BEFORE THE REGULATORY COMMITTEE OF WAIPA DISTRICT COUNCIL

In the matter of	The Resource Management Act 1991 (Act)
And	
In the matter of	A Resource Consent application by **Festival One Limited** to hold a multi-day Christian Festival at Whitehall Road, Karapiro Waipa District (Waipa District Council **LU/0145/20)**

EVIDENCE LINDSAY JOHN HANNAH

Prepared on behalf of

FESTIVAL ONE LIMITED

27 August 2021

NOISE AND ACOUSTICS

Introduction

1. My full name is **Lindsay John Hannah**. I am the principal acoustic engineer of Dcibel Limited.

2. I have been employed as a full-time specialist practicing acoustics in New Zealand since 1999.

Qualifications

3. My qualifications include a Master's Degree in Acoustics and Environmental Health from Massey University (awarded with distinction), a Post Graduate Diploma in Science (awarded with distinction) specialising in Acoustics from Massey University; and a Bachelor of Building Science Degree (BBSc) from Victoria University School of Architecture and Design, Wellington.

4. I also hold various other qualifications in acoustics including the '*Technical University of Denmark Specialist Sound Insulation Course*' and specialist full year acoustics course taught at Massey University '*Bio-physical effects of noise, vibration and electrometric radiation'*.

5. I have been involved with the prediction, measurement and assessment of building acoustics and environmental noise from a range of developments in the New Zealand and overseas on a continuous basis over the last 22 years. I have been responsible for acoustics assessments and design for numerous different activity and project types nationwide and overseas including festivals, infrastructure, industrial, commercial, recreational and residential developments. I also have experience in noise control engineering and design works.

6. At the time of preparing the Assessment of Environmental Noise Effects (noise report), in support of the Application for Festival One Limited, I was the Lead of Acoustics at Cardno New Zealand a global infrastructure and environmental company operating in over 100 countries.

7. I have been employed by Massey University where I held the position as Adjunct Lecturer for a period or around 5 years teaching a host of areas including acoustics, building and architecture.

8. I am the Editor in Chief of 'New Zealand Acoustics' the only New Zealand acoustics Journal, a position I have held for around 8 years.

9. I am a current elected board member of the New Zealand Acoustical Society a position I have held since 2008. I was a founding Committee Member and Treasurer of the Wellington Audio Society, established in 2006.

10. I am currently on the Waka Kotahi (NZTA) Steering Committee *'Community Response to Transport Noise Exposure in New Zealand (ART 19/27)'.*

11. I have authored over 20 specialist acoustic papers which have been published both in the New Zealand Acoustical Journal as well as published internationally, including in the International Acoustics Journal produced by the Institute of Acoustics (IOA), United Kingdom.

12. I have also authored a specialist published paper on recreation noise associated with 'Open Air Concert and Festival Noise' relevant to the Parachute Music Festival (Mystery Creek site) and other sites.

13. I am a full member of the New Zealand Acoustics Society[1], with a requirement of Full Membership being that I satisfy the Society's two-yearly requirements in regard to continuing professional development (CPD) for both on-going education and development in the field of acoustics.

14. I am a full member of the New Zealand Institute of Environmental Health. I am an Associate member of the New Zealand Planning Institute.

15. In relation to my Bachelor of Building Science Degree I was awarded the *I.H.R.A.C.E Prize* from the Council of the Institute of Heating, Refrigeration and Air Conditioning Engineers of New Zealand. I was also awarded the *New Zealand Institute of Architects Prize* by the Council of New Zealand Institute of Architects.

