

TECHNICAL MEMO

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To: Mr and Mrs Turner
Oakwood Cottage
Etchen Road
Great Chart
TN23 3RB

From: Grant Waters
Acoustic Consultant
E: grant@andersonacoustics.co.uk
T: 01273 696887

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SUBJECT: ACOUSTIC PLANNING ASSESSMENT - SUMMARY

1 INTRODUCTION

An environmental noise survey and acoustic assessment has been carried out in order to determine the noise impact of the operation of the Oakwood Wedding Venue on nearby noise sensitive properties, as per Local Authority requirements and planning policy.

An acoustic assessment had been previously carried out by MRL Acoustics during October 2017 – February 2018 (latest report version reference MRL/100/1292.1v2).

Concerns have been raised by the Environmental Health Officer, Trevor Ford, on said report (MRL Acoustics), specifically regarding the integrity of the background noise levels measured, stating that the additional information provided in the latest report undertaken by MRL "does not sufficiently address the high and unusually consistent background levels provided as part of the application", potentially due to the close location of the selected monitoring position to an existing electrical transformer. As such, measurements were conducted on site by the Environmental Health Officer on June 23 2017, which were found to be notably lower level than those measured by MRL Acoustics. As a result, Anderson Acoustics have been appointed to conduct an extended long-term environmental noise survey and secondary, independent acoustic assessment.

The details of the extended acoustic survey as well as the initial conclusions from the related acoustic assessment are outlined in the summary below, to inform the Planning Committee Meeting scheduled on Wednesday 15th August 2018.

2 ACOUSTIC SURVEY

The nearest noise sensitive property is the South Landing property to the north of the Oakwood site, and is at approximately 280 meters distance.

It is understood that complaints have been raised by the second nearest noise sensitive property (Keepers Lodge), located approximately 460 meters south of the Oakwood site, as to the wedding venue operation being audible.

On Saturday 4th August, Acoustic Consultant Grant Waters (MIOA) of Anderson Acoustics, attended the site in order to install a fixed sound level monitor to record background sound level conditions for an extended period (1 week) in

order to accurately characterise the typical background sound levels at the nearest noise sensitive property. In addition to this, attended short-term measurements were conducted around the site immediately preceding and following the installation of the long-term monitor, in order to understand the variation of background sound levels across the site.

The results of the background monitoring show that the typical background sound pressure level (L_{90}) at the measurement position ranges between 27-32 dB L_{A90} . The results show that during the daytime periods, background levels are on average at 30 dB L_{A90} , where the lowest levels were measured during the early week (Monday and Tuesday) when the wedding venue is not expected to be operational.

Attended measurements conducted on collection of the fixed monitor on Tuesday 14th August show that background measurements in proximity to the southern Keepers Lodge property were 31 and 32 dB L_{A90} for two consecutive 15 minute measurements.

As a result, the background level considered representative of nearby noise sensitive properties, during periods of the wedding venue operation, is 32 dB L_{A90} . Background survey details are shown in Appendix A.

Measurements were also conducted of a typical wedding event in order to understand the sound levels produced in and around the site during operation and to be used in calculations of noise impact to surrounding properties. These were taken inside the marquee, directly outside the marquee and at the northern and southern site boundaries, during both the live brass band performance and the music playback session through the marquee integrated speaker system. These measurements have been used to calibrate a 3D acoustic model of the Oakwood site and its wedding event operation, in order to demonstrate acoustic impact to surrounding properties and to inform, if necessary, practical measures of controlling noise to within Local Authority requirements. It is understood that approximately 15 events per year will be hosted in the venue.

3 ASSESSMENT

3.1 Calculations

An acoustic model has been constructed using the noise-modelling suite CadnaA v4.6 modelling software to demonstrate sound propagation from the Oakwood site to nearby noise sensitive properties. The predictions have been carried in accordance with ISO 9613 prediction methodologies, which allow consideration of the effects of the topographical conditions throughout the area (0.5 m contour lines have been used), ground absorption, atmospheric absorption, acoustic reflections and acoustic screening from existing buildings, as well as applying a light downwind propagation correction to represent a worst-case.

