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Noise Management Strategy

Beautiful People / Southbound Festival 2021

Morden Park, London

Slammin Events

Joynes Nash

Acoustics · Environmental · Public Health



Client Slammin Events

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1. Introduction

Joynes Nash Ltd has been tasked by Slammin Events to consider both the feasibility and approach to noise management for the Beautiful People / Southbound Festival at Morden Park, London.

The festival will take place on the 3rd and 4th September 2021 and provide for up to 9999 attendees. It will consist of five main sound sites and the event will run between the hours of 12.00 and 22.30hrs on the Saturday and 22.00hrs on the Sunday. The music genre is Electronic.

2. About the Noise Management Strategy

Slammin Events and its advisors are committed to proactively manage noise and have successfully held events of a similar nature for many years throughout the UK including a similar event at Crystal Palace in 2019. This Strategy looks to consider the feasibility of the venue, outline mechanisms for the control of noise during any event, ensure that any event accords with relevant guidance, does not cause a Public Nuisance and ensure that mechanisms are in place to effectively manage complaints.

3. An introduction to Joynes Nash

Joynes Nash is a leading acoustic consultancy for the live events industry. We have extensive experience of live music events and a proven track record of working with event organisers to enhance the audience's experience, whilst preserving the image of events and venues.

Our consultants experience has ranged from relatively small scale to major events staged both in urban and residential environments, providing for tens of thousands of people. Projects and clients have included Secret Cinema, Carfest, Garage Nation Festival, Arcadia London, BBC Introducing Live, Tramlines Festival, Liverpool Sound City, Red Bull Future Underground and Printworks London.

We consider despite the many technical challenges that events bring, that relationships between all interested parties are of paramount importance and that each one of these understands situations clearly. We therefore approach each event not in isolation, but carefully consider the public image of events, the venues and the thoughts of the wider community to make events successful and to secure venues for future years.

4. Site Context & History

Morden Park is a large urban park and the venue has been used for a large number of events over the years. In terms of sensitive receptors, there is a mixture of commercial and residential receptors around the park and the elevation changes make site design of paramount importance to minimise off site levels.

Regarding the potential impact it is currently proposed to stagger the stage finish times in order to aid crowd dispersal and security arrangements. Such measures have been successfully implemented elsewhere and it provides an additional benefit in reducing noise levels gradually.

5. Premises Licences

The organisers are currently seeking the various permissions for this site.

6. Permitted Noise Levels

The main guidance for any festival has historically been contained within the Code of Practice for Concerts 1995, this was however withdrawn by the CIEH in 2018.

Regarding permitted levels, urban parks present several challenges and indeed there needs to be a careful balance between the needs of the organisers being able to deliver a successful event and the impacts on the local community. In recent years, we have seen many debates on permitted levels and the guidance is currently subject to review with a view to taking a more pragmatic approach to the control of noise. This has been further driven by the economic constraints placed on Local Authorities as they look to use the urban spaces to generate additional income from events not typical of previous uses both in terms of scale and content.

The outcome of which is that for many urban spaces to operate we have seen a relaxation in the permitted levels, largely to reflect those in urban stadia where the permitted levels are 75dB(A). This approach is consistent with the findings of the DEFRA study NANR 292, in that the source location for the concert does not have any impact on the annoyance of residents (actually stadia events lead to higher levels of annoyance than other urban venues for the same sound level at the receptor), so the differentiation between parks and stadia is irrelevant.

Our approach as always is to seek a relaxation only where it is necessary and ensure that during any such event any exceedance of a permitted level is both justified and necessary. Likewise any possible exceedance of the Code of Practice must be limited to as few receptors as is possible, with preference been given to improved layout and speaker systems to minimise such.

Joynes Nash have been successful in delivering similar events in Birmingham, where we were responsible for permitted levels up to 75dB(A) at Beyond the Tracks in 2017. Likewise, we have delivered events with such levels at Sheffield Tramlines, Pub in the Park Marlow, and the Tetley, Leeds. Our approach has always been to monitor front of house levels, to ensure that such remain between 95 – 100dB(A), the minimum considered necessary for an event, and then balance such with offsite observations. Control is therefore always maintained throughout and it is demonstrable that there has been no unnecessary increase or creep in noise levels.

The following table illustrates the various permitted levels throughout the UK.