Experience – Festivals and Concerts

16. I have been involved with the prediction, measurement, assessment and reporting of environmental noise from a range of festivals and concerts on a continuous basis over the past 22 years. I also have experience in noise control engineering and acoustic design works for festivals. I have worked on projects both in New Zealand and overseas. The following is an *example* of some festival and event projects I have been involved with (the list is *not* exhaustive):
    - Festival One, Mystery Creek Hamilton;
    - Parachute Music Festival, Mystery Creek Hamilton;
    - Bay dreams Music Festival, Nelson;
    - Homegrown Music Festival, Wellington;
    - 121 Festival Wairarapa;
    - ZM's Flochella Event, Rotorua;
    - British and Irish Lions Tour, Wellington;
    - Coastella International Music Festival, Wellington;
    - Roots & Blues Festival Queenstown;
    - Shiverdown Concert Event, Mystery Creek, Hamilton;
    - Rugby World Cup Events in Auckland, Wellington and Nelson; and
    - Retro Fest Festival Mystery Creek, Hamilton.

[1] **NZAS Membership Number M1202HL**

17. I have also carried out field monitoring of noise emissions from various festival and concert facilities including at the Basin Reserve, Trafalgar Park and Saxton Fields Nelson as well as concerts and events at the Westpac Stadium (now operated as Sky Stadium). Some example events I have assessed at the Westpac (Sky) Stadium include the follow (the list is *not* exhaustive);
    - Guns N Roses;
    - Sir Elton John;
    - Neil Diamond;
    - The Police;
    - David Bowie
    - Rolling Stones;
    - The Police;
    - Kiss;
    - Ozzy Osbourne;
    - AC/DC;
    - Queens and Adam Lambert;
    - Bon Jovi;
    - Keith Urban; and
    - Eminem.

18. In my opinion my work relating to festivals, concerts and outdoor entertainment events is wide-ranging and has included preparation of AEE noise impact reports, peer review work, noise modelling, preparation of noise management and monitoring plans as well as many years of real time field compliance monitoring and technical compliance reporting across New Zealand. My experience includes working with not only festival applicants, directors but also community groups, councils, productions managers and chief audio engineers including design, calibration and set up of sound systems and the operation of these systems during events.

Code of Conduct

19. The evidence I give is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

Scope of Evidence

20. My evidence will deal with:
    - Background and role;
    - Festival One site and activity;
    - Summary of assessment of environmental noise issues;
    - Response to the Waipa Council s.42A Planners Report;
    - Response to submissions received regarding noise; and
    - Applicants recommended noise conditions.

Background and Involvement – Festival One

21. My involvement in this Application has included investigating potential noise effects and working with the Applicant on environmental noise issues. I can confirm I have visited the subject site twice and reviewed the surrounding area and geography. My most recent site visit was this year in early 2021.

22. My experience with Parachute Music Festival and Festival One at Mystery Creek is wide-ranging. I presented expert noise evidence on behalf of the Parachute Arts Trust for the Parachute Music Festival Application including 2008 under Resource Consent Application **LU/0001/08**. I have conducted many years of field monitoring and reporting at all Parachute Music Festivals (except one) at Mystery Creek and all the Festival One events at Mystery Creek. My role for each event is to prepare the detailed noise monitoring and noise management plans as well as undertake the real time sound level monitoring during the event. The real time monitoring is conducted by myself and one other Dcibel Limited consultant. I am also responsible for preparing a compliance report that goes to Council after each event. I also liaise directly with the Director of the event and audio engineers who oversee each stage and Front of House (FoH).

23. I stress there has never been any non-compliance with respect to noise from Festival One events while operating at the current Mystery Creek site. In my opinion the on-going compliance is due to many factors including the real time monitoring.

Festival One - Site

24. The site and surrounding environs are well described in detail within the Application and Cardno Assessment of Environmental Noise Effects Report. I note as a summary the application site is located at 209 Whitehall Road which is located on the northern side of Lake Karapiro Road, Cambridge, approximately 2km from the township of Karapiro itself. The site is bounded to the north and west by a large forestry block which has no development or dwellings. Some rural residential locations are found to the north, east and south of the site with Whitehall Road being located east of the site. The site of the festival is located within a much larger site being approximately 53 hectares of flat to rolling pastoral land. The new site has good buffers to adjacent residences, larger buffers between the activities on site and subject site boundary and acoustic shielding due to the surrounding undulating terrain.

