

Before the Hearings Commissioners  
at Matamata

---

*in the matter of:* A Private Plan Change to the Matamata-Piako District Plan under Schedule 1 of the RMA by Rings Scenic Tours Limited to introduce new objectives, policies and rules, primarily through a Development Concept Plan, to enable the ongoing operation and growth of tourism activities at Hobbiton Movie Set within an appropriate planning framework

*to:* **Matamata-Piako District Council**

*applicant:* **Rings Scenic Tours Limited**

Statement of Evidence by **James Robert Hugh Bell-Booth** on behalf of Rings Scenic Tours Limited

---

Date: 25 March 2019

## **1.0 INTRODUCTION**

- 1.1 My full name is James Robert Hugh Bell-Booth. I am a consultant in the acoustical consulting practice of Marshall Day Acoustics (MDA) and manager of its Hamilton office
- 1.2 I hold the degree of Bachelor of Building Science from the University of Victoria, Wellington (2005). I am a Member of the Acoustical Society of New Zealand.
- 1.3 For the past 14 years I have worked in the field of acoustics, noise measurement and control in both New Zealand and Australia. My experience in acoustic advice in New Zealand has included the preparation of noise performance standards for district plans; environmental acoustic modelling of commercial sites; assessment, prediction and acoustic modelling; and the recommendation of mitigation measures when appropriate. I have provided expert evidence on acoustic matters to council hearings on a number of occasions.
- 1.4 My evidence is given in support of the Proposed Plan Change 50 (PPC50) to the District Plan.
- 1.5 MDA were commissioned by Rings Scenic Tours Ltd to assess potential sound levels from events proposed in a Development Concept Plan (DCP) that covers the Hobbiton movie set and associated tourist facilities.
- 1.6 I was involved with the preparation of the report Hobbiton DCP – Acoustic Assessment dated 13 January 2018 which considers the potential sound levels generated by activities and events at Hobbiton and recommends performance standards for the DCP.
- 1.7 I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014. I have complied with the Code of Conduct in preparing this statement of evidence and confirm that I will do so in presenting my evidence to the hearing commissioners. Unless I state otherwise, this evidence is within my sphere of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

## **2.0 SCOPE OF EVIDENCE**

- 2.1 My evidence will cover the following topics:
  - a) Acoustic Assessment
  - b) Response to review from Council's Expert
  - c) Comments on submissions
  - d) Comments on the Officer's Report
  - e) Conclusions
  - f) Conditions
- 2.2 This evidence updates and highlights key points from my report dated 13 January 2018 (the Assessment Report), prepared to form part of Plan Change application. In giving this evidence I refer to and confirm that report.

### 3.0 ASSESSMENT REPORT

#### Calculated Sound levels from Concerts and Outdoor Cinema Screening

- 3.1 The Assessment Report considers potential sound emissions from concerts and outdoor cinema screenings in two activity areas identified as Precincts 1 and 2. These areas are identified in the application documentation and in our report.
- 3.2 Precinct 1 encompasses The Shire's Rest facility which is proposed to accommodate one stage/cinema screening area for events involving up to 300 people. Events in Precinct 1 would be typically of a small scale such as birthday parties, corporate events, weddings, functions and outdoor movie screenings.
- 3.3 Precinct 2 includes the movie set, the Green Dragon Inn, restaurant marquee, retail souvenir shop and ancillary spaces. Precinct 2 would accommodate the same types of events as Precinct 1 but with the ability to hold events on a larger scale, with two stages/cinema screening areas for events able to accommodate up to 1000 people.
- 3.4 The current operating noise limits for Hobbiton are contained in conditions of Resource Consents that have been based upon the Rural zone permitted activity noise rules in Section 5 of the Matamata-Piako District Plan. In summary these limits are 50 dB  $L_{A10}$  between 7.00am and 8.00pm, and 40 dB  $L_{A10}$  between 8.00pm and 7.00am. The limits apply at the Notional boundary of any rural dwelling.
- 3.5 The closest dwellings to Precinct 1 and 2 (and therefore the key receivers of sound during events) are:
- 399A Buckland Road (closest to Precinct 1)
  - 553A Buckland Road
  - 632 and 632A Buckland Road (closest to Precinct 2)
- 3.6 The receivers are identified in an aerial photograph in Appendix C of my Assessment Report.
- 3.7 I note that my Assessment Report did not correctly identify a potential receiver at 632A Buckland Road. I discuss this later in my evidence.
- 3.8 The noise model prepared for my Assessment Report includes the following assumptions:
- Sound system location, which is detailed in my report
  - Sound system and stage/audience orientation, which is detailed in my report
  - Sound system type and associated directivity— I have assumed typical line array sound systems
  - The sound level at which the sound system operates, and
  - The number of stages operating at any given time