The results of the attended source measurements have been processed to determine appropriate noise emissions for each building envelope element of the wedding venue's marquee (walls, roof), based on the internal noise measurements carried out within the marquee and external noise measurements carried out outside it. These levels have also been cross checked at the fixed monitoring position where long-term monitoring has been carried out.

The model has been used to generate three scenarios:

1. Noise impact from live (brass) band operation as per measurements conducted on 04/08/2018
2. Noise impact from music playback through the marquee integrated sound system as per measurements conducted on 04/08/2018
3. Wedding Venue operational noise limit necessary to control acoustic impact to nearby noise sensitive properties as per Local Authority Planning Policy.

The acoustic model is most representative as it can avoid varying environmental conditions that may be present during survey periods and can be used to calculate the maximum operational limit based on the 'worst case' conditions. The model includes dense vegetation between the Oakwood site and the South Land property to the

north, as well as topography data which shows that the noise sensitive property to the south is at a raised elevation when compared to the Oakwood venue.

3.2 Preliminary Results

The preliminary results of the assessment show

- Noise impact from the live (brass) band (at source 90 dBA) is 38 dBA at South Landing and 31 dBA at the southern Keepers Lodge property.
- Noise impact from the music playback through marquee integrated speaker system (at source 87 dBA) is 34 dBA at South Landing and 28 dBA at the southern Keepers Lodge property.

In order to comply with Local Authority Planning Policy, the level of noise predicted from the wedding venue operation at nearby noise sensitive properties, shall be no greater than the background sound level conditions (L_{A90}) at 1m from the façade of the properties. In order to achieve this limit, the wedding venue operation inside the marquee is to be controlled to below 85 dBA, in its current condition (existing building envelope and PA system not to be modified). Where levels are kept within this limit, the predicted sound level is expected to be 32 dBA and 27 dBA, for the South Landing and the Keepers Lodge properties, respectively.

It should be noted that background noise conditions are very low, and when compared to typical ambient levels show a difference of circa 10-15 dB. This is a strong indication that predicted operational noise levels are not expected to have an impact on the existing noise environment where controlled to within the limit recommended above.

3.3 Mitigation Options

As the currently operational levels exceed the calculated limit, measures are required in order to further control noise levels from the wedding operations. These may include:

- Controlling and limiting sound levels of the integrated speaker system to recommended level, including voice overs;
- Improving sound insulation of marquee (allows potentially greater flexibility of internal noise levels). This may be achieved by adding mass and absorptive linings to the weatherproof membrane, which can be either a proprietary or bespoke solution, as well as doors to the entrance.

The above acoustic mitigation options are considered reasonable and are expected to provide notable benefit to operation and flexibility.

4 CONCLUSION

Where reasonable measures are taken to limit wedding event operational noise levels, impact to nearby noise sensitive properties can be controlled to within Local Authority Planning Policy requirements and as a result is not expected to unduly affect the existing noise environment of nearby properties. Based on these conclusions it is in our opinion that planning permission should not be refused on noise grounds.

APPENDIX A

Figure A1: Oakwood Wedding Venue - Fixed Sound Monitor Results (04-08-2018 - 10-08-2018)

Day	Period	L _{Aeq,T}	90% L _{AFmax}	L _{A10}	Typical L _{A90}	Comments
Sat 04 Aug	Day 18:55 23:00	46	66	44	35	
	Night 23:00 07:00	40	63	38	27	
Sun 05 Aug	Day 07:00 23:00	45	67	43	30	
	Night 23:00 07:00	40	61	37	27	
Mon 06 Aug	Day 07:00 23:00	47	71	43	28	
	Night 23:00 07:00	38	58	31	20	
Tue 07 Aug	Day 07:00 23:00	46	68	44	27	
	Night 23:00 07:00	45	63	38	28	
Wed 08 Aug	Day 07:00 23:00	46	67	45	38	Excluded due to adverse weather conditions
	Night 23:00 07:00	38	62	34	28	Excluded due to adverse weather conditions
Thu 09 Aug	Day 07:00 23:00	51	68	47	32	
	Night 23:00 07:00	39	56	38	31	
Fri 10 Aug	Day 07:00 23:00	51	69	49	31	
	Night 23:00 0:50	39	61	37	31	

