



October 4, 2022

Doug McLean, AICP  
City of Cranston  
City Planning Department  
869 Park Avenue  
Cranston, RI 02910  
Email: [dmclean@cranstonri.gov](mailto:dmclean@cranstonri.gov)

**Subject: Comstock Industrial Park Noise Evaluation - Peer Review**  
Cranston, RI  
Acentech Project No.: J636144.00

Dear Doug:

As you know, we have been retained by the City of Cranston to provide peer review services related to the noise study of the proposed Comstock Industrial Park located on the Comstock Parkway in Cranston, Rhode Island (Project). We have reviewed the Tech Environmental (Tech) noise evaluation letter-report (Ref 4770), dated August 23, 2022, and have the following to note:

## NOISE REGULATIONS

This letter-report has, for the most part, properly identified noise limits that apply to this Project. We agree that the State of Rhode Island does not have applicable quantitative noise regulations. The Tech letter-report identifies the noise ordinance within the City of Cranston Code of Ordinances, Chapter 8.20 Noise Control. Table A within the letter-report provides limits based on the type of property (residential, commercial, industrial, or public) and time period with daytime defined as 7:00 am to 10:00 pm and nighttime defined as 10:00 pm to 7:00 am. Table 3 within the letter-report identifies residential, commercial, public and industrial abutting properties that would limit sound levels to 50, 60, 70, and 75 dBA, respectively. Since the proposed Comstock Industrial Park would have nighttime operations these limits are those that apply at night.

In Section 2.2, the Tech letter-report states that the City of Cranston limits given in Table A of the letter-report "shall not apply to sounds emitted from...any motor vehicle designed for and operated on public streets...". Table B of the letter-report provides the sound level limits for motor vehicles.

In Section 2.3, the Tech letter-report provides the City of Cranston, Code of Ordinances (Title 17, Chapter 17.36) maximum allowable sound pressure levels at the property line of an industrial facility using frequency bands from 20 to 10,000 Hertz. These limits only apply between the hours of 11:00 pm and 7:00 am.

## PROJECT DESIGN GOALS

In Section 3.3, Tech defines the Project design goals. The letter-report states that the sound limits of Table 3 by property type apply to industrial sound sources. We understand these to be the mechanical equipment

associated with the two buildings at the Project. The letter-report also states that the octave band limits given in Table 1 apply to continuous sounds.

The letter-report states that a secondary goal is for all truck traffic to comply with the limits given in Table B (maximum sound levels for motor vehicles). These are limits that apply to each vehicle and the letter-report states that the limits are achieved if certain speed limits are maintained. For example, at night no truck can operate greater than 15 miles per hour to maintain the sound level of 80 dBA at 25 feet.

The letter-report states that a third design goal is to “minimize the potential sound impacts” at the residential properties on Situate Avenue, Sweet Pea Drive, Sweet Corn Drive and a childcare facility at 210 Comstock Parkway.

## PROJECT DESIGN FEATURES

Section 3.1 describes elements of the Project that will minimize sound. These include not allowing truck traffic to the south of Building 1 and putting all loading bays on the north side of that building. Thus, Building 1 becomes a sound barrier for most of the truck sound. This section also mentions landscape planting that would screen line-of-sight to the Project. Finally, Section 3.1 describes a solid screen wall that is incorporated into the Project to further block sound. It seems apparent that the screen fills the gap between the Building 1 and 2 at the point the Project roadway is the closest to the residential abutters to the south and west of the Project. Finally, we understand from an email with Tech that this solid wall was modeled as a sound barrier.

## SOUND MODELING METHODOLOGY

The Tech evaluation used common noise modeling software to compute the sound levels at various points within the community. Tech has evaluated sound from two operating buildings with mechanical equipment on the roof. They have also evaluated trucks driving on the site. The predicted mechanical equipment (continuous source) sound levels are reported in Table 4 of the letter-report for fifteen different abutting receptor locations. The predicted sound levels from truck operations were not provided separately, but combined with the mechanical sources and reported in Table 6 for the same fifteen receptor locations. The results presented in this letter-report for the operational and truck sound sources are shown to be compliant with the City of Cranston noise limits. No background sound measurements were performed as part of this evaluation.

## PEER REVIEWER COMMENTS

Our comments on the noted letter-report are as follows:

### **Mechanical Equipment Assumptions**

Given the phase of the Project, we understand that Tech had to make assumptions regarding the mechanical equipment for Buildings 1 and 2. Those assumptions were that Building 1 mechanical equipment would consist of eight (8) HVAC units and sixteen (16) exhaust fans. Building 2 mechanical equipment was assumed to consist of four (4) HVAC units and eight (8) exhaust fans. Appendix A provides the input sound power level of 81 dBA (relative to 1 pico-Watt) per HVAC unit and 61 dBA (relative to 1 pico-Watt) per exhaust fan.

However, it is unclear if these HVAC units include air conditioning condensing sections. Equipment such as air conditioning condensing units (ACCU's) or rooftop chillers have sound power levels that are typically much louder than 81 dBA. We have seen such units with sound power levels of 100 dBA and higher. We believe

this building could also include a backup generator. Thus, we believe that this study is missing sound producing mechanical equipment on both buildings.

