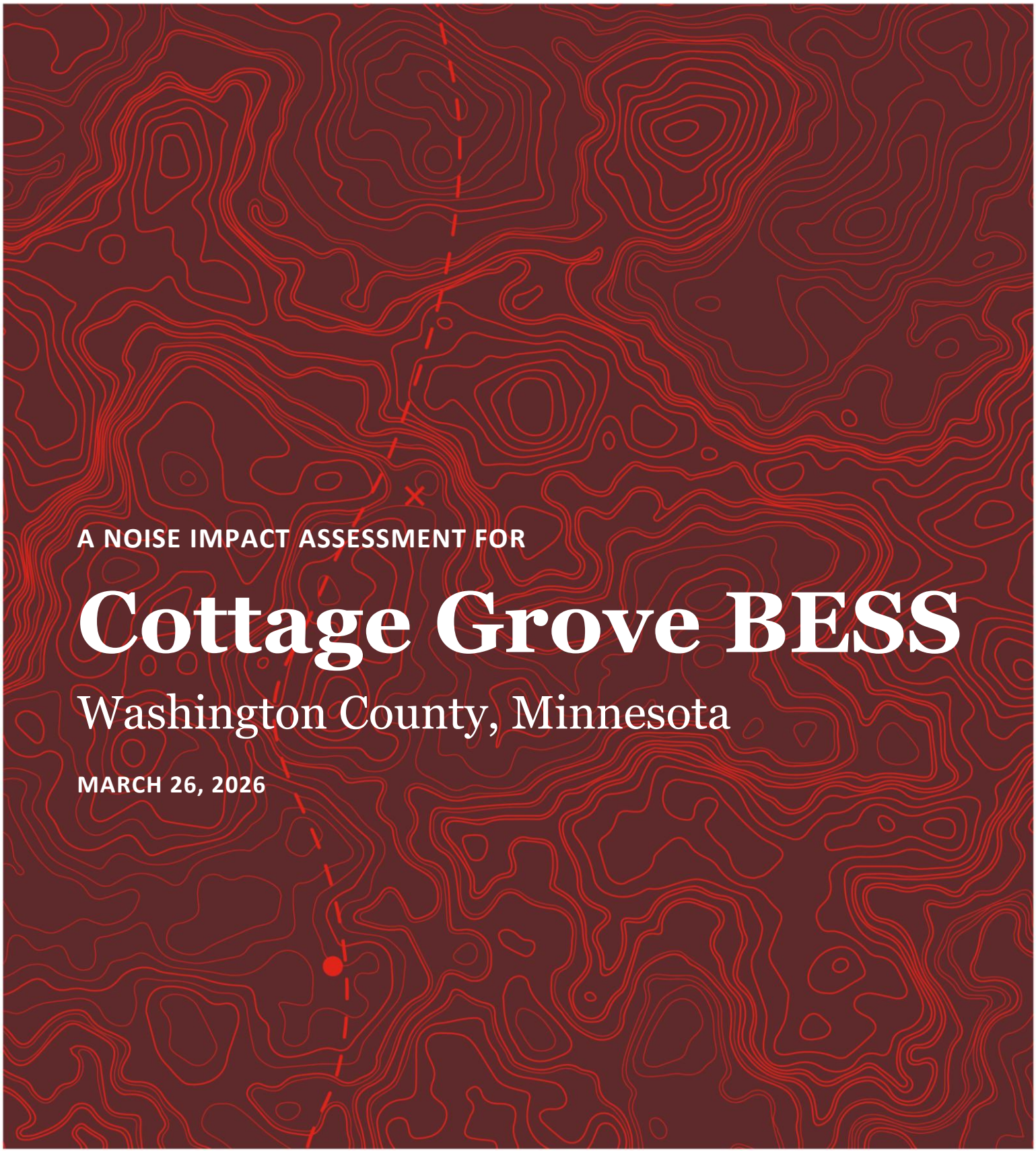
# Appendix L

## Noise Impact Assessment



A NOISE IMPACT ASSESSMENT FOR

# Cottage Grove BESS

## Washington County, Minnesota

MARCH 26, 2026

PREPARED FOR:

LSP CG Storage LLC

PREPARED BY:

Westwood

Westwood

# Noise Impact Assessment

## Cottage Grove BESS

Washington County, Minnesota

**Prepared For:**

LSP CG Storage LLC

**Prepared By:**

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Project Number: R0071487.00
Date: March 26, 2026

# Executive Summary

Westwood Professional Services, Inc. (Westwood) was contracted by LSP CG Storage LLC (Client) to complete a noise assessment for Cottage Grove BESS (Project) located in Washinton County, Minnesota. The Project has a proposed nameplate capacity of 80 MW. This noise impact assessment was completed in support of the Site Permit Application (SPA), as required under the Energy Infrastructure Permitting Act (Minnesota Statutes Chapter 216I) and Minnesota Public Utilities Commission (MPUC).

An operational noise impact evaluation was conducted for the proposed Project layout. Note that this analysis considers end-of-life (EOL) equipment configuration, including augmentation. Project-generated noise levels were predicted at all Noise Area Classification 1 (NAC-1) receptors within 3200' of the Project boundary. Noise level regulations include the noise level limits set forth within Minnesota Rules Chapter 7030. As Project equipment likely will operate during the daytime only, the daytime noise level limits were utilized and strict compliance with nighttime noise level limits will be addressed only if nighttime equipment operations exist and complaints arise. All NAC-1 receptors within 3200' of the proposed Project boundary modeled at or below the applicable daytime Project noise level limit of 55 dBA; daytime compliance with Minn. R. 7030 is expected.

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# 1.0 Project Background

## 1.1 Site Description

The proposed Project is located in Washington County, Minnesota. Noise sensitive receptors in the Project vicinity include residences. Existing noise sources in the Project vicinity include the LSP Cottage Grove Cogeneration Plant and Chemolite Substation directly adjacent, shooting range to the northeast, US-10 to the northeast, a rail line to the southwest, and local road traffic. The primary land uses in the Project vicinity are industrial, agricultural, and residential.

## 1.2 Project Description

The Project is proposed to include battery energy storage systems (BESS), medium voltage substation units (MVS), and associated equipment/infrastructure.

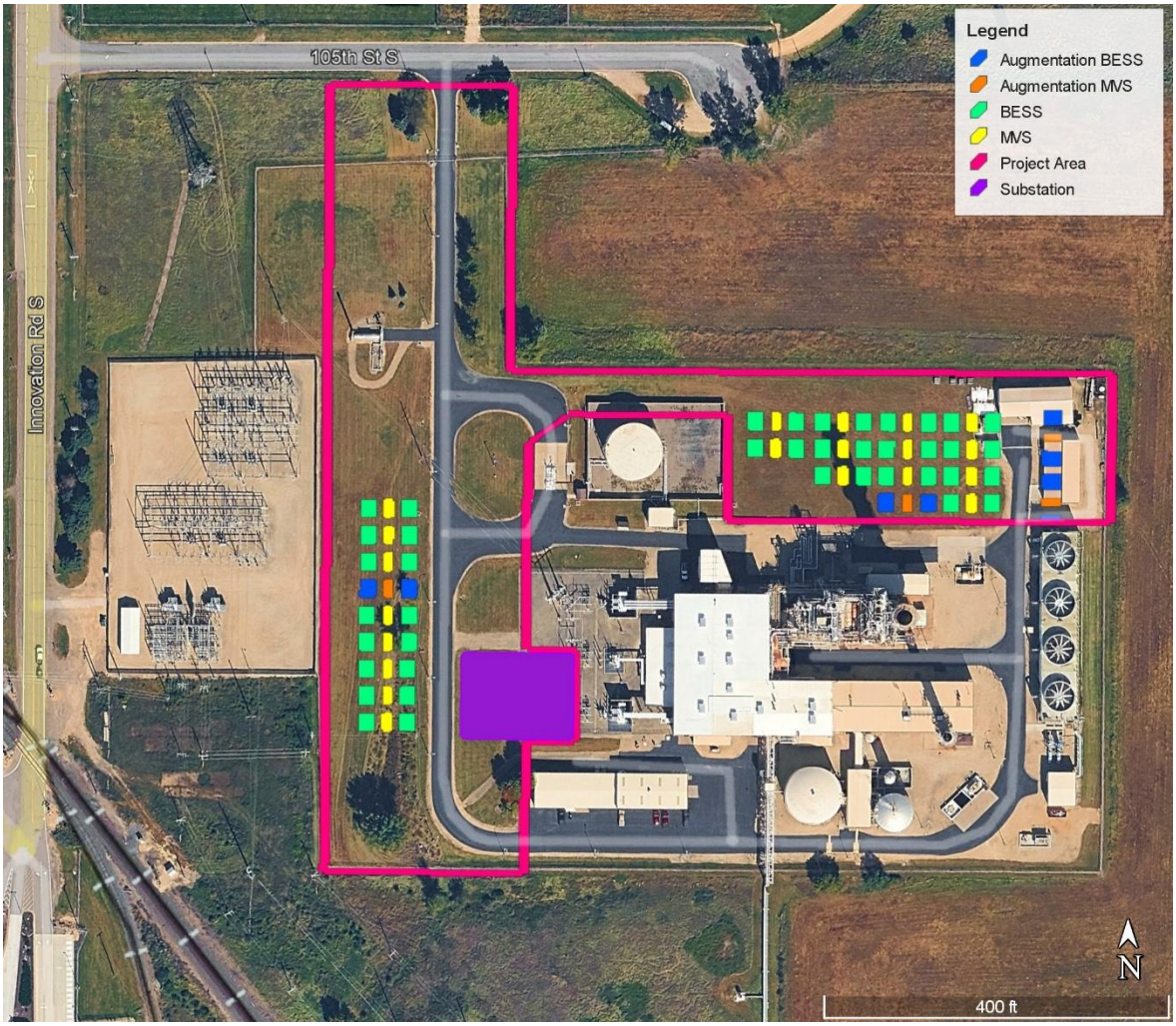



*Figure 1: Project Overview*

# 2.0 Regulatory Setting & Noise Level Requirements

Minn. R. 7030.0040 sets forth noise level limits according to different land uses. The most noise sensitive areas in the Project Area are occupied residential homes. Occupied residences are classified as Noise Area Classification (NAC) 1 per MN Rules 7030.0050, Subp. 2. NAC-1 has the lowest (most restrictive) noise limits of the three NACs. Agricultural land is classified as NAC-3, which has the highest noise limits of the three NACs. As the noise level limits for NAC-1 are the most restrictive, they are listed in **Table 1** below and are used throughout to confirm compliance with Minn. R. 7030.0040.

***Table 1 Minnesota Rules Chapter 7030 NAC-1 Noise Level Limits***

| Noise Level Metric | Daytime Limit (dBA) | Nighttime Limit (dBA) |
|---|---|---|
| $L_{50}$ | 60 | 50 |
| $L_{10}$ | 65 | 55 |

These limits are expressed as $L_{50}$ and $L_{10}$, which are statistical noise level metrics representing the noise level that is exceeded 50% and 10% of the measurement period, respectively. However, noise modeling most accurately predicts $L_{eq}$ levels, which is the equivalent continuous noise level or the overall average noise level over the measurement period. $L_{10}$ levels are, on average, 3 dBA higher than $L_{eq}$ levels, while $L_{50}$ levels are typically below $L_{eq}$ levels. As such, modeled $L_{eq}$ levels can be used as a conservative metric for ensuring compliance with the $L_{50}$ levels specified in Minn. R. 7030.0040. Therefore, if $L_{eq}$ limits are assumed to be the same as the $L_{50}$ limits, any modeled noise level below the $L_{eq}$ limits would be below the $L_{50}$ limits prescribed by Minn. R. 7030.0040.

***Table 2 Minnesota Rules Chapter 7030 $L_{50}$ Noise Level Limits Expressed as $L_{eq}$***

| Noise Level Metric | Daytime Limit (dBA) | Nighttime Limit (dBA) |
|---|---|---|
| $L_{eq}$ | 60 | 50 |

The above limits refer to total noise level, which includes both ambient noise and Project-generated noise. To ensure that Project-generated noise does not cause or significantly contribute to an exceedance of the limits, if background sound levels are equal to or greater than the applicable state standard at nearby receptors (or in the absence of site-specific ambient noise measurements), limiting Project-generated noise levels at receptors to 5 dB below the corresponding total noise level limit is a generally accepted practice to show compliance with Minn. R. 7030. Given this, if total noise levels exceed the total noise limits, it will be primarily the result of non-Project noise contributions.

Existing noise sources in the Project vicinity include the LSP Cottage Grove Cogeneration Plant and Chemolite Substation, US-10, a rail line, and a shooting range, all of which are expected to contribute to an elevated ambient noise level in the surrounding area. Project equipment will likely operate only during the daytime and will be held to a Project-only daytime noise level limit of 55 dBA. Should Project equipment operate at night, appropriate mitigation measures (e.g. noise walls, silencers, reduced fan speed, etc.) will be implemented to meet nighttime noise level limits in the event of a complaint. Complaints are not anticipated given expected elevated existing ambient noise levels.

# 3.0 Modeling Methodology & Parameters

A noise propagation model was developed and run for the Project using CADNA-A (a noise modeling software in compliance with ISO 9613-2). The proposed equipment types were modeled as omnidirectional point sources with noise source data from manufacturer-provided test reports and NEMA standards. For conservatism, BESS noise data for an ambient temperature of 35°C and 100% operational capacity was utilized.

Model parameters were as follows:

- Ground absorption factor of G=0.0
- Receptor height of 1.5 m above ground level
- Assumed meteorological conditions of 10°C and 70% humidity
- No other model adjustments

Project equipment and layout configuration details are shown below in **Table 3**. Note that equipment quantities herein represent end-of-life (EOL) configuration, including augmentation. Unweighted octave-band sound power levels for Project equipment are listed in **Table 4** along with overall A-weighted sound power level.

***Table 3 Project Equipment & Layout Configuration***

| Noise Source | # of Units | Equipment Model/Reference | Source Height Above Ground Level (AGL) |
|---|---|---|---|
| BESS | 95 | Sungrow PowerTitan 2.0 (ST5015UX-4H-US) | 2.9 m |
| MVS | 24 | Sungrow MVS5140-LS-US | 2.9 m |
| Substation Transformer | 1 | NEMA TR-1 2012 (R2019) – 5.14 MVA | 4.0 m |

***Table 4 Project Equipment Spectral & Overall Data***

| Noise Source | Unweighted Octave Band (Hz) Sound Power Levels (dB $L_w$) | | | | | | | | Broadband Sound Power Level |
|---|---|---|---|---|---|---|---|---|---|
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | |
| BESS | 87.6 | 84.2 | 95.6 | 103.0 | 96.6 | 93.1 | 86.3 | 77.8 | 103 dBA |
| MVS | 84.9 | 84.4 | 86.7 | 81.6 | 77.2 | 73.7 | 67.8 | 58.9 | 84 dBA |
| Substation Transformer | 83.0 | 85.0 | 80.0 | 80.0 | 74.0 | 69.0 | 64.0 | 57.0 | 80 dBA |

NAC-1 receptors were identified within 3200' of the Project boundary. Note that receptor locations have not been field verified and are based upon aerial imagery only. Additionally, receptors were categorized by distance from the Project boundary, shown in **Table 5** below.

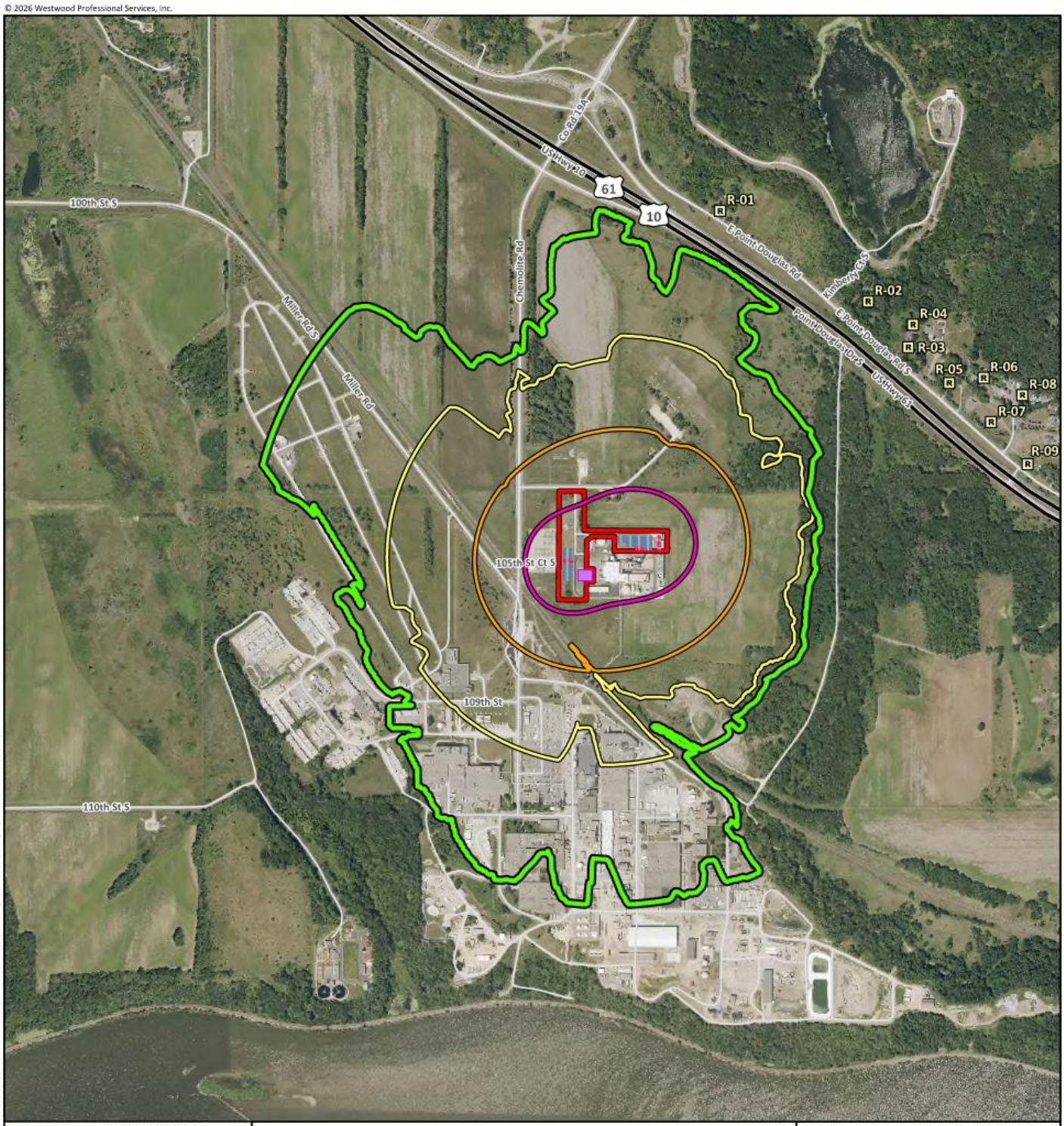
***Table 5 NAC-1 Receptor Distance Distribution***

| Distance from Project Boundary | # of NAC-1 Receptors |
|---|---|
| <50' | 0 |
| 50' - 100' | 0 |
| 100' - 200' | 0 |
| 200' - 400' | 0 |
| 400' - 800' | 0 |
| 800' - 1600' | 0 |
| 1600' - 3200' | 9 |

# 4.0 Noise Level Estimates & Impact Assessment

A predictive model was run using the inputs above to calculate Project-generated noise at all NAC-1 receptors within 3200' of the Project boundary. All receptors modeled at or below the applicable daytime Project noise level limit of 55 dBA and daytime compliance with Minn. R. 7030 is expected. As Project equipment likely will operate during the daytime only, strict compliance with nighttime noise level limits will be addressed only if nighttime equipment operations exist and complaints arise. A Project noise contour figure can be found in **Appendix A**. Predicted Project-generated noise levels at each NAC-1 receptor can be found alongside receptor location coordinates in **Appendix B**.

# Appendix A Project-Generated Noise Level Contours




Data Source(s): Westwood (2026); NAIP (2023); U.S. Census Bureau (2024).

N

0 1,100 Feet

**Cottage Grove BESS Project**

City of Cottage Grove, Washington County, Minnesota

Project Noise Contours at 1.5 m - Daytime

Exhibit 1

**Legend**

- Project Area
- Substation
- MVS Equipment
- BESS Equipment
- Augmentation BESS
- Augmentation MVS
- Major Road
- Road
- Receptor
- **Noise Contour [dB(A)]**
  - 55
  - 60
  - 65
  - 70

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# Appendix B Receptor Locations & Modeling Results

| Receptor ID | UTM NAD83 Zone 15 | | Elevation AMSL (m) | Predicted Project-generated Sound Pressure Level (dBA) |
|---|---|---|---|---|
| | Easting (m) | Northing (m) | | |
| R-1 | 507322.3 | 4961155.2 | 257.7 | 53.9 |
| R-2 | 507697.7 | 4960925.3 | 238.4 | 47.3 |
| R-3 | 507799.9 | 4960809.0 | 237.3 | 46.3 |
| R-4 | 507812.0 | 4960866.5 | 240.3 | 49.5 |
| R-5 | 507903.8 | 4960718.2 | 247.4 | 49.7 |
| R-6 | 507991.1 | 4960731.3 | 249.4 | 48.8 |
| R-7 | 508010.2 | 4960619.3 | 250.4 | 49.0 |
| R-8 | 508089.8 | 4960687.4 | 254.4 | 48.0 |
| R-9 | 508113.0 | 4960525.1 | 255.6 | 50.8 |