



## Memo

**To:** Matt Clifton  
**From:** Reymar Victoria, Marina Apfel (WSP)  
**Subject:** InSitu Manly – Acoustic Impact Assessment (Rev01)  
**Our ref:** PS131027-101  
**Date:** 24 March 2023

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WSP Australia Pty Ltd (WSP) has been engaged to undertake an acoustic impact assessment of the proposed alterations and additions to the outdoor courtyard of InSitu Restaurant and Bar at 18 Sydney Road, Manly (the Project).

This noise emission assessment addresses acoustic requirements from the Notice of Determination (ref: 230617 DA684/99 S96(2) P7 & P8 CD:LP:LW, dated 15 June 2017) for patron and music noise emissions from the courtyard as outlined in Section 3.

This revision of the report has been updated to also addresses the comments made to the by Northern Beaches Council in the Development Application Assessment Report DA2023/0368 in Section 2.

### 1. Northern Beaches Council Comments

The Development Application Assessment Report DA2023/0368 provided by Northern Beaches Council includes the following comment in regard to the WSP Acoustic Report (Rev 0, dated 16/2023) which have been addressed in this updated revision of the report.

- *Consideration needs to be given to the potential noise impacts from additional sources such as*
    - *Patrons from inside the premises using the internal corridor and going through the courtyard to the communal sanitary facilities.*
- WSP: We have updated the model to add 3 ‘internal’ patrons in the courtyard to allow for noise contribution from groups of people talking during the transit time through the courtyard to the sanitary facilities. Note that patrons travelling to the toilet by themselves are not expected to contribute any significant noise. Any noise generated inside the sanitary facilities is expected to be contained within the building façade and not contribute noticeably to the noise emissions. Please refer to Section 4 for the updates.
- *The possibility of these ‘inside’ patrons using the outdoor server area*
  - *The possibility of the inside patrons standing and congregating in the courtyard at the server area creating more people noise.*

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WSP acknowledges that every project we work on takes place on First Peoples lands. We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

WSP: We understand that orders will be taken at the tables, the outdoor servery is only used to prepare drinks and orders will not be taken at the outdoor servery. Noise impacts from 'inside' patrons using the outdoor servery area have therefore not been included in this acoustic noise emission assessment.

- *The addition of serving staff in the outdoor area (servery area, wash up, table service)*

WSP: We understand that 2 staff will generally be designated to the courtyard and up to 3-4 staff are expected to work in the courtyard at the same time during peak times (including for store room access). To address additional noise from staff in the courtyard we have updated the model to add 2-4 staff to the patron numbers in the courtyard based on the capacity levels (Table 4.2. Please refer to Section 4 for the updates.

Noise from equipment installed in the servery such as a fridge and dishwasher has been assumed to be contained within the enclosed building structure and therefore not contribute to the noise emissions as noted in Section 4.1.

- *Noise after 10:00pm due to staff cleaning the courtyard area*

WSP: We understand that noisy cleaning activities in the courtyard will be done either prior to 10:00pm or the following day prior to the venue opening. Noise impacts after 10:00pm have therefore not been included in this acoustic noise emission assessment.

- *Concern is that the noise report and the recommended conditions fails to take into account the following:*
  - *the different number of seats in the original plans (108 seats) and the amended concept plan (104 seats); and*
  - *factoring in the existing number of seats within the restaurant, which would take the full patronage of the restaurant well beyond 100, to potentially 174.*

WSP: This assessment for the courtyard application is based on maximum 100 patrons in the courtyard (plus up to 4 staff and up to 3 'internal' patrons).

We understand no changes are proposed to the number of occupants in the internal restaurant area of up to 100. The rear building façade to the courtyard is a concrete construction with an access doors. This acoustic assessment for the outdoor courtyard includes expected contributions from internal patron and music noise breaking out to the courtyard via the rear door. Please refer to Section 4.1.

## 2. Project description

We understand the existing outdoor courtyard is currently shared by 4 commercial tenancies, including InSitu, and has an estimated shared capacity of 106 patrons.

InSitu is applying for usage of the whole courtyard at times when other restaurant are not using the courtyard and it is proposed to accommodate up to 100 patrons in the courtyard with the addition of an outdoor servery and a small storage building.

No changes are proposed to the internal operation and the number of occupants in the internal restaurant area of up to 100.

We understand current operating times of the outdoor area are limited from 8:00am to 10:00pm – 7 days a week as per the Notice of Determination by Northern Beaches Council (ref: 230617 DA684/99 S96(2) P7 & P8 CD:LP:LW, dated 15 June 2017). It is understood that no changes to the operating hours of the outdoor courtyard are proposed.

## 2.1 Existing noise environment

The criteria for assessing noise impacts from licensed premises are established based on the existing noise environment in the area. The prevailing background noise levels surrounding the site were determined from an unattended noise survey conducted in general accordance with the NSW *Noise Policy for Industry* 2017 (NPfI) and Australian Standard 1055:2018 *Acoustics – Description and Measurement of Environmental Noise*.

The noise survey was conducted from 29 March 2022 to 07 April 2022. The noise monitoring location was located within the proposed Project site and is shown in Figure 2.1.

During the survey, the weather was recorded from the Sydney Observatory Hill weather station 66214. In accordance with the NPfI, any noise monitoring results during adverse weather conditions have been excluded from the dataset. Adverse weather conditions are defined in the NPfI as periods with:

- Wind speeds higher than 5 m/s; and/or,
- Any rain in the 15-minute period.

Weather observations from Sydney Observatory Hill weather station 66214 indicated some periods of adverse weather impacts during the monitoring period. The periods where data has been excluded due to weather conditions are shown in the noise logging graphs presented in Appendix A.

The nearest most potentially affected receivers are the following residential receivers which are also shown in Figure 2.1:

- R1: residential tenancies located above InSitu bar on Level 02 (22-24 Sydney Road, Manly), and
- R2: 8-storey apartment building approximately 10m across the courtyard (3-7 Central Ave, Manly).

Both receivers R1 and R2 have direct line of sight to the outdoor courtyard. For both of these receivers, the existing background noise levels are affected by the existing water feature located on the residential side of the courtyard.



Figure 2.1 Site location and nearby noise sensitive receivers

The results of the noise survey were summarised and the representative background noise levels for the time periods relevant to the proposed hours of operation are shown in Table 2.1 below.

Table 2.1 Representative background noise levels

Period	Background noise level L <sub>90</sub> (dB)									Overall L <sub>90</sub> (dBA)
	Octave band frequency (Hz)									
	31.5	63	125	250	500	1k	2k	4k	8k	
8:00am to 6:00pm <sup>1</sup>	51	54	58	54	51	51	50	46	42	56
6:00pm to 10:00pm <sup>2</sup>	50	54	56	54	51	52	50	48	44	57

**1.** Operating time during NPfI daytime period. The NPfI daytime period is defined as 7:00am to 6:00pm Monday to Saturday, 8:00am to 6:00pm Sundays and public holidays.

**2.** Operating time during the NPfI evening time period. The NPfI evening time period is defined as 6:00pm to 10:00pm all days.

### 3. Noise criteria

#### 3.1 Conditions of Consent

Northern Beaches Council, through the Notice of Determination (ref: 230617 DA684/99 S96(2) P7 & P8 CD:LP:LW, dated 15 June 2017), has stipulated the following Conditions of Consent relevant for noise control:

— ANS04:

*All music and amplified sound whether live or recorded must be controlled by a noise limiter. The limiter shall be set by an acoustic expert so that noise emissions comply with the noise criteria specified in condition ANS01<sup>[1]</sup>. Certification must be submitted to Council twenty-eight (28) days from issuing the Occupation Certificate, certifying the limiter has been installed in accordance with condition ANS01<sup>[1]</sup>.*

➤ Comments:

- Please refer to the nominated indoor and outdoor music noise limits outlined in Section 4.1 during courtyard operation operating hours from 8:00am to 10:00pm.
- Note that this acoustic assessment for the outdoor courtyard includes contribution from internal patron and music noise breaking out to the courtyard during courtyard operating hours from 8:00am to 10:00pm as described in Section 4.1.

