APP. EXHIBIT# 1
CASE: 2024-0146-S
DATE: 10/22/24

BEFORE THE OFFICE OF ADMINISTRATIV

* * * * * * *

Baltimore Gas and Electric Co.	*	
Re: Application for Special Exception Public Utility Use (Substation) 4844 Mountain Road, Pasadena, MD	* *	Case No. 2024-0146-S

* * * * * * *

ENTRY OF APPEARANCE

Please enter my appearance in this case as counsel for the applicant, the Baltimore Gas and Electric Company.

Thank you.

Sager A. Williams, Jr.
The Law Office of Sager A. Williams, Jr.
2709 Summerview Way #302
Annapolis, MD 21041
410-266-0532
202-768-4592
mdzoninglaw@verizon.net

Counsel for Baltimore Gas and Electric Company

Copy to: Ms. Sterling Seay
Chief, Current Planning/Zoning Division
and
Mr. Donnie Dyott
Planner

Office of Planning and Zoning
Anne Arundel County
2664 Riva Road – Third Floor
Annapolis, MD 21401

APP. EXHIBIT# 2
CASE: 2024-0146-S
DATE: 10/22/24

AFFIDAVIT OF POSTING OF PUBLIC NOTICE SIGN FOR ZONING SPECIAL EXCEPTION APPLICATION

I, Gary Witherspoon, being over the age of twenty-one (21) and competent to testify to the matters contained in this affidavit, do solemnly declare and affirm under the penalties of perjury the following:

1. That the public notice sign that the Anne Arundel County Office of Planning and Zoning provided in Case Number 2024-0146-S was posted under my direction and supervision.

2. That the public notice sign was posted on October 2, 2024.

3. That the public notice sign was posted on the property owned by BGE that is the subject of this special exception application.

4. That, in accordance with instructions provided by the Office of Planning and Zoning, the public notice sign was posted on BGE's property along the edge of Mountain Road (Maryland Route 177), which constitutes the sole public road frontage of BGE's property.

Gary Witherspoon

Gary Witherspoon
Senior Project Manager
Assedo Consulting
6100 Chevy Chase Drive, Suite 201
Laurel, MD 20707

October 9, 2024

Date


NOTICE
AN APPLICATION HAS BEEN FILED FOR SPECIAL EXCEPTION
TO MODIFY A PREVIOUSLY APPROVED SPECIAL EXCEPTION TO
ALLOW A PUBLIC UTILITY USE IN AN R2 - RESIDENTIAL
DISTRICT
LOCATION: 4884 MOUNTAIN ROAD, PASADENA
CASE NO: 2024-0146-S
BALTIMORE GAS & ELECTRIC COMPANY C/O SAGER WILLIAMS,
ATTORNEY
PENDING A PUBLIC ZOOM MEETING. FOR INFO CONTACT
THE ZONING DIVISION AT 410-222-7437 OR VIEW WEBSITE
WWW.AACOUNTY.ORG/ADMIN-HEARINGS
DANGER
NOTICE


NOTICE
AN APPLICATION HAS BEEN FILED FOR SPECIAL EXCEPTION
TO MODIFY A PREVIOUSLY APPROVED SPECIAL EXCEPTION TO
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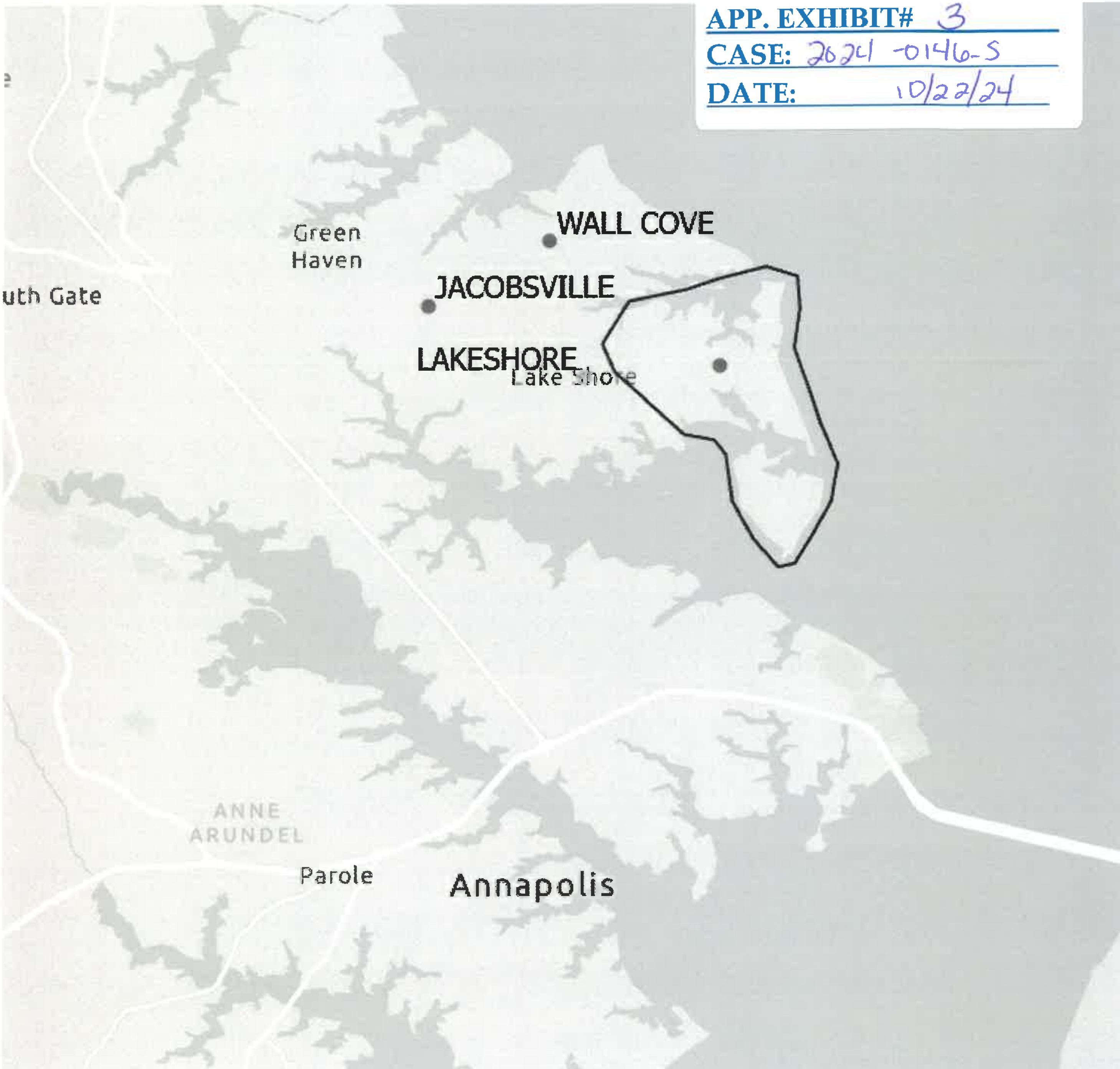
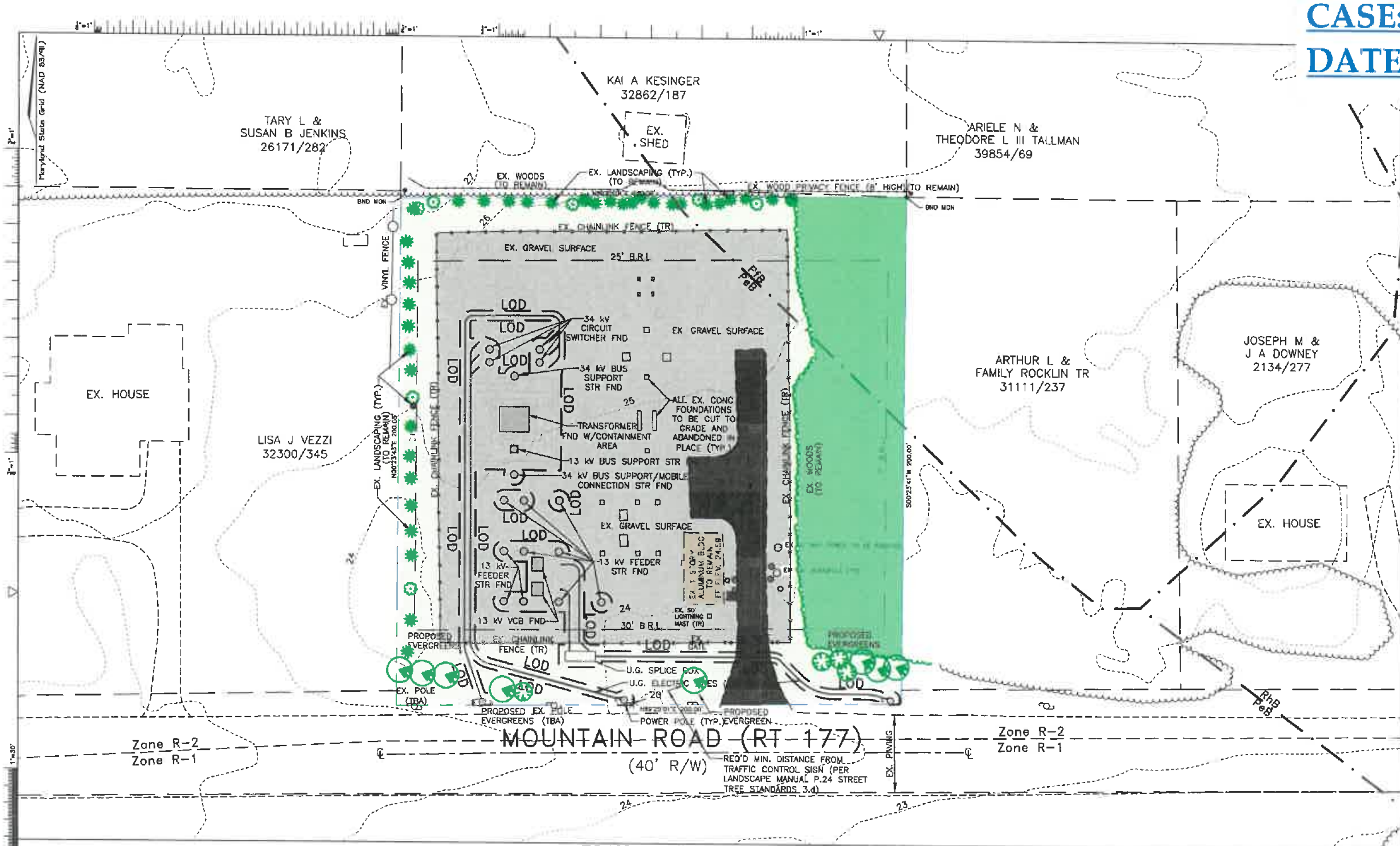
DANGER
NOTICE

