

ACOUSTIC REPORT Rev. 3
Survey of Existing Acoustic Conditions and Expected Acoustic Impacts at:
The Enclaves – 56655 Route 25 – Southold, NY

Prepared for:

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SUMMARY:

SoundSense visited the site of the proposed Enclaves Restaurant and Hotel (“Proposed Location”) on July 19th, 2019, during time periods requested by the community, to take ambient noise level readings. The main purpose of the site visit was to characterize the current acoustic nature of the neighborhood surrounding the Proposed Location, including the commercial properties on Route 25 as well as the residential property further setback off the roadway.

The measured sound levels were used in conjunction with the traffic study provided by Dunn Engineering Services (“Traffic Study”), in order to predict the potential increase in sound level at the receivers of concern due to both natural increase in traffic due to population growth and the further increase in sound level due to traffic entering and exiting the Proposed Location. This modeling included weekday peak hours, Saturday peak hour and traffic during Special Events, which are expected to occur only 8-12 times per year at the Proposed Location. This report also considers the acoustic impact of activities such as construction noise and outdoor sound reinforcement systems at the Proposed Location.

Additionally, the acoustic impacts of the as-of-right development of the property, including an office building and quality restaurant (“Alternate Site Plan”), were modeled based on the expected increase in traffic due to the Alternate Site Plan as detailed in the Traffic Study.

This report serves as the evaluation of the existing conditions at the Proposed Location, as well as the analysis of the expected acoustic impacts to be incorporated into the SEQRA review of the potential environmental impacts of the Proposed Location and the Alternate Site Plan.

This report is organized as follows:

- Section 1:** Equipment used to take acoustic readings.
- Section 2:** Discussion of Noise & Noise Criteria.
- Section 3:** Definitions of terms used throughout this report.
- Section 4:** Analysis of Existing Acoustic Conditions.
- Section 5:** Analysis of the Expected Acoustic Impacts.
- Section 6:** Proposed Mitigation Measures.
- Section 7:** Analysis of Alternate Site Plan.

SECTION 1 - EQUIPMENT:

- Frequency Analyzer: Bruel & Kjaer Model 2250, Serial No. 2739677
- Type 1 Microphone: Bruel & Kjaer Model 4190, Serial No. 2731530
- Sound Calibrator: Bruel & Kjaer Model 4231, Serial No. 2730164

NOTE: All equipment was factory calibrated within the past year. Additionally, the microphone is Type 1 per ASTM Standards and was calibrated before and after the readings.

SECTION 2 – DISCUSSION OF NOISE & ACOUSTIC CRITERIA:

2.1 Annoyance by Sound

Annoyance by sound is a response to auditory experience. The standard acoustic ruler is that any sound that exceeds the background noise level by 5 dB(A) or more has the potential to be an annoyance (see Section 2.2).

2.2 Subjective Perception of Actual Sound Energy Change

Sound or noise is measured in decibels (dB). As sound increases or decreases, decibels increase or decrease logarithmically - not arithmetically. The doubling of the volume of a sound only shows a ten-point increase in dB. For example, one TV set at a normal conversational level is about 60 dB. Ten TV sets at the same volume will sound twice as loud and register about 70 dB.

Table 2.2.1: Subjective Perception of Actual Sound Energy Change

<u>dB change</u>	<u>Subjective perception</u>	<u>Sound energy change</u>
0 - 3 dB	Barely perceivable	50 %
4 - 5 dB	Perceivable and significant	69 %
6 dB	Double sound pressure	75 %
7 - 9 dB	Major perceived increase	87 %
10 dB	Double loudness, 10x power	90 %

2.3 Town of Southold Noise Ordinance – Chapter 180

§ 180-5 General prohibition.

No person or persons owning leasing or controlling the operation of any source of noise on any lot or structure within the Town shall permit the establishment of a condition of noise pollution. Except as provided in §180-6, the use of amplifiers, speakers or other machines or devices capable of reproducing amplified or airborne sound from the premises, dwelling or building within the Town shall be considered noise pollution and shall be prohibited at all times.

SECTION 2 – DISCUSSION OF NOISE & ACOUSTIC CRITERIA (Continued):**2.3 Town of Southold Noise Ordinance – Chapter 180 (Continued)**

§ 180-6 Standards.

No person shall create or cause to be emitted any noise pollution which when measured on a sound-level meter from the property line of a complaining property owner exceeds the following standards:

A. Sunday through Thursday:

- (1) From 7:00 a.m to 7:00 p.m., airborne or amplified sound in excess of 65 dBA; and
- (2) From 7:00 p.m. to 7:00 a.m., airborne or amplified sound in excess of 50 dBA.

B. Friday and Saturday:

- (1) From 7:00 a.m to 11:00 p.m., airborne or amplified sound in excess of 65 dBA; and
- (2) From 11:00 p.m. to 7:00 a.m., airborne or amplified sound in excess of 50 dBA.

§ 180-7 Exceptions.

A. The provisions of §§180-5 and 180-6 shall not apply to the following:

- (2) Construction activities between 7:00 a.m. through 7:00 p.m. and the associated use of construction devices or the noise produced thereby, provided that such activities and such equipment and their use comply with the other provisions hereof.
- (6) Nonamplified noise generated from lawful athletic or recreational activities, events or facilities.
- (11) Emergency construction or repair work.

