SOUND STUDY

850 ROUTE 28, LLC.
TOWN OF KINGSTON, NY

November 2019
12-Hour Ambient Sound Study

Prepared for:
850 Route 28, LLC.
Town of Kingston, New York 12401

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H2H GEOSCIENCE ENGINEERING

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

At the request of Medenbach and Eggers, H2H Geoscience Engineering, PLLC (H2H) has prepared this report on the 12-hour sound study conducted at 850 Route 28, Town of Kingston, Ulster County New York (Site) on September 24, 2019. This report provides data in support of H2H's previously submitted February, 2019 sound study report. This supplemental study and report were undertaken to address new information and concerns raised by the public subsequent to the February, 2019 submission.

1.1 PURPOSE

This supplemental report has been prepared to identify and evaluate the potential impacts on state lands north and east of the Site which may result from the proposed Site development work by 850 Route 28, LLC. (850 Rt. 28) as part of a phased construction project to build two manufacturing structures on Site. Due to the volume of material being excavated to accommodate the building footprints, 850 Rt. 28 is proposing to drill, blast, process, and stockpile the excavated consolidated bedrock material on Site for future removal. Crushing and processing would be completed using a mobile crushing plant. These activities would only occur until site development is completed. Thereafter, there will be sound generated form manufacturing activities. This supplemental report evaluates the potential noise impacts associated with both the proposed temporary and ongoing activities.

1.2 SCOPE

H2H collected 12-hour ambient sound levels at three locations on-site to determine how the proposed project could affect ambient sound levels on lands adjacent to the site owned by New York State (NYS). Evaluation of the collected sound levels were compared to applicable standards as stated in the NYS Department of Environmental Conservation (NYSDEC) Noise Guidance, "Assessing and Mitigating Noise Impacts", dated October 6, 2000, revised February 2, 2001 and other local ordinances (Appendix A).

2.0 AMBIENT NOISE MONITORING

2.1 EXISTING AMBIENT CONDITIONS

A 12-hour ambient sound monitoring survey was conducted on September 24, 2019 to acoustically characterize the existing environment at and near the site. Specifically, sound level measurements were collected at the northern and western property boundary to establish real-time sound level measurements or equivalent energy levels (L_{eq}) with no operations taking place on site. The 12-hour ambient sound level data is attached as Appendix D.

H2H performed the following to define the equivalent sound levels at the property boundary:

- Determined equivalent sound levels along the Site property boundary with NYS Lands.
- Measured sound pressure increase and identified characteristics that would represent a significant noise impact at a receptor location.

2.2 AMBIENT SOUND MONITORING LOCATIONS

Sound level meters were placed at strategic locations along the present Site property boundary and close to select potential noise-sensitive receptor locations. More specifically, the locations represent straight line distances between a proposed noise source and a known feature on the NYS land. Figure 1 shows the

location of each monitoring location that have been identified on the list below. Monitoring locations were selected to best categorize ambient sound levels at the site's property boundary adjacent to potential receptors located on NYS Lands. Monitoring location 1 (M-1) is located in the northeast corner of the Site, monitoring Location 2 (M-2) is located in the northern property boundary bordering Pickerel Pond, and monitoring location (M-3) is located in the western property boundary closest to Onteora Lake.

Monitoring Locations	Surface Elevation (Feet amsl)	Potential Receptor Elevation (Feet amsl)
M-1	538	530- 460
M-2	466	460
M-3	434	428

2.3 METHODOLOGY

Three sound level meters, one at each location operated continuously for twelve hours (6:00 A.M to 6:00 PM) on Tuesday, September 24, 2019. The sound study was conducted to collect sound level data during all portions of the proposed operating hours to collect an accurate representation of local equivalent sound levels at the property boundary of the site.

2.3.1 Instrumentation

Sound level measurements were recorded using three tripod-mounted Quest SoundPro SE/DL sound level meters. This meter complies with Type 2 tolerance requirements of the American National Standards Institute (ANSI). The dosimeters were fitted with an outdoor microphone, extended external batteries and were field calibrated. Each unit was also laboratory-qualified technician calibrated (Appendix E). Measurements were collected at ten-second intervals over a range of 30 to 140 decibels (dB), with an exchange rate of 3 decibels, fast response, and A weighted. Measurements were also collected under atmospheric conditions typical of low ambient sound levels, including low (less than 2 mph) wind speed, and no precipitation.

2.4 AMBIENT SURVEY MONITORING RESULTS

2.4.1 Existing Equivalent Sound Levels

The appended dosimeter reports (Appendix D) display the unit logging parameters, decibel (dB) statistics chart, exceedance chart, and a logged data chart. Table 2 provides the monitoring location, date, measured equivalent sound levels (L_{eq}) - is the equivalent continuous sound level in decibels equivalent to the total sound energy measured over a stated period of time and is also known as the time-average sound level.), and the run time for each study. Each logging station location is shown on Figure 1.

Table 2: Measured 12-Hour Ambient Sound Levels

Monitoring Location #	Location	Date	Total Run Time (Hours)	L_{eq} (dB)
M-1	**Northeast property boundary**	**9/24/2019**	**12:00**	**44.4**
M-2	**Northern property boundary near Pickerel Pond**	**9/24/2019**	**12:00**	**52.2**
M-3	**Western property boundary near Onteora Lake**	**9/24/2019**	**12:00**	**44.0**

No operations took place on site during the full length of the sound study.
Monitoring locations are shown on Figure 1.

2.4.2 Monitoring Location Results

Monitoring Location 1

- Located in the northeastern portion of the site on top of a flat plateau at elevation 538 feet amsl. in a small clearing surrounded by forest.
- The ambient equivalent sound levels during the morning and evening for this location were dominated by noise from nearby State Route 28 located approximately 3,000 feet to the southwest. Road noise from Morey Hill Road located east of the monitoring location could occasionally be heard. The sound of birds and insects with occasional heavy machinery from northeast of the site could be heard during the afternoon hours.
- The ambient L_{eq} for this monitoring location was 44.4 dB.
- The L_{max} for this monitoring location was 72.4 dB recorded at 6:12:51 AM. This event was caused by an acorn falling onto the sound level meter case.

Monitoring Location 2

- Located on the northern property boundary approximately 30 feet east of Pickerel Pond at elevation 466 feet amsl.
- The ambient equivalent sound levels during the morning and afternoon for this location were dominated by traffic noise form nearby State Route 28 located approximately 2,460 feet to the west. The ambient equivalent sound levels during the evening were dominated by insects.
- The ambient L_{eq} for this monitoring location was 52.2 dB.
- The L_{max} for this monitoring location was 74.1 dB recorded at 7:52:09 AM. This event was caused by a stick snapping underfoot while checking on the monitor.

Monitoring Location 3

- Located on the western property boundary approximately 413 feet east of the shores of Onteora Lake at elevation 434 feet amsl.
- The ambient equivalent sound levels during the whole study were dominated by traffic noise from State Route 28. Birds, insects, occasional air traffic, and occasional backup alarms could be heard from west of the site.
- The ambient L_{eq} for this monitoring location was 44.0 dB.
- The L_{max} for this monitoring location was 67.4 dB recorded at 6:32:00 AM.

3.0 PROJECTED SOUND LEVELS DURING SITE DEVELOPMENT

During the site development phase of the project, the major source of sound from the site will be related to the excavation, and processing of the consolidated bedrock. Bedrock will be excavated from within Phase 1 & Phase 2 (site development area), the consolidated material will be processed at a mobile processing plant located in the center of the site (Figure 1). The mobile processing plant will be as shown on Figure 1 for the entire length of the site development. No operations will be conducted outside the site development area.

The primary Site sound sources used to estimate site development sound impacts at the property boundary are listed below in Table 3. The sound level produced by a Liebherr 586 front end loader loading a haul

truck was collected during H2H's 12/26/2018 on site sound study. The remainder of the equipment that will be used was not on site while the study was being conducted, in order to calculate the projected sound levels at the property boundary historic sound levels collected by H2H is used for the blast hole drill rig, and the sound level for the crusher is referenced from Table C of Appendix A.

Table 3: Primary Site Development Noise Source Sound Levels (dBA) (unobstructed view)

Sound Source	Description	Sound Level (dBA))
Crusher	Primary and Secondary Crusher at 100 feet	89.0
Front-end loader loading haul truck	Liebherr 586 front end loader loading haul truck at 100'	75.0
Blast hole drill rig	Sandvik DP 150 I Pantera at 50'	84.0

3.1 PROJECTED SOUND LEVELS AT PROPERTY BOUNDARY

Each monitoring location is shown on Figure 1. The inverse square law (sound pressure levels change in inverse proportion to the square of the distance from the sound source), and the mitigative effects of topography have been considered in each projection. Based on historic sound level measurements collected by H2H a 30 foot wide by 15-foot high berm will cause a ~14 dB decrease in sound levels produced by mobile and stationary equipment when the sound source is 5 feet below the top of the berm. The additive effects of multiple sound sources operating at the same time has been considered. The mitigate effects of vegetation have not been considered in our projections. The projected sound levels for each piece of equipment is referenced from Table 3. The projection for each piece of equipment varies between the existing site grade, and the proposed site grade to show simulated operating conditions at the sites property line. Figure 2 shows the locations of each sound source with the projected sound level shown based on mitigating factors described above.

3.1.1 Monitoring Location 1 (M-1)

Table 4: Primary Site Development Projected Sound Levels at Monitoring location 1

Sound Source	Sound Level at Property Boundary (dBA)
Crusher	58.6
Front-end loader loading haul truck	55.4
Blast hole drill rig	64.7

The projected sound levels at the property line at M-1 is shown on Sections C-C' (Figure 2). The highest projected sound level at M-1 was caused by the blast hole drill rig, 64.7 dBA, due to the close proximity to the property boundary at this monitoring location. The projected sound level for the crusher is 58.6 dBA, this projection is based on the proposed site grades to simulate worst case conditions. The projected sound level for the front-end loader loading haul truck is 55.4 dBA. This projection uses the proposed site grades since the front-end loader will be operating at the toe of the highwall at the proposed final site grade. The crusher and front-end loader loading haul truck are within 3.2 dB of each other causing a 2 dB increases giving a combined sound level of 60.6 dBA at the monitoring locations when the crusher and front-end loader are being operated simultaneously.

The projected sound level produced by the blast hole rig is within 4.1 dB of the combined sound level of 60.6 dB causing a 1 dB increase giving a combined sound level 65.7 dBA at the monitoring location when the crusher, blast hole rig, and front-end loader are all operating together.

3.1.2 Monitoring Location (M-2)

Table 5: Primary Site Development Projected Sound Levels at Monitoring location 2

Sound Source	Sound Level at Property Boundary (dBA)
Crusher	57.6
Front-end loader loading haul truck	52.0
Blast hole drill rig	66.7

The projected sound levels at the property line at M-2 is shown on Section B-B' (Figure 2). The highest projected sound level at M-2 is 66.7 dBA, caused by the blast hole drill rig. The existing site grade is used for this projection to simulate the rig operating on top of the north/south trending ridge located on site. The projected sound level for the crusher is 57.6 dBA using the proposed site grades. The projected sound level for the front-end loader loading haul truck is 52.0 dBA. The existing site grade is used to show the site conditions during excavation. The crusher and front-end loader loading haul truck are within 5.6 dB of each other causing a 1 dB increases giving a combined sound level of 58.6 dBA at the monitoring location when the crusher and front-end loader are being operated simultaneously. The combined sound level of 58.6 dBA is within 8.1 dB of the blast hole drill rig causing a combined sound level of 67.7 dBA when the crusher, blast hole rig, and front-end loader are all operating together.

3.1.3 Monitoring Location (M-3)

Table 5: Primary Site Development Projected Sound Levels at Monitoring location 3

Sound Source	Sound Level at Property Boundary (dBA)
Crusher	51.5
Front-end loader loading haul truck	40.0
Blast hole drill rig	56.3

The projected sound levels at the property line at M-3 is shown on Section A-A' (Figure 2). The highest projected sound level at M-3 is 56.3 dBA, caused by the blast hole rig. The existing site grade is used for this projection to simulate the rig operating on the topographic high located in the center of the site. The projected sound level for the crusher is 51.5 dBA using the proposed site grades. The projected sound level for the front-end loader loading haul truck is 40.0 dBA. The existing site grade is used to show the site conditions during excavation. The projected sound level produced by the crusher, and front-end loader loading haul truck is greater than 10 dB difference causing no additive effect. The crusher, and blast hole drill rig are within 4.8 dBA of each other causing a 1 dB increase giving a combined operating sound level of 57.3 dBA when the crusher, and blast hole rig are being operated at the same time.

3.2 PROJECTED SOUND LEVELS AT RECEPTORS

Following the same methodology as in section 3.1 projected sound levels at offsite receptors were calculated. Identifed receptors are Pickerel Pond, Onteora Lake, and existing recreational trails on NYS land (Figure 1). The projected sound level for each piece of equipment at each identified receptor is shown on Figure 2. The Projected sound level for Pickerel Pond is the same as Monitoring location 2 do to the close proximity (less than ten feet) of the site property line to the edge of the pond.

3.2.1 Onteora Lake

Table 6: Primary Site Development Projected Sound Levels at Onteora Lake

Sound Source	Sound Level at Onteora Lake (dBA)
Crusher	49.1
Front-end loader loading haul truck	37.3
Blast hole drill rig	53.8

The projected sound levels at Onteora Lake is shown on Section A-A' (Figure 2). The highest projected sound level at Onteora Lake is 53.8 dBA, caused by the blast hole rig. The existing site grade is used for this projection to simulate the rig operating on the topographic high located in the center of the site. The projected sound level for the crusher is 49.1 dBA using the proposed site grades. The projected sound level for the front-end loader loading haul truck is 37.3 dBA. The existing site grade is used to show the site conditions during excavation. The projected sound level produced by the crusher and front-end loader loading haul truck is greater than 10 dB difference causing no additive effect. The crusher and blast hole drill rig are within 4.7 dB of each other casing a 1 dB increase giving a combined operating sound level of 54.8 dBA when the crusher, and blast hole rig are being operated together.

3.2.2 Existing Recreational Trails on State Lands

Table 7: Primary Site Development Projected Sound Levels at Existing Trails

Sound Source	Sound Level at Existing Trails (dBA)
Crusher	54.8
Front-end loader loading haul truck	45.9
Blast hole drill rig	61.6

The projected sound levels at the existing trails is shown on Section B-B' (Figure 2). The highest projected sound level at the existing trail is 61.6 dBA, caused by the blast hole drill rig. The existing site grade is used for this projection to simulate the rig operating on the topographic high located in the center of the site. The projected sound level for the crusher is 54.8 dBA using the proposed site grades. The projected sound level for the front-end loader loading haul truck is 45.9 dBA. The existing site grade is used to show the site conditions during excavation. The projected sound level produced by the crusher and front-end loader loading haul truck is within 8.9 dB of each other causing a 1 dB increase giving a combined operating sound level of 55.8 dB. The combined operating sound level of 55.8 dB (crusher and front-end loader loading haul truck) is within 5.8 dB of the blast hole drill rig causing a 1 dB increase giving a combined operating sound level of 62.6 dB when all equipment is operating together.

4.0 PROJECTED SOUND LEVELS DURING MANUFACTURING ACTIVITIES

During the manufacturing phase of the project, the major source of sound from the site will be related to the delivery, and transportation of raw materials on site to be used in the manufacturing process. Raw materials will be unloaded and stockpiled in bins located southeast of Fabrication Building #1. This location is labeled Raw Material Bins on Figure 1 & Figure 3. Once loaded onto on site vehicles at this location the material will be transported to inside Fabrication Building #1 & #2 based on material demand.

The sound generated by the loading of raw materials will be similar to the sound levels produced by a Liebherr 586 front end loader loading a haul truck collected during H2H's 12/26/2018 on site sound study. The recorded sound level of 75.0 dBA "Liebherr 586 front end loader loading a haul truck" (Table 3) will be used to calculate the projected sound level at the property boundary during manufacturing activities.

4.1 PROJECTED SOUND LEVELS AT PROPERTY BOUNDARY

Following the same methodology as in section 3.1 projected sound levels at the property boundary were calculated. The projected sound level of the front-end loader loading a haul truck at the property boundary is shown on Figure 3.