- 3.9 The first acoustic models showed that in order to achieve compliance with the current District Plan noise limits, the concerts and outdoor cinema screenings would have to be (less than 73 dB at the 30m mixing desk). I consider these levels to be too low for the proposed events which, based on my firm's experience would typically be 95 – 100 dB  $L_{Aeq}$  for concerts and 85 – 90 dB  $L_{Aeq}$  for cinema screenings.
- 3.10 The subsequent calculations assumed levels of 95 – 100 dB  $L_{Aeq}$  at the mixing desk for concerts and 85 – 90 dB  $L_{Aeq}$  at the same position for cinema screenings.
- 3.11 Based upon these assumptions the predicted sound levels for concerts at the closest receivers, including a special audible character (SAC) penalty of 5 decibels in accordance with NZ Standard 6802:2008, are:
- 62 – 67 dB  $L_{Aeq}$  at 399A Buckland Rd from a Precinct 1 event
  - 56 – 61 dB  $L_{Aeq}$  at 553A Buckland Rd from a Precinct 2 event at the Village Green area
  - 57 – 62 dB  $L_{Aeq}$  at 632A Buckland Rd from a Precinct 2 event at the Flat Lawn area
- 3.12 I also calculated sound levels from events at all three locations **operating together** (in the rare event this may occur). the predicted sound levels (plus 5 dB for SAC) are:
- 59– 64 dB  $L_{Aeq}$  at 553A Buckland Rd.
  - 62 – 67dB  $L_{Aeq}$  at 399A Buckland Rd.
  - 58 – 63 dB  $L_{Aeq}$  at 632A Buckland Rd.
- 3.13 The predicted levels from outdoor cinema screenings would be 10 decibels lower than the levels in in Paragraph 3.11 and 3.12, as the source level is 10 decibels lower.

#### Guidelines, Standards and the District Plan Rules as Precedents

- 3.14 The Assessment Report considers relevant guidelines, standards and other District Plan rules as precedents for the Proposed DCP rules.

#### *Proposed Noise performance standards*

- 3.14.1 Section 7 of the Assessment Report discusses WHO guidelines for community noise, the New Zealand Standard NZS 6802:2008 “Acoustics - Environmental Noise” and highlights examples of noise limits applied to venues which accommodate temporary events with amplified sound.

#### *General Activity Noise Limits*

- 3.14.2 In the DCP conditions I have recommended daytime period noise limits of 50 dB  $L_{Aeq}$  between 7.00am and 10.00pm, a night time noise limit of 40 dB  $L_{Aeq}$  between 10.00pm and 7.00am. These limits are lower than the guidance levels in relevant New Zealand Standard NZS 6802:2008 and the WHO guidelines for Community noise

### *Concert and Outdoor Cinema Noise Limits*

- 3.14.3 The Assessment report cites many venues which accommodate temporary events or infrequent events with amplified sound which typically have a noise limit of 75 – 85 dB
- 3.14.4 The temporary events limits referenced typically apply until between 10pm and 11pm.
- 3.14.5 The venues cited in the Assessment Report are generally located in urban/suburban environments with residential receivers located very close to the activity.
- 3.14.6 Around Hobbiton the nearest receivers are further away from the proposed sound systems than in the example venues. In these circumstances a noise limit lower than 75 dB could be achieved whilst generating adequate sound levels for the audience. Furthermore, the ambient sound levels in the rural environment are typically lower than those in an urban/suburban context.