Festival One – The Activity

25. The proposed activity is well described in detail within the Application and Cardno Assessment of Environmental Noise Effects Report. I note as a summary the application is to establish and operate an annual temporary multi-day Christian Festival with activities to include music, art and community events.

Overview of Environmental Noise Report (AEE)

26. I am the author of the **Cardno Assessment of Environmental Noise Effects Report**[2] (noise report) which formed part of the Resource Consent Application submitted to Waipa District Council in support of the Application (**LU/0145/20**). The Cardno Assessment of Environmental Noise Effects Report is a comprehensive 50-page report and sets out a detailed noise and vibration review of the predicted worst-case environmental noise effects.

27. The Cardno Assessment of Environmental Noise Effects Report is attached to ***Appendix D*** of the Application and Assessment of Environmental Effects report prepared by Mitchell Daysh (RMA Planners) on behalf of the Applicant. This report is also attached to the Waipa District Councils Regulatory Committee s.42A Planning Reports.

28. As noted in the s.42A Planning report the Application was placed on hold due to a number of concerns raised in the original Waipa planning reports and concerns raised by some submitters. On June 11th 2021 the Applicant resubmitted to Council with a bundle of revised information with respect to proposed changes which was designed to address and mitigate submitter concerns. The nature and scale of the event has since been 'scaled back' to address these concerns. The Cardno Noise report has not been changed since first being submitted.

29. I make specific reference also to the fact that the original Cardno Assessment of Environmental Noise Effects Report was based around the original written approvals granted in 2020, which did **not** include two key sites of **1 / 207 Whitehall Road** and **2 / 207 Whitehall Road.** These two sites have now provided written approval and there are now only a handful of submitters in opposition to the amended new Application. I will discuss these submitters and noise effects further below in my evidence.

30. The Cardno Assessment of Environmental Noise Effects describes the potential noise effects associated with the festival, specifically assessing "worst case" operational sound levels (at *maximum* capacity) against the relevant Waipa District Plan (the District Plan) permitted activity noise standards for the Rural Zone.

31. There are five key aspects I wish to summarise in my evidence with respect to noise effects, the site and activity, these are as follows:

    A. The activity is a multi-faceted event and it is not just predominately a 'music concert event'. This appears to often be misunderstood by some parties. The event has a range of activities for various ages and groups of people attending including children. These events include sports, arts, music, community and cultural events for all stages and ages of the community;

[2] Refer to *Cardno Noise Report entitled 'Assessment of Environmental Noise Effects (AEE: Noise) Festival One Whitehall Road Karapiro Waipoa District 2020, Report Reference NZ0119058-FA authored by Lindsay Hannah dated 15th June 2020 (Status Final (For Resource Consent).*

B. The geographical features, distances and topographical character of the site contributes significantly in containment of off-site noise effects and noise emissions received in the surrounding environment. Because of these various contributing factors axillary sound sources such as camping, plant, people sound and traffic when suitably managed (as being proposed) become genuinely low-level noise sources which are localised within the site boundary of the application site itself.

C. Outdoor amplified sound, will not be able to comply for limited periods (namely evening and night period up to 12.00) with the Operative Waipa District Plan permitted activity noise performance standards however compliance with the plan can be achieved at all other times for all other activities and noise sources.

D. The noise modelling is worse case and assumes all activities and stages operating at the same time simultaneously and continuously, this is almost unlikely to happen in real life situation for a host of reasons including resources and scheduling;

E. The event will have a host of comprehensive physical and managerial noise control measures to manage noise including (but not limited to) noise management and monitoring plans through to ongoing real time noise monitoring conducted by two experienced acoustic engineers.

32. For clarity I also note the Cardno Assessment of Environmental Noise Effects Report concludes:

1. The permitted $\mathbf{L_{AFmax}}$ noise limits set out in the Waipa District Plan can be complied with <u>at all times</u>.

