

Monday, 8 November 2021

Stephen Thomas  
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Dear Stephen,

## Colebrook Lakes Events 2021 - Noise Report

### 1. General

- 1.1. This report references six of events that took place at Colebrook Lakes between 7th August and 19th September 2021 as follows:
  - 1.1.1. 7th Aug. Destival. Cat 3.
  - 1.1.2. 13-15th Aug. Live Forever. Cat 3.
  - 1.1.3. 20-22nd Aug. Love Hangover. Cat 3
  - 1.1.4. 25/26th Aug. Golden Path Wellbeing Festival. This event did not involve licensable activity and attracted no complaints
  - 1.1.5. 27-29th Aug. Alfresco Festival. Cat 3.
  - 1.1.6. 18-19th Sept. Destival 2. Cat 3
- 1.2. The events were classified according to size and anticipated environmental impact. All were categorised Cat 3 (lowest impact).
- 1.3. The licensee provided the site and basic infrastructure to third party promoters under a rental agreement. There was no contact between the third parties and SPLtrack Limited prior to the events. Mr. Love passed on SPLtrack standard forms of enquiry to the promoter however they were not returned. This is not uncommon in the case of smaller festivals.

### 2. Noise monitoring

- 2.1. SPLtrack installed three environmental noise meters that are located on the area map in figure 1.:
  - 2.1.1. A property to the east south east of the site near to the A21 that is referenced as 'Karina's' in the charts.

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- 2.1.2. Lodge Farm to the west of the site. This is the closest residential location to the west as all other buildings are factory or warehouse premises.
- 2.1.3. Robinwood House, a property to the south of the site.
- 2.2. The choice of location was driven by the willingness of residents to host the remote meters. I spent a whole day navigating the area knocking doors until I was able to find the three locations that we eventually used. I tried to find a fourth location to the north east of the site to the west of the A21 but the residents were uncertain of my authority and would have only agreed had the council been involved.
- 2.3. I met John McCullough at the site on two occasions. During the first meeting we spent some time discussing the new Noise Control steering group and the methods we were employing at Colebrook Lakes. The second occasion was in advance of the Alfresco Event when we engaged in a deeper discussion about the individual stages. John was concerned about lack of hay bales, the overall quality of the sound installations and the characteristics of the outdoor stages.

### 3. Complaints

- 3.1. Of the events referenced in section 1 the Alfresco Festival drew the highest number of complaints. The noise data for that event is provided in figures 2-4. Wind conditions were unusually north easterly 5-8m/s gusting 10m/s. This directed noise from the site towards Knights Park.
- 3.2. The map of complaints provided by Mr. Haynes (figure 7) shows that almost all complaints received during the Alfresco Festival came from the south west of the site. It should be noted that the wind was North Easterly at 5m/s gusting to 10m/s throughout the weekend. Mr. Haynes notes that the sound from the site was 'coming and going' due to wind whilst he was monitoring in Knights Park.
- 3.3. Every effort was made to audibly verify complaints during the series of events but in some cases noise impact from the event was found to be undetectable or no more than just detectable. In one case the noise that was audible was not generated from Colebrook Lakes. It is not disputed that noise was audible in Knights Park and areas to the west of the site during the Alfresco event. Concrete proposals have been put in place going forward.

- 3.4. Night time disturbance must be assessed indoors with windows open for normal ventilation. It is normal to set a reference level at the façade of properties that can be assumed to prevent sleep disturbance<sup>1</sup>, however complaints that originate from public spaces such as pathways, parks and the like are not relevant. In this case there was no reference façade level set by the licensing authority.
- 3.5. In terms of the available guidance (the Noise Council Guidance on the Control of Noise at Concerts 1995) daytime receptor levels were low, in fact 15dB lower than the guidance suggests. The period measurements between 12:00 and 22:00 hours on the 29th indicate high levels at Lodge Farm however they appear to be quite unusual and there may have been local contribution to that measurement.
- 3.6. The dBCb<sup>2</sup> line on the charts (in purple) indicates where low frequency beats would have been audible at Lodge Farm. This was the case into the early hours at receptors to the west of the site on the 29th August. Winds at that time were easterly 5-8m/s.