Venue	Noise limit at nearby Noise sensitive premises (dB) $L_{Aeq\ 15}$ min	Events Per Year (if known)
Wardown Park, Luton	84 (1 min)	3 days
Lancashire Country Cricket Club	80	Up to 8 days
Yorkshire County Cricket Club	75	
Twickenham Stadium	75	Up to 8 days
Priory Park, Hitchin	75	
Ponderosa Park, Sheffield	No limit	Up to 3
The Tetley, Leeds	75	
Mayflower Park, Southampton	75	
Milton Keynes Bowl	75	
Heaton Park, Glasgow	80	Up to 4
Blackheath Common, London	75	
Hackney Marches, London	75	
Victoria Park, London	75	Up to 9 days
Bellahouston Park, Glasgow	75	
Don Valley, Sheffield	75	
Moor Park, Preston	75	
Shorditch Park, London	75	
Olympic Park	75	Up to 6 days
Clapham Common	75	Up to 8 days
Streatham Common	75	Up to days
Morden Park	75	-
Boston Manor Park	75	-
Brockwell Park	75	-
Greenwich Peninsula	75	-
Lloyd Park, Walthamstowe	75	-
Three Mills Green, Newham	75	-

This is an indication that the festival can operate without undue public disturbance at the target level of 75dB(A). For this event we propose a Target of 65dB(A) and a Upper Limit of 70dB(A)

7. Low Frequency Noise

At the time of publication of the Noise Council Code, little information on the community response to low frequency noise from concerts was available. Footnotes were included in the Code which concluded, in the absence of any precise guidance, that a level of 70dB in the 63Hz and 125Hz octave band was satisfactory and that a level of 80dB or more in either of those octave frequency bands causes significant disturbance. The study referred to in the guidance is in fact based on low frequency sound from concerts and relates to impacts at locations 2km away.

Near to the venue, the use of the L_{Aeq} index will adequately take account of the low frequency sound as the music's frequency spectrum is dominated by the low frequency bass sounds and in these circumstances the A-weighting network is sensitive to changes in the music noise level. The L_{Aeq} criterion will therefore limit the low frequency sound adequately. This approach has been supported by research carried out on behalf of DEFRA.

What is therefore proposed, is that we deal with the low frequency element based on professional experience both onsite and offsite. Experience suggests that to maintain a satisfactory level within audience areas individual frequencies between 40 and 80Hz should be kept between 105 and 115dB. Offsite the key is to then identify and rectify any frequency imbalances between the 1:3 octaves.

8. Preliminary Site Feasibility Study

In order to evaluate the feasibility of the site, initial noise predictions have been carried out at the most sensitive receptor positions based on the site layout shown below. The site layout has been designed to minimise the noise levels at the nearby residents.

The following assumptions have been made in predicting noise levels.

- An orientation correction of between 0db and 15dB is assumed for noise sensitive properties depending on the location relative to the stage location.
- Distance attenuation is based on progressive attenuation under neutral meteorological conditions
- Where appropriate, attenuation has been considered for the effect of barriers between the noise sources and noise sensitive premises. BS5228 Code of Practice for noise and vibration control of construction and open sites (2009) gives a working approximation of the effect of a barrier or other topographical feature. An attenuation of 10dB is assumed when the noise screen completely hides the source from the receiver, with 5dB where it partially hides the source.

Predicted Receiver Levels

The predicted receiver levels have been determined using a distance attenuation correction of $(L_2=L_1-20\log(r_2/r_1))$. The source levels utilised are based on experience from similar events.

Lower Morden Lane	Distance	Resultant LAeq	Orientation Correction	Barrier	Predicted LAeq
Main – 98dB@ 35m	292	80	12	5	63
Arena 1 – 96dB@30m	388	74	8	5	61
Arena 2 – 96dB@30m	227	79	12	5	62
Arena 3 – 96dB@20m	379	70	0	5	65
Arena 4 – 96dB@20m	323	72	12	5	55
Total Predicted					69

Hilcross Avenue (West)	Distance	Resultant LAeq	Orientation Correction	Barrier	Predicted LAeq
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Main – 98dB@ 35m	262	81	12	5	64
Arena 1 – 96dB@30m	207	80	12	5	63
Arena 2 – 96dB@30m	339	75	8	5	62
Arena 3 – 96dB@20m	241	74	12	5	57
Arena 4 – 96dB@20m	315	72	0	5	67
Total Predicted					70

Hilcross Avenue (East)	Distance	Resultant LAeq	Orientation Correction	Barrier	Predicted LAeq
Main – 98dB@ 35m	669	72	0	5	67
Arena 1 – 96dB@30m	549	71	12	5	54
Arena 2 – 96dB@30m	619	70	0	5	65
Arena 3 – 96dB@20m	463	69	12	5	52
Arena 4 – 96dB@20m	550	67	8	5	54
Total Predicted					69

