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October 7, 2022

Mr. Douglas McLean
Principal Planner
869 Park Avenue
Cranston, RI 02910

Re: Peer Review of Sound Study of Comstock Industrial Park, Cranston, RI **Ref: 4770**

Dear Mr. McLean:

Tech Environmental, Inc. (Tech) is pleased to provide this response to the comments of a "*Comstock Industrial Park Noise Evaluation – Peer Review"* prepared by Acentech and dated October 4, 2022. And, attached is a revised Sound Study of Comstock Industrial Park, Cranston, RI, which addresses the peer reviewer comments of Acentech. Furthermore, Tech is providing responses below to address each of the peer reviewer comments provided by Acentech.

1. **Mechanical Equipment Assumptions.** Acentech questioned if the Sound Study's assumptions for rooftop mechanical equipment are accurate and/or are missing equipment, and specifically if the HVAC equipment should include air conditioning condensers and/or chillers, which would be louder than the HVAC equipment assumed in the Sound Study. Furthermore, Acentech questioned if the project includes a backup generator, which is not included in the Sound Study.

   Response: The Sound Study appropriately includes (8) warehouse HVAC units and sixteen (16) warehouse exhaust fans on the rooftop of Building 1, and four (4) warehouse HVAC units and eight (8) warehouse exhaust fans on the rooftop of Building 2, as stated in Section 4.2 and is illustrated in Figure 2. The revised Sound Study also includes four (4) office HVAC units on the rooftop of Building 1, and one (1) office HVAC unit on the rooftop of Building 2. These assumptions have been confirmed with the project architect in preparation of this response, and the future mechanical design for the office spaces will likely result in office space mechanical equipment that is quieter than those assumed in the revised Sound Study. This is a conservative approach. The sound power levels assumed for those sources, including octave bands, utilized in the acoustic model are included in Appendix A. The revised Sound Study includes an Appendix B, which includes the manufacturer's performance data for the rooftop equipment, which includes sound levels that match those in Appendix A and those utilized in the acoustic model. The proposed project is not refrigerated warehouses; thus, the assumptions for rooftop equipment in the Sound Study are accurate, and do not include warehouse air conditioning condensers and/or chillers. Furthermore, the project is not planning for emergency generators, which would be warranted at a production/manufacturing facility or a refrigerated warehouse, which these are not. The proposed non-refrigerated warehouses have no plans for emergency generators, which is consistent with the Project's site civil plans, which include no foundations for emergency generators.

2. **Truck Operations – Applicable Noise Limits.** Acentech commented that the authorities at the City of Cranston Planning Department have stated that truck operations within the site must be added to all project sound levels and then comply with the noise limits given in Table A of the City of Cranston Noise Code. Acentech also commented that vehicle operations in the Sound Study should include: all

vehicles (trucks and cars) movement on the site, all vehicles (trucks and cars) idling at the site, trucks loading and unloading operation, trucks with refrigeration equipment (if applicable), and trucks with backup alarms.

Response: The Sound Study includes project truck traffic restricted to the north of Building 1 and the installation of a solid 6-foot-tall screen wall along most of the southern property boundary. The sound power levels for the truck traffic sources, including octave bands, utilized in the acoustic model are included in Appendix A. The modeled sound levels for truck traffic follow the Cranston Noise Code, Section I (i.e., Table B). Although Tech does not concur that the City of Cranston Noise Code, Table A limits are applicable to truck traffic impacts, the predicted sound level impacts are less than those limits at all locations.

The revised Sound Study includes two (2) stationary trucks idling and truck backup alarming at the project site. The sound power levels for the sources, including octave bands, utilized in the acoustic model are included in Appendix A. The modeling assumes that truck idling is continuous even though Rhode Island regulations generally limit idling to no more than five (5) minutes per hour. This is a conservative assumption. Furthermore, the modeling assumes that backup alarming is continuous even though the activity is temporary in nature. This is also a conservative assumption. Any potential sound created by trucks loading and unloading would be lesser than the sound level of a truck idling or a truck backup alarm; thus, if the sounds of truck idling and/or truck backup alarming are compliant, so would be any potential sound created by trucks loading and unloading. The revised Sound Study does not include truck refrigeration units since the proposed Project is a non-refrigerated warehouse.

The revised Sound Study does not include cars, as suggested by Acentech. The authorities at the City of Cranston Planning Department specifically stated that truck operations are applicable to the noise limits given in Table A of the City of Cranston Noise Code but made no mention of cars. The sounds emitted from all passenger vehicles in the United States are regulated by federal law (49 CFR 325); however, some states and municipalities also have applicable regulations. In fact, the City of Cranston Noise Code regulates noise emitted from all motor vehicles in the City of Cranston (Part I, Table B). Furthermore, the City of Cranston Noise Code specifically states that, *"motor vehicles operated on private property for recreational or amusement purposes,"* are applicable to the noise limits given in Table A (Part F(2)(f)(ii)); thus, motor vehicles operated on private property for purposes other than "recreational or amusement" are not regulated by the same limits. Finally, it is not ordinary industry practice to include passenger vehicles in a sound compliance assessment because those activities are temporary in nature, typically out of the control of the permittee, and the sound levels emitted by passenger vehicles are lesser than those emitted by trucks.

3. **Truck Operations – Reference Sound Power Levels.** Acentech commented that the sound power levels in Appendix A are reasonable, and that the facility operator will require all vehicles to meet the applicable limits in the City of Cranston Noise Code Section I (Table B).

   Response: No response necessary.

4. **Truck Operations – Modeling Assumptions.** Acentech commented that truck traffic was modeled as a moving point source with the acoustic modeling software. And Acentech commented that stationary trucks like an idling truck or a truck backup alarm may produce higher sound levels.

Response: The revised Sound Study includes two (2) stationary trucks idling and truck backup alarming at the project site.

5. **Sound Mitigation.** Acentech commented that the Sound Study did not account for any attenuation by landscaping and/or plantings. Acentech also commented that the proposed solid 6-foot-tall screen wall along most of the southern property boundary should be solid without any gaps and have a minimum surface density of one (1) pound per square foot. Acentech also commented that the receptors along the southern property boundary are located away from the residences and very close to the screen wall. Acentech also commented that sound levels from the project may be higher away from the wall and at the residence and at the elevation of the highest floor.

   Response: Tech concurs that the Sound Study did not account for any attenuation by landscaping and/or planting. This is a conservative assumption. The screening wall design is consistent with what has been presented in the landscaping and civil plans for the project. The revised Sound Study includes predicted sound levels at the upper floors of the four (4) residences nearest to the screen wall along the southern property boundary and demonstrates that those impacts are compliant with the applicable limits (see Table 3B, Table 4B, Table 5B and Table 6B).

6. **Building Operations – Applicable Noise Limits.** Acentech commented that the Sound Study did not provide a conversion of the outdated frequency band limits contained within the City of Cranston Code of Ordinances (Chapter 17.36(G), Table 1). Acentech also commented that the Sound Study did not provide how the predicted octave band sound levels compared to those limits.

   Response: The revised Sound Study includes Appendix C, which includes the conversion of the outdated frequency band limits, and an assessment of the predicted continuous sound levels with those limits.

I am hopeful that these responses to peer reviewer comments and the revised Sound Study will provide the City of Cranston justification that the Sound Study is now complete, and the proposed project will comply with the City of Cranston Code of Ordinances, Title 8, Chapter 8.20 Noise Control and Chapter 17.36 Zoning – Industrial Uses. If you have any questions, please call me at 781-890-2220.

Sincerely,

TECH ENVIRONMENTAL, INC.

Marc C. Wallace, QEP, INCE
Vice President

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FOCUSED KNOWLEDGE. REAL SOLUTIONS.

October 7, 2022

Mr. John Walsh
Principal
Comstock Industrial, LLC
21 Locust Avenue, Suite 1D-5
New Canaan, CT 06840

Re: Sound Study of Comstock Industrial Park, Cranston, RI **Ref: 4770**

Dear Mr. Walsh:

Tech Environmental, Inc. (Tech) is pleased to provide this letter report summarizing the results of an acoustic modeling study of the proposed Comstock Industrial Park (herein referred to as the "Project") on Comstock Parkway (Parcel: 36-46-0 0), in Cranston, Rhode Island. The goal of this work was to determine if the proposed Project will comply with the City of Cranston Code of Ordinances, Title 8, Chapter 8.20 Noise Control (Cranston Noise Code) and Title 17, Chapter 17.36 Industrial Uses (Cranston Zoning Code), and to determine the effect of traffic sound level mitigation measures incorporated into the Project design.

