

NOISE MANAGEMENT PLAN

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1. INTRODUCTION

- 1.1. Vanguardia Limited has been instructed by Stardust Festivals to undertake pre-event acoustic work and provide a Noise Management Plan in support of the licence application for the proposed Stardust Festival 2023 event, intended to be held at Great Lines Heritage Park in Gillingham from 26th to 29th May 2023.
- 1.2. Great Lines Heritage Park (Brompton Road, Gillingham ME7 5DH) is a network of interconnected open spaces located between Brompton, Gillingham and Chatham, all of which fall within the Medway unitary authority, which also owns the site.
- 1.3. The following information has been provided by the event organisers with respect to the proposed event:
 - The event comprises six stages operating on each day. A map of the proposed site is presented in Appendix B.
 - The site perimeter is to comprise 3m steelshield, with an outer line of 2.4m heras fencing.
 - Proposed door and curfew times are as follows:
 - Friday 26th May - Doors 1700, Curfew 2145
 - Saturday 27th May - Doors 1100, Curfew 2200
 - Sunday 28th May - Doors 1400, Curfew 2130
 - Monday 29th May - Doors 1030, Curfew 1800
- 1.4. The purpose of this document is to describe the noise monitoring and management scheme that will be put in place to manage the music noise levels at residential properties. The report reviews and describes:
 - Statutory and other relevant guidance pertaining to noise from outdoor concerts;
 - Noise predictions at the closest noise sensitive receptors;
 - Licence noise conditions that are recommended for this event;
 - Monitoring, assessment and management protocols to be adopted for the events;
- 1.5. It is intended that this is considered a 'live' working document which may evolve further with ongoing liaison between Vanguardia, the event promoter and local authority.
- 1.6. A glossary of acoustic terms is provided at Appendix A.

CONSULTANT'S EXPERIENCE

- 1.7. Vanguardia Limited is a specialist company dealing in the field of sound, noise, and acoustics in the entertainment industry. The company has been involved with noise management issues for thousands of concert and festival events in the UK and overseas since the 1970s.

2. STATUTORY GUIDANCE

LICENSING ACT 2003

- 2.1. The Licensing Act 2003¹ and the statutory guidance approved under section 182 of the Act is relevant as it specifically covers emissions from events such as those that have been held and are proposed to be held at Great Lines Heritage Park.
- 2.2. The Guidance issued under Section 182 of the Licensing Act 2003 is provided to licensing authorities in relation to the carrying out of their functions under the 2003 Act in the promotion of the four licensing objectives. The guidance states that:

'It is a key medium for promoting best practice, ensuring consistent application of licensing powers across England and Wales and for promoting fairness, equal treatment and proportionality'.

- 2.3. In addition to the four licensing objectives of
 - The prevention of crime and disorder
 - Public safety
 - **The prevention of public nuisance** [emphasis added as relevant to noise]
 - The protection of children from harm

- 2.4. The guidance also supports a number of other keys aims and objectives including:

'Recognising the important role which pubs and other licensed premises play in our local communities by minimising the regulatory burden on business, encouraging innovation and supporting responsible premises'.

'Encouraging greater community involvement in licensing decisions and giving local residents the opportunity to have their say regarding licensing decisions that may affect them'.

'the introduction of better and more proportionate regulation to give business greater freedom and flexibility to meet their customers' expectations;'

'the further development within communities of our rich culture of live music, dancing and theatre, both in rural areas and in our towns and cities;'

- 2.5. The Guidance offers general principles in setting parameters within which premises can lawfully operate, stating that Licence conditions:

'must be tailored to the individual type, location and characteristics of the premises and events concerned'.

'should be proportionate, justifiable and capable of being met'.

¹ The Licensing Act 2003 <https://www.legislation.gov.uk/ukpga/2003/17/contents>

- 2.6. Further support of this guidance is found in paragraphs 2.17 and 10.10 which state that:

'Licensing authorities should avoid inappropriate or disproportionate measures that could deter events that are valuable to the community, such as live music.'

'The 2003 Act requires that licensing conditions should be tailored to the size, type, location and characteristics and activities taking place at the premises concerned. Conditions should be determined on a case-by case basis and standardised conditions which ignore these individual aspects should be avoided..... Licensing authorities and other responsible authorities should be alive to the indirect costs that can arise because of conditions. These could be a deterrent to holding events that are valuable to the community or for the funding of good and important causes.'

- 2.7. The guidance also states that:

'Each application must be considered on its own merits Conditions attached to licences and certificates must be tailored to the individual type, location and characteristics of the premises and events concerned. This is essential to avoid the imposition of disproportionate and overly burdensome conditions on premises where there is no need for such conditions.'

- 2.8. It is generally accepted that properties in the vicinity of a large-scale music event will be able to hear music noise. It is a matter of balancing the needs of the local community who may be inconvenienced, with the enjoyment of the audience and any wider economic and social benefits.

3. ENTERTAINMENT NOISE CRITERIA

- 3.1. Guidelines for noise from outdoor music events were published in the Noise Council's Code of Practice on Environmental Noise Control at Concerts² ('The Code') in 1995. These guidelines were based on experience of a limited number of outdoor concerts in the late 1980s and early 1990s when the number, scale and variety of events was very much smaller and more restricted than currently, and they were held mainly in urban areas and stadia, with very few in rural areas.
- 3.2. The recommended Music Noise Level (MNL, expressed in dB $L_{Aeq,15 \text{ min}}$) guidelines contained within the Code of Practice for events held between the hours of 09:00 and 23:00 are summarised in the following Table 1.

