

APPENDIX G - NOISE IMPACT ASSESSMENT

REL Events Pty Ltd

Environmental Noise Level Impact Assessment for Rabbit Eat Lettuce Festival

**Amplified Music Events,
Lot 70 MZ1141 Stonelands Road,
Stonelands, Queensland**

conducted for

REL Events Pty Ltd

Report No: R250705-01

Description	Name	Date
Ambient Sound Levels	Matthieu Delepau	15.04.25 to 17.04.25
Draft report	Matthieu Delepau	05.07.25
Peer review	Darren Tardio Enfield Acoustics Pty Ltd director, Member of Australian Acoustical Society	21.07.2025
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Dates of assessment: Tuesday 15 to Thursday 17 April 2025

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Our reference: R250705/01

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INTRODUCTION

Following the South Burnett Regional Council temporary entertainment event permit and the successful Easter 2025 Rabbits Eat Lettuce Music and Arts Festival, for which the permit was issued, we present a Environmental Noise Level Impact Assessment in support of a Development Application for an MCU Event License for the Lot 70 MZ1141 Stonelands Road property to conduct an annual Music & Arts Festival.

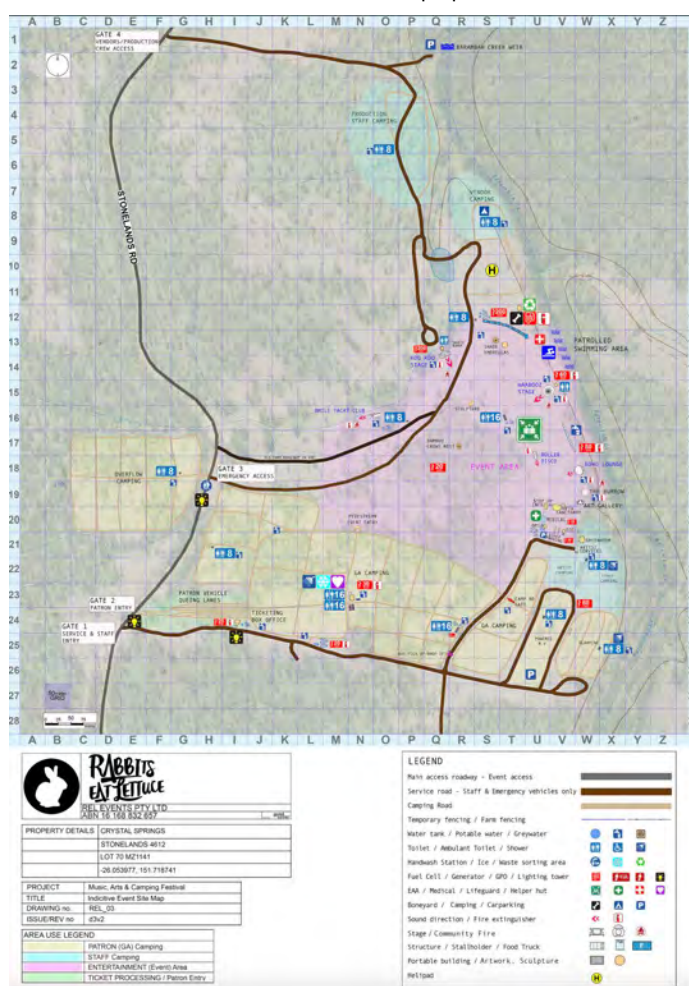
During the Easter 2025 Rabbits Eat Lettuce Music and Arts Festival only one formal identified noise complaint was received over the 5-day event and although noise complaints were received, at no time did measured residential noise levels exceed any of the noise limits. These measured residential noise levels were undertaken with a total of three strategically located off site noise loggers, in addition to attended noise monitoring, with the attended noise monitoring conducted for the duration of the Easter 2025 event.

For the Easter 2025 event main stage (stages 1, 2 and 3) entertainment ceased by 0200 hours each night (for stages 1, 2 and 3, whilst one other smaller stage operated until between 0400 and 0700 hours, with all stages compliant with the residential noise limits for the duration of the 4-day event, for the complete 24-hour day.

The Easter 2025 Rabbits Eat Lettuce Music and Arts Festival event has been used as an example of a successful amplified music event. It has provided the foundation for the preparation of this environmental noise level impact assessment for amplified music events within the entertainment area of Lot 70 MZ1141 Stoneland road, Stonelands QLD.