SECTION 2 – DISCUSSION OF NOISE & ACOUSTIC CRITERIA (Continued):
2.4 New York State Department of Environmental Conservation, “Assessing and Mitigating Noise Impacts”
Table 2.4.1: NYSDEC Thresholds for Significant Sound Pressure Level (SPL) Increase

Sound Level Increase (dB)	Impact	Need for Mitigation
0 – 3	No appreciable effect on receptors	No need
3 – 6	Potential for adverse noise impact in cases where the most sensitive of receptors are present	Mitigation may be needed for some sensitive receptors
6 – 10	Potential for adverse noise impact depending on existing SPL and character of surround land use and receptors	Mitigation may be needed for most receptors, depending on existing conditions
10 or more	Adverse impact	Deserves consideration of avoidance and mitigation measures in most cases

2.5 HUD Site Acceptability Standards

Noise Zone	Day-night average sound level (in decibels)	Special approvals and requirements
Acceptable	Not exceeding 65 dB	None
Normally Unacceptable	Above 65 dB but not exceeding 75 dB	<ul style="list-style-type: none"> Environmental assessment and attenuation required for new construction Attenuation strongly encouraged for major rehabilitation
Unacceptable	Above 75 dB	<ul style="list-style-type: none"> Environmental impact statement required Attenuation required for new construction with approval by the Assistant Secretary of CPD or certifying officer

SECTION 3 - DEFINITIONS:

3.1 Ambient

Definition: In this document ambient refers to that sound level when there were no noises of concern. This is a critical value, since it is the level that determines the degree of annoyance of a noise.

3.2 Decibel (dB)

Definition: The term used to identify ten times the common logarithm of the ratio of two like quantities proportional to power or energy. Thus, one decibel corresponds to a power ratio (10 to the 0.1 power) to the n power. Since the decibel expresses the ratio of two like quantities, it has no units.

Note: A-Weighting (dBA) – This weighting metric is commonly applied to sound pressure levels as it is an approximation of the hearing response of the human ear which is more responsive to higher frequencies than lower frequencies.

3.3 Equivalent-Continuous Sound Level (Leq)

Definition: Equivalent-continuous, frequency-weighted sound pressure level over a specified averaging time is the equivalent steady level, in that time interval, of the time-mean-square, frequency-weighted sound pressure produced by the sources of steady, fluctuating, intermittent, irregular, or impulsive sounds.

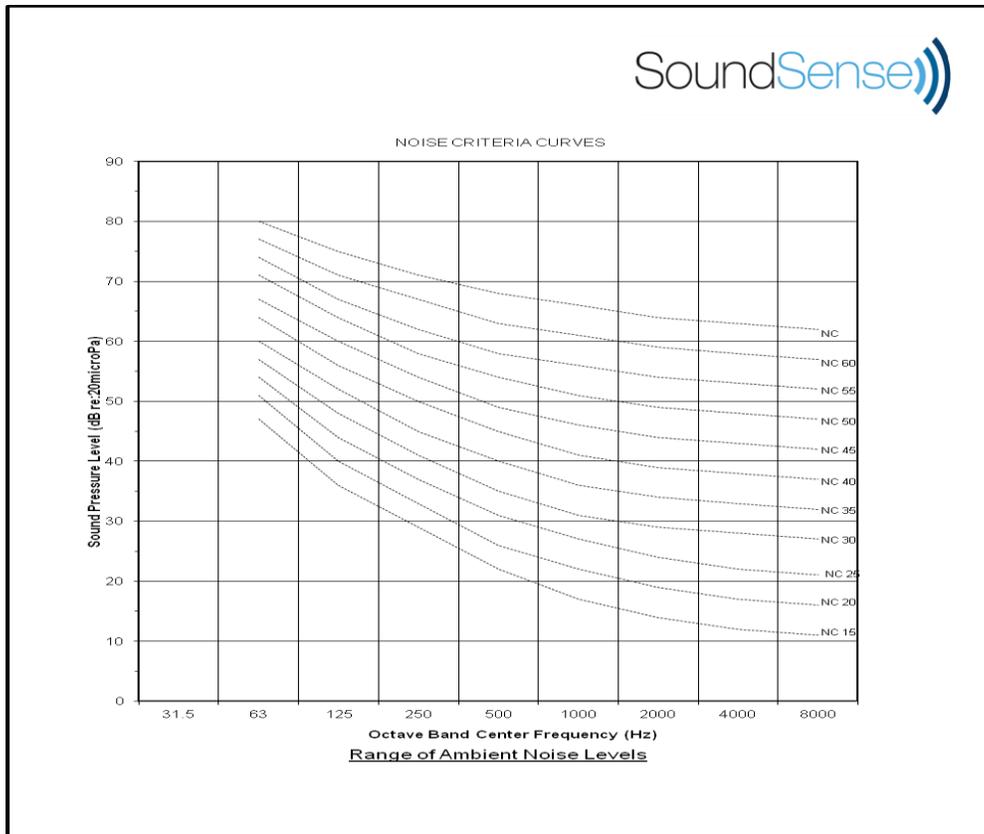
The equivalent-continuous sound level of a time-varying sound is equal to the level of an equivalent steady sound at a measurement location for the same measurement duration. Specifically, Leq is 10 times the common logarithm of the ratio of the time-mean-square sound pressure $p^2(t)$ over time period $T = T_2 - T_1$ to the square of the standard reference sound pressure $p_0^2(t)$. Measured in dB the Leq is:

$$L_{eq} = 10 \cdot \log_{10} \left(\frac{\int_{T_1}^{T_2} p^2(t) \cdot dt}{p_0^2(t)} \right)$$

SECTION 3 – DEFINITIONS (Continued):

3.4 Noise Criteria (NC)

Definition: A numerical rating that is a guide to specifying the number that should not be exceeded in order to minimize the interfering effect of noise on sleep or concentration.



