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WAVEFORM
ACOUSTICS

PROJECT# 25688

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NOISE MANAGEMENT PLAN INFORMATION SHEET

PROJECT

25688, The Wool Store, 47-61 Sunshine Rd, West Footscray, Noise Management Plan

PREPARED FOR



PREPARED BY

of Eventz Noise Management/Waveform Acoustics



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REVISIONS REGISTER	ISSUE DATE
Noise Management Plan	30.10.25
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1.0 – EXECUTIVE SUMMARY

Eventz Noise Management/Waveform Acoustics have been engaged to provide a Noise Management Plan (NMP) in relation to The Wool Store, 47-61 Sunshine Rd, West Footscray for events for the next 12 months.

This management plan demonstrates in particular that the proposed use and level of amplified PA/music noise generated can be appropriately contained on the site without unreasonable impact on the nearby Noise Sensitive Receivers (NSR).

The client is proposing:

MAJOR EVENTS:

- A maximum of 12 events annually – they will be applying for a L06 permit.
- Maximum capacity of 8500 patrons per event;
- Typically operating 8 hours between the window of 12:00 (noon) to 23:00.
 - Where hours are outside of this they will apply for a separate L05 permit.
- 3 x stages operating (two outdoors)

MINOR EVENTS:

- Facilitating low impact community events, institutional events, corporate events, etc.;
- Maximum capacity of 1000 patrons per event
- Flexible operating hours

The nearest Noise Sensitive Receivers (NSR) have been located, and they are listed within this report.

The site is situated in an Industrial 1 Zone. The nearest NSR area located in General Residential zoning to the north, south and west, however, we anticipate the most noise exposure on the NSR across the train track to the north on Rupert St.

The events will need to demonstrate compliance with the EPA 1826 noise protocol requirements.

Due to the layout of the site with external stages, and the general lack of attenuation from the lightweight elements of the façade of the wool store facility (thin glazing making up the majority of the external wall systems and lightweight sheet metal roofing with various leakage points), it is our view that the EPA limits for outdoor events should be applicable to all stage areas, as this allows for practical noise monitoring, assessing levels of 65dB LAeq,15min at the NSR.

In order to measure the real-world impacts and confirm the noise modelling in this report, we are recommending active noise monitoring during all “Major Events” to ensure that the EPA 1826 limits are not breached.

“Minor Events” should be assessed by the client on a case-by-case basis determining if there is a risk of breaching the EPA 1826 noise protocol requirements. If such a risk is assessed, then active noise management may also need to be provided at such events.

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1.1 – EXECUTIVE SUMMARY, cont.

The cumulative noise output of the approved data centre at 63 Sunshine Road is not a relevant consideration for this planning application. At the time of preparing this NMP, the data centre is not operational and, accordingly, its acoustic impact on the surrounding area cannot be assessed. Regardless, the proposed 65dB(A) noise limit for events is not predicated on cumulative or background noise levels.

It is our opinion that the facility can comply with their EPA 1826 Noise Protocol obligations during the events with strict application of the recommendations contained in this report.

Best Regards,



Rohan Barnes MAAS
Principal Consultant

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2.0 – LEGISLATION AND GUIDELINES

In the preparation of the report the following legislation and guidelines were used:

EPA publication 1826: ‘Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues’ (Noise Protocol).

This publication provides a protocol for the purpose of determining noise limits for new and existing commercial, industrial and trade premises and entertainment venues as defined by the Regulations. It sets the methodology for assessing the effective noise level to determine unreasonable noise under Regulations 118, 125 and 130. The measurement procedures of this Noise Protocol are also used to determine aggravated noise under Regulations 121, 127 and 131.

Environment Protection Regulations 2021

The objectives of these Regulations are to further the purposes of, and give effect to, the Environment Protection Act 2017 by imposing obligations in relation to environmental protection in Victoria.

General Environmental Duty (Environment Protection Act 2017)

Environment protection laws will mean that anyone engaging in an activity posing a risk of harm to human health and the environment, from pollution or waste, must manage that risk to prevent harm as far as reasonably practicable. This general environmental duty applies to all Victorians. It means you will need to proactively assess and manage the risks of harm from your activities. Eliminating or reducing risk is important because industry activities could impact - Noise – affecting people’s sleep; communication, cognition and learning; domestic or recreational activities; tranquillity and enjoyment inside and outside

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3.0 – NOISE LIMITS FOR OUTDOOR MUSIC EVENTS

The EPA's 1826 protocols state that for outdoor entertainment events:

The noise limit for music noise from outdoor entertainment venues and for music noise from outdoor entertainment events during standard operating hours, as defined in Regulations 128 and 129 is –

- *65dB $L_{Aeq,15min}$ when the measurement point is located outdoors, within a noise sensitive area; and*
- *55dB $L_{Aeq,15min}$ when the measurement point is located indoors, in a sensitive room within a noise sensitive area*

As such, we have modelled the appropriate level to be monitored at the engineering desk so that the 65dB L_{Aeq} level is not exceeded at the façade of any NSR in the vicinity of the site.

These limits apply to events within standard operating hours:

- *“standard operating hours means—*
 - *Monday to Saturday (other than a public holiday), from 07:00 to 23:00; and*
 - *Sunday or a public holiday, from 09:00 to 23:00”*

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3.1 – NOISE LIMITS FOR OUTDOOR MUSIC EVENTS, cont.

From the Environment Protection Regulations 2021:

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128 When a permit is required for an outdoor entertainment venue

- For the purposes of section 46 of the Act, the following activities engaged in at an outdoor entertainment venue are prescribed permit activities—
 - an operation outside standard operating hours;
 - an operation with a period of more than 8 hours.
- In this regulation—
 - standard operating hours means from 12:00 until 23:00 on any day.

