



Forbidden Forest 2022

Noise Management Plan *(Draft)*

VW Music Limited

Revision 0

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1 Introduction

1.1 Appointment

1.1.1 F1 Acoustics Company Limited (F1AC) has been appointed by VW Music Ltd (VWM) to provide sound control and management for the Forbidden Forest event to be held on Saturday 3rd and 4th July 2022 on the Belvoir Castle estate in the Frog Hollow and Kripton Pastures areas.

1.1.2 This Noise Management Plan (NMP) contains details of the noise management strategies, staffing levels, control methodologies and procedures that will be implemented by F1AC on behalf of VWM for the Forbidden Forest event to ensure that the licensing objectives for the prevention of public nuisance are promoted.

1.2 About F1 Acoustics Company Limited

1.2.1 F1AC are specialists in event and festival sound control and have provided services for festivals including Glastonbury, Boomtown, Leeds, Latitude, Kendall Calling, South West Four Weekender and Printworks London plus numerous other single stage and multi-stage events across the UK. We have a combined experience of over 22 years providing high quality sound control services. All of our Consultants are Members of the Institute of Acoustics. As well as entertainment sound control the company deals with a large range of acoustics and noise issues and our staff have presented expert testimony at planning and licencing hearings as well as being accustomed to liaising with Local Authority Officers regarding noise issues.

1.2.2 F1AC has used National Guidelines, The Code of Practice on Environmental Noise Control at Concerts (The Noise Council, 1995) and our expert experience in this sector to tailor this Noise Management Plan for the type of event, number of customers, number of stages and location to ensure an achievable protocol for sound control is established.

1.3 Premises Licence

1.3.1 An application for a Premises Licence has been made to the Local Licencing Authority. This section will be updated with any Conditions relating to music noise levels for the event.

1.3.2 It is proposed that any conditions relating to the permitted music noise levels for the event reflect the guidance contained in the ‘Code of Practice on Environmental Noise Control at Concerts’.

1.4 Code of Practice on Environmental Noise Control at Concerts

1.4.1 The Code of Practice on Environmental Noise Control at Concerts contains the following relevant guidance regarding the off-site noise limits at the nearest noise sensitive receptors (NSRs):

“3.1 The Music Noise Levels (MNL) when assessed at the prediction stage or measured during sound checks or concerts should not exceed the guidelines shown in Table 1 at 1 metre from the façade of any noise sensitive premises for events held between the hours of 09.00 and 23.00.

Table 1

Concert days per calendar year, per venue	Venue category	Guideline
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

Notes to Table 1

1. The value used should be the arithmetic average of the hourly LA90 measured over the last four hours of the proposed music event or over the entire period of the proposed music event if scheduled to last for less than four hours.

2. There are many other issues which affect the acceptability of proposed concerts. This code is designed to address the environmental noise issue alone.

3. In locations where individuals may be affected by more than one venue, the impact of all the events should be considered.

4. For those venues where more than three events per calendar year are expected, the frequency and scheduling of the events will affect the level of disturbance. In particular, additional discharges can arise if events occur on more than three consecutive days without a reduction in the permitted MNL.

5. For indoor venues used for up to about 30 events per calendar year an MNL not exceeding the background noise by more than 5 dB(A) over a fifteen minute period is recommended for events finishing no later than 23.00 hours.

6. Account should be taken of the noise impact of other events at a venue. It may be appropriate to reduce the permitted noise from a concert if the other events are noisy.

7. For venues where just one event has been held on one day in any one year, it has been found possible to adopt a higher limit value without causing an unacceptable level of disturbance.

3.2 For events continuing or held between the hours 23.00 and 09.00 the music noise should not be audible within noise-sensitive premises with windows open in a typical manner for ventilation.

Notes on Guidelines 3.2

1. The use of inaudibility as a guideline is not universally accepted as an appropriate method of control. References 6 & 7 (Appendix 1) set out the various issues. This guideline is proposed as there is insufficient evidence available to give more precise guidance.

2. Control can be exercised in this situation by limiting the music noise so that it is just audible outside the noise sensitive premises. When that is achieved it can be assumed that the music noise is not audible inside the noise sensitive premises.

3.3 The nature of music events means that these guidelines are best used in the setting of limits prior to the event (see 4.0).