### *Recommended DCP standards*

- 3.15 In the DCP conditions I have recommended notional boundary limits of:
- 50 dB  $L_{Aeq}$  between 8.00pm to 10.00pm and 40 dB  $L_{Aeq}$  between 10.00pm and 8.00am. This is an extension of the time at which the daytime period ends from 8.00pm to 10.00pm
  - 12 outdoor movie screening generating up to 55 dB  $L_{Aeq}$  until 11.00pm in daylight savings time otherwise 10.00pm, and
  - 6 concerts generating up to 65 dB  $L_{Aeq}$  until 11.00pm in daylight savings time otherwise 10.00pm
- 3.16 I acknowledge that higher end of the range in my predicted levels for concerts may exceed this control (primarily for events operating together) so the events will need to be run with due consideration. For example, to achieve 65 dB  $L_{Aeq}$  at 399A Buckland Rd the sound level at the mixing desk in precinct 1 would be limited to 98 dB  $L_{Aeq}$ .
- 3.17 I consider the levels from General Activities up to the proposed limits to be reasonable
- 3.18 I consider the levels for Concerts and Outdoor Cinema Screenings up to the proposed limits to be reasonable provided they only occur for a prescribed number of times per year, finish at a reasonable time, and that communication with neighbors occurs to ensure they are aware of the events.

## **4.0 RESPONSE TO REVIEW BY COUNCIL'S EXPERT**

- 4.1 I have read Mr. Hegley's review of my Assessment Report and respond to the salient points he has raised in the following paragraphs.

#### Noise prediction model

- 4.1.1 Mr. Hegley considers that the ground absorption factor we have used in our predictions is excessively high i.e. too absorptive. However, his review states that he accepts the input parameters in the prediction model.
- 4.1.2 The relevant standard ISO 9613-2:1996 "*Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation*" is clear that porous ground types are "soft" (ground, trees, vegetation and ground suitable for the growth of vegetation such as farmland) with a ground effect of 1.0, which is the equivalent of "100% ground absorption." non-porous "hard" (paving, water, ice and tamped ground) have a ground effect of 0. In accordance with ISO 9613 if half of your ground was water (0) and half of your ground was grass (1) a ground effect of 0.5 would be required. I consider that for the environment surrounding Hobbiton 1.0 is the appropriate ground effect parameter.

#### Noise Descriptor

- 4.1.3 In his discussion on proposed noise limits Mr. Hegley highlights that the proposed performance standards in our report seek to adopt the  $L_{Aeq}$  descriptor in lieu of the  $L_{A10}$  descriptor which the current Resource Consents for Hobbiton and the Matamata-Piako District Plan use. Mr. Hegley acknowledges this is reasonable given it is based upon the most current New Zealand Standard.
- 4.1.4 With respect to the change in descriptor Mr. Hegley states that  $L_{Aeq}$  is more relaxed than  $L_{A10}$  and states "50 dBA  $L_{Aeq}$  = 53 dB  $L_{10}$ " {sic}. Mr Hegley says this must be taken into consideration in the assessment and uses the relationship in his calculation of sound system output level.
- 4.1.5 I acknowledge there is a relationship between the  $L_{Aeq}$  and  $L_{A10}$  descriptor and it is often that the  $L_{Aeq}$  level is in the order of 0 or 5 decibels lower than the  $L_{A10}$ . However, the relationship is dependent upon factors including the nature and duration of the sound source. Therefore 50 dB  $L_{Aeq}$  does not equal 53 dB  $L_{A10}$  as Mr. Hegley contends. I discuss later in my evidence many Territorial authorities have changed from the  $L_{A10}$  descriptor to  $L_{Aeq}$  without any change in the numerical limit with little consequence.