Type of Room	NC Range
Home Theaters and Media Rooms	15-25
Bedrooms, Dining Rooms	25-30
Study	25-35

3.5 Standards

The information within this findings document is based on the ASTM Standards. Any variation to the ASTM criteria is based on additional research by such groups as the Acoustic Society of America and INCE that focuses on the well-being of humans in the presence of noise.

SECTION 3 – DEFINITIONS (Continued):

3.6 Statistical Sound Levels (L10, L50, L90, etc.)

The sound level that is exceeded for the percentage of time of that level during a period of time. Example: During a 1-hour measurement, an L10 of 60 dBA means the sound level was at or above 60 dBA for a total of 4 minutes, whereas an L90 of 60 dBA means the sound level was at or above 60 dBA for a total of 54 minutes. This is often used to demonstrate ambient sound levels.

SECTION 4 – ANALYSIS OF EXISTING CONDITIONS:

4.1 Ambient Measurements at Proposed Location and Nearby Receivers

Daytime ambient sound level measurements were taken at several receivers near the Proposed Location, as shown in **Figure 4.1.1**. Locations were selected in order to characterize the acoustic environment of the property and surrounding areas. Access to the majority of the property was limited due to vegetation growth. Location 1 was selected in order to characterize the existing ambient sound pressure levels at the front of the property and characterize the acoustic environment at the street and to the nearby commercial receivers. During collection of acoustic data at Location 1, timestamps were collected of various acoustic events such as various car passbys in order to utilize in future calculations for this acoustic study related to traffic. Locations 2-4 characterize the acoustic conditions in the rear of the existing home and commercial businesses. Collectively, all the acoustic data gathered provides a clear picture of the existing soundscape of the area. Readings were collected as close to nearby residential receivers as possible. In addition to the location, the time of the acoustic readings were selected in order to survey a variety of acoustic conditions. For example, acoustic readings were collected during the day in order to characterize typical sounds due to traffic and acoustic readings collected during the nighttime readings were coordinated with a passby of an LIRR train at to the North of the property.

An acoustic consultant remained with the meter for the duration of each 20-minute measurement period, noting the activities contributing to the soundscape of the area, and noting high sound level events such as car and truck pass-bys. The existing ambient soundscape in the area of the Proposed Location is characterized mainly by traffic on Route 25, which includes cars, busses, mid and large-sized trucks, emergency vehicles and motorcycles, as well as the nearby LIRR commuter train route, planes, and helicopters.

Results of the ambient sound level measurements can be found in **Table 4.1.1** below.

SECTION 4 – ANALYSIS OF EXISTING CONDITIONS (Continued):
4.1 Ambient Measurements at Proposed Location and Nearby Receivers (Continued)
Figure 4.1.1. Locations of Ambient Measurements near Proposed Location

Table 4.1.1: Weekday Ambient Sound Levels at Receivers near the Proposed Location on Thursday July 19th, 2019

Measurement Location	Time Period	LAeq (dBA)	LASmin (dBA)	LASmax (dBA)	L01 (dBA)	L10 (dBA)	L50 (dBA)	L90 (dBA)
Location 1	12:24pm – 12:46pm	62	42	85	70	64	59	51
	7:47pm – 8:04pm	60	43	69	68	64	58	48
Location 2	12:52pm – 1:13pm	45	38	54	52	48	43	40
	8:06pm – 8:26pm	47	39	66	58	49	43	40
Location 3	1:14pm – 1:34pm	46	37	56	53	50	44	40
	8:27pm – 8:47pm	44	38	58	53	47	43	40
Location 4	1:35pm – 1:46pm	43	37	53	50	46	43	39
	8:48pm – 9:09pm	47	38	61	59	48	45	43

The measured sound levels are typical of a residential area nearby a busy roadway. The sound levels at Location 1, which are representative of the acoustic environment at the commercial and residential receivers on Route 25, are dominated by the traffic sounds on Route 25.

SECTION 4 – ANALYSIS OF EXISTING CONDITIONS (Continued):

4.1 Ambient Measurements at Proposed Location and Nearby Receivers (Continued)

The effect of Route 25 on Location 1 is especially evident in the elevated LAeq and L90 measurements which are typically used to characterize the background noise levels. The sound levels at Locations 2, 3 and 4 are generally consistent and represent the acoustic environment at the residential receivers to the east of the Proposed Location. These measured sound levels are typical of semi-rural residential areas and are used in the modeling of the expected acoustic impacts due to the Proposed Location, which can be found in Section 5 of this report.

SECTION 5 – ANALYSIS OF EXPECTED IMPACTS:

5.1 Expected Impact of Increased Traffic due to Proposed Location

SoundSense modeled the expected change in sound level at the four receivers of interest based on the expected increase in traffic documented in the traffic study by Dunn Engineering Services (“Traffic Study”). **Table 5.1.1** shows the expected increase in the L10 and L90 sound levels based on the expected increase in traffic due to linear natural background traffic growth. **Table 5.1.2** shows the expected further change in sound level at the four receivers due to entering and exiting traffic at the Proposed Location.

In order to determine the worst-case scenario impacts for each receiver, the baseline sound levels were selected to be either the morning or evening readings, depending on which time of day was generally quieter at each location. In this way, the analysis shows the expected worst-case scenario impact if all of the additional traffic occurred during the quietest periods of the day at each receiver. For this analysis, the evening sound levels were used for Locations 1 and 3, while the early afternoon sound levels were used for Locations 2 and 4.