3.4 Assessment of noise in terms of dB(A) is very convenient but it can underestimate the intrusiveness of low frequency noise. Furthermore, low frequency noise can be very noticeable indoors. Thus, even if the dB(A) guideline is being met, unreasonable disturbance may be occurring because of the low frequency noise. With certain types of events, therefore, it may be necessary to

set an additional criterion in terms of low frequency noise, or apply additional control conditions.

Notes to Guideline 3.4

1. It has been found that it is the frequency imbalance which causes disturbance. Consequently there is less of a problem from the low frequency content of the music noise near to an open air venue than further away.

2. Although no precise guidance is available the following may be found helpful (Ref.8): A level up to 70 dB in either of the 63 Hz or 125 Hz octave frequency band is satisfactory; a level of 80 dB or more in either of those octave frequency bands causes significant disturbance.

3.5 Complaints may occur simply because people some distance from the event can hear it and that, consequently, they feel the music must be loud even though the guidelines are being met. In fact topographical and climatic conditions can be such that the MNL is lower at locations nearer to the venue.”

1.4.2 A glossary of acoustic terms is provided in Appendix A to assist the reader.

2 Site, Environs and Details of the Event

2.1 Site Location

2.1.1 The event site is at the Frog Hollow and Knipton Pastures areas of Belvoir Castle, Castle, Grantham, Leicestershire, NG32 1PE. The nearest noise sensitive receptors (NSRs) are Woolsthorpe 2.0 km to the northeast, Harston 1.8 km to the east and Knipton 0.9 km to the south/southeast. A plan showing the festival site location, surrounding area and the noise sensitive receptors is included as Figure 1.

2.1.2 The character of the area is rural. The main environmental noise sources in the area will be those associated with a rural environment with noise sources including road traffic on the local road network and natural environmental sources including wind in the trees and animals.

2.2 Forbidden Forest 2022

2.2.1 The Forbidden Forest 2022 event will be held on Saturday 3rd and Sunday 4th July 2022, with main stages in the Frog Hollow area operating from 12:00 to 23:00.

2.2.2 A silent disco will operate in the camping field in the Knipton Pastures area until 03:00 on Friday, Saturday and Sunday nights.

2.2.3 There will be four main stages at the event as detailed below and as shown in the site layout plan provided in Figure 2.

- Stage 1 – [name TBC]
- Stage 2 – [name TBC]
- Stage 3 – [name TBC]
- Stage 4 – [name TBC]

2.2.4 F1AC has discussed the orientation and location of the stages with EEL to maximise the benefits of the site layout with regard to the off-site NSRs, i.e. with the rear of the stage facing towards the closest receptors thus utilising the inherent directivity of the sound systems where possible.

- 2.2.5 The sound systems will have appropriate controls for adjusting and fine-tuning individual third octave-bands. A multi-band compressor/limiter will also be used on the sound systems to provide greater control of the sound level output and will be used as necessary. The only people with access to change the settings on the compressors/limiters will be members of the sound engineering team.

3 Sound Control Procedure

3.1 Personnel

3.1.1 To ensure the noise objectives contained within the Premises Licence are achieved, all the steps of the sound control procedure outlined below will be adopted. Such procedures have been developed over a number of years and successfully implemented at numerous concerts, festivals and all-night events. It is anticipated that staff carrying out the sound control program will work closely with the Local Authority Officers before and during the events.

3.1.2 A team consisting of one sound control consultant and one sound control technician will be working at the event. They will be working to control the sound throughout the opening times of the stage, unless programmed entertainment finishes earlier.

3.1.3 The project manager responsible for the event sound control will be Robert Miller BSc (Hons) MIOA(E). Robert has over 10 years of experience running sound control for events large and small at both indoor and outdoor venues. The consultant attending the event and/or Robert will be contactable at any time during the licence period on the site communication radio and/or by mobile phone.

3.1.4 The sound control team will liaise with the team of audio engineers based at the main stage and operators of any approved smaller sound systems around the site (e.g. traders and fairgrounds). The audio engineers will work under the instruction of the sound control team and put in to place any required alterations to the sound systems overall or frequency based output to achieve compliance with the proposed MNL limits.