2. Temporary construction noise limits set out in *NZS6803:1999 Acoustics Construction Noise*, as referenced in the Waipa District Plan for set up and take down of the event can be complied with <u>at all times.</u>

3. There is not expected to be cross boundary <u>vibration</u> effects.

33. In summary, I am of the opinion that taking into account the current amended application and written approvals, in my experience the recommended noise conditions <u>and</u> noise management methods proposed are comprehensive with respect to being able to manage off site noise effects from the festival. The predicted levels of noise will ensure the adequate protection of health and amenity for all noise sensitive sites in the area.

Noise Management Methods and The Noise Control Boundary

34. I provide the following summary information with regard to noise management and control.

35. A host of noise control measures are proposed for the Festival One events which based on my experience I consider to be in line with the requirements of the Best Practical Option (BPO) provisions of the Resource Management Act 1991. Three key measures are proposed:

    A. Noise Monitoring Plan (plan for monitoring noise);
    B. Noise Management Plan (plan with physical and managerial noise control methods); and
    C. Real time sound level monitoring throughout the event (including of low frequency sound at 63Hz and 125 Hz).

36. Control over cumulative festival noise within the previous resource consent(s) for both Parachute Music Festival and Festival One at Mystery Creek have been based around the concept and use of a ***"55 dBA Noise Control Contour Line***" which is a predicted noise control boundary line within which sound levels are controlled to be no higher than 55 dB L_{Aeq}. This control line method is also used at a number of other major events around New Zealand at other festivals.

37. The noise control contour approach is advantageous for purposes of assessing and managing noise effects, as it relies on compliance at specific monitoring positions to avoid the need to make compliance assessment assumptions around those parts of the noise contour which lie on private property (and for which there are no automatic rights of entry to allow compliance to be determined). Entering private property presents various real-life issues for example health and safety and issues with taking 'clean' measurements without experiencing unwanted background (extraneous) sounds or interference from the occupants of the site you are visiting, examples include farm dogs on site or the occupant's activity themselves. These are real issues to content with in a rural area based on my real-life experience taking measurements at Mystery Creek for both Parachute and Festival One.

38. I believe the noise control boundary line method when adopted has proven successful for a number of events, including Festival One and Parachute Music Festival and in my experience can adequately control noise effects off site when used in conjunction with the recommended noise control measures and noise conditions set out in ***Appendix B.***

Waipa s.42A Planners Report

39. I have read the Waipa District Councils Regulatory Committee s.42A Planning Report prepared by Mr Kirkby-McLeod. Mr Kirkby-McLeod has stated he has relied in part on comments from Mr Jones, Waipa Councils noise officer. I am in generally agreement with the comments and conclusions of both Mr Kirkby-McLeod and Mr Jones. I provide the following commentary:

40. Sections 10.38 (Page 20) to Section 10.50 (Page 23) of the s.42A Planning Report specifically discusses noise.

41. I note that Paragraph 10.45 of the s.42A Planning Report that Mr Jones concludes in his review that '***I would <u>therefore not anticipate</u> that these effects would be <u>more than minor</u> provided that the acoustic controls recommended by the report are put in place and these can be conditioned***. I agree with this statement.

42. Paragraph 10.44 of the Planning Report notes that ***"Council's Environmental Health Officer, Mr Glynn Jones, has visited the site and noted with regard to the nearest properties, there is "no direct line of site from the sources to the receivers which will result in an element of noise screening, although this affect will be will less beneficial to the stages furthest away". The reason that this nearest sound stage has been set up directly facing the receivers can be seen to take advantage of the natural ampi-theatre [sic.] provided by the hill. This is likely to lead to increased directional affects towards the receivers. However, this topography has been factored into the noise modelling program used for the predictions."*** I agree. I point out that the site is undulating thus various hills and undulations assist in acting as natural noise barriers. I note with respect to directionality noise effects Mr Jones discusses in Paragraph 10.44 it was decided as part of the modelling to specifically face (as far as practical) perpendicular to the hill and take advantage of the natural terrain. The overall purpose being that stages would not directly face dwellings in Whitehall Road.