129 When a permit is required for an outdoor entertainment event

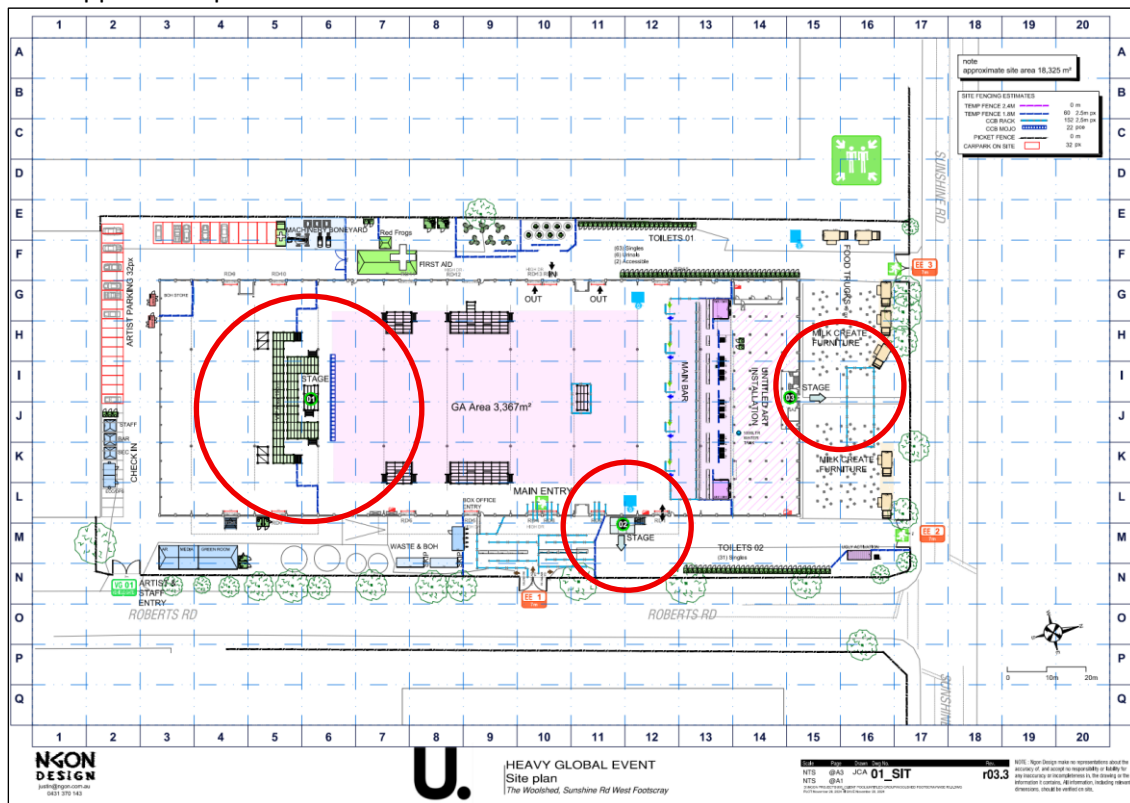
- For the purposes of section 46 of the Act, the following outdoor entertainment events are prescribed permit activities—
 - an operation engaged in outside the standard operating hours;
 - a concert held during the following hours—
 - Monday to Saturday, from 07:00 to 12:00 noon;
 - Sunday or a public holiday, from 09:00 to 12:00 noon;
 - a concert engaged in for a period of more than 8 hours.
- (2) In this regulation—
 - standard operating hours means—
 - Monday to Saturday (other than a public holiday), from 07:00 to 23:00; and
 - Sunday or a public holiday, from 09:00 to 23:00

ITEM	ACTIVITY TYPE AND SUMMARY DESCRIPTION	DESCRIPTION OF PRESCRIBED PERMISSION ACTIVITY	TYPE OF PRESCRIBED PERMISSION ACTIVITY
76	L05 (Operation outside of hours or extended operations)	Operating an outdoor entertainment event or outdoor entertainment venue in the circumstances set out— (a) in the case of an outdoor entertainment venue, in regulation 128(1); or (b) in the case of an outdoor entertainment event, in regulation 129(1)	Prescribed permit activity
77	L06 (Conducting more than 6 outdoor concerts)	Conducting— (a) in the case of an outdoor entertainment venue, more than 6 concerts in a financial year; and (b) in the case of an outdoor entertainment event, a concert at a location where 6 concerts have already been held in a financial year	Prescribed permit activity

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4.0 – SITE DESCRIPTION

The supplied site plan from the client:



NOTES:

- In red, stage locations.
- It is our understanding that all “Major Events” will generally follow this layout.

CHARACTERISATION OF SPACES:

OPEN SHED SPACE & SURROUNDING AREAS

The open shed space and associated outdoor areas will accommodate two distinct categories annually, as detailed below:

- **MAJOR CONCERT EVENTS (12 EVENTS PER ANNUM)**
 - Capacity: 8,500 patrons
 - Event conclusion: 23:00 (maximum 8-hour duration)
 - Format: Outdoor concert-style productions featuring multiple stages
 - Noise compliance: No higher than 65dB $L_{Aeq,15min}$ outdoors at the nearest Noise Sensitive Receiver (NSR), consistent with EPA Publication 2021 and EPA Publication 1826
 - Note: Events deviating from specified timeframes will require separate L05 permit applications
- **MINOR EVENTS/ANCILLARY ACTIVITIES**
 - Capacity: 1,000 patrons
 - Activity conclusion: 23:00
 - Activity types: Corporate and community functions, school activities, small-scale performances, gala dinners, film/photography productions, undercover sporting activities with limited attendance, and other appropriate activities within capacity and parameters
 - Noise compliance: No higher than 55dB $L_{Aeq,15min}$ outdoors at the NSR, in accordance with EPA Publication 2021 and EPA Publication 1826
 - Classification: Below concert event threshold per EPA Publication 2021 noise criteria

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5.0 – AREA DESCRIPTION

The events are located at 47-61 Sunshine Rd, West Footscray.

Based on previous site measurements, the most affected NSR is located to the north of the site, along Rupert St.

Notwithstanding, we have also modelled the propagation of noise via SoundPLAN software, so we can determine the impacts of cumulative noise from multiple stage areas.



NOTES:

- In red, the nearest residential areas.
- In green, approx. stage locations

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6.0 – SITE REQUIREMENTS, MAJOR EVENTS

COMMUNITY ENGAGEMENT

Residents must be informed of the major events a minimum of 14 days prior. This should be done as a letter drop, with information regarding the event, including but not limited to;

- Name of the event
- Nature of the event,
- Location,
- Time and duration,
- Details of sound checks (time, duration, date, etc)
- Complaints hotline

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These letters are to be dropped off the residents within the areas highlighted in Appendix – Letter Drop Area (approx. 1km radius from the main stage).

SOUND CHECKS

- Sound checks are to take place between 10:00 and 18:00
- Within the above hours, sound checks are to occur for no longer than 2 hours from the beginning of the sound check (not a cumulative 2 hours).
- Soundcheck levels at the FOH of each stage are to be initially set as per 6.1 of this report.