APP. EXHIBIT# 3
CASE: 2024-0146-S
DATE: 10/22/24



APP. EXHIBIT# 4
CASE: 2024-0146-S
DATE: 10/22/24



LEGEND

Existing Contour	24
Property Line	
Centerline of Road	
Building Restriction Line	BRL
Existing Power Pole	
Existing Sign	
Existing Communications Tower	
Existing Bollards	
Existing Metal Pole	
Existing Conc. Foundation	
Existing Woods Line	
Existing Chain Link Fence	x x
Existing Wood Privacy Fence	
Existing Vinyl Fence	
Proposed Conc. Foundation	
Proposed Power Pole	
Proposed UG Electric	

LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL/COMMON NAME	SIZE AT INSTALL	NOTE	MATURE SIZE
	8	Nellie Stevens Holly Ilex x 'Nellie Stevens'	6' Ht. Min.	B & B	15'–25' Ht.
	4	Juniperus virginiana 'Hillii' Hilli Eastern Red Cedar	6' Ht. Min.	B & B	6'–16' Ht.

LANDSCAPE NARRATIVE

All existing landscape shown on east, north and west sides of property to remain. 12 proposed evergreen trees have been shown along the frontage as allowed by distance restrictions from underground and overhead power lines, as well as setbacks from existing substation fence, existing private drive and existing traffic control (speed limit sign along road).

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	SOIL GROUP
PeB	Patapsco-Evesboro-Fort Mott complex, 0 to 5 percent slopes	A
PfB	Patapsco-Fort Mott complex, 0 to 5 percent slopes	A
RhB	Russett-Christiana-Hambrook complex, 0 to 5 percent slopes	C

OWNER/DEVELOPER

BGE Substation Contracting & Design
2900 Lord Baltimore Drive
Baltimore, MD 21244
Attn. Mr. Jose Santiago, P.E.
Tel: (410) 470-8739

PROFESSIONAL CERTIFICATION

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. #34689, Expiration Date: 7/08/2025.

ERI
6339 Howard Lane
Elkridge, MD 21075
p: 410-567-5210
f: 410-796-1562
e: info@ERIe...

REV.	DATE	ACCOUNT NO.	DESCRIPTION	APPROVED

AUTOCAD
ENGINEERING
CIVL ____
ELEC. ____
PROJ. ENG. ____
PROJ. MGR. ____
PRIN. ENG. ____
SUPV. ENG. ____

DESIGN GROUP
DESIGNED MLT
DRAWN CBH2/SMN
CHECKED ZYF
APPROVED ____
DATE 2024JULY31

ADMINISTRATIVE SITE PLAN FOR SPECIAL EXCEPTION & VARIANCE
TAX MAP 25, GRID 5,
PARCEL 28, 3rd DISTRICT
ANNE ARUNDEL COUNTY, MD
SHEET 2 OF 2
34.5 – 13 kV SUBSTATION