Table 1 Code of practice MNL guidelines – for events held between 09.00 and 23.00

Concert days per calendar year, per venue	Venue Category	Guideline MNL
1 to 3	Urban Stadia or Arenas	The MNL should not exceed 75 dB(A) over a 15 minute period
1 to 3	Other Urban and Rural Venues	The MNL should not exceed 65 dB(A) over a 15 minute period
4 to 12	All Venues	The MNL should not exceed the background noise level by more than 15 dB(A) over a 15 minute period

- 3.3. Since its publication in 1995, there have been several recommended modifications to the Code and as a result it has been under review for some time. The modifications are being considered because of changes in the live entertainment industry, dramatically increased demand for outdoor events over the past 20 years, changes to the licensing regime with the implementation of the Licensing Act 2003 and shifts in cultural experience and expectation.
- 3.4. Although for more than 3 events days per year the Code suggests referencing the permitted MNL to the typical $L_{A90,T}$ background noise level, there is no underlying research or studies that provide a robust justification of this approach. This means the approach is an arbitrary means of deriving an MNL in a consistent manner, but it is not supported by any evidence correlated to community response.

² Code of Practice on Environmental Noise Control at Concerts, The Noise Council, 1995
<https://moderngov.lambeth.gov.uk/documents/s117890/Annex%20B%20-%20Code%20of%20Practice%20on%20Environmental%20Noise%20Control%20at%20Concerts.pdf>

- 3.5. It is important to recognise that the introduction to the Code of Practice explicitly states it is designed to provide guidance on “keeping to a minimum the disturbance [from noise in relation to] large music events involving high powered amplification”. Consequently, unacceptable impacts or even significant adverse effects, as defined by the Planning guidance in the NPPG³ are unlikely until the guideline Music Noise Levels (MNLs) the Code suggests are exceeded substantially.
- 3.6. It is notable also that the proposed start and end times of the Stardust event further reduce the likelihood of any nuisance as they deliberately avoid late nights and early mornings.
- 3.7. In addition, the guideline MNLs in the Code may not be applicable to every event type and genre of music event, particularly where music may not be the primary source of entertainment or continuous/persistent over the duration of the event. Therefore, the assessment of a large-scale music concert or festival should not be considered in the same way as a smaller event or where music is ancillary to the main attraction.

LOW FREQUENCY (BASS) NOISE

- 3.8. Most forms of popular music over the last 80 years have had an element of low frequency content. In the last 30 years the prominence of the low frequency bass and drum beats and rhythms have increased in some music genres. This has led to concerns about the low frequency bass content of music noise from outdoor concerts.
- 3.9. The Code of Practice does not offer any low frequency MNL guidelines, but references a study of concerts at Wembley Stadium which did address the issues of low frequency noise from concerts. This research was completed by Vanguardia Director Jim Griffiths. The study shows that at a distance of 2 km from the venue, a MNL of 80 dB in the 1/1 octave frequency bands at 63 Hz and 125 Hz results in an increased probability of receiving complaints relating to low frequency noise. The study goes on to suggest that, at the same distance, a MNL of 70 dB in these 1/1 octave bands is satisfactory.
- 3.10. While this broadly addresses the issue of low frequency noise, it only considers MNLs measured at a distance of 2 km and does not suggest thresholds for noise sensitive premises within this radius.
- 3.11. A recent IOA conference paper⁴ reports that from a sample of 71 events during 2019 it was found that:

³ NPPG – National Planning Practice Guidance – Noise – 2019 <https://www.gov.uk/guidance/noise--2>

⁴ An Evaluation of UK and International Guidance for the Control of Noise at Outdoor Events. Reproduced Sound 2020, Volume 42, Part 3. <https://www.ioa.org.uk/file/4199/download?token=bjPnDxRB>

- only 10 events had low frequency limits, comprising only 14% of all the venues;
- Five events had low frequency constraints in the 63 Hz and 125 Hz octave bands at a distance of 2 km;
- Three events had low frequency restrictions in the 63 Hz and 125 Hz octave bands at the closest noise sensitive receiver; and
- two events had a C-weighted guidelines at the closest noise sensitive receiver of 90 dB $L_{Ceq,15mins}$.

3.12. Vanguardia's experience is that low frequency music noise thresholds should be either set in the 63 Hz and 125 Hz 1/1/ Octave bands at a distance of 2 km from the venue or, if applied at the nearest noise sensitive receptors, should be couched in terms of an overall $L_{Ceq,T}$ value between 15 and 20 dB above the equivalent A-weighted MNL for that location. A MNL of 75 dB $L_{Aeq,15 min}$ is often adopted for urban events and in this case a maximum overall 'C' weighted level should not exceed 90 dB $L_{Ceq,15 mins}$.

COMMUNITY RESPONSE

3.13. The 2011 Ipsos MORI Social Research Institute Study⁵ into the attitudes towards environmental noise from concerts reported the following statistics about the attitudes of local communities to noise from music concerts:

- The most common issues mentioned by local residents with outdoor music events were about parking (16%), traffic (14%) and noise (13%).
- Only 2% of residents surveyed in the vicinity of a classical concert expressed annoyance while 29% of people living around a rock concert expressed annoyance.
- 20% of those surveyed were annoyed by music noise.
- Prior awareness and management of residents' expectations and concerns is important in reducing annoyance from music events.
- Only 1% of the residents had made a complaint about noise from a concert.
- Only 6% of residents would want the volume level of a concert changed.

3.14. The above research and experience of music events in the United Kingdom indicate that there are many factors that influence the tolerance of entertainment noise in the local

⁵ NANR 292, Research into Attitudes to Environmental Noise from Concerts, Defra 2011 and NANR 292, A survey of concert and music event attendees and residents local to those events, Ipsos MORI Social Research Institute, Defra 2011. https://rmp.biz/wp-content/uploads/2017/05/concert-noise_report.pdf

community and individuals can and do respond to exposure to the same MNLs in very different ways, e.g. from indifference to being highly annoyed. However, National Planning Guidance is clear that planning policy is based on the likely average response of those affected, i.e. an objective standard based on a notional typical person and not the subjective reaction of individuals.