43. Paragraph 10.45 of the s.42A Planning Report further concludes '***For other neighbouring properties, the acoustic report predicted that there would be small exceedances of the night time noise level in the District Plan which applies after 10.00pm up to 12.00 midnight. However, it is agreed that the predicted exceedances are not significant and the frequency of the events and the duration is limited'.*** I agree.

44. Paragraph 10.44 of the Planning Report notes concludes based on Mr Jones noise analysis ***"Based on this, and noting the comments from Mr. Jones, I am of the opinion that the proposal will result in noise effects that will be largely contained within the site and can be appropriately managed to ensure that the impact on surrounding properties is not unreasonable or results in unacceptable impacts on residential amenity or the health and wellbeing of residents and their animals".*** I agree.

45. I note that Paragraph 10.71 of the s.42A Planning Report concludes with respect to noise '***Noise effects associated with the festival will be experienced by surrounding neighbours and are likely to result in some level of disturbance. However, it is my opinion the effect is acceptable and, and can be appropriately managed through consent conditions. Those conditions include a requirement for the Applicant to undertake active monitoring of noise associated with activity on the site and to take action should the levels exceed the predicted threshold'.*** I generally agree with this comment. It is however unclear what the Planner specifically means with the use of the words 'some level of disturbance'. I am of the view that the the level of noise off site will ensure the adequate protection of health and amenity.

46. There are some comments raised in the Planners report which I wish to address. These comments have been raised by submitters and the Planner has made specific note of these. Although the comments appear to be minor, in order to provide a robust assessment, I address these concerns specifically as follows.

47. Paragraph 10.40 of the s.42A Planning Report states '***Submitters have expressed their concerns with the exposure to noise generated from an activity of this scale, and the prolonged music and traffic noise, not only on themselves but also on their pets and stock. The submitters describe the effects of the anticipated noise as "a meaningful impact of noise" resulting in "significant and intrusive effect'.***

48. Paragraph 10.44 of the s.42A Planning Report concludes that Mr Jones believes the proposal will result in noise effects that are not unreasonable or results in unacceptable impacts on residential amenity or the health and wellbeing of residents and also specifically notes this applies also to residences animals. I agree.

49. To provide further comment around this matter I note that noise effects on stock, pets and animals is not a consideration under the Resource Management Act or District Plan noise rules. Nevertheless, I understand the submitters concerns and why these have been raised. In my experience at the noise levels predicted I have not witnessed any adverse effects on stock while monitoring concert or festival events.

50. I wish to also specifically note that there will be no fireworks or pyrotechnics. This is because fireworks have in my experience had effects on the behaviour of certain animals including Equine (horses). The Applicant understands this and thus has chosen not to have any fireworks or pyrotechnics for this reason. Condition 35 to this effect has been drafted.

51. With respect to traffic noise, noise from traffic is only a concern while on site and this can be manged and internalised. I specifically note that s.326(b) of the Resource Management Act **excludes** '*vehicles being driven on a (public) road*'. Nevertheless, traffic movements on site due to the sites roading geometry and safety requirements will be controlled by the Applicants traffic team. I further note traffic moves at slow speeds while on site which assists in reducing noise on metal gravel roads. As stated in the noise report, noise from all traffic noise sources will be compliant and also contained within the site boundaries. This includes traffic noise on site.

52. In summary I am of the view that all noise effects can be suitable managed so as to be internalised on site, with the exception of the amplified sound which as noted above can be suitable managed so as to remain reasonable at all times (including night-time). As noted in ***Section 16 Recommendations***, the s.42A Planning Report concludes '***Any effects are reduced by the temporary nature of the proposal, and can be appropriately managed through conditions of consent'.*** I agree.

Submissions

53. There are six (6) submissions received in opposition. The main concern of submitters appears to be alternative event for the venue and effects on property values. Table 2, Paragraph 8.5 of the s.42A Planning Report sets out a detailed list of written approvals.

54. Paragraph 5.7 of the s.42A Planning Report notes that written approval was provide by 1 / 207 Whitehall Road and 2 / 207 Whitehall Road.