— ANS05:

*The premises shall comply with the following:*

*(a) The  $L_{A10}$ \* noise level emitted from the premises shall not exceed the background noise level ( $LA_{90}$ ) in any Octave Band Centre Frequency (31.5Hz-8kHz inclusive) by more than 5dB between 7:00am and 12 midnight at the boundary of any affected residence*

➤ Comments:

- Applicable criteria that have been developed based on ANS05 and the measured background noise levels are outlined in Table 3.1.
- WSP notes that this “background + 5dB” criteria for noise impacts from 7am until 12 midnight is in line with the requirements from the Manly Development Control Plan 2013 and the standard Office of Liquor, Gaming and Racing regulations (OLGR) noise criteria.

*(b) The  $L_{A10}$ \* noise level emitted from the premises shall not exceed the background noise level ( $LA_{90}$ ) in any Octave Band Centre Frequency (31.5Hz-8kHz inclusive) between 12 midnight and 7:00am at the boundary of any affected residence*

➤ Comments:

- Criteria are not applicable for the proposed courtyard operation between 8am and 10pm and ANS05 b) has therefore not been addressed in this report.

*(c) Notwithstanding compliance with the above, the noise from the premises shall not be audible within any habitable room in any residential premises between the hours of 12 midnight and 7:00am*

<sup>1</sup> We have assumed this refers to the noise criteria outlined in ANS05.

➤ Comments:

- Criteria are not applicable for the proposed courtyard operation between 8am and 10pm and ANS05 c) has therefore not been addressed in this report.

*(d) The  $LA_{10}$  noise level emitted from the premises shall not exceed the background noise level ( $LA_{90}$ ) in any Octave Band Centre Frequency (31.5Hz-8kHz inclusive) by more than 3dB when assessed indoors at any occupied commercial premises whilst that premises is in operation*

➤ Comments:

- We understand the existing commercial premises facing the courtyard currently share access to the courtyard with an estimated total capacity of 106 patrons which is very similar to the capacity of up to 100 patrons proposed for usage of the whole courtyard by InSitu. We understand the premises facing the courtyard will maintain access to the courtyard to access the shared toilets.
- For the commercial receivers located at 18 Sydney Road facing the courtyard, it has been assumed that a similar number of patrons will result in similar noise emissions. We understand emissions are currently deemed acceptable by the landlord and commercial neighbours facing the courtyard. InSitu maintains a good relationship with their commercial neighbours and we are currently not aware of any noise complaints.
- For other commercial receivers, not located at 18 Sydney Road, the individual criteria have currently not been developed. This assessment assumes that compliance with the residential receiver criteria at receiver R1 also infers compliance for the commercial receivers at greater distances and shielding from the venue.

*\* (for the purposes of this condition, the  $LA_{10}$  can be taken as the average maximum deflection of the noise emission from the premises).*

— ANS06:

*The rear doors to the courtyard are to be closed from 10.00pm onwards every night except for the purposes of allowing patrons to enter and leave the internal area of the premises to use the toilets. A staff member must be stationed at the rear doors during this time until close of business. The staff member is to ensure that the doors remain closed and any patrons using the toilets do not linger outside or make noise that would disturb the nearby residents.*

➤ Comment:

- We understand no changes are proposed to the internal operation of InSitu and to the operation of the existing rear doors which are to be closed from 10:00pm onwards. We also understand that access to the toilets after 10:00pm will be via Ground Zero. Existing conditions have been assumed to be compliant and to remain compliant with the project noise criteria from 10:00pm onwards outside the courtyard operating hours. This has therefore not been addressed any further.

— ANS07:

*The rear doors shall be acoustically treated including the seals and glass to ensure noise from the premises complies with Condition ANS05.*

➤ Comment:



- We understand no changes are proposed to the internal operation of InSitu and to the construction of the existing rear doors. Existing conditions have been assumed to be compliant and to remain compliant with the project noise criteria. This has therefore not been addressed any further.
- ANS10:
 

*All patrons must be cleared from the rear courtyard area by 10:00pm every night*

  - Comment:
    - This noise impact assessment has been based on the assumption that all patrons are cleared from the rear courtyard area by 10:00pm every night.
- ANS11:
 

*Both sets of rear bi-folding doors must be closed from 10:00pm onwards every night.*

  - Comment:
    - We understand no changes are proposed to the internal operation of InSitu and to the operation of the existing rear bi-folding doors which are to be closed from 10:00pm onwards. Existing conditions have been assumed to be compliant and to remain compliant with the project noise criteria. This has therefore not been addressed any further.
- Condition 17:
 

*No noise nuisance shall be caused through the operation of any plant or equipment at the premises. Noise is considered a nuisance when it exceeds 5dB(a) above the background noise level.*

  - Comment:
    - We understand no changes are required to the existing mechanical systems for the proposed alteration of the courtyard. Existing conditions have been assumed to be compliant and to remain compliant with the project noise criteria. This has therefore not been addressed any further.

### 3.2 Project noise criteria

Based on the noise requirements stated in Section 3.1 and the background noise levels outlined in Table 2.1, the project specific noise criteria for residential receiver locations are shown in Table 3.1 below.

**Table 3.1 Project specific noise criteria**

Period	Sound pressure level L <sub>10,15min</sub> (dB)									Overall L <sub>10,15min</sub> (dBA)
	Octave band frequency (Hz)									
	31.5	63	125	250	500	1k	2k	4k	8k	
Residential receivers 8:00am to 6:00pm <sup>1</sup>	56	59	63	59	56	56	55	51	47	61
Residential receivers 6:00pm to 10:00pm <sup>2</sup>	55	59	61	59	56	57	55	53	49	62
<div><div>1.</div><div>Operating time during NPfI daytime period. The NPfI daytime period is defined as 7:00am to 6:00pm Monday to Saturday, 8:00am to 6:00pm Sundays and public holidays.</div><div>2.</div><div>Operating time during the NPfI evening time period. The NPfI evening time period is defined as 6:00pm to 10:00pm all days.</div></div>										

## 4. Noise impact assessment

### 4.1 Modelling assumptions

Environmental acoustic modelling was conducted to predict the noise impacts to receivers R1, which was identified as the nearest most potentially affected residential receiver. Compliance at the closest most affected receiver R1 has been assumed to also demonstrate compliance with receiver R2 and all other receivers at greater offset from the venue.

The following parameters and assumptions were incorporated in the acoustic modelling:

- Patron occupancy of up to 100 patrons (plus 2-4 staff and 3 ‘internal’ patrons as noted in Table 4.2) in the outdoor courtyard with 1 in 3 people talking with a raised voice of 68 dBA L<sub>10</sub> measured at 1 metre. The assumed patron voice levels are based on the data provided in the Handbook of Noise Control (Harris, 1957) and are presented in Table 4.1.
- Patron noise contribution from internal areas breaking out through the open rear doors has been included in the model based on the assumed internal reverberant patron noise levels noted in Table 4.1.
- The combined noise contribution from an external and the existing internal loudspeakers is to be below the maximum noise spectrum shown in Table 4.1 during the courtyard operating hours. The external loudspeaker is to be installed on the façade adjacent the rear doors under the awning and will be limited to low background noise music. The noise limiters for the internal speakers (as per ANS04) may need to be adjusted or the rear doors may need to be closed during music events to meet the nominated spectrum in Table 4.1.
- Soft chair furnishing and plant features throughout the courtyard.
- Northern boundary fence to the residential courtyard built with solid construction at ≥ 2.7 m high as shown in Figure 4.1. New access door on the northern boundary fence to be built of solid construction with minimal gaps between the door leaf and frame and no gaps between the door frame and fence.
- New outdoor servery and small storage structures to be built ≥ 3 metre high from solid construction in the locations shown in Figure 4.1. Any noise from equipment installed in the servery such as a fridge and dishwasher has been assumed to be contained within a fully enclosed building structure and therefore not contribute noticeably to the noise emissions.