#### 4. A note on inaudibility

- 4.1. There has been long debate about what constitutes 'inaudibility'. Does it mean *completely undetectable*, or something other?
- 4.2. In the context of live music it is unlikely that an event would be undetectable in any rural or semi-rural setting. It may well however be detectable at a level that was so low that it had no impact at receptors.
- 4.3. A common definition of inaudibility is 'specific sound that is below the ambient noise level in the absence of the specific source at the location under investigation.'
- 4.4. In general local authorities accept that event noise levels that are not causing sleep disturbance or attracting complaints are 'inaudible' for the purpose of the definition.

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<sup>1</sup> The WHO Night Noise Guidelines for Europe offers useful guidance

<sup>2</sup> dBCb is defined as dBLC<sub>5</sub> - dBLC<sub>99</sub>, a measure of the most prominent noise elements relative to background levels.

## 5. What could be improved for future events?

5.1. The key requirements for successful noise management at outdoor events are:

5.1.1. Control - The licensee must have complete control and cannot trust third parties to meet environmental obligations.

5.1.2. Planning - site design and the design of sound stages in fine detail is essential. This requires suppliers who are willing and able to comply with the design brief.

5.1.3. Use of suitable sound equipment - systems designed to project over great distance and which have uncontrolled dynamic response have no place in sensitive applications. Such undesirable characteristics are popular amongst dance music aficionados but must not be permitted at Colebrook Lakes.

5.1.4. Granular monitoring - a properly designed site should require monitoring for verification rather than enforcement. Between six and eight monitoring locations should be installed to ensure that all likely receptors are covered.

## 5.2. Indoor vs Outdoor

5.2.1. I note the suggestion from the EHO to remove the 'indoor' and 'outdoor' definitions however this would not be helpful for the following reasons:

5.2.1.1. 'Indoor' generally means a marquee of some sort with a fabric roof and walls.

5.2.1.2. 'Outdoor' means that the loudspeakers are simply stacks of equipment in open air.

5.2.1.3. Marquees have characteristics that are not immediately obvious and require very specific loudspeaker design. In brief, incorrectly deployed loudspeakers within a marquee impact the taught fabric of the roof, causing it to act as a passive radiator creating omnidirectional bass propagation. On the other hand, outdoor stages that are correctly designed can have low environmental noise impact.

5.2.1.4. It is critical to understand which type of situation one is designing for. A new definition for indoor marquee venues may be helpful, for example 'under tensile canvas' or similar but abandoning the distinction would be counter-productive.

5.2.2. Figure 1 on the following page shows a typical design for an 'indoor' marquee venue. The roof fabric has been shown transparent for clarity.

5.2.2.1. Baffles are used to provide low frequency directivity. This allows the low frequency sound power to be reduced whilst maintaining audience sound levels.

5.2.2.2. Because the loudspeakers are outside the scope of the roof the sound pressure is equalised on the inner and outer surface preventing passive radiation.

5.2.2.3. The additional space under the roof allows the installation of pedestrian barriers to separate audience from loudspeakers. This separation is critical for the protection of the audience, is specified in the guidance and yet rarely happens.

5.2.3. Figure 2 shows an outdoor venue with delay loudspeakers and baffles. This type of design allows the sound level throughout the audience to be maintained whilst reducing overall sound power. The design also allows for good sight-lines to the stage and safe egress for the audience.

