DA ACOUSTIC REPORT

Gertrude Street (182-186), North Gosford

ID: 12382 R01v1

11 October 2022

Prepared For:
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1.0 INTRODUCTION

PKA Acoustic Consulting has been commissioned to provide an acoustic report to assess the traffic noise impact into residential development at 182-186 Gertrude Street, North Gosford. This acoustic report also establishes the noise criteria for future plant and mechanical noise to be installed, and to provide design goals for the internal floors and walls separating sole occupancies within the development to comply with the Building Code of Australia (BCA).

As part of the DA approval process, the Central Coast Council requires an acoustic report to assess the noise impact and to provide recommendations on acoustic performances of building façade elements where required.

2.0 SUMMARY

An acoustic assessment has been conducted in accordance with the acoustic requirements of Central Coast Council and the Department of Planning's "*Developments Near Rail Corridors and Busy Roads-Interim Guidelines*", NSW EPA Noise Policy for Industry 2017, and the Building Code of Australia to assess the traffic noise intrusion, set plant noise goals for the development, and to set noise design goals for internal walls and floors separating soul occupancy units.

Unattended noise measurements were conducted on site to obtain the existing traffic and background noise levels. Based on the measurement results and calculations acoustic rated building façade elements have been recommended.

Providing our recommendations are implemented as detailed in Section 6.0, the proposed development will comply with the acoustic requirements of the Central Coast Council.

3.0 SITE DESCRIPTION

The proposed development is located at 182-186 Gertrude Street, North Gosford. The site is bound by Gertrude Street to the east, and other residential developments on the remaining boundaries.

The site location is shown in the figure below.

Figure 3-1 Site Location

4.0 NOISE CRITERIA

4.1 State Environmental Planning Policy (Infrastructure) 2007

The DCP refers to an outdated standard that is now superseded by the following.

The developments located next to major roads or train lines are generally assessed against the acoustic requirements of Department of Planning document "*Developments near rail corridors and busy roads- Interim Guidelines*". The acoustic requirements support specific rail and road provisions of the State Environmental Planning Policy (Infrastructure SEPP) 2007 which considers residential sites adjacent to roads with AADTs more than 40,000 and may also be applied for best practice for sites with AADTs exceeding 20,000.

The DoP Interim Guidelines provide noise criteria for the buildings near the major roads and rail corridors as presented in Table 4-1.

Table 4-1 Internal Noise Goals from DoP Guidelines / SEPP Clause 102

Internal Space	Time Period	Internal Noise Level – Windows Closed	Measurement Descriptor
Sleeping areas (bedroom)	Night (22:00 - 07:00)	35 dB(A)	$L_{eq(9hr)}$ Night
Other habitable rooms (exc. garages, kitchens, bathrooms & hallways)	Day or Night	40 dB(A)	$L_{eq(15hr)}$ Day or $L_{eq(9hr)}$ Night

Section 3.6.1 of the DoP guidelines sets internal noise criteria for residences with windows closed. It also states that:

> *"if internal noise levels with windows or doors open exceed the criteria by more than 10 dB(A), the design of the ventilation for these rooms should be such that occupants can leave windows closed, if they so desire, and also meet the ventilation requirements of the Building Code of Australia".*

4.2 BCA Sound Insulation Requirements – Class 2 Buildings

The BCA, in Volume 1 Section F5 "Sound Transmission and Insulation" states that walls and floors separating places of occupancy *"must provide insulation against the transmission of airborne and impact generated sound sufficient to prevent illness or loss of amenity to the occupants"*. The following summarises the BCA sound insulation requirements, brevity necessitates detail in the BCA taking precedence over the tables below.

Table 4-2 Walls – Deemed-to-Satisfy Provisions

Wall Description	BCA Reference	Airborne	Impact
Separating sole-occupancy units (SOUs) habitable areas	F5.5(a)(i)	$R_w + C_{tr} \geq 50$	
Separating SOUs wet to habitable areas	F5.5(a)(i) F5.5(a)(iii)	$R_w + C_{tr} \geq 50$	Discontinuous Construction
Separating SOUs with corridor, stairway, lobby or different classification	F5.5(a)(ii)	$R_w \geq 50$	
Separating SOUs with plantroom or lift shaft	F5.5(a)(ii) F5.5(a)(iii)	$R_w \geq 50$	Discontinuous Construction
Separating SOU habitable area with services from another SOU	F5.6(a)(i)	$R_w + C_{tr} \geq 40$	
Separating SOU wet area with services from another SOU	F5.6(a)(ii)	$R_w + C_{tr} \geq 25$	
Doors separating SOU with corridor, stairway, lobby	F5.5(b)	$R_w \geq 30$	

Wall Type	Reference	Discontinuous Construction Requirement
Masonry	F5.3(c)(i)	Wall having a minimum 20mm cavity between the 2 separate leaves, with resilient wall ties if necessary
Other than masonry	F5.3(c)(ii)	Wall having a minimum 20mm cavity with no mechanical linkage except at the periphery

Table 4-3 Floors – Deemed-to-Satisfy Provisions

Floor Description	BCA Reference	Airborne	Impact
Separating sole-occupancy units (SOUs)	F5.4(a)(i)	$R_w + C_{tr} \geq 50$	$L_{n,w} \leq 62$
Separating SOUs with plantroom, lift shaft, corridor, stairway, lobby or different classification	F5.4(a)(ii)	$R_w + C_{tr} \geq 50$	$L_{n,w} \leq 62$
Separating SOU habitable area with services from another SOU	F5.6(a)(i)	$R_w + C_{tr} \geq 40$	
Separating SOU wet area with services from another SOU	F5.6(a)(ii)	$R_w + C_{tr} \geq 25$	

Table 4-4 Walls – Verification Methods

Wall Description	BCA Reference	Airborne
Separating sole-occupancy units (SOUs)	FV5.2(a)	$D_{nT,w} + C_{tr} \geq 45$
Separating SOUs with plantroom, lift shaft, corridor, stairway, lobby or different classification	FV5.2(b)	$D_{nT,w} \geq 45$
Doors separating SOUs with corridor, stairway, lobby	FV5.2(c)	$D_{nT,w} \geq 25$

Table 4-5 Floors – Verification Methods

Floor Description	BCA Reference	Airborne	Impact
Separating sole-occupancy units (SOUs)	FV5.1(a) FV5.1(b)	$D_{nT,w} + C_{tr} \geq 45$	$L_{nT,w} \leq 62$

Other BCA Acoustic Issues

The builder must also ensure that the project complies with following BCA acoustic requirements:

Chasing of Masonry Elements

The BCA specifically precludes chasing of services into concrete or masonry elements. (Clause 2. (e)(i)).

Fixing of Water Supply Pipework

Note Clause 2. (iii) (A) and (B).

A water supply pipe must:

(A) Only be installed in the cavity of discontinuous construction; and

(B) In the case of a pipe that serves only one sole occupancy unit, not be fixed to the wall leaf on the side adjoining any other sole-occupancy unit and have a clearance not less than 10mm to the other wall leaf.

