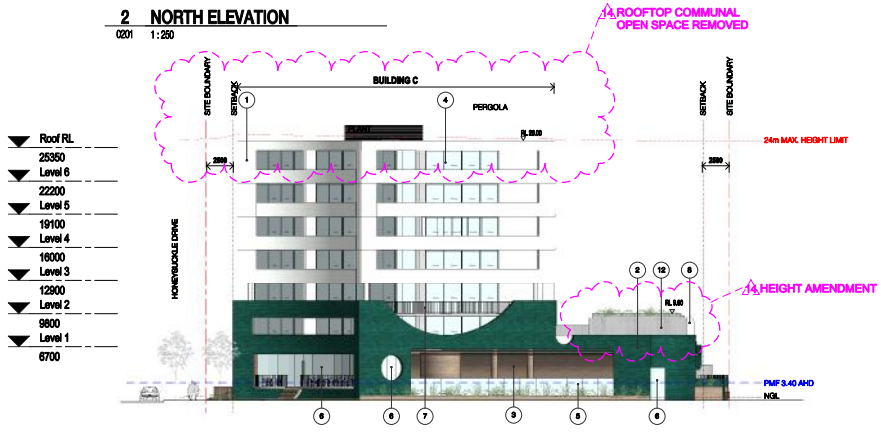

3 EAST ELEVATION

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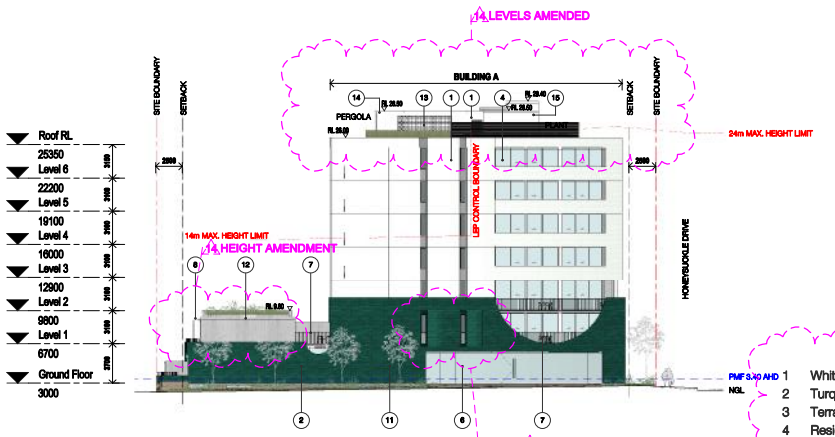

4 WEST ELEVATION

0201 1:250

ROOFTOP COMMUNAL OPEN SPACE MATERIALS ADDED

1	White Painted Brick
2	Turquoise Glazed Brick
3	Terracotta Brick
4	Residential Glazing
5	Swimming Pool Glazed Balustrade
6	Commercial Glazing
7	Metalwork - Gates Railings Balustrades
8	Marble Privacy Screen
9	White Metal Panels
11	Aluminium Louvre Wall
12	Off-form concrete
13	Brick Screen - Hit and Miss
14	Lime Washed Timber
15	Skim Coat - White Paint

Nominated Architects: Adam Haddow-7188 | John Pradel-7004

FOR INFORMATION

Rev	Date	Revision	By	Chk.
1	17.03.17	DEVELOPMENT APPLICATION ISSUE		
4	10.04.17	DA SUBMISSION		
10	28.09.17	ISSUED FOR DA	JO	ML
12	09.11.17	REVISED DA ISSUE		
13	27.11.17	REVISED DA ISSUE		
14	29.09.18	FOR REVIEW	SC	ML
15	11.12.18	SECTION 4.55	SC	ML