#### General activities noise limits - Extension of daytime period from 8.00pm to 10.00pm

- 4.1.6 In his review Mr. Hegley focuses on supposedly proposed day time and night-time Limits of 55 dB  $L_{Aeq}$  and 45 dB  $L_{Aeq}$  respectively and equates this to 58 dBA  $L_{A10}$  and 48 dB  $L_{A10}$  for the respective periods. He states that the increased levels are not justified or warranted for everyday activities and does not agree to the change.
- 4.1.7 I note that my Assessment Report does not propose 55/45 dB  $L_{Aeq}$  limits, only 50/40 dB  $L_{Aeq}$  limits

- 4.1.8 In response to Mr. Hegley's statement that the difference between the two descriptors should be taken into account I note that over the decade that the New Zealand Standards have supported the  $L_{Aeq}$  descriptor it has been adopted in numerous District Plans in lieu of  $L_{A10}$  with no numerical change to limits. That is, 50 dB  $L_{A10}$  has become 50  $L_{Aeq}$  via a plan change, and there has been little appreciable consequence.
- 4.1.9 Mr. Hegley does not comment in his review on the change in hours, extending the daytime until 10.00pm. Following my February 2019 meeting with Mr. Hegley I understand that that MPDC desires consistency with respect to the time periods. On this point I note this is a plan change and the Applicants are able to seek higher sound levels and have those sound levels assessed on their merits, not simply dismissed because MPDC require consistency.
- 4.1.10 With respect to the proposed extension of the daytime period I acknowledge it is not consistent with the MPDC DP hours for the Rural Zone. However, I consider that the proposed levels and time periods are reasonable noise controls for the rural environment where this new DCP is providing for a major tourist attraction. The levels conform to and are lower than the guidance levels in relevant New Zealand Standard NZS 6802:2008 and the WHO guidelines for Community noise which states that few people are moderately annoyed by noise levels of less than 50 dB  $L_{Aeq}$  (16 hour). I note that period 7.00am to 10.00pm is fifteen hours.

#### Concert sound levels

- 4.1.11 Mr. Hegley considers that the level we have used for concerts is 'fanciful'. He cites his experience with a variety of other events which operate at 88- 96 dBA and infers a relationship between crowd size and sound system level.
- 4.1.12 The concert levels in my Assessment Report rely on my, and my firm's experience, and I see no reason to use lower levels.
- 4.1.13 I concur that a larger, say 10,000-person, crowd is likely to have a louder sound system, however ultimately the level is at the sound engineer's discretion so events with a smaller crowd may still involve high levels.
- 4.2 Mr. Hegley states that a level of 90 dB  $L_{A10}$  at 30 m should be the upper limit for this site, if noise is to be considered reasonable. I note that in this statement Mr. Hegley uses the  $L_{10}$  descriptor, which is outdated.
- 4.2.1 I agree that under this condition the resulting level at nearby residents would be reasonable, however I do not agree that it should be the upper limit.
- 4.2.2 I consider 65 dB  $L_{Aeq}$  to be a reasonable limit for six concerts per annum. My Assessment Report outlines the reasoning for a 65 dB  $L_{Aeq}$  limit in the rural setting, in so far as it is 10 decibels quieter than (or half as loud as) typical temporary event limits at other venues.
- 4.2.3 Mr. Hegley calculated that for a single stage in Precinct 2 the proposed 65 dB  $L_{Aeq}$  limit would permit levels of up to 110 dB  $L_{A10}$  at 30 metres, assuming that  $L_{A10}$  levels are typically 3 decibels higher than  $L_{Aeq}$  levels and that 5 decibels of time averaging is allowed in accordance with NZ Standard 6802:2008.

- 4.2.4 I wish to again highlight Mr Hegley's use of the outdated  $L_{A10}$  descriptor in his calculation of sound levels at the single stage in Precinct 2. I reiterate that there is no fixed relationship between  $L_{A10}$  and  $L_{Aeq}$ . Furthermore, whilst averaging is permissible in the daytime period, it is not during night-time. The night-time period should ultimately dictate the upper level that a sound system may operate at as the mixing engineer would not typically 'turn it down' for the last part of a concert.
- 4.2.5 Additionally, Mr. Hegley has made his assumptions based on only one stage in Precinct 2. He has not considered that there could be multiple stages operating at once. In this circumstance the level at which each sound system could operate would have to reduce by up to 8 decibels, producing approximately 95 to 100 dB  $L_{Aeq}$  at 30m. This is in line with the level I have used in my assessment.
- 4.2.6 Mr. Hegley states that to generate high levels until 11pm is not justified and that 10:30 pm is sufficient to satisfy the majority of artists and will reduce the effects for neighbours
- 4.2.7 Following meeting with Mr. Hegley, I concur that 10.30pm is a reasonable hour for concerts to end. However, there is a pragmatic reason for an 11.00pm finishing time for outdoor cinema screening. The Lord of the Rings and Hobbit films (which are the likely programme for the outdoor cinema screenings) are between 2 hours and 44 minutes and 3 hours and 55 minutes in length. For the longest of these films to finish by 11.00pm, it would need to begin screening no later than 7.05pm. An earlier finishing time would dictate an earlier start time. During daylight savings time, the light levels would be too bright for the outdoor cinema to function effectively.