This letter report summarizes the modeling analyses performed for this study. Section 1.0 introduces the common measures of environmental sound. Section 2.0 presents the applicable noise regulations. Section 3.0 provides a description of the project and the design goals, and Section 4.0 presents the acoustic modeling approach and results. The study concludes that the proposed Project will generate continuous sound levels that fully comply with the City of Cranston's Noise Code and Zoning Code, and the Project design includes mitigation that will lessen the impacts of traffic sound levels at the nearest neighborhood property lines. Lastly, the simultaneous operation of the Project's continuous sound sources and the impacts from traffic will be less than those limits presented the City of Cranston Noise Code.

1.0 Common Measures of Environmental Sound

Noise is defined as "unwanted sound," which implies sound pressure levels that are annoying or disrupt activities that people are engaged in. The human sense of hearing is subjective and highly variable between individuals. Noise regulations and guidelines set quantitative limits to the sound pressure level (measured with sound analyzers and predicted with computer models) to protect people from sound exposures that most would judge to be annoying or disruptive.

The loudness of a sound is dependent on the radiated energy of the sound source and the propagation and attenuation characteristics of the air. The standard unit of sound pressure level (L_p) is the decibel (dB). A property of the decibel scale is that the sound pressure levels of two separate sounds are not directly additive. For example, if a sound of 40 dB is added to another sound of 40 dB, the total is only a 3 dB increase, not a doubling to 80 dB. For broadband sounds, a 3 dB change is the minimum change perceptible to the human ear. Table 1 presents the perceived change in loudness of different changes in sound pressure levels.

TABLE 1

SUBJECTIVE EFFECT OF CHANGES IN SOUND PRESSURE LEVELS

Change in Sound Pressure Level	Perceived Change in Loudness
3 dB	Just perceptible
5 dB	Noticeable
10 dB	Twice (or half) as loud

The acoustic environment in a suburban commercial/residential area, such as that surrounding Comstock Parkway in Cranston, primarily results from motor vehicle traffic on Interstate I-295 and local roadways. Typical sound levels associated with various activities and environments are presented in Table 2.[1]

TABLE 2

COMMON SOUND LEVELS

Sound Level (dBA)	Common Indoor Sounds	Common Outdoor Sounds
110	Rock Band	Jet Takeoff at 1000’
100	Inside NYC Subway Train	Chain Saw at 3’
90	Food Blender at 3’	Impact Hammer (Hoe Ram) at 50’
80	Garbage Disposal at 3’	Diesel Truck at 100’
70	Vacuum Cleaner at 10’	Lawn Mower at 100’
60	Normal Speech at 3’	Auto (40 mph) at 100’
50	Dishwasher in Next Room	Busy Suburban Area at night
40	Empty Conference Room	Quiet Suburban Area at night
25	Empty Concert Hall	Rural Area at night

[1] U.S. DOT, FHWA, Noise Fundamentals Training Document, Highway Noise Fundamentals, September 1980.

2.0 Noise Regulations

This section presents the noise regulations applicable to the proposed Project.

2.1 State of Rhode Island

The State of Rhode Island does not have applicable quantitative noise regulations.

2.2 City of Cranston Noise Code

The City of Cranston Code of Ordinances regulates noise emitted from any person under Chapter 8.20 Health and Safety – Noise Control, Section F. Chapter 8.20(F)(1) states that, "*It shall be unlawful for any person to emit or cause to be emitted any noise which leaves the premises on which it originates, crosses a property line, and enters onto any other premises in excess of the sound pressure levels during the time periods presented in Table A"*. A copy of Table A is presented below.

TABLE A
CITY OF CRANSTON CODE OF ORDINANCES, TITLE 8, CHAPTER 8.20
MAXIMUM ALLOWABLE NOISE SOUND PRESSURE LEVELS FOR SPECIFIC PREMISES

Type of Premises	*Location Where Noise is Measured*	*Time Period*	*Maximum Allowable Sound Pressure Level*
Residential premises	*Property line*	*7:00 a.m. to 10:00 p.m.*	*55 dB(A)*
Residential premises	*Property line*	*10:00 p.m. to 7:00 a.m.*	*50 dB(A)*
Commercial premises	*Property line*	*7:00 a.m. to 10:00 p.m.*	*65 dB(A)*
Commercial premises	*Property line*	*10:00 p.m. to 7:00 a.m.*	*60 dB(A)*
Industrial premises	*Property line*	*7:00 a.m. to 10:00 p.m.*	*80 dB(A)*
Industrial premises	*Property line*	*10:00 p.m. to 7:00 a.m.*	*75 dB(A)*
Public premises	*Property line or anywhere on public premises*	*7:00 a.m. to 10:00 p.m.*	*75 dB(A)*
Public premises	*Property line or anywhere on public premises*	*10:00 p.m. to 7:00 a.m.*	*70 dB(A)*

The Cranston Noise Code defines "residential premises" as, *"where single or multiple dwelling units exist and shall include schools"*, defines "commercial premises" as, *"any premises where offices, clinics, kennels, shopping and service establishments exist"*, defines "industrial premises" as, *"any premises where manufacturing, processing or fabrication of goods or products takes place"* and defines "public premises" as those, *"owned or controlled by any public governmental entity and shall include streets, alleys, parks and waterways."* Furthermore, Chapter 8.20(F)(1) states that the maximum allowable sound

pressure levels presented in Table A, *"shall not apply to sounds emitted from… any motor vehicles designed for and operated on public streets, alleys, highways or freeways."*

The City of Cranston Code of Ordinances also regulates noise emitted from motor vehicles under Chapter 8.20 Noise Control, Section I. Chapter 8.20(I) states that, *"no person shall operate nor shall the owner permit the operation of any motor vehicle or combination of motor vehicles at any time or place when such operation exceeds the noise sound pressure levels for the category of motor vehicle and for the designated time period specified in Table B."* A copy of Table B is presented below.

TABLE B
CITY OF CRANSTON CODE OF ORDINANCES, TITLE 8, CHAPTER 8.20
MAXIMUM ALLOWABLE NOISE SOUND PRESSURE LEVELS FOR MOTOR VEHICLES

Type of Vehicle	***Time Period***	***Maximum Allowable Sound Pressure Level***	***Measurement Distance From Motor Vehicle***
Motor vehicle weighing less than 10,000 pounds, Manufacturer's Gross Vehicle Weight	*At any time*	*80 dB(A)*	*25 feet*
Motor vehicle weighing more than 10,000 pounds, Manufacturer's Gross Vehicle Weight	*7:00 a.m. to 10:00 p.m.*	*88 dB(A)*	*25 feet*
Motor vehicle weighing more than 10,000 pounds, Manufacturer's Gross Vehicle Weight	*10:00 p.m. to 7:00 a.m.*	*80 dB(A)*	*25 feet*

2.3 City of Cranston Zoning Code

The City of Cranston Code of Ordinances also regulates octave band noise emitted from industrial uses under Chapter 17.36 Zoning – Industrial Uses, Section G. Chapter 17.36(G) states that, *"in C-5 and M-1 districts, industrial noise shall be measured from any property line… the sound pressure level of noise shall not exceed the values given in Tables 1..."* The Project is in an M-1 zoning district. Chapter 17.36(G)(1) Table 1 lists the maximum allowable octave band sound pressure levels for continuous sounds from a facility between the hours of 11:00 p.m. and 7:00 a.m. A copy of Table 1 is presented below.

TABLE 1
CITY OF CRANSTON CODE OF ORDINANCES, TITLE 17, CHAPTER 17.36
MAXIMUM PERMISSIBLE SOUND-PRESSURE LEVELS AT SPECIFIED POINTS OF MEASUREMENT FOR NOISE RADIATED CONTINUOUSLY FROM A FACILITY BETWEEN THE HOURS OF 11:00 PM AND 7:00 AM

Frequency Band (Cycles per second)	*Sound Pressure Level Decibels*
20 – 75	*75*
75 – 150	*70*
150 – 300	*62*
300 – 600	*55*
600 – 1200	*49*
1200 – 2400	*43*
2400 – 4800	*37*
4800 – 10000	*35*

3.0 Project Description & Design Goals

This section presents a description of the Project and the surrounding neighborhood, and the design goals for the Project.

3.1 Surrounding Neighborhood

The proposed Project site is located in the western portion of the city of Cranston, Rhode Island along the east side of Comstock Parkway across from Western Industrial Drive. Cranston is part of the Providence metropolitan area. The area around the site is predominantly commercial and industrial and is bounded between Comstock Parkway immediately to the west, Plainfield Pike (Route 14) approximately 1,300’ to the north, and Scituate Avenue (Route 12) approximately 420’ to the south. Interstate 295 is 1,600’ to 1,700’ to the east of the site’s western boundary.