55. Paragraph 5.6 of the s.42A Planning Report states written approval was provided by 308 Whitehall but later withdrawn thus I have considered this property in my review as *not* having provided written approval.

56. I have read the submissions received by Waipa Council following notification of the Application. I have given consideration to the noise matters raised in those submissions.

57. I firstly acknowledge the concerns of neighbours. It is not uncommon for the community to have reservations when a new event if this nature is established. I note that similar concerns took place at Mystery Creek when Parachute Music Festival first started operation. I am of the view that the submissions raise valid concerns including potential noise issues, however my overall conclusions have not changed regarding the acceptability for the noise emissions of the proposed festival events.

58. I note that with respect to noise effects presented, a worst-case level of **47 dB L_{Aeq}** will occur (only for a limited period at night) at 308 Whitehall Road. All other sites will receive **42 dB L_{Aeq}** or less which is a low level of noise.

59. New Zealand Acoustic Standard ***NZS6802: 2008 Acoustics Environmental Noise*** Section 8.6 '*Guidelines for the Protection of Health and Amenity*' states that an external limit of 45 dB L_{Aeq} is acceptable for the reasonable protection of health and amenity values at night time.

60. All sites, other than 308 Whitehall Road will receive a level of less than 45 dB L_{Aeq}. With respect to 308 Whitehall Road this site will receive a night time level which exceeds the recommended 45 dBA protection limit by only 2 dBA.

61. It is noted that a difference of 2 dBA would unlikely be perceptible by most of the population.

62. Regardless in such a case it may be useful to understand the anticipated **internal** levels and potential noise effects.

63. These values have been obtained by assuming that the noise reduction from outside to inside with the window open (to allow for fresh-air and ventilation).

64. By adopting a *conservative* 15 dB for an open window, if the maximum external level from the festival was 47 dB (308 Whitehall Road) the resultant highest **internal level would be 32 dB**.

65. This is calculated based on 47 $dB_{(Exterior)}$ – 15 $dB_{(Façade\ reduction\ -\ windows\ open)}$ = 32 dB $L_{Aeq(indoors)}$ **Eq 1.**

66. I note for <u>all other dwellings</u> who have not provided written approval internal level of less than 30 dB L_{Aeq} indoors would result with windows open.

67. This is calculated based on 42 $dB_{(Exterior)}$ –15 $dB_{(Façade\ reduction\ -\ windows\ open)}$= 27 dB $L_{Aeq(indoors)}$). **Eq 2.**

68. New Zealand Acoustic Standard ***NZS6802: 2008 Acoustics Environmental Noise*** Section C8.6.2 recommends that the describable indoor sound pressure level with windows open is between 30 to 35 dB L_{Aeq} for sleep protection. All sites that have not provided written approval would be within this range 30 to 35 dB L_{Aeq}. This range is consistent with the World Health Organization (WHO) Guidelines for Community Noise recommends that the equivalent sound pressure level of 30 dB L_{Aeq} indoors for sleep protection within bedrooms.

Summary and Recommendation

69. If consent is granted, I recommend the conditions attached in Appendix B be adopted (being the same conditions of consent relating to noise attached to the s.42A report).

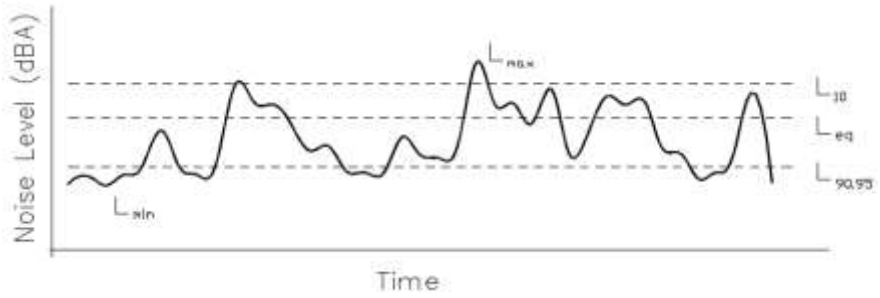
Lindsay Hannah.