Client

DOMAGROUP

Project

Honeysuckle

50 Honeysuckle Drive,
Newcastle NSW 2300

Drawing Name

SITE ELEVATIONS

Date	Scale	Sheet Size
11.12.18	1 : 250	@ A1

Drawn	Chk.
JO	ML

Job No.	Drawing No.	Revision
5485	DA-0501	/ 15

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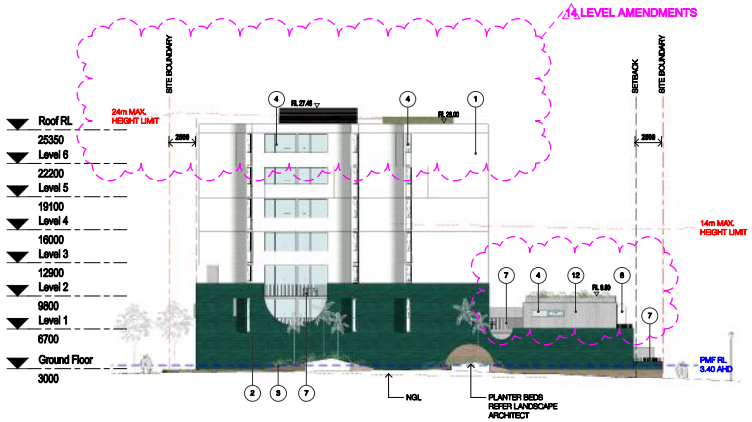
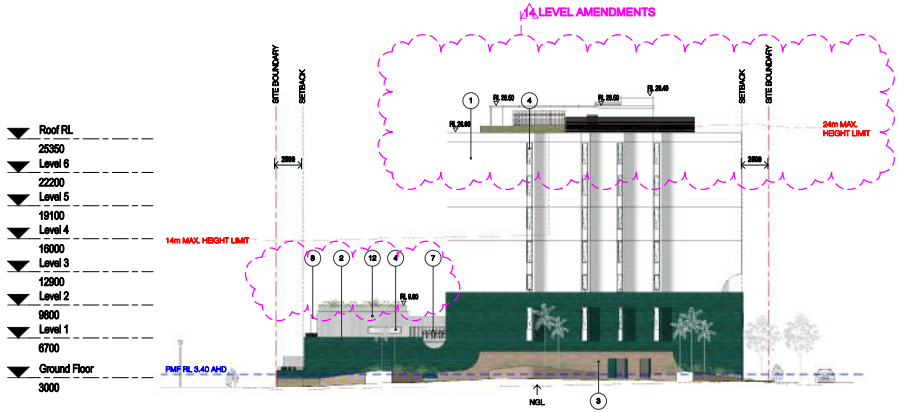
Level 2
490 Crown Street
Surry Hills NSW
2010 Australia
T 61 2 9380 9911
F 61 2 9380 9922
www.sjb.com.au



1 BUILDING A EAST ELEVATION

0201 1 : 250

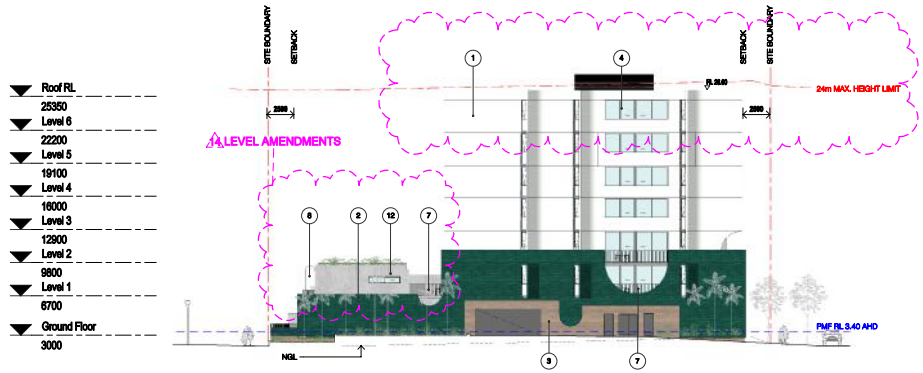


2 BUILDING B WEST ELEVATION

0201 1 : 250

3 BUILDING B EAST ELEVATION

0201 1 : 250



4 BUILDING C WEST ELEVATION

0201 1 : 250

Nominated Architects: Adam Haddow-7188 | John Pradel-7004

FOR INFORMATION

Rev	Date	Revision	By	Chk.
1	17.03.17	DEVELOPMENT APPLICATION ISSUE		
4	10.04.17	DA SUBMISSION		
10	28.09.17	ISSUED FOR DA	JO	ML
12	09.11.17	REVISED DA ISSUE		
13	27.11.17	REVISED DA ISSUE		
14	29.08.18	FOR REVIEW	SC	ML
15	11.12.18	SECTION 4.55	SC	ML

