



**APPENDIX 9**  
**Environmental Noise Assessment : Sonus**



# Southern Barossa Winery and Tourism Accommodation Project

Environmental Noise Assessment

S8402C6

August 2025

sonus.

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## 1 INTRODUCTION

An environmental noise assessment has been completed for the proposed Southern Barossa Winery and Tourism Accommodation Project (the **Project**). The proposal seeks to construct a hotel, winery, and cellar door on land located on the corner of Hoffnungsthal Road and Menzel Road, Williamstown.

The Project has been declared as an impact assessed development by the Minister for Planning and has been assessed based on the assessment requirements as advised by the State Planning Commission.

There are noise sensitive receivers surrounding the subject site, both adjacent the site to the east, as well as on the opposite side of Hoffnungsthal Road to the north and Menzel road to the south. The nearby noise sensitive receivers in relation to the subject site can be seen on Figure 1.

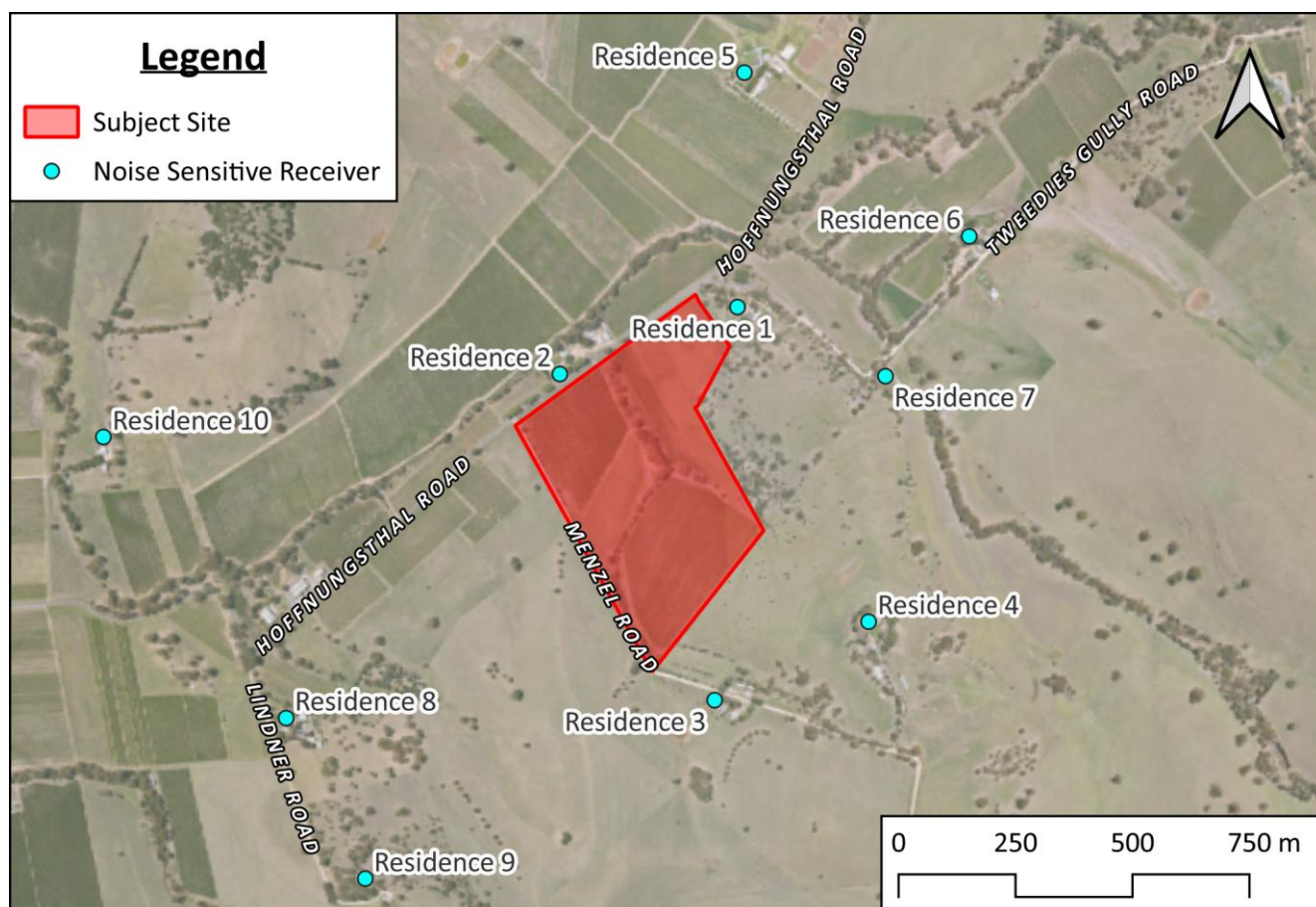


Figure 1: Subject Site and Surrounding Locality

## 2 CRITERIA

The Project has been declared as an ‘impact assessed’ development by the Minister for Planning. The State Planning Commission has prepared a document outlining the assessment requirements for the environmental impact assessment required for the Project titled “*Assessment Requirements – Environmental Impact Statement – Southern Barossa Winery and Tourism Accommodation Project*”, dated April 2025 (the **Assessment Requirements**). The noise related provisions of the Assessment Requirements have been reproduced in Appendix A.