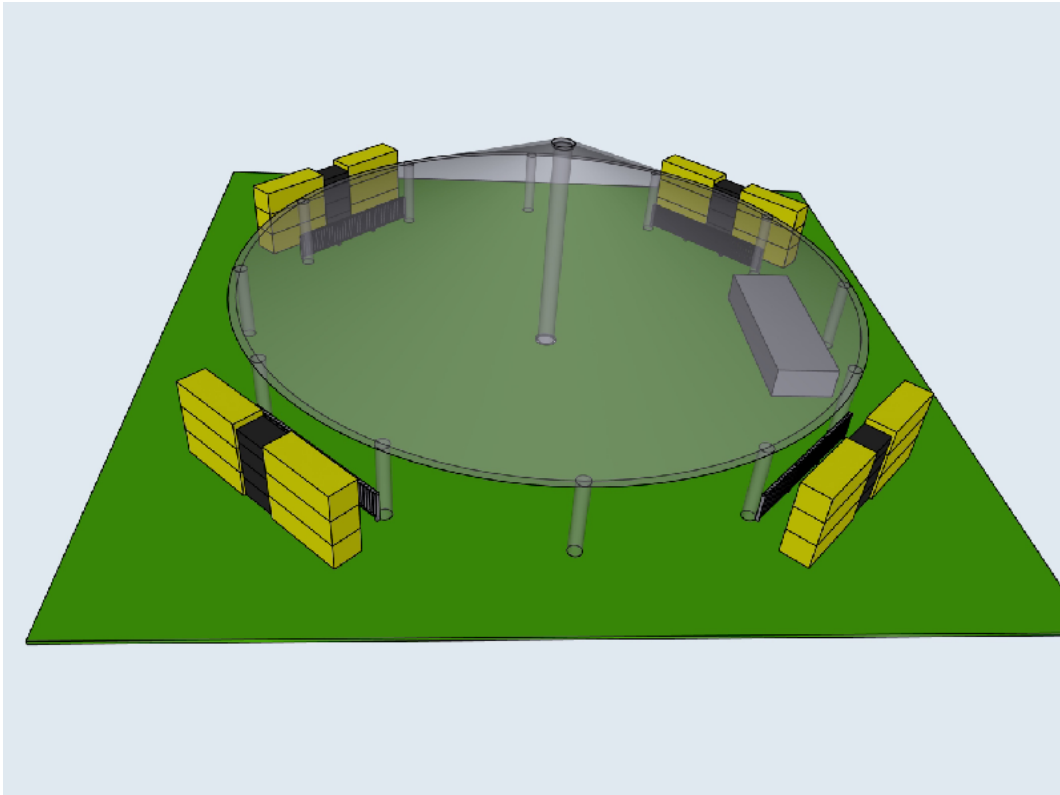


Figure 1 - Marquee system configuration

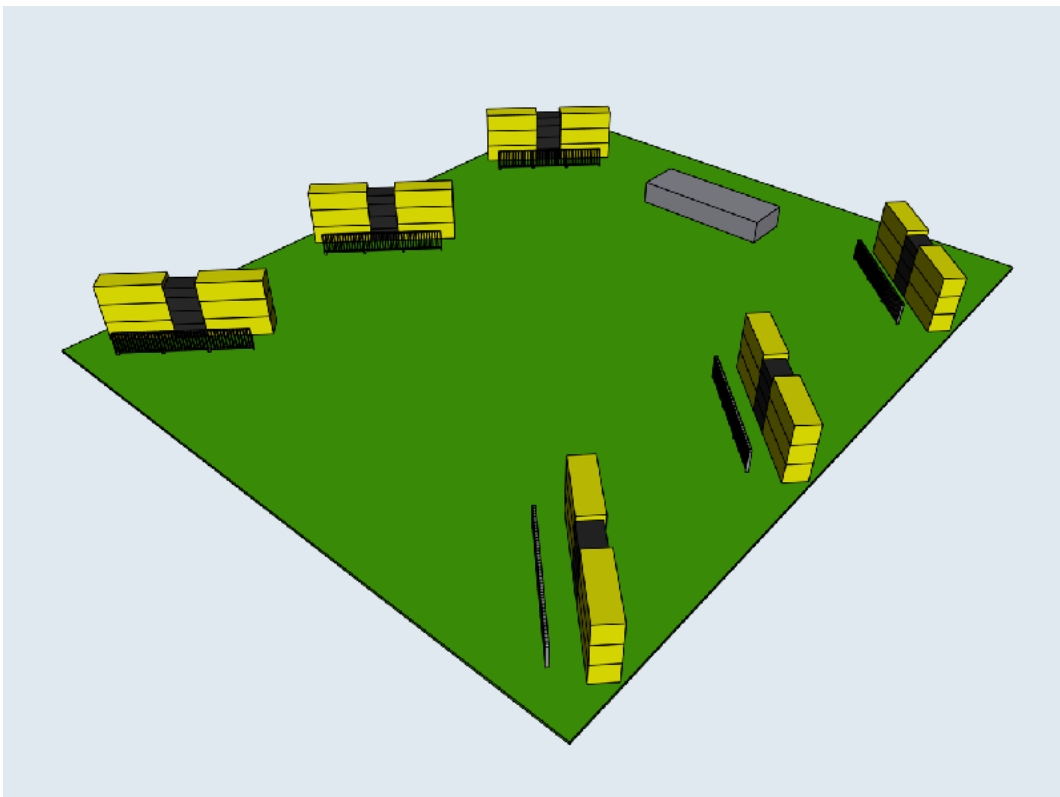


Figure 2 - 'Outdoor' stage configuration

## 6. Summary

- 6.1. Whilst overall noise levels were not high in relation to guidance, audible beats were present at some locations. This would have been mitigated if the promoter had:
- 6.1.1. Used more suitable sound systems
  - 6.1.2. Implemented proper noise baffles as instructed by SPLtrack
  - 6.1.3. Forbidden ad hoc sound systems that were added to the event without assessment or prior notice
  - 6.1.4. Engaged in pre-event design meetings and complied with the noise management plan. SPLtrack is used to a process of design, modelling and close cooperation with promoters and operators, after which noise management during the show is primarily a matter of verification rather than intervention. None of this happened at Colebrook Lakes.
- 6.2. In this case:
- 6.2.1. The sound suppliers had no plan for containment of sound within the marquee venues and some systems were simply stacks of speakers in outdoor settings in the main arena or in the woods.
  - 6.2.2. The preferred loudspeaker system used on all of the stages was a product that is notoriously difficult to control and which has a reputation for creating environmental noise issues. It is also the most popular system amongst electronic dance music sound suppliers and customers (for much the same reason that it is disliked by noise management companies and environmental health officers).
  - 6.2.3. Some of the outdoor PA systems were deployed as simple stereo stacks either side of a DJ booth with no thought for directivity or containment. Given the type of music being played and, in some cases the lack of comprehension on the part of the sound operator, there was little chance of controlling them using technical mitigation methods.
  - 6.2.4. It would be perfectly feasible to operate late night events at Colebrook Lakes without causing a noise nuisance providing the key requirements of responsible promotion and detailed audio design are respected. I am confident that will be delivered.