- 3.15. Furthermore, rigid adherence to the Code of Practice is not required to meet licensing policy and guidance requirements regarding noise, not least because the Code is not drafted or aimed at satisfying the requirements of current licensing legislation, policy or guidance. Local Licensing Authorities are therefore free to interpret the Code and to use its principles as the foundations for their decision making – which may divert from the detail of the code – rather than treating the code as set of fixed immutably binding rules that must be adhered to at all costs.
- 3.16. The Code of Practice is designed to provide guidance for noise at outdoor concerts and balance the potential disturbance in the local community against the enjoyable experience of the audience so that impacts are minimised. Numerous outdoor venues in the United Kingdom which provide regular concerts and festivals lasting up to 12 hours each day (Stardust is intended to run between 5.75 and 11 hours on different days) have operated and continue to operate successfully with offsite noise limits up to 10 dBA more than the guidelines recommended in the Code of Practice, and over a greater number of concert days. In particular, the distinction the Code suggests in MNLs between an urban stadium and urban parks or other venues is now regarded as redundant as research⁶ shows that affected communities do not draw a distinction between the types of venue the sound comes from.
- 3.17. There can be a misconception that complaints received about a music event equate to there being a problem in licensing terms, but the propensity to complain about noise can be influenced by many non-acoustic factors, including personality type, age, socio-economic status, and perceptions and misconceptions about the source of the noise. Consequently, complaint rates can vary considerably between events with broadly similar noise impacts affecting different types of communities, and for the same event where different communities are affected in a similar manner. Consequently, complaints should not be used on their own as an indicator of impact.

⁶ NANR 292 Research into Attitudes to Environmental Noise from Concerts, Ipsos MORI & Edinburgh Napier University, 2011

- 3.18. Table 2 shows examples of venues where the permitted concert MNLs are higher than the Code of Practice advises and/or the number of days an MNL suggested by the Code applies is longer than the code recommends.

Table 2 Examples of venues where the permitted concert MNLs deviate from Code recommendations

Venue	Number of Concert Days per Year	Noise levels agreed for the Event	Recommended Licence Condition from Pop code	Reference Year
Hyde Park	6	75 dB L _{Aeq,5min}	65 dB L _{Aeq,15min}	2017
Victoria Park	6	75 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2018
Crystal Palace Park	6	70 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2022
Clapham Common	up to 8	75 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2016
Kennington Park	up to 8	75 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2016
Streatham Common	up to 8	75 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2016
Brockwell Park	up to 8	75 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2016
Norwood Park	up to 8	75 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2016
Heaton Park, Manchester	2	80 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2013
The Den, Teignmouth	2	84 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2009
War Memorial Park, Coventry (voluntary limits)	3	65 dB L _{Aeq,15min} then 70 dB L _{Aeq,15min} from 18:30 to 23:00	65 dB L _{Aeq,15min}	2016
South Park, Oxford	Unknown	75 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2017
Trafalgar Square	40	79 dB L _{Aeq,5min}	65 dB L _{Aeq,15min}	2017
Alexandra Palace Park	3	75 dB / 65 dB / 55 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2018
Bellahouston Park, Glasgow	Unknown	75 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2013
Southsea Common, Portsmouth	3	75 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2018
Otterspool Park, Liverpool	2	75 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2018
Isle Of Wight Festival	3	75 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2018
V Festival Telford	2	70 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2013
Reading Festival	3	68 dB L _{Aeq,15min} (70 dB L _{Aeq,15min} for last 2 acts of each day)	65 dB L _{Aeq,15min}	2018
Bestival Isle of Wight	3	75 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2016
London Stadium	6	75 dB L _{Aeq,15min}	75 dB L _{Aeq,15min}	2018
Cardiff Principality Stadium	Unknown	75 dB L _{Aeq,15min}	75 dB L _{Aeq,15min}	2018

Venue	Number of Concert Days per Year	Noise levels agreed for the Event	Recommended Licence Condition from Pop code	Reference Year
Lancashire County Cricket Ground	6	80dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2018
Central Park, East Ham	4	75 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2007
Plat Fields	2	75 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2012
Edgeley Park, Stockport	2	75 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2019
Gunnersbury Park	6	Target: 71 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2019
		Max: 73 dB L _{Aeq,15min}		
Lloyd Park, Croydon	4	75 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2019
Beckenham Place Park	1	75 dB L _{Aeq,15min}	65 dB L _{Aeq,15min}	2019

- 3.19. The table above demonstrates not only that MNLs higher than suggested by the Code have been routinely approved since around 2010, but also that the number of event days with these higher MNLs (or the MNLs suggested by the code) have increased. Furthermore, the level of complaints at the majority of these venues has been low and the local authority has been satisfied that there has been no incidence of public nuisance and the aims of the LA 2003 have been met.

BASELINE NOISE ENVIRONMENT

- 3.20. Data sourced from Defra noise mapping⁷ indicates that the typical noise level on the main roads surrounding Great Lines Heritage Park is between 70 and 75 dB L_{Aeq,16 hour} between 07:00 and 23:00, as shown in Figure 1.