(i.e. the cavity must not be bridged by any pipework)

Electrical Outlets

The BCA requires that any electrical outlets must be offset from each other:

(A) in masonry walling, not less than 100mm; and

(B) in timber or steel framed walling, not less than 300mm

Ducts

Ducts serving or passing through more than one SOU per F5.6(a) must be separated from another SOU by masonry or plasterboard construction having a minimum $R_w + C_{tr}$ of 40 for habitable rooms and $R_w + C_{tr}$ of 25 for non-habitable rooms.

4.3 EPA NSW Interim Construction Noise Guidelines (ICNG)

The *NSW EPA Interim Construction Noise Guideline* (ICNG) is used for the assessment. The document aims at managing noise from construction works regulated by the EPA. Details of noise limits are presented in the following Table 4-6.

Table 4-6 Noise Levels Residential Receivers (Extract from EPA ICNG)

Time of day	Management level $L_{Aeq(15\ min)}$	Application
Recommended standard hours: Monday to Friday 7 am to 6 pm	Noise affected RBL + 10 dB	The noise affected level represents the point above which there may be some community reaction to noise. Where the predicted or measured $L_{Aeq\text{-}(15\ min)}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details. *(Continued on next page)*
Saturday 8 am to 1 pm No work on Sundays or public holidays	Highly noise affected 75 dB	The highly noise affected level represents the point above which there may be strong community reaction to noise. Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	Noise affected RBL + 5 dB	A strong justification would typically be required for works outside the recommended standard hours. The proponent should apply all feasible and reasonable work practices to meet the noise affected level. Where all feasible and reasonable practices have been applied and noise is more than 5 dB above the noise affected level, the proponent should negotiate with the community.

4.4 Construction Vibration Criteria

As demolition and excavation are proposed, there is the potential for vibration impact on the neighbouring buildings' amenity and on structures. The EPA ICNG states that human comfort (amenity) vibration is to be measured and assessed in accordance with *Assessing Vibration – a technical guideline* (DECC 2006).

In general, structural damage due to vibration can be of concern when hammering, blasting, vibration rolling, crushing, piling and other vibration inducing construction works are carried out.

The EPA ICNG does not have specific structural vibration damage criteria however the RTA Environmental Noise Management Manual (2001) recommends the use of the following Standards:

- British Standard BS 7385: Part 2: Evaluation and Measurement for Vibrations in Buildings – Part 2 Guide to Damage Levels from Ground-Borne Vibration
- AS 2187.2 Explosives-Storage, transport and use, Part 2: Use of Explosives
- German Standard DIN 4150, Part 3: Structural Vibration in Buildings: Effects on Structures

5.0 NOISE SURVEY AND PROJECT NOISE GOALS

Unattended noise monitoring was conducted on site between 28th September to 4th October 2022 to record the existing traffic noise levels.

The noise monitor was programmed to store the L_n percentile noise levels for each 15-minute sampling period. Measurements were made of L_{min}, L_{max}, L_{90}, and L_{eq} and were later retrieved for analysis.

The position of the noise monitor is shown in Figure 3-1. The results and summary of the noise monitoring are listed in graphical form in Appendix B of this report.

5.1 Instrumentation

Noise measurements were conducted using the following equipment:

- Sound analyser NTi XL2 Type Approved, Serial No. A2A-15268-E0.
- Sound calibrator Larson Davis Calibrator CAL200, Serial number 11419.

The instruments were calibrated before and after the noise measurements and there were no adverse deviations between the two. The analysers are type 1 and comply with AS IEC 61672.2-2004. The instruments carry traceable calibration certificates.

5.2 Project Noise Criteria

Data from the noise monitors were processed to obtain the existing traffic noise levels and noise goals.

5.2.1 Plant Noise Goals

The following table presents the noise goals for the development based on the background noise levels measured and based on the NSW EPA Noise Policy for Industry.

Table 5-1 Plant Noise Goals – Air Condenser Noise Goals at Residential Boundary

All The table below presents the results of the noise monitor measurements. The noise criteria defined in the *Noise Policy for Industry* (NPfI) is listed below. The assessment periods are defined by the NSW NPfI are Daytime: 7 am to 6 pm, Evening: 6 pm to 10 pm and Night: 10 pm to 7 am.

All values in dB(A)

Receiver Type	Period	Measured RBL ($L_{A90\text{-}period}$)	Acceptable Noise Levels ($L_{Aeq\text{-}period}$)	NSW Noise Policy for Industry Criteria		Project Noise Trigger Levels $L_{Aeq15min}$
				Amenity $L_{Aeq15min}$	Intrusiveness $L_{Aeq15min}$	
Residential (Sub-urban)	Day	42	55	53	47	**47**
	Evening	40	45	43	45	**43**
	Night	36	40	38	41	**38**

The table below presents the traffic noise levels at the ground floor of the rear residential setback (towards Hills Street/Mann Street). The values presented below were corrected for façade reflection and distance loss and shielding to the various parts of the proposed building.

Table 5-2 Traffic Noise Levels Measurements and Noise Reduction Required

Period	Measured Traffic Noise Level at proposed setback	Internal Noise Goal – Windows Closed	Internal Location	Traffic Noise Reduction Required
Night (2200 - 0700) $L_{eq\ 9hr}$	50 dB(A)	35 dB(A)	Sleeping areas (bedroom)	15 dB(A)
Day (0700 - 2200) $L_{eq\ 15hr}$	52 dB(A)	40 dB(A)	Other habitable rooms (exc. garages, kitchens, bathrooms & hallways)	12 dB(A)

5.2.2 Construction Noise Goals

Assuming the construction is proposed during normal daytime working hours 7am to 6 pm, the noise criteria are presented in the following table.

Table 5-3 EPA NSW Interim Construction Noise Guidelines Criteria for Site

Receivers	Daytime Background, dB(A)	Noise affected level (Criterion), dB(A)
Residential	42 dB(A)	52 dB(A)

The "Highly Noise Affected" criterion has a set level of 75 dB(A).

6.0 RECOMMENDATIONS

Calculations have been carried out to specify the building façade elements. The acoustic requirements are given below.

All recommendations must be checked by respective assessing representatives to ensure compliance with other non-acoustic requirements.

1. The acoustic systems shown in the descriptions is one that satisfies the acoustic requirements only. No representation is given that it is fit for any other purpose. The construction must be checked and designed by others to verify that it complies with all necessary fire rating, structural, waterproofing, durability and any other non-acoustic requirements.
2. Any additional construction or fixtures must be acoustically detailed to seal to the room and ceiling construction without degrading the sound insulation rating (R_w) required in either instance.

6.1 Traffic Noise Intrusion

6.1.1 External Walls

The calculations show that the any upgrades to the façade directly facing the road must be done to have a minimum Weighted Sound Reduction index of R_w 40. The required minimum R_w rating can be readily met by the standard Brick Cavity or Brick Veneer. Where light-weight construction is proposed, this can be readily met by standard construction that comprise of an external cladding and internal lining with insulation.

6.1.2 Roof

The calculations show that any upgrades to the roof should have a minimum performance of Rw 40. This can be achieved by standard construction that satisfy typical BASIX requirements. All penetrations must be sealed appropriately to ensure that there are no airgaps as per the following eaves details.