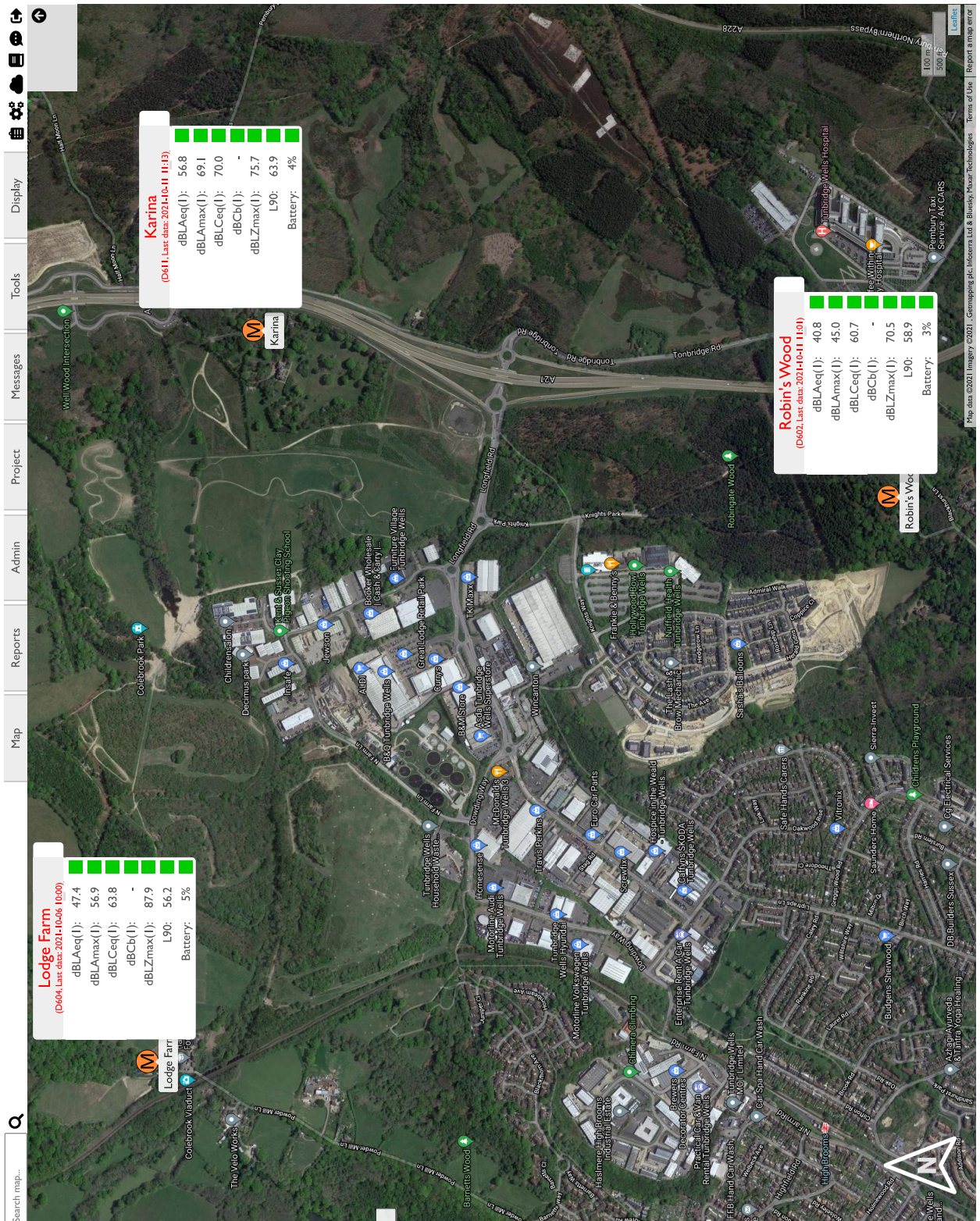


Figure 3 - Noise meter locations



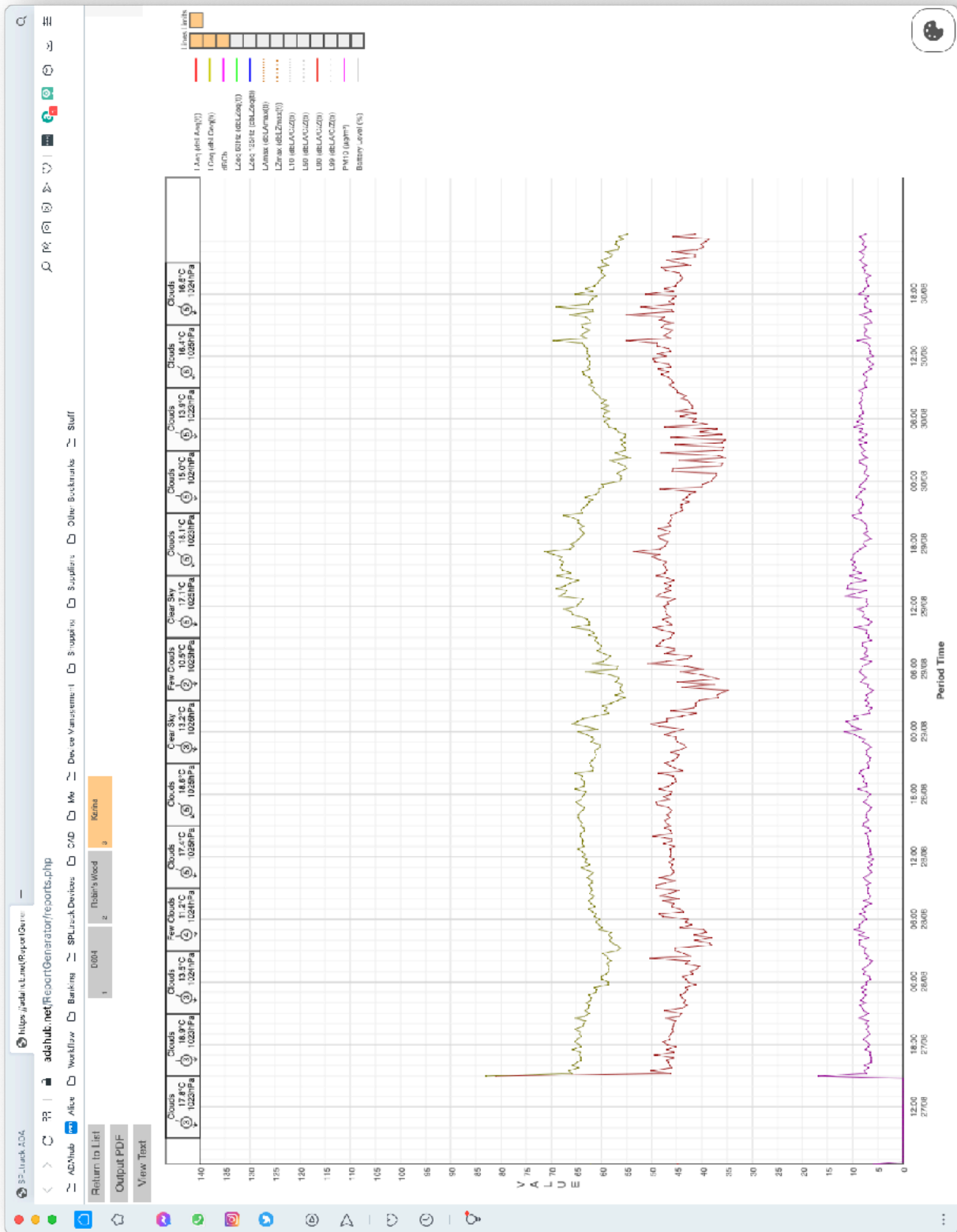