M.A.S.N.Z (M1202HL). M.I.E.H. Assoc NZPI. MWAA.
MPhil Acoustics (Sc) (Dist.).
Post Graduate Diploma Science (Dist.).

Bachelor Building Science

27th August 2021

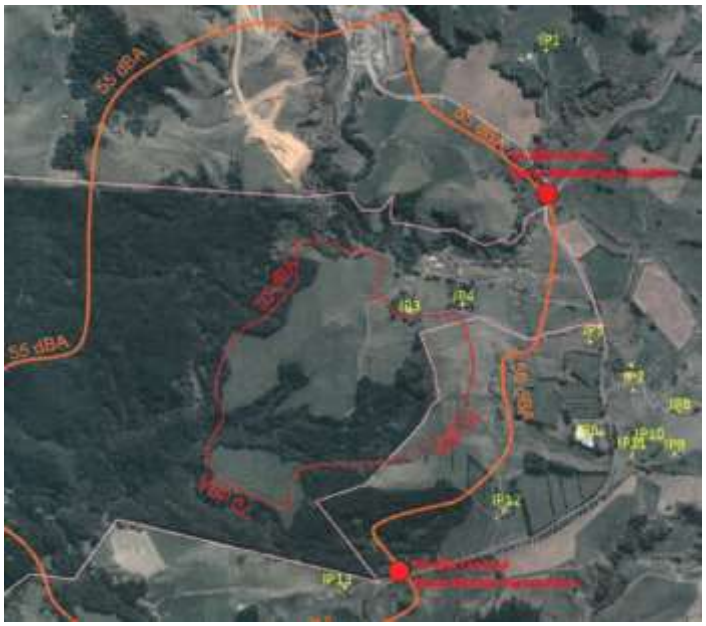
Appendix A – Glossary of Acoustic Terminology

dB	**Decibel**. A bel is defined as the logarithm to base ten of the ratio of two acoustical powers, or intensities. One tenth of a bel, the decibel, is the generally used unit. The primary unit of sound measurement; used to quantify both sound pressure level and sound power level. Used for measuring the relative magnitude based on a logarithmic scale.
dB[A]	**A weighted Sound Level.** A measurement of sound which has its frequency characteristics modified by a filter [A-weighted] so as to more closely approximate the frequency bias of the human ear. A measure of sound pressure level designed to reflect the acuity of the human ear, which does not respond equally to all frequencies. The ear is less efficient at low and high frequencies than at medium or speech-range frequencies. Therefore, to describe a sound containing a wide range of frequencies in a manner representative of the ear's response, it is necessary to reduce the effects of the low and high frequencies with respect to the medium frequencies. The resultant sound level is said to be A-weighted, and the units are dBA.
L_{Amax} dB	**The single highest sampled level of sound.** Used in night time emission limits as a means of ensuring sleep protection. A-weighted.
L_{Aeq} dB	**Equivalent Continuous Sound Pressure Level.** The A-weighted time-averaged sound level [or equivalent sound level] that has the same mean square sound pressure level as the time-varying sound level under consideration. Commonly referred to as an "energy average" measure of sound exposure.
LA90 or L_{A90} dB	**The A-weighted level of sound exceeded for 90% of the monitoring period**. This level of sound equates to an average background sound level, and is influenced by constant sources. Noise emission limits are not generally specified in terms of an L_{90} level, but it is used as a guide to the general background sound level. The L_{A90} is widely accepted as reflecting human perception of ambient background noise and generally reflects the noise level in the lulls between individual noise events, for example noise present during car by pass or someone yelling.
L_N as function of Time	
NZS 6801:2008	**NZS 6801:2008** Acoustics – **Measurement** of Environmental Sound
NZS 6802:2008	**NZS 6802:2008** Acoustics –**Environmental** Noise
Sound Power	**Sound Power Level.** The 'energy' created by a sound is defined as its sound power. The ear cannot hear sound power nor can it be measured directly. Sound power is <u>not</u> dependent upon its surrounding environment.
Sound Pressure	**Sound Pressure Level** is defined as varying pressure fluctuations caused by sound waves. The ear converts these fluctuations into what we call audible sound, which is the sensation [as detected by the ear] of very small rapid changes in the air pressure above and below a static value. This "static" value is atmospheric pressure.