The Project parcel is approximately seventeen (17) acres of currently undeveloped, wooded land zoned M-1 industrial use. The adjacent properties immediately to the north and east of the project site are zoned either M-1 or M-2 while the properties across Comstock Parkway are zoned M-2. All the adjacent properties to the north, east, and west of the site are currently occupied by commercial and industrial businesses. The properties located immediately adjacent to the southern boundaries of the site are zoned M-1 at Comstock Parkway (HarborOne Bank) and transition eastward to B-2 for the homes off Sweet Pea Drive and Sweet Corn Drive and then to A-80 for the home lots directly off Scituate Avenue.

Distances from the Project site’s main entrance drive to the nearest residential structure is approximately 380 feet. By contrast, Comstock Parkway is less than sixty (60) feet from the nearest residence at the western end of Sweet Pea Drive and less than two hundred (200) feet from the nearest residence on Sweet

Corn Drive. Similarly, Scituate Avenue is only one hundred (100) feet from the nearest residence on the eastern end of Sweet Pea Drive and one hundred and twenty (120) feet from the homes directly off Scituate Avenue. Consequently, most of the homes to the south of the project site currently experience sound impacts from these existing traffic arteries.

3.2 Proposed Project

The proposed Project consists of two (2) buildings: 1) a 199,180 square foot warehouse with fifty-six (56) loading bays and 2) a 70,000 square foot office/warehouse with thirteen (13) loading bays. The remainder of the site would provide for forty-two (42) trailer storage spaces and two hundred and seventeen (217) employee and customer parking spaces. And it is our understanding that the Project is proposed to operate during both daytime and nighttime hours.

3.3 Project Design Goals

Table 3A presents the premises bordering the proposed Project and the applicable limit at each location for sound sources emitted from the Project as prescribed by the Cranston Noise Code Chapter 8.20(F). Table 3B similarly presents the four (4) home nearest to the screen wall and the similar applicable limit. The property line and residential impacts of industrial sources should also comply with the octave band limits from the Cranston Zoning Code Chapter 17.36(G). The property line locations are illustrated in Figure 1. Figure 1 also illustrates the four (4) homes nearest to the screen wall. These primary design goals are consistent with the applicable regulations in Section 2.2 and Section 2.3.

A secondary design goal for the for Project is for all truck traffic to comply with the sound pressure levels prescribed by the Cranston Noise Code Chapter 8.20(I). Those sound limits for trucks coming to and from the Project (i.e., weighing more than 10,000 pounds) is eighty-eight (88) dBA at twenty-five (25) feet between 7:00 a.m. to 10:00 p.m. (i.e., daytime), and is eighty (80) dBA at twenty-five (25) feet between 10:00 p.m. to 7:00 a.m. (i.e., nighttime). The daytime limit would be achieved by a properly operated heavy truck cruising at a speed of fifty (50) miles per hour or less. And the nighttime limit would be achieved by a properly operated heavy truck cruising at a speed of fifteen (15) miles per hour or less.[2]

Lastly, it should be acknowledged that although the Project is proposed in an industrial zone with adjoining industrial uses, the Project abuts a land use which should be given consideration in the Project design. Those locations include residential single family uses on Situate Avenue, residential condominiums on Sweet Pea Drive and Sweet Corn Drive, a childcare facility at 210 Comstock Parkway and a place of business (i.e., a bank) at 200 Comstock Parkway. A tertiary design goal for the Project is to minimize the potential sound impacts at those locations, although not required beyond state and/or local regulations.

[2] Per the Federal Highway Administration (FHWA) Traffic Noise Model (TNM) Technical Manual, Final Report, U.S. Department of Transportation, FHWA-PD-96-010, DOT-VNTSC-FHWA-98-2, February 1998, Figure 11, page 34.

TABLE 3A

PRIMARY DESIGN GOALS FOR THE COMSTOCK INDUSTRIAL PARK

At All Nearest Property Lines

ID	Property Line	Direction	Type of Premises	Cranston Noise Code Limit*
1	1025 Scituate Avenue	South	Residential	50 dBA
2	1039 Scituate Avenue	South	Residential	50 dBA
3	10-12 Sweet Pea Drive	South	Residential	50 dBA
4	14-16 Sweet Pea Drive	South	Residential	50 dBA
5	10-12 Sweet Corn Drive	South	Residential	50 dBA
6	5-7 Sweet Corn Drive	South	Residential	50 dBA
7	210 Comstock Parkway	West	Residential	50 dBA
8	200 Comstock Parkway	West	Commercial	60 dBA
9	West Property Line	West	Public	70 dBA
10	140 Comstock Parkway	North	Industrial	75 dBA
11	11 Amflex Drive	North	Industrial	75 dBA
12	15 Amflex Drive	North	Industrial	75 dBA
13	21 Amflex Drive	North	Industrial	75 dBA
14	25 Amflex Drive	North	Industrial	75 dBA
15	37 Amflex Drive	East	Industrial	75 dBA

* Design goals include compliance with octave band limits from Cranston Zoning Code Chapter 17.36(G) Table 1.

TABLE 3B

PRIMARY DESIGN GOALS FOR THE COMSTOCK INDUSTRIAL PARK

At the Upper Floors of Homes Nearest to the Screen Wall

ID	Residence	Direction	Type of Premises	Cranston Noise Code Limit*
16	1025 Scituate Avenue	South	Residential	50 dBA
17	1039 Scituate Avenue	South	Residential	50 dBA
18	10-12 Sweet Pea Drive	South	Residential	50 dBA
19	14-16 Sweet Pea Drive	South	Residential	50 dBA

* Design goals include compliance with octave band limits from Cranston Zoning Code Chapter 17.36(G) Table 1.

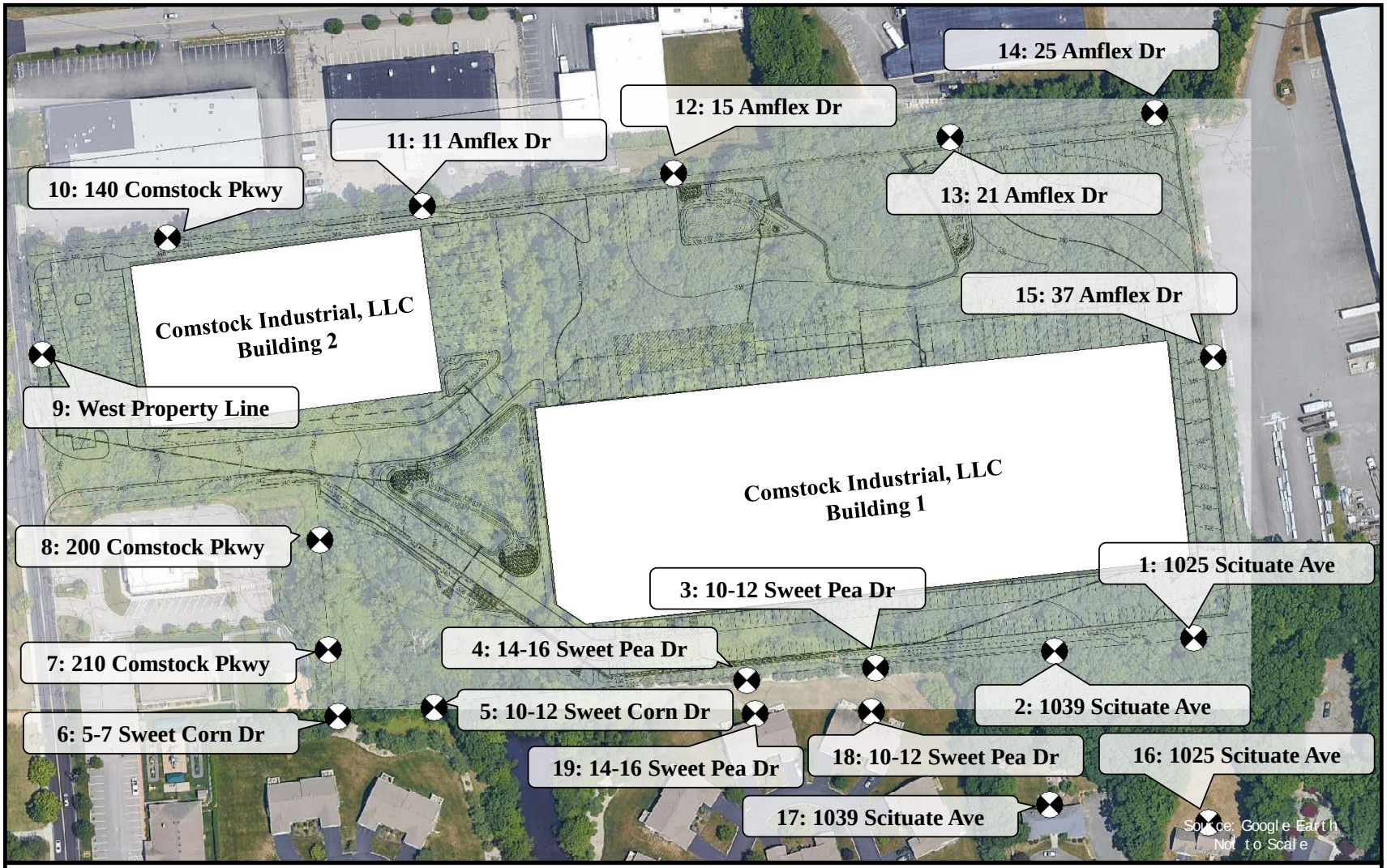


Figure 1

Modeled Property Line and Residential Locations
Comstock Industrial Park, Cranston, Rhode Island

3.4 Project Design Features

The parking area and drive on the south side of Building 1 is intended only for customer and warehouse employee parking. Primary truck traffic in and out of the development site would be restricted to the north side of the building and would not utilize this parking area. Thus, no significant sound impacts are anticipated from this area of the project site.