4.1.1 Western Property Boundary

Table 8: Manufacturing Sound Levels Western Property Boundary

Sound Source	Sound Level at Property Boundary (dBA)
Front-end loader loading haul truck	36.1

The projected sound level at the location section D-D' crosses the property boundary is 36.1 dBA. The proposed site grade is used for this projection to simulate the site conditions during the manufacturing phase.

4.1.2 "South Western" Property Boundary

Table 9: Manufacturing Sound Levels "South Western" Property Boundary

Sound Source	Sound Level at Property Boundary (dBA)
Front-end loader loading haul truck	44.4

The projected sound level at the "South Western" property boundary (Figure 1) is 44.4 dBA. The location of the property boundary is projected 60' to the north to appear on section D-D'. The proposed site grade is used for this projection to simulate the site conditions during the manufacturing phase.

4.1.3 Northern Property Boundary

Table 10: Manufacturing Sound Levels Northern Property Boundary

Sound Source	Sound Level at Property Boundary (dBA)
Front-end loader loading haul truck	39.3

The projected sound level at the location section E-E' intersects the northern property boundary is 39.3 dBA. The proposed site grade is used for this projection to simulate the site conditions during the manufacturing phase.

4.1.4 Eastern Property Boundary

Table 11: Manufacturing Sound levels Eastern Property Boundary

Sound Source	Sound Level at Property Boundary (dBA)
Front-end loader loading haul truck	43.9

The projected sound level at the location section F-F' intersects the eastern property boundary is 43.9 dBA. The proposed site grade is used for this projection to simulate the site conditions during the manufacturing phase.

5.0 LOCAL, REPRESENTATIVE NOISE ORDINANCE AND STANDARDS

The Town of Kingston does not have an ordinance pertaining to noise. The surrounding Town of Ulster, and City of Kingston, do have a noise ordinance. Each is summarized below to provide context for the above data.

The Town of Ulster noise ordinance states that sound produced on a property adjacent to a residential or nonresidential zoned property can produce a sound level up to 72.0 dBA at the property boundary between the hours of 7:00 a.m. to 10:00 p.m. The ordinance also lists exempt activities to the above standard, construction activity falls under an exempt activity. The full ordinance is attached as Appendix B

The City of Kingston noise ordinance allows sound produced on a property adjacent to a residentially zoned property to produce a sound level up to 60.0 dBA at the property boundary between the hours of 7:00 a.m. to 10:00 p.m. For receiving properties zoned commercial, or industrial, a sound level up to 75 dBA at the property boundary at all times is allowed. The City of Kingston's full noise ordinance is attached as Appendix C.

The NYSDEC uses the "Assessing and Mitigating Noise Impacts", dated October 6, 2000, revised February 2, 2001 (Appendix A) noise guidance document to regulate sound generated by a typical mining operation. The guidance document states that an increase of 0-3 db above ambient condictiones should have no appreciable effect on receptors. Increases form 3-6 dB above ambient may have the potential for adverse noise impact only in cases where the most sensitive receptors are present. Sound pressure increases of more than 6 dB may require a closer analysis of impact potential depending on existing sound pressure levels (SPLs) and the character of surrounding land use and receptors. SPL increases approaching 10 dB result in a perceived doubling of SPL. The perceived doubling of the SPL results from the fact that SPLs are measured on a logarithmic scale. An increase of 10 dB(A) deserves consideration of avoidance and mitigation measures in most cases. The above thresholds as indicators of impact potential should be viewed as guidelines subject to adjustment as appropriate for the specific circumstances one encounters.

6.0 SUMMARY

A 12-hour sound monitoring study determined that at three locations adjacent to state land ambient sound levels are low, ranging from 44.0 to 52.2 dB. No equipment was in operation during the study. The site is currently zoned Mixed-Use Residential 1 (MU-1) allowing for the site to be used for "Contractors equipment storage" as a Permitted Accessory Use. If equipment were being loaded and unloaded on site the recorded ambient 12-hour sound levels would be higher than what was recorded during the study.

Projected sound levels at the monitoring location as a function of typical operating equipment to be used during the site development phase of the project will increase ambient sound levels at each of these locations in the following manner.

- At location M-1, sound levels will be raised from 44.4 dB to
    - 64.7 dB due to drilling activities
    - 55.4 dB due to front end-loader activities
    - 58.6 dB due to crushing operations
    - 60.6 dB due to crushing and front-end loader activities simultaneously
    - 65.7 dB due to crushing, drilling and front-end loader activities simultaneously

- At location M-2, sound levels will be raised from 52.2 dB to
    - 66.7 dB due to drilling activities
    - 57.6 dB due to crusher activities
    - 58.6 dB combined crusher and front-end loader operation
    - 67.7 dB due to crushing, drilling and front-end loader activities simultaneously
    - No impact due to front-end loader operations

- At location M-3, sound levels will be raised from 44.0 dB to
    - 56.3 dB due to drilling activities
    - No impact due to front-end loader activities
    - 51.5 dB due to crushing activities
    - 57.3 dB due to crushing and drilling activities simultaneously

- At Onteora Lake, the projected sound level for each activity is
    - 53.8 dB due to drilling activities
    - No impact due to front-end loader activities
    - 49.1 dB due to crushing activities
    - 54.8 dB due to crushing and drilling activities simultaneously

- At existing recreational trails on state land, the projected sound level for each activity is
    - 61.6 dB due to drilling activities
    - 45.9 dB due to front-end loader activities
    - 54.8 dB due to crushing activities
    - 55.8 dB due to crushing and front-end loader activities
    - 62.6 dB due to crushing, drilling and front-end loader activities simultaneously

Projected sound levels at the property boundary as a function of typical operating equipment to be used outside of the fabrication buildings during the manufacturing phase of the project will be as shown below.

- At intersection of section D-D’ and western property boundary the projected sound level is
    - 36.1 dB due to front-end loader activities

- At “southwestern property boundary” the projected sound level is
    - 44.4 dB due to front-end loader activities

- At northern property boundary the projected sound level is
    - 39.3 dB due to front-end loader activities

- At the eastern property boundary the projected sound level is

- 43.9 dB due to front-end loader activities

When comparing local noise ordinances to these findings only the proposed drilling activities exceed other local standards in any appreciable or even perceptible manner. The projected noise generated during drilling activities represents the worst-case scenario whereby drilling activities are located in close proximity to the potential receptors and that drilling would be occurring at the highest elevation closest to each receptor. Sound from site development activities will be temporary. Thereafter, sound from the manufacturing activities will be below, or close to ambient sound levels at the property line.

Sound generated by the proposed long-term operation of the fabrication facility is consistent with the sound that is currently generated on site by tractor trailers, and light mobile equipment loading and unloading material. All proposed manufacturing processes are to take place within the two proposed buildings. In addition, permanent sound fence will be installed along the perimeter of the facility to mitigate sound generated on-site by truck traffic and light mobile equipment producing less sound off-site than what is currently generated.

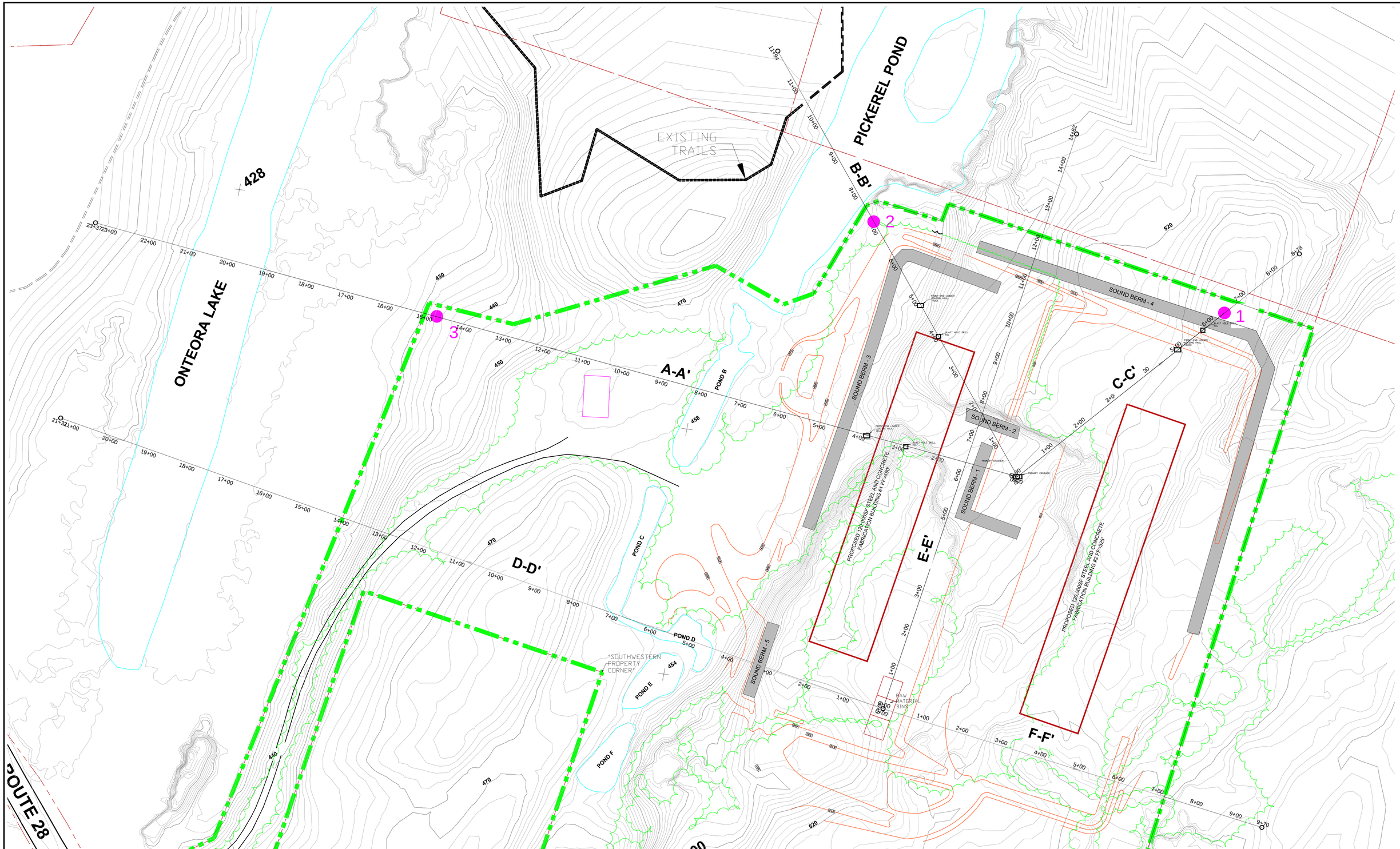
The proposed sound mitigating berms can be interchanged with sound fence of the same sound dampening qualities as the proposed berms.

It is recommended that additional noise mitigation measures be put in place to reduce the potential noise from drilling operations. Mitigation measures could include:

- Installing temporary, movable noise barriers around drilling operations
- Limiting drilling operation hours to specific times of day or days per week
- Enclosing drilling operations with noise absorptive materials.

No other mitigative measures are necessary.

FIGURES



MAP NOTES:
1. CONTOUR INTERVAL = 2'.
2. TOPOGRAPHY BASED ON PHOTOGRAMMETRIC SURVEY COMPLETED 07-07-2017 BY H2H ASSOCIATES, LLC.
3. PROPERTY LINE AND PARCEL INFO FROM ULSTER COUNTY GIS TAX PARCEL SHAPEFILE

LEGEND:
- PROPERTY LINE
- MAJOR CONTOUR
- MINOR CONTOUR
- WATER BOUNDARY
- MONITORING LOCATION
- EXISTING TREE LINE
- EXISTING TRAILS

SCALE IN FEET
0 50 100 200

N

DATE		REVISIONS RECORD/DESCRIPTION
	1	
	2	
	3	
	4	
	5	
	6	

THIS DRAWING IS NOT TO BE USED FOR ENGINEERING PURPOSES

DRAWN BY :	SAS
DESIGN BY :	SAS
CHECK BY :	MJP
PROJ. NO :	374.00
SCALE :	AS SHOWN
DATE :	10/4/2019

ROUTE 28 - NOISE STUDY

TOWN OF KINGSTON — ULSTER COUNTY, NY

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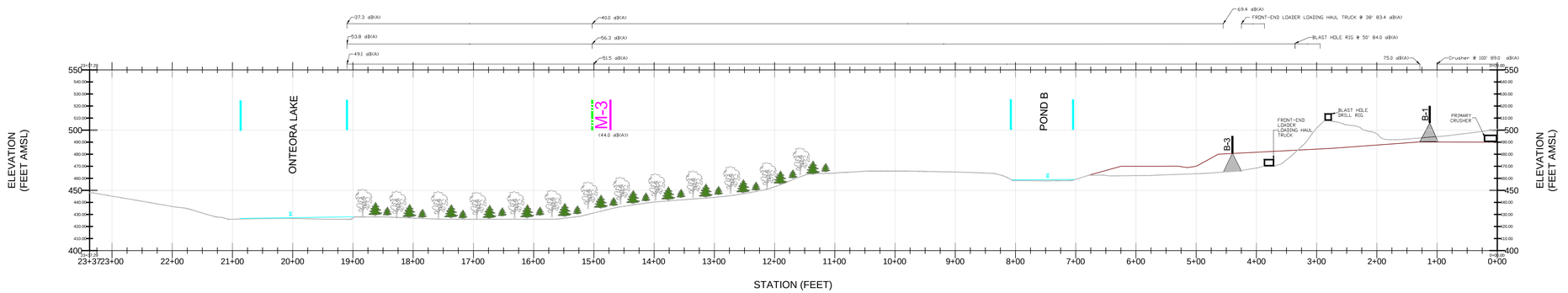
FIGURE 1

SHEET 01 OF 01

SECTION A - A'



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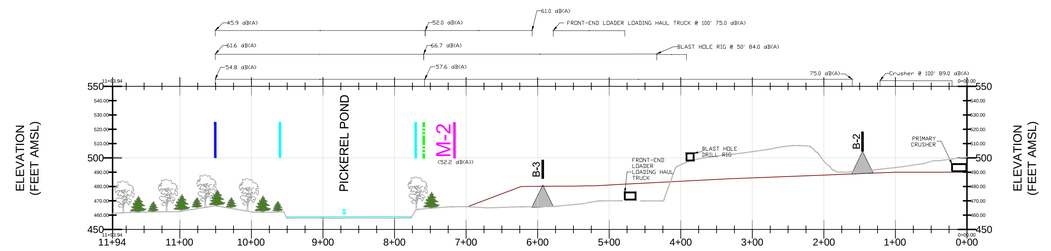

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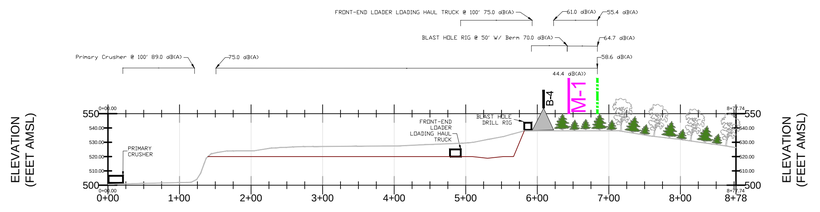

B-1 = PROPOSED BERM

= 15' HIGH 2:1 SIDE SLOPE 30' WIDE

M-1 = MONITORING LOCATION

58.3 dBA = 12-hr. AMBIENT Leq

(40.8 dBA) = PROJECTED SOUND LEVELS FROM VARIOUS SOUND SOURCES

Sound Source	Description	Sound Level (dBA))
Crusher	Primary and Secondary Crusher at 100 feet	89.0
Front-end loader loading haul truck	Liebherr 586 front end loader loading haul truck at 100'	75.0
Blast hole drill rig	Sandvik DP 150 I Pantera at 50'	84.0

MAP NOTES:
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2. PROPERTY LINE AND PARCEL INFO FROM ULSTER COUNTY GIS TAX PARCEL SHAPEFILE

LEGEND:

PROPERTY LINE
EXISTING GRADE
MONITORING LOCATION
WATER BOUNDARY
PROPOSED GRADE
EXISTING TRAILS

SCALE IN FEET
0 50 100 200

DATE	REVISIONS RECORD/DESCRIPTION
	1
	2
	3
	4
	5
	6

THIS DRAWING IS NOT TO BE USED FOR ENGINEERING PURPOSES

DRAWN BY :	SAS
DESIGN BY :	SAS
CHECK BY :	MJP
PROJ. NO :	374.00
SCALE :	AS SHOWN
DATE :	10/4/2019

ROUTE 28 NOISE STUDY - SECTIONS

850 ROUTE 28. LLC.

TOWN OF KINGSTON — ULSTER COUNTY, NY

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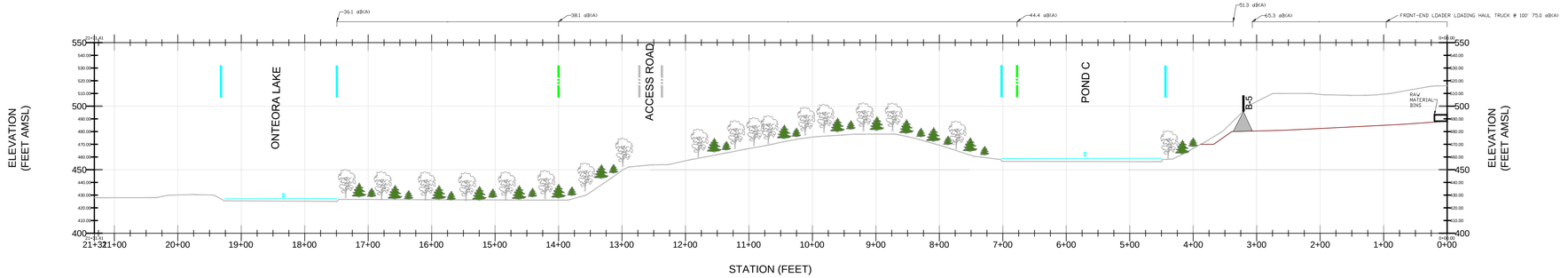
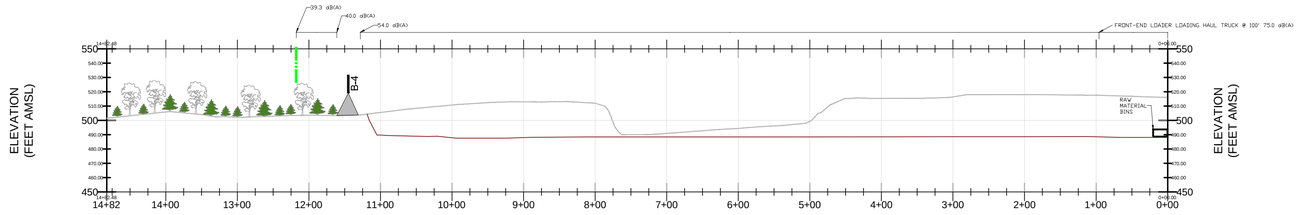
FIGURE 2

SHEET 02 OF 03

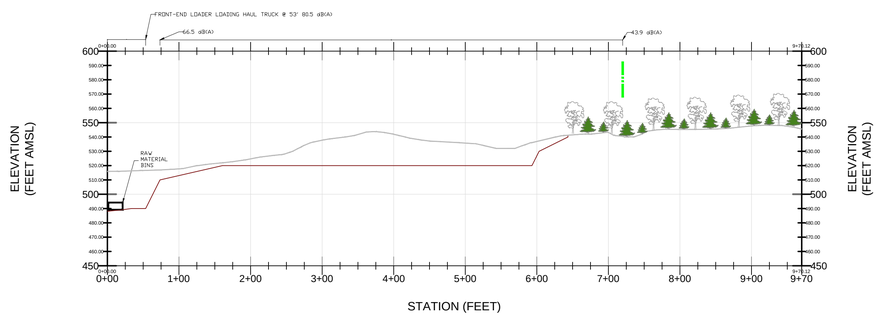
SECTION D-D'



SECTION E-E'



SECTION F-F'



B-1 = PROPOSED BERM

= 15' HIGH 2:1 SIDE SLOPE 30' WIDE

M-1 = MONITORING LOCATION

58.3 dB(A) = 12-hr. AMBIENT Leq

(40.8 dBA) = PROJECTED SOUND LEVELS FROM VARIOUS SOUND SOURCES

MAP NOTES:
1. AERIAL PHOTO BASED ON PHOTOGRAMMETRIC SURVEY COMPLETED 07-07-2017 BY H2H ASSOCIATES, LLC.
2. PROPERTY LINE AND PARCEL INFO FROM ULSTER COUNTY GIS TAX PARCEL SHAPEFILE

LEGEND:

- PROPERTY LINE
- EXISTING GRADE
- MONITORING LOCATION
- WATER BOUNDARY
- PROPOSED GRADE
- EXISTING TRAILS

SCALE IN FEET
0 50 100 200

DATE		REVISIONS RECORD/DESCRIPTION
	1	
	2	
	3	
	4	
	5	
	6	

THIS DRAWING IS NOT TO BE USED FOR ENGINEERING PURPOSES

DRAWN BY :	SAS
DESIGN BY :	SAS
CHECK BY :	MJP
PROJ. NO :	374.00
SCALE :	AS SHOWN
DATE :	10/4/2019

ROUTE 28 NOISE STUDY - SECTIONS

850 ROUTE 28. LLC.

TOWN OF KINGSTON — ULSTER COUNTY, NY

H2H ASSOCIATES
TROY, NY WWW.H2HASSOCIATES.COM

FIGURE 3

SHEET 03 OF 03

APPENDIX A

NYSDEC – ASSESSING and MITIGATING NOISE IMPACTS

Assessing and Mitigating Noise Impacts

New York State
Department of Environmental Conservation

PROGRAM POLICY	**Department ID: DEP-00-1**	**Program ID: n/a**
Issuing Authority: Environmental Conservation Law Articles 3, 8, 23, 27 Name: Jeffrey Sama Title: Director Signature: /S/ Date: 10/6/00 Issuance Date: October 6, 2000 Revised: February 2, 2001	**Originating Unit: Division of Environmental Permits** Office/Division: Environmental Permits Unit: Phone: (518) 402-9167 Latest Review Date (Office Use):	

Abstract: Facility operations regulated by the Department of Environmental Conservation located in close proximity to other land uses can produce sound that creates significant noise impacts for proximal sound receptors. This policy and guidance presents noise impact assessment methods, examines the circumstances under which sound creates significant noise impacts, and identifies avoidance and mitigative measures to reduce or eliminate noise impacts.

Related References: See references pages 27 and 28.

I. PURPOSE[1]

This policy is intended to provide direction to the staff of the Department of Environmental Conservation for the evaluation of sound levels and characteristics (such as pitch and duration) generated from proposed or existing facilities. This guidance also serves to identify when noise levels may cause a significant environmental impact and gives methods for noise impact assessment, avoidance, and reduction measures. These methods can serve as a reference to applicants preparing environmental assessments in support of an application for a permit. Additionally, this guidance explains the Department's regulatory authority for undertaking noise evaluations and for imposing conditions for noise mitigation measures in the agency's approval

[1] A Program Policy Memorandum is designed to provide guidance and clarify program issues for Division staff to ensure compliance with statutory and regulatory requirements. It provides assistance to New York State Department of Environmental Conservation (DEC) staff and the regulated community in interpreting and applying regulations and statutes to assure that program uniformity is attained throughout the State. Nothing set forth in a Program Policy Memorandum prevents DEC staff from varying from that guidance as specific circumstances may dictate, provided the staff's actions comply with applicable statutory and regulatory requirements. As this guidance document is not a fixed rule, it does not create any enforceable right by any party using the Program Policy Memorandum.

of permits for various types of facilities pursuant to regulatory program regulations and the State Environmental Quality Review Act (SEQR).

II. BACKGROUND

Noise is defined as any loud, discordant or disagreeable sound or sounds. More commonly, in an environmental context, noise is defined simply as unwanted sound. Certain activities inherently produce sound levels or sound characteristics that have the potential to create noise. The sound generated by proposed or existing facilities may become noise due to land use surrounding the facility. When lands adjoining an existing or proposed facility contain residential, commercial, institutional or recreational uses that are proximal to the facility, noise is likely to be a matter of concern to residents or users of adjacent lands.

A. Sources of Noise Generation

The three major categories of noise sources associated with facilities are (1) fixed equipment or process operations; (2) mobile equipment or process operations; and (3) transport movements of products, raw material or waste. The fixed plant may include a very wide range of equipment including: generators; pumps; compressors; crushers of plastics, stone or metal; grinders; screens; conveyers; storage bins; or electrical equipment. Mobile operations may include: drilling; haulage; pug mills; mobile treatment units; and service operations. Transport movements may include truck traffic within the operation, loading and unloading trucks and movement in and out of the facility. Any or all of these activities may be in operation at any one time. Singular or multiple effects of sound generation from these operations may constitute a potential source of noise.

B. Potential for Adverse Impacts

Numerous environmental factors determine the level or perceptibility of sound at a given point of reception. These factors include: distance from the source of sound to receptor; surrounding terrain; ambient sound level; time of day; wind direction; temperature gradient; and relative humidity. The characteristics of a sound are also

important determining factors for considering it as noise. The amplitude (loudness), frequency (pitch), impulse patterns and duration of sound all affect the potential for a sound to be a noise. The combination of sound characteristics, environmental factors and the physical and mental sensitivity of a receptor to a sound determine whether or not a sound will be perceived as a noise. This guidance uses these factors in assessing the presence of noise and the significance of its impacts. It relies upon qualitative and quantitative sound evaluation techniques and sound pressure level impact modeling presented in accepted references on the subject.

C. Mitigation

Mitigation refers to actions that will be taken to reduce the effects of noise or the noise levels on a receptor. Adverse noise effects generated by a facility can be avoided or reduced at the point of generation thereby diminishing the effects of the noise at the point of reception. This guidance identifies various mitigation techniques and their proper application either at the source of noise generation or on a facility's property. Alternative construction or operational methods, equipment maintenance, selection of alternative equipment, physical barriers, siting of activities, set backs, and established hours of construction or operation, are among the techniques that can successfully avoid or reduce adverse noise effects.

D. Decision Making

When an assessment of the potential for adverse noise impacts indicates the need for noise mitigation, it is preferred that specifications for such measures be incorporated in a noise analysis and in the applicant's work or operational plan necessary for a complete application. Presenting a plan that incorporates effective noise mitigation provisions facilitates the Department's technical and environmental review and minimizes or negates the imposition of permit conditions by the Department. Adherence to these plans becomes a condition of a permit.

Noise avoidance and mitigation measures may also be imposed directly as conditions of permit issuance. This guidance will review the statutory authority under which the Department can require the mitigation of noise effects.

III. POLICY

In the review of an application for a permit, the Department of Environmental Conservation is to evaluate the potential for adverse impacts of sound generated and emanating to receptors outside of the facility or property. When a sound level evaluation indicates that receptors may experience sound levels or characteristics that produce significant noise impacts or impairment of property use, the Department is to require the permittee or applicant to employ reasonable and necessary measures to either eliminate or mitigate adverse noise effects. Options to be used to fulfill this guidance should be implemented within the existing regulatory and environmental review framework of the agency.

Regulatory authority for assessing and controlling noise effects are contained in both SEQR and specific Department program regulations. Specific regulatory references are as follows:

Section 3-0301(1)(i) of the Environmental Conservation Law (ECL) states that the commissioner shall have the power to: "i. Provide for prevention and abatement of all water, land and air pollution including but not limited to that related to particulates, gases, dust, vapors, noise, radiation, odor, nutrients and heated liquids."

To comply with Article 8 of the ECL and 6 NYCRR Part 617, State Environmental Quality Review Act, consideration of all relevant environmental issues must be undertaken in making a determination of environmental significance. Noise impact potential is one of many potential issues for consideration in a SEQR review.

Environmental Conservation Law (ECL) Article 23, Title 27, Mined Land Reclamation Law (MLRL), requires applicants for permits to prepare and submit a mined land use plan to the Department for approval. The plan must describe, "the applicant's mining method and measures

to be taken to minimize adverse environmental impacts resulting from the mining operation." The provisions to be incorporated in a Mined Land Use Plan, as specified in 6 NYCRR Section 422.2, include the control of noise as a component of the plan.

The solid waste regulations at 6 NYCRR Subdivision 360-1.14(p), establish A-weighted decibel levels that are not to be exceeded at the property line of a facility.

The Division of Air Resources has regulations in 6 NYCRR Parts 450 through 454 that regulate the allowable sound level limits on certain motor vehicles. The statutory authority for these regulations is found in the New York State Vehicle and Traffic Law, Article 10, Section 386.

This guidance does not supercede any local noise ordinances or regulations.

IV. RESPONSIBILITY

The environmental analyst, acting as project manager for the review of applications for permits or permit modifications and working in concert with the program specialist, is responsible for ensuring that sound generation and noise emanating from proposed or existing facilities are properly evaluated. For new permits or significantly modified permits, there should be a determination as to the potential for noise impacts, and establishment of the requirements for noise impact assessment to be included in the application for permit. Where the Department is lead agency, the analyst is responsible for making a determination of significance pursuant to SEQR with respect to potential noise impacts and include documentation for such determination.

Where impacts are to be avoided or reduced through mitigation measures, the analyst, or where there are program requirements to address noise, the program specialist, should determine the effectiveness and feasibility of those measures and ensure that the permit conditions contain specific details for such measures. It should also be determined if additional measures to control noise are to be imposed as a condition of permitting. Appropriate permit language for the permit conditions should be developed by the program specialist and the analyst. The results of noise impact evaluations and the effectiveness of mitigation measures

shall be incorporated into SEQR documents and, where necessary, permit conditions shall be placed in final permits to ensure effective noise control.

When it is determined that potential noise effects, as well as other issues, warrant evaluation of impacts and mitigation measures in a Draft Environmental Impact Statement (EIS) prepared pursuant to SEQR, the environmental analyst with the Division of Environmental Permits assumes responsibility for determining the level of evaluation needed to assess sound level generation, noise effects, and mitigation needs and feasibility.

For existing facilities, the program specialist will determine the need for additional mitigation measures to control noise effects either in response to complaints or other changes in circumstances such as new noise from existing facilities or a change in land-use proximal to the facility.

The applicant or their agent, in preparing an application for a permit and supporting documentation, is responsible for assessing the potential noise impacts on area receptors. When potential adverse noise impacts are identified, the applicant should incorporate noise avoidance and reduction measures in the construction or operating plans. The applicant's submittal should also assess the effectiveness of proposed mitigation measures in eliminating adverse noise reception. Where noise effects are determined to be a reason in support of a SEQR positive declaration, the applicant shall assess noise impacts, avoidance, and mitigation measures in a Draft EIS using methodologies acceptable to this Department.

V. PROCEDURE

The intent of this section is to: introduce terms related to noise analyses; describe some of the various methods used to determine the impacts of sound pressure levels on receptors; identify some of the various attenuators of noise; and list some of the mitigative techniques that can be used to reduce the effects of noise on a receptor. At the end of the section three levels of analysis are described. The first level determines the potential for adverse noise impacts based on noise characteristics and sound pressure increases solely on noise attenuation over distance between the source and receptor of the noise. The second level factors other considerations such as topography and noise abatement measures in determining if adverse

noise impacts will occur. The third level evaluates noise abatement alternatives and their effectiveness in avoiding or reducing noise impacts.

The environmental effects of sound and human perceptions of sound can be described in terms of four characteristics:

1. Sound Pressure Level (SPL may also be designated by the symbol L_p) or perceived loudness is expressed in decibels (dB) or A-weighted decibel scale dB(A) which is weighted towards those portions of the frequency spectrum, between 20 and 20,000 Hertz, to which the human ear is most sensitive. Both measure sound pressure in the atmosphere.

2. Frequency (perceived as pitch), the rate at which a sound source vibrates or makes the air vibrate.

3. Duration i.e., recurring fluctuation in sound pressure or tone at an interval; sharp or startling noise at recurring interval; the temporal nature (continuous vs. intermittent) of sound.

4. Pure tone which is comprised of a single frequency. Pure tones are relatively rare in nature but, if they do occur, they can be extremely annoying.

Another term, related to the average of the sound energy over time, is the Equivalent Sound Level or $L_{eq.}$ The L_{eq} integrates fluctuating sound levels over a period of time to express them as a steady state sound level. As an example, if two sounds are measured and one sound has twice the energy but lasts half as long, the two sounds would be characterized as having the same equivalent sound level. Equivalent Sound Level is considered to be directly related to the effects of sound on people since it expresses the equivalent magnitude of the sound as a function of frequency of occurrence and time. By its derivation L_{eq} does not express the maximum nor minimum SPLs that may occur in a given time period. These maximum and minimum SPLs should be given in the noise analysis. The time interval over which the L_{eq} is measured should always be given. It is generally shown as a parenthetic; $L_{eq\,(8)}$ would indicate that the sound had been measured for a period of eight hours.