This report details that portion of the Lot 70 MZ1141 Stonelands Road site to be used for the outdoor amplified music events, including the entertainment area (where the stages will be located) and the campground area, together with required main stage orientation, stage operating hours, ambient noise levels, noise limits, target stage noise levels, noise monitoring and noise control measures.

Figure 1 shows the total Lot 70 MZ1141 Stoneland road site and the area proposed for for Rabbit Eat Lettuce 2026 music event,



REL Events Pty Ltd
Environmental Noise Level Impact Assessment for Proposed Outdoor Amplified Music
Festival Rabbit Eat Lettuce, Lot 70 MZ1141 Stonelands road, Stonelands, Queensland

Our reference: R250705/01

Figure 2 is a map showing the closest residences,



Figure 3 is a map of the noise logger locations,



CRITERIA

Measurements and Calculations

All noise level measurements were conducted in accordance with the following:

- general requirements of the Queensland environmental protection legislation;
- Environmental Protection (Noise) Policy 2019;
- *Noise Measurement Manual*, Queensland Government, Department of Environment and Heritage Protection, Version 4.01, 10 March 2020;
- Australian Standard AS 1055-2018, *Acoustics – Description and Measurement of Environmental Noise*.

Noise Limits

For the Easter 2025 event the Southern Downs Regional Council imposed the following noise condition, and these are the noise limits which form part of this development application:

In relation to open-air events the following apply:

An occupier of premises must not use, or permit the use of, the premises for an open-air event on any day –

- i. before 7am, if the use causes audible noise; or*
- ii. from 7am to 10pm. If the use causes noise of more than 70 dB(A); or*
- iii. from 10pm to 2am, if the use causes noise of more than the lesser of the following:*
 - a. 50 dB(A);*
 - b. 10 dB(A) above the background level.*

These noise limits were complied with by all stages, at all times, for the duration of the Easter 2025 Rabbits Eat Lettuce Music and Arts Festival.

AMBIENT SOUND LEVELS

Three noise logger were deployed (ref to figure 3) sn.97593 at residence 2, sn.99042 at residence 4, sn.99735 at residence 3 for an 3-day period prior the event start and during the entire duration of the festival, the results of this ambient noise assessment LA90, are detailed in Table 1 to 3 below.

Those monitoring locations have been carefully selected as they are situated north, south and east of the festival site and also are the closest residence we had been authorised to set up the noise loggers. Given the rural nature of the area the results of this ambient noise assessment would be equally representative of the ambient and background sound levels at the further residences. Refer to Appendix A for details of measurement equipment, equipment settings, calibration and atmospheric conditions and Appendix B for graphical presentation of the key parameters.

With respect to these noise level measurements the following definitions should be noted:

- 'A' weighted: adjustment made by the sound level meter to the measured noise to correspond to the response of the human ear. This adjustment is standardised by international noise standards;
- LAeq,T: the equivalent continuous (or approximately the 'average') 'A' weighted sound pressure level for the measurement period 'T';
- LA1,T: the 'A' weighted sound pressure level exceeded for 1% of the measurement period 'T';
- LA10,T: the 'A' weighted sound pressure level exceeded for 10% of the measurement period 'T';
- LA90,T: the 'A' weighted sound pressure level exceeded for 90% of the measurement period 'T' and also known as the background sound level.

Table 1
Results of Day+Night pre festival Ambient Noise Assessment.

L90 T results

	L90 min	L90 Max	L90 Average
sn.97593 15-04 12pm to 17-04 12pm	20	43.7	29
sn.99042 15-04 4pm to 17-04 12pm	20	39.8	27.5
sn.99735 15-04 8pm to 17-04 12pm	21.3	38.1	28

Table 2
Results of Day+Night during the festival Ambient Noise Assessment.

L90 T results (Duration of the festival)

	L90 min	L90 Max	L90 Average
sn.97593 17-04 12pm to 21-04 12pm	21	42.3	33.3
sn.99042 17-04 12pm to 21-04 12pm	20.8	43	32.6
sn.99735 17-04 12pm to 20-04 12pm	21.4	40.5	28.9

Table 3
Results of Night time Ambient Noise Assessment, 22h to 2am.

10pm to 2am L90 T results (Night time background noise)

	L90 min	L90 Max	L90 Average
sn.97593	20.4	27.2	22.3
sn.99042	20.4	23.4	21.7
sn.99735	21.7	27.4	25.5

Given this potential variation in seasonal background sound levels, further background sound levels will be obtained immediately prior to an outdoor amplified music event, and this data will be used to establish the 2200 to 0200 hours noise limits (background + 10 dB(A)). It is proposed that these pre-event background sound levels will be obtained for the next three years, to better appreciate the variations in the background sound levels across the period of the year when events are to be held in the development area.

As it's stand the results of the background noise assessment are :

Residence 2: $22.3 + 10 = 32$ dB LAeq 5mn

Residence 4: $21.7 + 10 = 32$ dB LAeq 5mn

Residence 3: $25.5 + 10 = 35$ dB LAeq 5mn

Or an average of $23 + 10 = 33$ dB LAeq 5mn at any residence around the festival site from 22pm to 2am.

An analysis of the background noise levels (L90T) over the three days and nights prior to the event (Table 1), compared with those recorded during the entire duration of the festival (Table 2), shows minimal increases: 4 dB at Residence 2, 5 dB at Residence 3, and 1 dB at Residence 4. These slight variations indicate that the overall noise impact during the festival period was low.

SOURCE NOISE LEVELS

Amplified Music

A paper presented at Acoustics 2018 titled *Setting noise objectives for outdoor music festivals in rural locations*, Jeffrey Parnell and Rebecca Sommer, states the following:

In setting noise limits for outdoor music events, regulators must achieve an appropriate balance between the level of music required to provide satisfactory patron experience and protecting the amenity of surrounding residents. In doing this, it must be understood there is a minimum music level below which patron experience will be sub-standard. This matter is not typically considered in setting of noise objectives for other development types, but is critical to the success of outdoor music events. The following 'rules of thumb' for music levels have been derived from the measurement of music from outdoor events:

- *an Leq level of 100 dB(A) represents a strong sound which is typical of rock concerts, but not as loud as that experienced in a night club or at a heavy metal concert;*
- *an Leq level of 95 dB(A) represents a reasonably strong, full sound that is typical of indie/alternative rock concerts. This level is likely to elicit a few complaints from the patrons, from being either too loud or too soft; and*
- *an LAeq level of less than 95 dB(A) is not considered to be sufficiently loud for most music genres, and is likely to elicit complaints from the event organisers and disgruntled patrons for being too low.*

Based on our experience conducting noise monitoring and operating indoor and outdoor concerts over the past 30 years all over the world, we concur with the above and would consider that, for the main stages, the amplified music noise level would need to be a minimum 95 dB(A) at 30 metres from the stage, with an associated dB(C) noise level of at least 112 LCeq 5mn. For the smaller stages a lower amplified music noise level would be satisfactory for the audience and for ensuring that these smaller stage amplified music noise levels do not have an additive effect on the main stage noise levels at any of the closest residences.

Patrons

With respect to the additive effect of patron noise we have measured yelling, screaming and whistling instantaneous noise levels at outdoor concerts as loud as 104 dB(A) @ 3 metres, with an associated noise level of 98 dB(A) LAeq,5min @ 3 metres. These noise levels were for a large outdoor concert with approximately 30,000 patrons. This is equivalent to 78 dB(A) LAeq,5min @ 30 metres (the same separation distance for the amplified music noise limits). Given that crowd noise is more than 10 dB(A) less than the target amplified music noise level for the main stages, crowd noise will not have an additive effect with respect to potential noise impact from the proposed 5 entertainment days per annum.

Camping Ground

For the camping area all sites are non-powered. Facilities available for the campers include toilets, showers, drinking water, handwash stations, ice and GPO power outlets for charging appliances. Potential noise sources associated with the camping ground include:

- on site vehicle movements to and from the camp sites;
- people noise;
- amplified music; and
- generators.

Source Noise Levels

Typical source noise levels for the camping ground are:

- vehicles:
 - o driving: 40 dB(A) LAeq,adj,T @ 8m;
 - o door close: 50 dB(A) LAeq,adj,T @ 8m;
 - o engine start: 50 dB(A) LAeq,adj,T @ 8m;
- generator: 60 dB(A) LAeq,adj,T @ 2m;
- people:
 - o camp site: 52 dB(A) LAeq,adj,T @ 8m;
 - o gathering: 54 dB(A) LAeq,adj,T @ 8m (approx. 12 people);
 - o gathering: 68 dB(A) LAeq,adj,T @ 8m (approx. 100 people);
- camper music (eg radio): 60 dB(A) LAeq,adj,T @ 8m.

Based on separation distance and intervening topography, all of the above camping ground source noise levels comply with the noise limits for the complete 24-hour day. To ensure that this compliance is achieved camping ground rules need to be established and, if required, enforced by on-site security.

Noise Control

To ensure that camping ground noise sources comply with the noise limits and that no noise nuisance is caused at any of the off-site residences, suggested noise management measures are detailed below.

Vehicle Movements

Vehicles must adhere to the on-site speed limit and apart from when accessing a camp site must only be driven on the internal roadways.

Camp Sites

There is no loud music permitted at any time, day or night, at any of the camp sites. From 0200 hours there must be no music and no loud noise.

Generators

Patrons are prohibited from using generators in the campgrounds.

Prohibited Items

The following are prohibited on site:

- fire arms;
- weapons;
- motor bikes;
- quad bikes;
- buggies.
- Generators
- Professional PA Sound Systems

The use of drones is not permitted, unless prior approval is granted by REL Events Pty Ltd. Any drone use must be limited to between 0800 and 1700 hours.

COMPUTER NOISE MODELLING

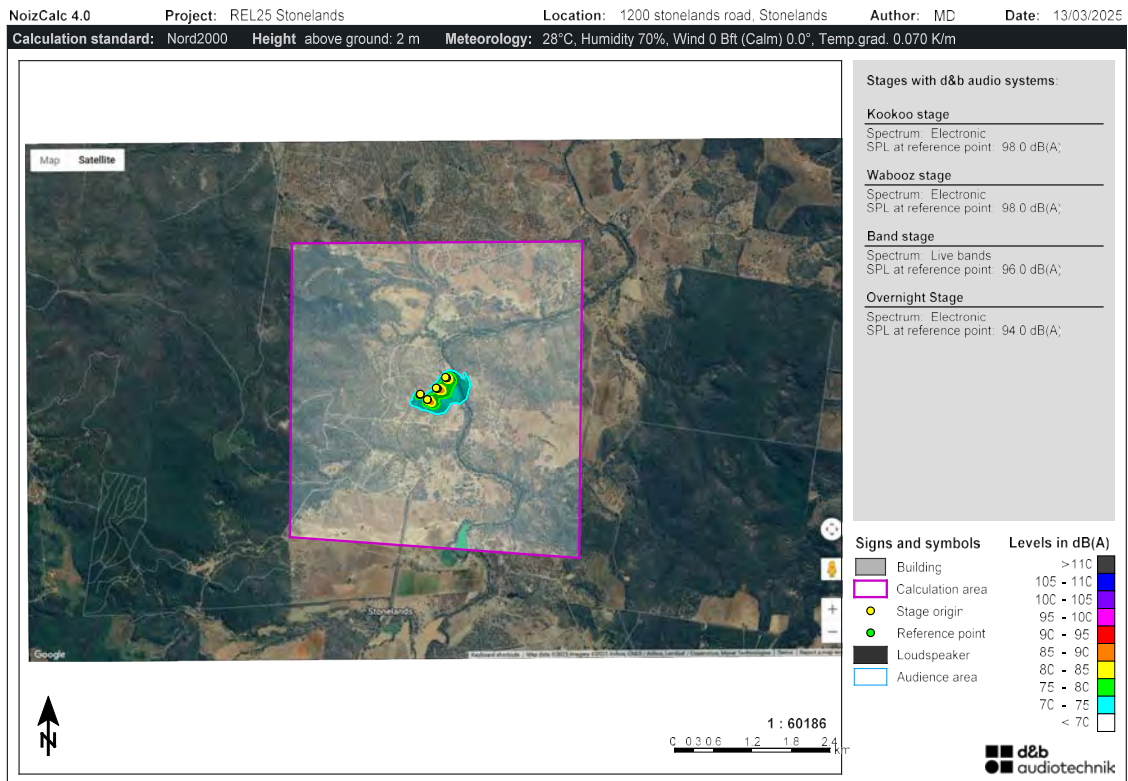
For the Easter 2025 event computer noise modelling (based on the formulas detailed in International Standard ISO 9613.1 and ISO 9613.2) was undertaken to predict amplified music noise levels at the residences identified above as the closest residences to the development area. This computer noise modelling, as well as subsequent computer noise modelling, indicated that the optimum orientation for the main stages (to result in the lowest possible amplified music noise impact at the closest residences) was approximately west to south-west and approximately south-east to south.

For the main stages (stages 1, 2 and 3) the target amplified music noise levels at 30 metres for the leading edge of the stages is 96 dB(A) LAeq,5min and 110 dB(C) LCeq,5min for up to 0200 hours, with stages ceasing to operate at 0200 hours.

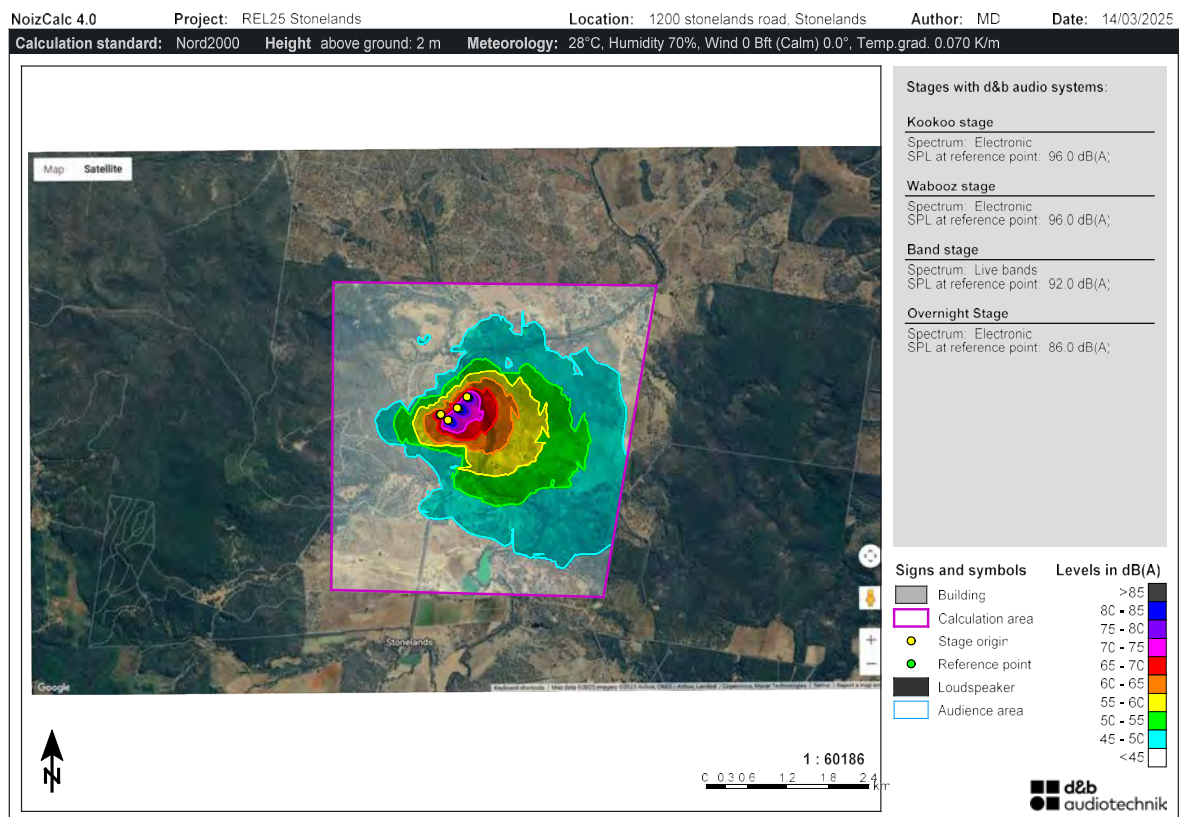
For stage 4 the target amplified music noise level is 86 dB(A) LAeq,5min at 30 metres from the leading edge of stage 4 between the hours of 0200 and 0700.

Whilst the Easter 2025 Rabbits Eat Lettuce Music and Arts Festival comprised a total of four stages, in optimum locations and directions to minimise the residential amplified music noise levels, this is only an example of the configuration which resulted in compliance with the residential noise limits. It is possible that the number of stages could be greater than four and that the stage orientation could be different from west to south-west and south-east to south, as the Noise Management Plan prepared for each event must take account of all of these variables and adjust the front of house target amplified music noise levels accordingly.

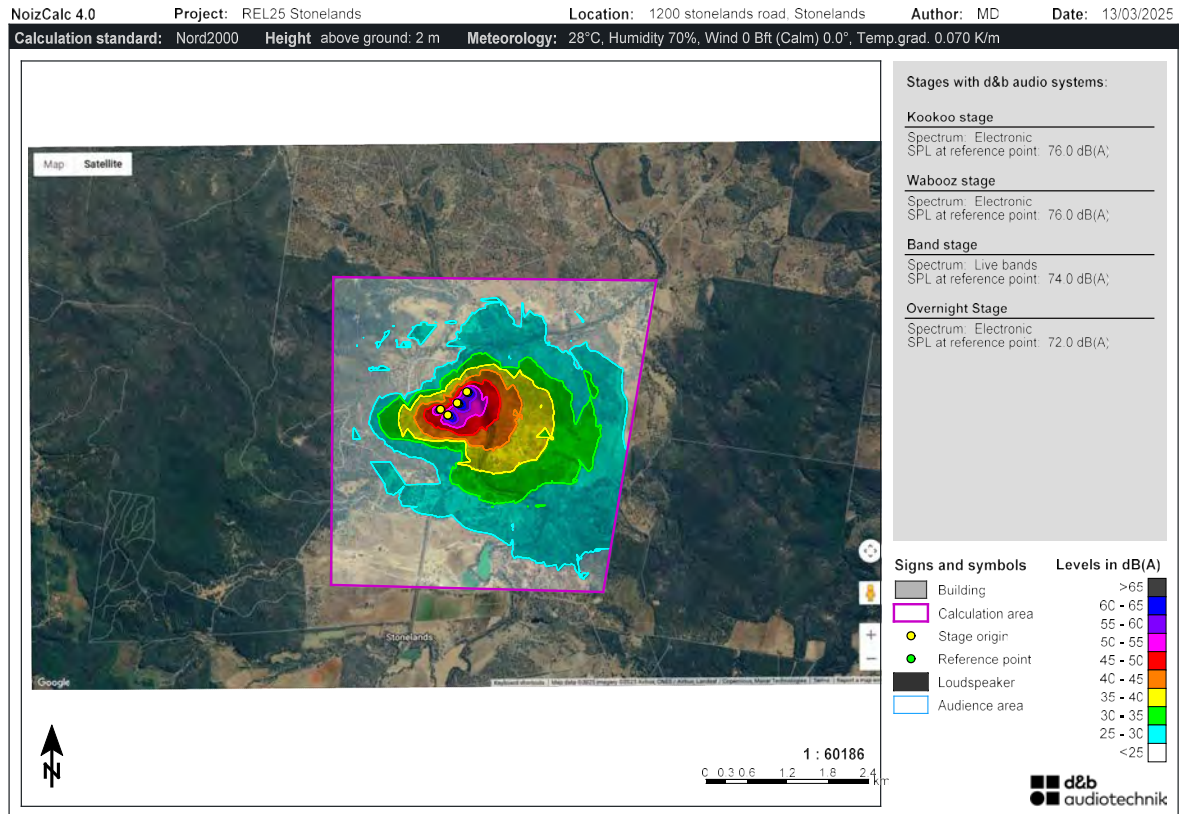
Based on the measured background sound levels completed just prior to an outdoor amplified music event the residential noise limits will be determined for 2200 to 0200 hours and from 0200 to 0700 hours and the target amplified music noise levels at 30 metres from the main stages adjusted to ensure compliance with the residential noise limits. (Examples of noise modelling below)



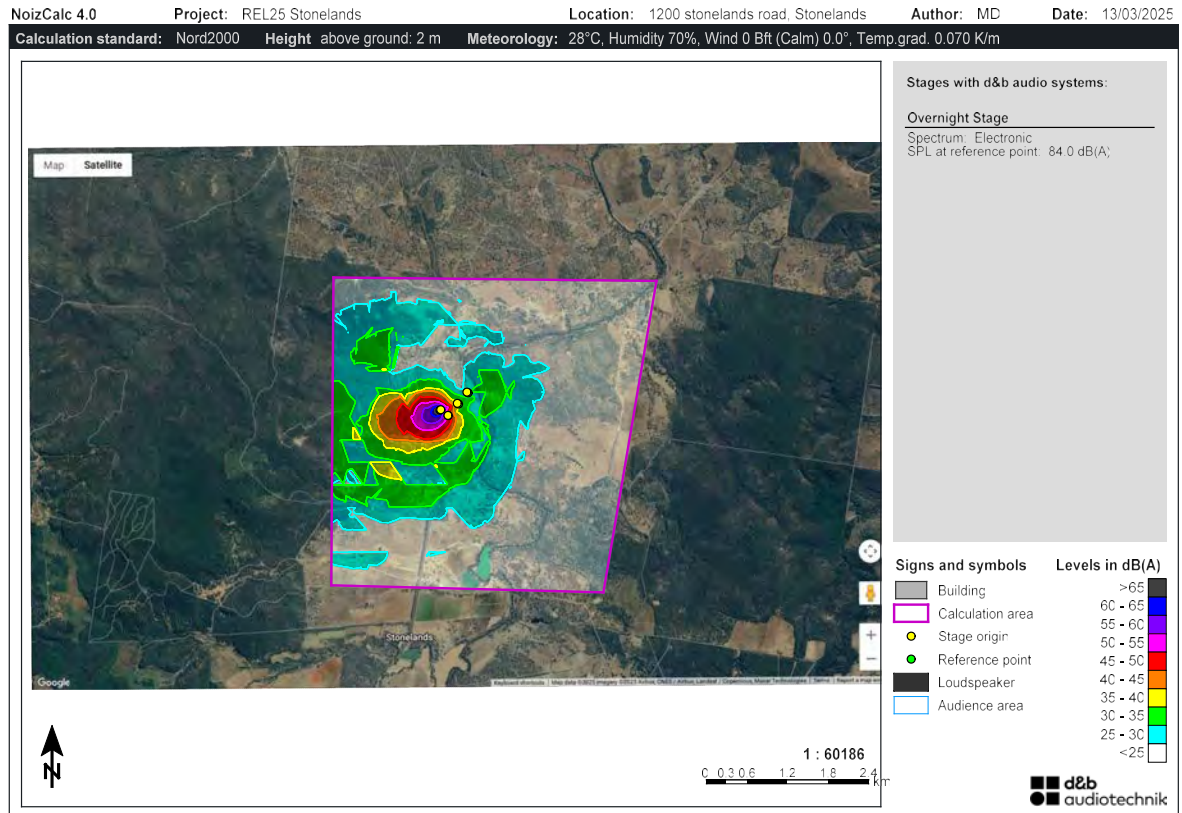
All stages running until 22h00 measured @ 20m, predictions results in dbA



All stages running from 22h00 to 00h00 measured @ 20m, predictions results in dbA



All stages running from 00h00 to 02h00 measured @ 20m, predictions results in dbA



stage 4 running from 0200 until until 07h00 in dBA (No subwoofer)

NOISE CONTROL

Whilst there is some potential for local residents to be noise impacted by noise sources associated with an outdoor amplified music event within the development area, the primary potential for residential noise impact is amplified music from the stages and, in particular, the cumulative effect if a multiple stage event. The results of the computer noise modelling clearly indicate the preferred orientation of the main stages (stages 1, 2, 3 and 4) to minimise residential noise impact.

Community Consultation

It is important that the residential community surrounding the Stonelands Venue are notified of an upcoming event by way of a letterbox drop. This letterbox drop should include all residences within a 5000 metre radius of the development site and be conducted at least 3 weeks prior to an outdoor amplified music event. This letterbox drop should include, as a minimum, the following information:

- name of the event;
- start date for bump in;
- finish date for bump out;
- dates and times for line checks and sound checks;
- dates and times for the performances;
- complaint hotline number;
- details of any road closures/traffic diversions/traffic flow interruptions, including dates and times when these will occur.

Complaint Response

In the event of a complaint about noise being received, the person taking the call will record as much information as possible. The following minimum information is required to be recorded:

1. name;
2. address;
3. details of complaint;
4. contact details;
5. whether or not the complainant had received a letter box notification;
6. what action was taken in response to the complaint.

Appendix A includes an example of the complaint response form.

At the conclusion of the call, information about the complaint will be passed, by (mobile) telephone or UHF radio, to the acoustic consultant, who will respond to the complaint. The acoustic consultant's response could be one or more of the following:

- telephone the complainant;
- ensure that the front of house noise levels are in compliance with the target noise levels detailed in the Noise Management Plan;
- visit and discuss complaint with complainant;
- conduct a noise assessment from the complainant's property.

If it is found that the residential noise limit is being exceeded, then this exceedance will be conveyed immediately to the Production Manager. The Production Manager will have a UHF radio, with earphone, and mobile telephone, to enable communication with the acoustic consultant and front of house for the stages. If Southern Downs Regional Council officers are on duty at the outdoor amplified music event they will also be notified of the complaint, any noise limit exceedance, and control measures taken.

Methods of communication will be:

- telephone to the complaints hotline for the outdoor amplified music event;
- mobile telephone or UHF radio communication between the complaints hotline/event operations office to the acoustic consultant;
- mobile phone or UHF radio communication between the acoustic consultant and the Production Manager;
- mobile telephone or UHF radio communication between the Production Manager and the Southern Downs Regional Council officers;
- UHF radio or mobile telephone between the Production Manager and the front of house.