The proposed placement of the building on the site is key to minimizing potential sound impacts to neighboring properties. The position of the larger warehouse building (Building 1) near the south side of the site and to the eastern corner will provide effective shielding from truck sounds for the residential properties to the south and southeast. Because the loading bays of Building 1 would be on the north side of the building, the building's height (35 feet) and length (760 feet) will provide a substantial degree of shielding from truck movements to and from the bays.

Landscape planting considerations that will benefit residential properties to the south include existing trees and new plantings. A significant amount of tree and shrub foliage is continuous and dense and is proposed to remain between the development and the homes to the south. The density and heights of the existing trees are sufficient to fully obscure the line-of-site from the back yards of those homes to the Project site. This significant plant buffer will remain in place and will also be supplemented on the Project site with additional plantings to replace some trees and shrubs lost to the land clearing and grading necessary for construction. New evergreen plantings will ensure the continuity of the existing buffer as well as to add to areas which would otherwise become more open once the Project is in place. These plantings are strategically located to block views to the south and will fill in any gaps in existing foliage. Plantings along the entrance drive from Comstock Parkway will create new line-of-site screening along the southern boundary to obscure views of vehicles coming into and leaving the development.

Lastly, a solid screen wall is incorporated into the landscaping and civil plans along most of the southern property boundary. This wall is intended to block lights and sounds from employee vehicles arriving and departing from the parking area along the south side of Building 1. The portion of the wall which extends along the main entrance drive will also help block sound and lights for vehicles entering and leaving the property.

4.0 Modeling Assumptions and Results

This section describes the modeling approach and assumptions included in our acoustic modeling analysis and predicted sound levels at the nearest property lines to the proposed Project.

4.1 CadnaA Acoustic Model

Future sound level impacts from the proposed Project, and the resulting improvement from mitigation measures, were calculated with the CadnaA acoustic model. CadnaA is a sophisticated 3-D model for sound propagation and attenuation based on International Standard ISO 9613.[3] Absorption of sound assumed standard conditions and is significant at large distances and at high frequencies. ISO 9613 was used to calculate propagation and attenuation of sound energy by hemispherical divergence with distance, surface reflection, ground, and shielding effects by barriers, buildings, and ground topography.

The predicted sound levels are conservative because:

1. The model assumes a ground-based temperature inversion, such as may occur on a clear, calm night when sound propagation is at a maximum. This worst-case condition is infrequent.

2. The model assumes that all sound sources are operating simultaneously (a worst-case condition not likely to occur).

4.2 Modeling Assumptions

Future sound level impacts from the proposed Project continuous sound sources were calculated with the CadnaA acoustic model. The assumptions in our continuous sources acoustic modeling analysis are as follows:

1. The location of the proposed Project and associated grading was based on site plans by Alfred Benesch & Company.[4] The plans show two (2) buildings: Building 1) a 199,180 SF warehouse with fifty-six (56) loading bays on the eastern side of the parcel and Building 2) a 70,000 SF office/warehouse with thirteen (13) loading bays on the western side of the parcel. The remainder of the site includes forty-two (42) trailer storage spaces and two hundred and seventeen (217) employee and customer parking spaces.
2. The primary sources of continuous operational sounds from the Project are rooftop-mounted warehouse heating, ventilation, and air conditioning (HVAC) equipment, and warehouse exhaust fans on top of the buildings. The analysis includes eight (8) warehouse HVAC units and sixteen (16) warehouse exhaust fans on the rooftop of Building 1, and four (4) warehouse HVAC units and eight (8) warehouse exhaust fans on the rooftop of Building 2. The analysis also includes four (4) office HVAC units on the rooftop of Building 1, and one (1) office HVAC unit on the rooftop of Building 2. The locations of the continuous operational sound sources are illustrated in Figure

[3] International Standard, ISO 9613-2, Acoustics – Attenuation of Sound During Propagation Outdoors, -- Part 2 General Method of Calculation.
[4] Overall Grading & Drainage Plan, Comstock Industrial Park, Comstock Parkway, Cranston, RI, Alfred Benesch & Company, Revised July 8, 2022.

2. The sound power levels for the sources, including octave bands, utilized in the acoustic model are included in the attached Appendix A.

The results of mitigation measures designed to reduce Project traffic sound level impacts were calculated with the CadnaA acoustic model. The assumptions in our acoustic modeling analysis for the Project traffic mitigation improvements analysis are as follows:

1. The proposed placement of the building on the site is key to minimizing potential sound impacts to neighboring properties. The position of the larger warehouse building (Building 1) near the south side of the site and to the eastern corner will provide very effective shielding for the residential properties to the south and southeast. Because the loading bays of Building 1 would be on the north side of the building, the building's height (35') and length (760') will provide a substantial degree of shielding from truck movements to and from the bays.

2. The parking area and drive on the south side of Building 1 is intended only for customer and warehouse employee parking. Primary truck traffic in and out of the development site would be restricted to the north side of the building and would not utilize this southerly parking area. Thus, no significant sound impacts are expected from this area of the project site.

3. A solid 6-foot-tall screen wall is incorporated into the landscaping and civil plans along most of the southern property boundary. This wall is intended to block lights and sounds from employee vehicles arriving and departing from the parking area along the south side of Building 1. The portion of the wall that extends along the main entrance drive will also help block sound and lights from vehicles entering and leaving the property.

4. The analysis of unmitigated Project traffic sound level impacts is illustrated in Figure 3. That analysis includes unrestricted truck traffic around the perimeter of Building 1, and along the southern property line near land uses on Situate Avenue, Sweet Pead Drive and Sweet Corn Drive. The sound power levels for the sources, including octave bands, utilized in the acoustic model are included in the attached Appendix A. The modeled sound levels for truck traffic follow the Cranston Noise Code, Section I (i.e., Table B).

5. The analysis of mitigated Project traffic sound level impacts is illustrated in Figure 4. That analysis includes truck traffic restricted to the north of Building 1 and the installation of a solid 6-foot-tall screen wall along most of the southern property boundary. The sound power levels for the sources, including octave bands, utilized in the acoustic model are included in the attached Appendix A. The modeled sound levels for truck traffic follow the Cranston Noise Code, Section I (i.e., Table B).

6. The analysis of unmitigated Project traffic sound level impacts and the analysis of mitigated Project traffic sound level impacts each assume eleven (11) truck trip ends per hour coming to and going from the Project (i.e., 5.5 round trips per hour). This is a conservative approach given the traffic impact analysis conducted for the Project predicts that the truck traffic activity between the hours of 10:00 pm and 7:00 am would range from zero (0) to ten (10) truck trip ends per hour and would be an average of two (2) truck trip ends per hour (i.e., one round trip per hour).

7. The analysis of Project traffic sound level impacts includes two (2) stationary trucks idling and truck backup alarming at the project site. The truck idling and backup alarming sound sources are illustrated in Figure 3. The sound power levels for the sources, including octave bands, utilized in the acoustic model are included in the attached Appendix A. The modeling assumes that truck idling is continuous even though Rhode Island regulations generally limit idling to no more than five (5) minutes per hour. Furthermore, the modeling assumes that back alarming is continuous even though the activity is temporary in nature. Any potential sound created by trucks loading and unloading would be lesser than the sound level of a truck idling or a truck backup alarm; thus, if the sounds of truck idling and/or truck backup alarming are compliant, so would be any potential sound created by trucks loading and unloading.

8. The analysis of Project traffic sound level impacts does not include truck refrigeration units since the proposed Project is a non-refrigerated warehouse.