Figure 4- Karina's during the Alfresco Festival

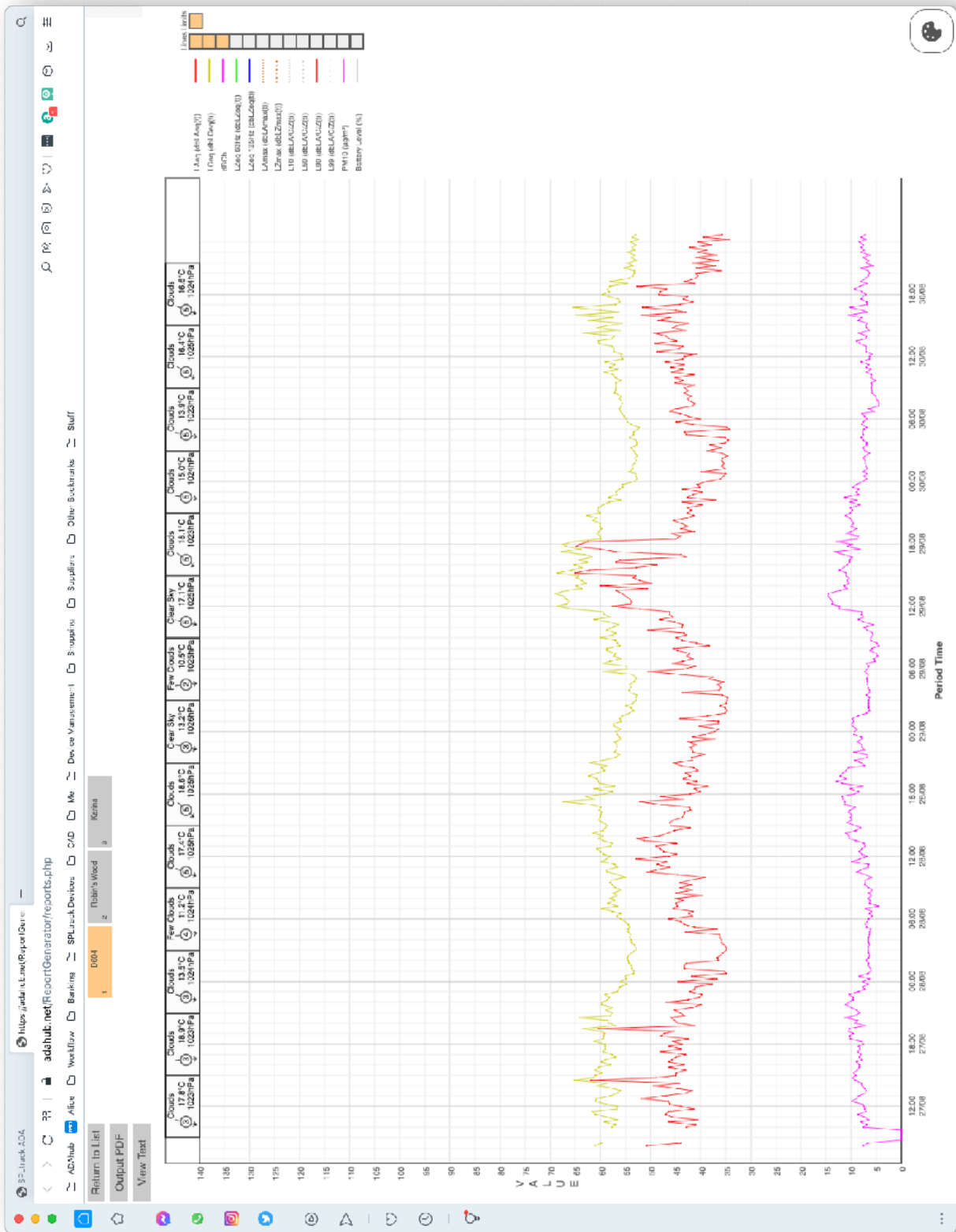


Figure 5 - Lodge Farm during the Alfresco Festival

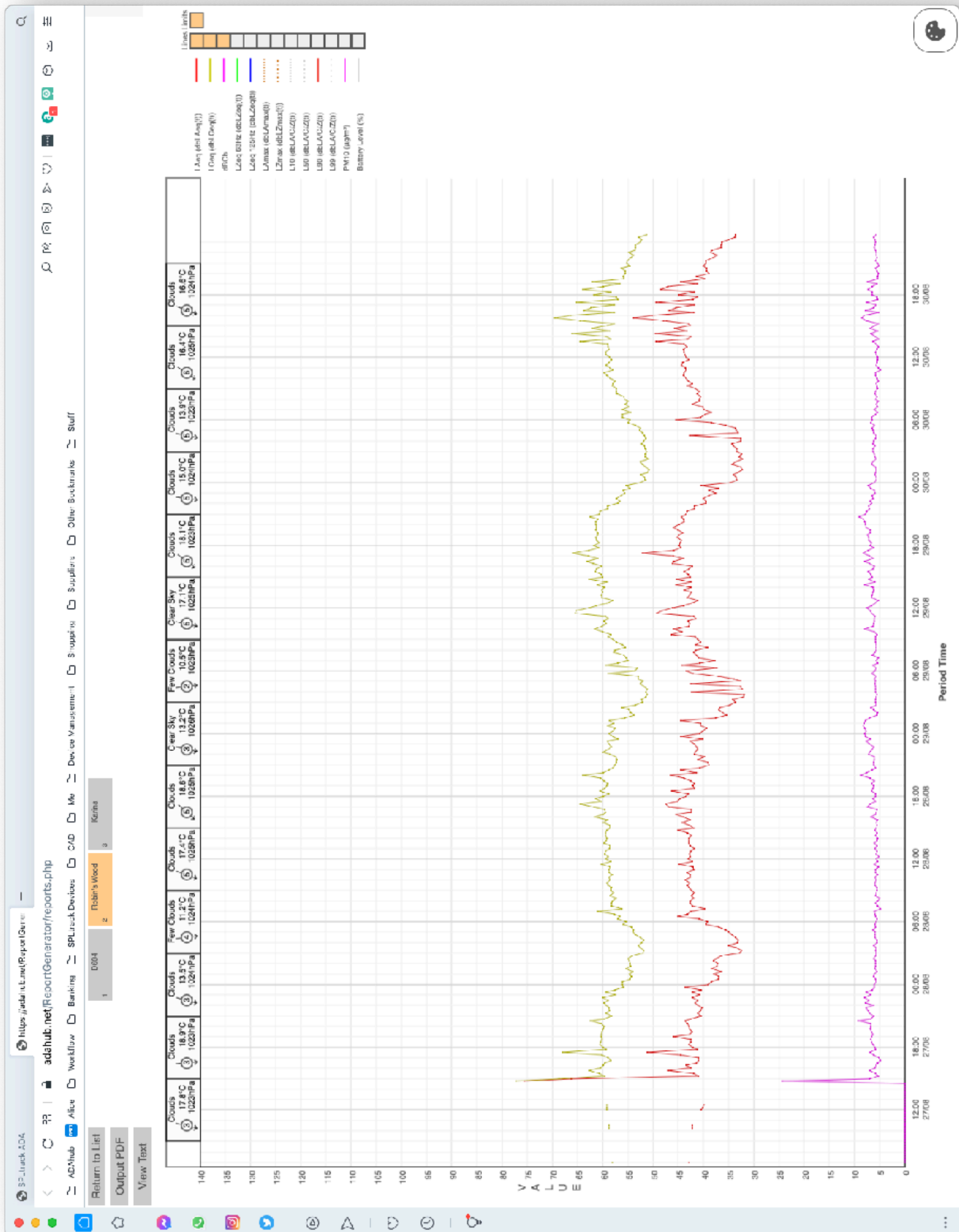


Figure 6 - Robinwood during the Alfresco Festival

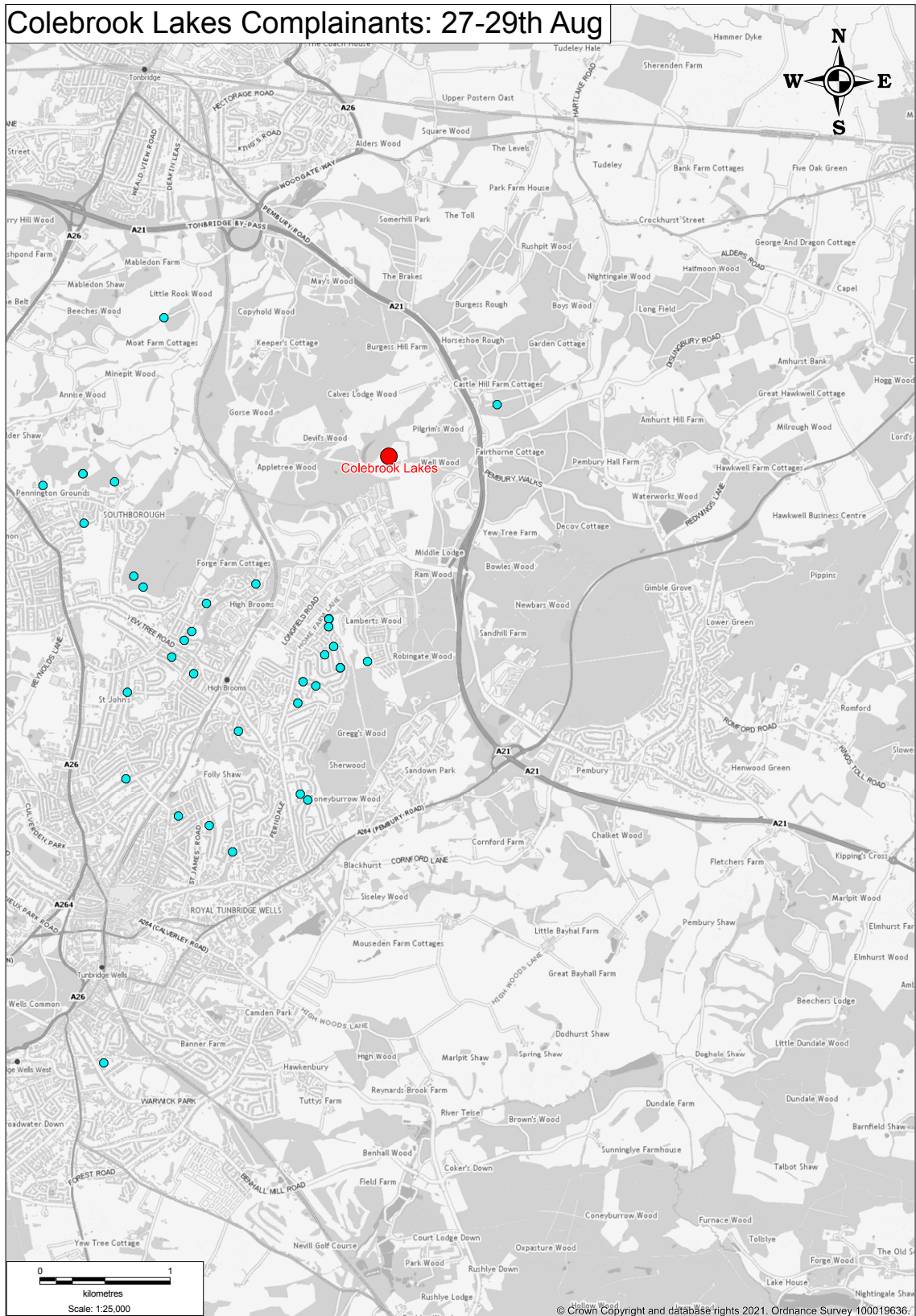


Figure 7 - Alfresco Festival complaints distribution