Equivalent Sound Level (L_{eq}) correlates well and can be combined with other types of noise analyses such as Composite Noise Rating, Community Noise Equivalent Level and day-night noise levels characterized by L_{dn} where an $L_{eq(24)}$ is measured and 10 dBA is added to all noise levels measured between 10 pm and 7 am. These different types of noise analyses

basically combine noise measurements into measures of cumulative noise exposure and may weight noise occurring at different times by adding decibels to the actual decibel level. Some of these analyses require more complex noise analysis than is mentioned in this guidance. They may be used in a noise analyses prepared for projects.

Designations for sound levels may also be shown as $L_{(10)}$ or $L_{(90)}$ in a noise analysis. These designations refer to the sound pressure level (SPL) that is exceeded for 10% of the time over which the sound is measured, in the case of $L_{(10)}$, and 90% of the time, in the case of $L_{(90)}$. For example, an $L_{(90)}$ of 70 dB(A) means that 70 dB(A) is exceeded for 90% the time for which the measurement was taken.

A. Environmental Setting and Effects on Noise Levels

1. Sound Level Reduction Over Distance - It is important to have an understanding of the way noise decreases with distance. The decrease in sound level from any single noise source normally follows the "inverse square law." That is, SPL changes in inverse proportion to the square of the distance from the sound source. At distances greater than 50 feet from a sound source, every doubling of the distance produces a 6 dB reduction in the sound. Therefore, a sound level of 70 dB at 50 feet would have a sound level of approximately 64 dB at 100 feet. At 200 feet sound from the same source would be perceived at a level of approximately 58 dB.

2. Additive Effects of Multiple Sound Sources - The total sound pressure created by multiple sound sources does not create a mathematical additive effect. Below Table A is given to assist you in calculating combined noise sources. For instance, two proximal noise sources that are 70 dBA each do not have a combined noise level of 140 dBA. In this case the combined noise level is 73 dBA. Since the difference between the two sound levels is 0 dB, Table A tells us to add 3 dB to the sound level to compensate for the additive effects of the sound. To find the cumulative SPL assess the SPLs starting with the two lowest readings and work up to the difference between the two highest readings. For several pieces of equipment, operating at one

time, calculate the difference first between the two lowest SPLs, check Table A and add the appropriate number of decibels to the higher of the two sound levels. Next, take the sound level that was calculated using Table A and subtract the next lowest sound level to be considered for the operation. Consult Table A again for the additive effect and add this to the higher of the two sound levels. Follow this process until all the sound levels are accounted for. As an example, let us say that an area for a new facility is being cleared. The equipment to be used is: two chainsaws, one operating at 57 dBA and one at 60 dBA; a front end loader at 80 dBA; and a truck at 78 dBA. Start with the two lowest sound levels: 60 dBA - 57 dBA = 3 dBA difference. Consulting the chart add 2 dBA to the higher sound level. The cumulative SPL of the two chainsaws is 62 dBA. Next, subtract 62 dBA from 78 dBA. 78 dBA - 62 dBA = 16 dBA. In this case, 0 dBA is added to the higher level so we end up with 78 dBA. Lastly, subtract 78 dBA from the 80 dBA. 80 dBA - 78 dBA = 2 dBA a difference of 2 dBA adds 2 dBA to the higher SPL or 82 dBA. The SPL from these four pieces of equipment operating simultaneously is 82 dBA.

Table A

Approximate Addition of Sound Levels

Difference Between Two Sound Levels	Add to the Higher of the Two Sound Levels
1 dB or less	3 dB
2 to 3 dB	2 dB
4 to 9 dB	1 dB
10 dB or more	0 dB

(USEPA, Protective Noise Levels, 1978)

3. Temperature and Humidity - Sound energy is absorbed in the air as a function of temperature, humidity and the frequency of the sound. This attenuation can be up to 2 dB over 1,000 feet. Such attenuation is short term and, since it occurs over a great distance, should not be considered in calculations. Higher temperatures tend to increase sound velocity but does

not have an effect on the SPL. Sound waves bend towards cooler temperatures. Temperature inversions may cause temporary problems when cooler air is next to the earth allowing for more distant propagation of sound. Similarly, sound waves will bend towards water when it is cooler than the air and bounce along the highly reflective surface. Consequently large water bodies between the sound source and the receptor may affect noise attenuation over distance.

4. Time of Year - Summer time noises have the greatest potential for causing annoyance because of open windows, outside activities, etc. During the winter people tend to spend more time indoors and have the windows closed. In general, building walls and windows that are closed provide a 15 dB reduction in noise levels. Building walls with the windows open allow for only a 5 dB reduction in SPL.

5. Wind - Wind can further reduce the sound heard at a distance if the receptor is upwind of the sound. The action of the wind disperses the sound waves reducing the SPLs upwind. While it is true that sound levels upwind of a noise source will be reduced, receptors downwind of a noise source will not realize an increase in sound level over that experienced at the same distance without a wind. This dispels the common belief that sound levels are increased downwind due to wind carrying noise.

6. Land forms and structures - In certain circumstances, sound levels can be accentuated or focused by certain features to cause adverse noise impacts at specified locations. At a hard rock mine, curved quarry walls may have the potential to cause an amphitheater effect while straight cliffs and quarry walls may cause an echo. Buildings that line streets in cities can cause a canyon effect where sound can be reflected from the building surfaces similar to what might happen in a canyon. Consideration of noise impacts associated with these types of conditions may require specialized expertise to evaluate impact potential and to formulate suitable mitigation techniques.

Consideration of existing noise sources and sound receptors in proximity to a proposed activity can be important considerations even when the activity under review is not a noise source. Topography, vegetation, structures and the relative location of noise receptors and sources to these features are all aspects of the environmental setting that can influence noise impact potential. As such, land alteration may also indirectly create an adverse noise impact where natural land features or manmade features serve as a noise barrier or provide noise attenuation for existing sources of noise, i.e. highway, railroads, manufacturing activity. Removal of these features, i.e. hills, vegetation, large structures or walls, can expose receptors to increased sound pressure levels causing noise problems where none had previously existed.

B. Impact Assessment

1. Factors to Consider

Factors to consider in determining the impact of noise on humans, are as follows:

a. Evaluation of Sound Characteristics

(1) Ambient noise level - A noise can only intrude if it differs in character or SPL from the normal ambient sound. Most objective attempts to assess nuisance noise adopt the technique of comparing the noise with actual ambient sound levels or with some derived criterion.

(2) Future noise level - The ambient noise level plus the noise level from the new or proposed source.

(3) Increase In Sound Pressure Level - A significant factor in determining the annoyance of a noise is Sound Pressure Level (SPL). SPLs are measured in decibels.

(4) Sharp and Startling Noise - These high frequency and high intensity noises can be extremely annoying. When initially evaluating the effects

of noise from an operation, pay particular attention to noises that can be particularly annoying. One such noise is the back-up beepers required to be used on machinery. They definitely catch one's attention as they were meant to do. Continual beeping by machinery can be mitigated (see Section V.C. Mitigation - Best Management Practices). Another impulse noise source that can be very annoying is the exhaust from compressed air machinery. This exhaust is usually released in loud bursts. Compressed air exhaust can also be mitigated if it causes a noise problem by using readily available mufflers or specifically designed enclosures.

(5) Frequency and Tone - Frequency is the rate at which a sound source vibrates or makes the air vibrate. Frequency is measured in Hertz (Hz). Frequency can also be classified as high ("sharp"), low ("dull"), and moderate. Pure tones are rare in nature. Tonal sounds usually consist of pure tones at several frequencies. Pure tones and tonal sounds are discerned more readily by the human ear. Pure tones and tonal sounds are compensated for in sound studies by adding a calculated number of dB(A) to the measured sound pressure.

(6) Percentile of Sound Levels - Fluctuations of SPLs can be expressed as a percentile level designated as $L_{(n)}$ where a given decibel level is exceeded *n* % of the time. A designation of $L_{(10)}$ = 70 dBA means the measured SPLs exceeded 70 dBA 10% of the time. A designation of $L_{(90)}$ = 70 dBA means the measured SPLs were exceeded 90% of the time. $L_{(90)}$ is often used to designate the background noise level.

(7) Expression of Overall Sound - Part of the overall assessment of sound is the *Equivalent Sound Level* (L_{eq}) which assigns a single value of sound level for a period of time in which varying levels of sound are experienced over that time period. The L_{eq} value provides an indication of the effects of sound on people. It is also useful in establishing the ambient sound levels at a potential noise source.

In order to evaluate the above factors in the appropriate context, one must identify the following: 1) appropriate receptor locations for sound level calculation or measurement; 2) ambient sound levels and characteristics at these receptor locations; and 3) the sound pressure increase and characteristics of the sound that represents a significant noise effect at a receptor location.

b. Receptor Locations

Appropriate receptor locations may be either at the property line of the parcel on which the facility is located or at the location of use or inhabitance on adjacent property. The solid waste regulations require the measurements of sound levels be at the property line. The most conservative approach utilizes the property line. The property line should be the point of reference when adjacent land use is proximal to the property line. Reference points at other locations on adjacent properties can be chosen after determining that existing property usage between the property line and the reference point would not be impaired by noise, i.e., property uses are relatively remote from the property line. The location of the facility should be shown on a map in relation to each potential receptor. Any future expansion should be described in a narrative as well as depicted on a map. The map and narrative should also include the distance of the operation to each point of reception including the distance at the point in time when an expanding operation will be closest to the receptors.

c. Thresholds for Significant Sound Pressure Level (SPL) Increase

The goal for any permitted operation should be to minimize increases in sound pressure level above ambient levels at the chosen point of sound reception. Increases ranging from 0-3 dB should have no appreciable effect on receptors. Increases from 3-6 dB may have potential for adverse noise impact only in cases where the most sensitive of receptors are present. Sound pressure increases of more than 6 dB may require a closer analysis of impact potential depending on

existing SPLs and the character of surrounding land use and receptors. SPL increases approaching 10 dB result in a perceived doubling of SPL. The perceived doubling of the SPL results from the fact that SPLs are measured on a logarithmic scale. An increase of 10 dB(A) deserves consideration of avoidance and mitigation measures in most cases. The above thresholds as indicators of impact potential should be viewed as guidelines subject to adjustment as appropriate for the specific circumstances one encounters.

Establishing a maximum SPL at the point of reception can be an appropriate approach to addressing potential adverse noise impacts. Noise thresholds are established for solid waste management facilities in the Department's Solid Waste regulations, 6 NYCRR Part 360. Most humans find a sound level of 60 - 70 dB(A) as beginning to create a condition of significant noise effect (EPA 550/9-79-100, November 1978). In general, the EPA's "Protective Noise Levels" guidance found that ambient noise levels # 55 dBA $L_{(dn)}$ was sufficient to protect public health and welfare and, in most cases, did not create an annoyance (EPA 550/9-79-100, November 1978). In non-industrial settings the SPL should probably not exceed ambient noise by more than 6 dB(A) at the receptor. An increase of 6 dB(A) may cause complaints. There may be occasions where an increase in SPLs of greater than 6 dB(A) might be acceptable. The addition of any noise source, in a non-industrial setting, should not raise the ambient noise level above a maximum of 65 dB(A). This would be considered the "upper end" limit since 65 dB(A) allows for undisturbed speech at a distance of approximately three feet. Some outdoor activities can be conducted at a SPL of 65 dB(A). Still lower ambient noise levels may be necessary if there are sensitive receptors nearby. These goals can be attained by using the mitigative techniques outlined in this guidance.

Ambient noise SPLs in industrial or commercial areas may exceed 65 dB(A) with a high end of approximately 79 dB(A) (EPA 550/9-79-100, November 1979). In these instances mitigative measures utilizing best management practices should be used in an effort to ensure that a facility's generated sound levels are at a minimum. The goal in an industrial/commercial area, where ambient SPLs are already at a high level, should be not to exceed the ambient SPL. Remember, if a new source

operates at the same noise level as the ambient, then 3 dB(A) must be added to the existing ambient noise level to obtain the future noise level. If the goal is not to raise the future noise levels the new facility would have to operate at 10 dB(A) or more lower than the ambient.(see Table A)

Table B

HUMAN REACTION TO INCREASES IN SOUND PRESSURE LEVEL

Increase in Sound Pressure (dB)	Human Reaction
Under 5	Unnoticed to tolerable
5 - 10	Intrusive
10 - 15	Very noticeable
15 - 20	Objectionable
Over 20	Very objectionable to intolerable

(Down and Stocks - 1978)

Impact assessment will vary for specific project reviews, but must consist of certain basic components for all assessments. Additional examination of sound generation and noise reception are necessary, where circumstances warrant. Sound impact evaluation is an incremental process, with four potential outcomes:

- exemption criteria are met and no noise evaluation is required;
- noise impacts are determined to be non-significant (after first-level evaluation);
- noise impacts are identified as a potential issue but can be readily mitigated (after second level evaluation); or
- noise impacts are identified as a significant issue requiring analysis of alternatives as well as mitigation (third level evaluation).

All levels of evaluation may require preparation of a noise analysis. The required scope of noise impact analysis can be rudimentary to rather sophisticated, depending on circumstances and the results obtained from initial levels of evaluation. Recommendations for each level of evaluation are presented below.

2. Situations in Which No Noise Evaluation is Necessary

When certain criteria are satisfied, the need for undertaking a noise impact analysis at any level is eliminated. These criteria are as follows:

a. The site is contained within an area in which local zoning provides for the intended use as a "right of use". It does not apply to activities that are permissible only after an applicant is granted a special use permit by the local government; and

b. The applicant's operational plan incorporates appropriate best management practices (BMPs [see Section V.C. Mitigation - Best Management Practices]) for noise control for all facets of the operation.

Where activities may be undertaken as a "right of use", it is presumed that noise has been addressed in establishing the zoning. Any residual noise that is present following BMP implementation should be considered an inherent component of the activity that has been found acceptable in consideration of the zoning designation of the site.

3. First Level Noise Impact Evaluation

The initial evaluation for most facilities should determine the maximum amount of sound created at a single point in time by multiple activities for the proposed project. All facets of the construction and operation that produce noise should be included such as land clearing activities (chain saw and equipment operation), drilling, equipment operation for excavating, hauling or conveying materials, pile driving, steel work, material processing, product storage and removal. Land clearing and construction may be only temporary noise at the site whereas the ongoing operation of a facility would be considered permanent noise. An analysis may be required for

various phases of the construction and operation of the project to assure that adverse noise effects do not occur at any phase.

To calculate the sound generated by equipment operation, one can consult the manufacturers' specifications for sound generation, available for various types of equipment. Another option for calculating the sound to be generated by equipment is to make actual measurements of sound generated by existing similar equipment, elsewhere.

Tables C and D summarize noise measurements from some common equipment used in construction and mining. Table E summarizes the noise level, in decibels (dB[A]), from some common sources. This information can be used to assist Department staff in relating potential noise impacts to sound levels produced by commercial and industrial activities. Use of these tables in the first level of analysis will help determine whether or not noise will be an issue and whether actual measurements should be made to confirm noise levels.

