JOB MEMO 2024-005

TO: Mitch Greenwald

CC: Truc Nguyen

COMPANY: Law Offices of Mitch Greenwald

FROM: Jeffrey Komrower, USA Noise Control LLC (USANC)

DATE: 11-July-2024

SUBJECT: Review of The Foundry Performance Noise Logs

BACKGROUND

The Truc Orient Express Restaurant, which is owned by the Nguyen family, is located at 3 Harris Street in West Stockbridge, MA and the Nguyen residence is located at 1 Harris Street. Directly across the street there is a music venue (The Foundry) located at 2 Harris Street. The distance from The Foundry to the Truc Orient Express and Nguyen residence property lines, based on measurements obtained from both Google Maps and the MassGIS (Global Information System) is approximately 50 feet with the distance to the actual residence and business being between 70-80 feet. In the past, according to the Nguyen family, there have been very loud musical performances which they have found to interfere not only with their ability to conduct business at the restaurant, but also with their ability to simply enjoy quiet at their residence. Particularly disturbing was the noise from drums and bass guitars.

At the Town of West Stockbridge Planning Board meeting on December 5, 2022, the Foundry was granted a special permit which allows musical performances both inside the venue and on an outdoor patio subject to certain noise limitations.

This memo will review logs and audio files that were taken during live performances at The Foundry on April 6 and April 12, 2024, as it pertains to the conditions of the special permit. This report does not address possible violations of DEP regulations and policies relative to noise pollution.

REVIEW OF NOISE PROVISIONS OF SPECIAL PERMIT

According to Section 6.3.4(c) of the Zoning Bylaw of West Stockbridge, before granting a special permit for any use requiring such permit under the provisions of the bylaw, the special permit granting authority shall find that the proposed use "will not be detrimental to adjacent uses or to the established or future uses of the neighborhood."

The Special Permit was granted subject to explicit conditions which were intended to minimize or decrease the detriment to adjacent uses. The conditions are set out in detail in this report in Appendix A on Page 5.

REVIEW OF THE FOUNDRY NOISE LOGS AND AUDIO RECORDINGS

Data logs from the recording equipment that was set up during The Foundry performances, as required by the special permit, were provided and reviewed. Audio files that were taken simultaneously on the same recording device were also provided for performances on 4/6/24 and 4/12/24. Listening was performed using a Dell XPS 15 9520 laptop computer with a Dell UC350 Pro Stereo Headset. The software program Audacity was used to listen to the recordings. No additional amplification was performed on the files prior to listening. It should be noted that adequate equipment should be used when trying to determine the audibility of music during these recordings, specifically because of the low frequency nature of the noise. Inexpensive computer speakers are not typically able to reproduce low frequency energy and audibility of noise with this type of frequency content using this setup would not be representative of the noise if it could even be heard at all. A decent set of headphones (or speakers) is necessary to adequately reproduce any noise with low frequency content.

Summary of Audio File Reviews 4/6/24 & 4/12/24:

These recordings were quite "clean" with very little evidence of wind noise and traffic noise, while present, seems to be at a minimum. In both recordings, there were sustained periods where the music from the Foundry, mainly bass guitar and drums, was clearly audible and was the dominant factor that made up the overall noise levels

4/6/24:
An overall observation from this recording is that the music was clearly louder at the beginning of the evening and at the end of the evening. Periods where the noise levels were pretty much constantly over the 65 dBC criteria and music can clearly be heard as the primary noise contributor are:

8:25 to 10:56
11:30 to 14:22
16:15 to 18:37
2:42:34 to 2:48:12
2:48:25 to 2:51:48

Music could be heard in other areas throughout this recording, and there were many instances where the levels instantaneously peaked over 65 dBC, but it was not sustained except for the times listed above. It's possible the venue realized that noise levels were too high and turned the amplification down during the middle part of the evening, but it seemed they increased the volume again towards the end of the evening and it is apparent that the music is the cause of the levels being consistently over the 65 dBC criteria for the periods listed above.

4/12/24:
This recording is also relatively "clean" as there seems to be very little wind noise throughout the recording. Traffic noise is pretty constant, but there is a direct correlation between when the

music is audible and an increase of 6-8 dB above the background noise. Detailed notes on periods withing the recording are as follows:

9:10 to 11:30 –> up until about 9:10 minutes into the recording, no music is audible and noise levels are typically below 60 dBC with occasional jumps above 60 (truck traffic, voices near microphone, etc.). Once music is audible, noise levels increase noticeably ranging from 64 to as high as 71 dBC.

11:50 to 18:30 -> music is audible throughout this period and noise levels are consistently above 65 dBC. When the music stops at approximately 19:30, traffic noise is audible, but noise levels drop to below 60 dBC for extended periods with some spikes above 60.

22:00 to 29:30 -> traffic noise is audible, but music seems to be dominant with noise levels consistently above 65 dBC.

31:00 –> no music audible, background traffic noise audible, noise levels typically below 60 dBC.

33:05 -> music is audible again and ramps up around 33:21 when noise levels again are consistently above 65 dBC – drums and bass very prevalent.