⁷ <http://www.extrium.co.uk/noiseviewer.html>

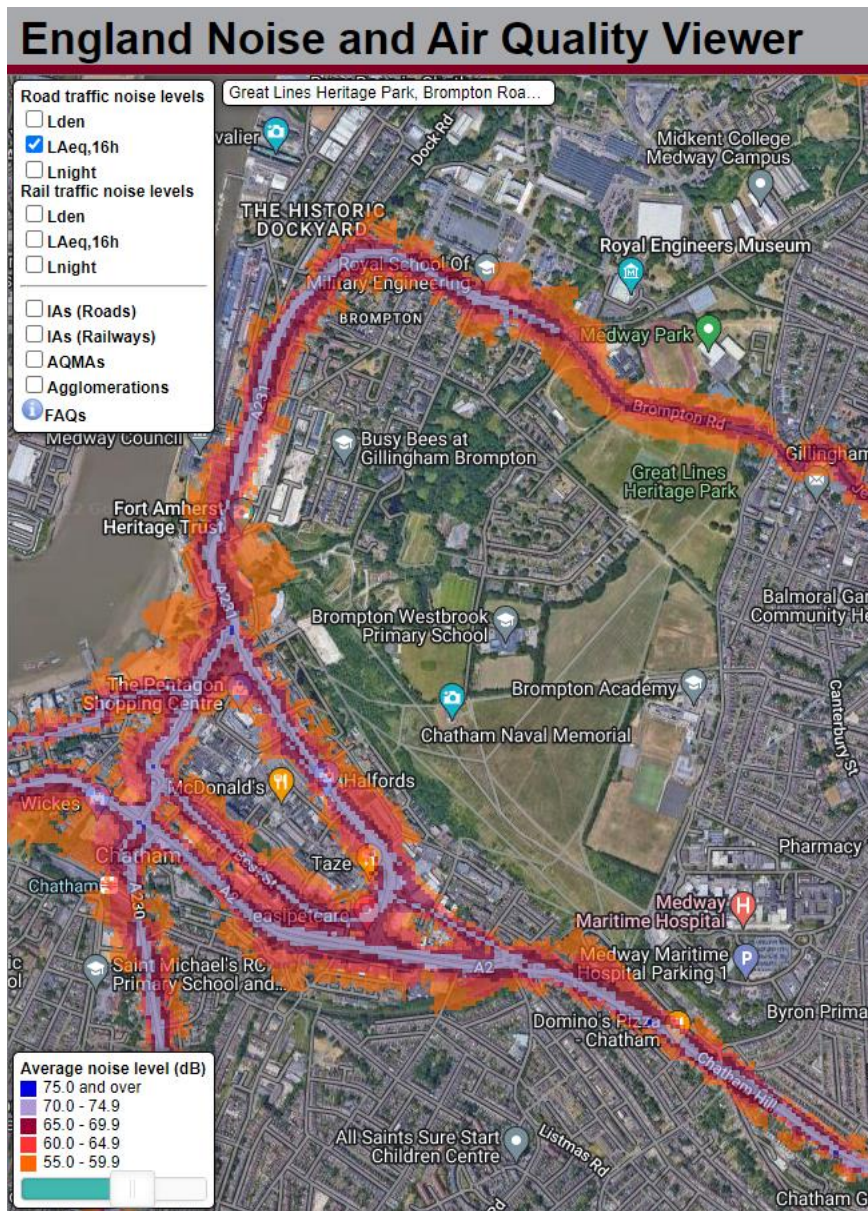


Figure 1 Defra noise data for the surrounding roadways

4. NOISE PREDICTIONS

- 4.1. There is no Premises Licence in force for The Great Lines Heritage Park, so predictions have been undertaken to determine likely entertainment noise levels from the proposed event.
- 4.2. Detailed noise predictions have been carried out in terms of both the L_{Aeq} and L_{Ceq} so that both the overall 'A' weighted broadband sound levels and low frequency 'C' weighted sound levels can be assessed.
- 4.3. The noise predictions have been carried out using industry standard software (IMMI) which has been modified to take account of large-scale concert sound systems. The results are provided both as spot levels at representative locations and as noise contours, so that the noise impact can be assessed in all community areas around the site. Specific noise levels have been predicted for a range of locations around the site which have been identified as representative of the most sensitive residences, as follows:
- Great lines
 - Sally Port Gardens
 - 1 King's Bastion
 - King Charles Hotel
 - High Street
 - 87 Marlborough Road
 - Medway Hospital
 - Longhill Avenue
 - Institute Road
 - Lines Terrace
- 4.4. A map of the measurement locations is presented in Appendix C.
- 4.5. Predictions have been based on the Front of House (FOH) levels and distances presented in Table 3.

Table 3 FOH levels and distances used in the model

Stage	FOH Level dB(A)	FOH Distance m	Array Width m	Array Height m
DV01	98	20	10	4.3
DV02	98	25	16	8.5
DV03	98	25	16	8.5
DV04	98	35	20	10

Stage	FOH Level dB(A)	FOH Distance m	Array Width m	Array Height m
DV05	95	15	8	4.3
DV06	95	15	8	4.3

4.6. The following assumptions were made as part of the predictions:

- MNLs are predicted at a height of 1.5 m above local ground level;
- Steelshield (nominal height 3.0 m) is distributed around the site, indicated by the blue lines on Figure 2;
- All stages are assumed to be running simultaneously;
- Distance attenuation is based on the ISO 9613-2 calculation methodology under downwind propagation conditions; and
- Transmission attenuation has been applied to Stages DV02 to DV06 on the assumption that the sides of the marquee will remain closed during the event.

4.7. The predicted music noise levels at each of the identified receptors are presented in Table 4 and in graphical contour maps at Figure 2 and Figure 3.

Table 4 Predicted MNLs at the closest receptors

Receptor	dB(A)	dB(C)
Great Lines	72	89
Sally Port Gardens	73	90
1 King's Bastion	69	84
King Charles Hotel	69	83
High Street	64	81
87 Marlborough Road	70	88
Medway Hospital	60	75
Longhill Avenue	48	68
Institute Road	48	68
Lines Terrace	49	67

4.8. The C-weighted levels are included to give an indication of the predicted low frequency content of the entertainment noise.