#### Noise Monitoring

- 4.2.8 Mr. Hegley and I concur that council may well require monitoring during the events to assess compliance. I have addressed this in the proposed DCP conditions in my Assessment Report.

#### Review's conclusion

- 4.3 I have reviewed the recommended changes to the DCP noise performance standards contained in Mr. Hegley's review. I summarises Mr Hegley's proposed changes and comment on these in the following table.



Recommended Changes to the DCP noise performance standards by Mr Hegley	My Response
<p>The noise level from site activities (other than Concerts and Outdoor movie Screenings) shall not exceed</p> <p>7:00am – 8:00pm - 50dB <math>L_{Aeq}</math></p> <p>8:00pm – 7:00am - 40dB <math>L_{Aeq}</math> and 70dB <math>L_{Amax}</math></p>	<p>I agree with the recommended levels of 50 dB <math>L_{Aeq}</math> in the daytime period and 40 dB <math>L_{Aeq}</math> in the night-time period. However, I disagree with the proposed period times</p> <p>The daytime period of 07.00am to 10.00pm time periods is reasonable in the rural environment.</p> <p>50 dB <math>L_{Aeq}</math> during 07.00am to 10.00pm conform to and are lower than the guidance levels in relevant New Zealand Standard NZS 6802:2008 and the WHO guidelines for Community noise.</p>
<p>Up to 12 outdoor movie screening events are permitted to 10.30pm.</p> <p>The outdoor movie screening events shall not exceed 55dB <math>L_{Aeq}</math> when measured at or within the notional boundary of any rural dwelling located outside the DCP area and existing at [insert date of plan change notification].</p>	<p>I agree with the levels but not the times. There is a pragmatic reason for an 11.00pm finishing time for outdoor cinema screening. The daylight levels during daylight savings time would be too bright to display the longest Lord of the Rings Film any earlier than 7.00pm</p>
<p>Up to 12 concert events are permitted to 10.30pm.</p> <p>The concert events shall not exceed 60dB <math>L_{Aeq}</math> when measured at or within the notional boundary of any rural dwelling located outside the DCP area and existing at [insert date of plan change notification].</p>	<p>I agree with the finishing time of 10:30 but I disagree with the Limit.</p> <p>65 dB <math>L_{Aeq}</math> provides adequate protection and allow RST to facilitate concerts that operate at typical levels.</p> <p>During a concert a neighbour receiving either 60 or 65 dB <math>L_{Aeq}</math> of sound from the concert will clearly hear the music. The subjective difference between the two levels in the context of the receiver's environment is unlikely to be of significance.</p> <p>The limit on duration and frequency of occurrence is the primary mitigating factor, not the level received.</p>
<p>An alternative wording for performance standard for the level, period and duration of Sound testing and balancing of the sound system</p>	<p>I agree</p>

<b>Recommended Changes to the DCP noise performance standards by Mr Hegley</b>	<b>My Response</b>
Semantic wording pertaining to event frequency: “in any calendar year with no more than two events in a seven-day period, and no more than three events in a calendar month”	I agree
An alternative wording for the performance standard relating to Noise Management Plan	I agree
A new performance standard relating to monitoring as part of the Noise Management Plan specifying the monitoring shall be undertaken at five minute intervals throughout the event	I agree
A new performance standard relating to representative monitoring location(s) in lieu of access being granted to the notional boundary of receivers.	I agree
A new performance standard relating to notifying potentially affected neighbours prior to the event	I agree

- 4.3.1 I understand that Mr. Hegley’s report and his recommendations inform both the submission made by MPDC staff, and the recommendations of the Planning Officer’s s42A report. I comment on both of these later in my evidence.