3.2 Sound Control Program

Pre-event Information

3.2.1 Prior to the event, VWM will contact local residents of noise sensitive premises detailing the community hotline telephone number, nature, timings of the programmed entertainment, sound checks and propagation tests of the event. However, it is the intention of the noise management plan to control noise levels such that complaints do not arise.

Build and Breakdown

- 3.2.2 The build and breakdown will occur in the days before and after the event. In order to limit any additional noise experienced by local residents causing a disturbance F1AC have been informed by EEL that any build or breakdown activities that are considered noisy will only take place between the hours of 08:00 and 18:00 Monday – Saturday and between the hours of 10:00 and 18:00 on a Sunday.

Noise Curfew

- 3.2.3 Noise from the operation of sound systems will not take place before 11:00 or after 23:00 on the event days. Sound system set-up tests and sound propagation tests may occur on Friday afternoon and event day mornings which will give the sound system engineers a chance to run the systems at a higher level, before the event begins.

Sound Propagation Tests

- 3.2.4 Sound propagation tests will be carried out in the morning of the event, not before 10:00.
- 3.2.5 The sound propagation tests consist of playing music, similar to the programmed artists, through the sound system and measuring the MNL at a fixed monitoring point to be used throughout the event in the front of house (FOH) area, ideally at the mixing position if located FOH. Off-site measurements at the nearest identified NSRs will also be taken for each stage to allow identification of any potential problems from the stage at individual NSRs. These tests take account of all physical factors (e.g. distance, ground absorption, air absorption and meteorological conditions) such that the on-site operating levels can be adjusted and set to achieve compliance with the off-site licence conditions before the start of the event.

Sound Monitoring and Control

- 3.2.6 VWM are to inform all relevant parties that F1AC have ultimate operational control over all the sound levels throughout the event. Therefore, all other parties, including artists, production managers and sound engineers will be instructed not to increase any sound levels unless specifically agreed by the consultant responsible for sound control.
- 3.2.7 Off-site noise levels will be measured using a Class 1 specification integrating sound level meter capable of measuring third-octave bands. Sound level measurements will be regularly taken at proposed monitoring positions as shown in Figure 1. The monitoring

positions identified with the highest music noise levels will be monitored more frequently than those with a lower music noise level. Additional monitoring positions may be added during the event.

- 3.2.8 If any levels are measured to be above the proposed MNL limit, provided in Table 3.1, the sound engineer at the stage will be instructed to reduce the MNL, until a measurement showing compliance with the conditions can be taken. In addition to the control of the overall sound level, frequency adjustments can also be made to reduce the sound at certain low frequencies, often characterised outside the event as a ‘bass beat’.

Table 3.1: Proposed Music Noise Level Limits

Location	Daytime 12:00 to 23:00 Target MNL Limit Broadband $L_{Aeq,15min}$, dB
Music noise level monitoring position representative of any noise sensitive premises	65

- 3.2.9 On-site measurements will be taken with a sound level meter at FOH to keep the operating sound levels under control. By measuring on-site sound levels at the stages, we will reduce the amount of sound level creep and ensure that off-site levels will remain below the MNL limits.
- 3.2.10 Throughout the event, F1AC will liaise closely with Local Authority Officers responsible for noise, if they are in attendance at the event. If F1AC is made aware of MNL approaching the limits, sound levels at the stage will be reduced. Results of the off-site noise monitoring and any related actions will be collated and kept available by F1AC for inspection by the Local Authority at any time during the event.

Low Frequency Sound Control

- 3.2.11 Paragraph 3.4 from the Noise Council guidance provided in Section 1 states low frequency noise should also be considered separately to minimise the disturbance at noise sensitive premises. Notes on Paragraph 3.4 indicate that the onset of significant disturbance is between 70 dB and 80 dB (unweighted). Note 1 of Paragraph 3.4 states that it is the frequency imbalance that causes the disturbance and consequently there is less of a problem from the low frequency content of the music noise near to an open air venue than further away.