Table 5.1.1: Expected Sound Levels at Receiver Locations due to Background Traffic Growth in Summer 2020, No Build

Receiver	Condition	Expected Change in L10 from Existing Conditions (dBA)	Expected Change in L90 from Existing Conditions (dBA)
Location 1	2020 No Build – Weekday Peak Hour	0.6	2.4
	2020 No Build – Saturday Peak Hour	0.9	4.3
Location 2	2020 No Build – Weekday Peak Hour	0.4	0.6
	2020 No Build – Saturday Peak Hour	0.7	1.0
Location 3	2020 No Build – Weekday Peak Hour	0	0.7
	2020 No Build – Saturday Peak Hour	0	1.0
Location 4	2020 No Build – Weekday Peak Hour	0.5	0.5
	2020 No Build – Saturday Peak Hour	0.9	0.8

SECTION 5 – ANALYSIS OF EXPECTED IMPACTS (Continued):
5.1 Expected Impact of Increased Traffic due to Proposed Location (Continued)
Table 5.1.2: Expected Further Sound Level Increases at Receiver Locations due to Proposed Location in Summer 2020

Receiver	Condition	Expected Change in L10 (dBA)	Expected Change in L90 (dBA)	Expected Impact
Location 1	2020 Build – Weekday Peak Hour	0.7	3.0	No Impact
	2020 Build – Saturday Peak Hour	1.1	2.1	No Impact
	2020 Build – Special Events	1.8	3.8	Potential Impact
Location 2	2020 Build – Weekday Peak Hour	0.6	0.7	No Impact
	2020 Build – Saturday Peak Hour	0.7	0.8	No Impact
	2020 Build – Special Events	0.7	1.1	No Impact
Location 3	2020 Build – Weekday Peak Hour	0	0.4	No Impact
	2020 Build – Saturday Peak Hour	0	0.6	No Impact
	2020 Build – Special Events	0	0.7	No Impact
Location 4	2020 Build – Weekday Peak Hour	0.5	0.7	No Impact
	2020 Build – Saturday Peak Hour	0.6	0.8	No Impact
	2020 Build – Special Events	0.7	1.3	No Impact

The L90 value is most often used to characterize the ambient sound level in an area. The L90 value is the value which is exceeded 90% of the time of a measurement. Conversely, the L10 value is that which is exceeded only 10% of the time of a measurement. The L10 value is often used to characterize an impulsive environmental acoustic disturbance and often correlates with the community reaction to the noise.

As shown in **Table 5.1.2** above, only one condition is expected to result in an exceedance of the 3 dB threshold for potential acoustic impact. This would occur only for the expected worst-case L90 value at Location 1 during a Special Event at the Proposed Location, which is expected to take place only 8-12 times per year. All other conditions at all receivers result in a differential of less than or equal to 3 dB, which represents an unnoticeable change in the sound levels at these receivers, and therefore is expected to have no acoustic environmental impact on the receivers. Based on this analysis, SoundSense expects that the Proposed Location will not negatively impact the nearby residential and commercial receivers.

SECTION 5 – ANALYSIS OF EXPECTED IMPACTS (Continued):

5.2 Expected Impact of Typical Site Activities

The Proposed Location will sometimes use an outdoor sound reinforcement system to play music on the property during daytime hours of operation. A limiter will be placed on this system to ensure that the resulting sound levels cannot exceed the limits set in the Town of Southold Noise Ordinance for commercial music, which SoundSense has done in the past with success. As discussed in **Section 2.3** of this report, the Town of Southold Noise Code Limits are as follows: Sunday through Thursday, 65 dB(A) between 7am and 7pm and 50 dB(A) between 7pm and 7am; Friday and Saturday, 65 dB(A) between 7am and 11pm and 50 dB(A) between 11pm and 7am. Additionally, the speaker layout will be reviewed to minimize the impact of direct acoustic waves. Therefore, no impact is expected on the nearby receivers due to the outdoor sound reinforcement system. The speaker equipment selection and layout can be reviewed by an acoustical consultant once provided by the AV consultant.

Additionally, the Proposed Location will have an outdoor pool and play court area. The sound levels generated at these locations are not expected to negatively impact the neighboring receivers, as the building itself serves as a natural acoustic barrier to the residential receivers to the east. Additionally, landscaping will be included which will inhibit direct reflections which could amplify the noise.

5.3 Expected Impact of Construction Noise

The construction phase of the project is expected to last 18-22 months and will occur on weekdays between 8am and 5pm and Saturdays between 9am and 4pm. The Town of Southold Noise Code does not apply to construction noise generated between 7am and 7pm, any day of the week. Although the Town of Southold Noise Ordinance does not apply to construction noise during the proposed periods of time, it is possible to reduce the expected impact of the construction noise on the neighboring receivers. Acoustic barriers can be utilized during the construction period to minimize the impact of the construction activities on the surrounding residential and commercial receivers. The requirements of these barriers can be calculated once the construction plan for the Proposed Location is completed and the expected sound levels of the necessary equipment is known.