Table C

PROJECTED NOISE LEVELS

Noise Source	Measurements	1,000 feet	2,000 feet	3,000 feet
Primary and secondary crusher	89 dB(A) at 100 ft	69.0 dB(A)	63.0 dB(A)	59.5 dB(A)
Hitachi 501 shovel loading	92 dB(A) at 50 ft	66.0 dB(A)	60.0 dB(A)	56.5 dB(A)
Euclid R-50 pit truck loaded	90 dB(A) at 50 ft	64.0 dB(A)	58.0 dB(A)	54.4 dB(A)
Caterpillar 988 loader	80 dB(A) at 300 ft	69.5 dB(A)	63.5 dB(A)	60.0 dB(A)

(The Aggregate Handbook, 1991)

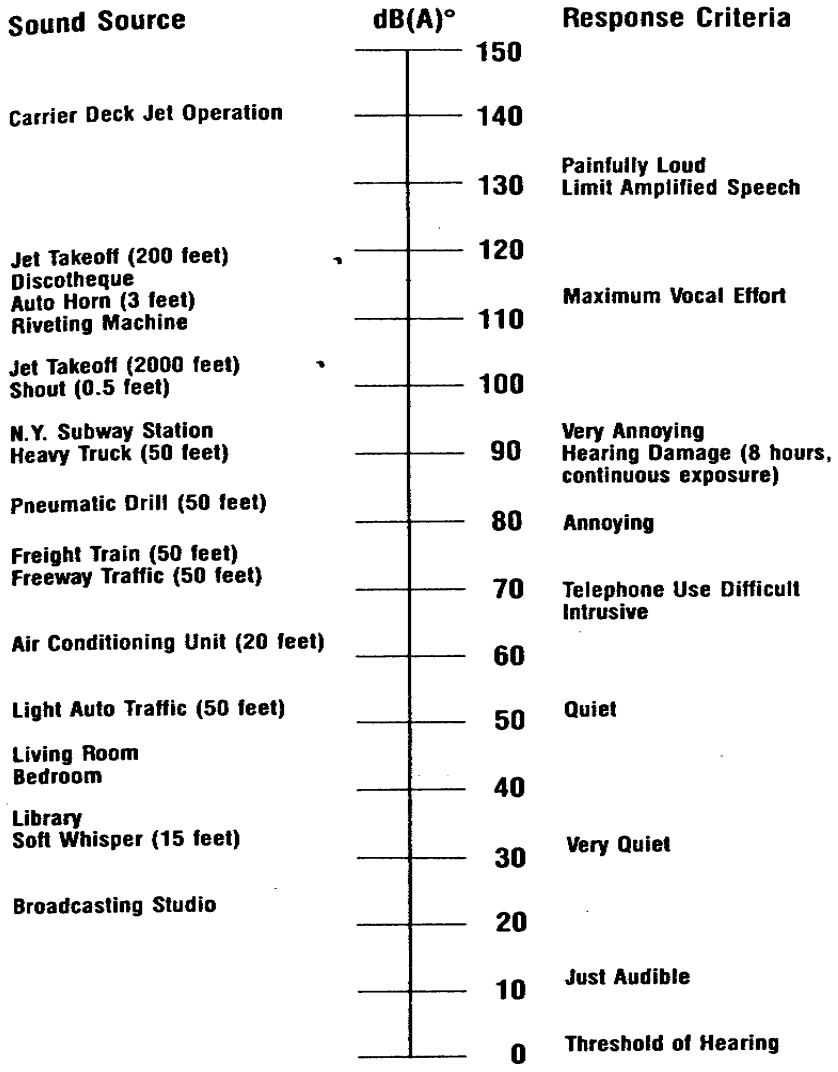
Table D

Common Equipment Sound Levels

EQUIPMENT	**DECIBEL LEVEL**	**DISTANCE** in feet
Augered earth drill	80	50
Backhoe	83-86	50
Cement mixer	63-71	50
Chain saw cutting trees	75-81	50
Compressor	67	50
Garbage Truck	71-83	50
Jackhammer	82	50
Paving breaker	82	50
Wood Chipper	89	50
Bulldozer	80	50
Grader	85	50
Truck	91	50
Generator	78	50
Rock drill	98	50

(excerpt and derived from Cowan, 1994)

Table E



(The Aggregate Handbook, 1991)

The sound level at receptor locations should be calculated using the inverse square rule whereby sound is attenuated over distance. Again, each doubling of the distance from the source of a noise decreases the SPL by 6 dB(A) at distances greater than 50 feet. This calculation should first consider the straight line distance between the point of noise generation and the point of noise reception with the presumption that no natural or manmade features exist along the transect between the two points that would further attenuate sound level. Calculations should be performed for each point of reception in all directions being careful to evaluate the worst case noise impact potential by considering activities at the point where they would be closest to a receptor. The sound level calculated for the point of reception should be related to ambient sound levels. Ambient sound levels can be either measured or assumed based on established references for the environmental setting and land use at the point of reception. For estimation purposes, ambient SPLs will vary from approximately 35 dB(A) in a wilderness area to approximately 87 dB(A) in a highly industrial setting. A quiet seemingly serene setting such as rural farm land will be at the lower end of the scale at about 45 dB(A), whereas an urban industrial area will be at the high end of this scale at around 79 dB(A) (EPA 550/9-79-100, November 1978). If there is any concern that levels based on reference values do not accurately reflect ambient SPL, field measurements should be undertaken to determine ambient SPLs.

Where this evaluation indicates that sound levels at the point of reception will not be perceptible, similar to or only slightly elevated as compared to ambient conditions, no further evaluation is required. When there is an indication from this initial analysis that marginal or significant noise impact may occur, further evaluation is required. In determining the potential for an adverse noise impact, consider not only ambient noise levels, but also the existing land use, and whether or not an increased noise level or the introduction of a discernable sound, that is out of character with existing sounds, will be considered annoying or obtrusive. (see B.1.a Evaluation of Sound Characteristics)

4. Second Level Noise Impact Evaluation

Further refine the evaluation of noise impact potential by factoring in any additional noise attenuation that will be provided by existing natural topography, fabricated structures such as buildings, walls or berms or vegetation located between the point of noise generation and noise reception. This analysis may require consideration of future conditions and the loss of natural noise buffers over time.

Dense vegetation that is at least 100 feet in depth will reduce the sound levels by 3 to 7 dB(A). Evergreens provide a better vegetative screen than deciduous trees. Keep in mind that if a vegetative screen does not currently exist, planting a vegetative screen may require 15 or more years of growth before it becomes effective.

The degree to which topography attenuates noise depends on how close the feature is located to the source or the receptor of the noise. Topography can act as a natural screen. The closer a hill or other barrier is to the noise source or the receptor, the larger the sound shadow will be on the side opposite the noise source. Certain operations such as mining and landfills may be able to use topography to maintain a screen between the operation and receptors as they progress. Mining operations may be able to create screens by opening a mine in the center of the site using and maintaining the pit walls as barriers against sound (Aggregate Handbook, 1991).

If after taking into account all the attenuating features the potential still exists for adverse noise impact, other types of noise analyses or modeling should be used to characterize the source. An Equivalent Sound Level (L_{eq}) analysis or a related type of noise analysis may better define activities or sources that require more mitigation or isolation so that noise emanating from these sources will not cause an adverse impact.

Where it is demonstrated that noise absorbing or deflecting features further attenuate sound reception to a level of no significant increase, no further analysis is necessary. Where it is determined that noise level or the character of the noise may

have a significant adverse effect on receptors, other noise mitigation measures should be evaluated in an expanded noise analysis.

5. Third Level - Mitigation Measures

When the above analyses indicate significant noise effects may or will occur, the applicant should evaluate options for implementation of mitigation measures that avoid, or diminish significant noise effects to acceptable levels (see Section V.C. Mitigation - Best Management Practices). Adequate details concerning mitigation measures and an evaluation of the effectiveness of the mitigative measures through additional sound level calculations should be provided in a noise analysis. These calculations are to factor in the noise reduction or avoidance capabilities of the mitigation measures. In circumstances where noise effects cannot readily be reduced to a level of no significance by project design or operational features in the application, the applicant must evaluate alternatives and mitigation measures in an environmental impact statement to avoid or reduce impacts to the maximum extent practicable per the requirements of the State Environmental Quality Review Act (SEQR).

The noise analysis should be part of the application or a supplement to it, and will be part of the SEQR environmental assessment by reference. Duplicative noise analysis information is not required for the permit application and the assessment of impacts under SEQR. A proper analysis can satisfy information needs for both purposes.

C. Mitigation - Best Management Practices (BMP) for Reducing Noise

Various noise abatement techniques are available for reducing frequency of sound, duration of sound or SPLs at receptor locations. The mitigation techniques given below are listed according to what sound characteristic they mitigate.

1. Reduce noise frequency and impulse noise at the source of generation by:

   a. Replacing back-up beepers on machinery with strobe lights (subject to other requirements, e.g., OSHA and Mine Safety and Health Administration, as applicable). This eliminates the most annoying impulse beeping;

   b. Using appropriate mufflers to reduce the frequency of sound on machinery that pulses, such as diesel engines and compressed air machinery;

   c. Changing equipment: using electric motors instead of compressed air driven machinery; using low speed fans in place of high speed fans;

   d. Modifying machinery to reduce noise by using plastic liners, flexible noise control covers, and dampening plates and pads on large sheet metal surfaces; and

2. Reduce noise duration by:

   a. Limiting the number of days of operation, restricting the hours of operation and specifying the time of day and hours of access and egress can abate noise impacts.

   b. Limiting noisier operations to normal work day hours may reduce or eliminate complaints.

Limiting hours of construction or operation can be an effective tool in reducing potential adverse impacts of noise. The impacts of noise on receptors can be

significantly reduced by effectively managing the hours at which the loudest of the operations can take place.

Implementation of hours of operation does not reduce the SPL emanating from a facility. Determining whether or not hours of operation will be effective, mitigation requires consideration of: public safety, for example road construction at night may reduce traffic concerns and facilitate work; duration of the activity, is it a one time event necessary to meet a short term goal or will the activity become an ongoing operation; and surrounding land use, consider what type(s) of land use is proximal to the activity and at what time(s) might a reduction of noise levels be necessary. There may be other factors to consider due to the uniqueness of a given activity or the type of land use adjacent to the activity. Hours of operation should also consider weekend activities and legal holidays that may change the types of land use adjacent to the permitted activity or increase traffic levels in an area.

The best results from using hours of operation as a mitigative measure will be obtained if the hours are negotiated with the owner or operator of the facility. The less noisy aspects of an operation may not have to be subject to the requirements of hours of operation such as preparing, greasing and maintaining machinery for the upcoming day's operation. The more noisy operations can be scheduled to begin when people in the receptor area are less likely to be adversely effected. Hours of operation should be included in the operation plans for a facility that becomes part of the permit, or in the event that there is no operation plan, can be included as a permit condition.

3. Reduce Noise sound pressure levels by:

   a. Increasing the setback distance.
   b. Moving processing equipment during operation further from receptors.
   c. Substituting quieter equipment (example - replacing compressed air fan with an electric fan could result in a 20 dB reduction of noise level).

d. Using mufflers selected to match the type of equipment and air or gas flow on mechanical equipment.
e. Ensuring that equipment is regularly maintained.
f. Enclosing processing equipment in buildings (example - enclosing noisy equipment could result in an 8-10 dB noise level reduction, a 9 inch brick wall can reduce SPL by 45-50 dB).
g. Erecting sound barriers such as screens or berms around the noise generating equipment or near the point of reception. The angle of deflection also increases as the height of a screen or barrier increases. Screens or barriers should be located as close to the noise source or the receptor as possible. The closer the barrier is located to the source or the receptor, the greater the angle of deflection of the sound waves will be creating a larger "sound shadow" on the side opposite the barrier. Stockpiles of raw material or finished product can be an effective sound barrier if strategically placed.
h. phasing operations to preserve natural barriers as long as possible.
i. altering the direction, size, proximity of expanding operations.
j. Designing enclosed facilities to prevent or minimize an SPL increases above ambient levels. This would require a noise analysis and building designed by a qualified engineer that includes adequate ventilation with noise abatement systems on the ventilation system.

Public notification of upcoming loud events can also be used as a form of mitigation although it doesn't fit easily into the categories above. People are less likely to get upset if they know of an upcoming event and know that it will be temporary.

The applicant should demonstrate that the specific mitigation measures proposed will be effective in preventing adverse noise effects on receptors.

D. Decision Making - Conditioning Permits to Limit Noise Impacts

Preferably, the mitigation measures as outlined in the construction and operational plans should be relied upon to mitigate the effects of noise on receptors. The permit should state that the activity will be conducted in accordance with the approved plan. Otherwise, mitigation measures and BMP's can be imposed within specific permit conditions.

It is not the intention of this guidance to require decibel limits to be established for operations where such limits are not required by regulation. There are, however, instances when a decibel limit may be established for an operation to ensure activities do not create unacceptable noise effects, as follows:

1. The review of a draft and final environmental impact statement demonstrates the need for imposition of a decibel limit;
2. A decibel limit is established by the Commissioner's findings after a public hearing has been held on an application;
3. The applicant asks to have a decibel limit to demonstrate the ability to comply; or
4. A program division seeks to establish a decibel limit as a permit condition, when necessary to demonstrate avoidance of unacceptable noise impact.

Ultimately, the final decision must incorporate appropriate measures to minimize or avoid significant noise impacts, as required under SEQR. Any unavoidable adverse effects must be weighed along with other social and economic considerations in deciding whether to approve or deny a permit.

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APPENDIX B

TOWN of ULSTER NOISE ORDINANCE

Ulster, NY Noise Ordinance

Chapter 117

NOISE
(NPC posted this March 2004)

[HISTORY: Adopted by the Town Board of the Town of Ulster at time of adoption of Code; see Ch. 1, General Provisions, Art. 1. Amendments noted where applicable.]

§ 117-1. Findings and purpose; applicability.

A. Whereas excessive sound is a serious hazard to the health, welfare, safety and the quality of life, it is the policy of the Town of Ulster, New York to prevent excessive sound that may jeopardize the health, welfare or safety of the citizens or degrade the quality of life.

B. This chapter shall apply to the control of sound originating from stationary sources within the limits of the Town of Ulster, New York.

§ 117-2. Definitions.

As used in this chapter, the following terms shall have the meanings indicated:

CONSTRUCTION - Any site preparation, assembly, erection, repair, alteration or similar action, including demolition of buildings or structures.

DECIBEL - A unit of measure of the relative loudness of sound, equal approximately to the smallest degree of difference of loudness detectable by the human ear, which is a range between one (1) and one hundred thirty (130).

DEMOLITION - Any dismantling, intentional destruction or removal of buildings or structure.

EMERGENCY WORK - Any work or action necessary to deliver essential services, including but not limited to repairing water, gas, electricity, telephone, sewer facilities or public transportation facilities, removing fallen trees on public rights-of-way or abating life-threatening conditions.

IMPULSIVE SOUND - A sound characterized by brief excursions of peak sound pressure which significantly exceeds the ambient sound.

MUFFLER - A sound-dissipative device or system for abating the sound of escaping gases of an internal combustion engine or any other instrumentality.

MULTI-DWELLING-UNIT BUILDING - Any building wherein there are two (2) or more dwelling units.

NOISE - Any sounds of such level and duration as to be or tend to be injurious to human health or welfare or that would unreasonably interfere with the enjoyment of life or property.

NOISE CONTROL ADMINISTRATOR - The noise control officer designated as the official liaison with all municipal departments, empowered to grant permits for variances.

NONRESIDENTIAL PROPERTY - Any property or facility which is not used for human habitation, either actually or potentially.

PUBLIC RIGHT-OF-WAY - Any street, avenue, boulevard, road, highway, sidewalk, alley or similar place that is owned or controlled by a governmental entity.

PUBLIC SPACE - Any real property or structures thereon that are owned or controlled by a governmental entity.

REAL PROPERTY LINE - Either the imaginary line including its vertical extension that separates one parcel of real property from another, or the vertical and horizontal boundaries of a dwelling unit that is in a multi-dwelling-unit building.

RESIDENTIAL PROPERTY - Any property used for human habitation.

SOUND LEVEL - The sound pressure level measured in decibels with a sound level meter set for A-weighting "sound level" expressed in dBA.

SOUND LEVEL METER - Any instrument for the measurement of sound levels as specified in American National Standards.

§ 117-3. Maximum noise levels.

A. No person shall cause, suffer, allow or permit the operations of any source of sound on a particular category of property or any public space or right-of-way in such a manner as to create a sound level that exceed the particular sound level limits set forth below when measured at or within the real property line of the receiving property, except as provided in Subsection C.

B. When measuring noise within a dwelling unit of a multi-dwelling-unit building, all exterior doors and windows shall be closed, and the measurements shall be taken in the center of the room.

Table I
Maximum Permissible Sound Levels by Receiving Property Category

	Receiving Property Category			
	Residential		**Nonresidential**	
Sound Source Property Category	**7:00 a.m. to 10:00 p.m. (dBA)**	**10:00 p.m. to 7:00 a.m. (dBA)**	**7:00 a.m. to 10:00 p.m. (dBA)**	**10:00 p.m. to 7:00 a.m. (dBA)**

Residential	72	66	72	66
Nonresidential	72	66	72	66

C. The following are exempt from the sound level limits of Table I:

(l) Noise from domestic power tools, lawn mowers and agricultural equipment, when operated with a muffier.

(2) Sound from church bells and church chimes.

(3) Noise from construction activity, provided that all motorized equipment used in such activity is equipped with functioning mufflers.