- 3.2.12 The frequency imbalance occurs because the distance attenuation of sound is frequency dependent, with lower (bass) frequencies attenuating at a slower rate than higher frequencies. The distance at which this frequency imbalance becomes noticeable is generally between 1 – 2 km.
- 3.2.13 At noise sensitive premises closer to the site than the onset of the frequency imbalance the L_{Aeq} MNL limit specified will take in to account the low frequency component of the music noise. At these noise sensitive premises, the music noise will contain the full frequency range without significant imbalance, subsequently controlling the A-weighted limit will also control the low frequency component of the MNL.
- 3.2.14 The assessment of the MNL at the noise sensitive premises will include a subjective assessment for any frequency components or featured elements that may cause undue disturbance (including low frequency music noise). In the event that an undue disturbance is identified, appropriate adjustments will be actioned at the relevant stage(s).
- 3.2.15 Table 3.2 shows the target low frequency MNL limit that, based on our experience of similar events, will be applied at noise sensitive premises where the low frequency component of the music noise is dominant.

Table 3.2: Target Low Frequency Music Noise Level Limit

Location	Daytime 12:00 to 23:00
	63 Hz and 125 Hz Octave Band $L_{Zeq,15min}$, dB
Music noise level monitoring position representative of any noise sensitive premises where low frequency music noise is dominant (typically 1-2 km from the event)	75

Community Hotline and Response to Complaints

- 3.2.16 A dedicated community hotline, the telephone number of which will be published as aforementioned in Paragraph 3.2.1, will be staffed throughout the duration of the event, in the event that any complaints are received regarding, amongst other matters, noise. All complaints will be logged and those relating to noise will immediately be relayed to the sound control consultant with details, where provided, of the complainant’s name, address and postcode, telephone number and a description of the disturbance.

3.2.17 Should any complaints of noise be received, at any time during the event or sound propagation tests, the sound control consultant will visit the complainant address and take a measurement. If MNL are measured to be above the limit immediate action will be taken on-site to reduce the level from the event. This will be achieved by two-way radio or mobile communication with all persons involved with the sound control procedures, thus a quick response to the problem can be actioned. However, from experience, it has been found that this sound control procedure will prevent the limits from being exceeded in the first place. Results of complaint investigation monitoring and any related actions will be collated and kept available by F1AC for inspection by the Local Authority at any time during the event.

Post-event Report

3.2.18 A post-event report will be provided 28 days after the event, including a summary of the on-site and off-site noise levels measured throughout the event; actions taken as a result of the measurements; complaints received; complaint investigation measurements; and any actions taken as a result of complaint investigation. However, if requested earlier, the results of any measurements can be made available to the Local Authority within 24 hours of the request being received by F1AC.