Epson Road	Distance	Resultant LAeq	Orientation Correction	Barrier	Predicted LAeq
Main – 98dB@ 35m	500	75	10	5	60
Arena 1 – 96dB@30m	571	71	0	5	66
Arena 2 – 96dB@30m	330	76	12	5	59
Arena 3 – 96dB@20m	507	68	8	5	55
Arena 4 – 96dB@20m	408	70	12	5	53
Total Predicted					68

The calculations are conservative, in that they do not consider any attenuation such as provided for by crowds, ground attenuation, the presence of portable structures on site etc. Neither do they consider the presence of boundary treatments which typically surround residential receptors and offer additional levels of attenuation.

Limitations

It must be noted that noise predictions have several limitations with respect to live sound and whilst providing a relatively accurate indication of noise impact at sensitive premises, final levels can vary during actual operation of the event. Meteorological conditions such as temperature inversions and wind direction may for example have a significant effect and experience suggests that noise levels may be increased by up to 10dB.

9. Sound System Design and Setup

There is significant variation in the directivity of different sound systems provided by the various manufacturers, largely around the horizontal dispersion of the loudspeaker.

Therefore, the sound systems would be designed and set up in such a way as to minimise noise impact at noise sensitive properties. Sound systems would be flown to focus the noise into the audience area, with a requirement for array style systems. Their configuration would also aim to minimise horizontal and vertical dispersion to reduce overspill from the intended coverage areas. To achieve this any hung system would be positioned as low as possible to achieve full audience cover. Consideration would be given to delay speakers to achieve satisfactory audience cover, whilst not using excessive sound power from the stage.

Sub bass systems would also be set up to provide a cardioid dispersion patterns to maximise the directivity of sound systems and minimise low frequency noise levels behind the stages.

During the event any guest engineers or individual acts would have only limited control over the main PA system in their area. The maximum level at sound sites would be directly under the control of the Festival Organiser or its contractors and adjusted only by them.

10. Sound Propagation Check and Rehearsals

Rather than undertake traditional sound propagation checks, which by their very nature require full volume prior to the event opening, it is proposed that the event will run with a 'soft start'. This is typical for events of this nature and allows for the setting of the internal levels and the balancing of sound sites over the first few hours of the event, when typically, there are few patrons and sound levels will be naturally lower.

However there will be systems check on the Friday afternoon/evening and Saturday/Sunday morning prior to the event opening, to ensure the sound systems are set up and operating correctly.

11. Noise Control Monitoring

Prior to any stage running, the stage manager and sound engineers would be briefed by Joynes Nash on the importance of limiting any off-site disturbance and compliance restrictions.

The engineers would be encouraged to leave some "headroom" early in the event to provide a safety margin to allow for some upward movement of levels, should that be necessary to maintain audience satisfaction or permit headline acts.

The intention would be to initially run the systems at an anticipated audience satisfaction level), based on the audience levels of 95 - 98dB(A) and to modify them should that be necessary following off-site level monitoring throughout the event. Likewise, on site levels would always reflect audience size and dynamics (for example earlier in the day overall levels may be lower to reflect smaller audience size).

Provision would be made for a fixed monitoring position at an appropriate position, either at a mid-way point between the event and receptors or at front of house position(s). This position would be used to continually monitor levels throughout the event and provide a visual reference of levels to engineers and/or consultants. Arrangements will also be made to ensure that front of house levels at each of the individual stages will be periodically monitored during the event.

Throughout any event consultants would remain responsible for proactively monitoring noise. This would be done through conducting measurements at predetermined locations both internally and externally of the arena. Such positions would be dependent on final site layout, weather conditions etc.

Typically, we'd expect measurements to be conducted over a 15 minute period, albeit shorter measurement periods may be undertaken to determine compliance in line with the code of practice (i.e. it is typical that 5 minute measurements give a good indication of compliance over 15 minutes). All measurements would be recorded and be available for inspection at any time by the local Authority during the course of any event.

The sound monitoring team will be in contact with event control should any action need to be taken during the event and have authority to instruct the sound engineers to adjust sound levels.

12. Procedure for Responding to and Dealing with complaints

Good Public relations is a key pre-requisite of any work conducted by either Joynes Nash or Slammin Events, as it has been repeatedly proven that prior awareness of a festival is important in managing resident's expectations and allaying concerns. Surveys have even supported the fact that as prior awareness of a concert increases, the likelihood of being annoyed by noise falls.