Appendix B – Applicants Recommended Noise Conditions

24 *The Consent Holder shall ensure that Festival One operations including all amplified sound sources are managed so that cumulative sound from the site do not exceed the following noise limits when assessed over any 5-minute period at any of the two nominated noise compliance measurement locations (MP-1 and MP-2) shown on* ***Plan 1*** *below (taken from Appendix C of the Noise Assessment submitted with the application).*

55 dB $L_{Aeq\ (5\ minutes)}$
75 dB $L_{eq\ (5\ minutes)}$ at 63 Hz
70 dB $L_{eq\ (5\ minutes)}$ at 125 Hz
65 dB L_{AFmax}



Plan 1 – Noise Measurement Locations.

25 *The Consent Holder shall ensure noise shall be measured in accordance with NZS 6801:2008 Acoustics – Environmental Sound and assessed in accordance with NZS 6802:2008 Acoustics – Environmental Noise, except that Section 6.3.1 of NZS6802 shall not apply i.e., measured levels shall not be adjusted for special audible characteristics for comparison with the above limits in Condition 24.*

26 *The Consent Holder shall ensure measured sound pressure levels shall be sampled over a 5-minute period.*

27 *The Consent Holder shall ensure all acoustic sound level monitoring and reporting shall be undertaken by a suitable qualified and experienced (SQAE) acoustic consultant suitable to Council.*

28 *The Consent Holder shall ensure no amplified sound stages shall operate between the hours of 12.00 midnight and 9.00am daily.*

29 The Consent Holder shall forward to Waipa Council a written detailed noise compliance report within 2 weeks following completion of the festival. For avoidance of doubt all acoustic monitoring and reporting shall be undertaken by an experienced acoustic consultant suitable to Council.

30 The Consent Holder shall forward to Waipa District Council a draft Noise Management Plan for approval no less than 45 days prior to the event. The plan shall set out the managerial and physical noise mitigation methods to be employed during the event to ensure cumulative noise from the site does not exceed the limits set out in Condition 24. This plan shall be prepared by a qualified and experienced acoustic consultant suitable to Council. For avoidance of doubt a new management plan shall be provided for each individual festival event.

31 The Consent Holder shall forward to Waipa Council a draft Noise Monitoring Plan for approval no less than 45 days prior to the event. This plan shall be prepared by a qualified and experienced acoustic consultant suitable to Council. The Plan shall provide the contact name and contact details of nominated persons responsible for the monitoring and control of noise levels on site and for the handling of complaints. For avoidance of doubt a new monitoring plan shall be provided for each individual festival event.

32 The Consent Holder shall ensure all activities authorised by this Consent are undertaken in accordance with the final approved noise management, noise monitoring and construction noise plans approved by Waipa District Council.

33 The Consent Holder shall ensure that during the entire event and no less than 10 working days prior to the day of the event that a free call number is set up to allow direct contact by the community and council. The contact number should be provided via a physical letter drop and if able via email to the dwellings noted in Map 1. The Consent Holder shall ensure the free call number if answered by a person and be available between 8.00am and 12.00 midnight daily.

34 The contact number should be provided via a physical letter drop and if able via email to the dwellings in the surrounding community within 1km of the site. The Consent Holder shall ensure as far as practical the free call number if answered by an actual person as far as possible and responded to within a period of no longer than 60 minutes.

35 The Consent Holder shall ensure that there are no fireworks or pyrotechnical displays associated with the consented event.

36 The Consent Holder shall ensure that helicopter movements such as rides are not provided to festival goers as an entertainment activity at any time. For the avoidance of doubt, this condition does not prohibit helicopter operations not directly associated with the Festival (for example, helicopters used by the media) or helicopters used for emergency purposes such as fire or medics.

---Evidence Ends – Page 15/15--