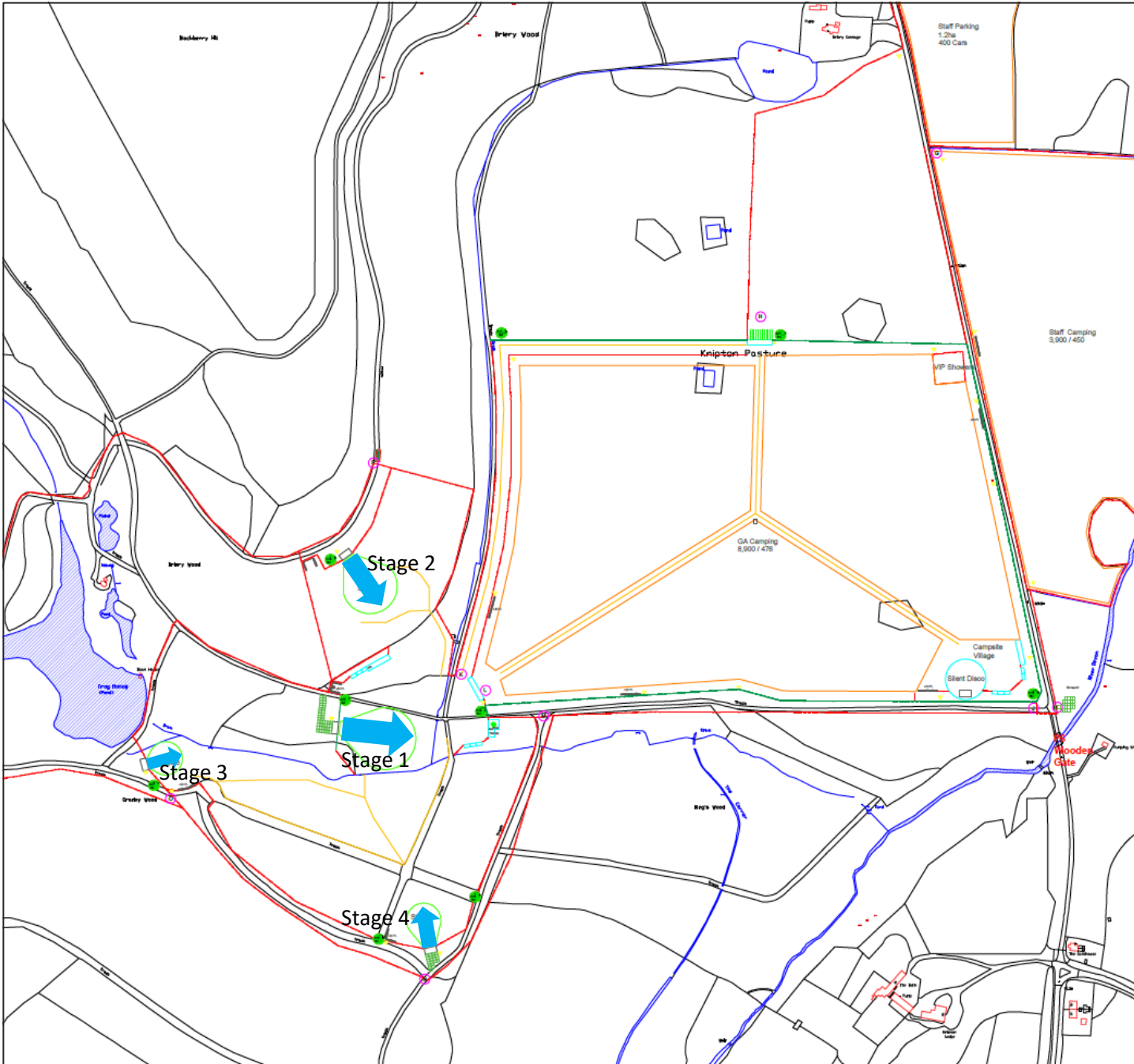
[To be added in a future update.]

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0	17/01/2022	RM	RB	Draft


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PROJECT:	Forbidden Forest 2022 – Noise Management Plan
CLIENT:	VW Music Ltd
TITLE:	Site Location and Proposed Music Noise Level Monitoring Positions
DATE:	17/01/2022
REVISION:	0
SCALE:	As shown.
DRAWING NO:	1667/FF2022-NMP/1/0
FIGURE NO:	1
DRAWN BY:	Robert Miller
REVIEWED BY:	Rupert Burton



Key

 Sound system direction

REV	DATE	D	R	DESCRIPTION
0	17/01/2022	RM	RB	Draft

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PROJECT:	Forbidden Forest 2022 – Noise Management Plan
CLIENT:	VW Music Ltd
TITLE:	Site Layout
DATE:	17/01/2022
REVISION:	0
SCALE:	Not to scale.
DRAWING NO:	1667/FF2022-NMP/2/0
FIGURE NO:	2
DRAWN BY:	Robert Miller
REVIEWED BY:	Rupert Burton

Appendices

Glossary of Acoustic Terms

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 18,000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than at the lower and higher frequencies, and because of this, the low and high frequency component of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most used and which correlates best with the human subjective response to noise is the A-weighting. This is an internationally accepted standard for noise measurements.

The ear can just distinguish a difference in loudness between two noise sources when there is a 3 dB difference between them. Also when two sound sources of the same noise level are combined the resultant level is 3 dB higher than the single source. When two sounds differ by 10 dB one is said to be twice as loud as the other.

The subjective response to a noise is dependent not only upon the sound pressure level and its frequency, but also its intermittency. Various indices have been developed to try and correlate annoyances with the noise level and its fluctuations. The indices and parameters used in this report are defined below:

- **L_{Aeq}** - Equivalent Continuous Sound Pressure Level The A-weighted sound pressure level of a steady sound that has, over a given period, the same energy as the fluctuating sound under investigation.
- **L_{AN}** - The A-weighted sound level exceeded for N% of the measurement period.
- **L_{Amax}** - The maximum A-weighted noise level recorded during the measurement period.
- **MNL** - The Music Noise Level is the L_{Aeq} of the music noise measured at a particular location.