

Addendum to Knowle Farm Noise Report – June 19th 2018

Introduction

A trial noise impact assessment was carried by JTEC Environmental Ltd out on 19th June 2018 at the barn at Knowle Farm, Bowerchalke in order to assess the existing sound insulation properties of the barn prior to any improvements being made.

The Environmental Officer indicated that the noise level at Bingham's Farmhouse should not exceed 25dB(A).

The barn is of timber construction with timber panels and doors. There are gaps under and around the doors which can be seen on the right hand side of the photograph below. Also shown is the stage area where the event music is performed.



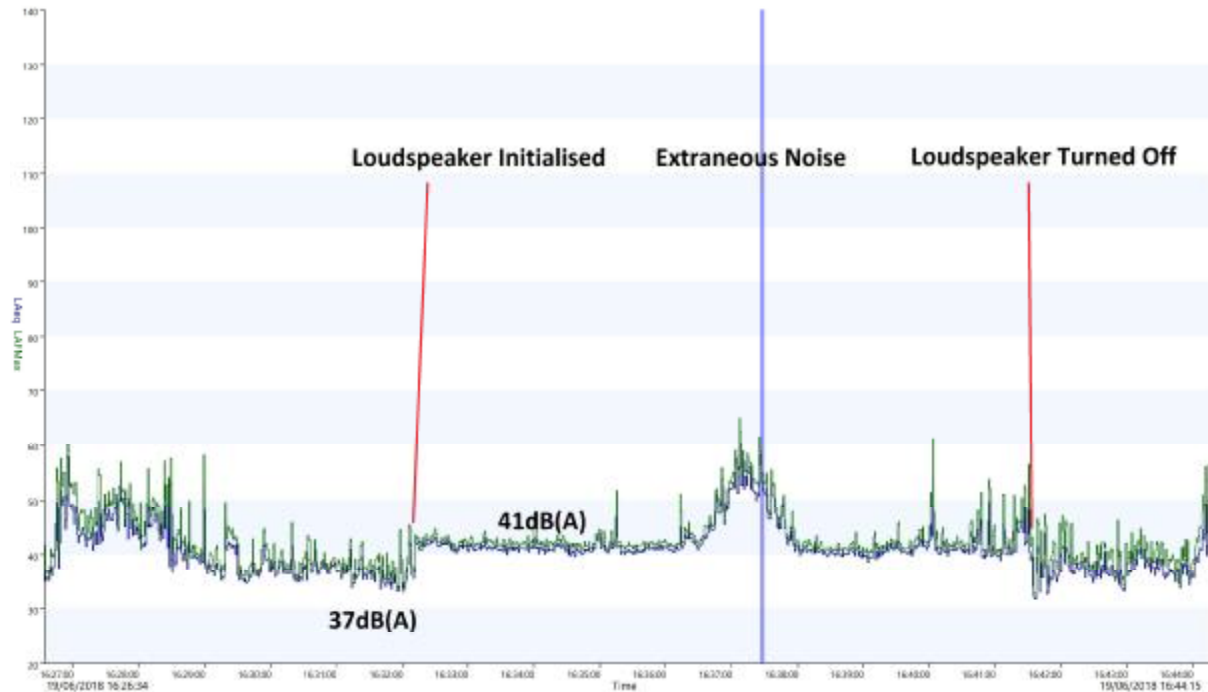
A loudspeaker unit was set up on the stage area and set up to produce white noise at 95dB(A).

A noise meter was then set up at Bingham's Farmhouse as shown in the photograph below and set running prior to initialising the loudspeaker in the barn.



Results

The lowest ambient noise level prior to initialising the loudspeaker was 37dB(A). The noise level increased to 41dB(A) when the loudspeaker was initialised as can be seen in the graph below.



Using logarithmic subtraction, the noise level attributed to the loudspeaker unit is 39dB(A)

$$(10^{4.1} - 10^{3.7} = 39)$$

Therefore, the minimum sound attenuation to meet the Environmental Officer's requirement is $39 - 25 = 14\text{dB(A)}$.

This can be achieved by either lowering the internal noise level to 81dB(A) or increasing the sound insulation properties of the barn.

Conclusions / Recommendations

The improvements to the barn will increase the sound insulation properties of the structure. Custom made double glazed doors will be installed and are expected achieve in excess of 25dB(A).

The existing timber walls are to be lined with 2 layers of acoustic plasterboard with rockwool between the plasterboard and external timber cladding. Manufacturers data indicates that 34dB(A) attenuation is achievable using 12.5mm acoustic plasterboard.

It is essential that there are no gaps in order to maintain the acoustic integrity of the walls and doors. Any gaps should be well sealed.

In addition to the acoustic improvements, noise limitation devices have been considered. It is intended to use a noise indicating device such as that shown below in preference to a noise cancelling system which cuts the power supply to amplification and PA systems. These have been known to cause damage to electrical and electronic equipment.

The system proposed below can be set to any maximum level and is linked to visual indication that a noise level is being exceeded so that appropriate action i.e. reducing the volume level, can be taken.

SoundAlert Standard Package



Order code **SoundAlert** includes the following items:

- SoundAlert unit
- Wind shield / mic. protector
- AC power adapter
- User manual



Noise Warning Sign (optional)

The optional Warning Signs connect to the SoundAlert using the cable supplied. The Warning Sign also plugs into the AC power using the adapter that is provided along with a long power extension lead (low voltage). The time that the noise sign lights up can be set to between 5 seconds and 10 minutes after the noise levels fall again.

Note: These warning signs cannot be used alone, they must be connected to a SoundAlert unit.

All signs can be set to give either a constant light or can flash to attract attention when the measured sound levels are high.



By using a combination of structural attenuation methods and a noise alert system, the maximum sound level of 25dB(A) from events at the barn can be achieved.