- Either Option 1 (Section 5.1) or Option 2 (Section 5.2) roof/awning configuration installed above the courtyard.

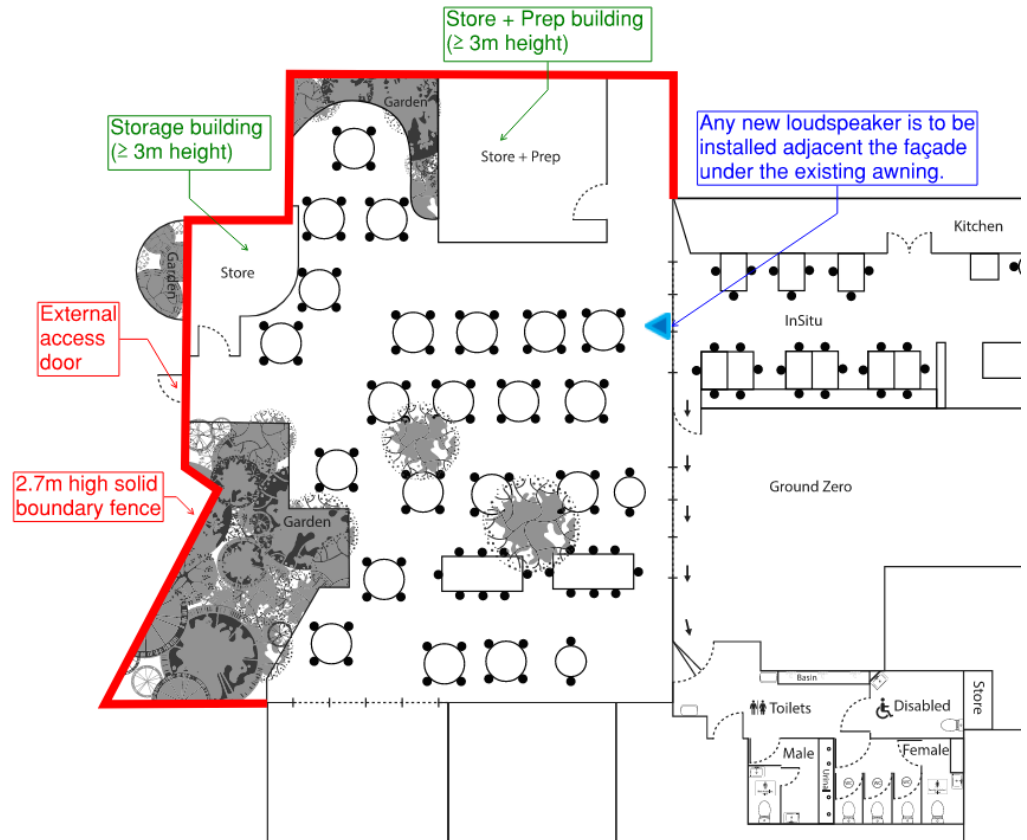


Figure 4.1 Outdoor courtyard layout with existing boundary fence and proposed new building structures

Table 4.1 Patron and music noise source sound pressure levels

Noise source	Sound pressure level L <sub>10,15min</sub> (dB)									Overall L <sub>10,15min</sub> (dBA)
	Octave band frequency (Hz)									
	31.5	63	125	250	500	1k	2k	4k	8k	
Raised speech for 1 person, at 1 m	45	51	57	63	66	63	59	54	49	68
Loudspeaker music noise (combined internal and external speaker contributions), at 1 m from the rear facade	60	60	65	60	58	55	55	50	50	60

Noise source	Sound pressure level L <sub>10,15min</sub> (dB)									Overall L <sub>10,15min</sub> (dBA)
	Octave band frequency (Hz)									
	31.5	63	125	250	500	1k	2k	4k	8k	
Internal reverberant patron noise levels  (used for assessment of internal noise breakout contribution through the rear doors)	60	67	73	76	78	78	76	70	63	82

## 4.2 Noise assessment

Based on the assumptions outlined in Section 4.1 and the source noise levels presented in Table 4.1, the worst-case predicted sound pressure levels at receiver R1 are shown in Table 4.2 for different patron capacity scenarios.

The predicted levels are assessed against the applicable noise criteria established in Table 3.1.

**Table 4.2** Patron and music noise assessment at residential receiver R1

Description	Sound pressure level L <sub>10,15min</sub> (dB)									Overall L <sub>10,15min</sub> (dBA)
	Octave band frequency (Hz)									
	31.5	63	125	250	500	1k	2k	4k	8k	
Residential Criteria										
8:00am to 6:00pm	56	59	63	59	56	56	55	51	47	61
6:00pm to 10:00pm	55	59	61	59	56	57	55	53	49	62
Up to 40 outdoor patrons (plus up to 2 staff and up to 3 ‘internal’ patrons)										
Predicted noise level	≤ 41	≤ 48	≤ 53	≤ 56	≤ 59	≤ 56	≤ 52	≤ 46	≤ 41	≤ 60
Compliance	Yes	Yes	Yes	Yes	Yes <sup>1</sup>	Yes	Yes	Yes	Yes	Yes
41 to 80 outdoor patrons (plus up to 3 staff and up to 3 ‘internal’ patrons)										
Predicted noise level	≤ 45	≤ 51	≤ 54	≤ 57	≤ 58	≤ 56	≤ 51	≤ 47	≤ 42	≤ 60
Compliance	Yes	Yes	Yes	Yes	Yes <sup>1</sup>	Yes	Yes	Yes	Yes	Yes
81 to 100 outdoor patrons (plus up to 4 staff and up to 3 ‘internal’ patrons)										
Predicted noise level	≤ 49	≤ 54	≤ 57	≤ 56	≤ 59	≤ 56	≤ 52	≤ 48	≤ 43	≤ 60
Compliance	Yes	Yes	Yes	Yes	Yes <sup>1</sup>	Yes	Yes	Yes	Yes	Yes
1. A predicted noise level of up to 3 dB higher in a single frequency band is considered marginal and barely or just noticeable by the human ear, especially if this just occurs in one frequency band with the adjacent and is therefore considered compliant.										

The predicted noise emissions from the InSitu courtyard operation at receivers R1 comply with the noise requirements from the Conditions of Consent established for the Project during the hours of operation. As compliance has been demonstrated at the nearest most-affected residential receiver R1, compliance can be inferred at receiver R2 and other receivers at greater offset to the venue.

## 5. Recommendations

The noise emissions from the InSitu outdoor courtyard are predicted to comply with the project noise criteria for the hours of operation, with the assumptions presented Section 4 including the following treatments and operational measures:

- Capacity of the outdoor courtyard to be limited up to 100 patrons.
- Outdoor courtyard to only operate and be occupied until 10:00pm.
- The combined noise contribution from an external and the existing internal loudspeakers is to be below the maximum noise spectrum shown in Table 4.1 during the courtyard operating hours. The external loudspeaker is to be installed on the façade adjacent the rear doors under the awning and will be limited to low background noise music. The noise limiters for the internal speakers (as per ANS04) may need to be adjusted or the rear doors may need to be closed during music events to meet the nominated spectrum in Table 4.1.
- Rear doors to the courtyard to be closed after 10:00pm as per ANS06.
- Signage to be displayed throughout the venue and staff to be informed to not allow access to the courtyard after 10:00pm.
- Soft chair furnishing and plant features throughout the courtyard.
- Northern boundary fence to the residential courtyard built with solid construction at  $\geq 2.7$  m high as shown in Figure 4.1. New access door on the northern boundary fence to be built of solid construction with minimal gaps between the door leaf and frame and no gaps between the door frame and fence.
- New outdoor servery and small storage structures to be built  $\geq 3$  m high from solid construction in the locations shown in Figure 4.1.
- Either operable roof Option 1 (Section 5.1) or awning extension Option 2 (Section 5.2) to be installed above the courtyard.