COMPLAINTS PROCEDURE

- A complaints hotline is to be established
- A notice informing nearby residents of the event details and the hotline number and details
- All complaints to be recorded, noting the **time** and **location**
- The staff at the engineering desks responsible for sound must have a communication method with the production manager, event organizer and complaint hotline staff.
 - If required, the sound desk staff must reduce noise levels if any complaints are received and noise levels at the desk creep beyond the specified limits
 - This is to be done via active noise monitoring audit of the complaint location
- Procedures will be implemented to allow for the music levels to be quickly reduced at all stages if required.
 - The production manager will ensure that the sound engineers reduce music levels when instructed.
- A report noting any logged complaints shall be prepared and submitted to council
- Levels at the address of the complaint can be logged via attended noise monitoring, in order to describe if compliance is being maintained at this location.

ACTIVE NOISE MONITORING

To ensure limits are not exceeded, “Major Events” (and possibly some “Minor Events”, depending on proposed activities) will require active noise monitoring in order to ensure EPA limits are not exceeded.

During this monitoring, levels at the desk can be confirmed, and permissible levels can be monitored over the course of the show, with communication between the monitoring professional and the audio engineers, typically via SMS or other messaging service, consisting of site management, audio personnel and active noise monitors.

This communication should describe the 15-minute equivalent levels measured at various NSR locations, where adjustments to the level of the contributing stage will need to be managed to ensure compliance with the EPA limits. This can also help account for variables that may influence the propagation of noise, such as atmospheric conditions.

With multiple stages active during the event, management will need to ensure that all stages are coordinated in reducing volumes when noise levels are at risk of exceedance.

We anticipate that the main stage will represent the largest contributor of noise, however, active noise management will ensure that the site can remain compliant during the events.

6.1 – SITE REQUIREMENTS, MAJOR EVENTS, cont.

STAGE LAYOUT & ACOUSTIC SYSTEM DESIGN

- Ensure line arrays are properly modelled for minimal spill beyond the audience area.
 - *Tight vertical dispersion reduces reflections and off-site propagation.*
- Use cardioid sub arrays with careful spacing and delay alignment to cancel rearward low-frequency radiation.
 - *Avoid broadside arrays that radiate omnidirectionally.*
- PA systems in any uncovered areas must be positioned at a lower than horizontal angle, so that noise may be contained onsite as much as possible
- PA systems in any uncovered areas must not be higher than 8m
 - *Excessive elevation (>8m) will typically project sound over audience heads and reduces the natural ground absorption effect, increasing noise propagation to NSR.*
- Any delay speakers will be no higher than 6m.
- Avoid horizontal firing, or upward-tilted cabinets, even for fill systems, as these will radiate noise directly into the atmosphere and potentially reflect off nearby structures, making the propagation of noise more unpredictable.
- Orient the system away from sensitive boundaries. Rotating the system even 10–15° can notably reduce direct line-of-sight energy to the NSR.
- Appropriate sound baffling, such as shipping containers or other appropriate solid structure behind the stage, and ideally behind the audience, should be considered, in order to reduce noise propagation and potentially allow for greater stage volume.
- Engineering desks to be equipped with appropriate noise monitoring systems (e.g. a laptop or sound level meter, with calibrated mic, that has the ability to monitor A and C weighted noise levels)

LIMITS AT ENGINEERING DESKS

- Each engineering desk to be equipped with appropriate noise monitoring system capable of indicating the following parameters:
 - Overall noise level, measured as dB(A) $L_{eq,15min}$
- Following limits shall be maintained at all times, measured at the FOH of each stage:
 - **STAGE 01, FOH @ 60m**
 - A-weighted level to not exceed approximately 95dB(A) L_{eq} over a 15-minute period
 - This will be live updated during site noise monitoring
 - **STAGE 02 & 03 @ 5m**
 - A-weighted level to not exceed 93dB(A) L_{eq} over a 15-minute period
 - This will be live updated during site noise monitoring
 - *These levels are to be adjusted as required, with depending on the levels measured at the NSR with active noise monitoring, to take real world variables into account, such as limitations with modelling, and atmospheric conditions.*
- To ensure less intrusive noise at NSRs, we recommend that changes in volume within the mix, related to the performances, be made gradually and smoothly. This is to reduce sudden spikes of volume that, whilst they could within the limit over the course of a 15-minute period, will have an increased negative impact at the NSR.
- All sound systems to include a limiter so music levels can be locked at a compliant level if necessary
- A sound check should be performed prior to this event. During the sound check, the levels can be measured and set at the mixing desk to ensure the event starts with appropriate levels.

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7.0 – SITE REQUIREMENTS, MINOR EVENTS

MINOR EVENT ASSESSMENT PROCESS

The Wool Store Management to assess the following questions for each Minor Event:

- Does the event have **more** than 1000 patrons?
- Is the event held **outside** of standard operating hours between the window of 12:00 (noon) to 23:00?
- Is the event held for longer than an 8 hour duration?
- Is the event likely to have noise levels such that there is a risk of **exceeding** the EPA 1826 Noise Protocol?
- Are the noise levels expected to be in excess of 55dB(A) when measured at the NSR (if so then this type of event it to be assessed as a major event)?

If the answer is **yes** to any of these questions, then some or all of the elements of the Major Events noise management practices may apply.

OPERATIONAL CONTROLS FOR MINOR EVENTS

To ensure noise from the proposed event does not unreasonably impact nearby residences or businesses, and can comply with the relevant environmental and council requirements, the following is required:

- Identify noise sources
 - Stage and PA locations
 - Other noise sources (generators, rides, bar, food trucks)
- Review amplified music hours for the minor events
- Internal music controls:
 - Front-of-house (FOH) sound level to be managed so that music at nearby residential boundaries is kept to a reasonable level for a temporary event
 - Conduct periodic boundary checks (e.g. at start of event, during peak music periods, and if wind intensity or direction changes) and note if music seems intrusive at nearby residences.
 - A suitable boundary noise level (to be measured at the boundary of The Wool Store), to ensure that 55dB(A) is not exceeded at the noise sensitive areas, should be determined during a representative event.
 - This determined boundary noise level should be maintained at all times, ensuring that levels at the NSR do not exceed 55dB(A).
 - Keeping a log of measured noise levels, noting level, time and location.
- Crowd and dispersal; plan how patrons leave the event
- On-site information; let volunteers know there is a Noise Management Plan, describe expected finish times, and who handles complaints.