The promoters would therefore ensure that an appropriate form of communication will be made with local residents, such as by letter or newspaper advertisement prior to the event; informing them of the details and including start and finish times of both the event and any sound checks. The form of communication will also include a dedicated number for noise complaints.

A telephone complaints line would be available for the duration of the event. Should any noise complaints be received, a consultant would investigate the complaint and if noise levels are deemed unacceptable, immediate action would be taken to reduce the levels of the noise source.

A complaints log would be maintained throughout the event, detailing addresses of complaints, times and actions. Such would also be available to the Local Authority on request along with actions taken, etc. The consultant would be contactable by officers of the Local Authority and available to deal with any matters arising at all times throughout the event.

13. Noise Management Resource

The size of any team deployed would allow for sufficient persons to conduct off-site measurements and on-site measurements to facilitate any reduction in noise levels.

All sound level meters used for the purposes of environmental monitoring would be integrating meters to Class 1 specification and subject to current calibration. At least one meter will be capable of real-time octave and/or one third octave band analyses.

Measurements within the sound sites would be made from fixed datum locations to provide representative levels against which changes can be made and measured. Where practical, meters and displays will be set up at Front of House positions with A weighted rolling 5 min L_{Eq} 's as well as SPL to provide a reference points for sound engineers. All measurements will be logged.

14. Local Authority Liaison

The Local Authority would be provided with contact details of those responsible.

Acoustic Consultants would work closely with the Local Authority, agreeing any changes to off-site monitoring positions, sharing noise data observations and other information wherever possible. The role performed by consultants is to ensure that any requests by the Local Authority are actioned by the festival organisers. All requests relating to noise would be routed through them to ensure that any noise issues are properly managed and dealt with as soon as possible. Results of any investigations and actions will be fed back to the Local Authority as soon as practicable or as agreed.

References to contact with Local Authority Officers are obviously dependent upon whether they wish to attend the event and does not infer any commitment on the part of any Authority.

15. Post Event Reporting

Following completion of the event, a report would be made available to the Local Authority within 2 weeks of the event, detailing the findings during the event and any recommendations.

16. Setting Up, Dismantling of Venues

During any event set up and dismantling, all works which would be likely to cause disturbance at residential properties would be conducted between the hours of 0800 and 22.00hrs. Within these times and as so far as reasonably practicable, all measures to minimise noise would be undertaken to ensure that no undue noise disturbance is caused to residential premises. This would be monitored by site management throughout the duration of the build and dismantling of the venue. The same arrangements will be in place during the event days.

17. People and Crowd Noise

Whilst there is no formal mechanism for evaluating or controlling crowd noise, consideration would be given to minimising such as critical points such as during arrival and dispersal from the event. This would generally be done by ensuring that queueing where possible would be

conducted internally rather than externally of the Park. Likewise, appropriate mechanisms to stagger arrival and departure by staggering stage closures are proposed.

Marshals would marshal and monitor the entrance and egress from the premises including the behaviour of those within the vicinity of the premises. This would help achieve orderly and calm arrival and departure of persons and will reduce the risk of nuisance occurring.