6.1.3 Windows/Doors

Based on the measurements conducted, the noise impact from the traffic activity when averaged over the day and night (as per the standard) is minimal and no additional acoustic detailing is required to meet the council's acoustic requirements. Standard construction can be used.

Note: The reason for the compliance with standard construction is due to the nature of the assessment which assesses the noise average over 15 hours during the day and 9 hours during the night. However, individual vehicle passbys will still be audible and maybe subjectively considered intrusive depending on the sensitivity of the occupant in the proposed premises.

For this reason, though it is not a requirement, it is advisable to install a minimum 6 mm laminated glazing and acoustic sealed frames to the façade directly facing the train line to improve acoustic comfort of the proposed premises. This however is at the client's discretion and not a mandatory recommendation.

6.2 Requirements

All walls and floors separating sole occupancy units must comply with the construction ratings listed in Section 4.2 of this report.

6.3 Mechanical Noise Mitigation

The selection and placement of any outdoor mechanical equipment such as condenser units, exhausts serving car parks and toilets, roller doors for access etc. must be designed to acoustically comply with the criteria established in Table 5-1 of this report. This must be checked by an acoustic consultant and the appreciate criteria must be selected depending on the location of the equipment and the positioning of the residential receiver's boundary from the main road (to check if shielded from traffic noise).

6.4 Construction Noise & Vibration

If the preparation of a Construction Noise & Vibration Management Plan is required by the certifying authority, the noise criteria established in Sections 4.3, 4.4 and 5.2.2 must be considered.

APPENDIX A DRAWINGS USED TO PREPARE REPORT

This report was prepared using drawings provided by Texco Design, project no. 2201

No.	Rev.	Title	Date
001	-	Cover Page	-
002	03	Development Statistics	10/10/2022
004	02	Site Analysis	10/10/2022
005	04	Site Plan	10/10/2022
006	06	GFA Calculation	10/10/2022
007	04	Landscape & Deep Soil Calculation	10/10/2022
008	03	Common Open Space Calculation	10/10/2022
009	02	Demolition Plan	10/10/2022
010	05	Shadow Diagram	10/10/2022
011	04	Cross Ventilation Diagram	10/10/2022
012	04	Solar Access Diagram	10/10/2022
013	04	Sun Eye Diagram - Existing Neighbour	10/10/2022
014	04	Sun Eye Diagram - Existing & Future	10/10/2022
015	04	Streetscape Analysis	10/10/2022
016	01	Storage Diagram	10/10/2022
017	01	Unit Schedule	10/10/2022
018	05	Height Blanket	10/10/2022
101	04	Basement 02 Plan	10/10/2022
102	06	Basement 01 Plan	10/10/2022
103	06	Ground Floor Plan	10/10/2022
104	06	Level 01 Floor Plan	10/10/2022
105	06	Level 02 Floor Plan	10/10/2022
106	06	Level 03 Floor Plan	10/10/2022
107	06	Level 04 Floor Plan	10/10/2022
108	06	Level 05 Floor Plan	10/10/2022
109	06	Level 06 Floor Plan	10/10/2022
110	06	Level 07 Floor Plan	10/10/2022
111	05	Roof Plan	10/10/2022
201	05	North Elevation	10/10/2022
202	05	East Elevation	10/10/2022
203	05	South Elevation	10/10/2022
204	05	West Elevation	10/10/2022

No.	Rev.	Title	Date
301	05	Section Aa	10/10/2022
302	06	Section Bb	10/10/2022
401	01	North Elevation	10/10/2022
402	01	East Elevation	10/10/2022
403	01	South Elevation	10/10/2022
404	01	West Elevation	10/10/2022
411	01	Window Schedule	10/10/2022
412	01	Door Schedule	10/10/2022
501	01	Pre And Post Adaptable Unit Details	10/10/2022
511	03	Rollout-Ramp Section	10/10/2022

APPENDIX B NOISE MEASUREMENTS (GRAPHICAL)

12382 Gertrude Street (182-186), North Gosfo

PKA Acoustic Consulting

Project Address: 182-186 Gertrude Street, North Gosford

Logger Location: At Rear Property Boundary Existing Background Noise Levels

		Background Noise Levels L_{A90} dB						Existing Noise Levels L_{Aeq} dB						
		Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00		Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00		Sunday or Public Holiday?
		Measured	Corrected	Measured	Corrected	Measured	Corrected	Measured	Corrected	Measured	Corrected	Measured	Corrected	
Monday	26/09/2022			36.7	36.7	32.2	32.2			47.0	47.0	49.4	49.4	
Tuesday	27/09/2022	41.2	41.2	38.0	38.0	33.9	33.9	52.4	52.4	46.8	46.8	50.1	**47.1**	
Wednesday	28/09/2022	42.7	42.7	41.3	41.3	35.5	35.5	50.7	50.7	53.4	53.4	49.1	49.1	
Thursday	29/09/2022	48.7	48.7	46.6	46.4	40.6	40.1	53.8	53.8	54.3	52.6	54.7	**49.3**	
Friday	30/09/2022	49.3	48.7	42.3	42.3	35.7	35.7	57.0	55.5	52.6	52.6	46.6	46.6	
Saturday	1/10/2022	42.1	42.1	40.0	40.0	35.8	35.8	50.0	50.0	48.2	48.2	48.9	48.7	
Sunday	2/10/2022	40.9	40.9	40.2	40.2	35.8	35.8	48.5	48.5	45.4	45.4	47.1	47.1	Y
Monday	3/10/2022	38.5	38.5	34.1	34.1	30.7	30.7	49.1	49.1	53.2	53.2	47.6	47.6	Y
Tuesday	4/10/2022													
Rating Background Level (RBL)		**42**	**42**	**40**	**40**	**36**	**36**	**Average Noise Level (L_{Aeq})**		**53**	**52**	**51**	**51**	**50**	**48**	

12382 Gertrude Street (182-186), North Gosford

Project Address: 182-186 Gertrude Street, North Gosford

Logger Location: At Rear Property Boundary Existing Background Noise Levels

		Existing Noise Levels dB							
		Leq 15hr 07:00 - 22:00 7:00 22:00 Leq		Leq 9hr 22:00 - 07:00 22:00 7:00 Leq		L10 18hr 07:00 - 00:00 7:00 0:00 L10	Day Leq 1hr 07:00 - 22:00 7:00 22:00 Leq 1hr	Night Leq 1hr 22:00 - 07:00 22:00 7:00 Leq 1hr	Sunday or Public Holiday?
Descriptor		Measured	Corrected	Measured	Corrected	Measured	Measured	Measured	
Monday	26/09/2022			49.4	49.4	49.2		54.5	
Tuesday	27/09/2022	51.5	51.5	50.1	**47.1**	55.9	53.7	52.7	
Wednesday	28/09/2022	51.6	51.6	49.1	49.1	55.0	54.4	53.1	
Thursday	29/09/2022	53.9	53.6	54.7	**49.3**	57.8	55.1	49.2	
Friday	30/09/2022	56.2	54.7	46.6	46.6	62.9	57.0	50.6	
Saturday	1/10/2022	49.6	49.6	48.9	48.7	53.5	51.4	51.4	
Sunday	2/10/2022	47.9	47.9	47.0	47.0	49.7	50.0	50.9	Y
Monday	3/10/2022	50.3	50.3	47.0	47.0	53.1	51.4	52.1	Y
Tuesday	4/10/2022					52.8			
Average Noise Level		**52**	**52**	**50**	**48**	**57**	**54**	**52**	