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8.0 – NOISE EXPOSURE MODELLING

The following NSR have been noted:

- 67 Rupert St, West Footscray VIC 3012
- 86 Rupert St, West Footscray VIC 3012
- 106 Rupert St, West Footscray VIC 3012
- 11 Russell St, West Footscray VIC 3012
- 111 Sunshine Rd, West Footscray VIC 3012
- 61 Cala St, West Footscray VIC 3012
- 18 Waiora Parade, West Footscray VIC 3012
- 40 Roberts St, West Footscray VIC 3012
- 1A Glamis Rd, West Footscray VIC 3012

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The above is not an exhaustive list of all NSR, however the represent the nearest NSR relative to the event, and represents the typical measurement locations based on previous events at this site. It is our view that compliance at these locations is indicative of compliance at all NSR locations.

MODELLING ASSUMPTIONS:

- *Noise limits of 65dB(A) have been modelled at the nominated NSR*
- *Ground factor has been considered, modelled at 0 for the greater area (0 = hard, 1= soft)*
- *Buildings between NSR have been modelled at a nominal height of 2.7m per floor, based on site review of surrounding commercial structures.*
- *3 stages have been considered in the noise modelling*
 - *A stage source has been used, with a spectra that represents typical electronic music for Stage 01.*
 - *A point source has been used, with a spectra that represents typical electronic music for Stage 02 & 03.*
 - *This is due to these areas being smaller than the main stage, where FOH was not contained within the provided plans.*

RECEIVER	STAGE 01 ONLY	STAGE 02 ONLY	STAGE 03 ONLY	ALL STAGES
67 RUPERT ST, WEST FOOTSCRAY	63.3	52.8	52.8	65.0
86 RUPERT ST, WEST FOOTSCRAY	61.8	54.5	54.4	64.7
106 RUPERT ST, WEST FOOTSCRAY	56.0	50.8	50.8	60.2
11 RUSSELL ST, WEST FOOTSCRAY	51.7	44.3	44.8	58.1
111 SUNSHINE RD, WEST FOOTSCRAY	49.6	46.7	46.7	54.6
61 CALA ST, WEST FOOTSCRAY	44.3	43.3	43.3	47.5
18 WAIORA PARADE, WEST FOOTSCRAY	50.4	56.6	56.6	57.8
40 ROBERTS ST, WEST FOOTSCRAY	47.6	58.2	58.2	59.4
1A GLAMIS RD, WEST FOOTSCRAY	46.6	42.0	42.0	49.5

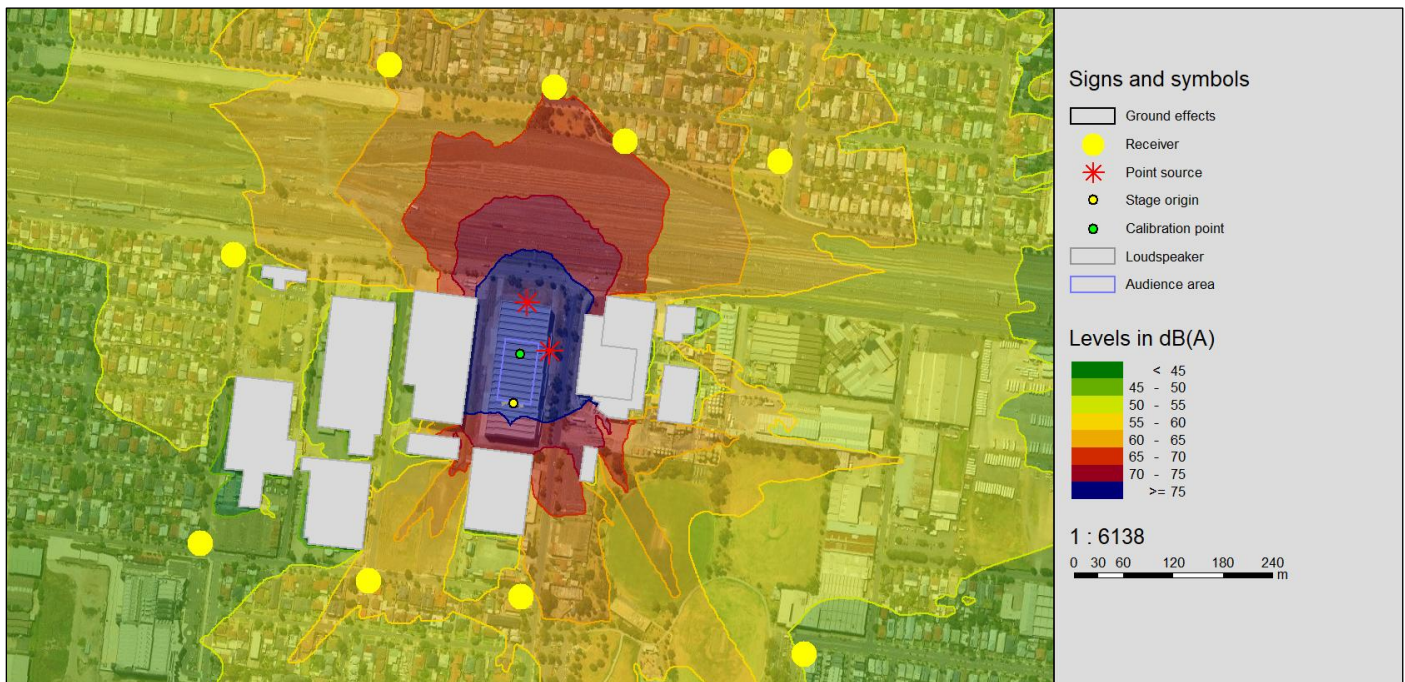
The above modelling has based the FOH levels, at the distances as follows:

- STAGE 01, 95dB(A) SPL @ 60m
 - Approx 117dB(A) SPL @ 5m
- STAGE 02, 93dB(A) SPL @ 5m
- STAGE 03, 93dB(A) SPL @ 5m