34:52 –> song ends, levels drop below 65 dBC

35:00 –> no music audible, levels below 60 dBC

36:30 to 44:38 -> music again audible, levels consistently above 65 dBC

43:10 -> song ending, bass much lower, noise levels drop below 65 dBC and then below 60 dBC

43:20 –> no music, noise levels in high 50's dBC.

1:19:00 -> music starting, levels start to be consistently above 65 dBC

1:28:06 -> music stops, levels drop below 60 dBC. Occasional truck noise increases levels to 62-63 dBC for short intervals then level drop again to below 60 dBC

1:30:30 -> music starts again, levels again consistently above 65 dBC -> bass guitar very prevalent at one point and looks like levels associated with bass are 67-69 dBC.

Conclusions based on review of 4/6 & 4/12 audio files:

These two recordings clearly demonstrate a direct correlation between noise levels above 65 dBC and music in The Foundry. Throughout these two recordings, when music was not audible, measured noise levels from the logs associated with the audio files show background levels to be consistently below the 65 dBC criteria as specified in the special permit. Often, except when truck traffic was present or there were voice and car engine noise in the parking lot, noise levels were typically below 60 dBC. Traffic noise was audible during these periods, but noise levels were still consistently below 65 dBC without the presence of audible music.

Once music was being played in The Foundry and became audible in the recordings, noise levels increased by 6-8 dB and were typically consistently above 65 dBC. This was a consistent trend throughout both recordings. Once the music became inaudible, the logs showed that noise levels fell below 65 dBC and often below 60 dBC.

It should be noted that both low frequency noise and impulsive noise are extremely more disturbing than steady state noise of the same amplitude[1,2]. The fact that noise coming from the Foundry is both low frequency and extremely impulsive in nature adds significantly to the annoyance and stress factor of anyone unwillingly subjected to this noise.

A further review of the recordings and spreadsheet yielded additional information. The spreadsheet provided by the Foundry was marked so as to call out the times whenever music was audible. For the 4-06 recording, the total recording lasted 238 minutes. During this time, music was audible for 117 minutes and the total exceedance time when music was audible was calculated to be 69 minutes (59% of the time). If you look at the total time that music was NOT audible, which was 121 minutes, exceedances due to traffic, other sources, etc., totaled 25 minutes, which was only 21% of the time. Analyzing the 4-12 data in the same fashion, exceedances when music was audible occurred 67% of the time whereas when music not audible, exceedances occurred only 21% of the time.

An overall conclusion is when music is audible, the percentage of time there are exceedances of the 65 dBC criteria is three times as great as when music is not audible. This conclusion is very consistent between these recordings, both of which were fairly ”clean” (low wind and traffic noise).

[1] Leventhall, H. G., “Low Frequency Noise and Annoyance”, *Noise & Health*, Volume 6, Issue 23, 2004, pp. 59-72

[2] Radun, J, Maula, H., Rajala, V., Scheinin, M., and Hongisto, V., “Acute Stress Effects of Impulsive Noise During Mental Work”, Journal of Environmental Psychology, 81-2022-101819

APPENDIX A - SUMMARY OF NOISE CONDITIONS FOR SPECIAL PERMIT GRANTED TO 2 HARRIS STREET LLC

The permit granting use of The Foundry for "Commercial Amusement" per section 4.11.1.20 of the West Stockbridge Zoning Bylaw is subject to adherence to conditions as related to noise which are outlined in conditions 3 through 6 of the Notice of Decision for the Special Permit. A summary of these conditions are as follows:

Indoor Entertainment:

1) Performances are allowed 7 days per week and all amplified music shall all end no later than 10 pm but sound pressure levels (SPLs) at the property line shall not exceed 60 dB(A) or 65 dB(C).
2) Sound monitoring at the Harris Street property line must be provided by The Foundry for the duration of all performances that shows these SPL levels have not been exceeded. This equipment is to "shall be installed at the Harris St property line, facing the Foundry building, and approximately 16' from the west end of the Foundry building."
3) The equipment used for the monitoring must be capable of logging both A-weighted and C-weighted sound levels and producing an electronic record that can be reviewed by the Zoning Enforcement Officer (ZEO).
4) The equipment must be "calibrated as required by the equipment manufacturer, and evidence of this calibration must be submitted and approved by the Zoning Enforcement Officer (ZOE) upon request. Review of calibration shall be made annually."
5) Supervision and management of this Sound Monitoring Protocol becomes the responsibility of the ZEO who may request assistance from a town-hired sound engineer.
6) Integration times of the meter are specified as 1 second (equivalent to a sound level meter on a slow response setting) with sampling rates of 2-5 seconds. Also, it is specified that the sound levels can exceed the specified property line limits for bursts of 30 seconds, but for no more than a total of 2 minutes over any given performance period.
7) Finally, the conditions specify that if the ZEO is notified of an alleged violation, written logs of the measurements shall be requested and are to be delivered by the Foundry within 48 hours. Any failure to monitor or provide written logs is subject to an unstipulated maximum fine.