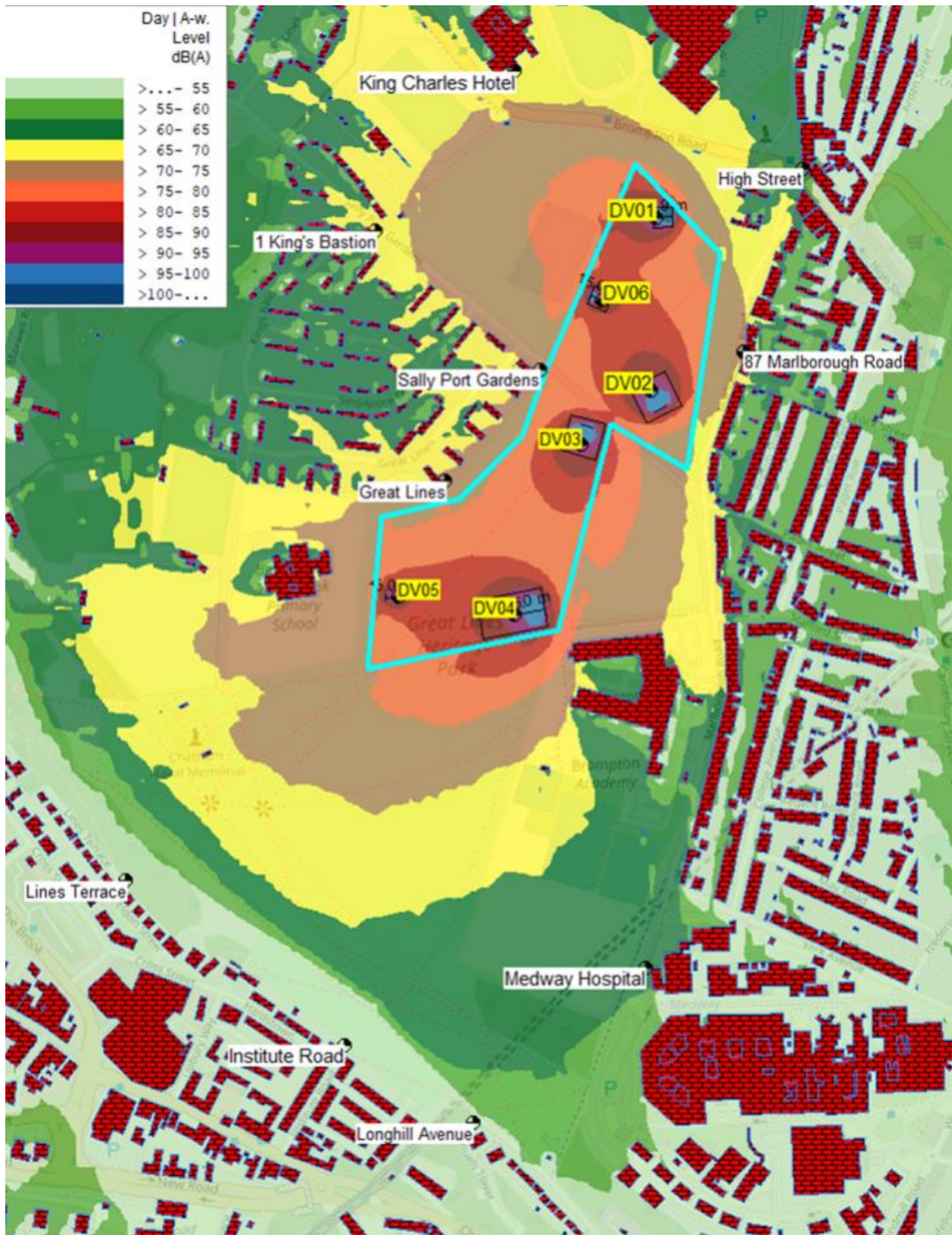


Figure 2 Noise contours (A-weighted)