(4) Noise from snowblowers, snow throwers and snowplows, when operated with a muffler for the purpose of snow removal.

(5) Noise from stationary emergency signaling devices that conforms to the provisions of American National Standards, which provisions are incorporated herein by reference.

(6) Noise from an exterior burglar alarm of any building or motor vehicle, provided that such burglar alarm shall terminate its operation within fifteen (15) minutes after it has been activated.

§ 117-4. Exceptions.

The provisions of this chapter shall not apply to:

A. The emission of sound for the purpose of alerting persons to the existence of an emergency.

B. The emission of sound in the performance of emergency work.

§ 117-5. Variances.

A. Any person who owns or operates any stationary noise source may apply to the Building Inspector for a variance from one (1) or more of the provisions of this chapter. Applications for a permit of variance shall supply information, including but not limited to:

(1) The nature and location of the noise source for which such application is made.

(2) The reason for which the permit of variance is requested, including the hardship that will result to the applicant, his/her client of the public if the permit of variance is not granted.

(3) The nature and intensity of noise that will occur during the period of the variance.

(4) The section or sections of this chapter for which the permit of variance shall apply.

(5) A description of interim noise control measures to be taken by the applicant to minimize noise and the impacts occurring therefrom.

(6) A specific schedule of the noise control measures which shall be taken to bring the source into compliance with this chapter within a reasonable time.

(7) A copy of the permit of variance must be kept on file by the Town Clerk for public inspection.

B. Failure to supply the information required by the Building Inspector shall be cause for rejection of the application.

C. The Building Inspector may charge the applicant a fee as provided in Chapter A194, Fees, to cover expenses resulting from the processing of the permit of variance application.

D. The Building Inspector may, at his/her discretion, limit the duration of the permit of variance, which shall never be longer than one (1) year. Any person holding a permit of variance and requesting an extension of time shall apply for a new permit of variance under the provisions of this section.

E. The permit of variance shall operate as a stay of prosecution.

F. The permit of variance may be revoked by the Building Inspector if the terms of the permit of variance are violated.

§ 117-6. Enforcement; penalties for offenses; additional remedies.

A. Issuance of summons. Violation of any provision of this chapter shall be cause for a summons to be issued by the Building Inspector according to procedures set forth in Subsection C, Penalties.

B. Abatement orders.

(1) Except as provided in Subsection B(2), in lieu of issuing a summons, the Building Inspector may issue an order requiring abatement of any source of sound alleged to be in violation of this chapter within a reasonable time period and according to guidelines which the Building Inspector may prescribe.

(2) An abatement order shall not be issued when the Building Inspector has reason to believe that there will not be compliance with the abatement order.

C. Penalties.

(1) Any person who violates any provision of this chapter shall be subject to a penalty for each offense of not more than two hundred fifty dollars ($250.) or up to fifteen (15) days imprisonment or both.

(2) If the violation is of a continuing nature, each day during which it occurs shall constitute an additional, separate and distinct offense.

D. Other remedies. No provision of this chapter shall be construed to impair any common law or statutory cause of action, or legal remedy therefrom, of any person for injury or damage arising from any violation of this chapter or from any other law.

APPENDIX C

CITY of KINGSTON NOISE ORDINANCE

§ 300-6. Maximum permissible sound levels by receiving land use for determining noise disturbance. [Amended 12-16-1999 by L.L. No. 2-2000, approved 1-3-2000]

A. No person shall operate or permit to be operated on private property any source of sound in such a manner as to create a sound level which exceeds the limit set forth for the receiving land use category in Table 1 when measured at or within the real property boundary of the receiving land use.

Table 1

Receiving Land Use Category	Sound Level Limit Time	(dBA)
Residential	7:00 a.m. to 10:00 p.m.	60
	10:00 p.m. to 7:00 a.m.	55
NB (Convenience Business)	At all times	60
Commercial	At all times	75
Industrial	At all times	75
Another dwelling within a multiple-dwelling-unit building[1]	7:00 a.m. to 10:00 p.m.	55
	10:00 p.m. to 7:00 a.m.	50

[1]NOTE: Levels only apply when the sound source is another location within a multiple-dwelling-unit building. Otherwise, the levels from the residential receiving land use category are applicable.

B. When measuring noise within a dwelling unit or within a multiple-dwelling-unit building, measurements shall be taken in the center of the room affected or as near the center of the room as possible.

C. When measuring noise from a different land use category, the most restrictive sound level limits will be applied for determining permissible sound levels.

D. Where time restrictions set forth in this section are not consistent with those used in other parts of the regulation, the time restrictions for express uses will apply.

§ 300-7. Exceptions and special permits.

A. Emergency exception. The provisions of this article shall not apply to:

(1) The emission of sound for the purpose of alerting persons to the existence of an emergency; or

(2) The emission of sound in the performance of emergency work. Nothing in this section, however, shall be construed to prevent

law enforcement, ambulance, fire or other emergency personnel to make excessive noise in the performance of their duties when such noise is clearly unnecessary; or

(3) The emission of sound caused by a properly functioning generator that is being used to provide power to a home in the event of a power outage that is a result of circumstances beyond their control. **[Added 10-1-2013 by L.L. No. 3-2013, approved 10-15-2013]**

B. Special permits.

(1) The Planning Department shall have the authority, consistent with this section, to grant special permits which may be requested pursuant the provisions contained herein.

(2) Any person seeking a special permit pursuant to this section shall file an application with the Planning Department. The application shall contain information which demonstrates that bringing the source of the sound or activity for which the special permit is sought into compliance with this article would constitute an unreasonable hardship on the applicant, on the community or on other persons. Notice of an application for special permit shall be published according to the requirements of each application as set forth by the planning permit. Any individual who claims to be adversely affected by allowance of this special permit may file a statement with the Planning Department containing any information to support his claim. If the Planning Department finds that a sufficient controversy exists regarding an application, a public hearing may be held.

(3) In determining in whether to grant or deny the application, the Planning Department shall balance the hardship to the applicant, the community and other persons of not granting this special permit against the adverse impact on the health, safety and welfare of persons affected, the adverse impact on the property affected and any other adverse impacts of granting this special permit. Applicants for special permits and persons contesting special permits may be required to submit any information the Planning Department may reasonably require. In granting or denying an application, the Planning Department shall place on public file a copy of the decision and the reasons for denying or granting the special permit.

(4) Special permits shall be granted by notice to the applicant containing all necessary conditions, including a time limit on the permitted activity. The special permit shall not become effective until all conditions are agreed to by the applicant. Noncompliance with any conditions of the special permit shall

terminate it and subject the person holding it to those provisions of this article regulating the source of sound or activity for which the special permit was granted.

(5) Application for an extension of the time limit specified in special permit for modification of other substantial conditions shall be treated like applications for initial special permit under Subsection B(2).

(6) The Planning Department may issue guidelines approved by the Common Council defining the procedures to be followed when applying for special permit and the criteria to be considered in deciding whether to grant a special permit.

(7) There shall be a fee as set forth in the fee schedule to be established by resolution of the Common Council of this City[1]for special permit under this section. **[Amended 9-2-2014 by L.L. No. 2-2014, approved 9-11-2014]**

C. Special permits for time to comply.

(1) Within 120 days following the effective date of this article, the owner of any commercial or industrial source of sound may apply to the Planning Department for a special permit extending the time to comply with the sections herein. The Planning Department shall have the authority, consistent with this section, to grant such a permit not to exceed 210 days from the effective date of this article, and each extension will require the posting of a performance bond to be established by the Planning Department.

(2) Any person seeking a special permit in time to comply shall file an application with the Planning Department. The application shall contain information which demonstrates that bringing the source of the sound or activity for which the special permit is sought into compliance with this article would constitute an unreasonable hardship on the applicant, on the community or on other persons. Notice of an application for a special permit for time to comply shall be published according to the requirements of each application as set forth by the Planning Department. Any individual who claims to be adversely affected by allowance of this special permit may file a statement with the Planning Department containing any information to support his claim. If the Planning Department finds that a sufficient controversy exists regarding an application, a public hearing may be held.

(3) In determining whether to grant or deny the application for an extension, the Planning Department shall balance the hardship to the applicant, the community and other persons of not

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1. Editor's Note: See Ch. 217, Fees.

granting this extension against the adverse impact on the health, safety and welfare of persons affected, the adverse impact on the property affected and any other adverse impacts of granting this extension. Applicants for extensions and persons contesting extensions may be required to submit any information the Planning Department may reasonably require. In granting or denying an application, the Planning Department shall place on public file a copy of the decision and the reasons for denying or granting the extension.

(4) Special permits and time to comply shall be granted to the applicant containing all necessary conditions, including a schedule for achieving compliance. The special permit extending time to comply shall not become effective until all conditions are agreed to by the applicant. Noncompliance with any condition of the permit shall terminate the permit and subject the person holding it to those provisions of this article.

(5) Application for extension of time limits specified in special permits and time to comply or for modifications for initial permits under Subsection B may be granted, provided that the Planning Department must find that the need for the extension and modification clearly outweighs any adverse impacts of granting the extension and modification.

(6) The Planning Department may issue guidelines approved by the Common Council defining the procedures to be followed when applying for an extension of a special permit and the criteria to be considered in deciding whether to grant an extension.

D. Appeals. Appeals of an adverse decision under this section shall be made in accordance with the provisions of Article 78 of the Civil Practice Law and Rules of the State of New York.

E. The provisions of Chapter 300 and all other sections of the Code related to when work may be conducted in the City of Kingston shall not apply to the employees of the Department of Public Works of the City of Kingston. Said workers may lawfully commence their normal hours of work at 6:00 a.m. **[Added 6-6-2006 by L.L. No. 3-2006; approved 6-21-2006]**

§ 300-8. Enforcement; penalties for offenses.

A. Issuance of appearance tickets. The Chief of the Kingston Police Department shall approve the form of appearance tickets to be issued pursuant to this article, and the Chief of the Kingston Police Department or any duly appointed police officer of the Department is hereby authorized and empowered to issue an appearance ticket for the enforcement of this article. If no specific procedures for the issuance of said appearance tickets is set forth herein, it shall be

issued in accordance with the provisions of the City Code, Penal Law and the Criminal Procedural Law of the State of New York. Any violation of this article shall be considered equivalent to a traffic violation under the Vehicle and Traffic Law of the State of New York.

B. Penalties for offenses.
   (1) Any person who violates a provision of this article shall be fined a sum of not less than $100 and not more than $500 and/or subject to a period of incarceration not to exceed 30 days; or a fine of not less than $100 and not more than $500 and a conditional discharge for a period of one year as defined in the Penal Law and Criminal Procedural Law for the State of New York.
   (2) Each day a violation of any provision of this article exists shall constitute a separate violation.
   (3) In addition to the penalties as set forth in Subsection B(1), any person who violates a provision of this article shall be subject to an order that said person shall install any apparatus which can reasonably be expected to correct the violation; or to repair, properly maintain, replace or alter such device in a manner which can reasonably be expected to correct the violation; or seal any device which causes or is maintained or operated so as to cause a violation of any provision of this article; or be ordered to cease and desist from any activity which causes or is conducted so as to cause a violation of any provision of this article.

C. Abatement orders.
   (1) Except as provided in Subsection C(2), in lieu of issuing an appearance ticket as provided for in the previous Subsection A, Issuance of appearance tickets, providing for compulsory enforcement, the Police Department may take action to obtain voluntary compliance with the provisions of this article by way of warning, notice or educational means and may issue an order requiring abatement of any source of sound or vibration alleged to be in violation of this article in a reasonable time period and according to guidelines which the Planning Department may prescribe. Such noncompulsory methods may not be used before proceeding by way of compulsory enforcement as provided in Subsection A of this section.
   (2) An abatement order shall not be issued when the Police Department has reasonable cause to believe that a person is willfully or knowingly violating a provision of this article or when the Police Department has reason to believe that there will not be compliance with the abatement order.

D. Immediate threats to health and welfare. If the Chief of Police or his designee determine that there is a need for an immediate halt to any sound that poses an immediate threat to the health and welfare of any person other than those persons exposed as a result of trespass or invitation upon private property by the person causing or permitting the sound or employment by the person or contractor of the person causing or permitting the sound he may maintain an action or proceeding in a court of competent jurisdiction to restrain by injunction the violation under this section.

E. Other remedies. No provision of this article shall be construed to impair or shall restrict any right which any person may have under any statute, including but not limited to the Environmental Conservation Law, Vehicle and Traffic Law, Labor Law or any other local, state or federal statute or common law, to seek enforcement of any noise control requirement or to seek any other legal relief or remedy therefrom for injury or damage arising from any violation of this article or from any other law.

§ 300-9. Service of papers.

Service of any written notice, order or decision required for this article shall be made to a person as follows:

A. Either by mailing the notice, order or decision directed at the person at the address listed in his application, permit or operating certificate or at the address at which the sound source is located;

B. By leaving the notice, order or decision with the person or, if the person is not an individual, with a member of the partnership or the group concerned or with an officer or managing agent of the corporation or other entity; or

C. By posting the notice, order or decision at the site where the sound source is located and by also mailing the notice, order or decision directed to the person at the address where the sound source is located.[2]

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2. Editor's Note: Former Art. II, Sound Amplifiers and Devices, adopted 8-7-1984 by L.L. No. 3-1984, approved 8-28-1984, as Ch. 100 of the 1984 Code, which immediately followed this section, was repealed 12-16-1999 by L.L. No. 2-2000, approved 1-3-2000.

APPENDIX D
12-HOUR AMBIENT SOUND DATA

Session Report

10/9/2019

Information Panel

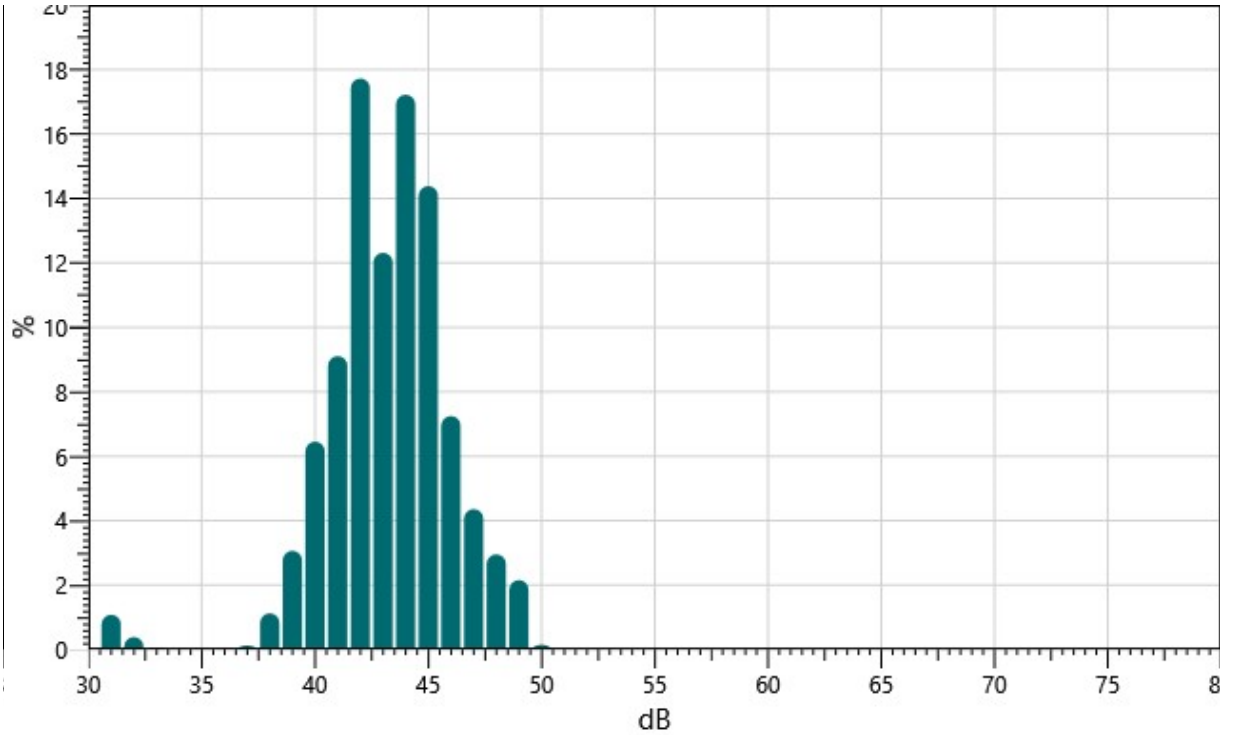
Name	M-1
Start Time	9/25/2019 6:00:01 AM
Stop Time	9/25/2019 6:00:01 PM
Device Name	BLR010004
Model Type	SoundPro DL
Device Firmware Rev	R.13H
Comments	
Run Time	12:00:00