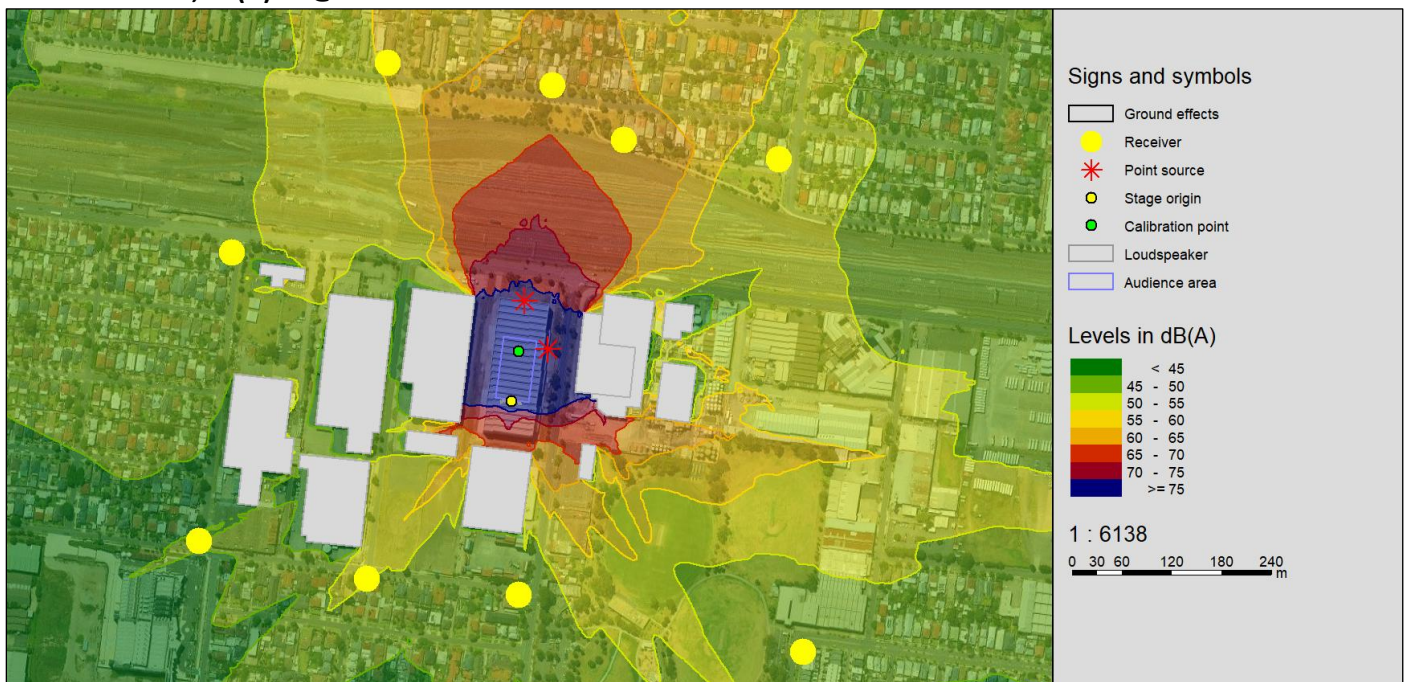
These levels describe the initial levels, where compliance is to be confirmed via active noise monitoring.

8.1 – NOISE EXPOSURE MODELLING, cont.

ALL STAGES COMBINED:



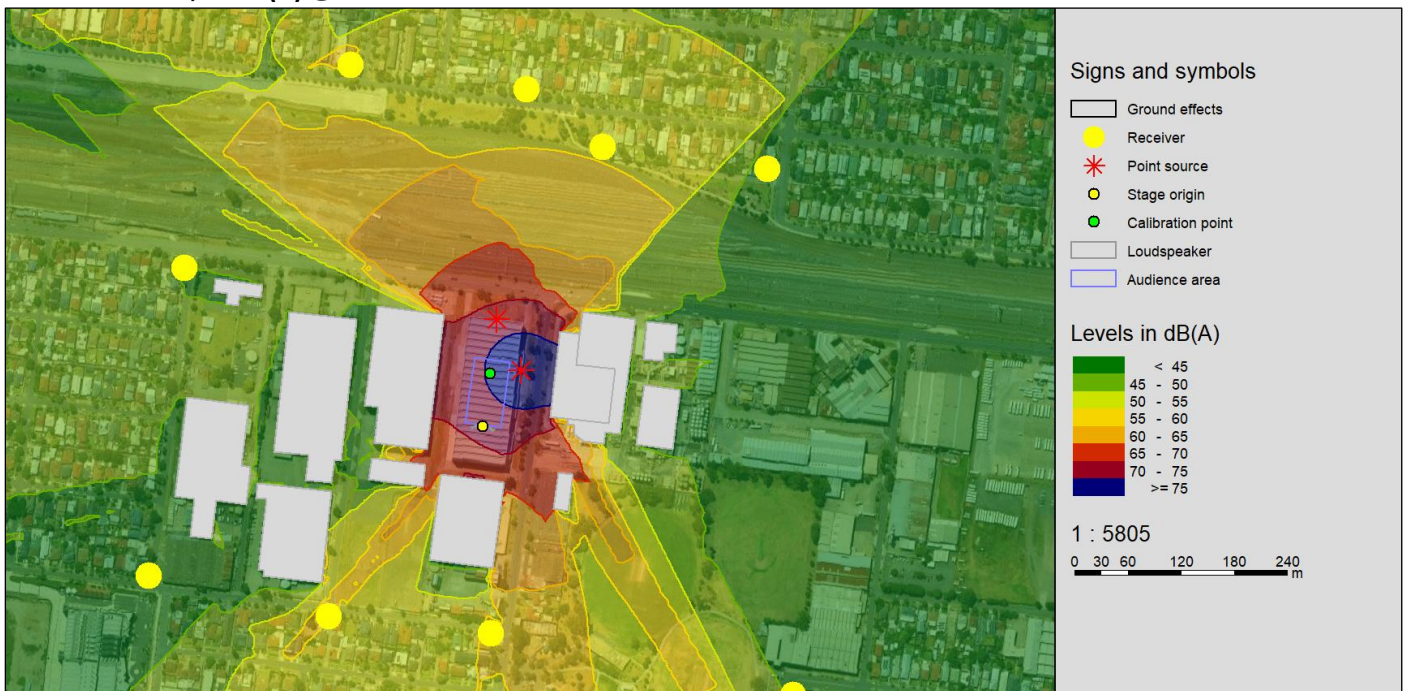
STAGE 01 ONLY, 95(A)dB @ 60m:



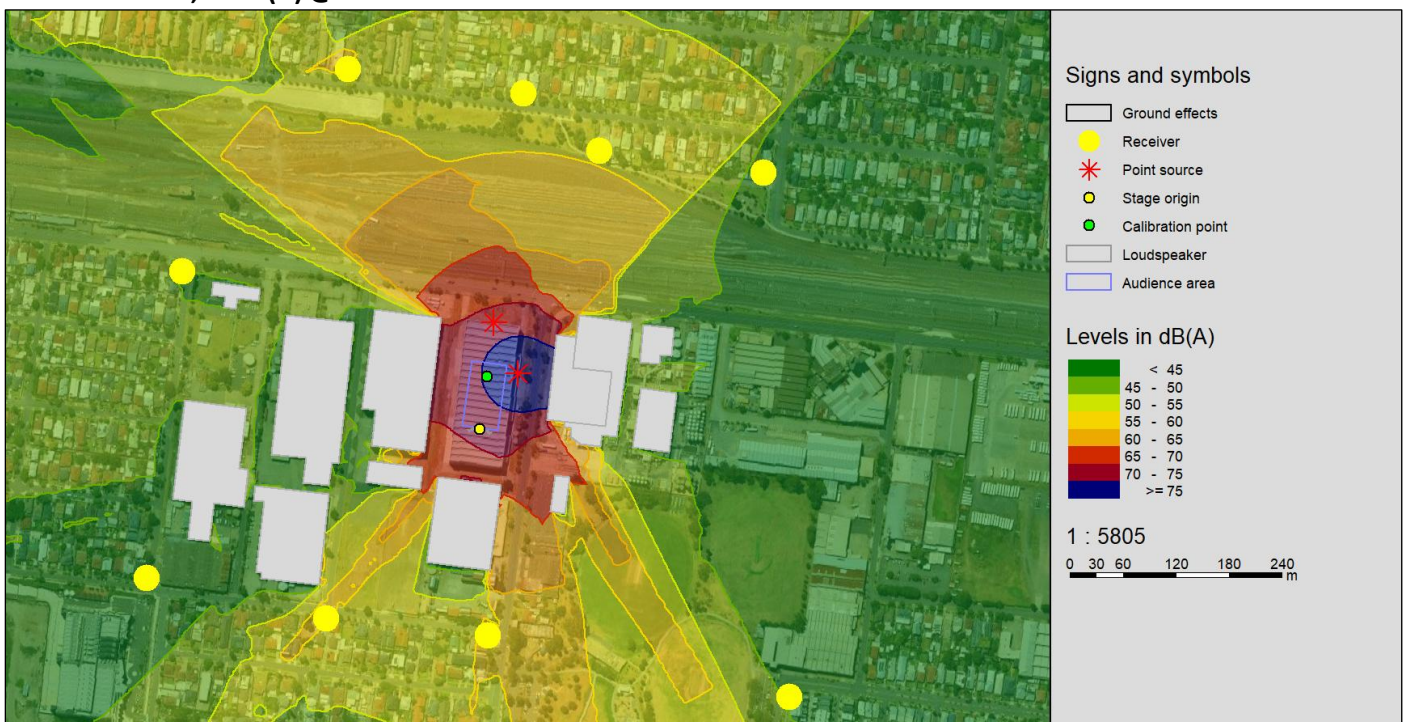
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8.2 – NOISE EXPOSURE MODELLING, cont.

STAGE 02 ONLY, 93dB(A) @ 5m:



STAGE 03 ONLY, 93dB(A) @ 5m:



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9.0 – GENERAL ENVIRONMENTAL DUTY (GED)

The Environment Protection Act 2017 requires that any person or business conducting an activity that may pose risks of harm to human health or the environment from pollution or waste must minimise those risks so far as reasonably practicable. *Refer Appendix – General Environmental Duty for further details regarding the GED.*

The GED requires any person or business to proactively identify and manage environmental risks, including risks from noise emissions. Even where **no specific licence condition exists**, and **no pollution has yet occurred**, a person **may still be non-compliant if they fail to minimise risks so far as reasonably practicable (SFARP)**.

Businesses typically show GED compliance through:

- Environmental risk assessments
- Risk Management & Monitoring Programs (RMMP)
- Procedures, training, and monitoring records

The following table provides an assessment of risks from noise hazards associated with the proposed operations in accordance with requirements under the GED.

Risk assessments to be conducted in conjunction with the table in Appendix – Risk Assessment Matrix.

IDENTIFIED HAZARD	POTENTIAL CAUSES	INITIAL RISK RATING (WITHOUT CONTROLS)	RECOMMENDED CONTROLS	RESIDUAL RISK RATING (WITH CONTROLS IMPLEMENTED)
Music noise	Non-compliant noise levels impacting the amenity of nearby NSR.	Medium Risk (B3) • Moderate (B) • Possible (3)	Active noise monitoring for the event to ensure that limits are not breached.	Low Risk (A2) • Minor (A) • Unlikely (2)
Low frequency music noise	Subwoofer systems producing low frequency noise which can negatively impact NSR	Medium Risk (B3) • Moderate (B) • Possible (3)	Cardioid subwoofer systems to be used on site.	Low Risk (A2) • Minor (A) • Unlikely (2)
Sleep disturbance	Music/event noise affecting sleep	Low Risk (A2) • Minor (A) • Unlikely (2)	<i>See below</i>	Low Risk (A2) • Minor (A) • Unlikely (2)

SLEEP DISTURBANCE

GED considerations are typically around sleep disturbance within the Night Period or events outside standard operating hours.

According to the Environment Protection Regulations 2021, standard operating hours for an outdoor event are until 23:00 on any day.

For all events taking place within standard operating hours, it would be our view that the 65dB L_{Aeq} limit would always be appropriate within these hours.

If events were to run outside standard operating hours, an L05 permit would be required, and consideration for appropriate levels within the extended hours should be detailed within this permit.

10.0 – SUMMARY

Based on site visits identifying NSRs, noise modelling and plans received, implementation of the measures outlined in this acoustic assessment report would be expected to minimise the noise impact on the neighbouring residences from the music noise generated from the site.

Attended noise monitoring where required should also give further comfort that the noise from major events can be both contained and suitably managed.