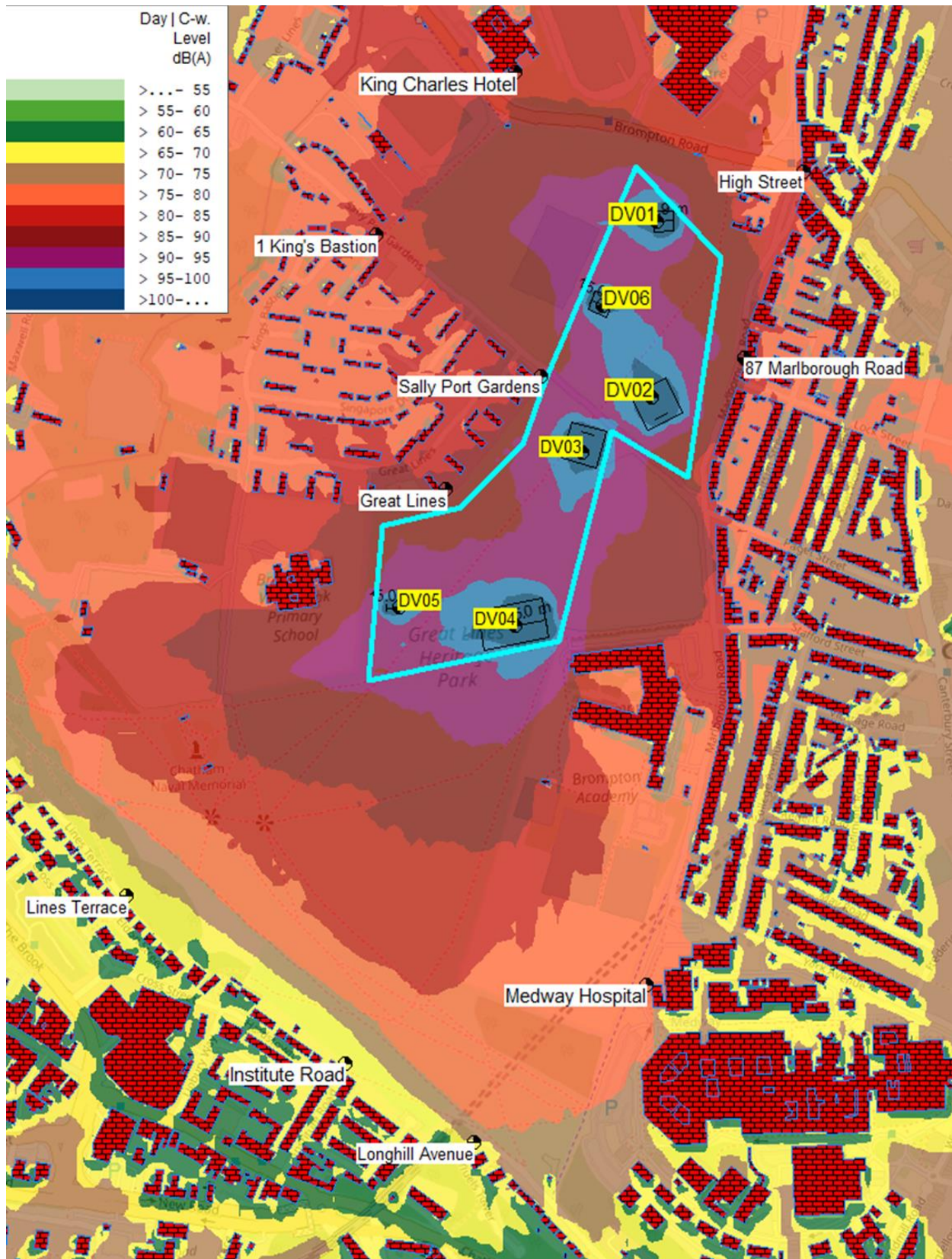


Figure 3 Noise contours (C-weighted)

LIMITATIONS OF NOISE PREDICTIONS

- 4.9. Whilst noise predictions provide a relatively accurate indication of the noise impact at noise sensitive properties, it can in no way guarantee the actual operational noise levels at an event. Meteorological conditions such as temperature inversions and wind direction may have a significant effect (typically 10 - 15 dB) on noise levels at noise sensitive properties during an event, the effect of which cannot be predicted accurately.

5. RECOMMENDED NOISE LIMITS FOR GREAT LINES HERITAGE PARK

- 5.1. Based on the above modelling results, the proposed short operating hours and Vanguardia experience managing the noise at the venues listed in Table 2, a MNL limit of 75 dB(A) measured under free-field conditions is recommended for the four proposed event days. This limit would be consistent with the limits imposed at the majority of parks in urban areas.
- 5.2. In terms of sensitive non-residential receptors, Brompton Westbrook Primary School and Brompton Academy are too close to the park for any effective mitigation, so entertainment cannot take place during their operating hours: clear communication with them will be required to establish these, particularly when entertainment is planned for a Friday.
- 5.3. Medway Hospital to the southeast of the event site is considered an unusually sensitive receptor, so it may be appropriate to introduce a lower limit at this location. An external free-field limit of 60 dB(A) is proposed, based on protecting speech intelligibility within rooms on the most exposed façades of the hospital. Assuming natural ventilation, this would give an internal level of around 48 dB(A) with a partially open window.
- 5.4. As previously discussed, with the advent of professional sound systems that can generate very high levels of low frequency sounds, low frequency 'bass' has become an increasing form of disturbance for local residents. From experience, it is recommended that there should be a low frequency limit in addition to the 75 dB L_{Aeq} level to provide further protection for the local community. As with many other venues that specify a C-weighted limit, it is recommended that the MNL should not exceed 90 dB $L_{Ceq,15min}$ at any residential property, measured under free-field conditions.
- 5.5. For Medway Hospital it is considered appropriate that the 15 dB reduction in limit applied to the 75 dB L_{Aeq} level should similarly be applied to the 90 dB L_{Ceq} level, to give a limit there of 75 dB $L_{Ceq,15 min}$.

6. SOUND MANAGEMENT PLAN

- 6.1. Careful consideration will be given to implementing and exercising an effective sound management programme during sound checks and event to manage entertainment noise from the venue.
- 6.2. A full list of all sound system equipment to be used for each stage shall be submitted to the Environmental Protection Team no later than 1 month before the first day of an event.
- 6.3. The promoter will appoint a suitably qualified consultant to implement this sound management plan.
- 6.4. The suggested sound management programme fundamentally follows the procedures that have been successfully adopted at outdoor concerts and festivals over the past 20 years throughout the UK and are detailed below.

SOUND PROPAGATION AND PRE-EVENT TESTS

- 6.5. Prior to the event the production team should carry out short sound checks and as part of this process, the appointed acoustic consultant (AAC) should undertake sound propagation tests to correlate the music noise levels at the mixing desk with those observed at the most sensitive sound control positions. The results of these tests should be used to 'fine tune' the sound systems to maximise the containment of music and set an appropriate sound limit at the mixer positions.

SOUND MANAGEMENT WITHIN THE VENUE

- 6.6. The music sound levels at each mixing desk position should be continuously monitored in terms of 15-minute and 1-minute L_{Aeq} and L_{Ceq} values. The noise limit is set in 15-minute intervals, but the 1-minute values should provide the AAC with immediate information to help maintain the level within the agreed limit.
- 6.7. As part of the managerial process, the sound engineers of artistes appearing at the event should be informed prior to arriving at the mixer of the need to adhere to the sound limits and instructions issued to them in relation to this.
- 6.8. Sound engineers should be kept informed of the offsite MNL and immediate instructions should be issued to them if it appears that there is a risk that the limit may be exceeded at any point.

- 6.9. AAC staff at the FOH positions should be in contact with colleagues monitoring off-site. All communications with the sound engineers necessary to reduce sound levels should be made by AAC staff.
- 6.10. Regular meetings should be programmed throughout the event days to discuss the sound management strategy and number and location of complaints. This meeting should be attended by a representative from the Local Authority and the AAC on-site manager.

SOUND MONITORING OUTSIDE OF THE VENUE

- 6.11. Noise measurements outside of the site should be monitored regularly at the following locations:
- Great lines
 - Sally Port Gardens
 - 1 King's Bastion
 - King Charles Hotel
 - High Street
 - 87 Marlborough Road
 - Medway Hospital
 - Longhill Avenue
 - Institute Road
 - Lines Terrace
- 6.12. The most sensitive locations should be checked more frequently than those where the measured levels are well below the licence limits.
- 6.13. On receipt of a noise complaint at a different location, the area should be visited (subject to staff availability) and the offsite levels checked for compliance with the licence limits. Any action required to achieve compliance should be communicated to the onsite AAC staff.

TELEPHONE COMPLAINTS LINE

- 6.14. A dedicated telephone complaints line number should be advertised to local residents.
- 6.15. A schematic of the control communication protocol is provided in Figure 4.