Figure A2: Attended monitoring position results (14/08/2018)

Location	Date	Time	Duration (mm:ss)	L _{Aeq,T}	L _{AFmax}	L _{A90}	Comments
Measurement Position 1	14/08/2018	12:00	15:00	49	65	31	Small aircraft flyovers, domestic vehicles, distant train passbys, bird song, wind in trees.
Measurement Position 2	14/08/2018	12:25	15:00	33	48	28	Distant aircraft flyovers, distant train passbys, bird song, low level electrical overhead line noise
	14/08/2018	12:40	15:00	43	60	31	Small aircraft flyovers, farm equipment noise (short duration), distant train passbys, bird song, low level electrical overhead line noise
Measurement Position 3	14/08/2018	13:22	15:00	50	77	32	Small aircraft flyovers, van/car passbys, bird song, wind in trees, distant traffic noise audible during low level periods, distant train fog horn.
	14/08/2018	13:37	15:00	51	76	31	Van/car passbys, small aircraft flyovers, bird song, wind in trees, distant traffic noise audible during low level periods.

Survey Monitoring Positions



Fixed Monitor Location



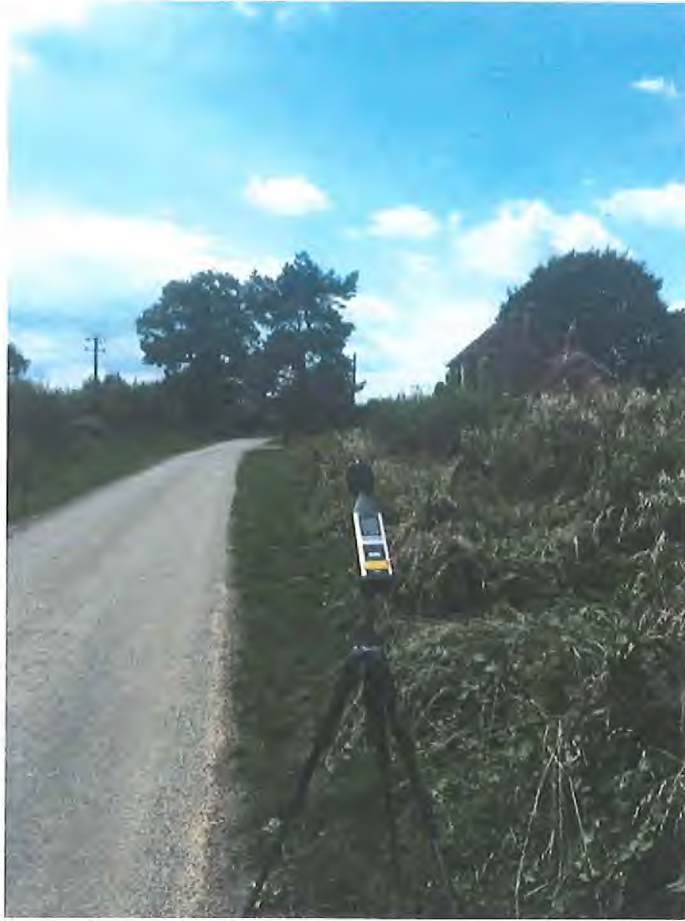
Attended Measurement Position 1 – beside fixed monitor – opposite South Landing property



Attended Measurement Position 2 – south of Oakwood property



Attended Measurement Position 3 – in proximity to Keepers Lodge property



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