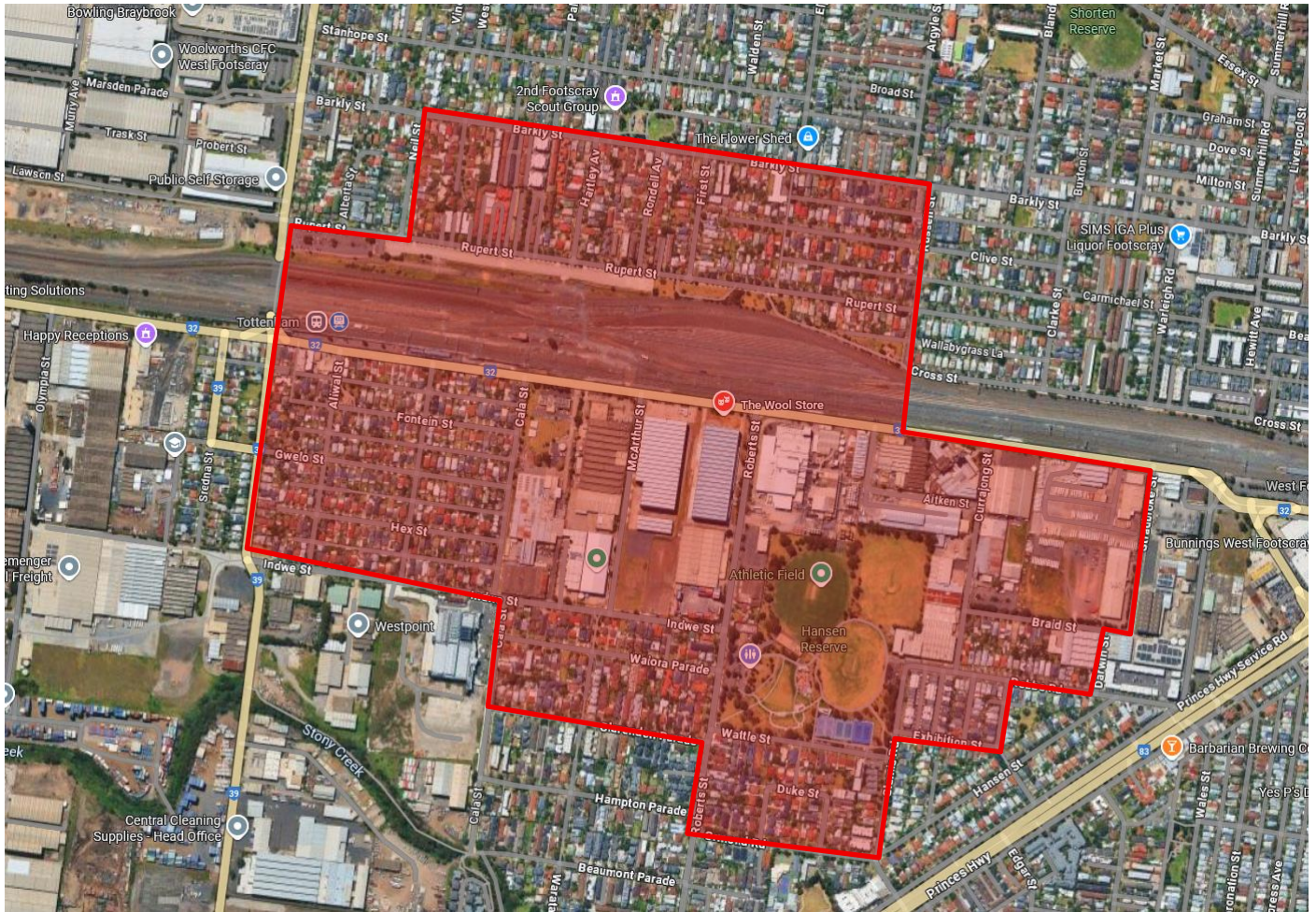
Where clarification is required or the recommended acoustic treatments may be found to impact on other services or statutory requirements, independent advice, as appropriate, is to be sought in respect to any such impact that these acoustic works may have on the building design and construction.



Waveform Acoustics

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APPENDIX – LETTER DROP AREA



In red, the recommended area where letters informing residents of the event should be dropped.

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APPENDIX – GENERAL ENVIRONMENTAL DUTY

EPA General Environmental Duty 2021 sets out the following guidelines to follows:

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- Understand your duties under the EP Act
- Identify Hazards
- Assess Risks
- Manage the Risks
- Implement Controls

UNDERSTAND YOUR DUTIES UNDER THE EP ACT

Anyone engaging in an activity that poses risk of harm to human health and the environment, from pollution or waste, or noise must eliminate or reduce that risk. You also need to eliminate or reduce risk as far as reasonably practicable. You can do this by putting appropriate controls in place that are proportionate to the risk.

Your approach to managing risk will depend on the complexity and scale of your activities or project, as well as the nature of the risks you need to manage.

EPA Victoria specifies a four (4) step risk management process, involving: identifying the hazards, assessing risk, implementing controls and ongoing checking. The process is outlined by the Victorian EPA¹ and is summarised as follows:



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¹ Environmental Protection Authority Victoria, Assessing and controlling risk: A guide for business. Publication 1695.1, August 2018

STEP ONE: IDENTIFY HAZARDS



Hazards associated with commercial and industrial activities include anything that can cause harm to people or the environment. Common hazards include:

- Noise
- Odour
- Dust
- Chemical hazards
- Fire hazards

STEP TWO: ASSESS THE RISKS



The hazards identified during step 1 must be assessed to determine how they could lead to harm, how severe that harm could be and how likely it is to happen.

Risk assessment is a process for building knowledge and understanding of hazards and their associated risks so decisions can be made on how best to control them.

The following steps should be taken:

- Assess the likelihood of a hazard causing an impact
- Assess the consequences, or severity, of each impact
- Calculate a risk rating for each hazard

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STEP THREE: IMPLEMENT CONTROLS



The options for controlling risk are prioritised from the highest level of effectiveness to the lowest.

When selecting controls the following hierarchy should be followed:



STEP FOUR: CHECK CONTROLS



Controls that are put in place to prevent or mitigate risks must be monitored to ensure they work as planned.

Checking controls involves the same methods as in the initial hazard identification step (step 1), and 'closes the loop' in which risk control measures can be maintained.

Common methods used to check the effectiveness of controls are:

- Regular site inspections and audits
- Consulting with employees, contractors, occupants and landlords
- Inspecting, testing and maintenance of risk control systems
- Using available information, such as manufacturer/supplier instructions
- Analysing records and data, such as incident and near miss reports

If these checks are made on a regular basis, then failures in controls can be identified as well as opportunities for improvement.