The Assessment Requirements stipulate that an assessment must be prepared in accordance with *Guidelines for the use of the Environment Protection (Commercial and Industrial Noise) Policy 2023* (the **Guidelines to the Policy**). The Guidelines to the Policy provide further details for conducting a noise assessment in accordance with the *Environment Protection (Commercial and Industrial Noise) Policy 2023* (the **Policy**).

The Policy defines noise criteria based on the *South Australian Planning and Design Code* (the **Code**) zones in which the noise source (the development) and the noise receivers (the nearby residences) are located. Both the subject site and the nearby noise sensitive receivers are located in a *Rural Zone* of the Code. It is noted that the Policy provides goal noise levels for new developments that are 5 dB(A) lower than those that would apply in a compliance situation to reflect the increased sensitivity of existing noise sensitive receivers to new noise sources. Based on the above, the following goal noise levels are applicable to the site:

- An average goal noise level ( $L_{eq}$ ) of 52 dB(A) during the day period (7:00am to 10:00pm).
- An average goal noise level ( $L_{eq}$ ) of 45 dB(A) during the night period (10:00pm to 7:00am).

When measuring or predicting noise levels for comparison with the Policy, adjustments may be made to the average goal noise levels for each ‘annoying’ characteristic of tonality, impulsiveness, low frequency, modulation, and intermittency of the noise source. The characteristic must be dominant in the acoustic environment and therefore the application of a penalty varies depending on the assessment location, time of day, the noise source being assessed, and the predicted noise level. The application of a penalty is discussed further in the Assessment section of this report.

The *Guidelines for the use of the Environment Protection (Commercial and Industrial Noise) Policy 2023* (the **Guidelines**) indicate that the appropriate legislation for dealing with noise from general rubbish collection services is the *Local Nuisance and Litter Control Act 2016* (the **Act**). The Act provides hours between which rubbish collection should not be conducted. These hours are:

- Before 9:00am or after 7:00pm on any Sunday or public holiday; or,
- After 7:00pm or before 7:00am on any other day.

Where rubbish is collected at times other than between these hours, it will not constitute a local nuisance.

The noise from music is not specifically considered in the Policy, so reference has been made to the *South Australian Environment Protection Authority (EPA)* document “*Assessing music noise from indoor venues*”, dated October 2021 (the **Music Guidelines**). The Music Guidelines provide noise criterion to be achieved from new music venues based on the background noise in the environment, determined in accordance with the following:

*The music noise ( $L_{10,15}$ ) from an entertainment venue when assessed externally at the nearest existing noise sensitive location should be:*

*Less than 8 dB above the level of background noise ( $L_{90,15}$ ) in any octave band of the sound spectrum.*

It is noted that this approach is consistent with the approach outlined in the *South Australian Planning and Design Code Part 4 – General Development Policies, Interface between Land Uses, Deemed-to-Satisfy Criteria / Designated Performance Feature 4.6*.

### 3 EXISTING NOISE ENVIRONMENT

Noise monitoring was conducted on the subject site to determine the existing noise environment between 15 May 2025 and 23 May 2025. Two noise loggers were positioned on the site, representative of the conditions experienced at the closest residence to the hotel and winery components of the Project. The locations where the noise monitoring equipment were located can be seen in Figure 2. The results of the noise monitoring can be seen graphically in Appendix B.