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Lmax	1	72.4 dB	Leq	1	44.4 dB
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	FAST			

Statistics Chart

M-1: Statistics Chart



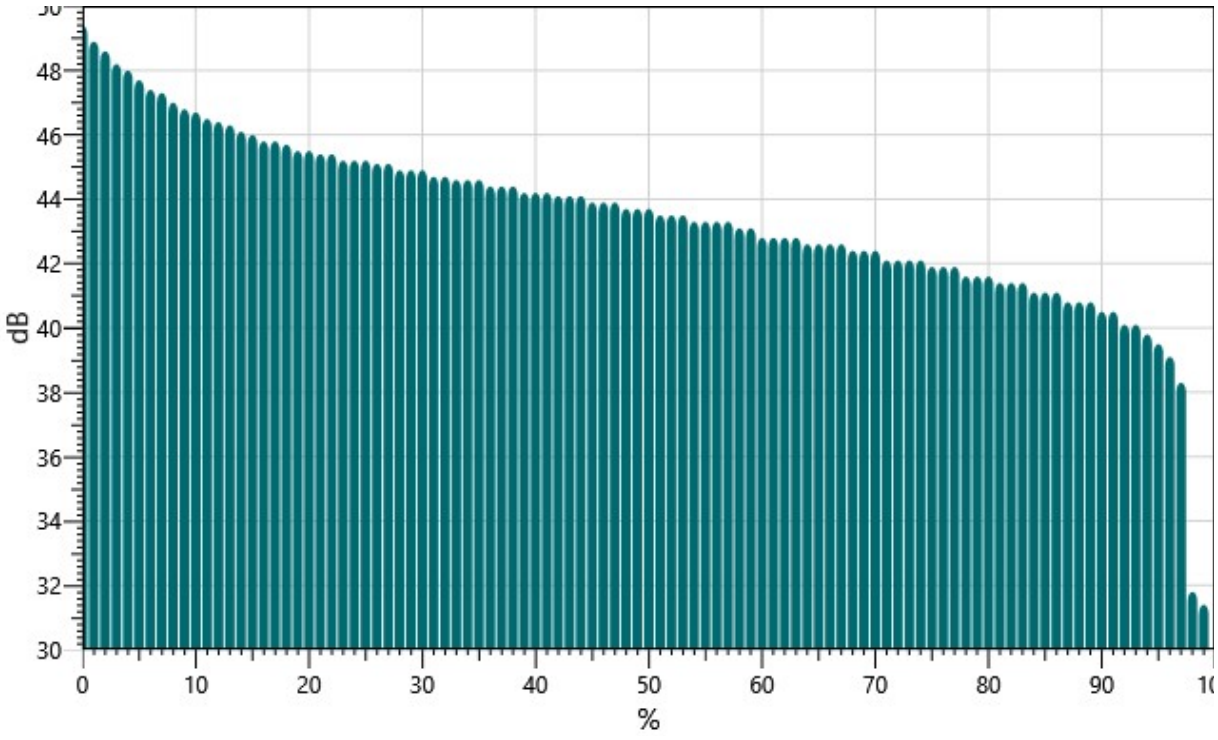
Statistics Table

dB:	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
30:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31:	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.28	0.46	0.30	1.08
32:	0.15	0.08	0.05	0.05	0.04	0.03	0.00	0.00	0.00	0.00	0.39
33:	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.05
34:	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02
35:	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.03
36:	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02
37:	0.00	0.03	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.13
38:	0.21	0.00	0.00	0.00	0.37	0.00	0.00	0.00	0.55	0.00	1.13
39:	0.00	0.00	0.75	0.00	0.00	0.00	0.99	0.00	0.00	1.32	3.07
40:	0.00	0.00	1.72	0.00	0.00	0.00	2.18	0.00	0.00	2.55	6.45
41:	0.00	0.00	2.88	0.00	0.00	3.05	0.00	3.18	0.00	0.00	9.11
42:	3.29	0.00	3.40	0.00	0.00	3.56	0.00	3.75	0.00	3.72	17.72
43:	0.00	0.00	2.46	0.00	3.34	0.00	3.30	0.00	3.22	0.00	12.31
44:	3.13	0.00	3.02	2.90	0.00	2.82	0.00	2.70	2.64	0.00	17.22
45:	2.58	0.00	2.45	2.29	0.00	2.09	1.86	0.00	1.66	1.46	14.38
46:	0.00	1.29	1.16	0.00	1.06	0.99	0.95	0.00	0.91	0.87	7.25
47:	0.00	0.83	0.77	0.00	0.68	0.61	0.00	0.57	0.57	0.33	4.36
48:	0.00	0.47	0.46	0.44	0.00	0.43	0.41	0.38	0.00	0.36	2.95
49:	0.34	0.32	0.29	0.00	0.27	0.25	0.23	0.20	0.16	0.11	2.16
50:	0.00	0.07	0.04	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.15
51:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
57:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
61:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
63:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

65:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
67:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
69:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
70:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
71:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
74:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
76:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Exceedance Chart

M-1: Exceedance Chart

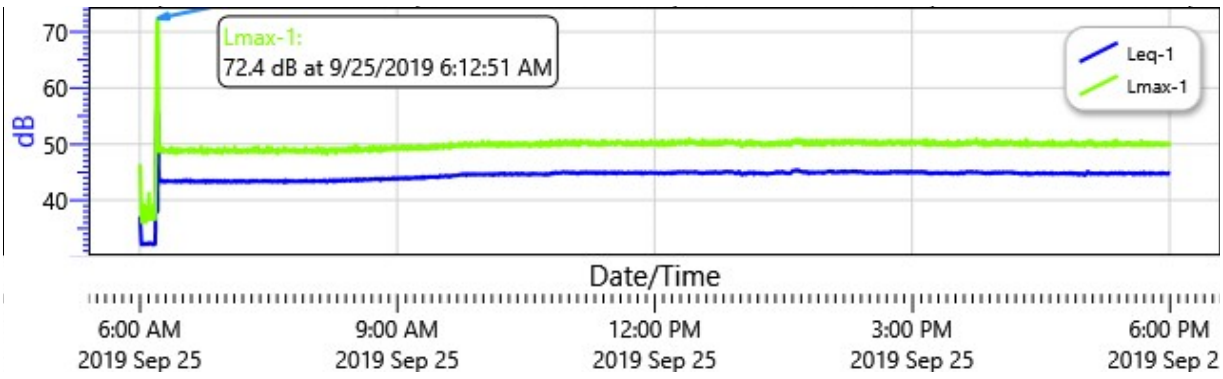


Exceedance Table

.	0%	1%	2%	3%	4%	5%	6%	%7	%8	%9
0%:		49.4	48.9	48.6	48.2	48.0	47.7	47.4	47.3	47.0
10%:	46.8	46.7	46.5	46.4	46.3	46.1	46.0	45.8	45.8	45.7
20%:	45.5	45.5	45.4	45.4	45.2	45.2	45.2	45.1	45.1	44.9
30%:	44.9	44.9	44.7	44.7	44.6	44.6	44.6	44.4	44.4	44.4
40%:	44.2	44.2	44.2	44.1	44.1	44.1	43.9	43.9	43.9	43.7
50%:	43.7	43.7	43.5	43.5	43.5	43.3	43.3	43.3	43.3	43.1
60%:	43.1	42.8	42.8	42.8	42.8	42.6	42.6	42.6	42.6	42.4
70%:	42.4	42.4	42.1	42.1	42.1	42.1	41.9	41.9	41.9	41.6
80%:	41.6	41.6	41.4	41.4	41.4	41.1	41.1	41.1	40.8	40.8
90%:	40.8	40.5	40.5	40.1	40.1	39.8	39.5	39.1	38.3	31.8
100%:	31.4									

Logged Data Chart

M-1: Logged Data Chart



Session Report

10/9/2019

Information Panel

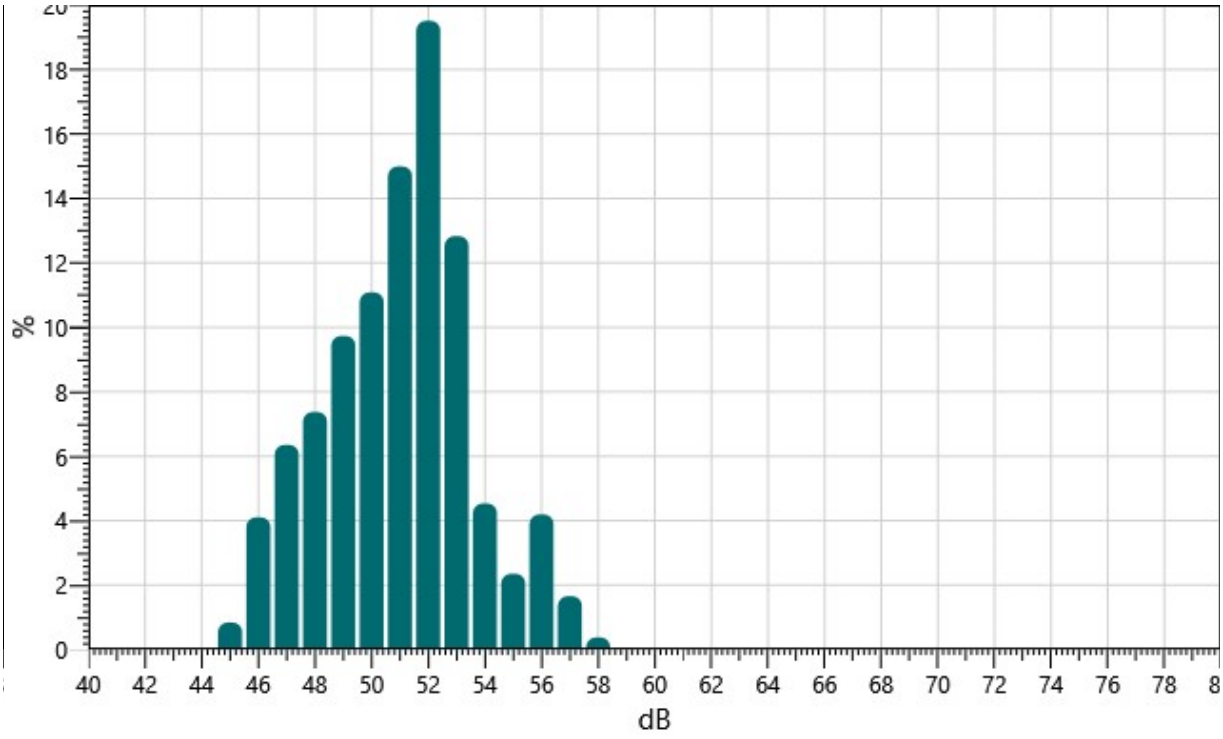
Name	M-2
Start Time	9/25/2019 6:00:00 AM
Stop Time	9/25/2019 6:00:00 PM
Device Name	BIP080008
Model Type	SoundPro DL
Device Firmware Rev	R.13H
Comments	
Run Time	12:00:00

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Lmax	1	74.1 dB	Leq	1	52.2 dB
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	FAST			

Statistics Chart

M-2: Statistics Chart



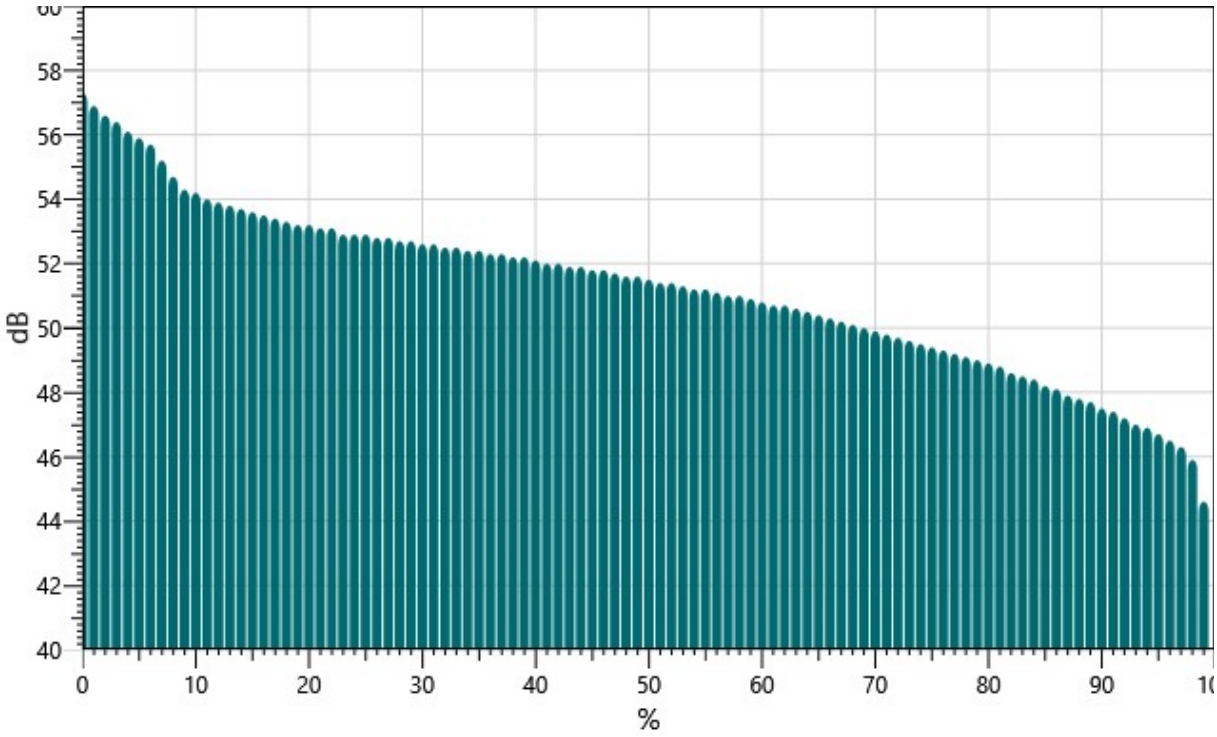
Statistics Table

dB:	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
40:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45:	0.01	0.01	0.02	0.04	0.06	0.08	0.11	0.14	0.17	0.20	0.84
46:	0.23	0.27	0.31	0.35	0.38	0.42	0.47	0.51	0.57	0.61	4.10
47:	0.63	0.43	0.61	0.64	0.64	0.66	0.66	0.68	0.68	0.71	6.35
48:	0.72	0.72	0.72	0.73	0.72	0.73	0.74	0.75	0.76	0.79	7.37
49:	0.82	0.85	0.90	0.94	0.97	0.99	1.01	1.05	1.07	1.14	9.73
50:	1.20	0.72	1.05	1.07	1.11	1.11	1.14	1.18	1.22	1.28	11.08
51:	1.31	1.36	1.40	1.45	1.50	1.53	1.55	1.60	1.63	1.67	14.99
52:	1.73	1.79	1.85	1.91	1.95	2.01	2.03	2.06	2.09	2.09	19.51
53:	2.07	0.78	1.64	1.52	1.41	1.30	1.19	1.08	0.97	0.87	12.83
54:	0.80	0.72	0.64	0.56	0.47	0.38	0.31	0.25	0.21	0.19	4.54
55:	0.18	0.16	0.16	0.17	0.17	0.21	0.25	0.30	0.35	0.42	2.35
56:	0.48	0.35	0.47	0.48	0.45	0.45	0.42	0.39	0.37	0.34	4.19
57:	0.31	0.26	0.23	0.20	0.16	0.14	0.11	0.09	0.08	0.07	1.66
58:	0.07	0.06	0.05	0.05	0.04	0.03	0.03	0.02	0.02	0.01	0.38
59:	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
60:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
61:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
62:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
63:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
67:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
69:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
70:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
71:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
74:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

75:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
76:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Exceedance Chart