5.4 Expected Impact of Special Events

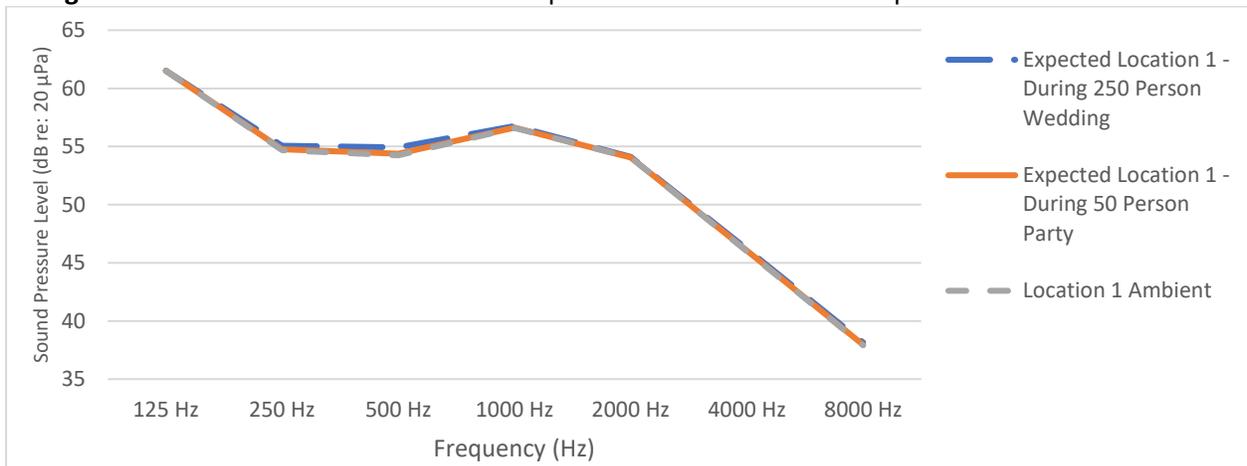
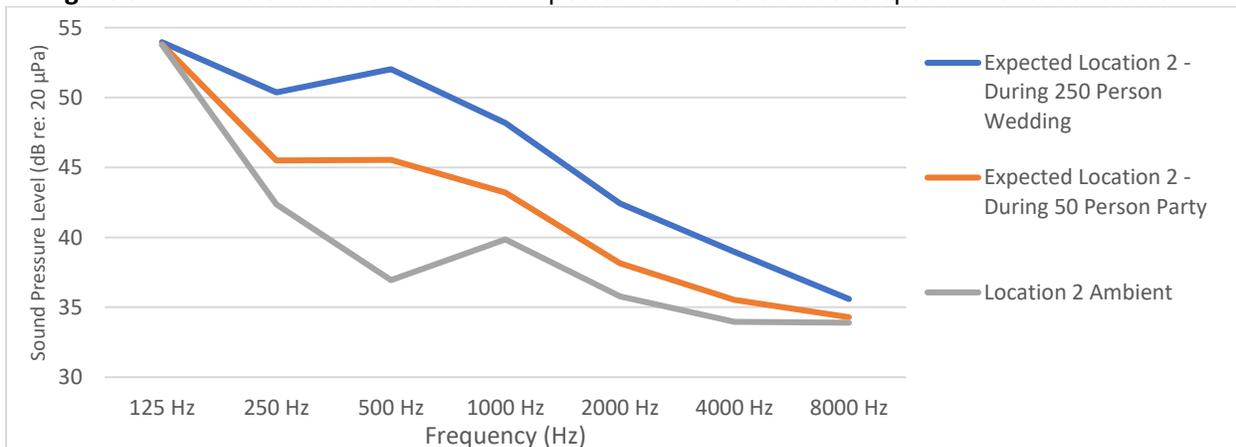
In addition to the traffic generated by the Proposed Location, sound levels during special events and their impact on neighboring receivers are also a concern. The project sponsor expects that these types of events will include weddings, fundraising events and other small private gatherings. The expected sound levels of two types of special events were modeled at the four receivers of interest; a 250-person outdoor wedding and a 50-person outdoor party. Both of these types of events would take place on the front lawn/sculpture garden area of the property, but only one event would take place at any time.

Average sound level spectra for male and female speaking voices at a raised voice effort level were used to calculate the expected sound levels at the receivers of concern, based on a 50-50 gender split of the attendees at these events. Any music played through the sound reinforcement system during the event will be required to meet Town of Southold Noise Ordinance limits through the use of a limiter on the system as described above in **Section 5.2**, and as such is not included in this analysis. The expected sound levels of these events can be found in **Table 5.4.1** and **Figures 5.4.1-4** below.

SECTION 5 – ANALYSIS OF EXPECTED IMPACTS (Continued):
5.4 Expected Impact of Special Events (Continued)
Table 5.4.1: Ambient Sound Levels and Expected Sound Levels due to Special Events at Locations 1-4

Location	Existing LAeq (dBA)	Expected LAeq – 250 Person Wedding (dBA)	Expected LAeq – 50 Person Party (dBA)	Town of Southold Noise Code Daytime Limit
Location 1 (~270ft* from Proposed Event Location)	60	60	60	65
Location 2 (~150ft* from Proposed Event Location)	45	53	48	65
Location 3 (~220ft* from Proposed Event Location)	44	50	46	65
Location 4 (~130ft* from Proposed Event Location)	43	53	48	65

*Please refer to Figure 4.1.1 regarding position of measurement Locations 1-4

Figure 5.4.1. Ambient Sound Levels and Expected Sound Levels due to Special Events at Location 1

Figure 5.4.2. Ambient Sound Levels and Expected Sound Levels due to Special Events at Location 2


SECTION 5 – ANALYSIS OF EXPECTED IMPACTS (Continued):

5.4 Expected Impact of Special Events (Continued)

Figure 5.4.3. Ambient Sound Levels and Expected Sound Levels due to Special Events at Location 3

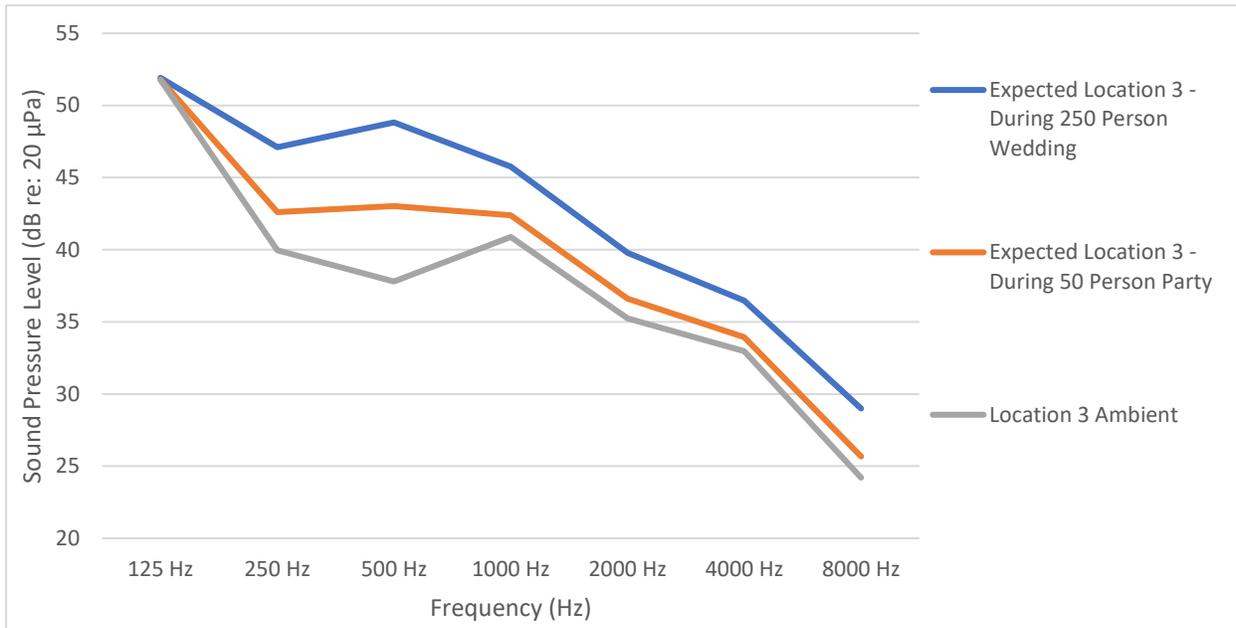
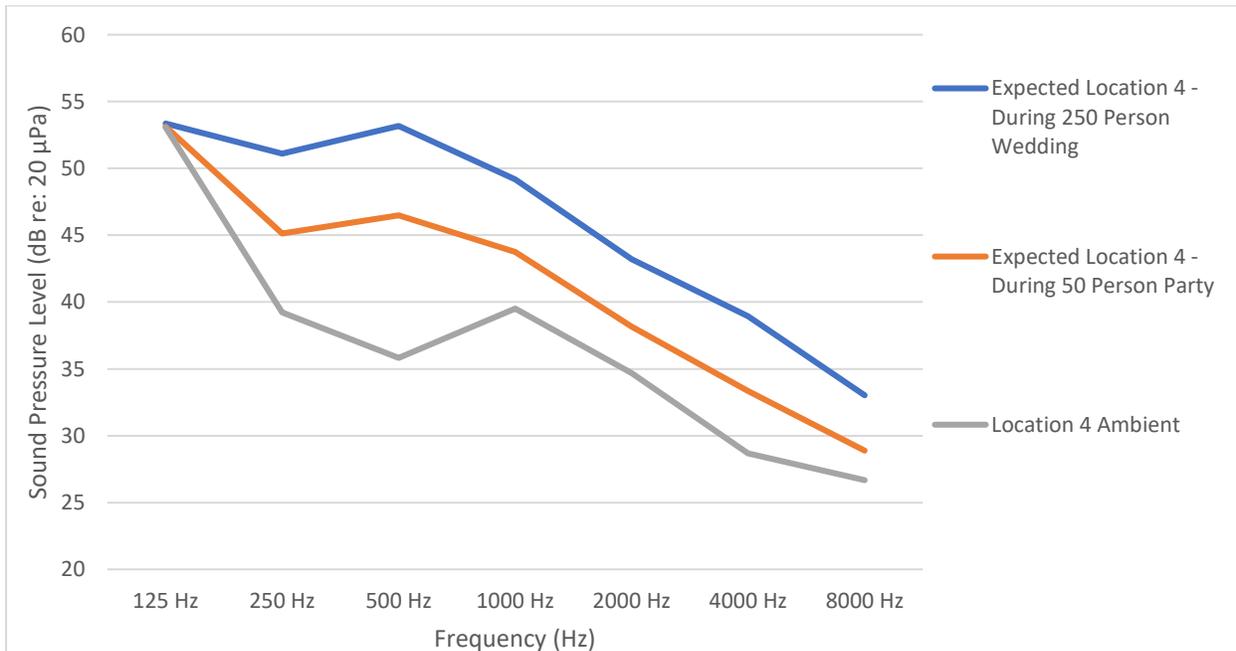


Figure 5.4.4. Ambient Sound Levels and Expected Sound Levels due to Special Events at Location 4



SECTION 5 – ANALYSIS OF EXPECTED IMPACTS (Continued):

5.4 Expected Impact of Special Events (Continued)

Whereas the previous analysis showed that the expected increase in traffic is not expected to be a disturbance to the neighboring properties during special events, the expected sound levels due to special events is expected to represent a significant disturbance to the neighboring properties based on the differential between the ambient sound level and the expected sound level due to special events. The sound levels at Location 1 are not expected to be impacted by the Special Events, as the acoustic character of this area is already dominated by the traffic on Route 25. However, at Locations 2-4 the overall sound level is expected to increase by 6-10 dBA for the 250-person wedding events and 3-5 dBA for the 50-person parties. Additionally, the octave band sound levels are expected to be as much as 17 dB above ambient sound levels in select octave band during the 250-person wedding events and as much as 10 dB above ambient in select octave bands during 50-person parties. While these events may only occur 8-12 times per year, the acoustic impact to the neighboring receivers during these events will be noticeable and significant.