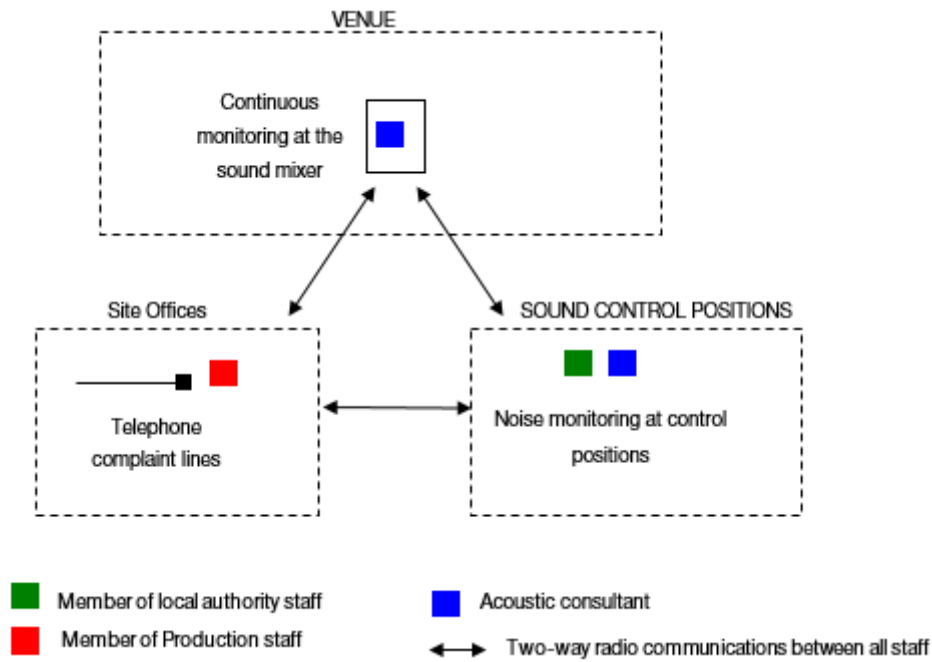


Figure 4 Control communication protocol schematic

6.16. Details of all complaints received via the telephone complaints line should be recorded and an efficient process for distributing this information should be agreed. It is essential that accurate and timely information is provided to the on-site team.

POST EVENT REPORT

6.17. A summary noise report including the on- and off-site measurement results and details of any complaints (including actions taken, as appropriate) should be issued to the local authority within an agreed period after the final event.

7. SUMMARY

- 7.1. Vanguardia has been appointed to undertake pre-event acoustic work and provide a Noise Management Plan in support of the licence application for the proposed Stardust Festival 2023 event, intended to be held at Great Lines Heritage Park in Gillingham from 26th to 29th May 2023.
- 7.2. This report provides information on noise guidelines, noise predictions and noise management procedures that have been successful at managing noise from concerts at many other venues.
- 7.3. Recommended licence limits are provided as follows:
- Brompton Westbrook Primary School and Brompton Academy are too close to the park for any effective mitigation, so entertainment noise cannot be produced during their operating hours.
 - 60 dB $L_{Aeq,15 \text{ min}}$ outside Medway Hospital and 75 dB $L_{Aeq,15 \text{ min}}$ outside any other noise sensitive receptor, measured in free-field conditions.
 - 75 dB $L_{Ceq,15 \text{ min}}$ outside Medway Hospital and 90 dB $L_{Ceq,15 \text{ min}}$ outside any other residence, measured in free-field conditions.
- 7.4. The detailed predictions show that with each source in simultaneous operation, these recommended limits can be met at all community locations.
- 7.5. A detailed sound management plan has been presented.
- 7.6. From experience, Vanguardia are confident that with the adoption of both the recommended noise limits and noise management plan, the objective defined in the Licensing Act 2003 in respect of noise will be met such that the proposed event uses will not cause a public nuisance.

APPENDIX A – ACOUSTIC GLOSSARY

A-WEIGHTING

The human ear is not equally sensitive to all frequencies of sound. It is relatively much less sensitive to very low frequencies such as 'mains hum', and to very high frequencies such as the call of a bat, than to the 'mid-frequencies' important for human voice communication. In order to make sound level meters, which would otherwise be indiscriminate in registering sound pressures, respond in a way which reflects human perception of sound, they usually are fitted with a set of filters to progressively filter out the high and low frequency energy. The filters are made to an internationally standardised specification and the filtered noise level is said to be 'A-weighted'. Sometimes A-weighted decibel levels are denoted 'dB(A)', but the correct, internationally standardised format for reporting requires the 'A' to be appended to the noise descriptor, e.g. $L_{Aeq,T}$, L_{Amax} , etc.

AMBIENT NOISE

This is the totally encompassing sound at the measurement position over a specified time interval and usually comprises sound from many different sources both near and far.

ATTENUATION

A general term used to indicate the reduction of noise, or the amount (in decibels) by which it is reduced.

AVERAGING

In the absence of a dominant steady source, the sound level at a point, indoors or outdoors, varies continuously. For example, the variation may be over a few dB about an average value in a quiet room, or over 10 dB or more in a noisy outdoor environment. In order to define a level to represent the relative level of noise in the space it is necessary to define that average value. The most common averaging methods are energy averaging (L_{Aeq}) and statistical averaging (L_{AN} where N is a percentage between 1 and 100). The $L_{A10,T}$, the noise level exceeded for 10% of the measurement time interval T, is commonly used in the UK for the assessment of road traffic noise.

BACKGROUND NOISE LEVEL, $L_{A90,T}$

Background noise level is a term used to describe that level to which the noise falls during quiet spells, when there is lull in passing traffic for example. It is quantified by the $L_{A90,T}$ which is the noise level that is exceeded for 90% of the measurement time interval, T.