12382 Gertrude Street (182-186), North Gosford

PKA Acoustic Consulting

Project Address: 182-186 Gertrude Street, North Gosford

Logger Location: At Rear Property Boundary Existing Background Noise Levels

BOM weather data: Gosford IDN60901

	Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB			47.0	47.0	49.4	49.4
L_{A90} dB			36.7	36.7	32.2	32.2

26/09/2022 Monday

Existing Ambient Noise Levels (dBA)

12382 Gertrude Street (182-186), North Gosford

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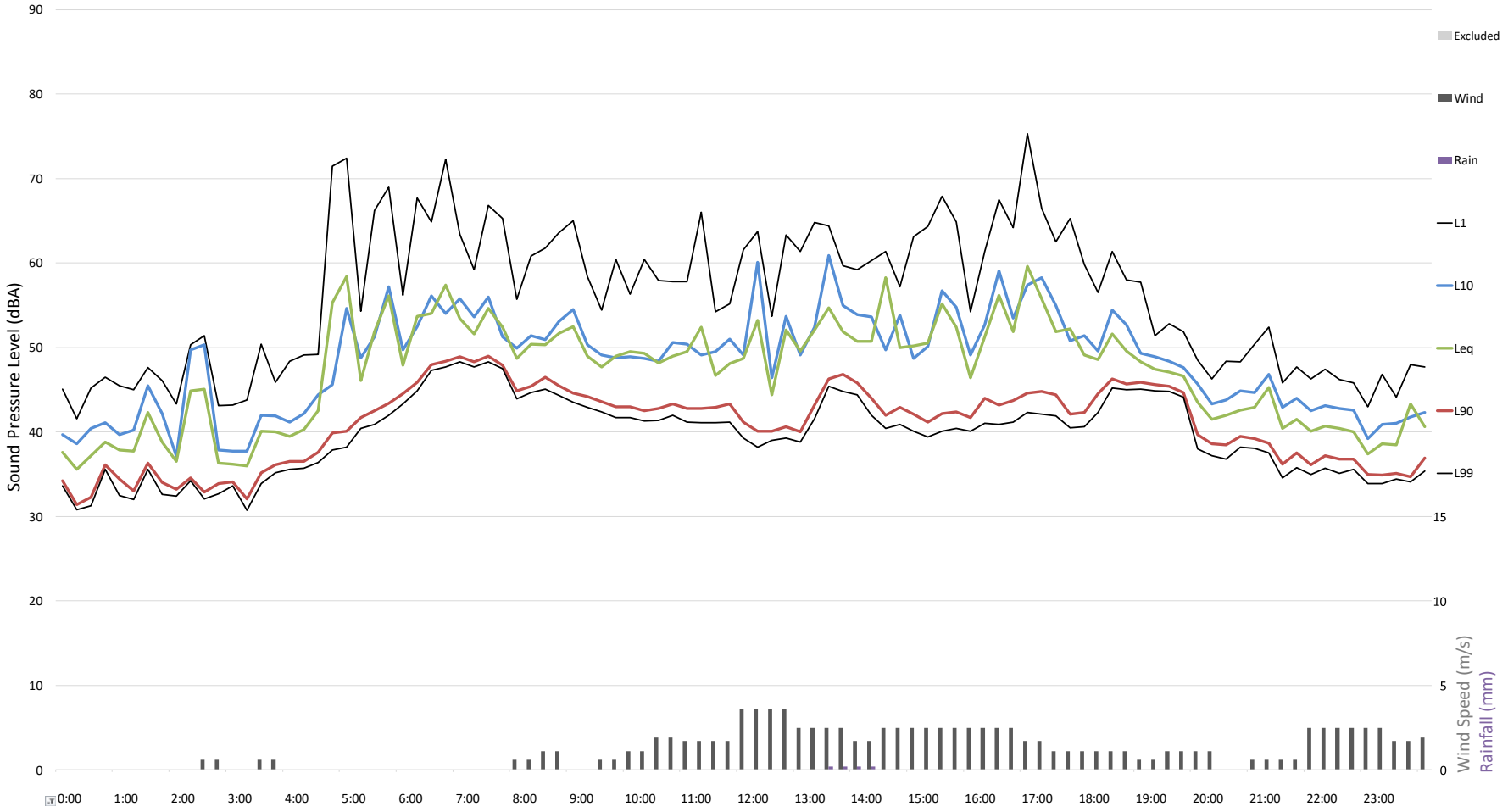
Logger Location: At Rear Property Boundary Existing Background Noise Levels

BOM weather data: Gosford IDN60901

	Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB	52.4	52.4	46.8	46.8	50.1	**47.1**
L_{A90} dB	41.2	41.2	38.0	38.0	33.9	33.9

27/09/2022 Tuesday

Existing Ambient Noise Levels (dBA)



12382 Gertrude Street (182-186), North Gosford

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Project Address: 182-186 Gertrude Street, North Gosford

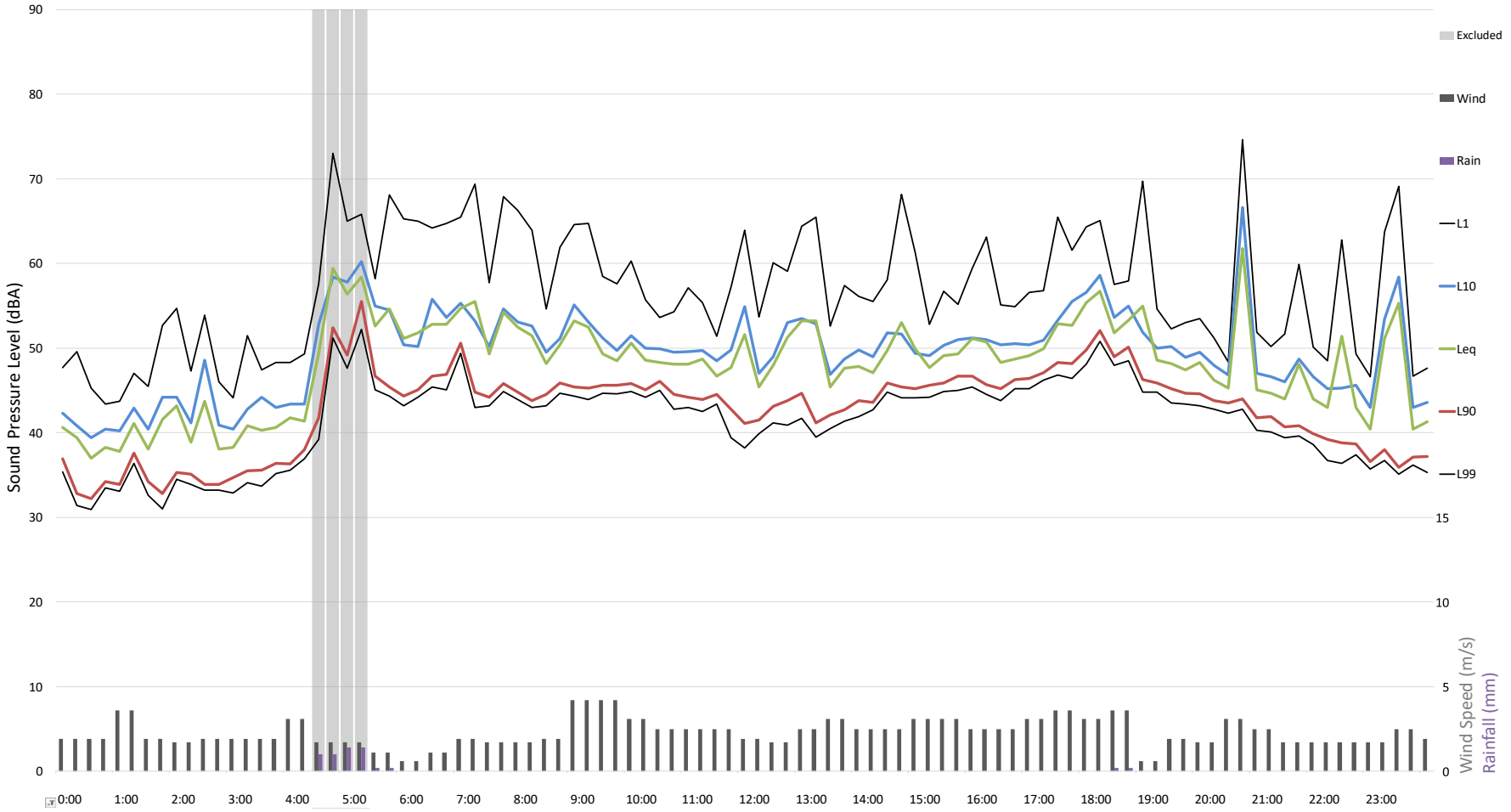
Logger Location: At Rear Property Boundary Existing Background Noise Levels

BOM weather data: Gosford IDN60901

	Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB	50.7	50.7	53.4	53.4	49.1	49.1
L_{A90} dB	42.7	42.7	41.3	41.3	35.5	35.5

28/09/2022 Wednesday

Existing Ambient Noise Levels (dBA)



12382 Gertrude Street (182-186), North Gosford

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Project Address: 182-186 Gertrude Street, North Gosford

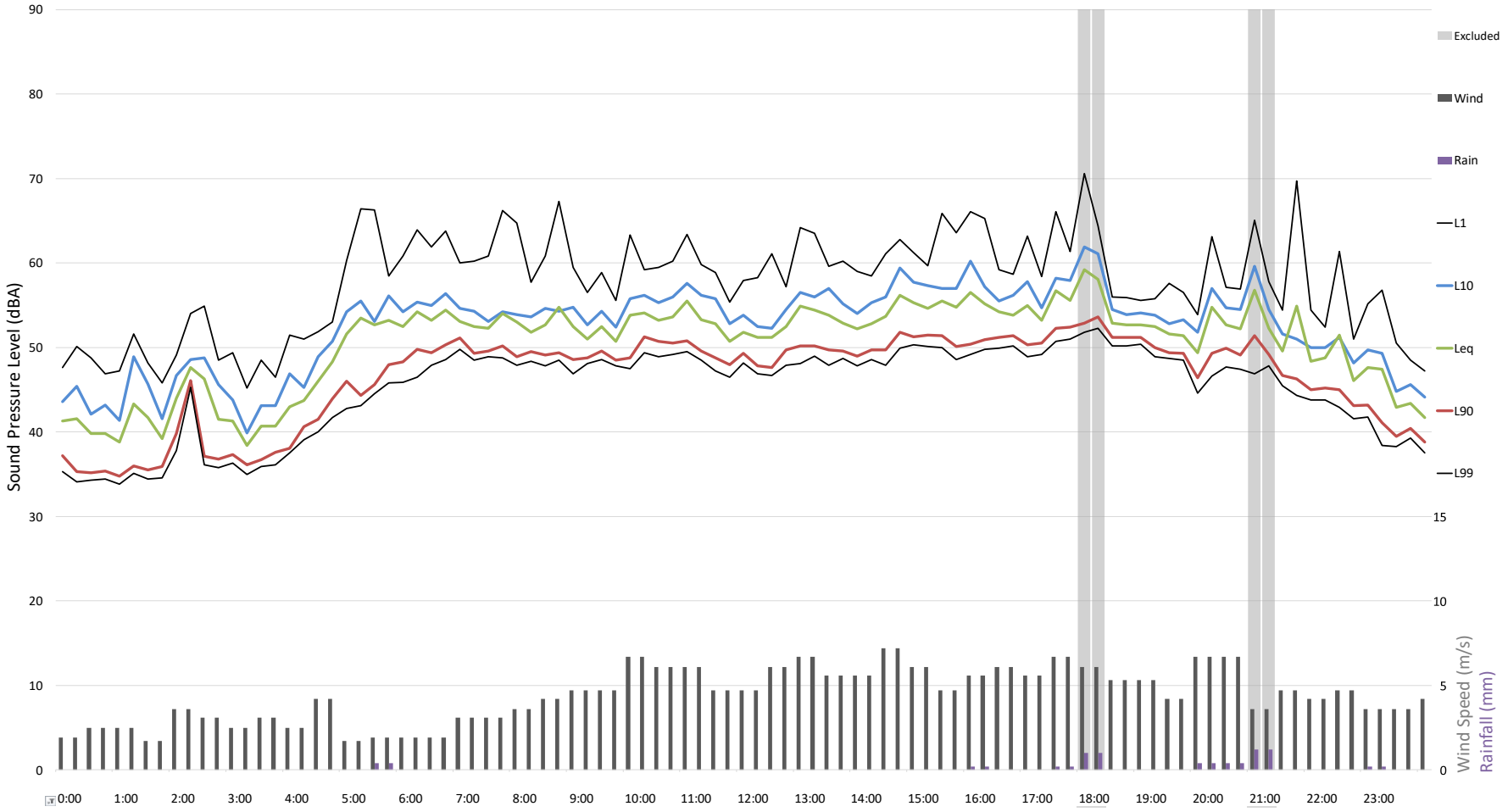
Logger Location: At Rear Property Boundary Existing Background Noise Levels

BOM weather data: Gosford IDN60901

	Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB	53.8	53.8	54.3	52.6	54.7	**49.3**
L_{A90} dB	48.7	48.7	46.6	46.4	40.6	40.1

29/09/2022 Thursday

Existing Ambient Noise Levels (dBA)



12382 Gertrude Street (182-186), North Gosford

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Project Address: 182-186 Gertrude Street, North Gosford

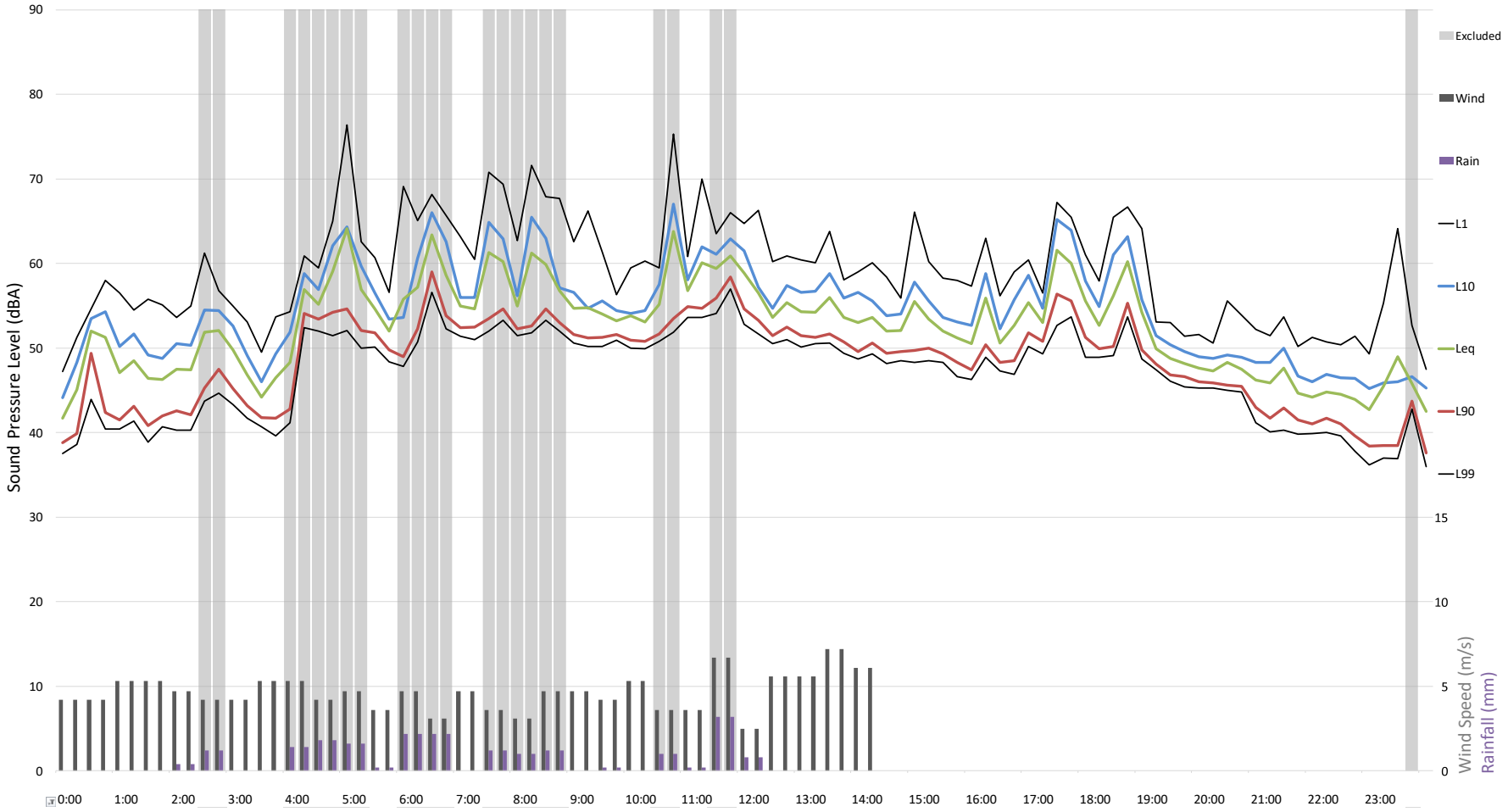
Logger Location: At Rear Property Boundary Existing Background Noise Levels

BOM weather data: Gosford IDN60901

	Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB	57.0	55.5	52.6	52.6	46.6	46.6
L_{A90} dB	49.3	48.7	42.3	42.3	35.7	35.7

30/09/2022 Friday

Existing Ambient Noise Levels (dBA)



12382 Gertrude Street (182-186), North Gosford

PKA Acoustic Consulting

Project Address: 182-186 Gertrude Street, North Gosford

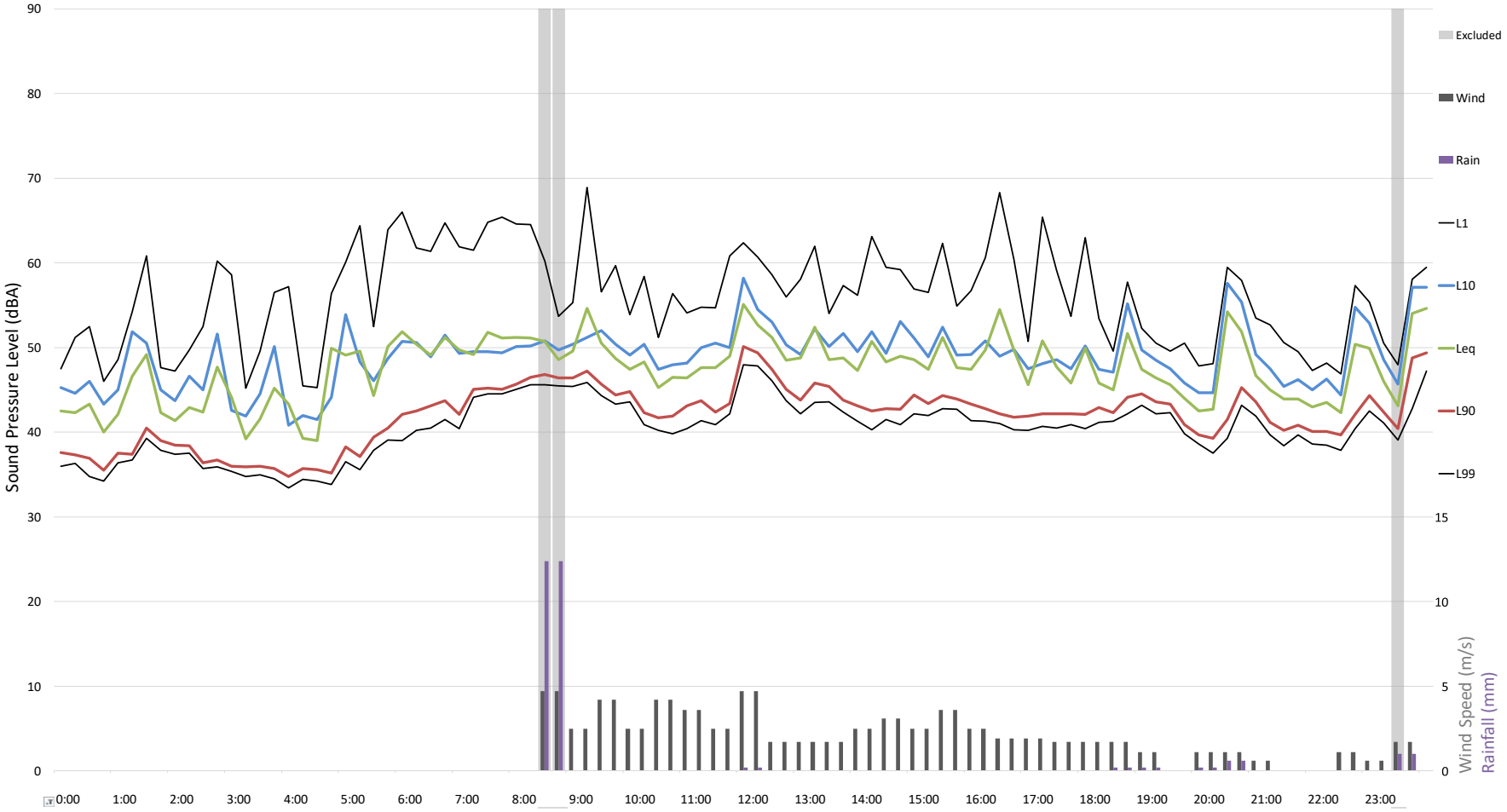
Logger Location: At Rear Property Boundary Existing Background Noise Levels

BOM weather data: Gosford IDN60901

	Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB	50.0	50.0	48.2	48.2	48.9	48.7
L_{A90} dB	42.1	42.1	40.0	40.0	35.8	35.8

1/10/2022 Saturday

Existing Ambient Noise Levels (dBA)



12382 Gertrude Street (182-186), North Gosford

Project Address: 182-186 Gertrude Street, North Gosford

Logger Location: At Rear Property Boundary Existing Background Noise Levels

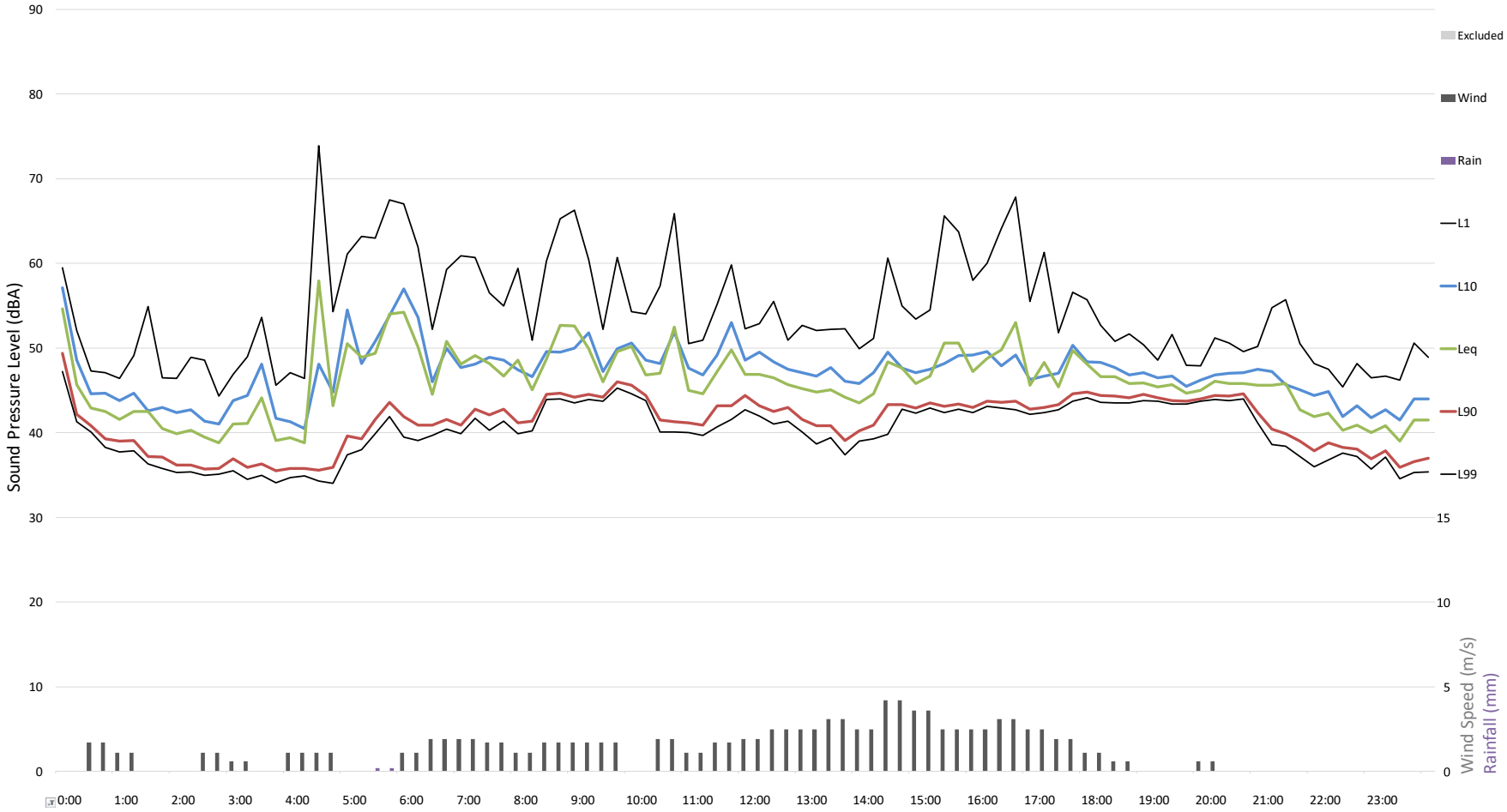
BOM weather data: Gosford IDN60901

PKA Acoustic Consulting

	Daytime 08:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 08:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB	48.5	48.5	45.4	45.4	47.1	47.1
L_{A90} dB	40.9	40.9	40.2	40.2	35.8	35.8

2/10/2022 Sunday

Existing Ambient Noise Levels (dBA)