## **5.0 COMMENTS ON SUBMISSIONS**

- 5.1 I have read the submissions pertaining to noise. A total of five submissions have noise concerns. My comments on these matters are as follows:

- 5.2 The submission of Mr. Nelson McCosh of 632 Buckland Road highlights two noise related matters:

- Noise level predictions at 632A Buckland Road (the second dwelling on his property are absent from the assessment
- The application only considers the impact upon humans and not livestock

- 5.2.1 I initially understood that the building at 632A Buckland Road was not a dwelling but have since included it in my prediction model. The calculated sound levels are included in Paragraph 3.11 and 3.12 of my evidence, and I note that this is now the closest receiver to events in Precinct 2.

- 5.2.2 With respect to the effects of noise on livestock, this is not currently within my area of expertise, and was not in the scope of my engagement by Rings Scenic Tours Ltd. However, my firm has conducted a literature review of effects on horses and cattle and I provide the following findings:

- The Memphis State University (1971) found that noise has little impact on livestock, and that there are no long-term effects on either milk or meat production. The US Environmental Protection Agency reported in the same year that large livestock generally adapt well to consistent noise. Later research by Beyer (1983) supported the Memphis State University studies finding that during low-altitude flights over livestock, milk production and pregnancies of cows and heifers were not affected. Mancini et al (1988) reports on studies which show that livestock are not affected by “normal” levels of noise—below about 80-90 dBA. My firm’s experience, and the report by Mancini et al (1988), suggests that the only possible causes of disturbance for animals will be impulsive type noises such as blasting and pile driving. To ensure that any such effects of these activities are minimised, my firm typically recommends that noise levels are reduced to the criteria suggested for human exposure.

- With respect to horses, a case study by Huybregts from Marshall Day Acoustics observes that horses in stables exposed to  $L_{Aeq}$ , 15min of 54-70 dB generally show little response to music noise unless the noise is particularly impulsive. A noise criterion of 65 dB  $L_{Aeq}$  is recommended by Huybregts (2008). Le Blanc et al (1991) found that birth success of pregnant mares was not affected by F-14 jet aircraft noise. While the ‘fright-flight’ reaction was initially observed, the mares did adapt to the noise. Race horses are colloquially known for being high-strung. However, my firm has observed horses grazing in paddocks directly under the main approach path of the Christchurch International Airport where noise levels are in excess of 90 dB ( $L_{Amax}$ ) during an aircraft flyover. Although these horses are arguably “used to” the noise, there was generally little recognition by them of an aircraft passing, let alone any sign of disturbance. This tends to support the conclusions by Le Blanc et al (1991).
- 5.3 Mr. Denis Gegan, on behalf of the Gegan Family Trust, at 774 Buckland Road submitted that:
- The provisions for proposed functions and relevant noise generation are vague
  - There is concern that non-compliance may occur in regard to noise limits, and
  - He, along with other residents of Buckland Road and the surrounding area have a reasonable expectation to the quiet enjoyment of their land. Hobbiton needs to ensure that this expectation is preserved
- 5.3.1 I consider that the proposed noise performance standards provide clear and certain operational performance standards. Indeed, they are more prescriptive than the majority of noise rules seen in District Plans.
- 5.3.2 Furthermore, the noise performance standards contain appropriate provisions for a Noise Management Plan that assist MPDC to monitor noise from events at Hobbiton. I am certain that MPDC is capable of enforcing the noise limits via the regulatory framework should the need arise.
- 5.3.3 I consider that the proposed noise performance standards provide adequate protection of amenity and would fulfil the reasonable expectation to quiet enjoyment.
- 5.4 Mr. David Reichmuth of 21 Buckland Road, has submitted with concern for noise pollution from cars and buses “racing up Buckland Road”. This submission point is also supported by J Swaps Contractors Limited.
- 5.4.1 I was not engaged to assess traffic noise, and I note that vehicles can travel on that (and any road) as of right.
- 5.5 The Matamata Piako District Council has submitted changes they wish to make to the proposed DCP standards. The pertinent changes to the noise provisions are:
- Retaining the daytime period of 7:00am to 8:00pm in lieu of 7:00am to 10:00pm for general activity noise limits

- Permitting outdoor movie screening events at a level of 55 dB  $L_{Aeq}$  until 10:30pm instead of 11:00pm during daylight savings and 10:00pm at other times
  - Permitting concerts at a level of 60 dB  $L_{Aeq}$  until 10:30pm instead of 65 dB  $L_{Aeq}$  until 11:00pm during daylight savings and 10:00pm at other times
- 5.6 The reason cited by MPDC for all three of these changes is that it is in keeping with Mr. Hegley's review of my Assessment Report which I have previously discussed. However, I respond to these points as follows:
- 5.6.1 We consider that the proposed levels and time periods are reasonable noise controls for the rural environment. They conform to and are lower than the guidance levels in relevant New Zealand Standard NZS 6802:2008 and the WHO guidelines for Community noise.
- 5.6.2 Furthermore, a number of District Plans around New Zealand contain permitted rural activity controls in line with what we have proposed in the DCP, if not higher.
- 5.6.3 I also note also that the daytime/night-time crossover period in the Rural zones of many other districts can range from 7pm to 11pm, so the current MPDC crossover of 8pm is somewhat conservative.
- 5.6.4 I have stated earlier in Paragraph 4.2.7 that the proposed limit for movie screenings until 11.00pm has a pragmatic (and not acoustic) basis.
- 5.6.5 I consider that an 11.00pm finishing time for an event which is infrequent and of limited duration is entirely reasonable.
- 5.6.6 I concur a finish time of 10.30pm is typically sufficient for concerts and I consider 65 dB  $L_{Aeq}$  to be a reasonable limit for six concerts per annum.

*Other MPDC submissions on DCP noise performance standards*

- 5.7 In addition to the changes above, MPDC has submitted some changes to the noise performance rules, which are of a planning nature. I consider most of these changes to be semantic and am satisfied with them, with one exception.
- 5.7.1 I consider that the proposal to introduce a requirement for the noise management plan to be reviewed, and potentially peer reviewed, annually is unnecessary. Updates to the management plan will occur as a matter of course as and when required by any change in the operation and informed by monitoring events under the proposed DCP rules.

## **6.0 COMMENTS ON THE S42A REPORT**

- 6.1 I have read the Officer's Report (released 18 March 2019). It concludes that the Plan Change should be modified as described in Appendix B of the Officer's Report to provide more certainty that the effects are clearly understood, and to incorporate enhanced methods to manage the effects.
- 6.2 The planner's report relies upon Mr. Hegley's review of the application to inform this opinion in regard to effects.

6.3 The changes described in the report are summarised in Appendix B of the Officer's Report. The changes echo the points pertaining to noise in the MPDC submission

6.4 I have already addressed both Mr. Hegley's review and the MPDC submission in my evidence.

## 7.0 CONCLUSION

7.1 I have outlined the rationale for the reasonable DCP noise limits I have recommended.

7.2 I have responded to the review of the Council's expert and note that his recommendations are fundamentally a 'pairing back' of what has been proposed in the application..

7.2.1 I consider that extending the daytime noise limit by 2 hours is of little appreciable significance and the daytime limits should be 50 dB  $L_{Aeq}$  between 07.00am and 10.00pm.

7.2.2 I consider 10.30pm is a suitable time for concerts to finish, However, I maintain that 65 dB  $L_{Aeq}$  is an appropriate noise limit for concerts that happen up to 6 times in a year.

7.2.3 During a concert a neighbor receiving either 60 or 65 dB  $L_{Aeq}$  will clearly hear the music. The subjective difference between the two levels in the context of the receiver's environment is unlikely to be of significance. The limit on duration and frequency of occurrence is the primary mitigating factor, not the level received.

7.2.4 I have provided pragmatic reasoning for the proposed 11.00pm finishing time for outdoor cinema screening. The Outdoor cinema screening is also primarily mitigated by limits on frequency of occurrence.

7.3 In my opinion, under the amended DCP limits in the following section the acoustic amenity of the surrounding community will not be adversely affected and that noise from the operation of the site can and will be appropriately controlled.

## 8.0 PROPOSED CONDITIONS

a) The noise level from site activities other than the exclusions listed in DCP Performance Standards 1.1.9 b), c) and d) below, as measured at any point within the notional boundary of any rural dwelling located outside the Hobbiton Movie Set Development Concept Plan (DCP) area and existing at *[insert date of plan change notification]* shall not exceed the following:

7.00am to 10.00 pm	50 dB $L_{Aeq}$
10.00 pm to 7.00am	40 dB $L_{Aeq}$ and 70 dB $L_{Amax}$

b) Seasonal or temporarily intermittent noise resulting from agriculture and forestry activities (e.g. crop spraying, agriculture or forestry harvesting, frost control etc) consistent with the predominant character of the Rural zone, are permitted provided that:

- i) The activity is conducted in accordance with good management practice; and
- ii) Machinery is operated in accordance with manufacturers' specifications.

This exclusion does not include rural operations such as the distribution of industrial factory by-products.

c) Up to 12 outdoor movie screening events that exceed the noise levels in Performance Standard 1.1.9 a) above are permitted to 11.00pm during daylight savings time in any calendar year, with no more than two events (outdoor movie screening or outdoor amplified music/concert events) in a seven-day period, and no more

than three events in a calendar month. The events shall not exceed 55 dB L<sub>Aeq</sub> when measured at any point within the notional boundary of any rural dwelling located outside the DCP area and existing at *[insert date of plan change notification]*.

- d) Up to 6 outdoor amplified music /concert events that exceed the noise levels in Performance Standard 1.1.9 a) above are permitted in any calendar year, with no more than two events (outdoor movie screening or outdoor amplified music/concert events) in a seven-day period, and no more than three events in a calendar month. The events shall:
- i) Not exceed six hours duration (excluding sound testing and balancing on the day of the event);
  - ii) Not exceed 65dB L<sub>Aeq</sub> as measured at any point within the notional boundary of any rural dwelling located outside the DCP area and existing at *[insert date of plan change notification]*; and
  - iii) End by 10.30pm during daylight savings; and
  - iv) Have a period of sound testing and balancing undertaken on the day of the event between 9.00am and 3.00pm. The noise from the testing shall not exceed 55 dB L<sub>Aeq</sub> as measured at any point within the notional boundary of any rural dwelling located outside the DCP area and existing at *[insert date of plan change notification]*. The cumulative sound testing period shall not exceed 1 hour.
- e) Written notice shall be provided to the occupiers of all properties, within a 3km radius of the Precinct where any outdoor amplified music / concert event is being held, a minimum of fourteen days prior to the event. The written notice shall include the following details:
- The date and time of the event; and
  - The name and mobile phone number of a contact person who will be available to respond to any enquirers prior to, during and after the event.
- f) A single noise management plan shall be prepared for all amplified music/concert and outdoor movie events. It shall be submitted to Council at least 10 working days prior to the first event and shall detail:
- The applicable noise limits;
  - How noise from the events will be managed and controlled to comply with the limits in 1.1.9c) and 1.1.9d) above;
  - Noise monitoring locations and methodology;
  - A list of neighbours who have been consulted and a summary of the consultation;
  - How any complaints will be recorded and managed; and
  - The noise management plan shall be implemented for the duration of all amplified music/ concert and outdoor screening events.
- g) Monitoring of sound levels during the first occurrence of each event type listed in Performance Standards 1.1.9c) and d) above shall be carried out. Monitoring shall be undertaken throughout the event (including any sound testing) by a person qualified to undertake noise measurements. If the noise limits are not complied with, the following similar type of event shall be monitored and the noise management plan updated if required until compliance is achieved. In each case a report of the monitoring results shall be completed within 10 working days of the event(s).
- h) If consent is not given to monitor within the notional boundary of the closest neighbour, the noise shall be monitored at a representative location and the method adopted to determine compliance with the noise limits included in the report to the Council.
- i) All Sound levels shall be measured and assessed in accordance with the requirements of NZS 6801:2008 “Acoustics – Measurement of Environmental Sound” and New Zealand Standard NZS 6802:2008 “Acoustics – Environmental Noise”.

Construction noise from the site shall comply with NZS 6803:1999 “Acoustics – Construction Noise”.