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Consultants in Architectural Acoustics

ACOUSTIC REVIEW & NOISE ATTENUATION PLAN

Date: 10 January 2023

To: Sinem Kaya
General Manager

Kimpton Angler's Hotel South Beach
660 Washington Avenue
Miami Beach, FL 33139

From: Sam Shroyer, ASA INCE
Edward Dugger, FAIA ASA NCAC INCE

Re: **Acoustic Review & Noise Attenuation Plan**
Kimpton Angler's Hotel South Beach
660 Washington Avenue
Miami Beach, FL 33139
ED+A 221414

Edward Dugger + Associates (ED+A) has prepared the following report for submission in conjunction with Kimpton Angler's Hotel's application for a Conditional Use Permit for a Neighborhood Impact Establishment to include Outdoor Entertainment on the rooftop of the existing Kimpton Angler's Hotel, located at 660 Washington Avenue in Miami Beach, Florida.

ED+A has visited the project site to observe current operations and inspect existing conditions, reviewed architectural plans prepared both for the original building and the current project, investigated the surrounding neighborhood, including the zoning and land uses of nearby properties, and conducted long-term acoustical measurements at the project site to assess whether Outdoor Entertainment could be provided while complying with applicable City of Miami Beach code criteria.

This report includes a sample Noise Attenuation Plan to address how sound generated by the project may be controlled while conforming to the requirements of City of Miami Beach Code of Ordinances Section 46-152. The implementation of this plan should allow the project to operate as requested while complying to the aforementioned criteria.

Please contact ED+A with any questions or comments.



INTRODUCTION

Angler's Hotel is an existing lodging facility at 660 Washington Avenue in Miami Beach, Florida. The Applicant is requesting a Conditional Use Permit for a Neighborhood Impact Establishment to include Outdoor Entertainment on the rooftop of the building—specifically on the Upper Pool Deck only. This area is currently open only to guests but will allow public patrons, who will access the area via elevators located in an enclosed structure.

Project Location

The subject property (identified by Figure 1) is located within a “Commercial, medium-intensity (CD-2” zoning district and is classified as a “Medium Intensity Commercial (CD-2)” future land use. Properties along Washington Avenue to the east and north of the project site are also classified as such.

Properties to the south—along the southernmost portion of Washington Avenue and 5th Street—are located in a “Commercial performance standard, general mixed use (CPS-2)” zoning district and are “General Mixed Use Commercial Performance Standard (C-PS2)” future land uses.

The surrounding area consists mostly of commercial properties. However, there is a relatively small “Residential multifamily, medium-intensity zoning (RM-2)” zoning district including “Medium Density Multi Family Residential (RM-2)” future land uses to the west and northwest of the project. The nearest residential properties are directly west across Pennsylvania Court—including 609, 619, and 631 Euclid Avenue and to the north at 650 Pennsylvania Avenue (Arcadia House Condominiums).

To the east is the Goodtime Hotel—a lodging facility spanning Washington Avenue between 6th and 7th Streets. While this property could be considered a noise-sensitive use, it should be noted that Outdoor Entertainment is also provided on the property's Pool Deck.



Figure 1. Aerial image with 660 Washington Avenue outlined; measurement location represented by dot.

Proposed Operations

The Applicant intends to utilize the existing Upper Pool Deck on the rooftop of the building as a small dining/lounge area. Live entertainment will be provided—primarily by DJ's—at background sound levels in this area only, as identified on the Upper Roof Plan included with this report. Music is currently produced in this area at these levels through an existing audio system; the addition of a DJ will be the only change from current operating conditions with respect to the use of loudspeakers to provide music to this area.

The Applicant is proposing the following hours of operation:

- Upper Pool Deck / Rooftop
 - 11:00 a.m. to 11:00 p.m.
- Upper Pool Deck / Rooftop Dining
 - 11:00 a.m. to 11:00 p.m.
- Upper Pool Deck / Rooftop Entertainment
 - 11:00 a.m. to 11:00 p.m.

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Architectural Review

ED+A reviewed two architectural drawing sets: “Addition & Renovation to the Angler’s Hotel Permit Issue,” dated October 13, 2014, and “Conditional Use Permit Angler’s Hotel,” dated November 4, 2022. Additionally, Sam Shroyer of ED+A visited the site on multiple occasions.

Entertainment will be provided on the Upper Pool Deck only. This floor elevation of this area (60’-6” NGVD) is 3 ft greater than that of the lower pool deck (57’-6”) and the other rooftop areas, with the exception of the mechanical equipment structure. There are several structures built above the Lower Pool Deck along its south and west sides and a window wall guard rail glazing system supported by steel framing spans the east and north sides of the rooftop. There are multiple structures occupying the west portion of the Pool Deck: a structure housing mechanical and elevator equipment near the southwest corner (68’-2” NGVD), planters spanning the middle portion of the Upper Pool Deck (62’-11” NGVD), and the elevator lobby and restrooms on the northwest corner and much of the western side of the Upper Pool Deck (76’8” NGVD).

These structures will serve as effective barriers for sound which would otherwise propagate from the Upper Pool Deck to the west and northwest of the building. However, while beneficial to an extent, the railings spanning the east and north sides of the Upper Pool Deck will not serve as effective barriers for sound propagating in these directions. Unless barriers of sufficient height were to be built along these sides of the Upper Pool Deck, the audio system and its various components must be configured in a manner that will effectively concentrate sound produced to the Upper Pool Deck area only, reducing the level of sound which would otherwise emanate from the property.

Audio System Design

There is currently an audio system installed on the Upper Pool Deck. It is ED+A’s understanding that this system will continue to be used for future operations. The system is comprised of several small loudspeakers mounted along the east, south, and west structures of the Pool Deck. The loudspeakers are positioned to direct sound inward to the Upper Pool Deck.

If the existing audio system is to be replaced, the following design criteria should be incorporated to allow for effective control of sound generated on the Pool Deck. If the existing system is to be used, modifications should be made where necessary.

1. Volume controls should be accessible to management and designated engineering staff only via a control panel in a secure location or a mobile control application.
2. All sound—prerecorded or otherwise—should be reproduced through a permanent house system; entertainers should not utilize additional loudspeakers or system

components but should plug into the permanent system through designated input locations.

3. A permanent audio system consisting of several small- to medium-sized loudspeakers distributed should be installed to provide even coverage and a consistent sound field in the entertainment areas. The system should be comprised of multiple designated coverage areas, or zones, that can be controlled independently of one another.
4. The type, location, directivity, and orientation of exterior loudspeakers should be chosen so as not to direct sound toward other properties or upward.
 - a. Landscape speakers have been found to be appropriate in these systems, but often radiate sound in all directions and should be placed carefully.
 - b. If larger loudspeakers are used, they should have limited throw patterns and be located away from property boundaries.
 - c. All loudspeakers, but particularly those near the edges of the property, should be oriented inward so as not to direct sound off the property.
5. Audio signals should be processed through a digital signal processor (DSP) that may be programmed to set, limit, and/or adjust the levels of low-frequency sound and total sound level generated by the system in different areas.
6. In absence of objective noise level requirements, acoustical tests should be conducted to establish maximum allowable system settings in all areas to ensure acceptable sound levels at the nearest noise-sensitive properties.

SUMMARY

Though some nearby residential buildings will be effectively shielded from sound generated on the Upper Pool Deck, there are no structures which will substantially reduce sound levels emanating from the north and east sides of the Pool Deck. Therefore, it is crucial that the audio system used for entertainment purposes generally follow the guidelines provided in this report, unless additional barriers were to be constructed. Additionally, entertainment will be provided at background levels of sound that do not interfere with normal conversation—similar to the level of sound produced by the existing audio system—and would be unlikely to affect ambient sound levels at nearby properties.

ACOUSTICAL MEASUREMENTS

Sound levels were in the northwestern area of the property over several days on the rooftop of the Loft building (see Figures 1, 2, and 3). The measurement period of interest begins on October 5, 2022 and ends on October 12, 2022. The measurement microphone was roughly 5 ft above the floor and was near enough to a wall surface for the measured sound levels to be affected by reflected sound, increasing measured levels by up to 3 dB (see Figures 1 and 2). The system was calibrated before its installation and prior to its removal from the site. Details specific to the measurement and calibration devices used for these measurements are included in Table 1.

A-weighted equivalent-continuous sound levels were measured in fifteen-minute and one-hour intervals. A-weighted percentile-exceeded sound levels (L_{A10} , L_{A50} and L_{A90}) were also measured and evaluated for the same observation periods. A-weighted levels were assessed as the A-weighting network corresponds best with human sensitivity to sound for most community noise assessments, but C-weighted sound levels were also measured.

Measured one-hour sound levels were evaluated to characterize the existing sound environs at the measurement locations through calculation of day average sound levels (L_{Ad}), night average sound levels (L_{An}), and day-night average sound levels (L_{Adn} or DNL) for each day of the measurement period per ANSI S12.9 Part 4. The time intervals between midnight and 7:00 AM and 10:00 PM and midnight were considered night while the day period consisted of the time between 7:00 AM and 10:00 PM.

DNL is a metric developed by the Environmental Protection Agency (EPA) for the evaluation of community noise and it is also used by other federal agencies such as the Department of Housing and Urban Development (HUD) and Federal Aviation Administration (FAA). The American National Standards Institute (ANSI) also includes DNL criteria in the ANSI S12.9 series of standards detailing procedures for the measurement and assessment of environmental sound. DNL is essentially the time-average (L_{Aeq}) of sound measured over a twenty-four-hour period but with a 10 dB “penalty” applied to sound levels measured during the night period described previously. The 10 dB addition is meant to account for increased sensitivity to sound during these hours.

ANSI S12.9-2007/Part 5 provides guidelines for evaluation of land use compatibility of a proposed development or land use and its operations with that of the surrounding community based on annual average DNL. ED+A has reproduced the land use compatibility guideline criteria chart for inclusion in this report (see Figure 4).

A comparative sound level chart has been included for reference purposes (see Figure 5).

Table 1. Measurement Equipment			
Manufacturer	Model	Serial Number	Laboratory Calibration
Brüel and Kjær	Type 2250-L Analyzer	3008039	April 12, 2022
Brüel and Kjær	Type 4952 Outdoor Microphone	3077206	April 28, 2022
Brüel and Kjær	Type 4231 Sound Calibrator	2394124	August 23, 2021



Figures 2 and 3: Monitoring system and microphone at measurement location.

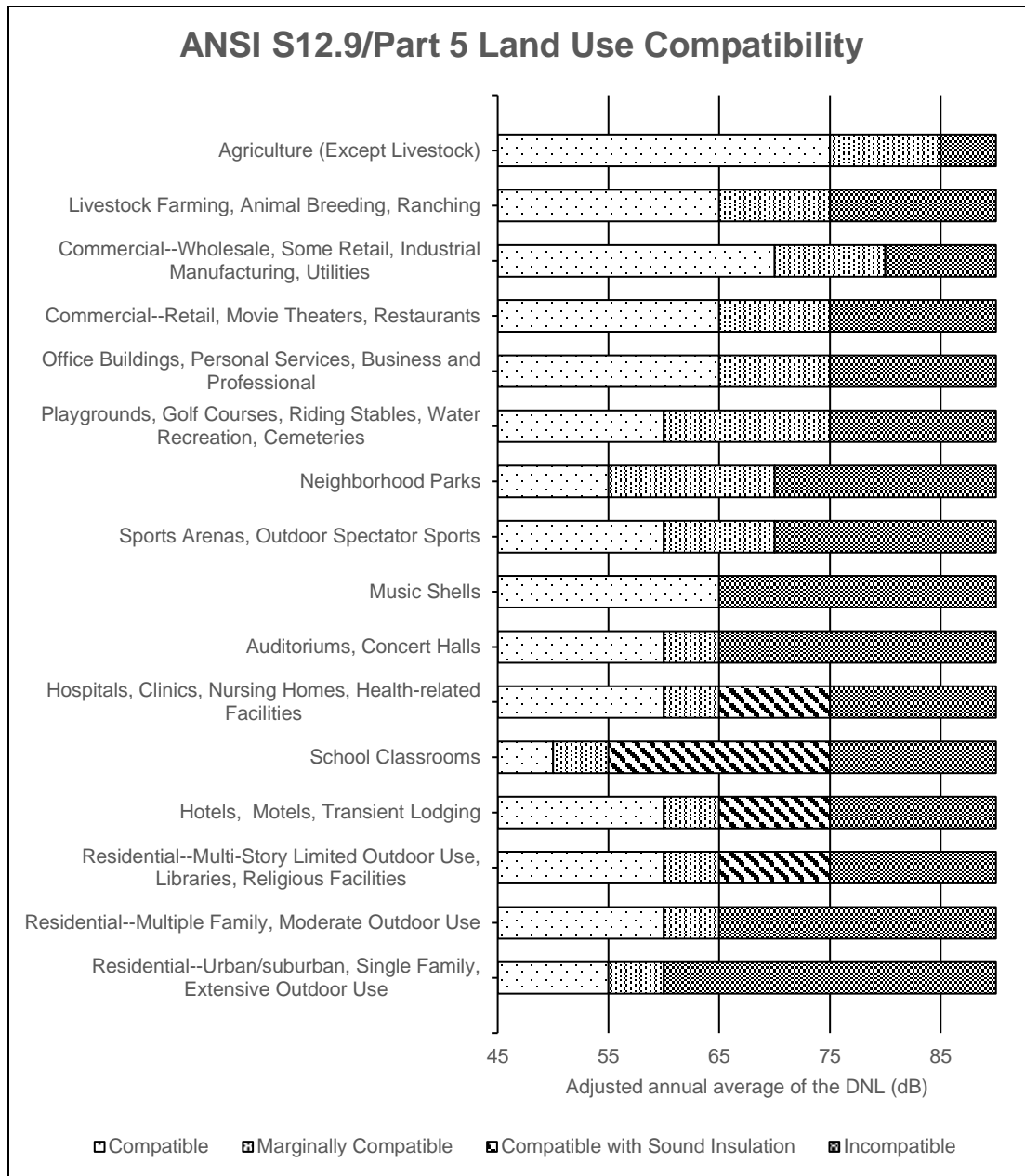


Figure 4. Land use compatibility based on DNL, reproduced from ANSI/ASA S12.9-2007 Part 5

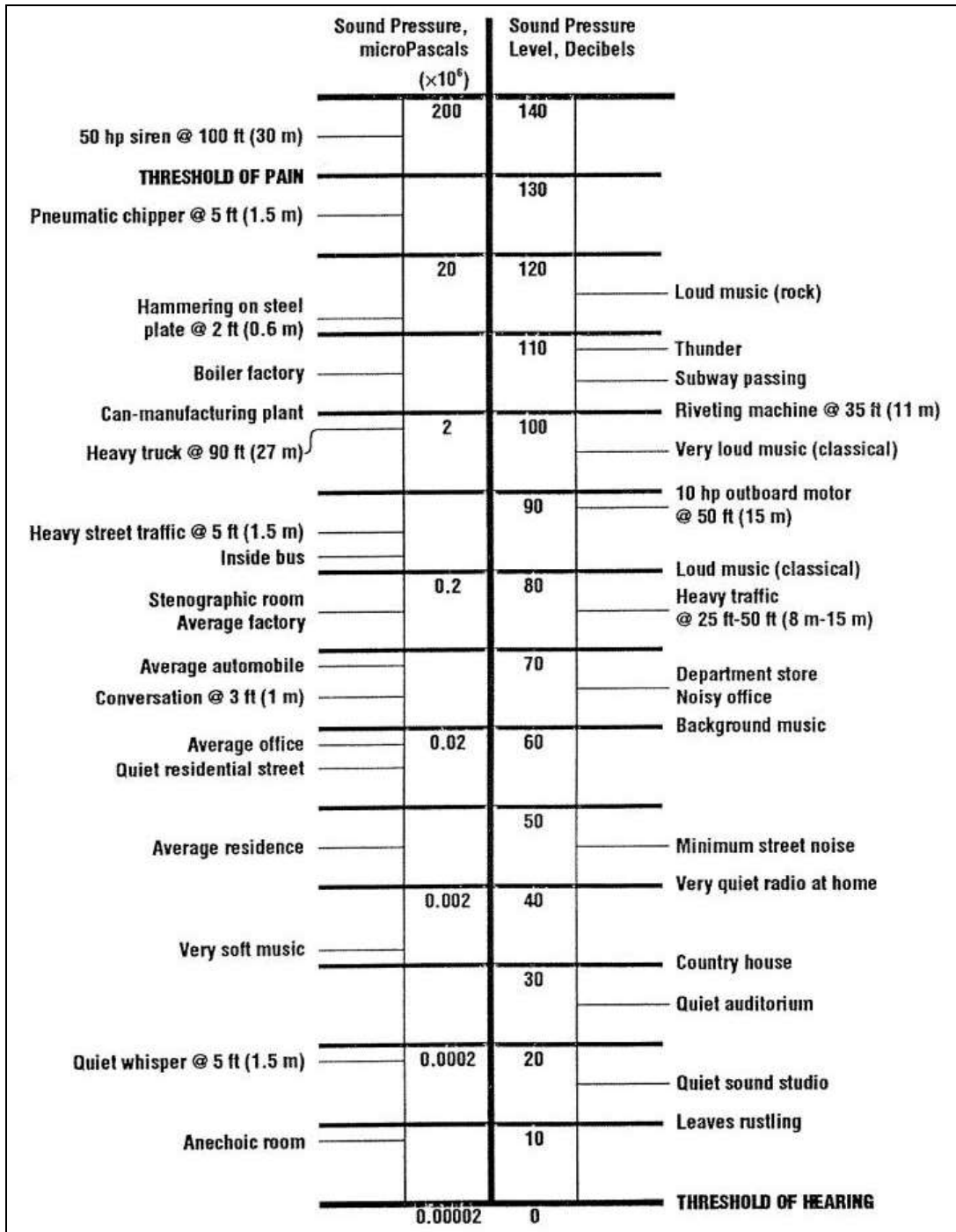


Figure 5. Decibel level comparison chart.

* Reprinted from *Acoustics and Noise Control Handbook for Architects and Builders*, by L. K. Irvine and R. L. Richards, 1998, Malabar, FL: Krieger Publishing Company. Copyright by L.K. Irvine and R.L. Richards

Results

One-hour L_{Aeq} have been compiled with L_{Aeq} , L_{Ad} , L_{An} and DNL calculated for each day in Table 2. One-hour L_{Aeq} , L_{A10} , L_{A50} , L_{A90} , and L_{Ceq} logged over the entire measurement period are plotted in Figure 6. Fifteen-minute data recorded on each day of the measurement period are plotted in Figures 7 through 14.

Ambient sound levels measured on the rooftop were as low as 55 dBA but were mostly around 60 dBA. The overall L_{Aeq} , including all data logged on days with full twenty-four-hour measurements (October 6, 2022 to October 11, 2022) was 60 dBA. The L_{Ad} , L_{An} , and DNL calculated for the same period were 60 dBA, 58 dBA, and 65 dBA, respectively. Ambient sound levels in the surrounding area would be expected to be similar and potentially greater at lower elevations due to increased proximity to traffic and other ground level activity. Overall C-weighted time-average sound levels (L_{Ceq} , L_{Cd} , L_{Cn}) were 72 dBC, 73 dBC, and 70 dBC.

Per the guidelines of ANSI/ASA S12.9 Part 5 (see Figure 6), the DNL suggests the location's compatibility with varying uses is as follows:

- Incompatible with “residential—urban/suburban, single family, extensive outdoor use”
- Marginally compatible and/or compatible with sound insulation (e.g., concrete structures, impact windows) for multi-family and multi-story residential and lodging uses.
- Compatible with commercial uses, including offices, professional businesses, retail, and restaurants
- DNL is at maximum level for marginal compatibility and at the minimum level for incompatibility for “residential—multiple family, moderate outdoor use” uses.
- DNL is at maximum level for marginal compatibility and at the minimum level for compatibility with sound insulation (e.g., concrete structures, impact windows) for “residential—multi-story limited outdoor use” and “hotels, motels, transient lodging” uses. Some nearby residential uses may not fall into this category.
- DNL was 10 dB below threshold for incompatibility multi-story and lodging uses referenced above.

Table 2. One-Hour L_{Aeq} , Daily L_{Aeq} , L_{An} , L_{Ad} , and DNL October 5, 2022 – October 12, 2022								
Interval	Wed, 05-Oct	Thu, 06-Oct	Fri, 07-Oct	Sat, 08-Oct	Sun, 09-Oct	Mon, 10-Oct	Tue, 11-Oct	Wed, 12-Oct
L 0000		57	58	58	58	58	58	61
L 0100		57	58	58	58	57	58	58
L 0200		56	57	57	57	57	58	58
L 0300		56	57	58	58	57	58	58
L 0400		56	56	57	57	57	58	58
L 0500		57	57	57	57	58	58	58
L 0600		57	58	61	59	58	62	59
L 0700		60	58	57	57	59	59	59
L 0800		60	61	59	58	60	59	62
L 0900		59	59	58	58	62	59	59
L 1000		60	60	58	59	61	60	60
L 1100		63	60	60	60	64	61	59
L 1200		62	60	60	60	60	60	59
L 1300		61	61	60	60	60	63	59
L 1400		60	61	61	61	62	61	59
L 1500	61	61	61	60	60	60	61	59
L 1600	60	60	61	60	60	61	60	59
L 1700	59	59	60	61	61	61	61	59
L 1800	59	60	60	60	60	61	60	60
L 1900	58	60	61	60	60	60	60	59
L 2000	58	60	61	60	60	60	60	
L 2100	59	60	60	60	62	60	60	
L 2200	57	59	60	59	59	61	60	
L 2300	58	60	59	58	58	58	59	
L_{Aeq}	59	60	60	59	59	60	60	59
L_{Ad}	60	61	60	60	60	61	60	60
L_{An}	58	58	58	58	58	58	59	59
DNL	63	65	65	65	65	65	66	65

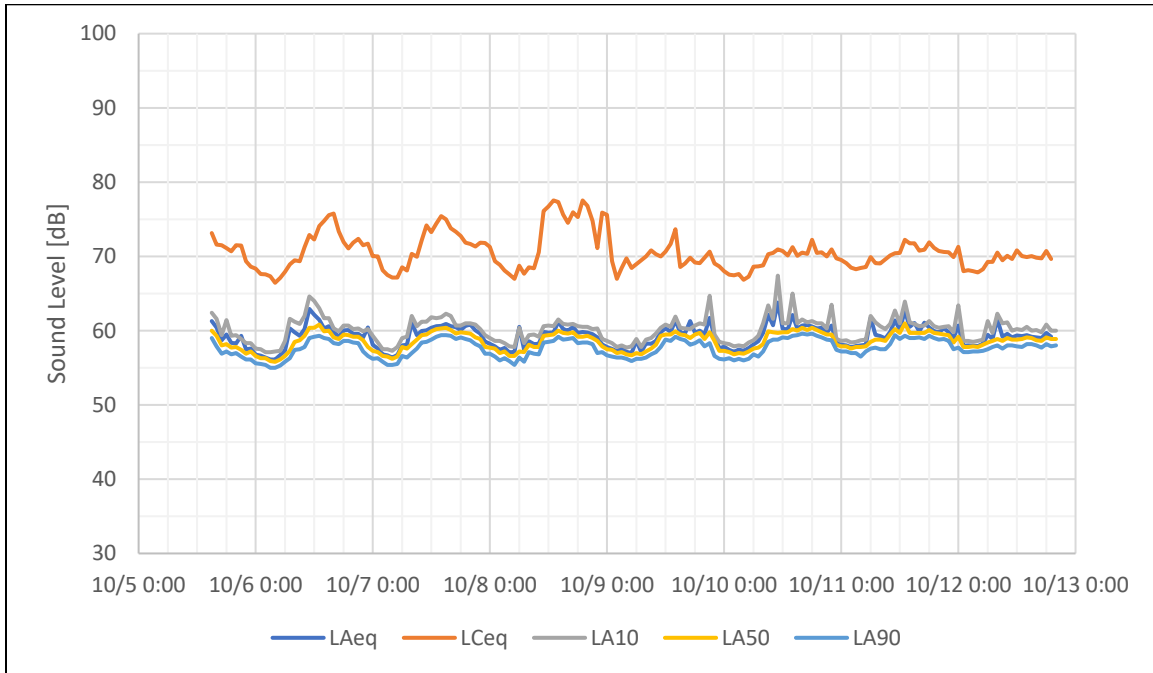


Figure 6. One-hour sound levels: October 5, 2022 to October 12, 2022.

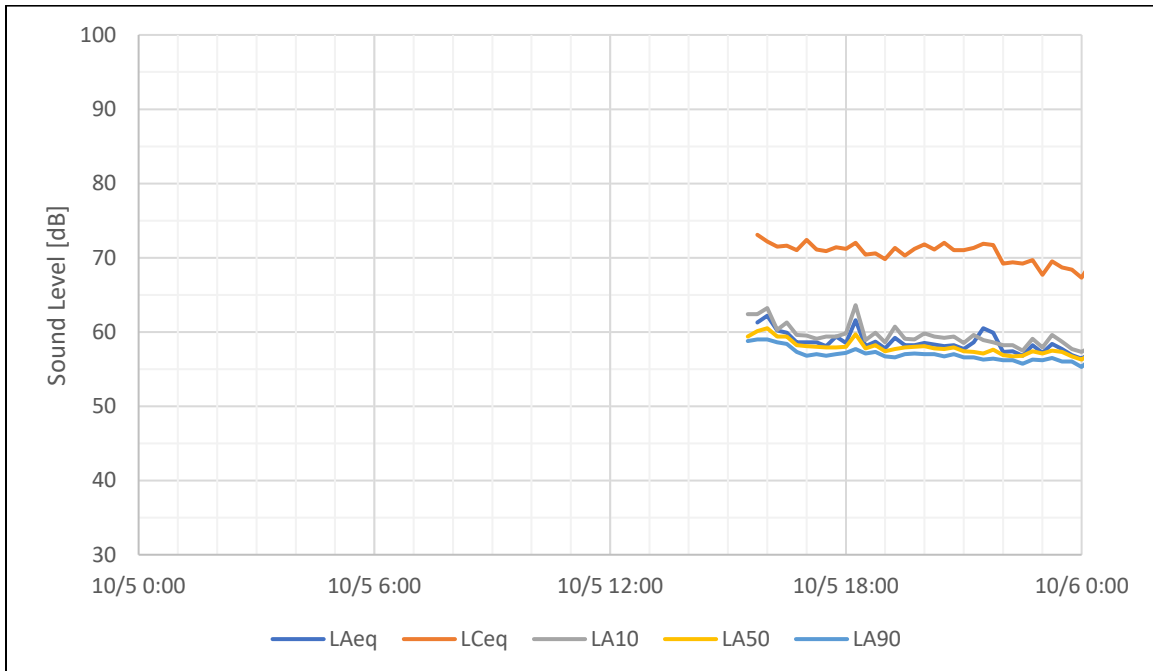


Figure 7. Fifteen-minute sound levels: October 5, 2022.

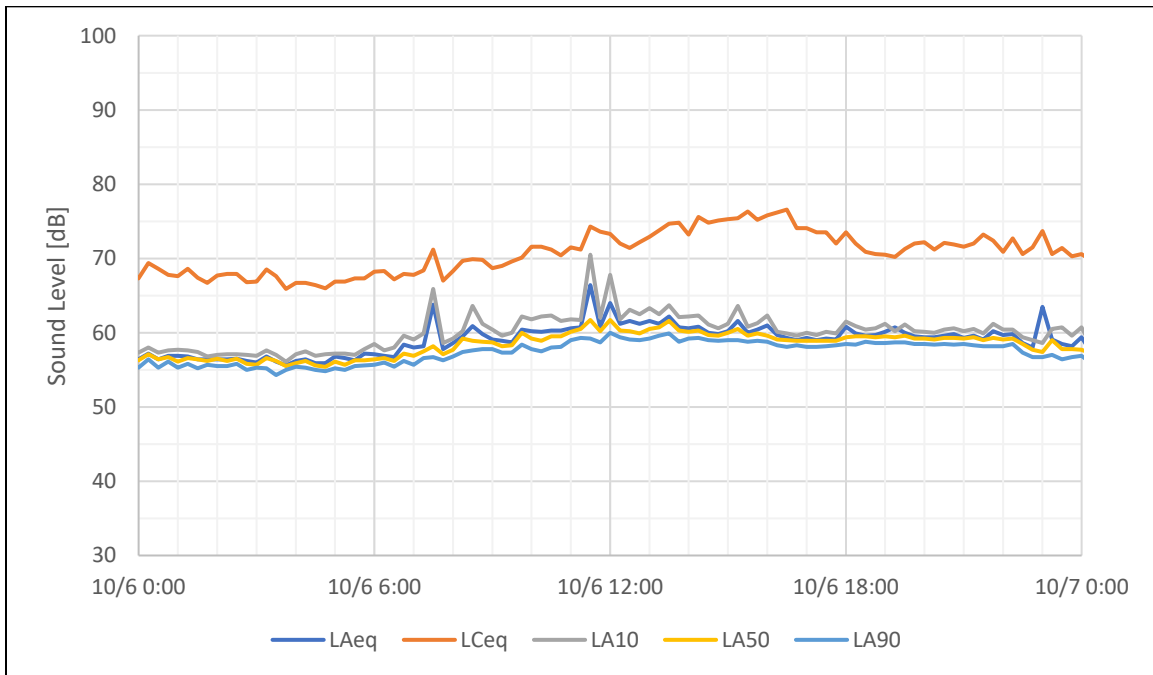


Figure 8. Fifteen-minute sound levels: October 6, 2022.

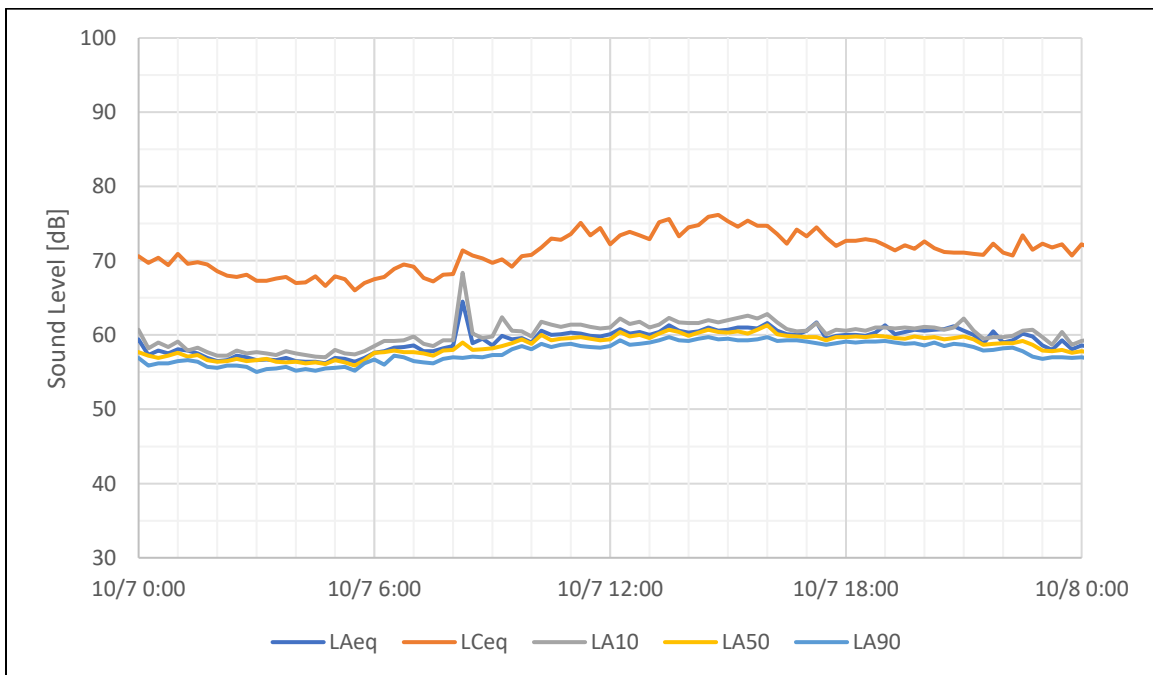


Figure 9. Fifteen-minute sound levels: October 7, 2022.

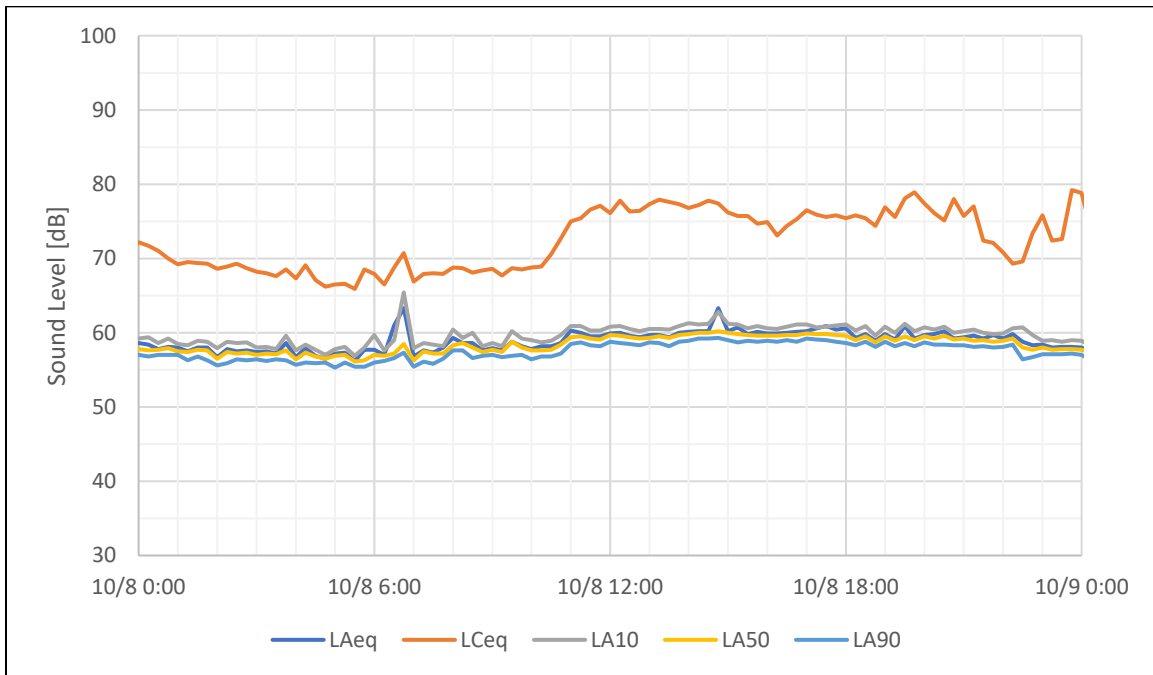


Figure 10. Fifteen-minute sound levels: October 8, 2022.

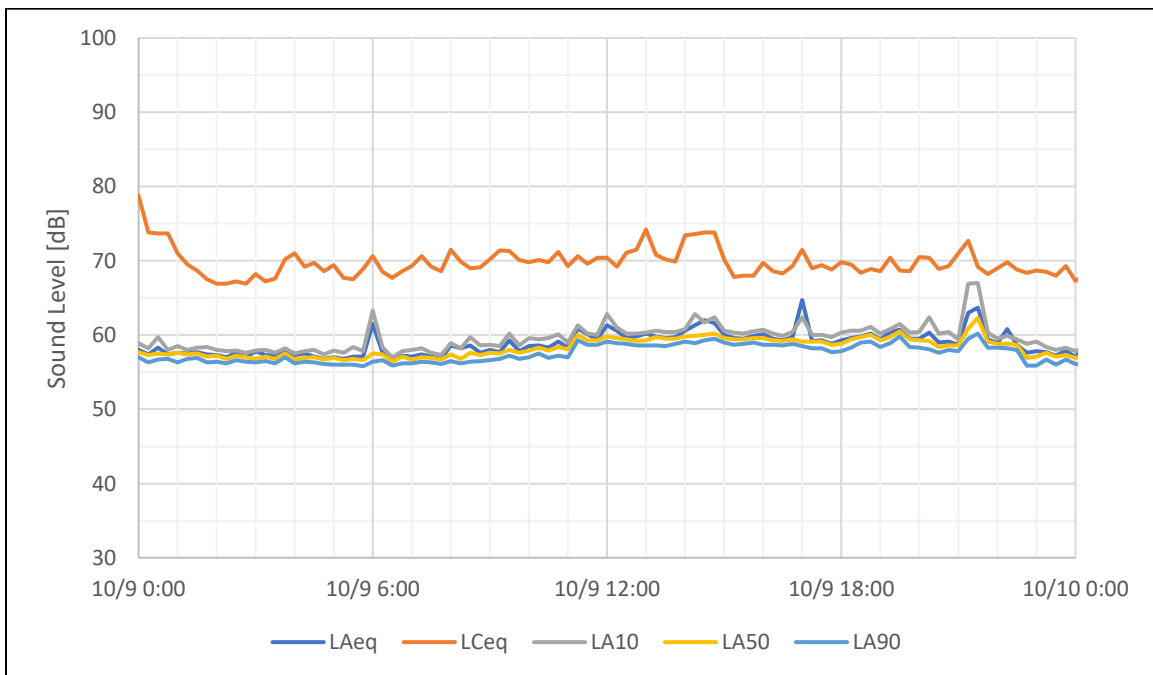


Figure 11. Fifteen-minute sound levels: October 9, 2022.

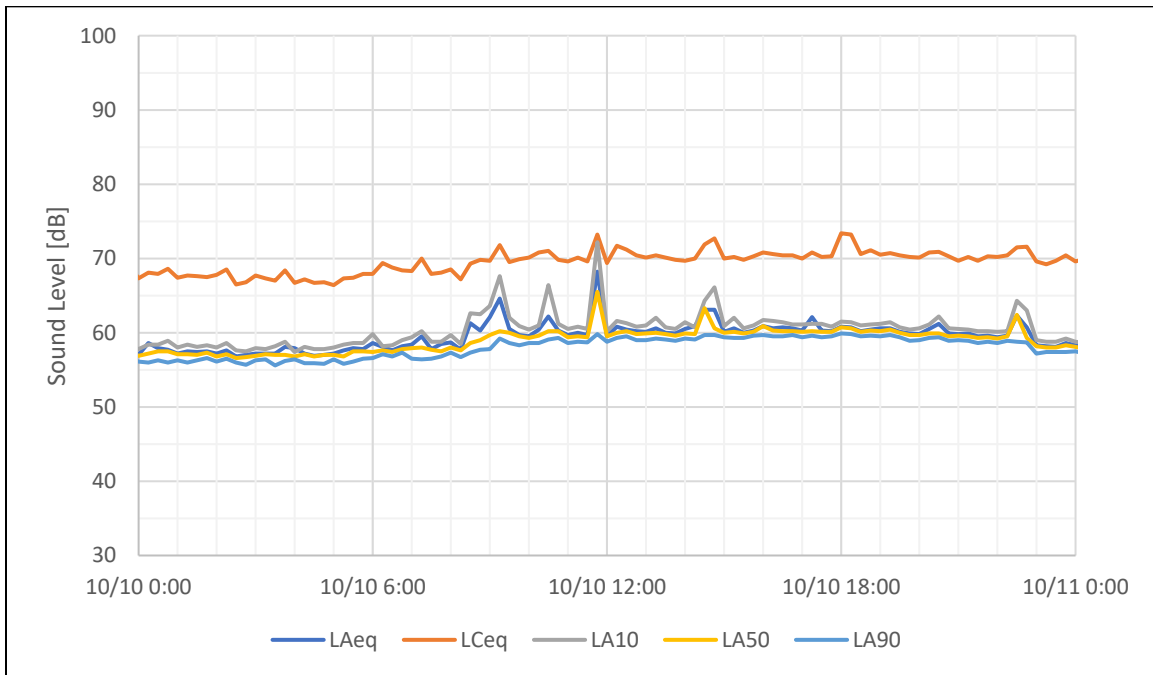


Figure 12. Fifteen-minute sound levels: October 10, 2022.

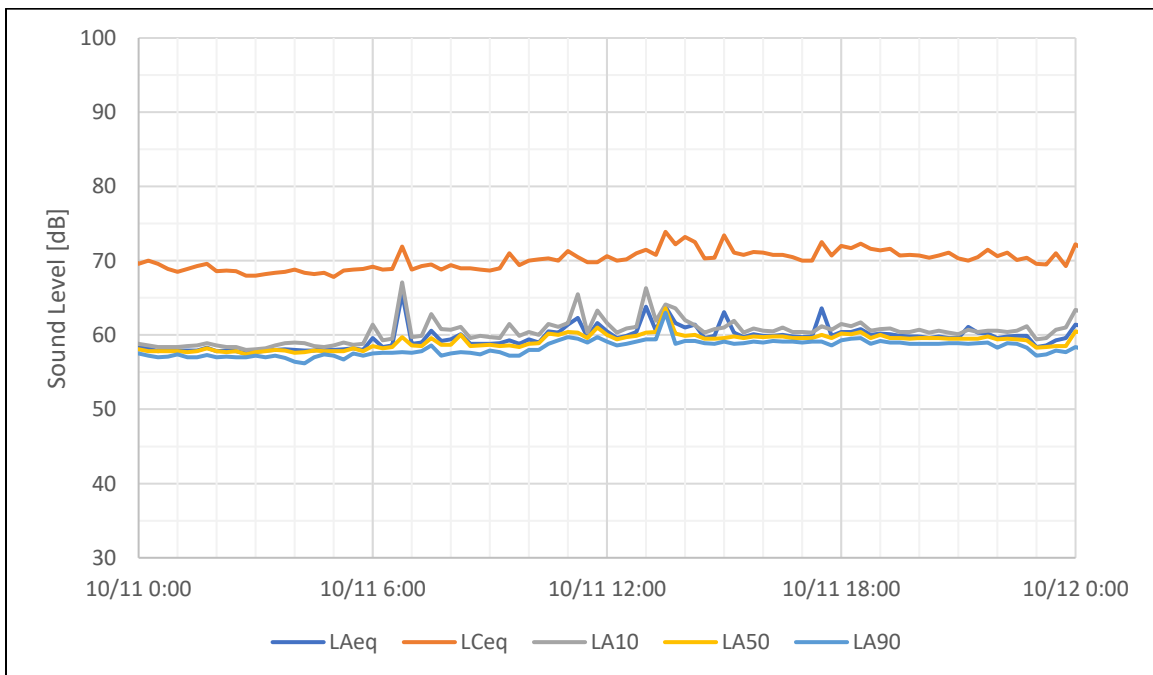


Figure 13. Fifteen-minute sound levels: October 11, 2022.

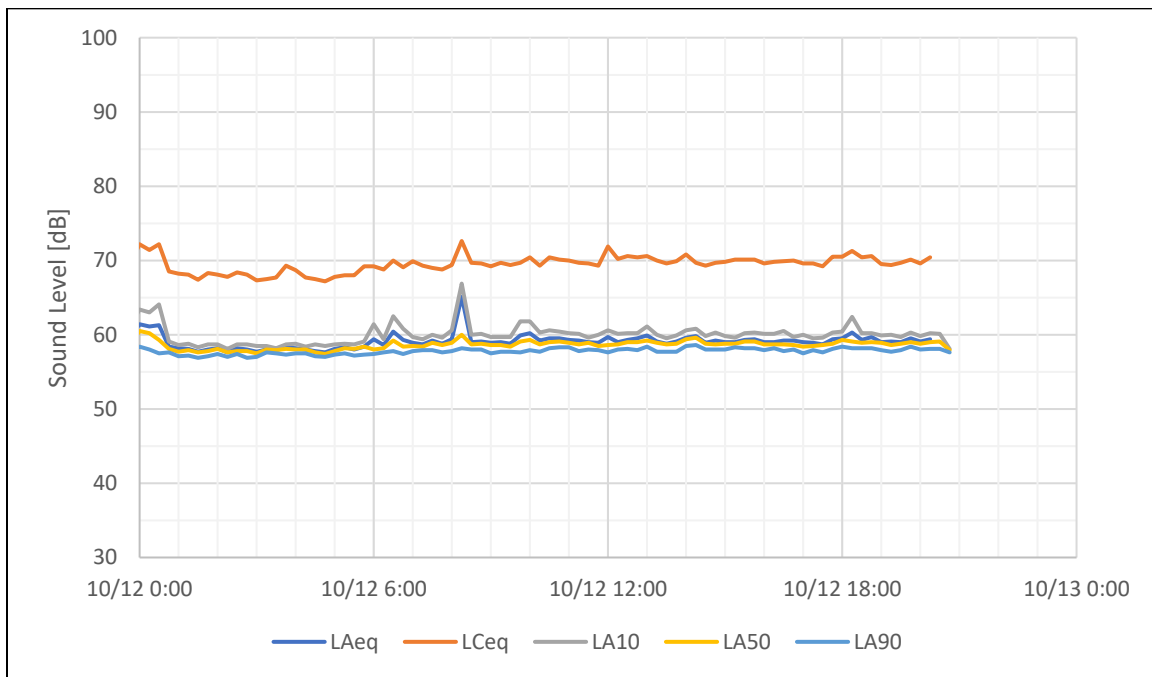


Figure 14. Fifteen-minute sound levels: October 12, 2022.