1 White Painted Brick
2 Turquoise Glazed Brick
3 Terracotta Brick
4 Residential Glazing
5 Swimming Pool Glazed Balustrade
6 Commercial Glazing
7 Metalwork - Gates Railings Balustrades
8 Marble Privacy Screen
9 White Metal Panels
11 Aluminium Louvre Wall
12 Off-form concrete
13 Brick Screen - Hit and Miss
14 Lime Washed Timber
15 Skim Coat - White Paint

Client

DOMAGROUP

Project

Honeysuckle

50 Honeysuckle Drive,
Newcastle NSW 2300

Drawing Name

INTERNAL ELEVATIONS

Date	Scale	Sheet Size
11.12.18	1 : 250	@ A1

Drawn	Chk.
JO	ML

Job No.	Drawing No.	Revision
5485	DA-0502	/ 15

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Level 2
490 Crown Street
Surry Hills NSW
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F 61 2 9380 9922
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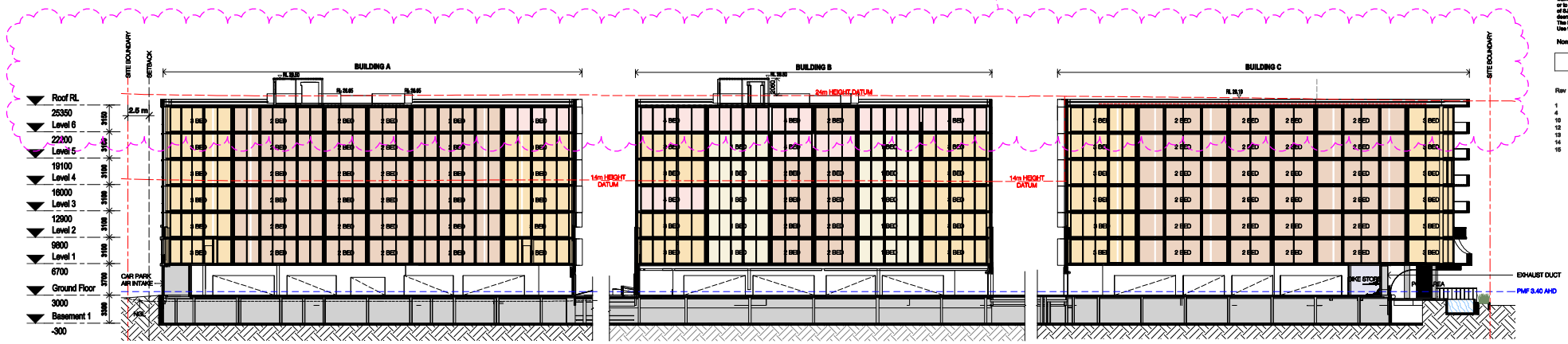
Nominated Architects: Adam Haddow-7188 | John Pradel-7004

FOR INFORMATION

Rev	Date	Revision	By	Chk.
1	17.03.17	DEVELOPMENT APPLICATION ISSUE		
4	10.04.17	DA SUBMISSION		
10	28.09.17	ISSUED FOR DA	JO	ML
12	09.11.17	REVISED DA ISSUE		
13	27.11.17	REVISED DA ISSUE		
14	29.08.18	FOR REVIEW	SC	ML
15	11.12.18	SECTION 4.55	SC	ML