DECIBELS

Noise conventionally is measured in decibels (dB). The decibel is a logarithmic unit and decibel levels do not add and subtract arithmetically. An increase or decrease of 3 dB in the level of a steady noise is about the smallest that is noticeable. It represents a doubling or halving of noise energy. An increase or decrease of 10 dB represents a ten-fold change in noise energy, and is perceived as a doubling or halving of loudness. The threshold of hearing for a typical young, healthy adult is 0 dB A-weighted sound pressure level. A noise level of 140 dB(A) can cause physical pain. Most people listen to their televisions at about 60 to 65 dB(A). Alongside a busy main road the ambient noise level may be in the 70 to 80 dB(A) range; on a quiet day in the country it might be as low as 30 dB, in town 40 to 50 dB(A).

DECIBEL ADDITION

If two similar noise sources operate together their combined noise level at an observer's position some distance away is 3 dB higher than the noise level generated by just one of them. If two further machines are switched on the noise level generated by all four at the observer's position is 3 dB higher than the level generated by the two. If the number of machines is again doubled, to eight, the noise level increases by another 3 dB, and so on.

EQUIVALENT CONTINUOUS A-WEIGHTED SOUND PRESSURE LEVEL, $L_{Aeq,T}$

The 'equivalent continuous A-weighted sound pressure level' is an average of the fluctuating sound energy in a space. It is the value of the A-weighted sound pressure level of a continuous, steady sound that, over the specified time period, T seconds, has the same root mean square sound pressure as the varying sound. It can be likened to the mean petrol consumption of a car over a specific journey during which the instantaneous consumption peaked during periods of acceleration and fell during periods of coasting or braking.

FAÇADE SOUND LEVELS

Road and railway traffic noise levels often are specified in terms of the sound level at a position 1 m in front of the most exposed façade of potentially noise sensitive premises. Such levels are assumed to be 3 dB(A) higher than sound levels measured at an equivalent position away from the noise reflected off the building façade and any other surfaces (excluding the ground).

MUSIC NOISE LEVEL (MNL)

The L_{Aeq} of the music noise measured at a particular location without interference from extraneous ambient noise.

APPENDIX B – SITE PLAN



Figure 5 Site Plan

APPENDIX C – SITE MONITORING PLAN

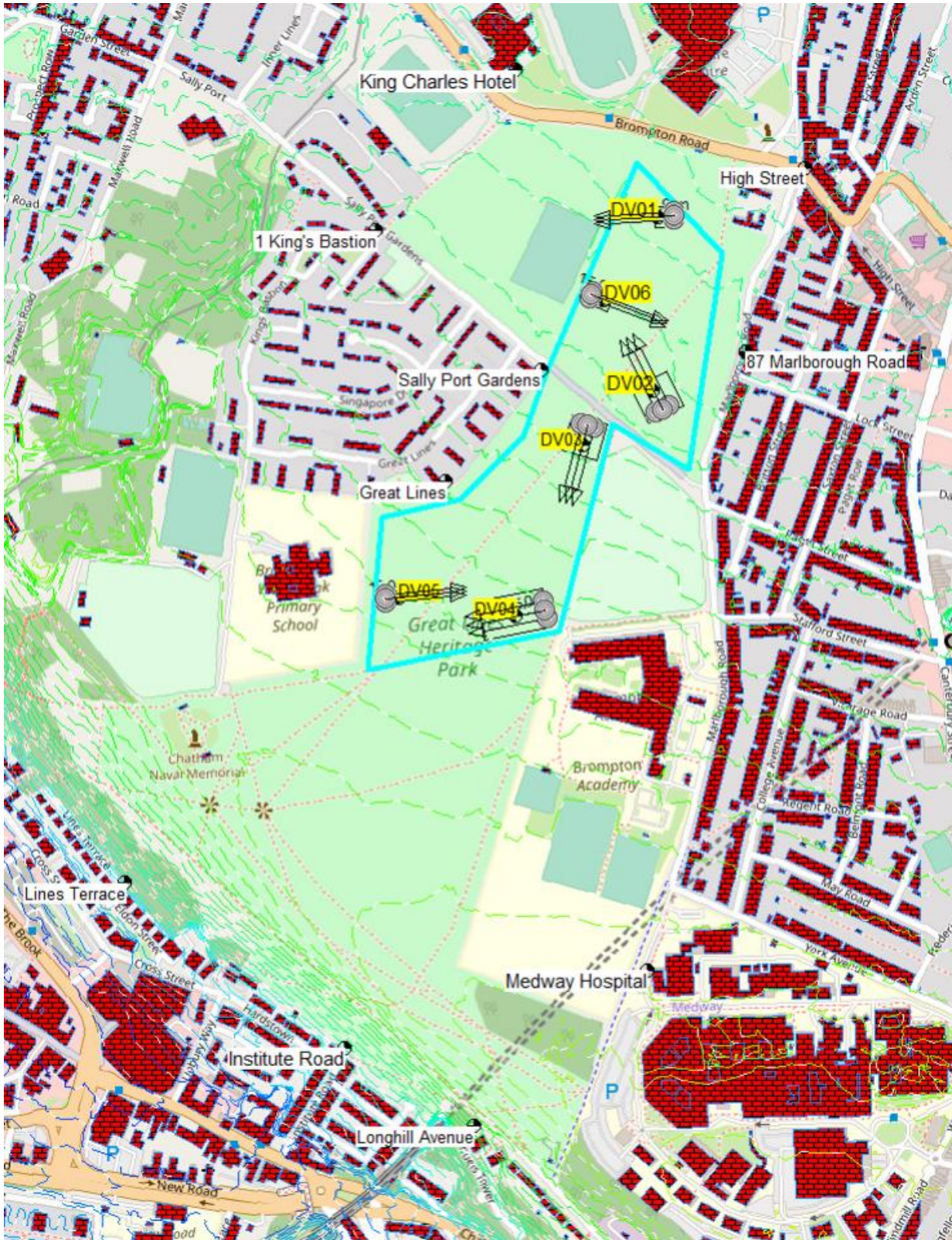


Figure 6 Measurement locations relative to event site

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