BGE PINEHURST SUBSTATION
ELECTRIC SUBSTATION ENGINEERING

bge AN EXELON COMPANY
SCALE 1" = 20'
DWG NO.
REV D

APP. EXHIBIT# 5
CASE: 2024-0146-S
DATE: 10/22/24

APP. EXHIBIT# 6
CASE: 2024-0146-S
DATE: 10/22/24

APP. EXHIBIT# 7
CASE: 2024-0146-S
DATE: 10/22/24

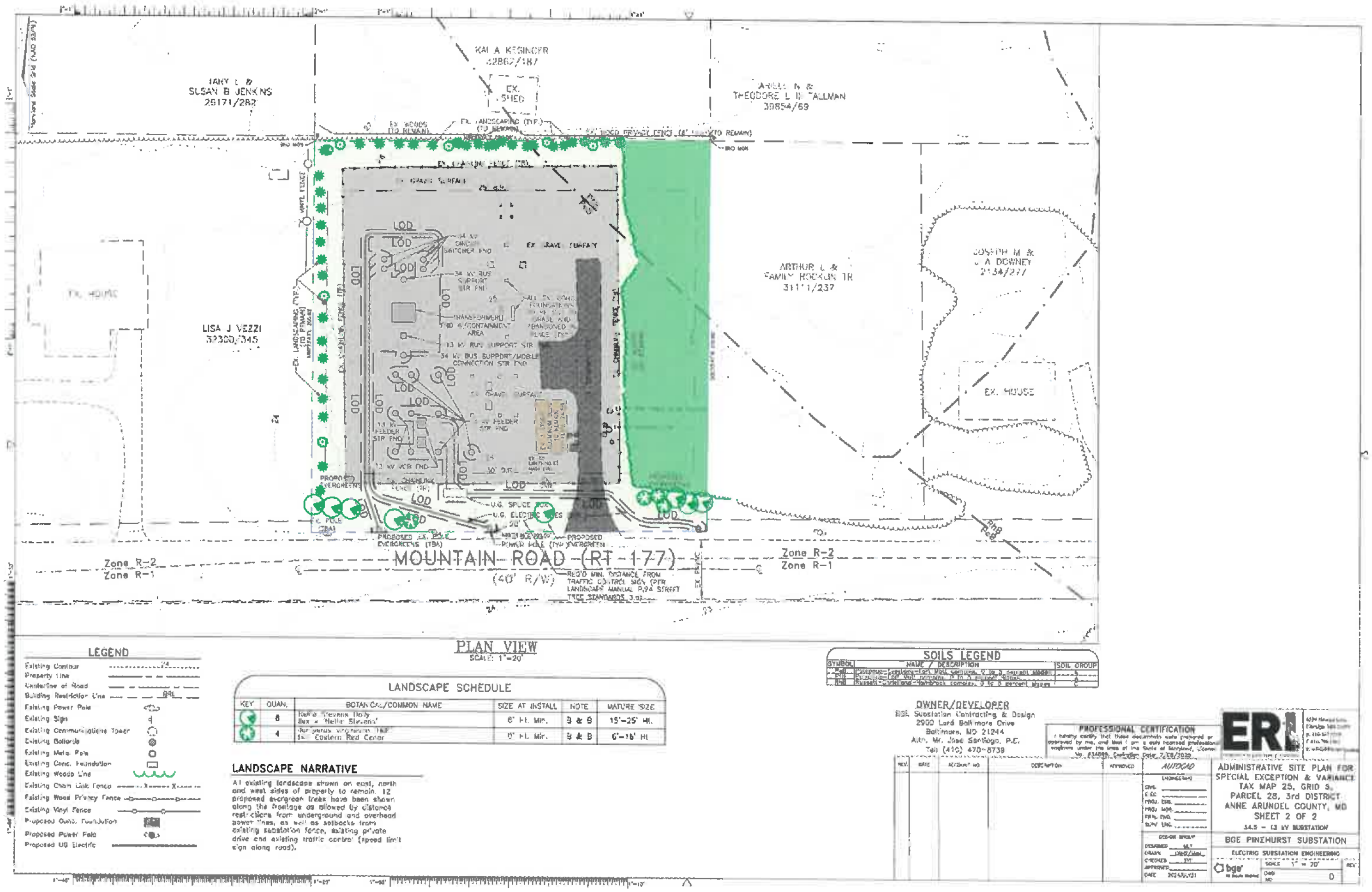
APP. EXHIBIT# 8
CASE: 2024-0146-S
DATE: 10/22/24

APP. EXHIBIT# 9
CASE: 2024-0146-S
DATE: 10/22/24

GW0

Landscaping Plan

- Two types and 12 new proposed evergreen plantings between Mountain Road and the front fence line of the substation.
- Both spacing and heights will vary.
- Trees will help provide a visual buffer on Mountain Road.
- Trees will not interfere with overhead lines.



Slide 12

GW0 Added slide.
Gary Witherspoon, 2024-09-24T14:22:34.107

AECOM

Acoustic Assessment

BGE Pinehurst Substation

October 16, 2024

Delivering a better world

Prepared for:

Olu Falusi
Section Engineer (Civil), Substation Engineering & Standards
Baltimore Gas and Electric Company (BGE)

&

Adam Seidman
Principal Project Manager
Anser Advisory

Prepared by:

Chris Kaiser, INCE Bd. Cert.

AECOM
605 Third Ave, 3rd Floor
New York, NY 10158
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Table of Contents

Figures

Tables

Acronyms and Abbreviations

BESS	battery energy storage system
dB	decibels
dBA	A-weighted decibels
LT	long term
L_{eq}	energy-equivalent sound level (average)
L_{90}	sound level exceeded for 90 percent of a measurement period
L_w	sound power level
ONAN	Oil Natural Air Natural (natural cooling mode)
ONAF	Oil Natural Air Forced (fan cooling mode)
PL	property line
SLM	sound level meter
SPL	sound pressure level

1. Introduction

Baltimore Gas and Electric (BGE) Pinehurst Substation (substation) is located at 4884 Mountain Road in Pasadena, Maryland. BGE is proposing an upgrade to the existing aboveground transformer at the approximate center-east within the substation site. The purpose of the acoustical assessment is to estimate the sound contribution of the proposed replacement transformer during operation at nearby noise-sensitive land uses.

1.1 Current and Future Conditions

The substation has an area of roughly 19,000 square feet. The new transformer will be located approximately 40 feet from the western property boundary. The new transformer would operate in two cooling modes: natural convection called "ONAN" and forced circulation cooling using fans called "ONAF". The unit would operate in "ONAN" mode until oil temperatures within the unit exceed a specific temperature.

1.2 Noise-Sensitive Land Uses in Study Area

Existing noise-sensitive land uses within the study area include single-family residences to the west, east, and north. Figure 1 shows the Pinehurst substation site and studied nearest noise-sensitive land uses.

Source: Bing Imagery 2024, AECOM 2024

Figure 1 Project Site Overview and Nearest Noise-Sensitive Land Uses

The closest residential structure is a single-family home approximately 90 feet west of the substation property boundary. The acoustic assessment analyzed baseline (including current transformer) ambient noise levels and predicted future project operational noise levels at the adjacent noise-sensitive land uses property lines and building facades.

1.3 Acoustical Terminology

A summary of relevant fundamental concepts and a glossary of terms related to noise and vibration are provided in Appendix A.

Key acoustical terms used in this report are as follows:

- **dB**: decibels; used to express the sound level magnitude.
- **dBA**: A-weighted decibels; a frequency spectrum filter applied to reflect the sensitivities of the human ear more closely.
- **L_{90}**: A sound level exceeded for 90 percent of a measurement period. The L_{90} commonly is called the "background" level because it typically represents the acoustical contribution from continuous or "steady-state" sound sources and the perceived indistinct din of background sound from the amalgamation of many contributing distant sound sources in the environment.
- **L_w**: sound power level; defined colloquially as the inherent acoustic energy generated by a noise source (e.g., absent of environmental factors, distance).
- **SPL**: sound pressure level, defined colloquially as the actual sound pressure wave measured at a specified location within a three-dimensional space, capturing the influence of environmental factors, such as acoustical wave propagation and distance from the noise source.

2. Regulatory Setting

2.1 Federal

No federal noise regulations are relevant to the acoustic aspect of the project.

2.2 State

The Maryland Department of the Environment administers its noise regulation in the Code of Maryland Regulations ("COMAR"). COMAR 26.02.03.02 defines sources to be "any person or property from which sound originates." The regulation establishes the following:

> A source of sound will be considered to be violating the noise regulation if the levels exceed the limits stated below:

1. State regulations establish two time periods and two sound level limits:
    a. Daytime 7 a.m. - 10 p.m. 65 dBA - for residential receiving properties
    b. Nighttime 10 p.m. - 7 a.m. 55 dBA - for residential receiving properties

2.3 Local

Section 18-16-304(3) of the County Code states that operations related to uses "will be no more objectionable with regard to noise, fumes, vibration, or light to nearby properties than operations in other uses…".

3. Existing Baseline Conditions

Sound pressure level (SPL) measurements were performed simultaneously with two Larson Davis Model LxT and one Larson Davis Model 831C sound level meter (SLM), all rated by the American National Standards Institute as Class 1. The SLM microphones were fitted with open-cell foam windscreens, positioned roughly 5 to 7 feet above grade and placed at least 10 feet from any acoustically reflecting surfaces. The SLMs were set using slow time response and the A-weighting scale. SLM calibration was field-checked before and after the measurement period with a Larson Davis Model CAL200 acoustic calibrator. All SLMs and the handheld acoustic calibrator were laboratory-calibrated with passing marks within 1 year of the noise measurement dates (calibration certificates are available on request).

SPL measurements were conducted along the site fence line to the west, north, and east. The fence lines range between 14 and 45 feet from the actual site property boundary; However, they are consiered conservatively representative of actual property line noise levels generated by the facility because they are closer to the existing site transformer. Figure 2 shows the three long-term (LT) measurement locations, superimposed on aerial imagery. Photos of the deployments are provided in Appendix B.

Source: Bing Imagery 2024, AECOM 2024

Figure 2 Long-Term Ambient Noise Monitoring Locations

3.1 Baseline Noise Survey Results

Noise monitoring deployments were left unattended for two days (48 continuous hours) beginning at 3 p.m. on September 30, 2024.

Table 1 provides an overall summary of the collected sound level data. The L_{90} statistical metric was used to quantify the baseline noise level ranges. This metric represents the noise level that is exceeded for 90% of each one-hour period. For example, if the transformer is running continuously, but during 50 minutes of the hour the microphone is also recording elevated noise caused by traffic on Mountain Road, the L90 value would be representative of the quietest 6 minutes of that one-hour period (i.e., noise levels during the period of no traffic, thereby representative of the contribution from the transformer). Detailed measurement data are provided in Appendix C.

Table 1. Long-Term Noise Survey Summary

Measurement Location ID	Total Duration of Collected Data (hours)	Daytime Hourly Sound Level Range (L_{90}, dBA)
LT-1	48	43 – 48
LT-2	48	47 – 51
LT-3	48	50 – 53

Sources of noise in the survey vicinity included regular vehicle traffic on Mountain Road, distant aircraft flyovers, insect noise, dogs barking, and intermittent bird calls. The existing transformer was running during the 48-hour measurement period and was audible though not dominant. Sound pressure level trends in the 48-hour measurement plots suggest that insect noise (indicated by a "bump" in the L90 plots) was dominant during the evening period of 7 p.m. and 11 p.m.

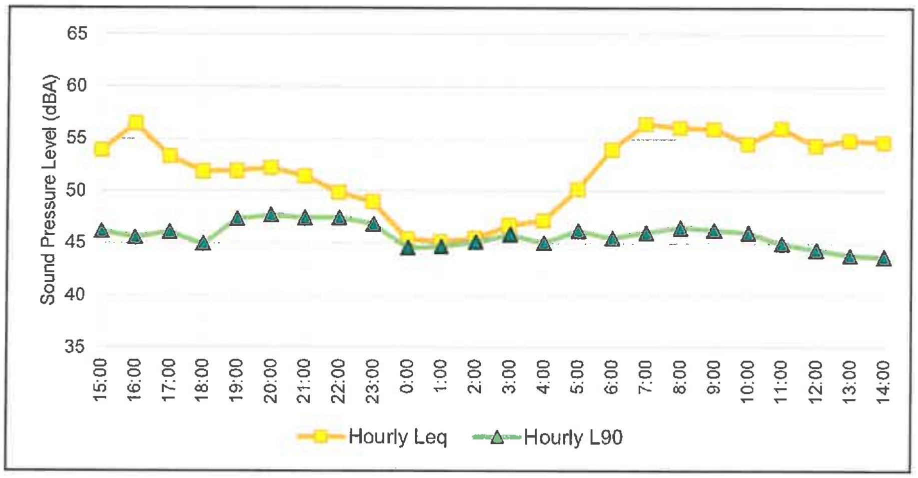


Figure 3 Measured Hourly Sound Pressure Levels at LT-1, Day 1 (9/30-10/1)

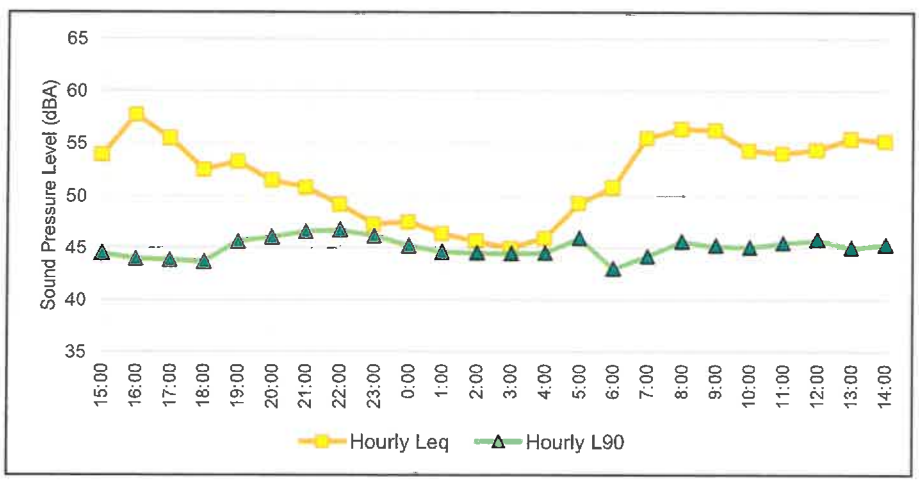


Figure 4 Measured Hourly Sound Pressure Levels at LT-1, Day 2 (10/1-10/2)

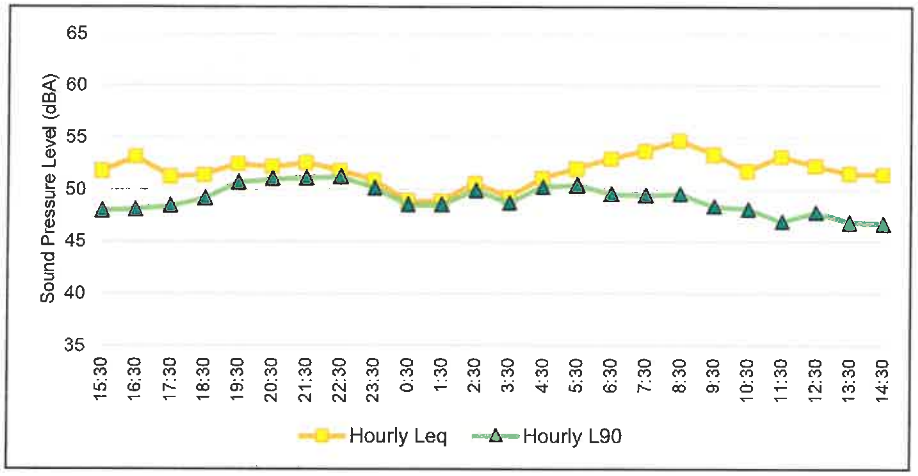


Figure 5 Measured Hourly Sound Pressure Levels at LT-2, Day 1 (9/30-10/1)

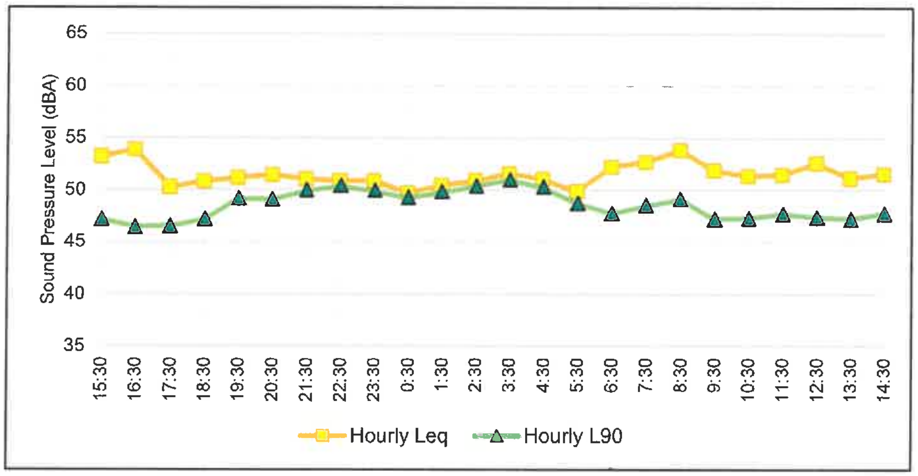


Figure 6 Measured Hourly Sound Pressure Levels at LT-2, Day 2 (10/1-10/2)

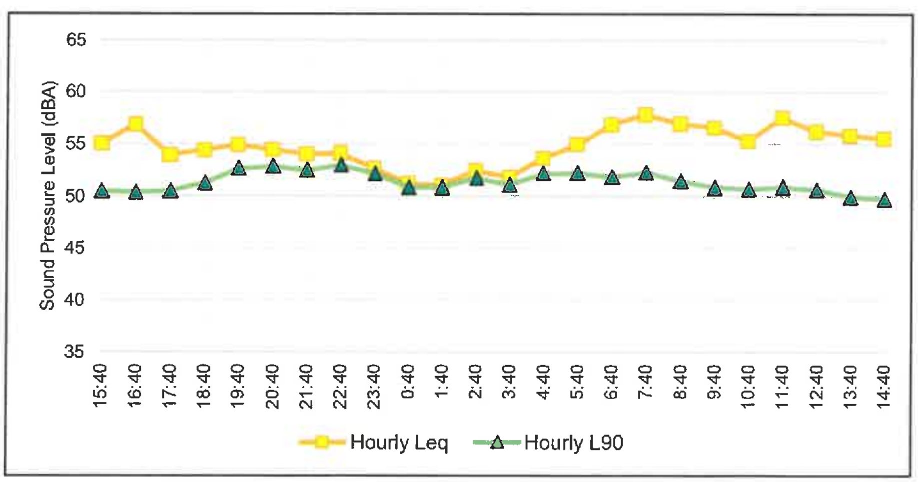


Figure 7 Measured Hourly Sound Pressure Levels at LT-3, Day 1 (9/30-10/1)

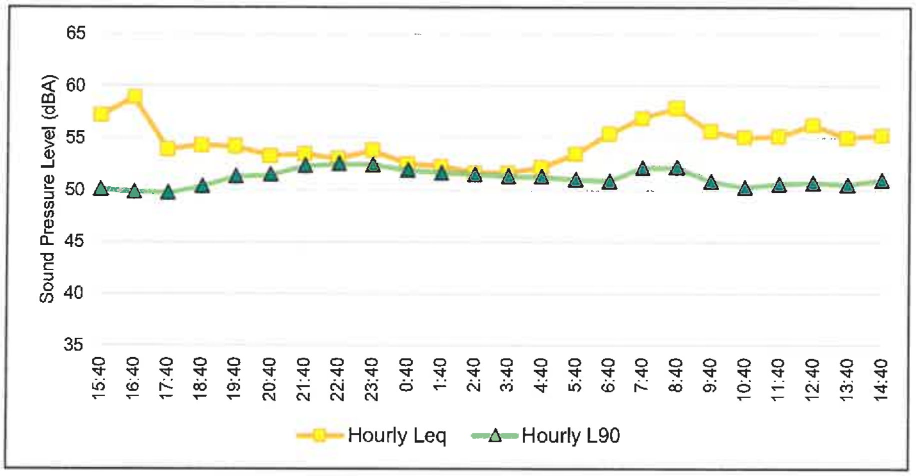


Figure 8 Measured Hourly Sound Pressure Levels at LT-3, Day 2 (10/1-10/2)

Measured hourly equivalent sound levels (Leq) generally ranged from 45 dBA (at LT-1) to 59 dBA (at LT-3) during the monitoring period. The highest measured sound levels were collected at LT-1 and LT-3 (deployments closer to Mountain Road). The measured sound level plots suggest that L_{eq} sound levels in the area generally are higher during the daytime period with relatively steep drops in sound levels during the late-evening and early-morning hours due to traffic flows on the roadway. Measured L90 values vary from location to location which may be based on their proximity to trees harboring noise-generating insects, proximity to residential noise sources (e.g., air conditioning units), or on-site noise sources (e.g., transformer operation).

4. Noise Prediction Modeling

The CadnaA® Noise Prediction Model (Version 2024) was used to estimate the propagation of sound from aggregate project operations, and thereby predict SPLs at various distances from the project site, including representative noise-sensitive receptor locations selected for the ambient sound survey. CadnaA is a Windows-based software program that predicts and assesses SPLs near industrial sound sources and is based on International Organization of Standardization 9613-2 algorithms for sound propagation calculations. The software can accept sound power levels (L_w) (in dB referenced to 1 picowatt) in octave-band center frequency resolution to describe the multiple sound propagation sources of the site processes or activity to be modeled. The calculations account for classical sound wave divergence plus attenuation factors resulting from air absorption, basic ground effects, and barrier/shielding. The advantage of using CadnaA is that it can handle the three-dimensional sound propagation complexity of considering realistic intervening natural and human-made topographical barrier effects, including those resulting from terrain features and structures, such as multi-story buildings.

4.1 Modeled Sound Sources

Equipment specifications were provided to AECOM which summarized reference sound level measurements of the proposed transformer. These measurement data were used to generate a noise source representative of the proposed transformer in the prediction model. The new transformer was entered into the model space as a four-sided vertical area source, each side emitting the manufacturer's "guaranteed" maximum sound levels for the ONAN (fans-off) and ONAF (fans-on) condition. Equipment reference sound power levels for each piece of equipment are shown in Table 2.

Table 2. Major Project and Existing Operations Noise-Generating Sources

Equipment/Source Type	Reference Sound Power Level of Source (L_w, A-weighted)
Proposed Transformer in ONAN Mode with Load	70.3
Proposed Transformer in ONAF Mode, with Load	73.5

4.2 Predictive Model Configuration Settings

Additional CadnaA model configuration settings and operations noise analysis assumptions are as follows: 50°F outdoor temperature, 70 percent relative humidity, calm wind conditions (less than 0.5 meters per second), one order of acoustic reflections, and an average acoustical ground absorption coefficient of 0.5 (representing a conservative estimate for the project vicinity, with a coefficient of 0.0 [completely reflective] assigned to the parking lot area). Study area topography at one-meter-step resolution was imported into the model from the U.S. Geological Survey's National Elevation Dataset.

Discrete receiver points were placed at key property lines of sensitive receptors (represented as PL-#) and also at the noise-sensitive structures or areas within study area parcels (represented as R-#) at a typical listener height of 5 feet above ground.

5. Results and Findings

A total of two model scenarios were analyzed:

- **Scenario 1:** Proposed Transformer ONAN 100% Load Condition
- **Scenario 2:** Proposed Transformer ONAF 100% Load Condition

Tables 3 and 4 summarize the findings of Scenario 1 and 2, respectively. The results of these prediction models are compared with the COMAR regulations for daytime and nighttime limits for compliance.

Table 3. Predicted Future Transformer Compliance with COMAR State Regulations, ONAN Condition

Receiver ID	Predicted Future Transformer ONAN Condition (dBA)	COMAR Limit Daytime/Nighttime	Compliant with Daytime/Nighttime Limit?
R-West PL	44	65 / 55	Yes / Yes
R-North PL	38	65 / 55	Yes / Yes
R-East PL	33	65 / 55	Yes / Yes
R-West Structure	35	65 / 55	Yes / Yes
R-North Structure	31	65 / 55	Yes / Yes
R-East Structure	28	65 / 55	Yes / Yes

Table 4. Predicted Future Transformer Compliance with COMAR State Regulations, ONAF Condition

Receiver ID	Predicted Future Transformer ONAF Condition (dBA)	COMAR Limit Daytime/Nighttime	Compliant with Daytime/Nighttime Limit?
R-West PL	47	65 / 55	Yes / Yes
R-North PL	42	65 / 55	Yes / Yes
R-East PL	37	65 / 55	Yes / Yes
R-West Structure	39	65 / 55	Yes / Yes

Receiver ID	Predicted Future Transformer ONAF Condition (dBA)	COMAR Limit Daytime/Nighttime	Compliant with Daytime/Nighttime Limit?
R-North Structure	35	65 / 55	Yes / Yes
R-East Structure	32	65 / 55	Yes / Yes

As shown in Tables 3 and 4, the proposed project would meet the COMAR regulation at both the property line of the receiving land uses and also at the home structures on each parcel.

To understand the potential for adverse reactions to the proposed project noise levels, Tables 5 and 6 compare the predicted sound levels at each home structure to the measured ambient noise level to understand the relative increase (or lack thereof) of noise levels during measured the quietest noise hour.

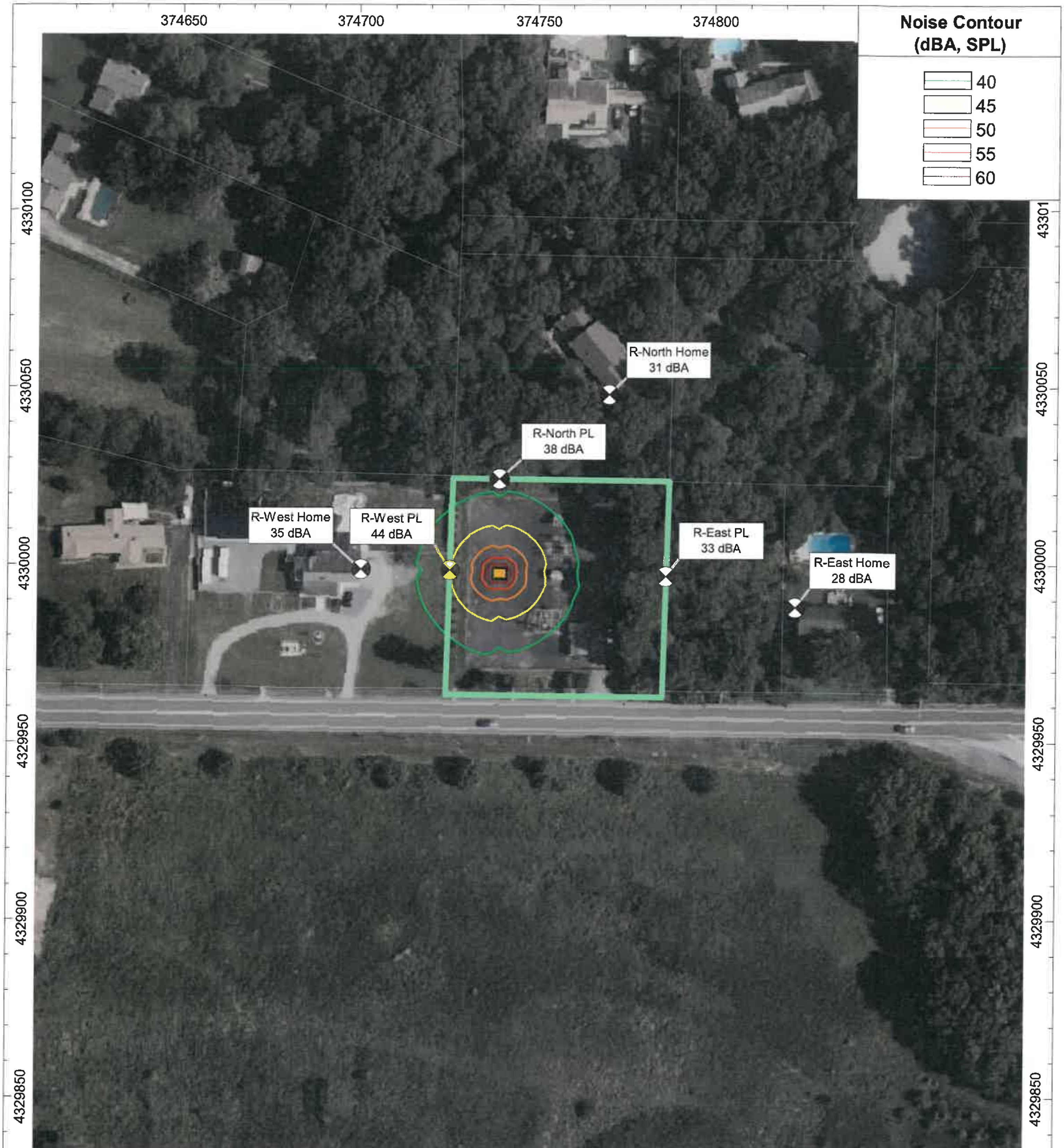
Table 5. Existing Ambient Sound Levels and Predicted Future Transformer ONAN Condition

Receiver ID	Existing Ambient Noise Level (lowest measured hourly L_{90})	Predicted Future Transformer ONAF 100% Condition (dBA)	Change in Lowest Hourly Sound Level
R-West Structure	43 (LT1)	35	0
R-North Structure	47 (LT2)	31	0
R-East Structure	50 (LT3)	28	0

Table 6. Existing Ambient Sound Levels and Predicted Future Transformer ONAF Condition

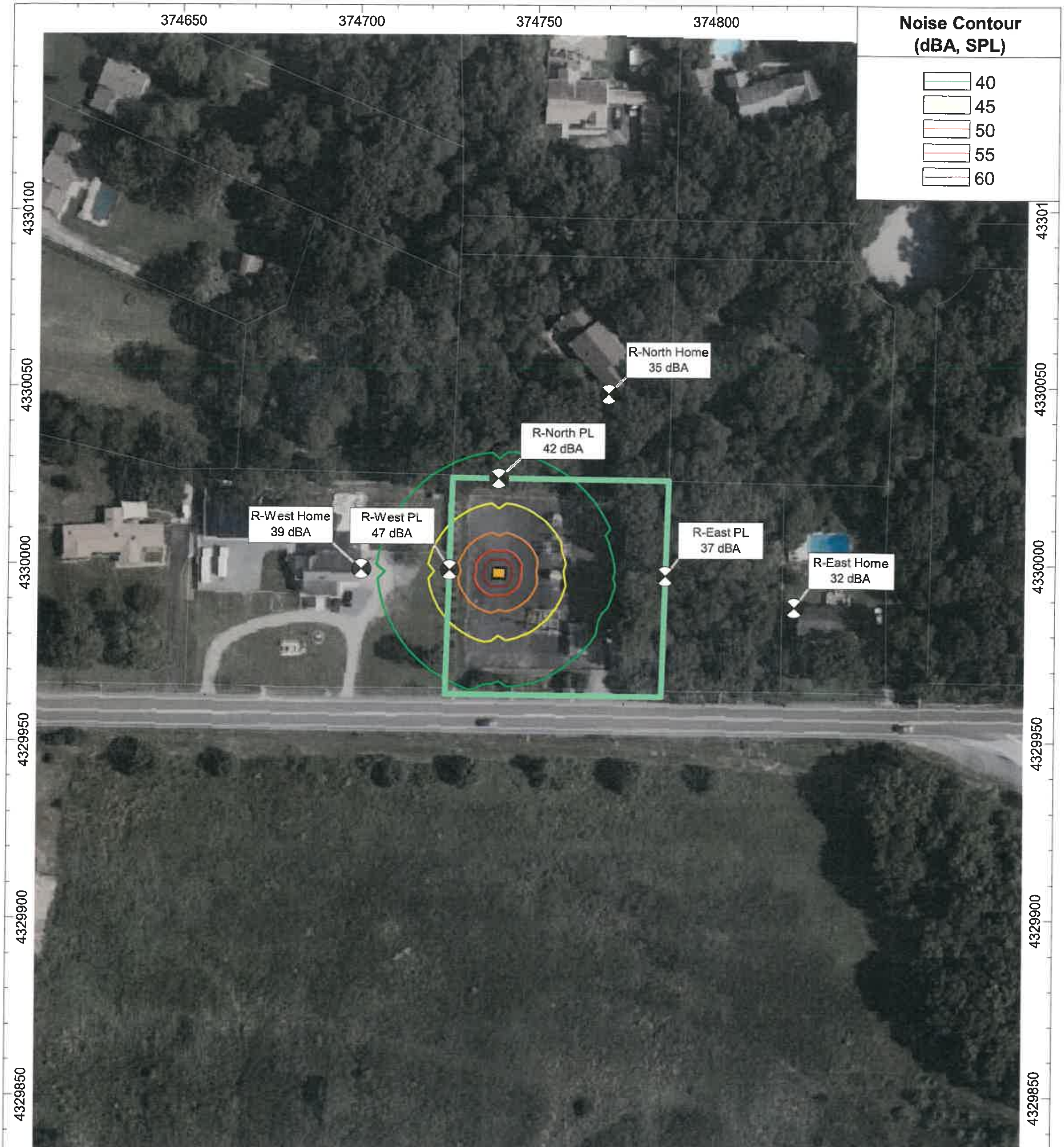
Receiver ID	Existing Ambient Noise Level (lowest measured hourly L_{90})	Predicted Future Transformer ONAF 100% Condition (dBA)	Change in Lowest Hourly Sound Level
R-West Structure	43 (LT1)	39	0
R-North Structure	47 (LT2)	35	0
R-East Structure	50 (LT3)	32	0

Because the measured quietest noise-hour at each location included the operation of the existing transformer unit at the substation, Tables 5 and 6 suggest that the operation of the substation in the future scenario could in fact be quieter than current substation operations at each home in both operating scenarios. Figures 9 and 10 show predicted project operation sound isopleths (also known as "contours") for both scenarios.



Map Data: Bing, Imagery ©2024

N	Date Created: 10/16/2024	**Figure 9** **Proposed Transformer in ONAN Operating Condition** **No Noise Mitigation Applied, Hourly Equivalent Noise Level (Leq, dBA)**
	Created by: CK	
AECOM Delivering a better world Acoustics & Noise Control Practice		**Predicted Project Operation Noise Contours - 5 Foot Elevation** **BGE Pinehurst Substation** **Pasadena, MD**



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Date Created: 10/16/2024

Created by: CK

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Acoustics & Noise Control Practice

Figure 10

Proposed Transformer in ONAF Operating Condition
No Noise Mitigation Applied, Hourly Equivalent Noise Level (Leq, dBA)

Predicted Project Operation Noise Contours - 5 Foot Elevation
BGE Pinehurst Substation
Pasadena, MD

5.1 Conclusion

Predicted future transformer sound levels at the BGE Pinehurst substation for both operating scenarios suggest that future operations would be compliant with applicable regulatory criteria (State daytime and nighttime noise level limits. Furthermore, noise generated by the proposed transformer would be lower than the quietest-noise hour at all home structures. Therefore, no noise reduction measures are recommended.

Statement of Limitations

Background information on the Project, including transformer reference sound levels, have been furnished to AECOM by BGE, which AECOM has used in preparing this report. AECOM has relied on this information as furnished and is neither responsible for nor has confirmed the accuracy of this information.

The conclusions and recommendations of AECOM are conditioned upon several assumptions. Noise levels found in this memo include those predicted with CadnaA sound propagation modeling software, a commercially available program not proprietary to AECOM. This memo assumes that the algorithms within the CadnaA program are correct and accurately reflect International Organization of Standardization (ISO) 9613-2 and other relevant standards for predictive modeling of outdoor noise propagation.

Appendix A Glossary of Acoustical Terminology

- **Sound** – For this analysis, sound is a physical phenomenon generated by vibrations that result in waves that travel through a medium, such as air, and result in auditory perception by the human brain.
- **Noise** – Noise typically is regarded as unwanted or disruptive sound. Whether something is perceived as a noise event is influenced by the type of sound, the perceived importance of the sound, and its appropriateness in the setting, the time of day, and the type of activity during which the noise occurs and the sensitivity of the listener. Local jurisdictions may have legal definitions of what constitutes "noise" and such environmental parameters to consider.
- **Frequency** – Sound frequency is measured in hertz (Hz), which is a measure of how many times each second the crest of a sound pressure wave passes a fixed point. For example, when a drummer beats a drum, the skin of the drum vibrates a number of times per second. When the drum skin vibrates 100 times per second, it generates a sound pressure wave that is oscillating at 100 Hz, and this pressure oscillation is perceived by the ear/brain as a tonal pitch of 100 Hz. Sound frequencies between 20 and 20,000 Hz are within the range of sensitivity of the best human ear.
- **Amplitude or Level** – Amplitude is measured in decibels (dB), using a logarithmic scale. A sound level of zero dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal conversational speech has a sound level of approximately 60 dB. Sound levels above approximately 110 dB begin to be felt inside the human ear as discomfort and eventually pain at 120 dB and higher levels. The minimum change in the sound level of individual events that an average human ear can detect is about 1 to 2 dB. A 3 to 5 dB change is readily perceived. A change in sound level of about 10 dB is usually perceived by the average person as a doubling (or if decreasing by 10 dB, halving) of the sound's loudness.
- **Sound pressure** – Sound level is usually expressed by reference to a known standard. This document refers to sound pressure level (SPL), which is expressed on a logarithmic scale with respect to a reference value of 20 micropascals. SPL depends not only on the power of the source, but also on the distance from the source and the acoustical characteristics of the space surrounding the source.
- **Sound power** – Unlike sound pressure, which varies with distance from a source, sound power (and its counterpart sound power level) is the acoustic power of a source, typically expressed in watts.
- **A-weighting** – Sound from a tuning fork contains a single frequency (a pure tone); however most sounds one hears in the environment do not consist of a single frequency. Instead, they are composed of a broad band of frequencies differing in sound level. The method commonly used to quantify environmental sounds consists of evaluating all frequencies of a sound according to a weighting system that reflects the typical frequency-dependent sensitivity of average healthy human hearing at moderate sound levels. This is called "A-weighting," and the decibel level measured is referred to as dBA. In practice, the level of a sound source conveniently is measured using a sound level meter (SLM) that includes a filter corresponding to the dBA "curve" of decibel adjustment per octave band center frequency from a "flat" or unweighted SPL.
- **Equivalent sound level (L_{eq})** – Environmental sound levels vary continuously and include a mixture of sound from near and distant sources. A single descriptor, L_{eq} may be used to describe such sound that is changing in level from one moment to another. L_{eq} is the energy-average sound level during a measured time interval. It is the "equivalent" constant sound level that would have to be produced by a single, steady source to equal the acoustic energy contained in the fluctuating sound level measured over a specified period of time.
- **Statistical sound level (L_n)** – A sound level exceeded for a cumulative "n" percentage of a measurement or studied time period, such as L_{10}, L_{50} or L_{90}. The L_{50} value is often referred to as the "median" sound level, while L_{90} is commonly called the "background" level as it typically represents acoustical contribution from continuous or "steady-state" sound sources and the perceived indistinct din of background sound due to the amalgamation of many contributing distant sound sources in the environment.
- **Day-Night Average Sound Level (L_{dn})** – L_{dn} represents the average sound level for a 24-hour day and is calculated by adding a 10-dB penalty only to sound levels during the nighttime period (10 p.m. to 7 a.m.). This metric commonly is used when assessing noise exposure in communities.

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock band
Jet flyover at 1,000 feet		
	100	
Gas lawnmower at 3 feet		
	90	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower, 100 feet	**70**	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	**60**	
		Large business office
Quiet urban daytime	**50**	Dishwasher in next room
Quiet urban nighttime	**40**	Theater, large conference room (background)
Quiet suburban nighttime		
	30	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20	
		Broadcast/recording studio
	10	
	0	

Appendix B Photo Log

Photo 1

Monitoring Site:
LT-1

Date Taken:
September 30, 2024

Camera Facing:
East

Description:
View toward sound level meter facing BGE Substation.

Photo 2

Monitoring Site:
LT-1

Date Taken:
September 30, 2024

Camera Facing:
South

Description:
View toward sound level meter facing Mountain Road.

	**Photo 3** **Monitoring Site:** LT-2 **Date Taken:** September 30, 2024 **Camera Facing:** South **Description:** View toward sound level meter facing BGE Pinehurst Substation.
	**Photo 4** **Monitoring Site:** LT-2 **Date Taken:** September 30, 2024 **Camera Facing:** East **Description:** View toward sound level meter looking eastbound.

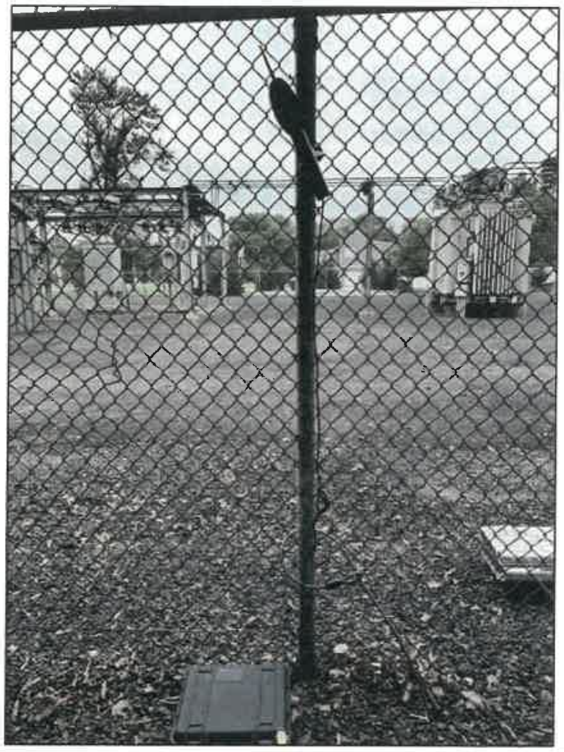

Photo 5

Monitoring Site:
LT-3

Date Taken:
September 30, 2024

Camera Facing:
West

Description:
View toward sound level meter facing BGE Pinehurst Substation. Existing transformer on the right.

Photo 6

Monitoring Site:
LT-3

Date Taken:
September 30, 2024

Camera Facing:
South

Description:
View toward sound level meter looking southbound down toward Mountain Road.

Appendix C Field Data

Long-Term Measurement Hourly Data Summary (dBA)

Original unprocessed data including 1/3 octave band center frequency data is available on request.

Date	Time	L_{eq}	L_{min}	L_{max}	L_{90}
			LT1		
9/30/24	15:00	54	44	72	46
9/30/24	16:00	56	44	84	46
9/30/24	17:00	53	43	66	46
9/30/24	18:00	52	44	66	45
9/30/24	19:00	52	45	68	47
9/30/24	20:00	52	47	75	48
9/30/24	21:00	51	47	74	47
9/30/24	22:00	50	47	63	47
9/30/24	23:00	49	46	68	47
10/1/24	0:00	45	43	58	45
10/1/24	1:00	45	43	61	45
10/1/24	2:00	45	44	61	45
10/1/24	3:00	47	44	61	46
10/1/24	4:00	47	44	67	45
10/1/24	5:00	50	44	67	46
10/1/24	6:00	54	43	69	46
10/1/24	7:00	56	42	68	46
10/1/24	8:00	56	43	70	47
10/1/24	9:00	56	43	76	46
10/1/24	10:00	55	44	73	46
10/1/24	11:00	56	43	83	45
10/1/24	12:00	54	42	68	44
10/1/24	13:00	55	41	71	44
10/1/24	14:00	55	41	78	44
10/1/24	15:00	54	42	69	44
10/1/24	16:00	58	42	88	44
10/1/24	17:00	55	42	85	44
10/1/24	18:00	53	42	68	44
10/1/24	19:00	53	44	70	46
10/1/24	20:00	51	45	68	46
10/1/24	21:00	51	45	70	47
10/1/24	22:00	49	46	64	47
10/1/24	23:00	47	45	61	46
10/2/24	0:00	48	44	74	45

Date	Time	L_{eq}	L_{min}	L_{max}	L_{90}
10/2/24	1:00	46	44	72	45
10/2/24	2:00	46	44	64	45
10/2/24	3:00	45	44	58	44
10/2/24	4:00	46	44	60	45
10/2/24	5:00	49	43	62	46
10/2/24	6:00	51	41	67	43
10/2/24	7:00	56	40	66	44
10/2/24	8:00	56	41	69	46
10/2/24	9:00	56	41	69	45
10/2/24	10:00	54	43	70	45
10/2/24	11:00	54	44	70	45
10/2/24	12:00	54	44	67	46
10/2/24	13:00	55	43	82	45
10/2/24	14:00	55	43	76	45
			LT2		
9/30/24	15:30	52	47	69	48
9/30/24	16:30	53	47	76	48
9/30/24	17:30	51	47	60	48
9/30/24	18:30	51	47	65	49
9/30/24	19:30	52	50	67	51
9/30/24	20:30	52	50	68	51
9/30/24	21:30	53	50	64	51
9/30/24	22:30	52	50	65	51
9/30/24	23:30	51	48	70	50
10/1/24	0:30	49	48	56	49
10/1/24	1:30	49	48	52	49
10/1/24	2:30	51	48	56	50
10/1/24	3:30	49	48	57	49
10/1/24	4:30	51	49	64	50
10/1/24	5:30	52	49	61	50
10/1/24	6:30	53	48	65	50
10/1/24	7:30	54	47	68	49
10/1/24	8:30	55	47	68	50
10/1/24	9:30	53	47	75	48
10/1/24	10:30	52	47	68	48
10/1/24	11:30	53	46	80	47
10/1/24	12:30	52	46	66	48
10/1/24	13:30	52	46	73	47

Date	Time	L_{eq}	L_{min}	L_{max}	L_{90}
10/1/24	14:30	51	46	70	47
10/1/24	15:30	53	46	80	47
10/1/24	16:30	54	45	82	46
10/1/24	17:30	50	45	61	47
10/1/24	18:30	51	45	63	47
10/1/24	19:30	51	48	62	49
10/1/24	20:30	51	48	68	49
10/1/24	21:30	51	49	65	50
10/1/24	22:30	51	50	58	50
10/1/24	23:30	51	49	71	50
10/2/24	0:30	50	49	66	49
10/2/24	1:30	50	49	67	50
10/2/24	2:30	51	49	55	50
10/2/24	3:30	52	49	56	51
10/2/24	4:30	51	48	58	50
10/2/24	5:30	50	48	61	49
10/2/24	6:30	52	46	75	48
10/2/24	7:30	53	46	61	49
10/2/24	8:30	54	46	66	49
10/2/24	9:30	52	46	65	47
10/2/24	10:30	51	46	65	47
10/2/24	11:30	51	46	61	48
10/2/24	12:30	53	46	74	47
10/2/24	13:30	51	46	65	47
10/2/24	14:30	52	46	61	48
			LT3		
9/30/24	15:40	55	49	70	51
9/30/24	16:40	57	49	83	50
9/30/24	17:40	54	50	68	51
9/30/24	18:40	54	50	71	51
9/30/24	19:40	55	52	74	53
9/30/24	20:40	54	52	74	53
9/30/24	21:40	54	52	72	53
9/30/24	22:40	54	52	77	53
9/30/24	23:40	53	51	68	52
10/1/24	0:40	51	50	60	51
10/1/24	1:40	51	50	54	51
10/1/24	2:40	52	50	62	52

Date	Time	L_{eq}	L_{min}	L_{max}	L_{90}
10/1/24	3:40	52	50	64	51
10/1/24	4:40	54	51	69	52
10/1/24	5:40	55	51	67	52
10/1/24	6:40	57	50	71	52
10/1/24	7:40	58	51	72	52
10/1/24	8:40	57	49	72	51
10/1/24	9:40	57	49	78	51
10/1/24	10:40	55	49	68	51
10/1/24	11:40	58	50	83	51
10/1/24	12:40	56	49	73	51
10/1/24	13:40	56	49	82	50
10/1/24	14:40	56	49	75	50
10/1/24	15:40	57	49	85	50
10/1/24	16:40	59	49	89	50
10/1/24	17:40	54	49	68	50
10/1/24	18:40	54	49	70	50
10/1/24	19:40	54	51	75	51
10/1/24	20:40	53	51	67	52
10/1/24	21:40	54	51	63	52
10/1/24	22:40	53	52	63	53
10/1/24	23:40	54	52	79	52
10/2/24	0:40	53	51	71	52
10/2/24	1:40	52	51	73	52
10/2/24	2:40	52	51	57	52
10/2/24	3:40	52	51	62	51
10/2/24	4:40	52	51	65	51
10/2/24	5:40	54	51	71	51
10/2/24	6:40	55	50	68	51
10/2/24	7:40	57	50	68	52
10/2/24	8:40	58	49	72	52
10/2/24	9:40	56	49	72	51
10/2/24	10:40	55	49	71	50
10/2/24	11:40	55	50	68	51
10/2/24	12:40	56	50	78	51
10/2/24	13:40	55	50	71	51
10/2/24	14:40	55	50	67	51

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