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APPENDIX – RISK ASSESSMENT MATRIX

	CONSEQUENCE					
	A – Minor	B – Moderate	C – Major	D – Severe	E – Extreme	
	First aid treatment. Fully recoverable.	Medical / professional treatment required. Fully recoverable	Extensive / professional medical treatment. Fully recoverable over an extended period.	Severe injury, permanent incapacitation. Impact requires change to work function.	Catastrophic, single or multiple deaths.	HUMAN HEALTH, HEALTH & SAFETY
LIKELIHOOD	Negligible or no environmental damage. No residual pollution impacts.	Impacts within the immediate vicinity of the impact; and short-term residual impact <1 year	Impacts are within the local area; and/or medium-term residual impact (2-5yrs)	Impact extends across the region (within a state); and/or longer-term residual impact (5-20yrs)	Impacts extends beyond the region (e.g. between states or nationally); and/or long term residual impacts >20yrs	ENVIRONMENT
(5) Almost Certain Expected to occur. High probability of occurring, e.g. >90%.	Medium	High	High	Extreme	Extreme	
(4) Likely Likely (e.g. >75% chance) of occurring under normal circumstances.	Medium	Medium	High	High	Extreme	
(3) Possible Could reasonably be expected under normal circumstances.	Low	Medium	Medium	High	High	
(2) Unlikely Unusual, not likely to occur under normal circumstances	Low	Low	Medium	Medium	High	
(1) Very unlikely. Rare circumstance, highly unusual.	Low	Low	Low	Medium	High	

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APPENDIX – EFFECTIVE NOISE LEVELS & MEASUREMENT METHOD FOR MUSIC NOISE FROM OUTDOOR ENTERTAINMENT VENUES

From the EPA 1826:

(115) The effective noise level for music noise from outdoor entertainment venues and music noise from outdoor entertainment events is the L_{Aeq} measured in dB(A).

Outdoor entertainment venues or events during operation

(116) The measurement must include at least 15 cumulative minutes of music audible at the measurement point.

(117) The measurement must exclude extraneous noise.

(118) For the purpose of determining the effective noise level the noise is measured using the Fast time weighting and the A-frequency weighting network.

(119) The measurement must be made at a time when the greatest intrusion of music noise into the noise sensitive area is likely to occur.

(120) Where the measurement point is outdoors and is between 1 and 2 metres from an acoustically reflecting surface an adjustment of -2.5dB must be made to the effective noise level.

(121) Where an indoor measurement is required, in accordance with clause 106 –

a. for the purposes of clause 106(b)(i) and 106(c) the measurement must be made within a sensitive room with the window fully open during the measurement.

b. for the purposes of clause 106(b)(ii), the measurement must be made within a sensitive room with windows and external doors closed.

c. for the purposes of clause 106(b)(iii), the measurement must be made within a sensitive room with windows and doors closed.

Proposed outdoor entertainment venues or events

(122) For proposed entertainment venues or events or proposed extensions of existing entertainment venues or events, the effective noise level must be calculated to represent the loudest music noise level having regard to –

- a. all existing noise sensitive areas or future noise sensitive areas relevant to approved developments;
- b. the frequency spectrum of the music noise and the frequency-dependent directivity of music noise sources;
- c. the sound paths to the noise sensitive area and other factors which may affect the propagation of sound;
- d. the cumulative contribution from existing and approved entertainment venues or events affecting noise sensitive areas;
- e. the uncertainty of the calculation method used.

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GLOSSARY OF ACOUSTIC TERMS

R_w	Weighted Sound Reduction Index. Laboratory measure of how much a building element (wall, floor, window) reduces airborne sound, in dB. Higher = better insulation.
DnT_w	Standardised Level Difference, weighted. Field/on-site version of R _w , adjusted to a standard reverberation time. Represents real-world airborne sound insulation between rooms.
Ln,w	Weighted Normalised Impact Sound Level. Field rating for impact noise (e.g. footfall through floors). Lower = better.
Ctr	Adjustment applied to R _w or DnT _w to account for low-frequency noise sources (e.g. traffic, music).
Decibel (dB)	A logarithmic unit used to express the ratio between two sound pressures or powers. It is a relative measurement with reference to a specific threshold (usually 0 dB for sound pressure).
dB(A)	A-weighted decibels, which apply a frequency weighting to sound measurements to better represent the human ear's sensitivity to different frequencies.
dB(C)	C-weighted decibels, the C-weighting curve is relatively flat and does not emphasize any specific frequency range. It covers the entire audible frequency range with equal weighting. C-weighting is less commonly used in general sound level measurements, but it may be used in specific applications, such as measuring peak sound levels or when the sound being measured contains substantial low-frequency content.
Octave Band	A frequency band in which the upper frequency is twice the lower frequency (e.g., 63 Hz - 125 Hz).
Third-Octave Band	A frequency band with higher resolution, splitting each octave into 3 centre frequency measurement points.
L_{Aeq}	Equivalent Continuous Sound Level, an average sound level over a specific time period, often used to represent overall noise exposure.
L_{Amax}	Maximum A-weighted sound level, the highest instantaneous sound level during a particular time period.
L_{Amin}	Minimum A-weighted sound level, the lowest instantaneous sound level during a particular time period.
L_{A90}	The A-weighted sound pressure level which is exceeded for 90% of the time interval considered.
L_{OC10}	The 'C' weighted or linear sound pressure level for a specified octave band that is exceeded for 10% of the time.
Sound Pressure (SPL)	The amplitude of sound waves in a specific medium, typically measured in decibels (dB).
Sound Power (SWL)	The total amount of acoustic energy radiated by a sound source, measured in watts (W) or decibels (dB).
Frequency	The number of complete cycles of a sound wave occurring per second, measured in Hertz (Hz).
Sound Level Meter (SLM)	An instrument used to measure sound pressure levels in decibels.
Reverberation Time (Rt)	The time it takes for a sound to decay by 60 dB after the sound source has stopped, indicating the acoustic characteristics of a room.
Tonality	Refers to the presence of a distinct pitch or frequency in the noise. It suggests that the noise contains specific frequencies that are more pronounced or dominant than others. For example, a steady hum or whine might exhibit tonality because it has a clear and consistent pitch.
Impulsiveness	Describes sudden, brief bursts of noise or sound energy within a continuous noise environment. These bursts are often characterized by their rapid onset and short duration. Examples of impulsive noise include the bang of a door slamming or the roar of an engine starting.
Intermittency	Refers to the irregular or sporadic nature of noise, where there are periods of sound interspersed with periods of relative quiet or lower sound levels. It's the quality of being occasional or not continuous. This could include noise sources that turn on and off intermittently, such as machinery operating in cycles or intermittent traffic noise.

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