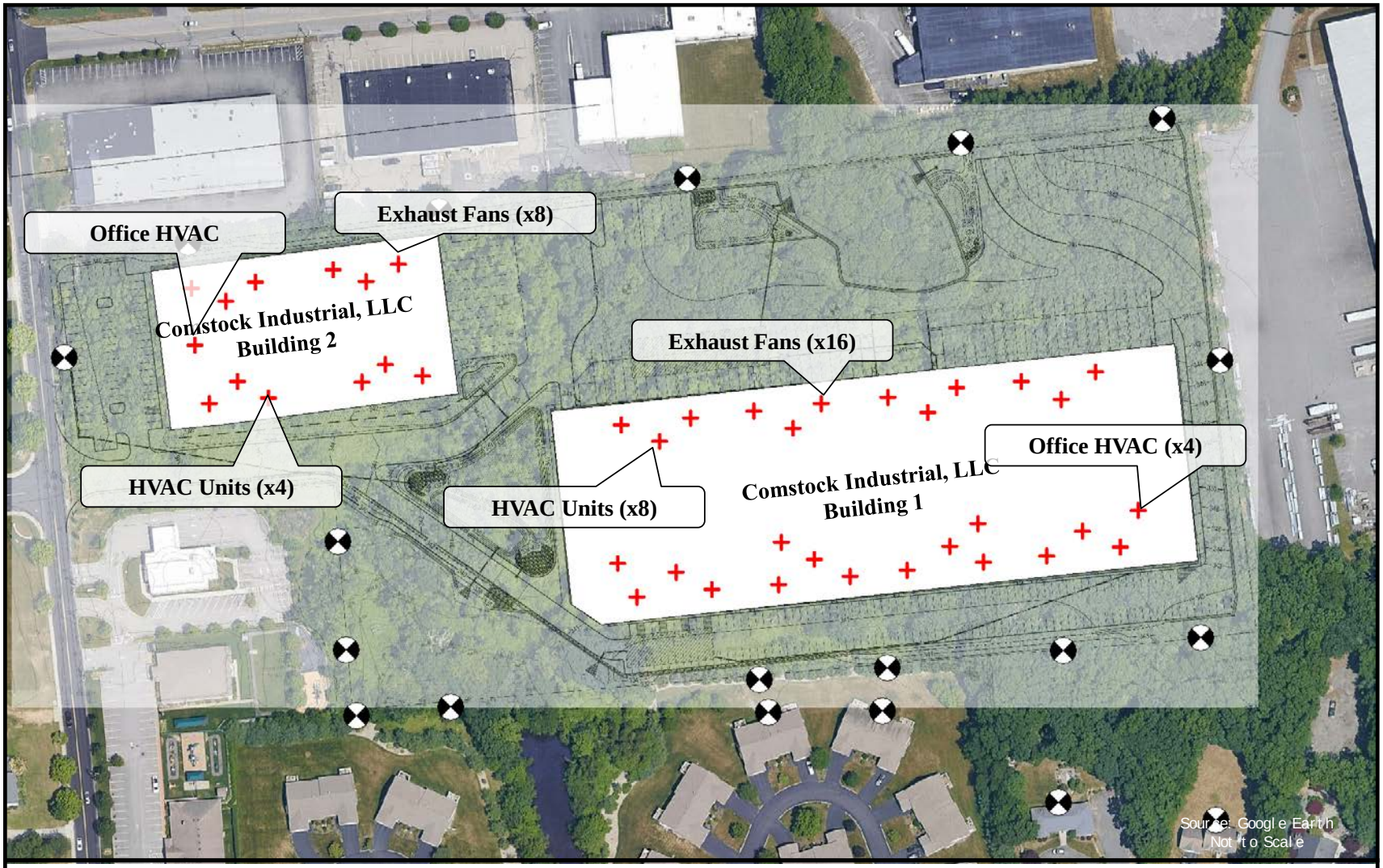


Figure 2

Modeled Project Continuous Operational Sounds
Comstock Industrial Park, Cranston, Rhode Island

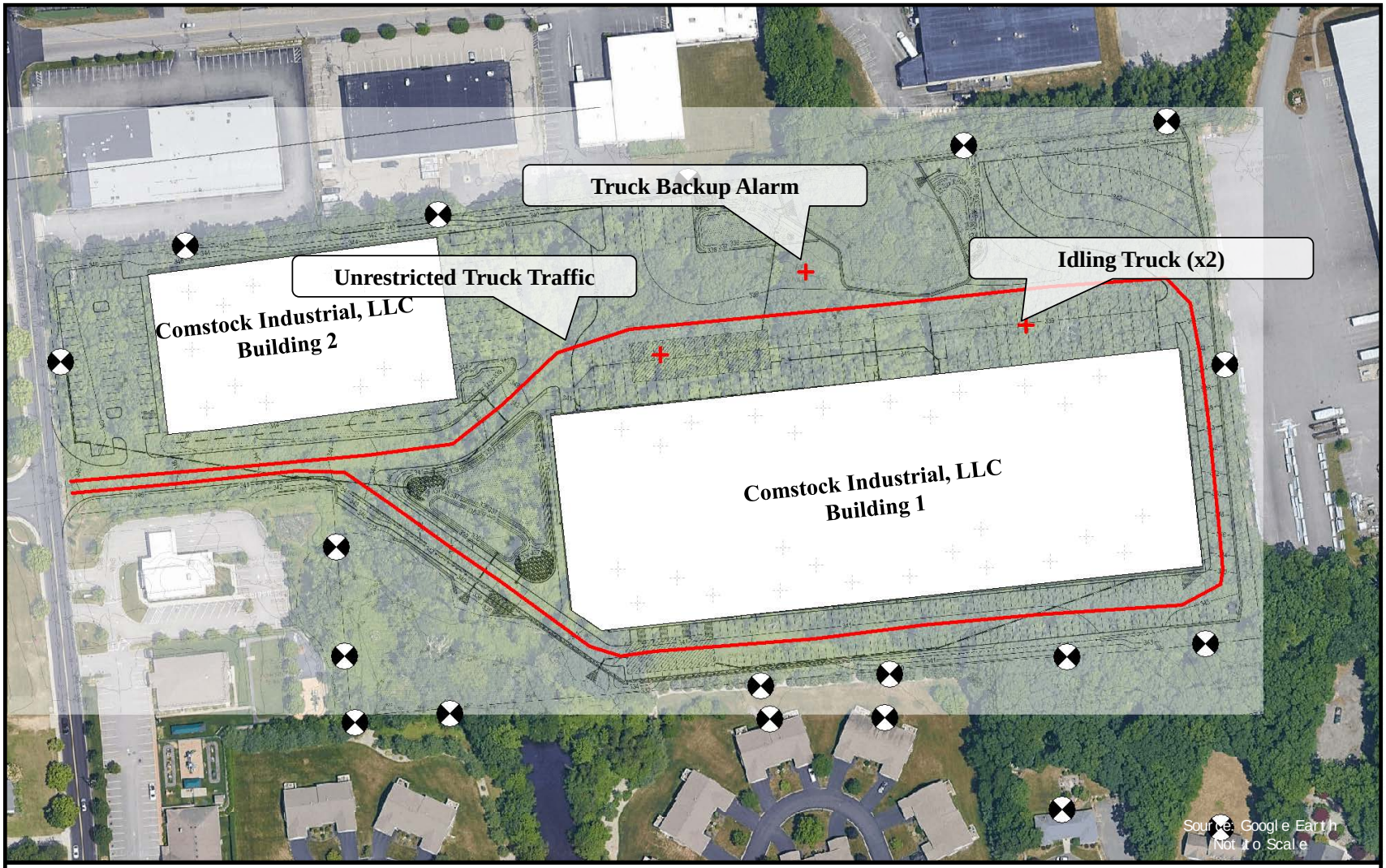


Figure 3

Modeled Project Traffic Impacts Without Mitigation
Comstock Industrial Park, Cranston, Rhode Island