**Truck Operations – Applicable Noise Limits**

The authorities at the City of Cranston Planning Department have stated that truck operations within this site must be added to all Project sound levels and then comply with the City of Cranston noise limits given in Table A of the letter-report. More specifically, the lowest sound level will be at the residential abutters to the south and west. The daytime limit at residential properties is 55 dBA and the night limit is 50 dBA. The vehicle operations that should be included in the study are the following:

1. All vehicles (trucks and cars) movement on the site
2. All vehicles (trucks and cars) idling at the site
3. Trucks loading and unloading operation
4. Trucks with refrigeration equipment (if applicable)
5. Trucks with backup alarms

Of these five activities above, this study only addressed Item (1) above, and that did not include automobiles.

**Truck Operations – Reference Sound Power Levels**

According to footnote 5 on page 18 of the letter-report, the reference sound power levels given in Appendix A are based on vehicles meeting the City of Cranston noise limits given in Table B. This is a reasonable assumption, but compliance then assumes the facility operator will require all vehicles to meet those limits, and take actions when cars or trucks have excessive sound. This seems to put the operator in an unlikely situation of policing the vehicles that visit the facility.

**Truck Operations – Modeling Assumptions**

In addition, footnote 5 on page 18 of the letter-report, states that the truck traffic was modeled as a moving point source. This is done within the modeling software. The reference sound power level given in Appendix A is an overall A-weighted sound power of 106 dBA. However, when modeling as a moving point source, the sound is distributed over a large area and the effective sound power is only 91 dBA. As an example, we have computed the sound pressure level at a distance of 260 feet from three source types all with sound power of 106 dBA, Table 1. This distance is equivalent to the nearest the service roadway at the site is to the nearest residential property (Location #7). The example shows that the moving point source is 14-15 dB lower than the other source types. Our example of the same modeling process used by Tech shows that a much lower sound level is predicted when the vehicle is moving. Thus, for cases of stationary trucks like an idling truck or even a truck back up alarm may produce higher sound levels.

**TABLE 1:** Comparison of Sound Source Modeling

Source Type	Sound Pressure Level at 260 feet
Point	55 dBA
Line	54 dBA
Moving Point Source	40 dBA

**Sound Mitigation**

Section 3.1 noted that landscape and plantings would be used to screen line-of-sight to the Project. However, it is widely known that one layer of any type of tree (mature or other) provides no sound reduction. We do not believe any sound attenuation was attributed to the plantings within the study. However, the Tech report had significant description and emphasis of these plantings that provide no acoustical benefit.

This same section also describes a solid screen as a method of mitigation. We understand the height of the screen to be 6 feet. At this height the screen will not block any sound from the rooftop equipment. It will block tire and engine noise from vehicles, but not block sound from truck engine exhausts, which can be at least 10 feet above the ground. In order for the screen provide any benefit, it must be solid without any gaps and have a minimum surface density of 1 lb./square foot.

We also see that the receptors (black and white circles in Figure 1) are located away from the residences and very close to the screen wall. Such a location is within a shadow zone of the screen and the actual sound level farther away from the wall at the residence and at the elevation of the highest floor might actually be louder even though the location is slightly farther from the Project.

#### **Building Operations – Applicable Noise Limits**

The frequency based limits given in Table 1 applicable to industrial facilities at the property line were evaluated. However, the limits given in Table 1 are the outdated frequency bands which would require conversion to the currently used Octave Bands. The letter-report did not state how that conversion was done, what the converted limits became, and how the predicted maximum levels compared to the limits.

## **SUMMARY**

As a matter of documentation, the Tech letter-report informally makes the following commitments on Project elements in order to achieve compliance with the City noise limits:

- Building 1 to only have loading bays on the north side of the building.
- All mechanical equipment to have equipment sound power levels no greater than given in Appendix A of the letter-report.
- All trucks to be compliant with the City Noise motor vehicular noise limits<sup>1</sup>
- All truck operations at night to be limited to speeds less than 15 miles per hour
- Noise wall with appropriate height, density and composition

Even with the above Project commitments noted above, we do not believe this evaluation is sufficient and complete to demonstrate that the Comstock Industrial Park will be compliant with City of Cranston noise limits. We believe additional mechanical equipment and truck activities must be included in the evaluation and that total sound from all of these items must then comply with City noise limits. The most sensitive noise limit is 50 dBA for residences (ID 1 through 7) along the southern property line. Meeting the noise limit at the residential properties should not be a Project design goal's third priority, as so noted in the letter-report. It should be the first priority to avoid future noise and nuisance complaints that could come from residential abutters.

---

Please contact me at 617-499-8058 or [mBahtiarian@acentech.com](mailto:mBahtiarian@acentech.com) with any questions or comments.

Sincerely,  
ACENTECH INCORPORATED



Michael Bahtiarian, INCE Bd. Cert.  
Principal Consultant

cc: Jim Barnes, Marc Newmark, Acentech

---

<sup>1</sup> City of Cranston Code of Ordinances Chapter 8.20 Noise Control, Section I. Chapter 8.20(I)