That being said, these events will only violate the 50 dBA limit set by the Town of Southold Noise Code if these sound levels occur after 7pm on Sunday through Thursday and after 11pm on Friday and Saturday. The project sponsor has stated that special events are expected to take place approximately 8-12 times per year and will occur between 6pm to 10pm on Fridays, 2pm to 11pm on Saturdays and 2pm to 6pm on Sundays. Therefore, no events are expected to occur during the time periods for which the nighttime noise code limit of 50 dB(A) would apply as set forth in the Town of Southold Noise Code. For no location is the sound level due to special events expected to violate the 65 dB(A) limit set by the Town of Southold Noise Code for daytime sound levels, which is the only time special events are expected to occur.

As discussed in **Section 5.2** of this report, the effects of the sound reproduction system is not incorporated into this special event analysis, as this system will already be required to have a limiter which will be set such that it is not possible to exceed the Town of Southold noise level limits for daytime or nighttime overall sound level at the nearest receivers. This applies to both music that will be played through the sound reproduction system as well as public speaking and officiating which will be amplified through the same sound reproduction system. Additionally, the speakers for special events will be arranged such that they face away from the residential receivers to the east of the property. As most event-grade speakers are directional, and emanate their energy primarily in the direction they face, the majority of the sound energy from the speakers will be directed towards the western side of the property, and is not expected to impact the residential receivers as much as the omni-directional nature of a crowd of human speaking voices.

Recommendations to reduce the sound levels due to these Special Events at the neighboring residential receivers can be found in **Section 6** below.

SECTION 6 – RECOMMENDED MITIGATION MEASURES:

6.1 Recommended Mitigation to Address Airborne Noise due to Proposed Location during Typical Operation

At this time, SoundSense has mathematically determined, based on extensive acoustic readings and related analysis, that mitigation measures are not necessary to address the airborne sound levels due to the Proposed Location for typical operations, as the analysis of the expected sound levels has revealed that there is no impact expected for the nearby commercial and residential receivers during typical operation of the Proposed Location.

6.2 Recommended Mitigation to Address Airborne Noise due to Proposed Location during Special Events

SoundSense has determined that the Special Events held at the Proposed Location 8-12 times per year could potentially result in a significant acoustic disturbance at the neighboring residential receivers (Locations 2-4) if no acoustic treatment measures are implemented. However, with mitigation, the acoustic impact can be reduced significantly to the extent that a disturbance would not occur. Such mitigation can include the installation of a temporary acoustic barrier during Special Events to reduce the sound levels as received at the neighboring residential receivers. This barrier can be placed along the eastern edge of the event, should it occur on the lawn in front of the hotel, and can be movable to optimize the location and the efficiency of the barrier. This acoustic barrier could include a typical fence construction lined with an acoustic material such as SoundSense QB-12-EXT, or an approved equivalent, and the acoustic material must make full contact with the ground. The required height of the barrier will vary depending on the location and can be calculated for maximum efficacy depending on the type and location of the event. Alternatively, if an event is held within a tent on the property, an acoustic barrier can be incorporated into the side of the tent facing the residential properties to the east. Additionally, if an event is held at the pool area of the Proposed Location, the building itself will act as an acoustic barrier between the event and the residential receivers. Furthermore, a limiter should be implemented on the sound reproduction system to ensure that the requirements of the Town of Southold Noise Code are met for the amplified sound during these events. Implementation of the recommended mitigation measures would be expected to reduce noise levels to the extent that no significant adverse impacts to the neighboring properties would occur.

SECTION 7 – ANALYSIS OF ALTERNATE SITE PLAN:

7.1 Description of Alternate Site Plan

The alternate site plan (“Alternate Site Plan”) was developed as an as-of-right use of the same property as the Proposed Location. The Alternate Site Plan includes an office building and a quality restaurant. Expected increases in traffic due to the Alternate Site Plan were obtained from the Traffic Study in order to model the expected impact of the Alternate Site Plan on the nearby commercial and residential receivers.

7.2 Expected Impact of Increased Traffic due to As-of-Right Development

SoundSense modeled the expected change in sound level at the four receivers of interest based on the expected increase in traffic due to the Alternate Site Plan documented in the Traffic Study. **Table 7.2.1** shows the expected further change in sound level beyond the linear background traffic growth expected for Summer 2020 at the four receivers due to entering and exiting traffic at the Alternate Site Plan. As in the previously discussed analysis of the Proposed Location, the worst-case scenario sound levels were used in order to determine the impact if all additional traffic occurred at the quietest time of day at each receiver.