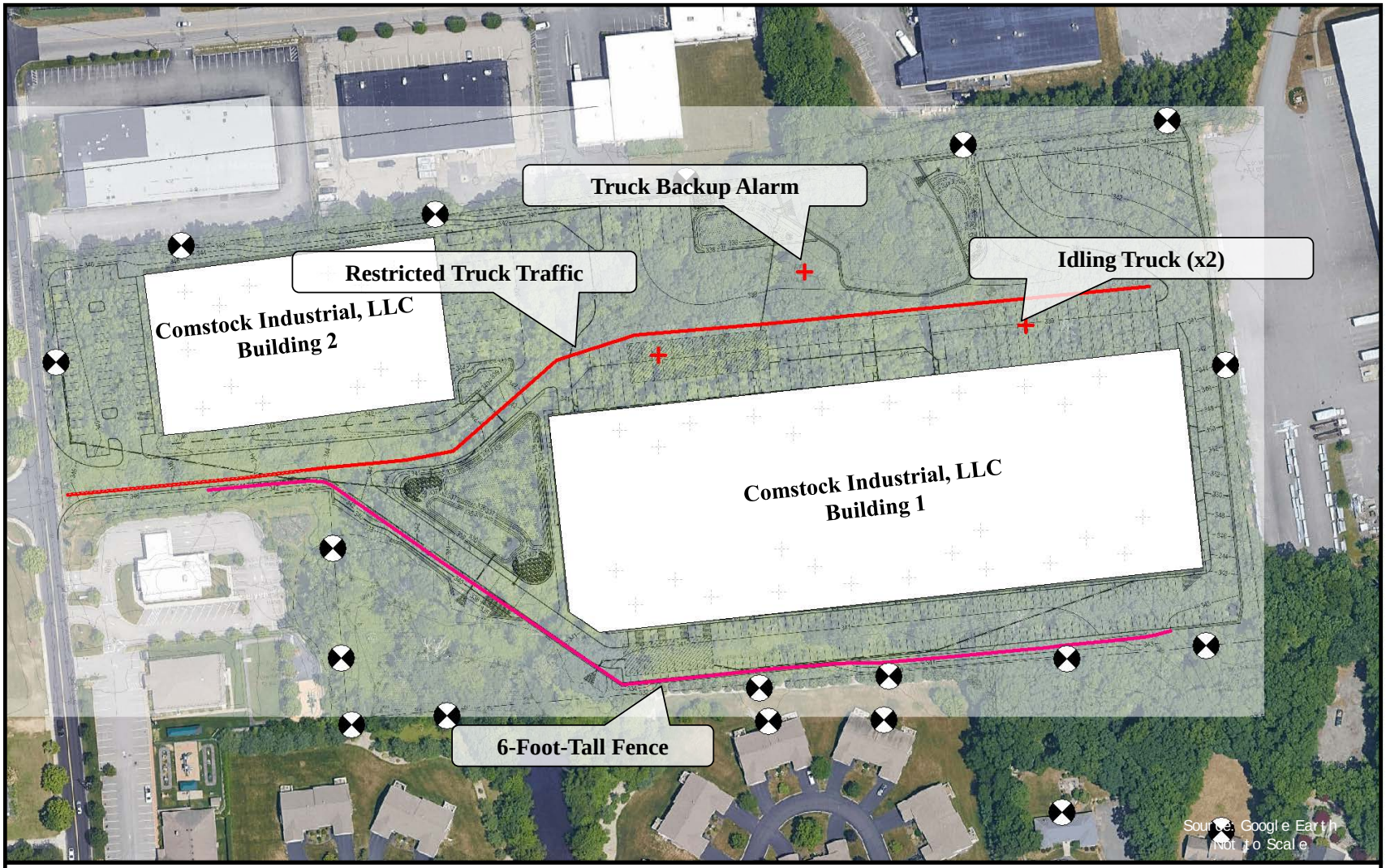


Figure 4

Modeled Project Traffic Impacts With Mitigation
Comstock Industrial Park, Cranston, Rhode Island

4.3 Future Sound Levels

Sound levels were predicted for the simultaneous operation of the Project's continuous sound sources. The locations of the sound sources are illustrated in Figure 2. Table 4A and Table 4B summarize the modeling results and that the Project continuous sound sources would result in sound level impacts that range from 31 dBA to 38 dBA at the nearest property lines and from 36 dBA to 38 dBA at the upper floors of the homes nearest to the screen wall. Appendix C contains the octave band sound level impacts of the Project continuous sources. The predicted sound level impacts of the Project's continuous sound sources comply with the facility design goals for each location (see Section 3.3), including compliance with octave band limits from Cranston Zoning Code Chapter 17.36(G) Table 1. The sound level impacts of the Project at locations further away would be even less. Table 4A and Table 4B confirm that the proposed Project will fully comply with the City of Cranston Noise Code.

TABLE 4A

PREDICTED SOUND LEVELS FROM CONTINUOUS SOURCES AT THE COMSTOCK INDUSTRIAL PARK

At All Nearest Property Lines

ID	Property Line	Type of Premises	Cranston Noise Code Limit	Predicted Sound Level	Complies with Octave Band Limits? *
1	1025 Scituate Avenue	Residential	50 dBA	35 dBA	Yes
2	1039 Scituate Avenue	Residential	50 dBA	35 dBA	Yes
3	10-12 Sweet Pea Drive	Residential	50 dBA	35 dBA	Yes
4	14-16 Sweet Pea Drive	Residential	50 dBA	35 dBA	Yes
5	10-12 Sweet Corn Drive	Residential	50 dBA	37 dBA	Yes
6	5-7 Sweet Corn Drive	Residential	50 dBA	37 dBA	Yes
7	210 Comstock Parkway	Residential	50 dBA	36 dBA	Yes
8	200 Comstock Parkway	Commercial	60 dBA	36 dBA	Yes
9	West Property Line	Public	70 dBA	38 dBA	Yes
10	140 Comstock Parkway	Industrial	75 dBA	31 dBA	Yes
11	11 Amflex Drive	Industrial	75 dBA	34 dBA	Yes
12	15 Amflex Drive	Industrial	75 dBA	35 dBA	Yes
13	21 Amflex Drive	Industrial	75 dBA	35 dBA	Yes
14	25 Amflex Drive	Industrial	75 dBA	35 dBA	Yes
15	37 Amflex Drive	Industrial	75 dBA	31 dBA	Yes

* Design goals include compliance with octave band limits from Cranston Zoning Code Chapter 17.36(G) Table 1.

TABLE 4B

PREDICTED SOUND LEVELS FROM CONTINUOUS SOURCES AT THE COMSTOCK INDUSTRIAL PARK

At the Upper Floors of Homes Nearest to the Screen Wall

ID	Residence	Type of Premises	Cranston Noise Code Limit	Predicted Sound Level	Complies with Octave Band Limits? *
16	1025 Scituate Avenue	Residential	50 dBA	36 dBA	Yes
17	1039 Scituate Avenue	Residential	50 dBA	37 dBA	Yes
18	10-12 Sweet Pea Drive	Residential	50 dBA	38 dBA	Yes
19	14-16 Sweet Pea Drive	Residential	50 dBA	37 dBA	Yes

* Design goals include compliance with octave band limits from Cranston Zoning Code Chapter 17.36(G) Table 1.

Sound levels were also predicted for Project traffic sound level impacts with and without the mitigation improvements incorporated into the Project design (see Section 3.4). The locations of the sound sources without mitigation are illustrated in Figure 3. The locations of the sound sources with mitigation are illustrated in Figure 4. Those mitigation improvements include truck traffic restricted to the north of Building 1 and the installation of a solid 6-foot-tall screen wall along most of the southern property boundary. Table 5A and Table 5B summarize the modeling results and that the Project traffic mitigation improvements will lessen the sound level impacts of traffic by 4 dBA to 19 dBA at the nearest neighborhood property lines and by 12 dBA to 15 dBA at the upper floors of the homes nearest to the screen wall. Those improvements represent a perceptible or noticeable to substantial improvement at each neighborhood property line and nearby residential location.

TABLE 5A

PREDICTED NEIGHBORHOOD IMPROVEMENTS WITH MITIGATION AT THE COMSTOCK INDUSTRIAL PARK

At All Nearest Property Lines

ID	Property Line	Current Property Use	Mitigation Improvement	Perceived Improvement
1	1025 Scituate Avenue	Single Family	Less 18 dBA	1/6th as Loud
2	1039 Scituate Avenue	Single Family	Less 19 dBA	1/6th as Loud
3	10-12 Sweet Pea Drive	Condominiums	Less 19 dBA	1/6th as Loud
4	14-16 Sweet Pea Drive	Condominiums	Less 19 dBA	1/6th as Loud
5	10-12 Sweet Corn Drive	Condominiums	Less 6 dBA	Noticeable
6	5-7 Sweet Corn Drive	Condominiums	Less 4 dBA	Perceptible
7	210 Comstock Parkway	Childcare	Less 6 dBA	Noticeable
8	200 Comstock Parkway	Bank	Less 7 dBA	Noticeable

TABLE 5B

PREDICTED NEIGHBORHOOD IMPROVEMENTS WITH MITIGATION AT THE COMSTOCK INDUSTRIAL PARK

At the Upper Floors of Homes Nearest to the Screen Wall

ID	Property Line	Current Property Use	Mitigation Improvement	Perceived Improvement
1	1025 Scituate Avenue	Single Family	Less 14 dBA	1/4th as Loud
2	1039 Scituate Avenue	Single Family	Less 12 dBA	1/4th as Loud
3	10-12 Sweet Pea Drive	Condominiums	Less 15 dBA	1/5th as Loud
4	14-16 Sweet Pea Drive	Condominiums	Less 15 dBA	1/5th as Loud

Sound levels were also predicted for the simultaneous operation of the Project's continuous sound sources and the Project truck traffic sound level impacts with mitigation improvements, per the request of the City of Cranston Principal Planner, and with input from the City's peer review consultant and the City of Cranston Solicitor. The locations of the continuous sound sources are illustrated in Figure 2 and the locations of the traffic sound sources with mitigation are illustrated in Figure 4. Table 6A and Table 6B summarize the modeling results and that the Project continuous sound sources and the mitigated truck traffic would result in sound level impacts that range from 38 dBA to 65 dBA at the nearest property lines and from 37 dBA to 40 dBA at the upper floors of the homes nearest to the screen wall. The City of Cranston Principal Planner also requested that these predicted impacts be compared to the limits presented as Table A of the City of Cranston Noise Code. Although Tech does not concur that the Table A limits

are applicable to truck traffic impacts, those nighttime limits have also been presented in Table 6A and Table 6B, and the predicted sound level impacts are less than those limits at all locations. The sound level impacts of the Project at locations further away would be even less.