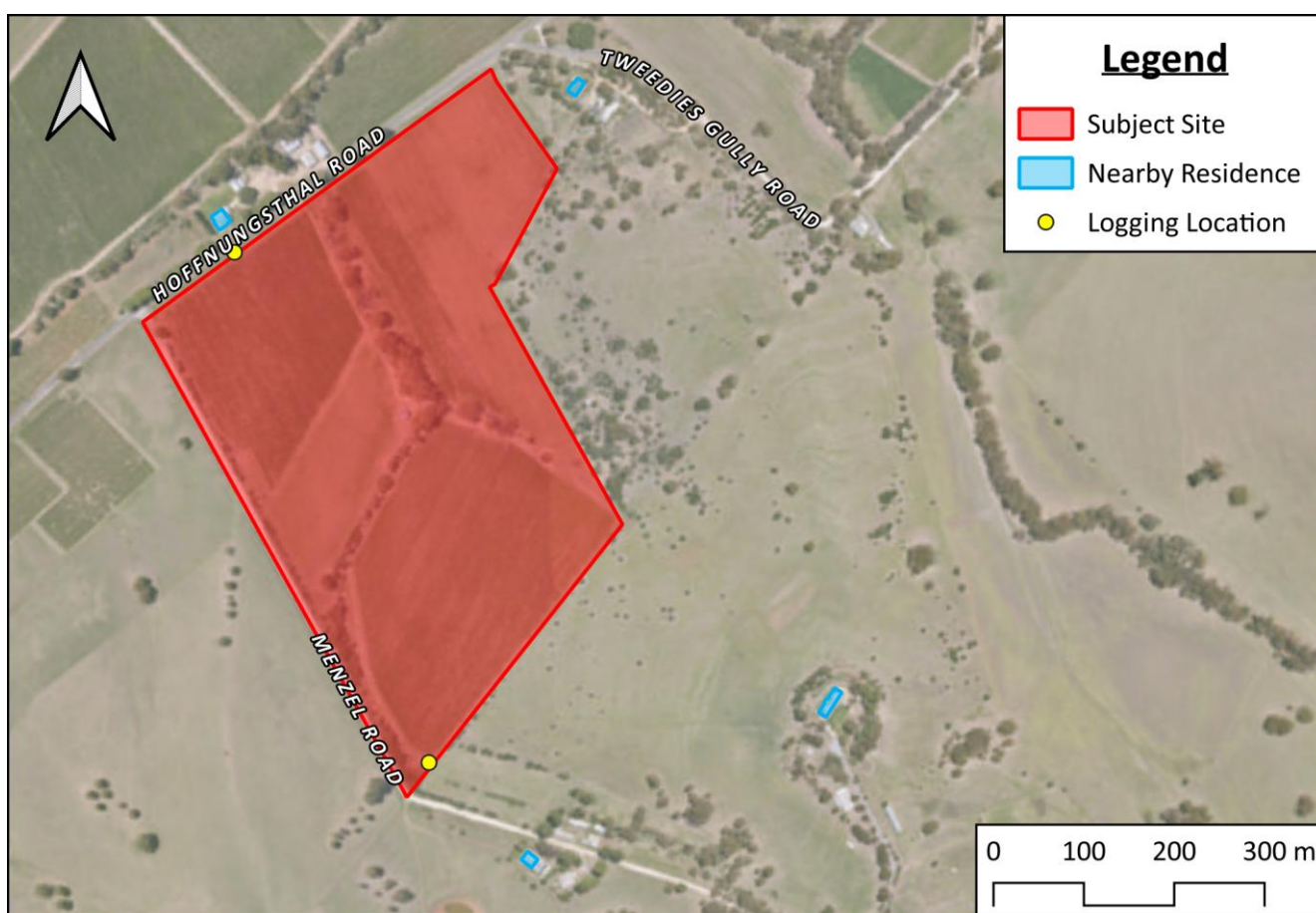


Figure 2: Noise Monitoring Locations

Table 1 and Table 2 show the highest, lowest, and average noise levels during the day and night periods for the noise monitoring conducted on Hoffnungsthal Road and Menzel Road, respectively.

*Table 1: Existing Noise Levels – Hoffnungsthal Road*

Acoustic Descriptor	Day Period			Night Period		
	Minimum	Average	Maximum	Minimum	Average	Maximum
L <sub>90</sub>	18 dB(A)	30 dB(A)	45 dB(A)	18 dB(A)	24 dB(A)	47 dB(A)
L <sub>eq</sub>	19 dB(A)	47 dB(A)	72 dB(A)	19 dB(A)	31 dB(A)	70 dB(A)
L <sub>max</sub>	30 dB(A)	70 dB(A)	109 dB(A)	31 dB(A)	52 dB(A)	108 dB(A)

*Table 2: Existing Noise Levels – Menzel Road*

Acoustic Descriptor	Day Period			Night Period		
	Minimum	Average	Maximum	Minimum	Average	Maximum
L <sub>90</sub>	15 dB(A)	25 dB(A)	42 dB(A)	15 dB(A)	22 dB(A)	46 dB(A)
L <sub>eq</sub>	15 dB(A)	38 dB(A)	58 dB(A)	15 dB(A)	28 dB(A)	53 dB(A)
L <sub>max</sub>	23 dB(A)	59 dB(A)	88 dB(A)	19 dB(A)	47 dB(A)	75 dB(A)

The noise measurements indicate that the background noise levels in the environment are quite low, as is often typical for rural environments such as this. Observations taken while on site placing and collecting the equipment indicate that some of the noise during the day period is from passing helicopters associated with the nearby helicopter tour business.

## 4 ASSESSMENT

A noise assessment has been completed for the Project. As the Project is still in the Planning Design Phase, a number of assumptions have been made regarding the equipment and activities to be located on the site. The following assumptions have been made for the purpose of this assessment:

- Functions are understood to occur at any time between 7:00am and 12:00am (midnight).
- All buildings have been placed relative to the existing site levels.
- It has been assumed that there will be an average of 3 patrons per vehicle when attending functions.
- The capacity of the function spaces is understood to be 450 patrons for functions in the hotel and 450 patrons for functions in the winery.
- The generator and fire pump located on the ground floor of the hotel will be contained in acoustically treated buildings.
- Where noise data was not available for a particular piece of equipment or activity, noise level data has been assumed based on data from other similar facilities. The sound power levels used for the assessment can be seen in Appendix C.

### 4.1 Environment Protection (Commercial and Industrial Noise) Policy 2023

The noise predictions have been made using the SoundPLANnoise noise modelling software and the CONCAWE<sup>1</sup> noise propagation model. The CONCAWE noise propagation model has been accepted by the EPA as an appropriate sound propagation model and takes into account the sound power levels and locations of sources, the separation between noise sources and receivers, the site specific topography, the influence of the ground, air absorption, and meteorological conditions.

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<sup>1</sup> CONCAWE – The oil companies’ international study group for conservation of clean air and water – Europe. ‘The propagation of noise from petrochemical complexes to neighbouring communities’, May 1981

The CONCAWE system divides the range of possible meteorological conditions into six separate ‘weather categories’, from weather category 1 to weather category 6. Weather category 1 provides ‘best-case’ (i.e., lowest noise level) weather conditions for the propagation of noise, while weather category 6 provides ‘worst-case’ (i.e., highest noise level) conditions, when considering wind speed, wind direction, time of day, and level of cloud cover. Weather category 4 provides ‘neutral’ weather conditions for noise propagation. The EPA recommends a default position of using category 6 conditions during the night period and category 5 conditions during the day period, as these represent the worst-case conditions generally experienced during these times. This assessment has therefore considered category 5 conditions during the day and category 6 conditions at night.

The noise model has considered the following activity that may occur in any 15-minute period<sup>2</sup>:

- For activity related to the hotel:
  - Continuous operation of mechanical plant in the level 6 open-air plant room, including:
    - 4 air-conditioning heat pump units
    - 6 hot water heat pump units
  - A generator operating continuously in the designated area adjacent the fire pump room.
  - 50 patrons located on the terrace adjacent to the ballroom.
  - 200 patrons located on the events lawn adjacent to the hotel.
  - 123 passenger vehicles accessing the site through the Menzel Road access.
  - General car parking activity in car park spaces associated with the above 123 vehicle movements, evenly distributed throughout the proposed car park areas.
  - 2 buses accessing the site and idling in the designated area for the whole assessment period.
  - 1 delivery truck accessing the site and idling for the whole assessment period.
  - General unloading activity in the loading dock associated with a delivery for the whole assessment period.

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<sup>2</sup> The default assessment period of the Policy.

- For activity related to the winery:
  - Continuous operation of mechanical plant, including:
    - 3 heat recovery units on the roof of the winery.
    - 2 pumps operating in the receival area.
    - 2 pumps operating in the wastewater treatment plant.
    - 1 rotary screen operating in the wastewater treatment plant.
    - 1 blower operating in the wastewater treatment plant.
  - The operation of a destemmer in the receival area for the whole assessment period.
  - The operation of a forklift in the receival area for the whole assessment period.
  - 1 truck accessing the receival/loading area for the whole assessment period.
  - 450 patrons located in the outdoor areas adjacent to the function spaces.
  - 123 passenger vehicles accessing the site through the Hoffnungsthal Road access.
  - General car parking activity in car park spaces associated with the above 123 vehicle movements, evenly distributed throughout the proposed car park area.
  - 2 buses accessing the site and idling in the designated area for the whole assessment period.

Due to the variety of uses proposed for the site, the worst-case (highest) level of activity from all of these uses is unlikely to coincide. A number of separate scenarios have therefore been considered to account for the various peak levels of activity. The predicted noise level reported is therefore the highest predicted level from all of the scenarios considered. These scenarios are as follows:

- A function at the hotel operating at full capacity, without large numbers of vehicle movements.
- Patrons leaving at the conclusion of a function at the hotel, without noise from patrons in the function spaces.
- Deliveries and processing activities for the winery, without noise from a large function.
- A function at the winery operating at full capacity, without large numbers of vehicle movements.
- Patrons leaving at the conclusion of a function at the winery, without noise from patrons in the function spaces.

In order to achieve the relevant noise criteria, some acoustic treatments will be required. It should be ensured that any forklifts in use on the site, primarily for the winery, are fitted with broadband reversing alarms.

Due to the forward in-forward out nature of the site, and ensuring that forklifts are fitted with broadband reversing alarms, it is not expected that there will be excessive levels of tonality present. It is not expected that low frequency or impulsiveness will be a characteristic of the noise produced and will therefore not attract the application of a penalty. A large portion of the noise generated by the site is from mechanical plant, which is a relatively constant noise source. Therefore, even if some noise sources were to modulate, they would not be dominant and therefore a penalty for modulation, or intermittency at night, would not apply.

Based on the assumptions included above and the noted level of activity, the predicted noise levels can be seen in Table 3. The combined noise from both the hotel and the winery has also been predicted, though it is noted that the peak activity at these two locations may not coincide, which will result in lower cumulative noise levels.

Table 3: Predicted Noise Levels

Noise Sensitive Receiver	Predicted Noise Level		
	Hotel Activity	Winery Activity	Combined Activity
Residence 1	37 dB(A)	44 dB(A)	45 dB(A)
Residence 2	36 dB(A)	43 dB(A)	44 dB(A)
Residence 3	45 dB(A)	17 dB(A)	45 dB(A)
Residence 4	43 dB(A)	35 dB(A)	44 dB(A)
Residence 5	29 dB(A)	27 dB(A)	31 dB(A)
Residence 6	17 dB(A)	19 dB(A)	21 dB(A)
Residence 7	22 dB(A)	21 dB(A)	24 dB(A)
Residence 8	18 dB(A)	27 dB(A)	27 dB(A)
Residence 9	12 dB(A)	7 dB(A)	13 dB(A)
Residence 10	22 dB(A)	12 dB(A)	23 dB(A)

As can be seen from the above results, the operation of the Project will achieve the relevant criterion for the night period of 45 dB(A) at all nearby noise sensitive receivers, thus complying with the requirements of the Policy.

Waste collection should be limited to the period of the day such that it doesn't constitute a local nuisance in accordance with the Act. That is, waste collection should only be conducted between 9:00am and 7:00pm on a Sunday or public holiday or between 7:00am and 7:00pm on any other day.

Two fire pumps are also proposed as part of the winery development. While these will typically only operate in an emergency, it is understood that they will require regular testing and maintenance. While the specific interval for testing is unknown, it is expected to be in the order of once a month. In recognition of their occasional operation, they have been assessed against the day period compliance levels, instead of the level for new developments, that is a level of 57 dB(A).

In order to achieve the relevant criteria, the noise level from the fire pumps will need to be reduced. This could involve a silencer and/or acoustic enclosure and should be selected or designed such that the noise level produced is no more than 92 dB(A) when measured at 1m from the fire pump (or 1m from the outside of the acoustic enclosure if applicable). In addition, it should be ensured that the exhaust is directed away from any of the nearby noise sensitive receivers. Incorporating the above recommended treatments will result in a predicted level of no more than 57 dB(A) at the nearest noise sensitive receiver.

#### **4.2 Assessing music noise from indoor venues**

Appropriate noise criteria have been determined based on the measured background noise levels. The lowest measured  $L_{90}$  noise level from each noise logger has been used to inform the criteria. While it is noted that the logger on Hoffnungsthal Road stopped before the one for Menzel Road, the period with the lowest noise level for the Menzel Road logger was during the period where both loggers were operating. It is therefore considered that despite the shorter monitoring period, the measured data still captures the lowest level in the environment during the monitoring period.

The lowest measured background noise levels in each octave band ( $L_{90,15min}$ ) within the proposed hours of operation have been identified from the background noise measurements from each logger and are presented in Table 4, along with the resulting music noise criteria to be achieved at nearby noise sensitive receivers. It is noted that the background noise level is below the threshold of perception<sup>3</sup> in multiple octave bands. In such circumstances, the background noise levels have been adjusted up to the threshold of perception using the *International Standard ISO 389-7:2019 Acoustics – Reference zero for the calibration of audiometric equipment – Part 7: Reference threshold of hearing under free-field and diffuse-field listening conditions*<sup>4</sup>. Where the background levels have been adjusted up to the threshold of perception, these have been marked as **RED**.

The criteria determined from the logger on Hoffnungsthal Road have been considered to be representative for Residence 1 and Residence 2. For all other nearby noise sensitive receivers, the criteria determined from the logger on Menzel Road are considered to be representative.

Table 4: Music Noise Criteria

Monitoring Location	Noise Descriptor	Noise level [dB(A)] per octave band centre frequency [Hz]						
		63	125	250	500	1000	2000	4000
Hoffnungsthal Road	Lowest measured background noise levels ( $L_{A90,15min}$ )	17	11	8	13	11	11	13
	Noise Criteria ( $L_{A10}$ )	25	19	16	21	19	19	21
Menzel Road	Lowest measured background noise levels ( $L_{A90,15min}$ )	17	11	8	6	8	11	12
	Noise Criteria ( $L_{A10}$ )	25	19	16	14	16	19	20

<sup>3</sup> The threshold of perception is the faintest sound that can be heard by a person with normal hearing in the 18-25 year old age range. The threshold of perception will deteriorate (i.e. become higher/louder) as a person ages beyond this.

<sup>4</sup> The adjustment also requires a conversion from one third octave bands (as specified in ISO 389-7:2019) to octave bands to enable comparison with the Music Guidelines.

The noise model detailed in Section 4.1 has been used to predict the level of music noise at the nearby noise sensitive receivers. The following scenarios have been considered where music could be played:

- A function in the ballroom of the hotel.
- A function in the outdoor area adjacent to the hotel.
- A function in the outdoor area adjacent to the winery.
- A function in the function space of the winery with the doors open.
- A function in the function space of the winery with the doors closed.

In order to achieve the relevant noise criteria, upgrades to the building constructions will be required, as well as limiting the level of music played in the various spaces. The following acoustic treatments are recommended:

- In the ballroom of the hotel, supplement the 6mm glass/12mm airgap/6mm glass IGU with additional glazing comprising minimum 10.38mm thick laminated glass separated from the IGU glazing by an airgap of at least 100mm.
- In the ballroom of the hotel, provide two layers of minimum 13mm thick fire-rated plasterboard to the underside of the purlins, a minimum of 200mm below the roof deck (it is assumed that the roof structure above the ballroom will comprise a typical 0.42-0.48mm BMT profiled sheet steel roof deck laid over a building blanket on purlins).
- In the function space of the winery, ensure that the ceiling is constructed from a minimum 13mm thick plasterboard. It has been assumed that the ceiling will have a height of no more than 5m, which has been assumed to comprise a typical 0.42-0.48mm BMT profiled sheet steel roof deck laid over a building blanket on purlins.
- Limit the level of music played in various areas to the following:
  - Within the ballroom of the hotel, a level of 98 dB(A) (105 dB(C)). This could accommodate a loud DJ or an amplified band.
  - Outside of the hotel, a level of 73 dB(A) (81 dB(C)) at 3m from a performer. This could accommodate an unamplified soloist or duet.
  - Outside of the winery, a level of 73 dB(A) (81 dB(C)) at 3m from a performer. This could accommodate an unamplified soloist or duet.
  - Within the function space of the winery with the doors open, a level of 79 dB(A) (87 dB(C)). This could accommodate moderately loud background music.
  - Within the function space of the winery with the doors closed, a level of 100 dB(A) (108 dB(C)). This could accommodate a loud DJ or an amplified band.

Based on the above, the highest predicted noise levels at the nearby noise sensitive receivers have been compared to the relevant criteria and can be seen in Table 5.

Table 5: Music Noise Predictions

Scenario	Noise Descriptor	Noise level [dB(A)] per octave band centre frequency [Hz]						
		63	125	250	500	1000	2000	4000
Ballroom	Predicted Worst Case Music Level at Receiver (L <sub>A10</sub> )	17	17	10	*	*	*	*
	Noise Criteria (L <sub>A10</sub> )	25	19	16	14	16	19	20
Outside Hotel	Predicted Worst Case Music Level at Receiver (L <sub>A10</sub> )	11	11	8	15	19	14	9
	Noise Criteria (L <sub>A10</sub> )	25	19	16	21	19	19	21
Outside Winery	Predicted Worst Case Music Level at Receiver (L <sub>A10</sub> )	14	16	14	19	19	17	13
	Noise Criteria (L <sub>A10</sub> )	25	19	16	21	19	19	21
Winery Function Space (Doors Open)	Predicted Worst Case Music Level at Receiver (L <sub>A10</sub> )	9	11	10	17	19	13	7
	Noise Criteria (L <sub>A10</sub> )	25	19	16	21	19	19	21
Winery Function Space (Doors Closed)	Predicted Worst Case Music Level at Receiver (L <sub>A10</sub> )	21	18	13	11	*	*	*
	Noise Criteria (L <sub>A10</sub> )	25	19	16	21	19	19	21

\* The prediction at this frequency is below the threshold of perception

In addition, noise predictions have been conducted considering if there is a function occurring in both the function space of the winery and the ballroom of the hotel at the same time. For the purpose of this assessment, it has been considered that the doors of the function space in the winery are closed. The results of these predictions can be seen in Table 6.

Table 6: Music Noise Predictions – Concurrent Functions

Location	Noise Descriptor	Noise level [dB(A)] per octave band centre frequency [Hz]						
		63	125	250	500	1000	2000	4000
Hoffnungsthal Road	Predicted Worst Case Music Level at Receiver (L <sub>A10</sub> )	22	19	14	11	*	*	*
	Noise Criteria (L <sub>A10</sub> )	25	19	16	21	19	19	21
Menzel Road	Predicted Worst Case Music Level at Receiver (L <sub>A10</sub> )	20	17	11	10	*	*	*
	Noise Criteria (L <sub>A10</sub> )	25	19	16	14	16	19	20

\* The prediction at this frequency is below the threshold of perception

### 4.3 Cumulative Noise

Cumulative noise emissions from the hotel and winery have been considered in this assessment. The only other significant noise generating development near to the Project is the helicopter charter business located further along Hoffnungsthal Road. The noise from helicopters is a transient noise source, vastly different to the steady state noise generated by the Project. In addition, these noise sources are assessed completely differently, against different legislation and using different noise metrics. Nevertheless, the low background noise levels measured at the site indicate that the average noise levels from the helicopter business, and other activity in the area, is negligible. As such, there are not any predicted cumulative impacts for the nearby noise sensitive receivers.

### 4.4 Construction Noise

For construction activities conducted during standard hours, that is between 7:00am and 7:00pm Monday to Saturday, where all reasonable and practicable measures have been taken to minimise noise, there are no noise limits that apply, and construction activity can be conducted without any restrictions. If works are proposed to be conducted outside of the standard hours, such as concrete pours during the early morning, then a noise management plan should be developed by the construction contractor to govern these activities.

## 5 CONCLUSION

An environmental noise assessment has been completed for the proposed Southern Barossa Winery and Tourism Accommodation Project. The proposal seeks to construct a hotel, winery, and cellar door on land located on the corner of Hoffnungsthal Road and Menzel Road, Williamstown.

The assessment has been based on the assessment requirements set down by the State Planning Commission. Reference has also been made to the *Environment Protection (Commercial and Industrial Noise) Policy 2023*, the *Local Nuisance and Litter Control Act 2016*, and the EPA document *Assessing music noise from indoor venues*.

Subject to the incorporation of the recommended acoustic treatments, it is considered that the development will achieve the requirements of the Policy, and therefore will also achieve those of the assessment requirements.

## APPENDIX A: ASSESSMENT REQUIREMENTS

Library Reference: AEQ2

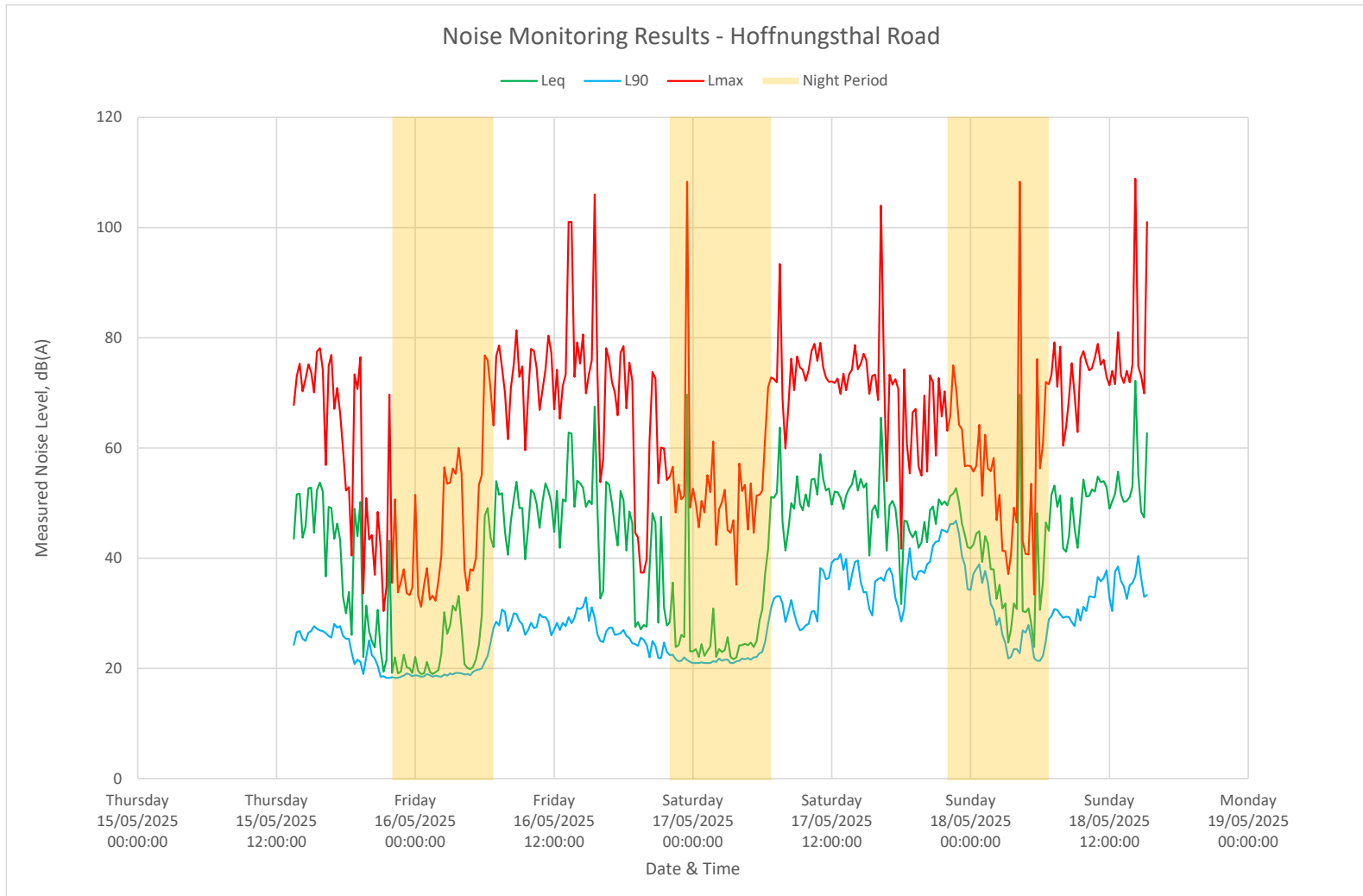
### Objective

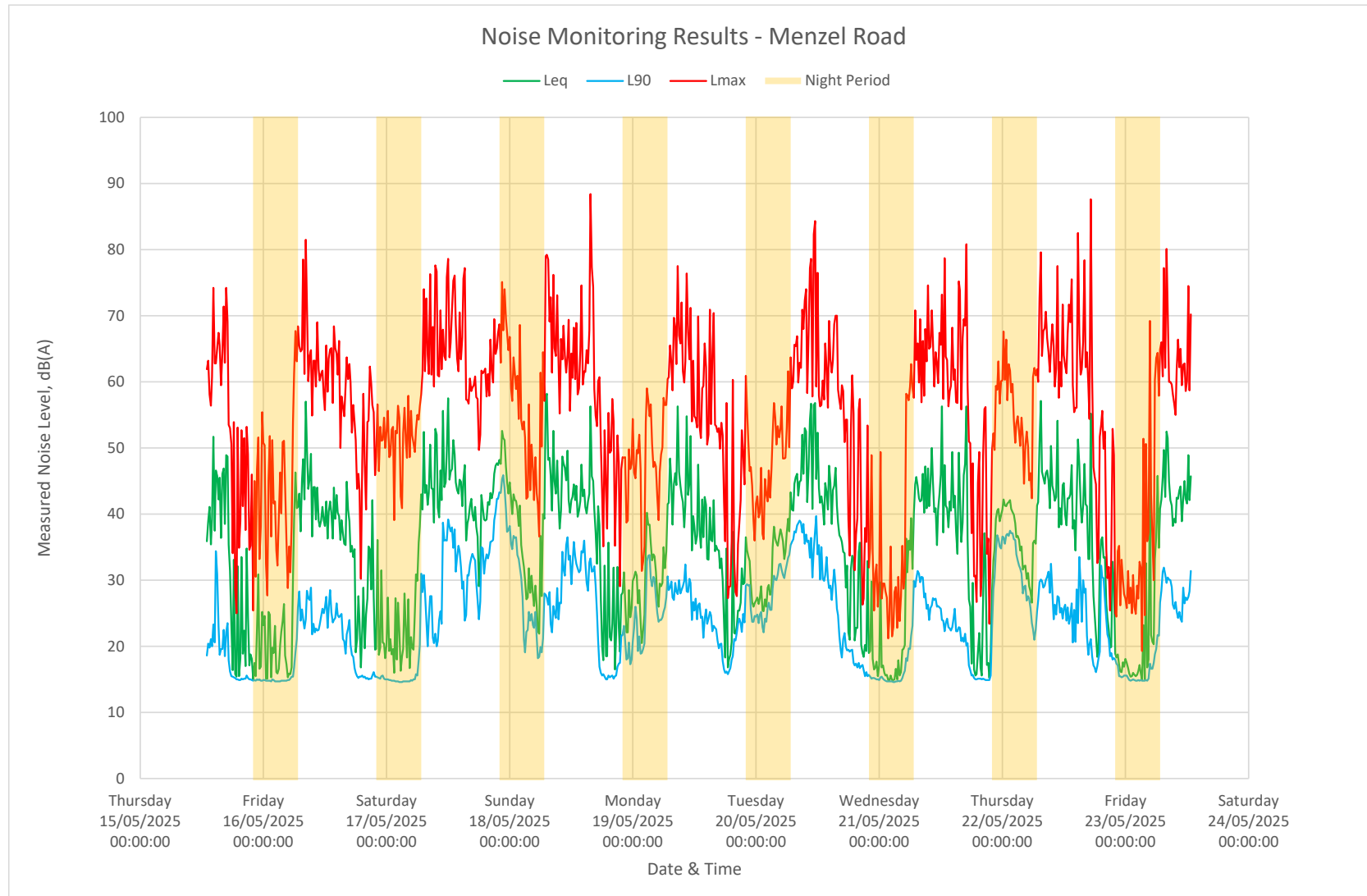
To ensure the development does not have unacceptable adverse noise impacts on the surrounding environment in particular sensitive receivers in proximity to noise sources.

### Method of Investigation

- Provide an impact assessment of noise from or on the proposed development, prepared in accordance with the *Guidelines for the use of the Environment Protection (Commercial and Industrial Noise) Policy 2023* (Noise EPP) by a suitably experienced, professional acoustic engineering consultant.
- The assessment should:
  - Describe and illustrate any noise sensitive receivers both proposed or existing including their location, who they are, and how have they been defined. Also describe any other environmental values that could be impacted by noise emitted from or to the development.
  - Describe current background noise levels at sensitive receivers.
  - Describe sources and characteristics of noise that would be emitted during the construction, commissioning, operation, upset conditions, of the development. For the hotel development, this would include both indoor and outdoor dining/functions/event spaces, use of live or recorded music, the operation of external plant, vehicle movements, and other related noise generating activities. For the winery development, this would include both indoor and outdoor functions/event spaces, use of live or recorded music, the operation of internal and external plant, vehicle movements and other related noise generating activities.
  - Provide an assessment of the compatibility of the development's noise emissions with existing or potential land uses in surrounding areas and the cumulative impact of emissions with other known noise emissions associated with existing development and possible future development (i.e. as described by approved plans and existing project approvals).
  - Describe what reasonable and practicable measures will be taken to minimise noise impacts on sensitive receivers and the likely effectiveness of these measures, with a view to demonstrating how the Noise EPP and/or 'General Environmental Duty' (as per section 25 *Environment Protection Act 1993*) will be met, monitored, audited and reported, and how corrective actions would be managed.

APPENDIX B: NOISE MONITORING RESULTS





**APPENDIX C: SOUND POWER LEVELS**

<b>Equipment / Activity</b>	<b>Sound Power Level</b>
Bus Moving	101 dB(A)
Bus Idling	91 dB(A)
Truck Moving	96 dB(A)
Car Moving	82 dB(A)
General Car Park Activity	83 dB(A)
Patron (per Person)	75 dB(A)
Unloading Activity	82 dB(A)
Forklift	93 dB(A)
Destemmer	85 dB(A)
Air-conditioning Heat Pump Unit	98 dB(A)
Hot Water Heat Pump Unit	78 dB(A)
Generator	105 dB(A)
Heat Recovery Unit	83 dB(A)
Pump	85 dB(A)
Wastewater Pump	82 dB(A)
Rotary Screen	81 dB(A)
Blower	91 dB(A)
Fire Pump	123 dB(A)