Table 7.2.1: Expected Further Sound Level Increases at Receiver Locations due to Alternate Site Plan in Summer 2020

Receiver	Condition	Expected Change in L10 (dBA)	Expected Change in L90 (dBA)	Expected Impact
Location 1	2020 Build – Weekday Peak Hour	1.3	4.0	Potential Impact
	2020 Build – Saturday Peak Hour	0.8	1.7	No Impact
Location 2	2020 Build – Weekday Peak Hour	1.1	1.3	No Impact
	2020 Build – Saturday Peak Hour	0.7	0.7	No Impact
Location 3	2020 Build – Weekday Peak Hour	0	0.9	No Impact
	2020 Build – Saturday Peak Hour	0	0.4	No Impact
Location 4	2020 Build – Weekday Peak Hour	0.9	1.2	No Impact
	2020 Build – Saturday Peak Hour	0.5	0.7	No Impact

As shown above, the additional traffic due to the Alternate Site Plan is not expected to negatively impact the nearby receivers in most cases. However, at Location 1 there is expected to be a noticeable change in the L90 level during weekday peak hours. Unlike the special event condition of the Proposed Location, this condition is expected to occur all weekdays during peak traffic hours, as opposed to only during special events and may represent a more noticeable and adverse impact on Location 1.

Appendix A: Additional Sound Level Data

Table A.1: 1/3rd Octave Band Ambient Sound Levels at Receivers Near the Proposed Location on Thursday July 19th, 2019

	LZeq 20Hz	LZeq 25Hz	LZeq 31.5Hz	LZeq 40Hz	LZeq 50Hz	LZeq 63Hz	LZeq 80Hz	LZeq 100Hz	LZeq 125Hz	LZeq 160Hz	LZeq 200Hz
Location 1 - 12:24pm to 12:46pm	54.67	60.52	58.84	60.9	61.08	66.02	62.3	59.7	59.17	56.19	53.99
Location 2 - 12:52pm to 1:13pm	47.86	53.42	52.43	50.37	51.21	52.52	52.47	50.6	50.08	43.35	40.04
Location 3 - 1:14pm to 1:34pm	47.19	52.62	49.71	51.16	55.2	52.56	51.59	52.74	49.41	42.45	37.52
Location 4 - 1:35pm to 1:46pm	46.86	54.65	49.87	52.42	55.54	52.9	50.57	50.91	48.21	41.17	37.38
Location 1 - 7:47pm to 8:04pm	55.89	57.58	59.38	59.04	58.12	59.1	59.91	58.09	57	54.32	51.86
Location 2 - 8:06pm to 8:26pm	48.62	54.43	51.23	49.8	52.86	59.68	59.54	53.74	48.72	45.49	39.95
Location 3 - 8:27pm to 8:47pm	45.85	52.82	48.34	51.64	50.97	53.86	52.18	49.04	46.93	43.25	38.22
Location 4 - 8:48pm to 9:09pm	45.84	54.04	50.17	51.46	54.55	53.47	53.42	56.12	48.79	43.04	40.66

	LZeq 250Hz	LZeq 315Hz	LZeq 400Hz	LZeq 500Hz	LZeq 630Hz	LZeq 800Hz	LZeq 1kHz	LZeq 1.25kHz	LZeq 1.6kHz	LZeq 2kHz
Location 1 - 12:24pm to 12:46pm	52.62	52.4	51.25	51.31	51.98	53.16	54.39	55.59	51.75	49.51
Location 2 - 12:52pm to 1:13pm	36.97	33.23	31.29	32	33.03	35.16	35.58	34.44	33.06	30.67
Location 3 - 1:14pm to 1:34pm	33.71	32.01	29.05	29.95	31.72	33.76	34.18	33.72	32.85	30.57
Location 4 - 1:35pm to 1:46pm	32.97	29.68	28.79	30.83	32.67	34.85	35.05	34.31	32.36	29.22
Location 1 - 7:47pm to 8:04pm	49.3	47.4	48.45	49.29	50.43	52.16	52.12	51.14	50.96	49.31
Location 2 - 8:06pm to 8:26pm	34.78	38.03	39.99	37.71	38.3	39.79	37.28	34.54	32.08	28.59
Location 3 - 8:27pm to 8:47pm	32.59	31.62	31.89	32.71	34.19	36.21	37.3	34.34	32.66	30.03
Location 4 - 8:48pm to 9:09pm	37.24	36.68	35.78	36.48	37.3	37.83	36.88	35.29	33.5	32.27

	LZeq 2.5kHz	LZeq 3.15kHz	LZeq 4kHz	LZeq 5kHz	LZeq 6.3kHz	LZeq 8kHz	LZeq 10kHz	LZeq 12.5kHz	LZeq 16kHz	LZeq 20kHz
Location 1 - 12:24pm to 12:46pm	47.85	45.88	43.06	40.81	38.12	35.05	31.69	28.85	24.28	17.95
Location 2 - 12:52pm to 1:13pm	27.76	27.45	29.36	30.32	31.55	29.88	17.1	14.86	11	8.96
Location 3 - 1:14pm to 1:34pm	30.09	34.38	35.62	35.82	36.15	34.5	24.8	22.64	15.52	9.41
Location 4 - 1:35pm to 1:46pm	25.77	24.14	24.49	22.99	22.66	23.43	17.8	10.41	9.17	8.32
Location 1 - 7:47pm to 8:04pm	46.4	43.5	40.45	37.95	35.62	32.06	29.64	25.27	21.75	16.74
Location 2 - 8:06pm to 8:26pm	33.7	31.25	29.54	32.24	26.72	26.1	15.14	9.23	9.28	7.55
Location 3 - 8:27pm to 8:47pm	26.86	23.51	21.07	32.13	22.4	18.68	11.96	9.42	8.73	7.94
Location 4 - 8:48pm to 9:09pm	29.13	23.13	27.9	40.84	25.5	15.41	23.14	11.82	10.63	9.58