TABLE 6A

PREDICTED SOUND LEVELS FROM CONTINUOUS SOURCES AND MITIGATED TRUCK TRAFFIC AT THE COMSTOCK INDUSTRIAL PARK

At All Nearest Property Lines

ID	Property Line	Type of Premises	Cranston Noise Code Limit	Predicted Sound Level
1	1025 Scituate Avenue	Residential	50 dBA	38 dBA
2	1039 Scituate Avenue	Residential	50 dBA	38 dBA
3	10-12 Sweet Pea Drive	Residential	50 dBA	38 dBA
4	14-16 Sweet Pea Drive	Residential	50 dBA	38 dBA
5	10-12 Sweet Corn Drive	Residential	50 dBA	43 dBA
6	5-7 Sweet Corn Drive	Residential	50 dBA	44 dBA
7	210 Comstock Parkway	Residential	50 dBA	44 dBA
8	200 Comstock Parkway	Commercial	60 dBA	47 dBA
9	West Property Line	Public	70 dBA	44 dBA
10	140 Comstock Parkway	Industrial	75 dBA	39 dBA
11	11 Amflex Drive	Industrial	75 dBA	59 dBA
12	15 Amflex Drive	Industrial	75 dBA	65 dBA
13	21 Amflex Drive	Industrial	75 dBA	63 dBA
14	25 Amflex Drive	Industrial	75 dBA	59 dBA
15	37 Amflex Drive	Industrial	75 dBA	47 dBA

TABLE 6B

PREDICTED SOUND LEVELS FROM CONTINUOUS SOURCES AND MITIGATED TRUCK TRAFFIC AT THE COMSTOCK INDUSTRIAL PARK

At the Upper Floors of Homes Nearest to the Screen Wall

ID	Residence	Type of Premises	Cranston Noise Code Limit	Predicted Sound Level
16	1025 Scituate Avenue	Residential	50 dBA	37 dBA
17	1039 Scituate Avenue	Residential	50 dBA	39 dBA
18	10-12 Sweet Pea Drive	Residential	50 dBA	40 dBA
19	14-16 Sweet Pea Drive	Residential	50 dBA	40 dBA

In conclusion, the proposed Project will comply with the City of Cranston Noise Code and the City of Cranston Zoning Code, and the Project design includes mitigation that will lessen the impacts of traffic sound levels at the nearest neighborhood property lines. Lastly, the simultaneous operation of the Project's continuous sound sources and the Project traffic sound level impacts with mitigation improvements will be less than those limits presented as Table A of the City of Cranston Noise Code. If you have any questions, please call me at 781-890-2220.

Sincerely,

TECH ENVIRONMENTAL, INC.

Marc C. Wallace, QEP, INCE
Vice President

4770/Sound Study for Comstock Industrial Park 10-7-2022

APPENDIX A – REFERENCE SOUND POWER LEVELS (L_w, dB)

Sound Source	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	Total (dBA)
Warehouse HVAC Units	26	42	58	71	76	79	72	68	60	**81**
Warehouse Exhaust Fans	86	78	70	61	56	54	50	44	37	**61**
Office HVAC Units[5]	89	89	92	89	87	84	80	75	68	**89**
Truck Traffic[6]	78	87	96	100	100	101	100	98	93	**106**
Truck Idling	106	107	108	102	98	98	94	88	80	**103**
Truck Backup Alarms	0	0	0	0	104	105	104	0	0	**109**

[5] Assumed to be Trane Standard Efficiency 12.5-ton Packaged Rooftop Air Conditioners

[6] Truck traffic is modeled as a "moving point source" with an intermittent emission of 106 dBA traveling at 15 miles per hour (mph) and 5.5 times per hour. 106 dBA (sound power level) is equivalent to 80 dBA at 25 feet (sound pressure level).

APPENDIX B – MANUFACTURER'S PERFORMANCE DATA FOR ROOFTOP EQUIPMENT

GREENHECK
Building Value in Air.

Job Name: DGX-P120-H22 Cut Sheet
Tag: MK-1
Quantity: 1
Printed Date: March 9, 2022

Model: DGX-P120-H22

Design Conditions				
Elevation (ft.)	Summer		Winter (F)	Supply (CFM)
	DB (F)	WB (F)		
0	89	73	0	3,750

Unit Specification				
Weight (lbs.)	Cooling Type	Heating Type	Unit Installation	Unit ETL Listing
1,404	None	Direct Gas	Outdoor	UL / cUL 1995

Configuration		
Outdoor Air		
Discharge Position	Supply Air Filters	Outdoor Air Damper
Bottom	None	Inlet Damper

Heating Specifications							
Type	Performance		Input (MBH)	Output (MBH)	Gas Type	Turn Down Ratio	Max Temp Rise (F)
	EAT (F)	LAT (F)					
Direct Gas	0	110	484.2	445.5	Natural	Up to 30:1	110

Air Performance									
Type	Total Volume (CFM)	External SP (in wg)	Total SP (in wg)	RPM	Operating Power (hp)	Fan			
						QTY	Type	Size	Drive-Type
Supply	3,750	0.5	1.341	1,274	1.33	1	BackwardInclined	20	Direct

Sound Performance										
Sound Power by Octave Band								Lwa	dBA	Sones
62.5	125	250	500	1000	2000	4000	8000			
42.3	58.2	70.6	76	78.6	72.1	67.7	59.6	80.9	69.9	18.3

Motor Specifications					
Motor	Qty	Size (hp)	Enclosure	Efficiency	RPM
Supply Fan Motor	1	1-1/2	ODP	NEMA Premium	1,170

Electrical Specifications			
Power Supply	Rating (V/C/P)	MCA (Amps)	MOP (Amps)
Unit	460/60/3	4	15

GREENHECK
Building Value in Air.

Job Name: G-300-VG Cut Sheet
Tag: MK-1
Quantity: 1
Printed Date: March 9, 2022

Model: G-300-VG

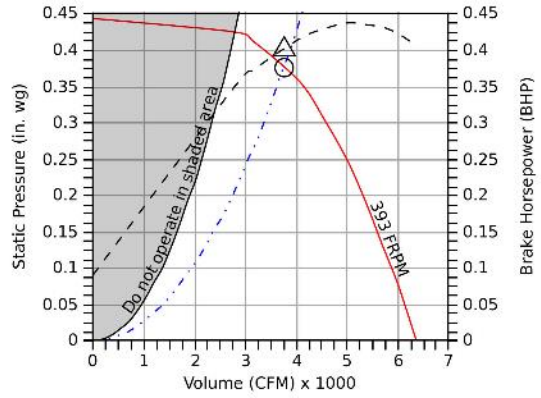
Direct Drive Centrifugal Roof Exhaust Fan

Standard Construction Features: Aluminum housing. Centrifugal backward inclined aluminum (composite for sizes 60-95) wheel. Direct driven motor mounted on vibration isolation.

Fan Configuration	
Drive type	Direct

Performance	
Requested Volume (CFM)	3,750
Actual Volume (CFM)	3,750
Total External SP (in. wg)	0.38
Fan RPM	393
Operating Power (bhp)	0.4
Startup Power (bhp)	0.4
Air Stream Temp (F)	70
Start-up Temp (F)	70
Air Density (lbs/ft^3)	0.075
Static Efficiency (%)	55
Outlet Velocity (ft/min)	758

Motor	
Size (hp)	5
V/C/P	460/60/3
NEC FLA (Amps)	7.4



Sound

	Octave Bands (hz)								LwA	dBA	Sones
	62.5	125	250	500	1000	2000	4000	8000			
Inlet	78	70	61	56	54	50	44	37	61	50	5.9

amca WORLDWIDE CERTIFIED RATINGS
SOUND AND AIR PERFORMANCE
AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC.
www.amca.org

Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.The AMCA certified ratings seal applies to sound and air performance ratings only.Performance certified is for installation type A: Free inlet, free outlet.Power rating does not include transmission losses.Performance ratings include the effects of birdscreen.The sound ratings shown are loudness values in hemispherical sones at 1.5 m (5 ft) in a hemispherical free field calculated per ANSI/AMCA Standard 301.Values shown are for Installation Type A: free inlet hemispherical sone levels.dBA levels are not licensed by AMCA International. The AMCA Certified Ratings Seal for Sound applies to inlet sone ratings only.