Noise Management Plan

For each outdoor amplified music event a Noise Management Plan must be prepared and submitted to the Southern Downs Regional Council for their review and approval. This Noise Management Plan must contain, as a minimum, the following information:

Orientation of minor stages. Preparation of a specific NMP prior to any outdoor amplified music event which must be submitted to and approved by Council. This NMP plan must detail at least the following:

- A site plan indicating the positioning and angle of speakers and stages;
- Information regarding control of speaker stacks. Any stacks above three tiers must have independent control over the top speakers;
- Demonstrate not to cause noise of more than:
 - o 0700 to 2200 hours: 70dB(A) LAeq,5min at any noise sensitive receiver;
 - o 2200 to 0200 hours: the lesser of the following:
 - 50 dB(A) LAeq,5min;
 - or 10 dB(A) above the background sound level;
 - o 0200 to 0700 hours: no audible noise at any sensitive receiver.
- Provide predicted accumulated patron noise impacts and camping ground noise impacts;
- Ambient background levels must be provided;
- Predicted noise levels anticipated at surrounding noise sensitive receivers;
- The sound pressure level considered appropriate for each of the stages referenced to 30 metres from the leading edge of each of the stages, to achieve residential noise limit compliance, with due consideration of the potential operation of multiple stages;
- Procedures for response to complaints;
- Provide hours of proposed sound checks and proposed hours for the event;
- Details of the noise monitoring to be conducted at any front of house locations;
- Details of the noise monitoring to be conducted adjacent to the closest residences, with due consideration of residents who have previously lodged a noise complaint;
- Details of letter box drop – information to be included and area to be included.

Noise Report

Within 30 days of an outdoor amplified music noise event a noise report must be prepared, detailing the following minimum information:

- Name of the event;
- Dates and times of line checks and sound checks;
- Dates and time for the event;
- Sitemap detailing the stage locations and orientations;
- Details of the results of the background sound level monitoring completed prior to the event;
- Residential amplified music noise limits applied to the event;
- Target front of house amplified music noise levels applied to the event;
- Results of all front of house and residential noise monitoring during the event;
- Details of all noise complaints received and action taken in response to the noise complaints;
- Any suggestions for improving noise management for future outdoor amplified music events.

CONCLUSIONS

Based on the noise monitoring report provided by MAS for the Rabbits Eat Lettuce (REL) post-festival assessment, and a comparison of background noise levels (L90T) during the three days and nights prior to the event with those recorded during the festival (refer to Table 1, page 6), the increase in background levels was minimal: 4 dB at Residence 2, 5 dB at Residence 3, and 1 dB at Residence 4. These results indicate a low overall noise impact from the event.

Data analysis, along with communications with local residents during and after the festival, suggest that an unexpected propagation of bass frequencies toward the southeast, potentially due to a natural rock formation or gully, may have contributed to perceived disturbances in that area. This phenomenon will be further investigated, and future assessments will consider the directivity of the sound systems to mitigate this effect.

The South Burnett Regional Council issued a temporary entertainment event permit for the Easter 2025 REL Music and Arts Festival. From an environmental noise standpoint, the event was successful, with only one formal noise complaints recorded over the five-day period. All noise control measures outlined in the approved Noise Management Plan were effectively implemented. Residential noise levels were monitored using three noise loggers and attended assessments. While no exceedances of noise limits occurred, stage volumes were proactively managed in response to resident feedback, reflecting a strong commitment to community engagement and compliance.

RECOMMENDATION

It is recommended that, from an environmental noise perspective, the proposed MCU Event License for an annual outdoor amplified music event within the development area of Lot 70 MZ1141 Stonelands road be approved, provided that the noise control measures detailed in this report are incorporated into the permit approval.

APPENDIX A: COMPLAINT RESPONSE FORM

COMPLAINT RESPONSE FORM	
<u>General Information</u>	<u>Complaint Information Details</u>
Date:	
Time:	
Description of Complaint: (noise, patron behaviour, etc)	
Communication Method: (phone, personal, etc)	
<u>Complainant Contact Details</u>	
Name:	
Address:	
Telephone Number:	
Email address:	
<u>Weather Conditions at Time of Complaint</u>	
General Description: (overcast, sunny, raining, foggy, etc.)	
Wind Direction:	
Wind Speed:	
<u>Summary of Complaint Response:</u>	
<u>Investigation Details:</u>	
<u>Person Responsible for Investigation:</u>	
Name:	
Signature:	
Telephone number:	
<u>Response:</u>	
<u>Date:</u> <u>Time:</u>	
<u>Action Taken:</u>	