M-2: Exceedance Chart



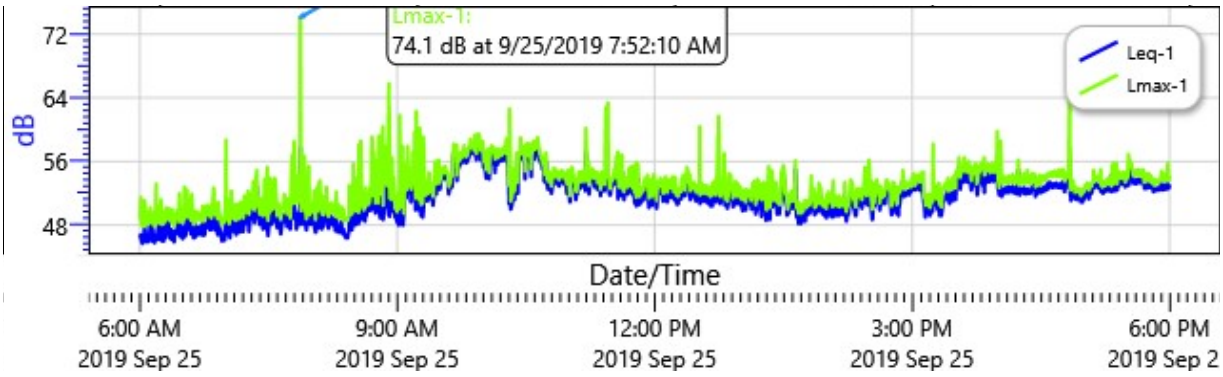
Exceedance Table

.	0%	1%	2%	3%	4%	5%	6%	%7	%8	%9
0%:		57.3	56.9	56.6	56.4	56.1	55.9	55.7	55.2	54.7
10%:	54.3	54.2	54.0	53.9	53.8	53.7	53.6	53.5	53.4	53.3
20%:	53.2	53.2	53.1	53.1	52.9	52.9	52.9	52.8	52.8	52.7
30%:	52.7	52.6	52.6	52.5	52.5	52.4	52.4	52.3	52.3	52.2
40%:	52.2	52.1	52.0	52.0	51.9	51.9	51.8	51.8	51.7	51.6
50%:	51.6	51.5	51.4	51.4	51.3	51.2	51.2	51.1	51.0	51.0
60%:	50.9	50.8	50.7	50.7	50.6	50.5	50.4	50.3	50.2	50.1
70%:	50.0	49.9	49.8	49.7	49.6	49.5	49.4	49.3	49.2	49.1
80%:	49.0	48.9	48.8	48.6	48.5	48.4	48.2	48.1	47.9	47.8

90%:	47.7	47.5	47.4	47.2	47.0	46.9	46.7	46.5	46.3	45.9
100%:	44.6									

Logged Data Chart

M-2: Logged Data Chart



Session Report

10/9/2019

Information Panel

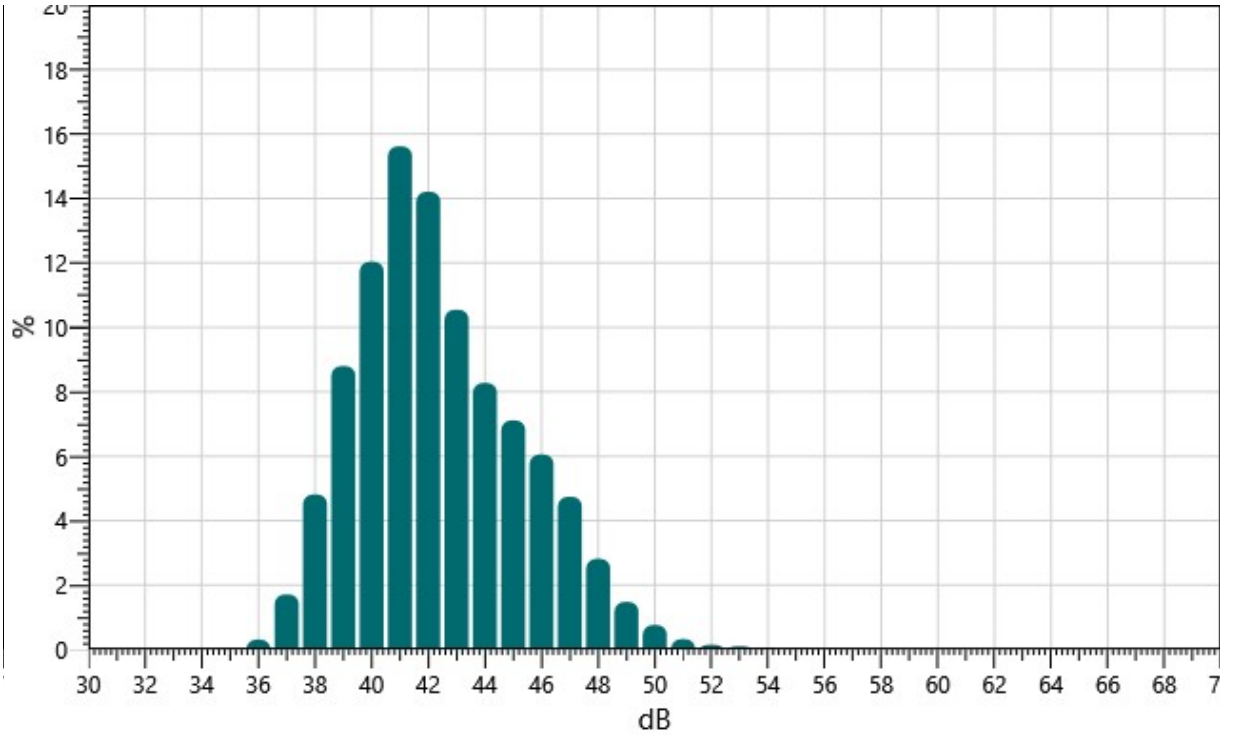
Name	M-3
Start Time	9/25/2019 6:00:00 AM
Stop Time	9/25/2019 6:00:00 PM
Device Name	BGM050004
Model Type	SoundPro DL
Device Firmware Rev	R.13H
Comments	
Run Time	12:00:00

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Lmax	1	67.4 dB	Leq	1	44 dB
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	FAST			

Statistics Chart

S001: Statistics Chart



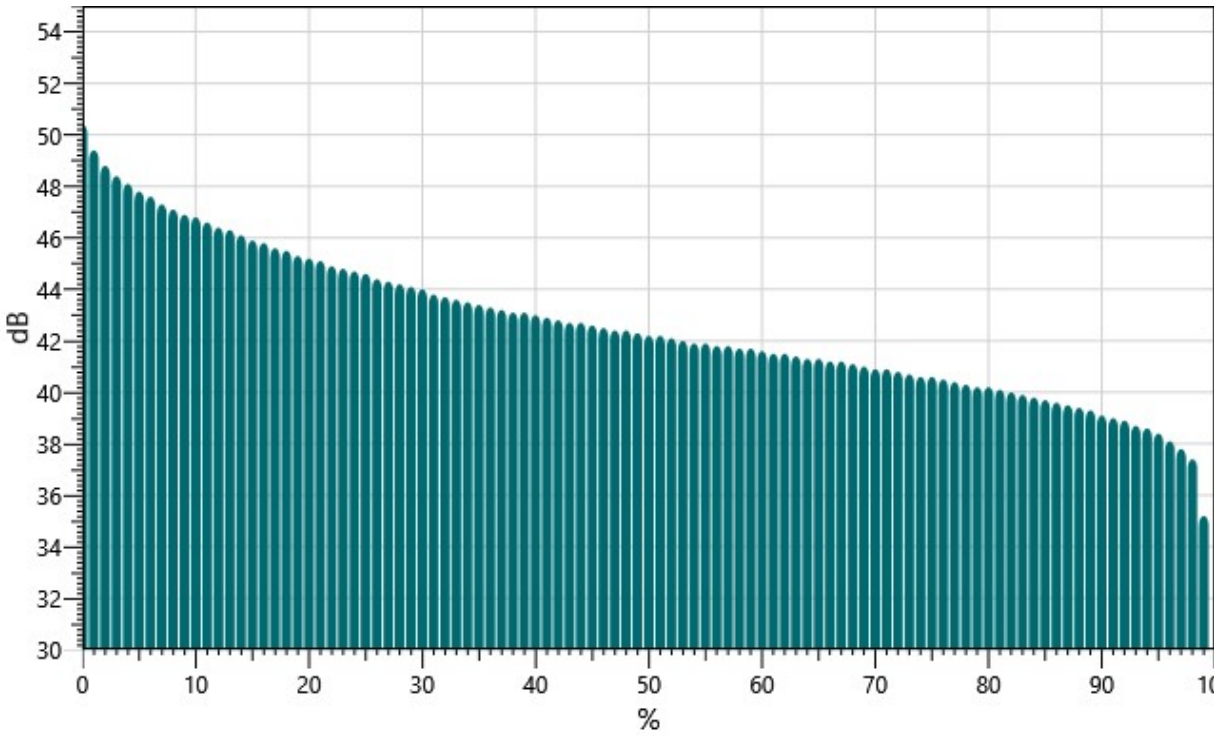
Statistics Table

dB:	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
30:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
36:	0.01	0.00	0.01	0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.31
37:	0.10	0.11	0.12	0.14	0.16	0.17	0.19	0.21	0.24	0.26	1.71
38:	0.29	0.33	0.38	0.42	0.44	0.48	0.52	0.57	0.66	0.74	4.81
39:	0.83	0.61	0.81	0.84	0.87	0.90	0.93	0.96	1.00	1.05	8.80
40:	1.08	1.11	1.12	1.16	1.17	1.20	1.25	1.28	1.32	1.36	12.03
41:	1.39	1.42	1.48	1.51	1.56	1.58	1.60	1.66	1.68	1.74	15.62
42:	1.77	1.35	1.43	1.51	1.47	1.41	1.37	1.34	1.30	1.26	14.21
43:	1.22	1.19	1.14	1.11	1.07	1.03	1.00	0.96	0.91	0.90	10.55
44:	0.88	0.87	0.84	0.83	0.82	0.81	0.80	0.80	0.80	0.82	8.27
45:	0.85	0.75	0.61	0.74	0.74	0.72	0.69	0.68	0.67	0.65	7.11
46:	0.64	0.63	0.62	0.61	0.61	0.60	0.60	0.60	0.58	0.56	6.05
47:	0.56	0.53	0.51	0.50	0.47	0.45	0.45	0.43	0.43	0.42	4.74
48:	0.40	0.37	0.22	0.31	0.29	0.28	0.25	0.25	0.23	0.21	2.81
49:	0.19	0.19	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.11	1.48
50:	0.10	0.10	0.09	0.08	0.08	0.07	0.06	0.06	0.06	0.06	0.76
51:	0.05	0.05	0.03	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.32
52:	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.15
53:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.10
54:	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.06
55:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
56:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
57:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
58:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
59:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
60:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
61:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
63:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

65:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
67:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
69:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
70:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Exceedance Chart

S001: Exceedance Chart



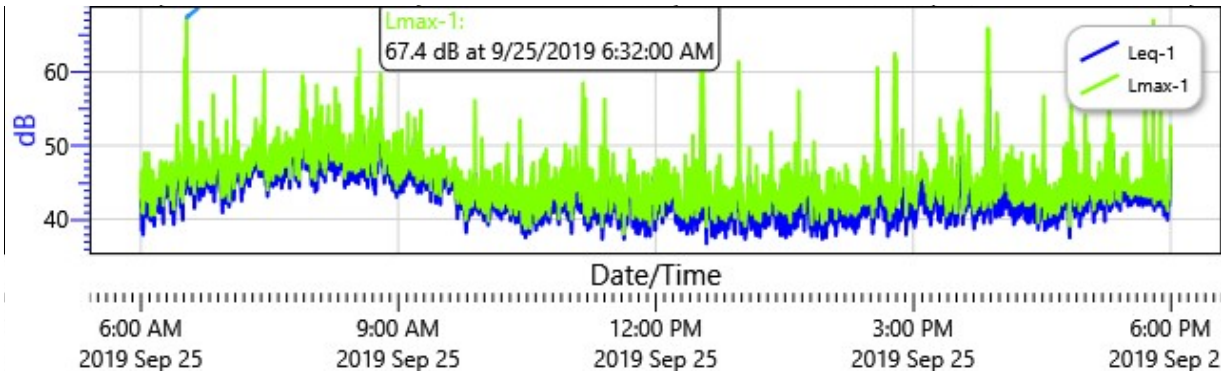
Exceedance Table

.	0%	1%	2%	3%	4%	5%	6%	%7	%8	%9
0%:		50.4	49.4	48.8	48.4	48.1	47.8	47.6	47.3	47.1
10%:	46.9	46.8	46.6	46.4	46.3	46.1	45.9	45.8	45.6	45.5
20%:	45.3	45.2	45.1	44.9	44.8	44.7	44.6	44.4	44.3	44.2
30%:	44.1	44.0	43.8	43.7	43.6	43.5	43.4	43.3	43.2	43.1
40%:	43.1	43.0	42.9	42.8	42.7	42.7	42.6	42.5	42.4	42.4
50%:	42.3	42.2	42.2	42.1	42.0	41.9	41.9	41.8	41.8	41.7
60%:	41.7	41.6	41.5	41.5	41.4	41.3	41.3	41.2	41.2	41.1
70%:	41.0	40.9	40.9	40.8	40.7	40.6	40.6	40.5	40.4	40.3
80%:	40.2	40.2	40.1	40.0	39.9	39.8	39.7	39.6	39.5	39.4

90%:	39.3	39.1	39.0	38.9	38.7	38.6	38.4	38.1	37.8	37.4
100%:	35.2									

Logged Data Chart

S001: Logged Data Chart



APPENDIX E

INSTRUMENT CALIBRATION SHEETS

INSTRUMENT CALIBRATION REPORT

Advanced Labs, Inc.

Pine Environmental Services, Inc

Instrument ID A03221
Description Metrosonics QC-10M Acoustic Calibrator
Calibrated 7/23/2019

Manufacturer Metrosonics
Model Number QC-10M
Serial Number PED070004
Location New Jersey
Temp 74

Classification
Status pass
Frequency Yearly EOM
Department
Humidity 40

Calibration Specifications

Group # 1
Group Name Acoustic Tests Performed
Test Performed: Yes **As Found Result: Fail** **As Left Result: Pass**

Test Instruments Used During the Calibration

				(As Of Cal Entry Date)	
Test Instrument ID	**Description**	**Manufacturer**	**Serial Number**	**Last Cal Date**	**Next Cal Date**
B&K 4226	Brüel & Kjær 4226	Brüel & Kjær	2590968	6/4/2019	6/4/2020
B&K 4228	Brüel & Kjær 4228	Brüel & Kjær	2667476	6/4/2019	6/4/2020
SOUNDPRO DL-1-1/3	3M SoundPro DL-1-1/3	Quest Technologies	BLL070002	1/16/2019	1/16/2020

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Kevin Cole

Advanced Labs, Inc. hereby certifies that this instrument is calibrated and functions to meet the manufacture's specifications using NIST traceable standards, or is derived from accepted values of physical constants.

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
92 North Main St, Building 20
Windsor, NJ 08561
Toll-free: (800) 301-9663

Pine Environmental Services, Inc.

Instrument ID 40423
Description Quest SoundPro DL-1-1/3
Calibrated 9/19/2019 2:36:32PM

Manufacturer	Quest	**State Certified**	
Model Number	SoundPro DL-1-1/3	**Status**	Pass
Serial Number/ Lot Number	BLR010004	**Temp °C**	23
Location	New Jersey	**Humidity %**	24
Department			

Calibration Specifications

Group # 1
Group Name Calibrated using Quest Sound Source
Test Performed: Yes **As Found Result: Pass** **As Left Result: Pass**

Test Instruments Used During the Calibration **(As Of Cal Entry Date)**

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Roger Rambough

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
92 North Main St, Building 20
Windsor, NJ 08561
Toll-free: (800) 301-9663

Pine Environmental Services, Inc.

Instrument ID 34244
Description QUEST SoundPro
Calibrated 9/19/2019 2:33:52PM

Manufacturer	Quest	**State Certified**	
Model Number	SoundPro SE/DL-2 w-octave bands	**Status**	Pass
Serial Number/ Lot Number	BIP080008	**Temp °C**	23
Location	New Jersey	**Humidity %**	24
Department			

Calibration Specifications

Group # 1
Group Name Calibrated to 114 db w/ Quest Sound Source
Test Performed: Yes **As Found Result: Pass** **As Left Result: Pass**

Test Instruments Used During the Calibration **(As Of Cal Entry Date)**

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Roger Rambough

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance