

**SOUND ASSESSMENT STUDY
OF
WEST HEMPSTEAD INSTALL FOUR 69/13kV 33MVA
TRANSFORMERS AND ASSOCIATED WORK PROJECT**

West Hempstead, Nassau County, New York

Prepared for:



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Project No. 01315-1170



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EXECUTIVE SUMMARY

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The West Hempstead Substation is located in West Hempstead, Nassau County, New York and is operated by PSEG Long Island (PSEG LI). The existing West Hempstead Substation is located on Hempstead Gardens Drive and is currently operating with two transformer banks. The proposed project (the “Project”) will include the installation of two new transformer banks and the replacement of two existing transformer banks and other associated equipment. The Project will include the expansion of the West Hempstead Substation into an adjoining Long Island Power Authority (LIPA) owned parcel. Project activities will take place within the existing West Hempstead Substation and the expansion area (herein referred to as the “Site”). With respect to sound-generating equipment, the four new transformer banks will be the only permanent continuously operational noise-generating equipment installed as part of the Project. A mobile transformer unit will be in operation temporarily during substation equipment replacement/installation activities. These transformers were the only equipment evaluated in this sound assessment.

PS&S performed this sound assessment to evaluate the predicted future sound levels at the nearby sensitive receptors once the Project is completed. Existing sound level measurements were collected at four locations in the surrounding area to understand the ambient sound levels in the neighborhood and evaluate potential impacts from the Project.

PS&S modeled the future sound conditions and found that sound levels associated with the Project will be in compliance with the New York State Department of Environmental Conservation (NYSDEC) guidance at the nearby receptors.



1.0 INTRODUCTION

PS&S performed this Sound Assessment Study for the proposed Project located in West Hempstead, Nassau County, New York. PS&S assessed the existing ambient sound levels and modeled future sound levels at nearby receptors.

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PS&S compared the existing and future sound levels with the NYSDEC “Assessing and Mitigating Noise Impacts” dated October 6, 2000, last revised February 2, 2001 (NYSDEC Guidance).

2.0 SITE LOCATION & PROJECT DESCRIPTION

The Site is located north of Hempstead Gardens Drive, east of the Long Island Rail Road, and south and west of industrial/commercial properties. Residential properties exist south of the Site across Hempstead Gardens Drive and northwest of the Site across Long Island Rail Road.

PSEG LI is proposing the installation of two new transformer banks on vegetated land located immediately west of the existing active West Hempstead Substation. Additionally, the two existing transformer banks located in the eastern portion of the substation will be replaced with two new transformer banks. A temporary mobile transformer unit will be utilized to supply supplemental power to the substation during substation equipment replacement/installation activities. The temporary mobile transformer unit will be energized, but on standby during this work. If the existing transformer banks fail, the temporary mobile unit will be switched on to re-establish power supply. The mobile unit will be on-site and intermittently used for approximately 6 months.

3.0 NOISE STANDARDS & CRITERIA

PS&S compared the existing and future sound levels with the NYSDEC Guidance.

NYSDEC Guidance indicates that sound pressure increases ranging from 0-3 decibels (dB)



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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, and sound pressure increases of more than 6 dB may require a closer analysis of impact potential depending on existing sound pressure levels and the character of surrounding land use and receptors. Additionally, this guidance states that in non-industrial settings, the sound pressure level should probably not exceed ambient noise by more than 6 dB(A) at the receptor, and 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 Guidance indicates that ambient noise sound pressure levels in industrial or commercial areas may exceed 65 dB(A) with a high end of approximately 79 dB(A).

4.0 EXISTING SOUND LEVELS

4.1 Sound Monitoring

Sound measurements were collected by a trained professional using the following instrumentation:

- Bruel & Kjaer 2250 Type 1 Sound Level Meter, certified June 10, 2025;
- Wind Screen;
- Bruel & Kjaer Calibrator, certified June 10, 2025; and
- Wind Meter.

The certified sound-level meter was set to the “A-weighting” scale and “slow” measurement speed.

Weather conditions during the monitoring period were acquired from the local weather service and observed conditions were noted on field observation sheets at the time the readings were collected. Temperatures were in the low 60’s (degrees Fahrenheit) and winds (measured on-site) were generally between 1.1 to 1.4 miles



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per hour. There was no precipitation during the sound level monitoring. These conditions satisfy the meteorological requirement for the measurement of ambient sound.

Existing sound levels were measured at four locations in the vicinity of the Project during the nighttime period (10:00 PM – 7:00 AM) on June 8, 2026. These sound monitoring locations were chosen to help understand the existing ambient sound in the neighborhood as well as measure sound levels at the properties of sensitive receptors. Existing sound levels and locations of the closest sensitive receptors to the Project are shown on **Figure 1**.

Existing sound sources observed during the field measurements included traffic on Hempstead Avenue, equipment at the existing West Hempstead Substation, and birds. Sounds from the Long Island Rail Road train and cars on Hempstead Gardens Drive were intermittent and not included in the background sound levels.

5.0 SOUND MODELING

5.1 Model Inputs

The transformer banks were identified as the sound-generating equipment to be used for the modeling. The permanent model inputs are based on two Delta Star 69/13kV-33MVA transformer banks and two PTTI 69/13kV-33MVA transformer banks operating at sound pressure levels of 65 dBA maximum at a distance of 1 meter from the units. The proposed temporary mobile transformer unit is a Delta Star NP 907/20 MVA transformer and was modeled operating at sound pressure level of 82 dBA maximum at a distance of 2 meters from the unit. The proposed locations of the transformer banks were taken from site plans for the Project. Existing topography and several existing structures were also included in the modeling.



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Transformer bank installation/replacement activities will result in various bank operation configurations throughout the duration of the project. Three scenarios were modeled for this sound assessment:

1. Scenario 1 – This scenario modeled the proposed permanent Project conditions and includes all four new transformer banks in operation
2. Scenario 2 – This scenario modeled a phase during construction and includes two new transformers on the western part of the Site and the two existing transformer banks in operation (pre-replacement)
3. Scenario 3 - This scenario modeled a phase during construction and includes the temporary mobile transformer unit and the two existing transformer banks in operation (pre-replacement)

5.2 Sound Modeling

Projections of future sound conditions were produced using the nationally recognized SoundPLAN Noise (V. 9.1) three-dimensional acoustic propagation model software.

The SoundPLAN software calculates anticipated future sound from multiple sound sources at multiple receivers while accounting for specific site sound radiation patterns and propagation effects of structures. The sound sources are identified in the propagation modeling with x and y coordinates and a relative height above terrain. The new equipment was modeled as point sources and digitized into a referenced coordinate system based on the proposed site plan that included site dimensions, equipment layout and heights of structures.

Modeled receptors were located at nearby property lines at an average ear level height of 1.7 meters above ground level. Proposed equipment locations in the Project area were digitized based on actual dimensions, where possible, and were included in the model calculations. The modeled sound levels were then compared to the applicable NYSDEC Guidance.



5.3 Modeling Results

The results of the model were analyzed at the closest residential receptors to the Project (locations #1 through #4 as shown on the figures).

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The following figures show the modeled results at the closest property lines:

- **Figure 2** shows Scenario 1 with the four proposed permanent transformer banks in operation
- **Figure 3** shows Scenario 2 with the two proposed permanent transformer banks and two existing transformer banks in operation
- **Figure 4** shows Scenario 3 with the existing transformer banks and temporary mobile transformer unit in operation

Figures 5, 6 and 7 show the difference in modeled future sound and existing ambient sound for scenarios 1, 2, and 3 respectively.

Table 1 below summarizes the results.

Table 1 – Summary of Model Results				
Receptor Location	Measured Sound Pressure Level (dBA)	Modeled Sound Pressure Level (dBA)		
		Scenario 1	Scenario 2	Scenario 3
		Four New Transformer Banks Operating	Two New Transformer Banks & Two Existing Transformer Banks	Existing Transformer Banks & Temporary Transformer Unit
#1	46	46	47	49
#2	47	47	48	51
#3	48	47	49	54
#4	49	49	49	51



It should be noted that modeled results were also extrapolated to the general surrounding area include the adjoining commercial/industrial properties.

6.0 FUTURE CONDITIONS

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The NYSDEC Guidance states that in non-industrial settings the sound should probably not exceed ambient noise by more than 6 dBA; however, it does not have the same guidance for industrial/commercial property uses. NYSDEC Guidance indicates that the ambient sound pressure levels in commercial/industrial levels may exceed 65 dBA with a limit of 79 dBA and the goal in an industrial/commercial area, where ambient sound levels are already at a high level, should be not to exceed the ambient sound levels.

The greatest increase between modeled future sound levels and the existing ambient sound (existing condition sound pressure) levels is in Scenario 3 when the temporary mobile transformer unit is in operation with the existing transformer banks. During this construction phase scenario, the increase at the residential receptors is below 6 dBA and the increase at an industrial property line east-northeast of the Site is > 10 dBA. The modeled sound pressure level at the industrial property is still within the ambient sound levels for industrial or commercial uses noted in the NYSDEC Guidance. This scenario will also be limited to if the existing transformer banks fail and the temporary mobile unit must be switched on to re-establish power supply.

For Scenarios 1 and 2, the model showed little to no increases (0 to 1 dBA) in sound levels at the nearest residential receptors.

7.0 SUMMARY & CONCLUSIONS

Residential receptors exist south of the Site across Hempstead Gardens Drive and industrial receptors exist immediately east-northeast of the Site. Maximum sound pressure levels were modeled as 65 dBA at the adjacent industrial receptor, and 54 dBA at the adjacent



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residential receptor. The modeled sound pressure level of 54 dBA at a residential property line was an increase of 6 dBA from ambient levels. The NYSDEC Guidance states a 3-6 dBA increase in sound pressure level may have potential for adverse noise impact only in cases where the most sensitive of receptors (non-industrial properties) are present.

However, this maximum sound pressure level is well below the 65 dBA maximum for ambient noise level in a non-industrial setting stated in the NYSDEC Guidance.

Furthermore, this maximum sound pressure level reflects conditions during Scenario 3, when the mobile bank is in operation (intermittent and temporary), and does not reflect permanent operating conditions of the Project.

A maximum sound pressure level of 65 dBA was extrapolated at the adjacent industrial receptor and also does not exceed the 65 dBA maximum for ambient noise level recommended for *non-industrial settings*.

Based on the NYSDECs guidance, the potential short duration of use for the mobile transformer unit anticipated under Scenario 3 and the intermittent/temporary nature of its use, PS&S believes the predicted increase in sound pressure level does not trigger a mitigation requirement.

For the permanent transformers (Scenarios 1 and 2), per the NYSDEC guidance, sound pressure level increases ranging from 0-3 dBA should have no appreciable effect on receptors.



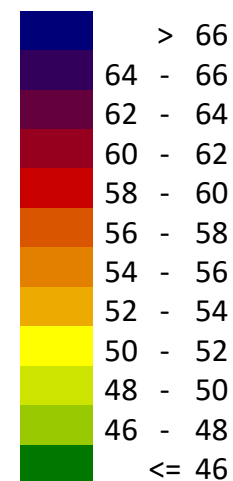
FIGURES



Figure 1 -
Existing Measured Sound Levels

PSEG LI West Hempstead

Noise level
in dBA



Signs and symbols

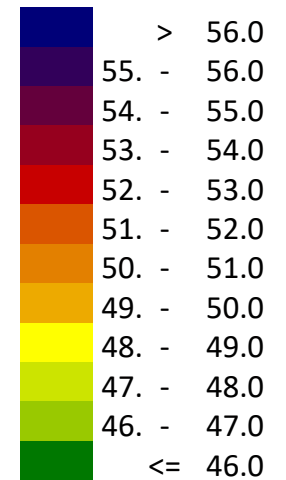
 Receptor Location



Figure 2 -
Sound Model Results for
Scenario 1 - Four Proposed
Tranformer Banks Operating

PSEG LI - West Hempstead

Noise level
in dBA



Signs and symbols

-  Proposed Transformer Bank
-  Building/Structure
-  Receptor Location



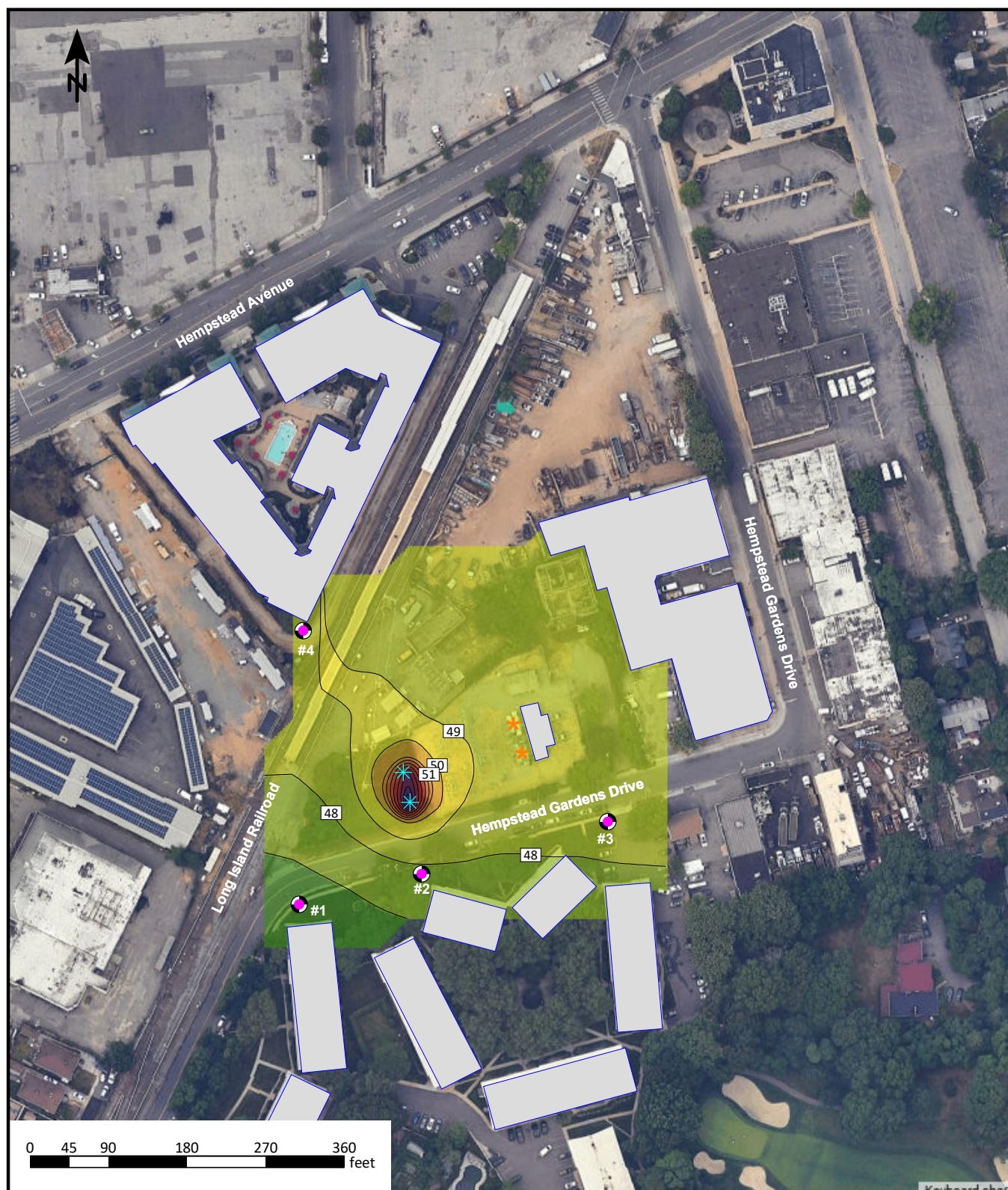
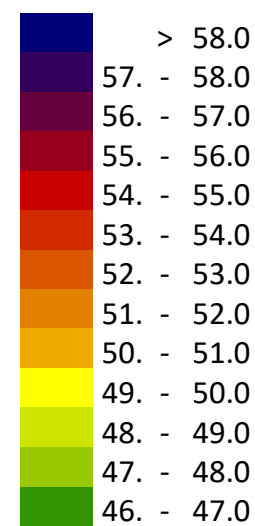


Figure 3 -
 Sound Model Results for
 Scenario 2 - Two New Transformer
 Banks & Existing Transformer Banks

PSEG LI West Hempstead

Noise level
 in dBA



- Signs and symbols**
- Existing Transformer Bank
 - Proposed Transformer Bank
 - Existing Building/Structure
 - Receptor Location



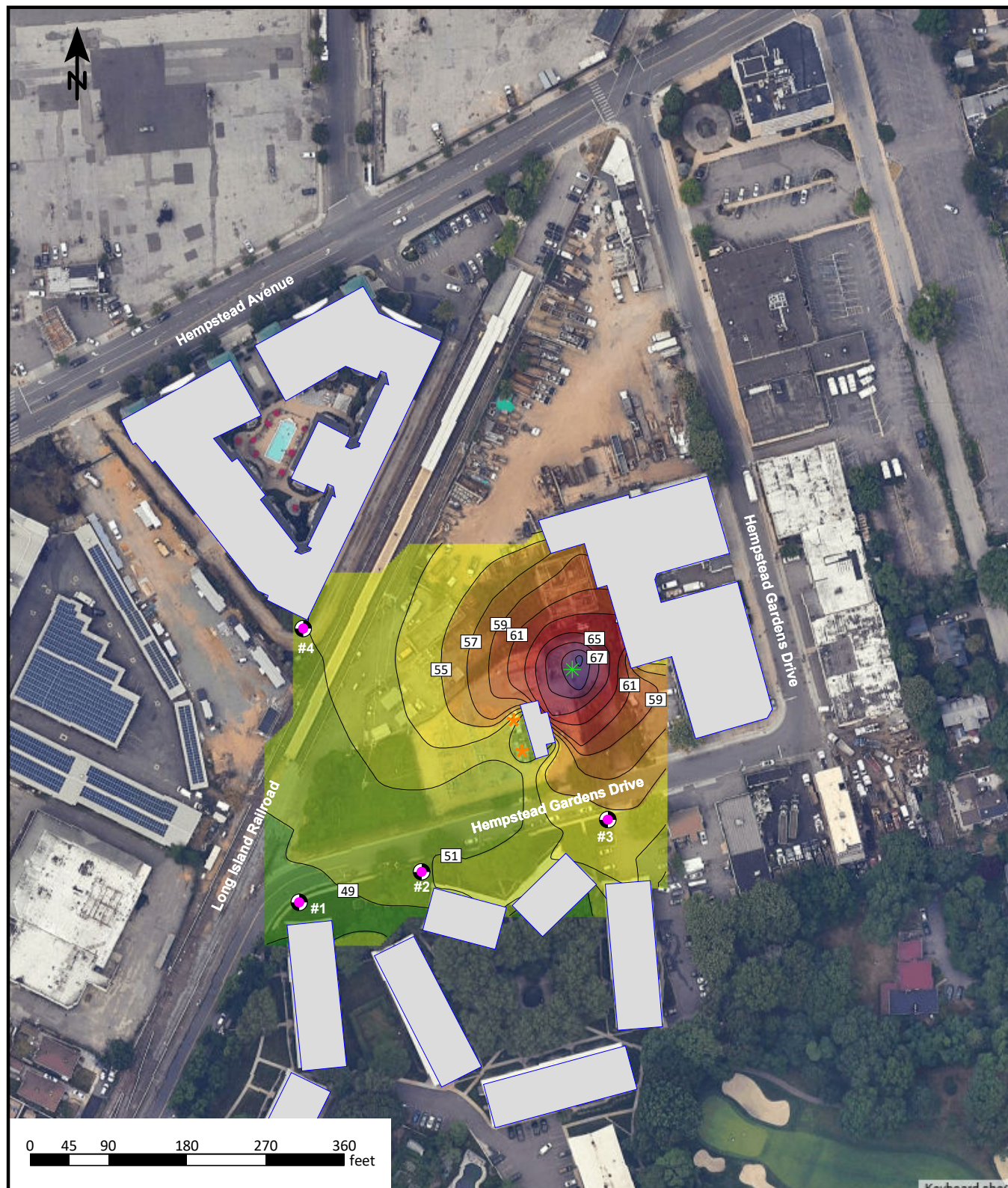
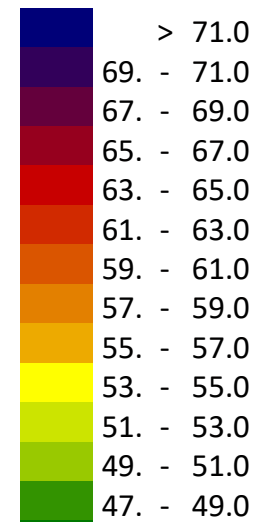


Figure 4 -
Sound Model Results for
Scenario 3 - Temporary Mobile
Unit & Existing Transformer Banks

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Noise level
in dBA



Signs and symbols

- Existing Transformer Bank
- Temporary Mobile Transformer
- Existing Building/Structure
- Receptor Location



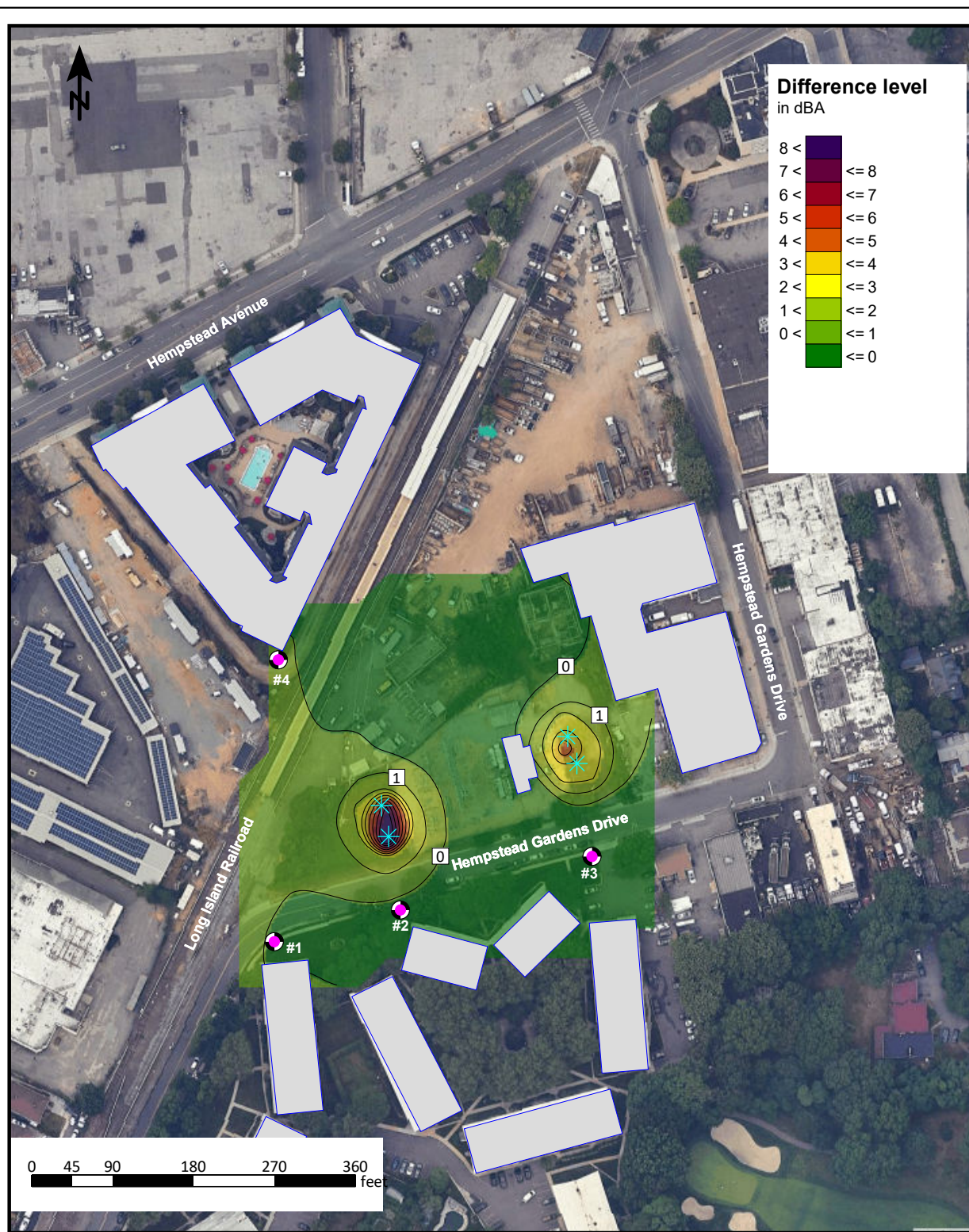


Figure 5 -
 Difference in
 Existing Sound Levels
 and Modeled Results
 for Scenario 1 with
 Four Proposed Transformer
 Banks

PSEG LI West Hempstead

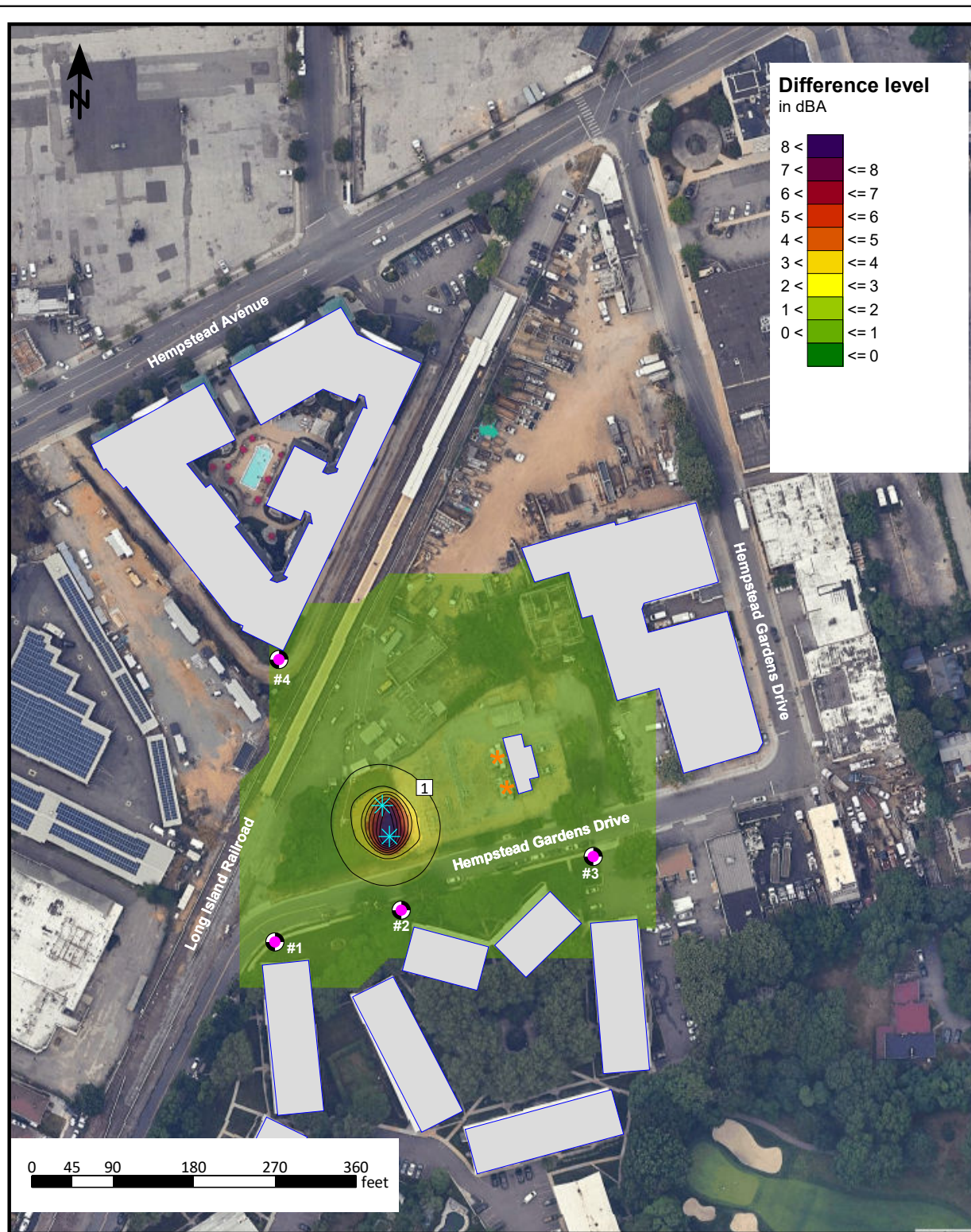


Figure 6 -
Difference in
Existing Sound Levels
and Modeled Results
for Scenario 2 with
Two New Transformer
Banks & Existing Transformer
Banks

PSEG LI West Hempstead

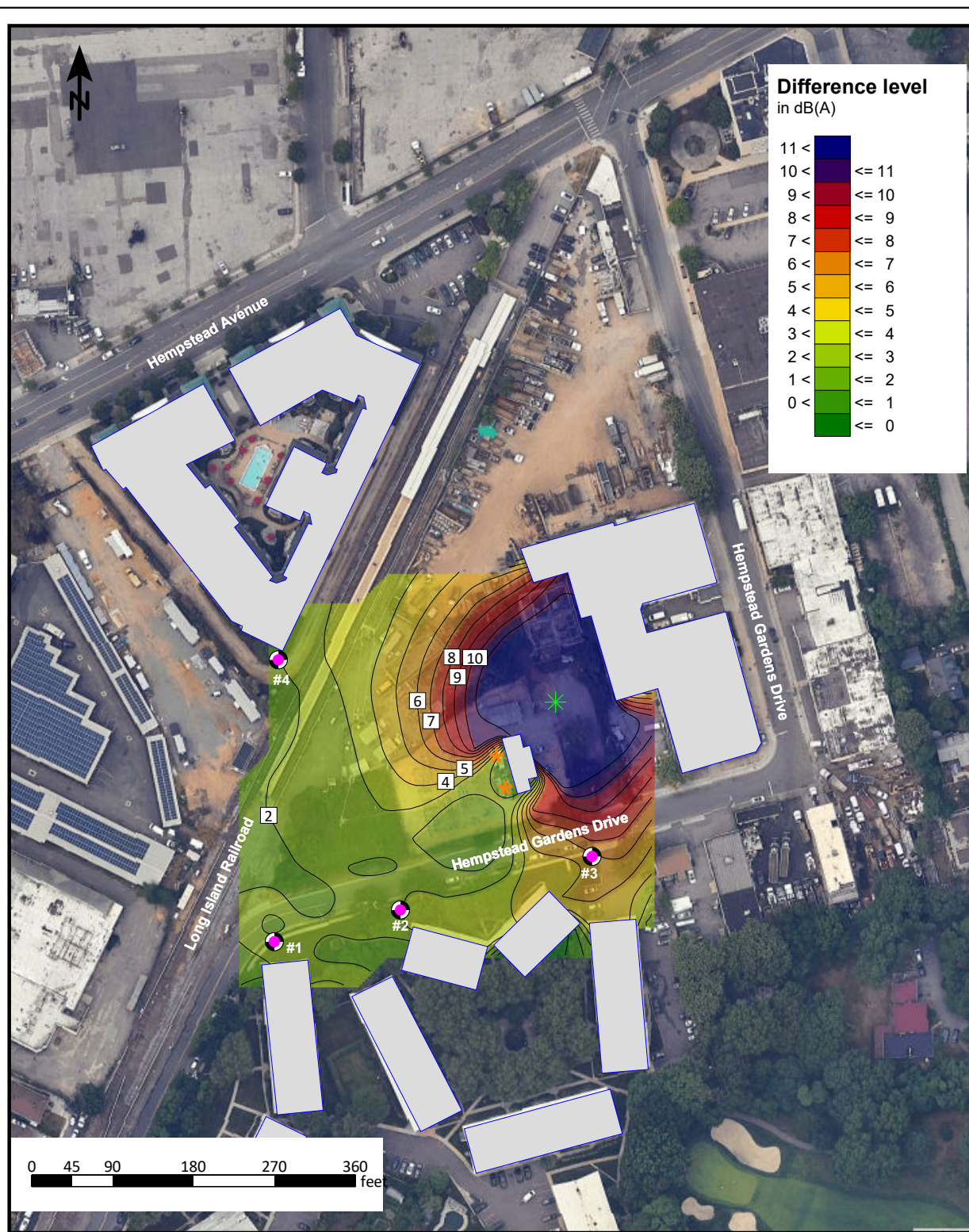


Figure 7 -
Difference in Existing
and Modeled Results
for Scenario 3 with
Temporary Mobile Transformer
Unit & Existing Transformer Banks

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