### 5.1 Option 1 – operable roof

#### 5.1.1 Operable roof construction

The construction of the operable roof is to be as follows:

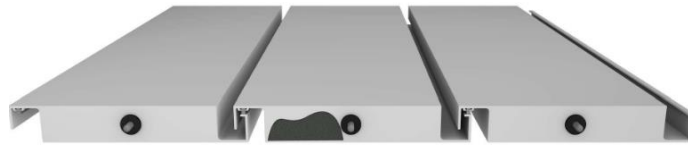
- The roof must achieve the minimum transmission loss presented in Table 5.1.

**Table 5.1** Minimum transmission loss for operable roof

Element	Minimum transmission loss (dB)								
	Octave band frequency (Hz)								
	31.5	63	125	250	500	1k	2k	4k	8k
Operable roof	3	4	7	14	17	16	15	13	13

OR

- Skymax Aerotech series aluminium louvred roof with interconnecting blades, modules filled with 50mm thick Wavetech acoustic infill with 8kg/m<sup>2</sup> and acoustic weather seals installed along the full length between the blades.



### 5.1.2 Operable roof extent

The operable roof must be closed as follows depending on the number of patrons in the outdoor courtyard. Please refer to Figure 5.1 for a mark-up of the left and right roof section extent.

- Up to 40 patrons: Entire operable roof (left + right section) can be open
- 41 to 80 patrons: Minimum left half roof section closed
- 81 to 100 patrons: Entire operable roof (left + right section) closed

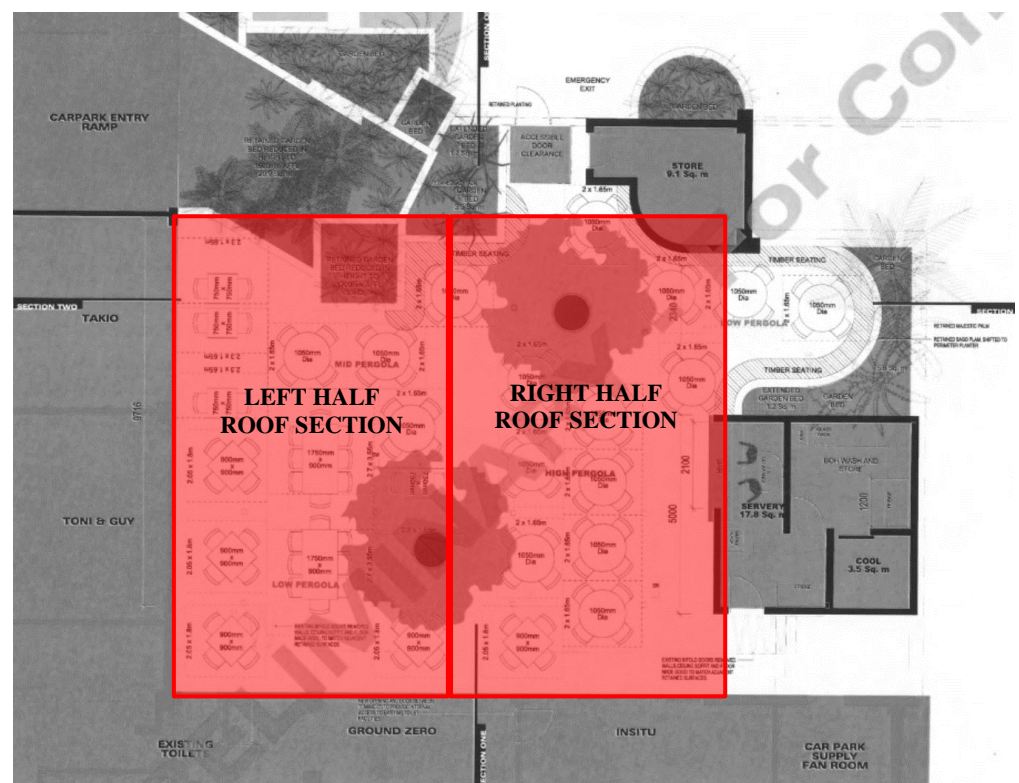


Figure 5.1 Extent of operable roof sections above courtyard (Option 1)

### 5.2 Option 2 – Awning extension

The existing awning must be extended along the western building façade. The new awning is to extend 2.5 m out from the building façade below the R1 residential receiver located on Level 02 above InSitu that is facing the courtyard as shown in Figure 5.2. The awning extension must be built of solid material such as 10 mm plexiglass without any gaps, or a fibre cement sheet or MDF board based construction build-up providing a surface mass of  $\geq 12\text{kg/m}^2$  to reduce direct noise transmission.

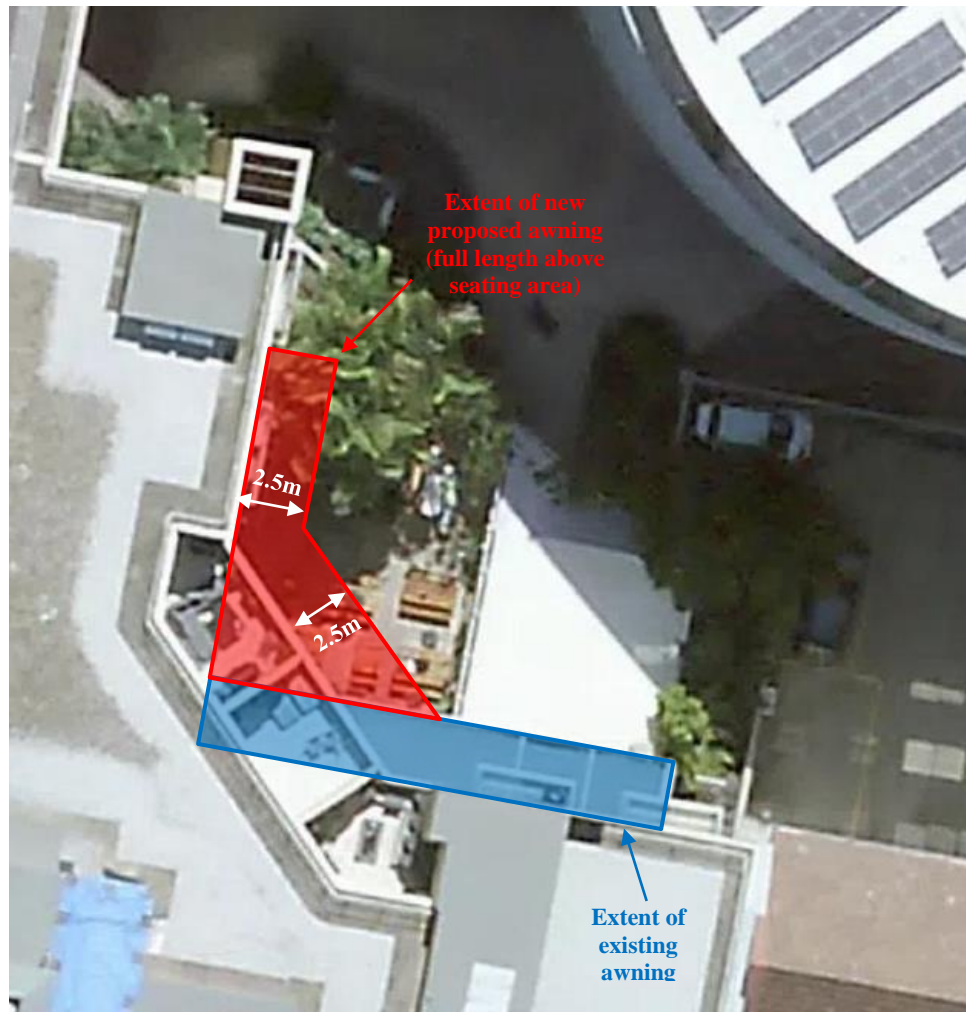


Figure 5.2 Extent of awning extension above courtyard (Option 2)

## 6. Conclusion

WSP has undertaken an assessment of the noise impacts from patron and music noise for the proposed alterations and additions to the outdoor courtyard of InSitu Manly. The proposed project is predicted to comply with the relevant noise requirements for the proposed hours of operation with the recommendations presented in Section 5.

Reymar Angelo Victoria  
Acoustic Engineer

Marina Apfel  
Associate, Acoustics

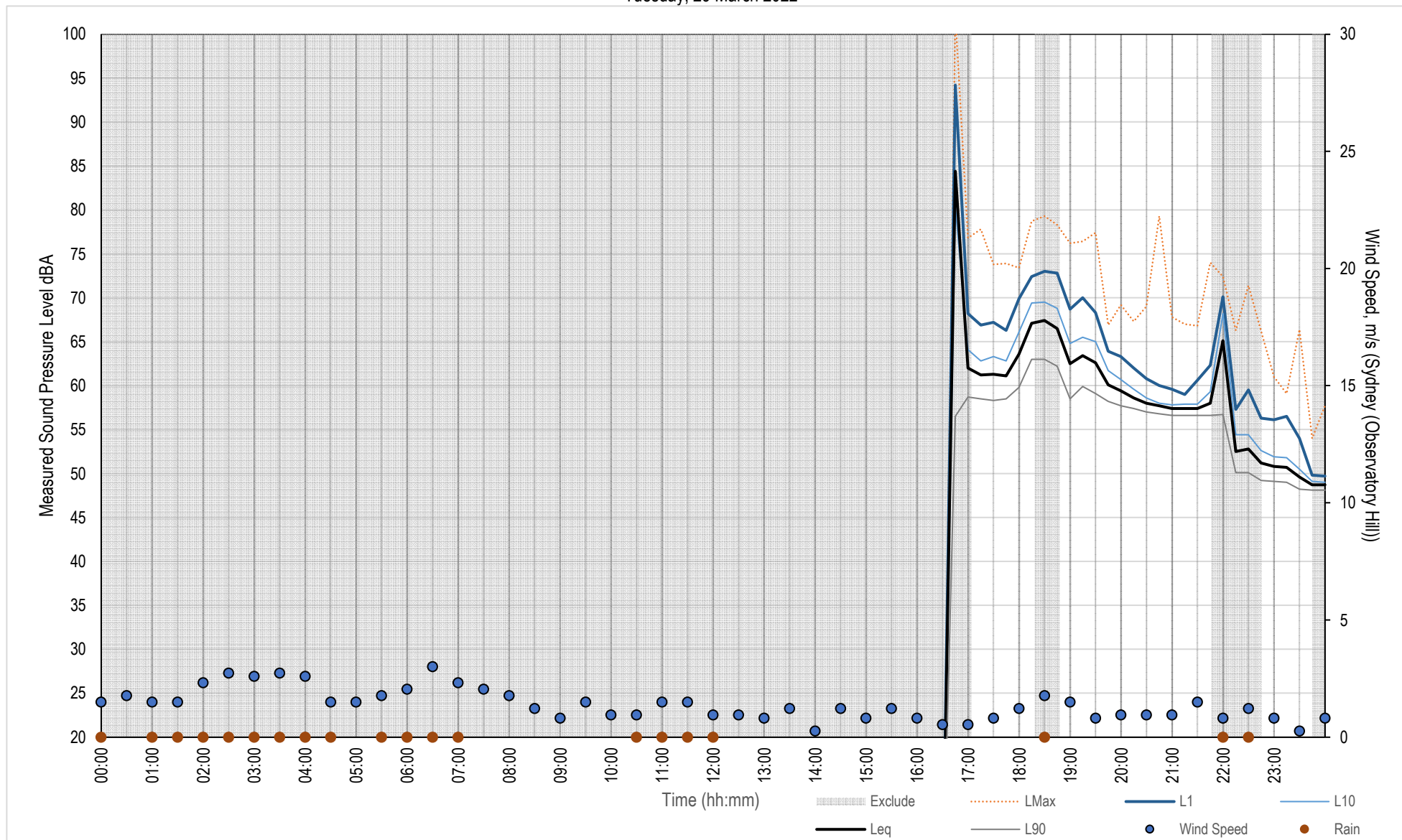


## Appendix A      Noise logger graphs



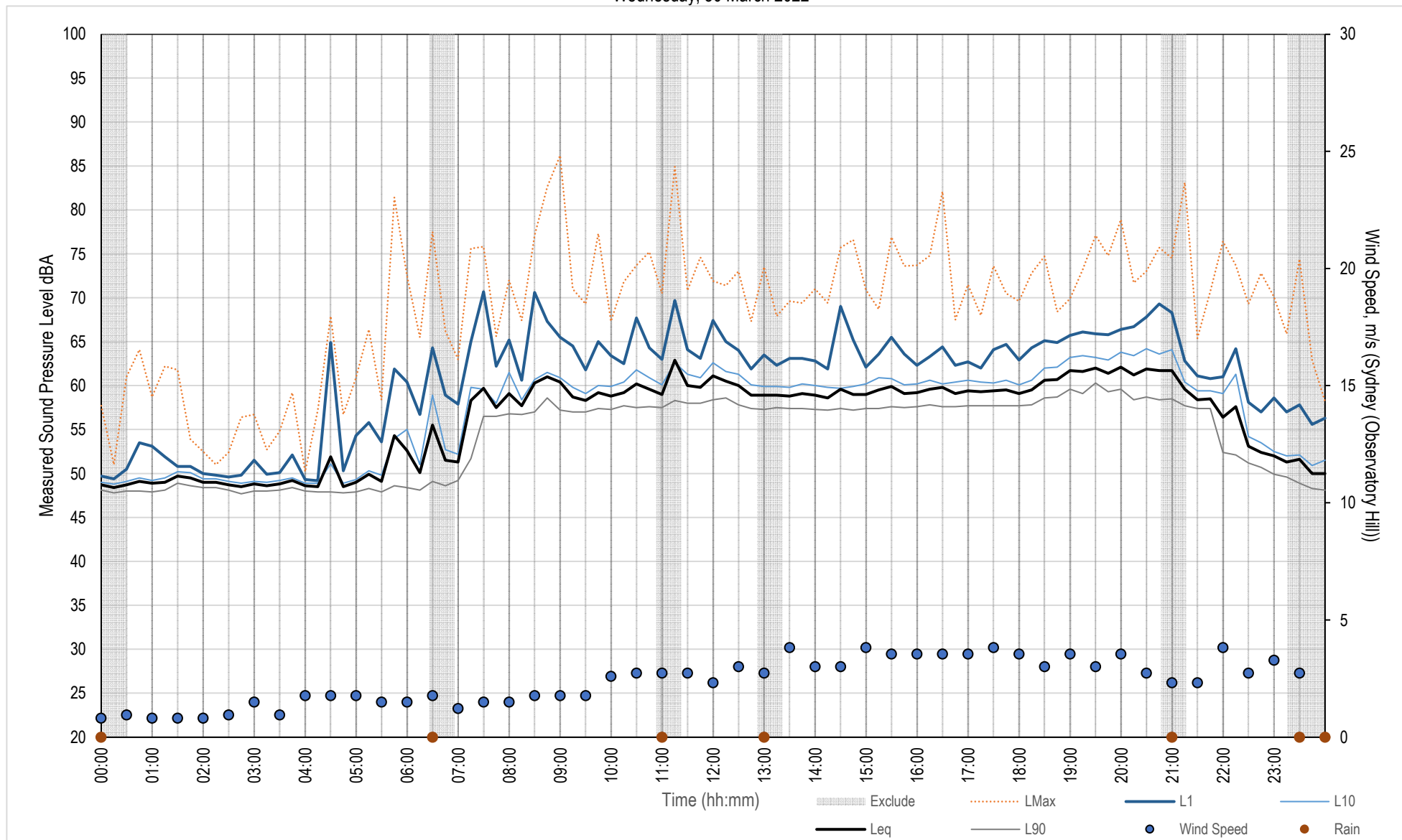
# Measured Noise Levels - In-Situ

Tuesday, 29 March 2022



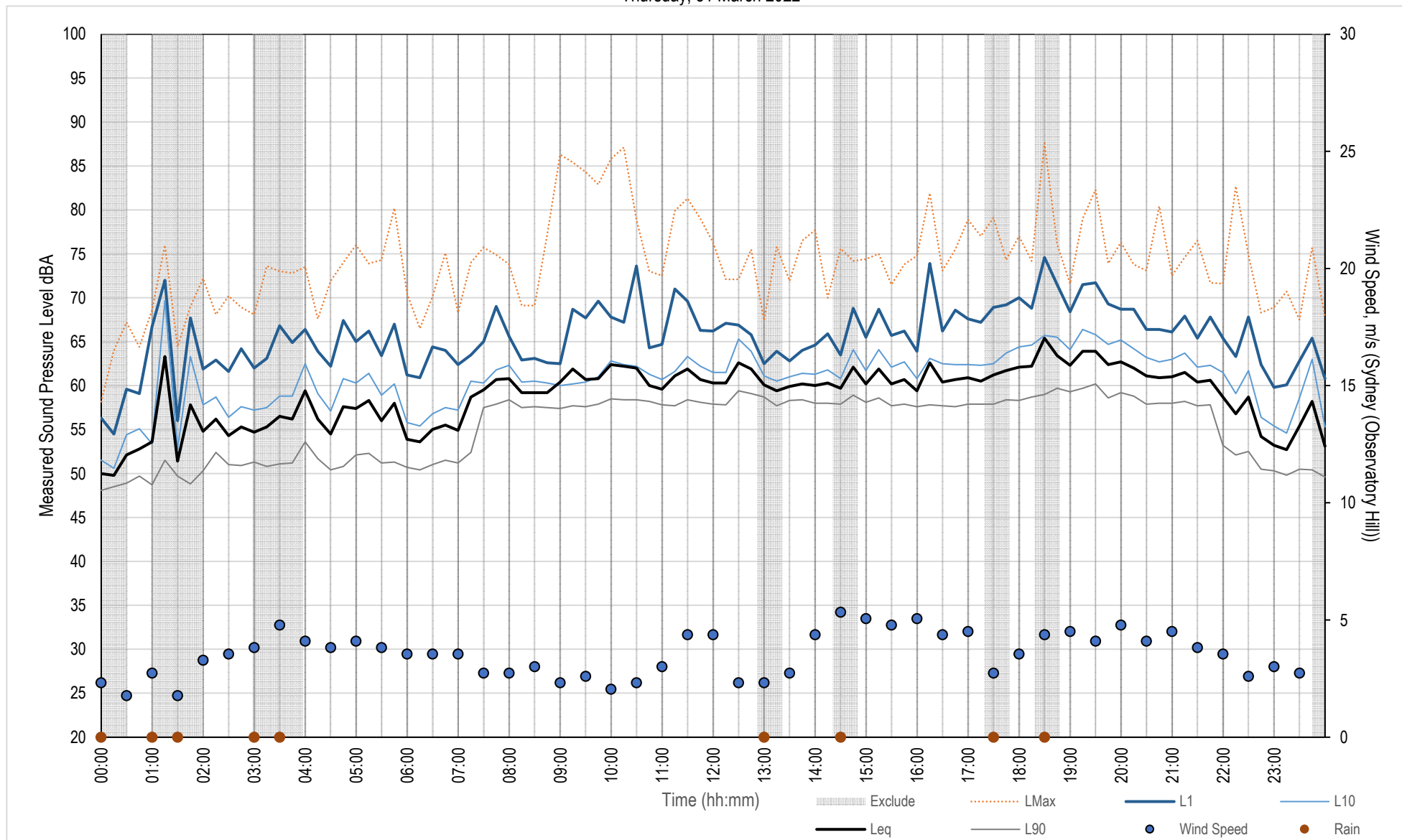
# Measured Noise Levels - In-Situ

Wednesday, 30 March 2022



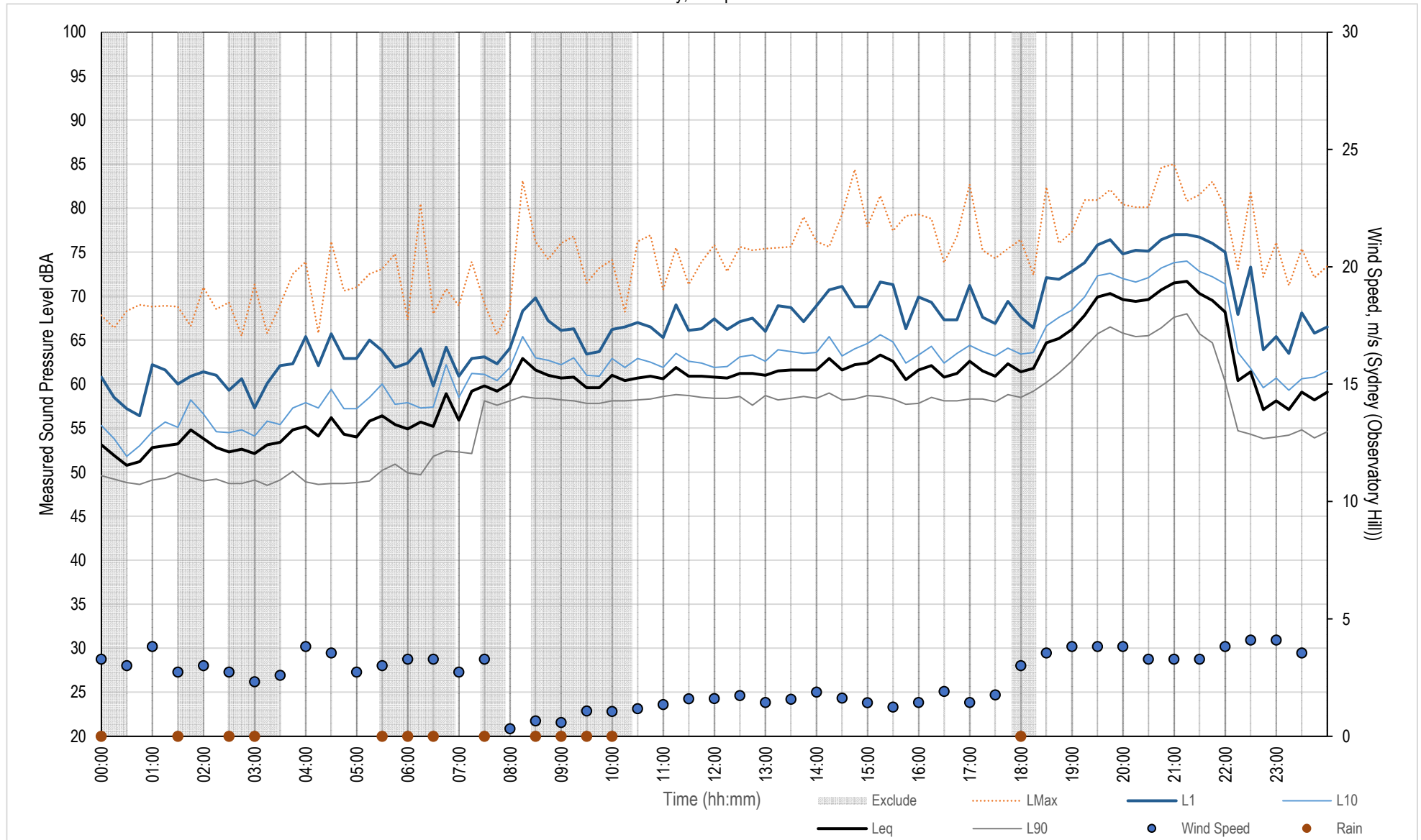
# Measured Noise Levels - In-Situ

Thursday, 31 March 2022



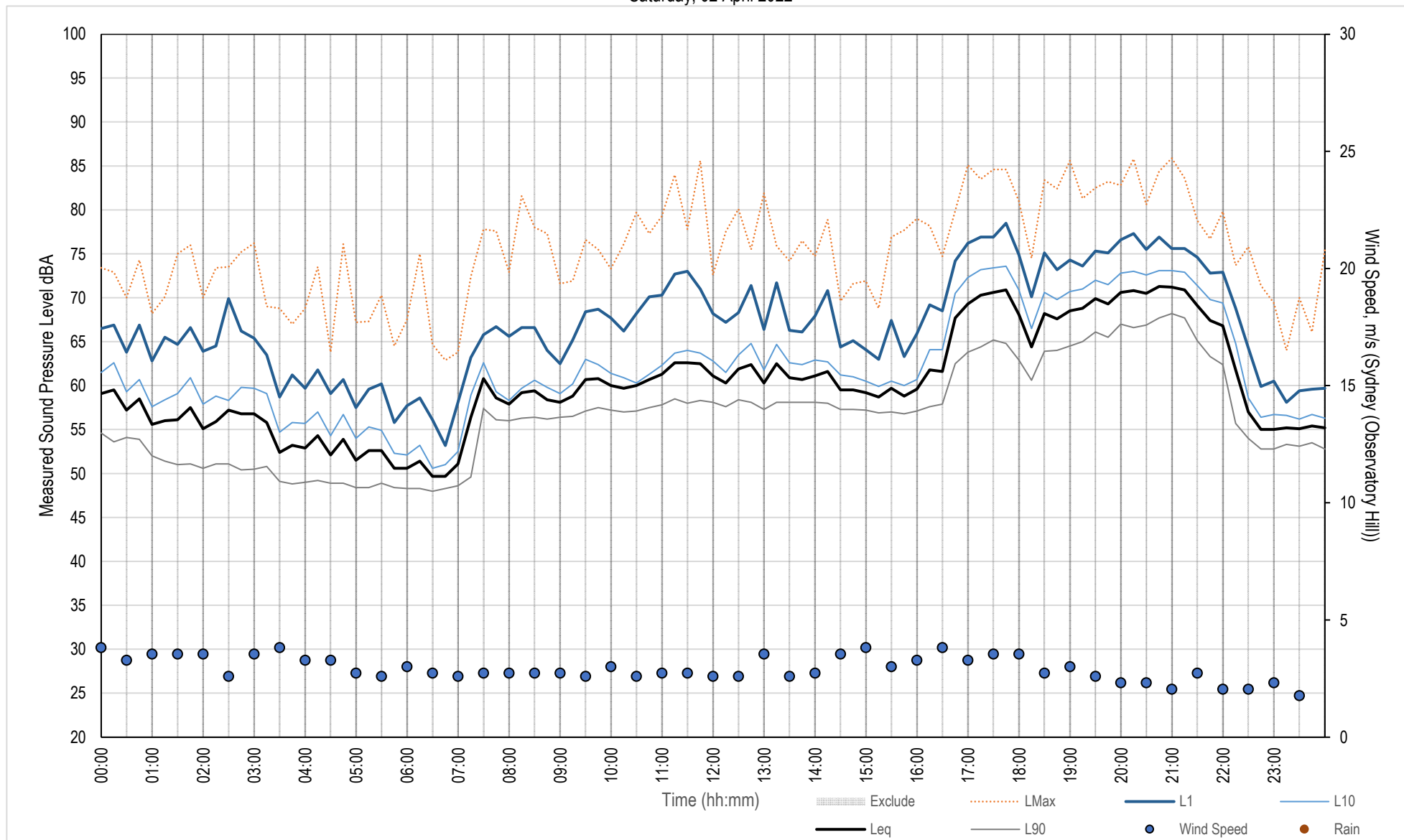
### Measured Noise Levels - In-Situ

Friday, 01 April 2022



# Measured Noise Levels - In-Situ

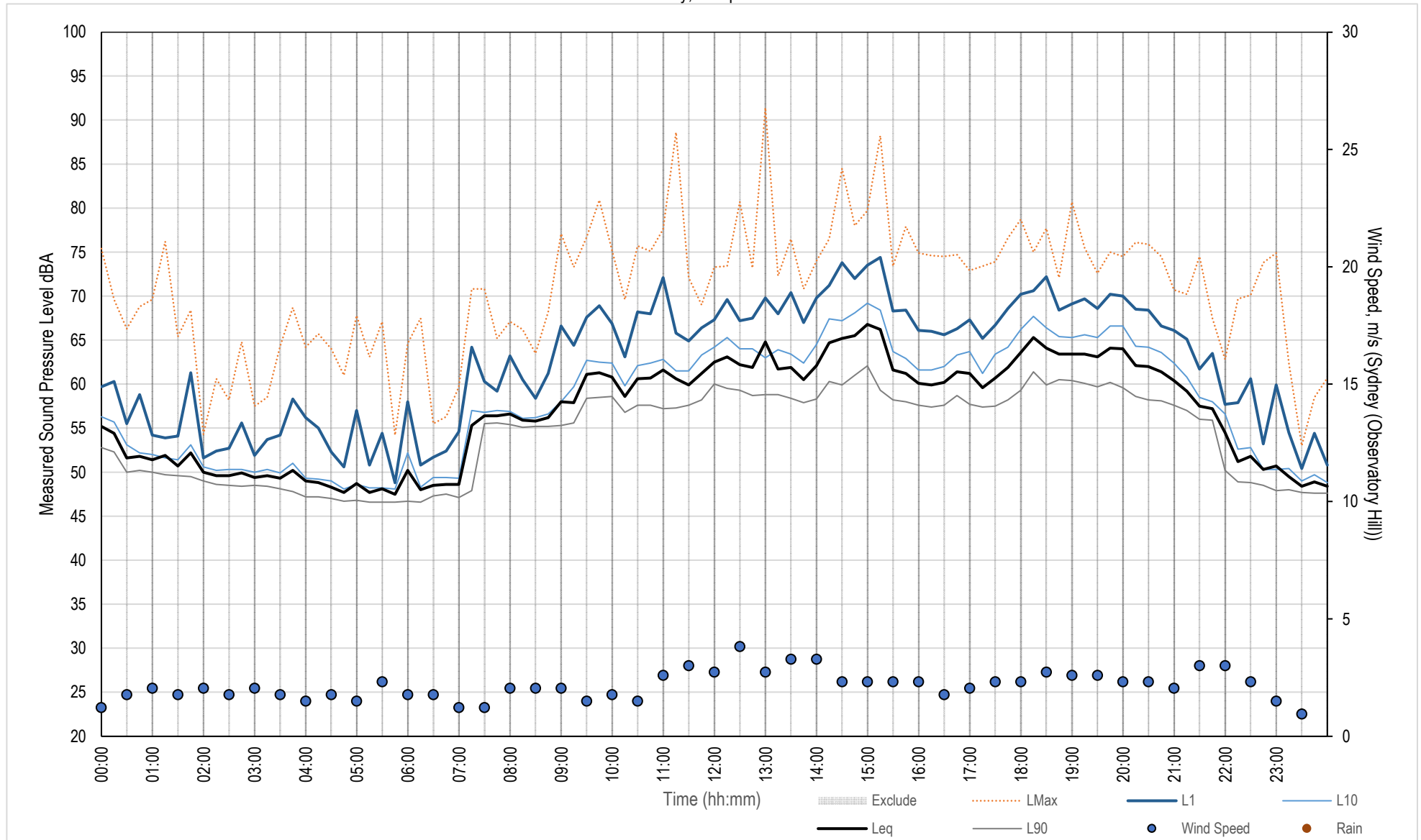
Saturday, 02 April 2022





### Measured Noise Levels - In-Situ

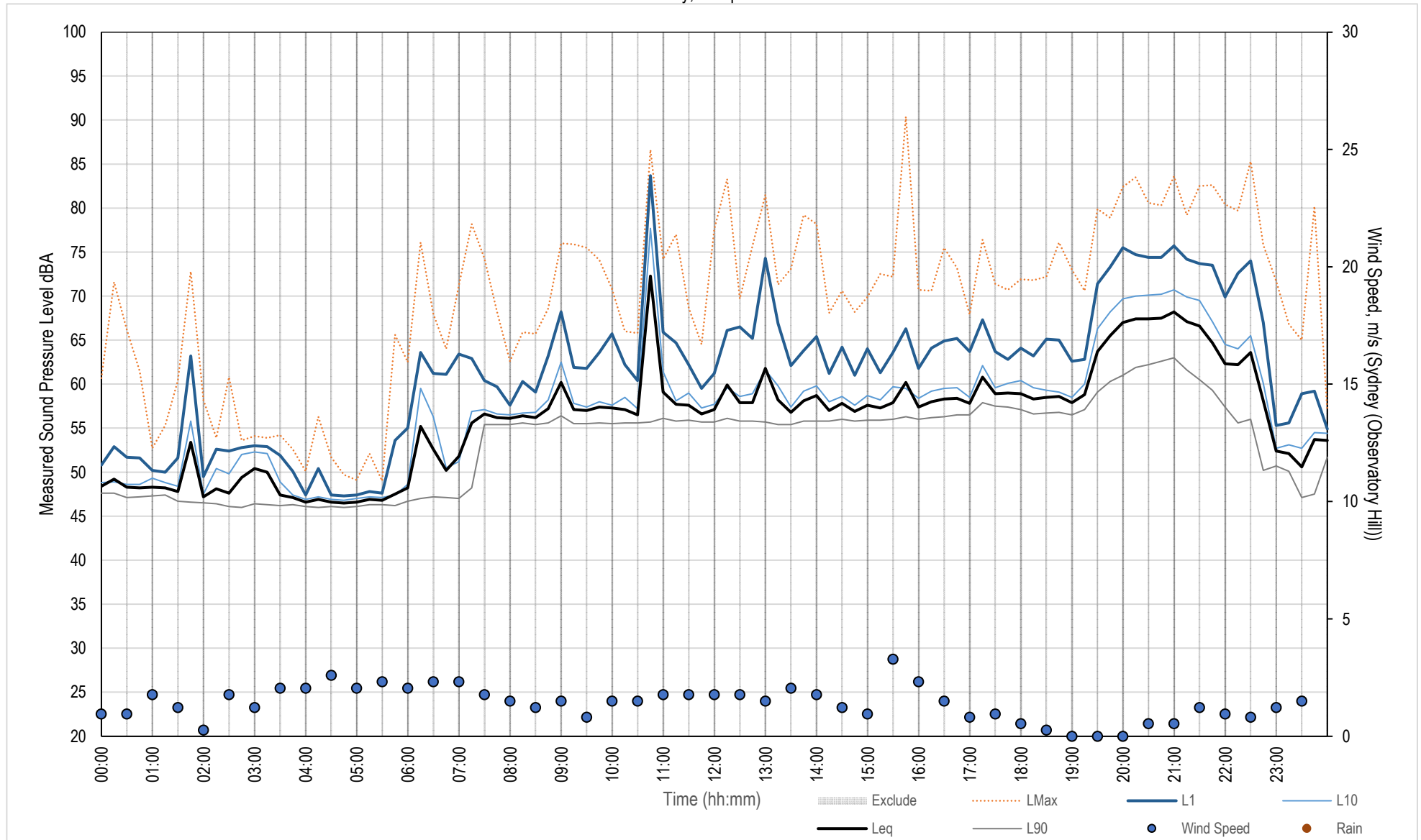
Sunday, 03 April 2022





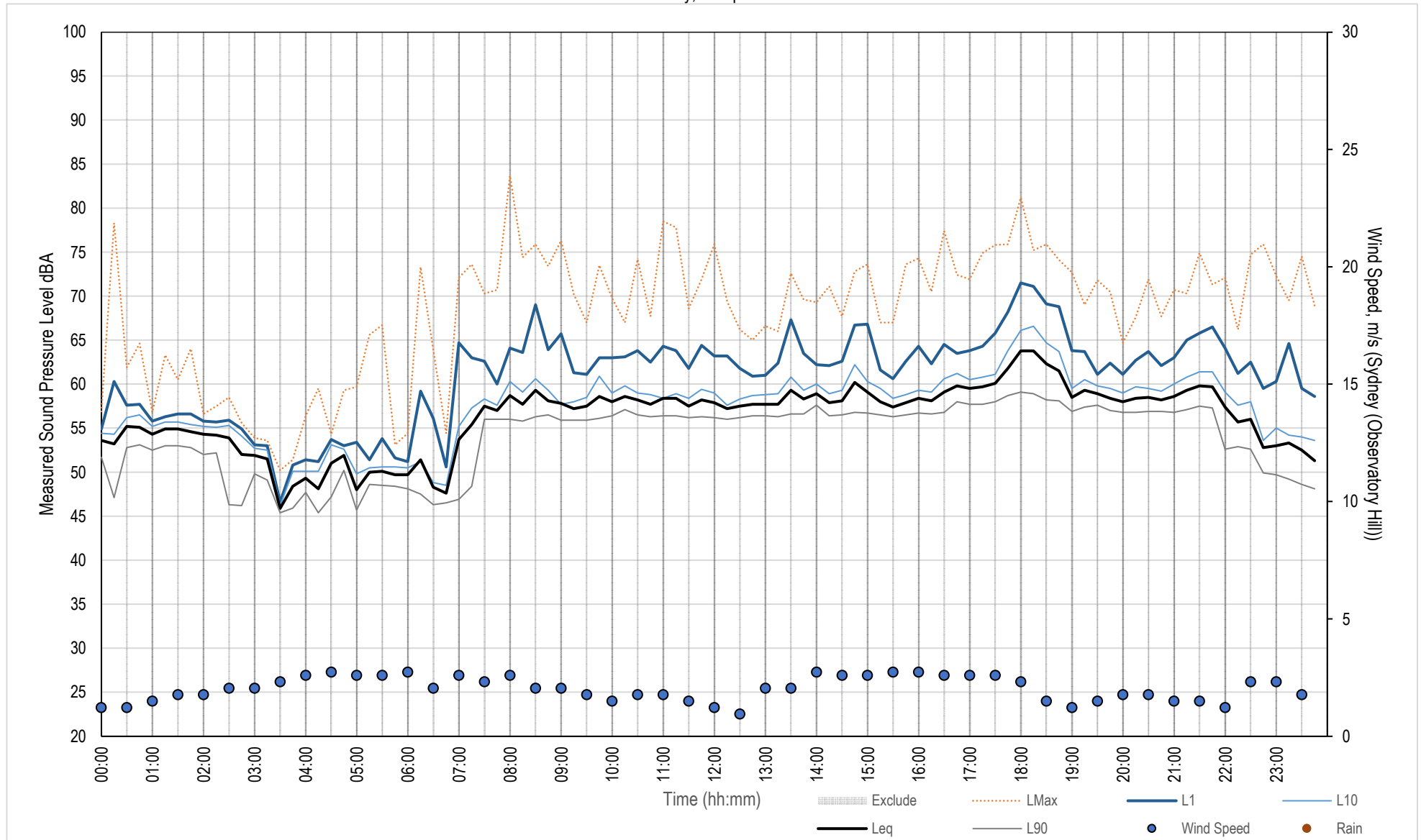
### Measured Noise Levels - In-Situ

Monday, 04 April 2022



### Measured Noise Levels - In-Situ

Tuesday, 05 April 2022



# Measured Noise Levels - In-Situ

Wednesday, 06 April 2022