12382 Gertrude Street (182-186), North Gosford

Project Address: 182-186 Gertrude Street, North Gosford

Logger Location: At Rear Property Boundary Existing Background Noise Levels

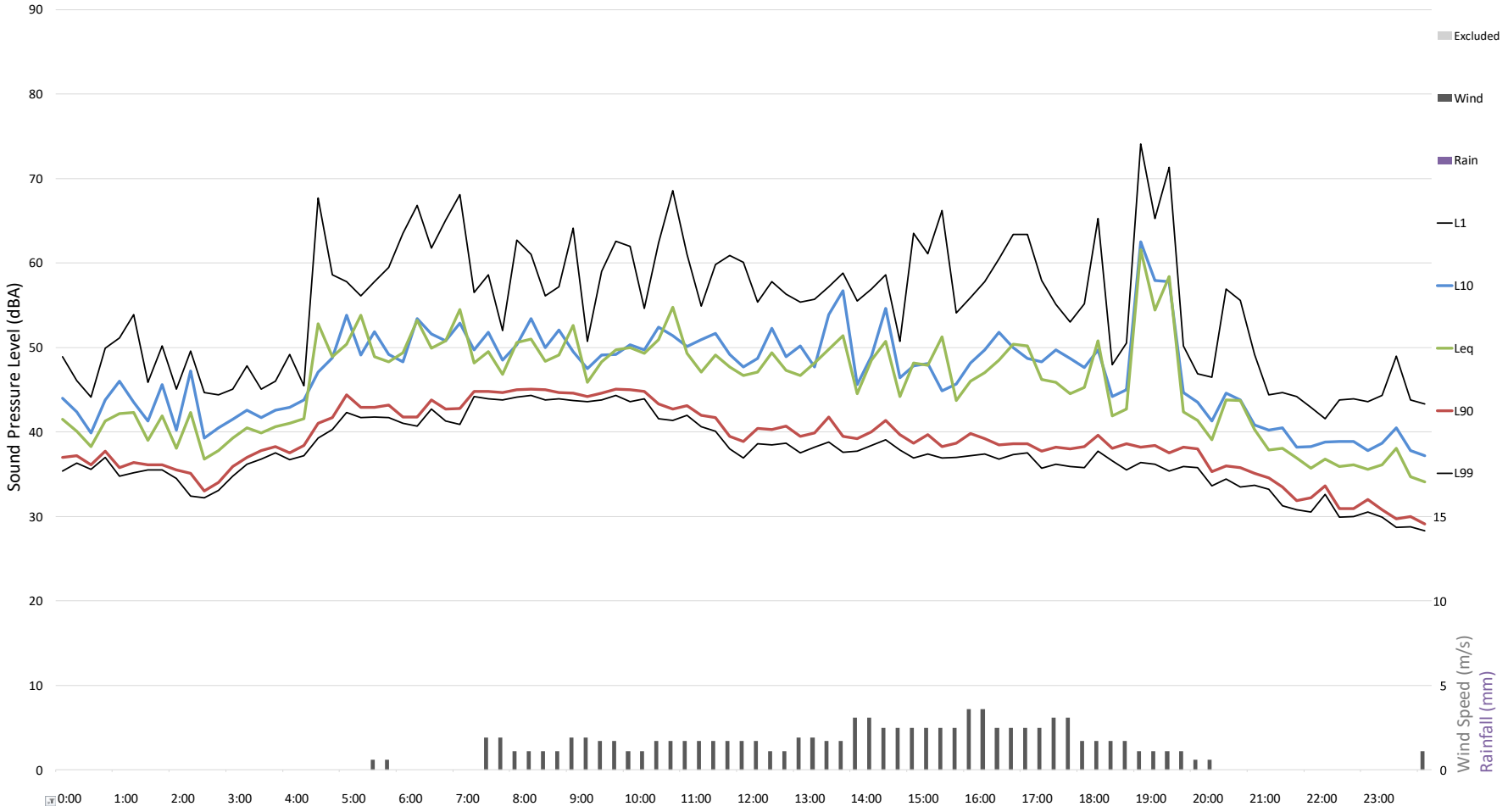
BOM weather data: Gosford IDN60901

PKA Acoustic Consulting

	Daytime 08:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 08:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB	49.1	49.1	53.2	53.2	47.6	47.6
L_{A90} dB	38.5	38.5	34.1	34.1	30.7	30.7

3/10/2022 Monday

Existing Ambient Noise Levels (dBA)



12382 Gertrude Street (182-186), North Gosford

Project Address: 182-186 Gertrude Street, North Gosford

Logger Location: At Rear Property Boundary Existing Background Noise Levels

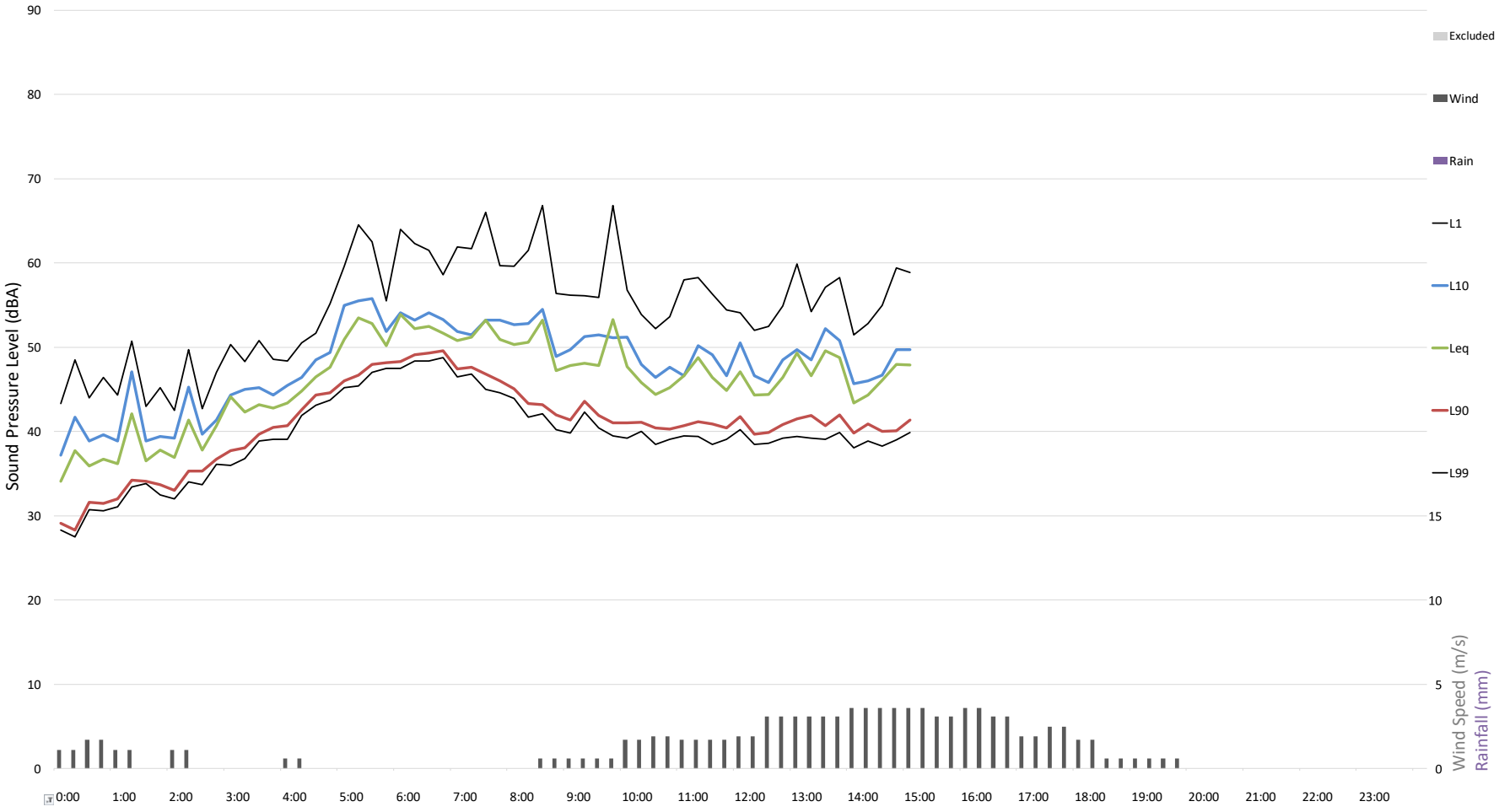
BOM weather data: Gosford IDN60901

PKA Acoustic Consulting

	Daytime 07:00 - 18:00		Evening 18:00 - 22:00		Nighttime 22:00 - 07:00	
	Measured	Corrected	Measured	Corrected	Measured	Corrected
L_{Aeq} dB						
L_{A90} dB						

4/10/2022 Tuesday

Existing Ambient Noise Levels (dBA)



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