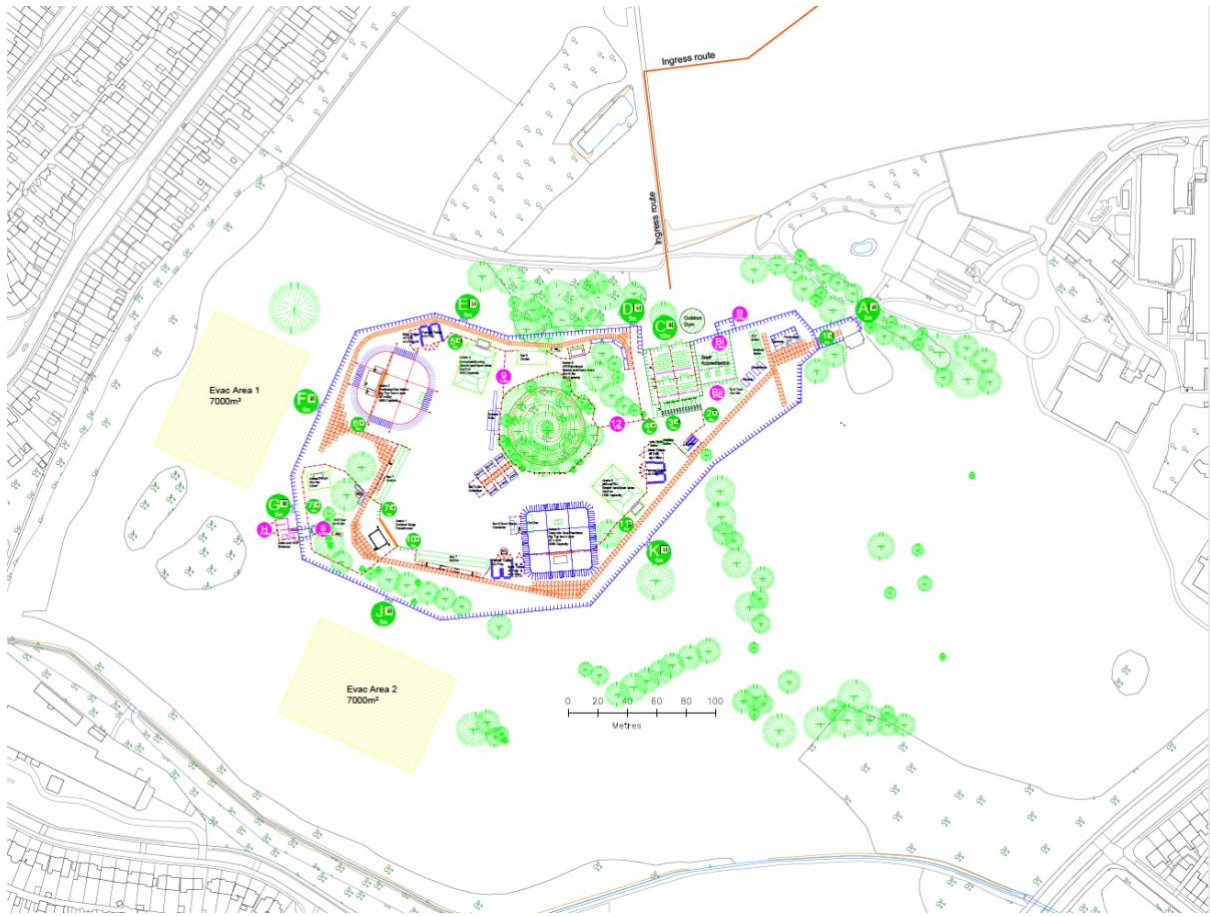
18. Conclusion

The United Kingdom has a diverse and vibrant music festival sector, which has been established for many years at numerous sites throughout the Country. The team behind this proposal have chosen to fulfil their ambitions and bring the event to a new venue, and accept all the challenges this presents.

The key as always is to also engage with all stakeholders throughout the lifecycle of the event, manage their expectations and listen and learn for future years. The team are committed to making this work and would engage in a P.R campaign prior to the event and conduct a review process after the event to review the outcomes.

The noise feasibility and management plan presented above aims to address all the challenges and look to ensure that an acceptable balance is maintained between the needs of the event organisers and the local residents.