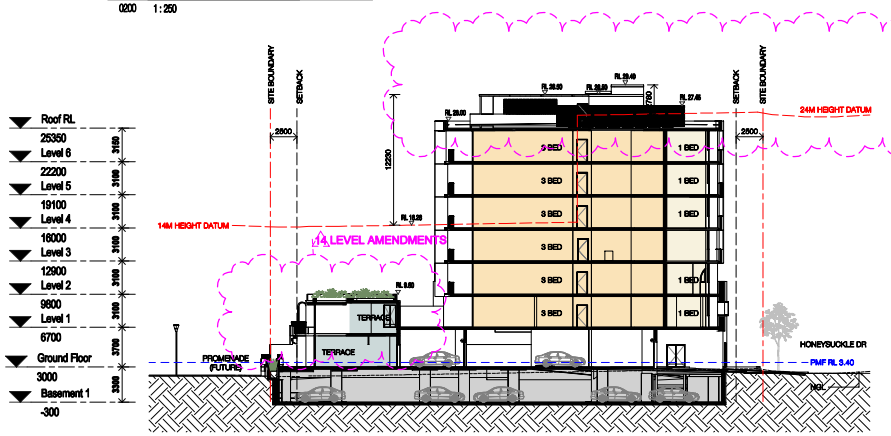
14 LEVEL AMENDMENTS



1 SITE SECTION

0200 1 : 250

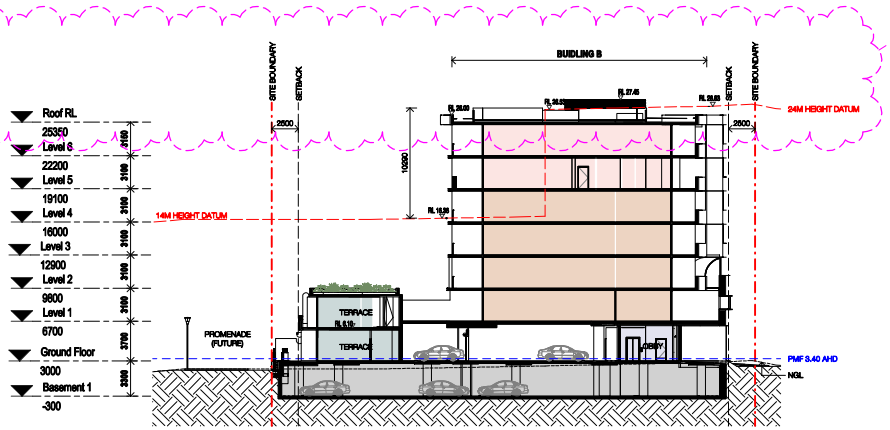
14 LEVEL AMENDMENTS



2 BUILDING A - TYP. SECTION

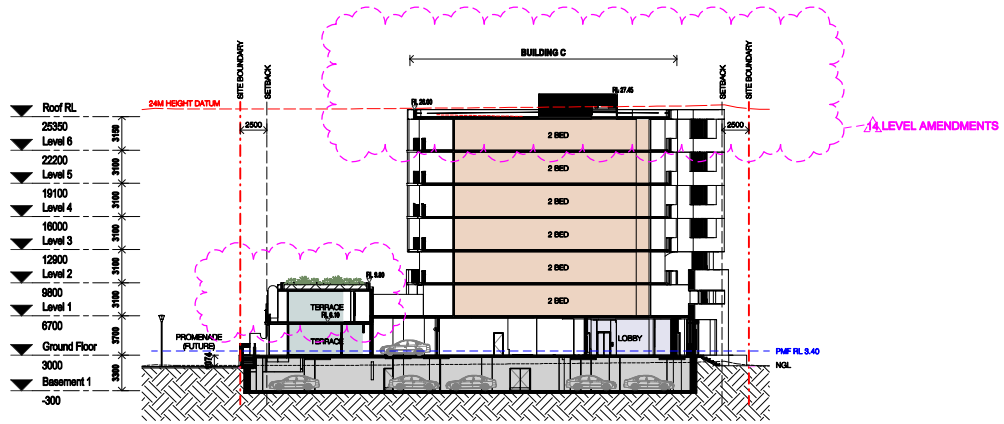
0200 1 : 250

14 LEVEL AMENDMENTS



3 BUILDING B - TYP. SECTION

0200 1 : 250



4 BUILDING C - TYP. SECTION

0200 1 : 250

Client

DOMAGROUP

Project

Honeysuckle

50 Honeysuckle Drive,
Newcastle NSW 2300

Drawing Name

SITE SECTIONS

Date	Scale	Sheet Size
11.12.18	1 : 250	@ A1

Drawn	Chk.
JO	ML

Job No.	Drawing No.	Revision
5485	DA-0601	/ 15

SJB Architects
Level 2
490 Crown Street
Surry Hills NSW
2010 Australia
T 61 2 9380 9911
F 61 2 9380 9922
www.sjb.com.au

Muller Acoustic Consulting Pty Ltd
PO Box 262, Newcastle NSW 2300
ABN: 36 602 225 132
P: +61 2 4920 1833
www.mulleracoustic.com

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