Reuter Associates LLC
CONSULTANTS IN ACOUSTICS

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June 28, 2021

John Kieley, Chair
Zoning Board of Adjustment
Town of Temple
423 Route 45, PO Box 191
Temple, NH 03084

Dear Mr. Kieley,

I am an expert in acoustics and noise control with extensive experience in both architectural and environment (outdoor) noise modeling and analysis. I have attached a professional resume.

I have been hired by Stepping Stones Event Center to evaluate the potential for noise impacts relating to music playback within the existing barn on the property during wedding receptions and other similar events.

Ordinance Limits

I understand that this facility will be subject to the Town of Temple Zoning Ordinance, Section 31: Commercial and Industrial Noise. Table 3 provides limits of 45 dBA (day) and 35 dBA (night) in the Rural and Agricultural District. For this study, the nighttime limit of 35 dBA has been used, as events will occur during nighttime hours.

These limits apply "anywhere at any time on another property".

These limits are based on a 10-minute L10. The L10 is the 10^{th}-percentile sound level. This means that the level contributed by the noise source may not exceed the 35-dBA limit for more that 10% of the measurement interval. For this 10-minute (600-second) interval, the level may exceed the limit for no more than 60 seconds. There is no limit on the level that may be generated during the loudest 60 seconds. These 60 seconds are cumulative, and in most cases not continuous.

Building Sound Transmission

To determine the noise reduction from inside the building to outdoors, on-site testing was conducted. A loudspeaker system, including two subwoofers, was used to generate a calibrated signal inside of the barn. Measurements were then conducted at reference distances outdoors. These measurements were compared to the background noise in the environment to ensure adequate signal to noise ratio.

Using measurements of the noise reduction between the interior of the barn and known distances outdoors, noise reduction between the interior of the barn and several off-site locations were calculated. These locations, shown on Figure 1, represent the property lines of the nearest parcels in each direction.

Based on these calculated values, a typical pop/dance music spectrum was used to determine a maximum interior sound level that would meet the nighttime limit of 35 dBA at all locations. The location most impacted is the nearest adjacent property, which begins at the far edge of Webster Rd., approximately 220 ft to the southeast of the barn. Levels at any other off-site location will be lower than those at this point.

Of special concern is the property line to the east, as it is also the Temple/Union town line. Levels here are expected to be at least 15 dB lower than the limit.

Interior Sound Level

To meet the 35-dBA nighttime limit at the Webster Rd. location described above, the sound level (L10) incident upon the inside of the exterior wall of the barn should be limited to 80 dBA for typical pop/dance music. This is a reasonable limit for the type of events proposed.

This limit may be enforced through either electronic limiting of the sound system, or by directly monitoring sound levels within the barn. Both approaches are practical, common, and easily implemented.

I plan to work with the venue to implement such controls and verify corresponding limits are met.

Sincerely,

Eric L. Reuter, FASA, INCE Bd. Cert.
Principal

Figure 1 – Nearest off-site locations