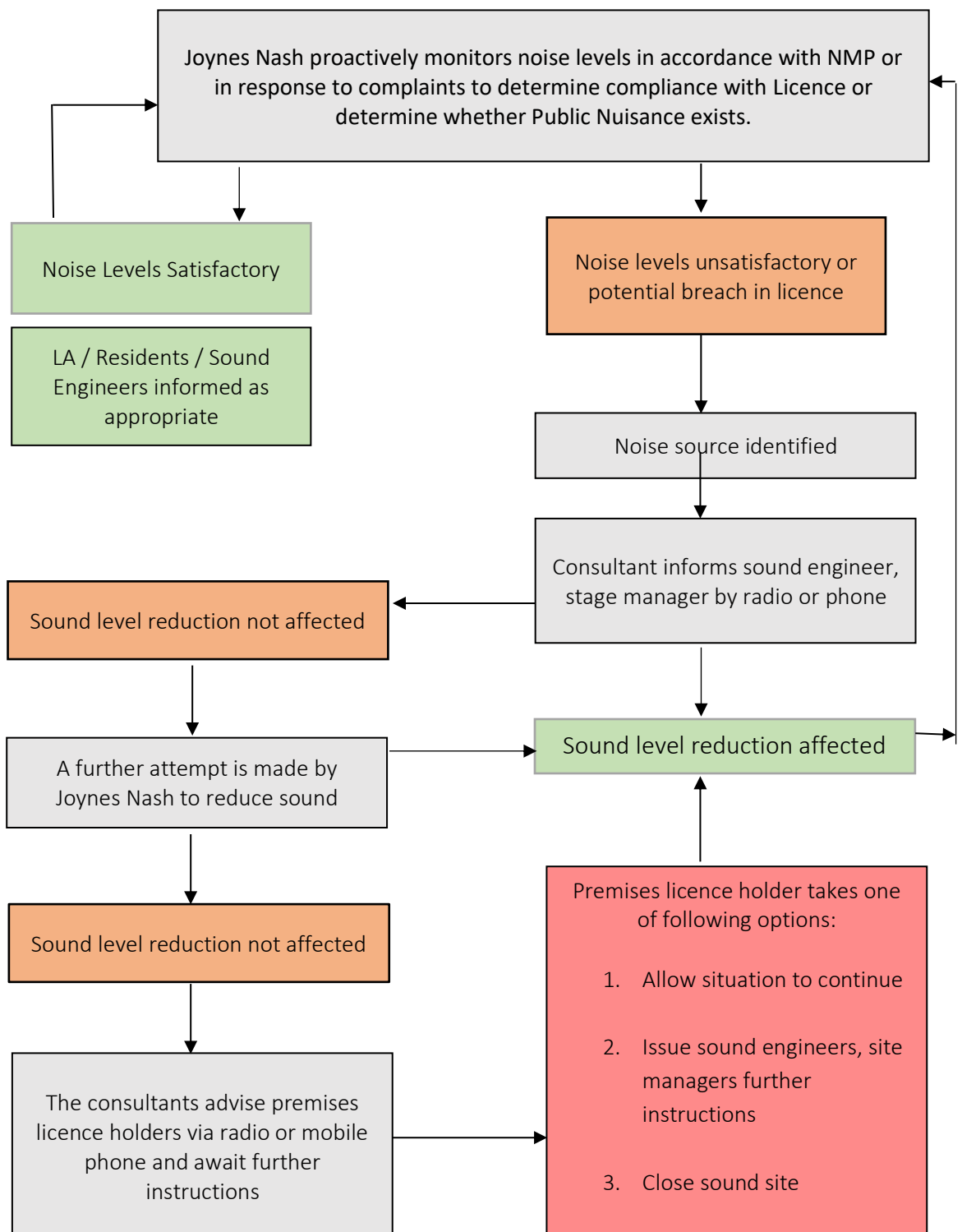
Appendix A – Proposed Event Site Layout



Appendix B – Receptor Locations and Expected Noise Monitoring Positions



Appendix C – Indicative Noise Response Flowchart



Appendix D - Contact Numbers and Responsibilities

Event Hotline Number

To be confirmed

Licence Holders

TBC

Event Management

Slammin Events

Noise Consultants

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Appendix E – Noise Units

1. Noise is defined as unwanted sound. The range of audible sound is from 0 dB to 140 dB. The frequency response of the ear is usually taken to be about 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used and which correlates best with subjective response to noise is the dB(A) weighting. This is an internationally accepted standard for noise measurements.
2. For variable noise sources such as traffic, a difference of 3 dB(A) is just distinguishable. In addition, a doubling of a noise source would increase the overall noise by 3 dB(A). For example, if one item of machinery results in noise levels of 30 dB(A) at 10 m, then two identical items of machinery adjacent to one another would result in noise levels of 33 dB(A) at 10 m. The 'loudness' of a noise is a purely subjective parameter but it is generally accepted that an increase/decrease of 10 dB(A) corresponds to a doubling/halving in perceived loudness.
3. External noise levels are rarely steady but rise and fall according to activities within an area. In an attempt to produce a figure that relates this variable noise level to subjective response, a number of noise metrics have been developed. These include:

LAeq noise level - This is the 'equivalent continuous A-weighted sound pressure level, in decibels' and is defined in BS 7445 [1] as the 'value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval, T, has the same mean square sound pressure as a sound under consideration whose level varies with time'. It is a unit commonly used to describe community response plus, construction noise and noise from industrial premises and is the most suitable unit for the description of other forms of environmental noise. In more straightforward terms, it is a measure of energy within the varying noise.

LA90 noise level - This is the noise level that is exceeded for 90% of the measurement period and gives an indication of the noise level during quieter periods. It is often referred to as the background noise level and issued in the assessment of disturbance from industrial noise.

LA10 noise level - This is the noise level that is exceeded for 10% of the measurement period and gives an indication of the noisier levels. It is a unit that has been used over many years for the measurement and assessment of road traffic noise.

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