TRANE

Fan Performance

Table 45. Outdoor sound power level

Tons	Unit Model Number	Octave Center Frequency								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
6	TSJ072A*	83	84	84	85	82	76	73	67	86
7.5	TSJ090A*	83	84	84	85	82	76	73	67	86
8.5	TSJ102A*	83	84	84	85	82	76	73	67	86
10	TSJ120A*	87	88	86	83	81	77	73	68	86
12.5	TSJ150A*	89	92	89	87	84	80	75	68	89
15	TSJ180A*	83	87	87	85	82	77	74	69	87
17.5	TSJ210A*	89	89	91	89	86	82	79	73	91
20	TSJ240A*	89	89	91	89	86	82	79	73	91
25	TSJ300A*	94	90	92	91	88	84	81	75	93

Notes:

1. Outdoor sound rating shown is tested in accordance with AHRI 270/370-2015. For additional information reference the outdoor sound power level data in the performance section.
2. Taken in accordance with AHRI 270/370-2015.
3. Indoor sound in accordance with AHRI 260 is available through Trane's selection software.

Table 46. Static pressure drop through accessories (inches water column) - standard efficiency

Tons	Unit Model Number	cfm[a]	Standard Filters[b]	2" MERV 8 Filter[c]	2" MERV 13 Filter[c]	Reheat Coil	Economizer with OA/RA Dampers[d]						Electric Heater			
							Downflow		Horizontal		Low Leak		Accessory (kW)			
							100% OA	100% RA	100% OA	100% RA	100% OA	100% RA	9-18	27-36	54	72
6	TSJ072A	1800	0.03	0.04	0.07	0.04	0.05	0.01	0.04	0.02	0.09	0.00	0.01	0.02	N/A	N/A
		2400	0.04	0.06	0.10	0.06	0.10	0.01	0.06	0.03	0.16	0.01	0.02	0.03	N/A	N/A
		2880	0.04	0.07	0.13	0.07	0.14	0.02	0.08	0.04	0.24	0.01	0.03	0.03	N/A	N/A
7.5	TSJ090A	2250	0.03	0.05	0.09	0.05	0.09	0.01	0.05	0.02	0.14	0.01	0.02	0.02	N/A	N/A
		3000	0.05	0.08	0.13	0.07	0.15	0.02	0.09	0.04	0.26	0.01	0.03	0.03	N/A	N/A
		3600	0.05	0.10	0.17	0.09	0.22	0.02	0.12	0.06	0.39	0.02	0.04	0.05	N/A	N/A
8.5	TSJ102A	2550	0.04	0.06	0.11	0.06	0.11	0.01	0.06	0.03	0.19	0.01	0.02	0.03	N/A	N/A
		3400	0.05	0.09	0.16	0.09	0.20	0.02	0.11	0.05	0.34	0.02	0.03	0.04	N/A	N/A
		4080	0.06	0.12	0.20	0.1	0.28	0.03	0.15	0.07	0.50	0.03	0.05	0.06	N/A	N/A
10	TSJ120A	3000	0.05	0.08	0.13	0.07	0.15	0.02	0.09	0.04	0.26	0.01	0.02	0.03	0.05	N/A
		4000	0.06	0.12	0.20	0.10	0.27	0.03	0.15	0.07	0.48	0.03	0.02	0.03	0.05	N/A
		4800	0.07	0.16	0.25	0.12	0.39	0.03	0.20	0.09	0.71	0.05	0.03	0.04	0.06	N/A
12.5	TSJ150A	3750	0.05	0.09	0.16	0.08	0.24	0.02	0.13	0.06	0.42	0.02	0.02	0.03	0.05	N/A
		5000	0.07	0.13	0.22	0.1	0.42	0.04	0.22	0.10	0.78	0.06	0.02	0.03	0.05	N/A
		6000	0.09	0.16	0.27	0.12	0.60	0.05	0.31	0.13	1.16	0.10	0.03	0.04	0.06	N/A
15	TSJ180A	4500	0.03	0.05	0.09	0.04	0.13	0.02	0.13	0.02	0.24	0.15	0.01	0.02	0.02	N/A
		6000	0.04	0.08	0.13	0.05	0.20	0.04	0.20	0.04	0.41	0.27	0.01	0.04	0.04	N/A
		7200	0.06	0.10	0.17	0.07	0.27	0.05	0.27	0.05	0.58	0.38	0.02	0.06	0.06	N/A
17.5	TSJ210A	5250	0.04	0.06	0.11	0.05	0.16	0.03	0.16	0.03	0.32	0.20	N/A	0.03	0.03	0.03
		7000	0.05	0.10	0.17	0.06	0.26	0.05	0.26	0.05	0.55	0.36	N/A	0.06	0.06	0.06
		8400	0.07	0.13	0.22	0.08	0.35	0.06	0.35	0.06	0.78	0.52	N/A	0.09	0.09	0.09
20	TSJ240A	6000	0.04	0.08	0.13	0.05	0.20	0.04	0.20	0.04	0.41	0.27	N/A	0.04	0.04	0.04
		8000	0.07	0.12	0.21	0.08	0.32	0.06	0.32	0.06	0.71	0.47	N/A	0.08	0.08	0.08
		9600	0.09	0.16	0.27	0.10	0.44	0.07	0.44	0.07	1.01	0.68	N/A	0.12	0.12	0.12
25	TSJ300A	7500	0.06	0.11	0.19	0.07	0.29	0.05	0.29	0.05	0.63	0.42	N/A	0.07	0.07	0.07
		10000	0.09	0.17	0.29	0.11	0.48	0.08	0.48	0.08	1.10	0.74	N/A	0.13	0.13	0.13
		12000	0.12	0.23	0.39	0.14	0.66	0.11	0.66	0.11	1.57	1.06	N/A	0.20	0.20	0.20

[a] See below for restrictions:
Multi-speed, single zone VAV or multi-zone VAV applications are capable of running below 300 cfm/ton during low speed airflow operation.
[b] Tested with: 2-in filters 6 to 25 Tons.
[c] Difference in pressure drop should be considered when utilizing optional 2-in pleated filters.
[d] OA = Outside Air and RA = Return Air.

APPENDIX C – PREDICTED OCTAVE BANDS FROM CONTINUOUS SOURCES

Converted Limits from City Zoning Code*

Chapter 17.36, Table 1	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz
Converted Octave Band Limit (dBA)	75	75	70	62	55	49	43	37	35

* Chapter 17.36 Zoning - Industrial Uses, Section G. Chapter 17.36(G) states that, "in C-5 and M-1 districts, industrial noise shall be measured from any property line… the sound pressure level of noise shall not exceed the values given in Tables 1..." The Project is in an M-1 zoning district. Chapter 17.36(G)(1) Table 1 lists the maximum allowable octave band sound pressure levels for continuous sounds from a facility between the hours of 11:00 p.m. and 7:00 a.m.

Estimated Continuous Sound Levels & Compliance Assessment

ID	Property Line	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	Complies?
1	1025 Scituate Ave	46	41	42	37	34	30	22	13	0	**Yes**
2	1039 Scituate Ave	47	42	42	37	34	30	22	13	0	**Yes**
3	10-12 Sweet Pea Dr	48	42	42	37	34	30	22	13	0	**Yes**
4	14-16 Sweet Pea Dr	47	42	42	37	33	29	21	12	0	**Yes**
5	10-12 Sweet Corn Dr	46	40	40	37	35	34	27	18	0	**Yes**
6	5-7 Sweet Corn Dr	45	39	39	36	35	34	28	19	0	**Yes**
7	210 Comstock Pkwy	46	40	39	36	34	32	25	16	0	**Yes**
8	200 Comstock Pkwy	44	39	40	36	35	32	25	16	0	**Yes**
9	West Property Line	44	41	42	39	36	33	26	18	4	**Yes**
10	140 Comstock Pkwy	48	41	38	33	29	25	19	13	2	**Yes**
11	11 Amflex Dr	48	40	38	34	32	29	22	13	0	**Yes**
12	15 Amflex Dr	47	41	38	34	32	31	24	14	0	**Yes**
13	21 Amflex Dr	47	40	38	35	33	31	24	15	0	**Yes**
14	25 Amflex Dr	45	39	38	34	32	31	24	14	0	**Yes**
15	37 Amflex Dr	43	38	38	33	29	24	17	8	0	**Yes**

ID	Residence	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	Complies?
16	1025 Scituate Ave	45	39	39	36	34	32	26	17	0	**Yes**
17	1039 Scituate Ave	47	41	40	37	35	33	27	18	0	**Yes**
18	10-12 Sweet Pea Dr	47	42	43	39	37	34	27	18	1	**Yes**
19	14-16 Sweet Pea Dr	47	42	43	39	36	32	25	16	0	**Yes**