SOUND STUDY

North Haven Solar Two
1.9 MW Solar Sound Study

North Haven, CT

PREPARED FOR

VEROGY

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Introduction

The purpose of this sound study is to evaluate the potential noise impacts associated with the operation of the proposed North Haven Solar Two project located near All Saints Cemetery in North Haven, CT. This sound study evaluated the potential sound levels generated by the mechanical equipment including the inverters and transformers that will be part of the Project. Noise from the proposed solar panels is not anticipated given that the design incorporates fixed tilt panels, which do not generate noise. The sound levels were compared to the Connecticut Department of Energy and Environmental Protection's (CT DEEP) noise control regulations[1] and the Town of North Haven Connecticut Noise Ordinance[2]. This technical report provides a summary of the Project, the regulatory context for evaluating sound, and an evaluation of sound from the proposed project.

Project Description

The proposed Project consists of the development of an approximately 1.9-Megawatt (MW) alternating current (AC) ground mounted solar photovoltaic (PV) facility to be located across 2 parcels of approximately 124 and 26 acres, respectively. The facility itself will be roughly 11 acres. The parcels are located at 122 Mill Road and 208 Rimmon Road in North Haven, Connecticut (M/L 039/009 and 047/007), and the site is surrounded by agricultural and undeveloped area to the north and west, residential areas and an existing PV facility to the east, and the All Saints Cemetery to the south.

Fundamentals of Noise

Noise is defined as unwanted or excessive sound. Sound becomes unwanted when it interferes with normal activities such as sleep, communication, work, or recreation. How people perceive sound depends on several measurable physical characteristics, which include the following:

- **Intensity** – Sound intensity is often equated to loudness.
- **Frequency** – Sounds are comprised of acoustic energy distributed over a variety of frequencies. Acoustic frequencies, commonly referred to as tone or pitch, are typically

[1] Regulations of Connecticut State Agencies, *Connecticut DEEP, Title 22a, Subtitle 22a-69: Control of noise.* State of Connecticut.

[2] Connecticut Department of Energy and Environmental Protection. *Town of North Haven Noise Ordinance.* Connecticut DEEP.

measured in Hertz. Pure tones have all their energy concentrated in a narrow frequency range.

Sound levels are most often measured on a logarithmic scale of decibels (dB). The decibel scale compresses the audible acoustic pressure levels which can vary from the threshold of hearing (zero dB) to the threshold of pain (120 dB). Because sound levels are measured in dB, the addition of two sound levels is not linear. Adding two equal sound levels creates a 3 dB increase in the overall level. Research indicates the following general relationships between changes in sound level and human perception:

- A 3 dB increase is a doubling of acoustic energy and is the threshold of perceptibility to the average person.
- A 10 dB increase is a tenfold increase in acoustic energy but is perceived as a doubling in loudness to the average person.

The human ear does not perceive sound levels from each frequency as equally loud. To compensate for this phenomenon in perception, a frequency filter known as A weighted [dBA] is used to evaluate environmental noise levels. **Table 1** presents a list of common outdoor and indoor sound levels.

Table 1. Common Outdoor and Indoor Sound Levels

Outdoor Sound Levels	Sound Pressure (μPa)*		Sound Level dBA**	Indoor Sound Levels
	6,324,555	-	110	Rock Band at 5 m
Jet Over Flight at 300 m		-	105	
	2,000,000	-	100	Inside New York Subway Train
Gas Lawn Mower at 1 m		-	95	
	632,456	-	90	Food Blender at 1 m
Diesel Truck at 15 m		-	85	
Noisy Urban Area—Daytime	200,000	-	80	Garbage Disposal at 1 m
		-	75	Shouting at 1 m
Gas Lawn Mower at 30 m	63,246	-	70	Vacuum Cleaner at 3 m
Suburban Commercial Area		-	65	Normal Speech at 1 m
	20,000	-	60	
Quiet Urban Area—Daytime		-	55	Quiet Conversation at 1 m
	6,325	-	50	Dishwasher Next Room
Quiet Urban Area—Nighttime		-	45	
	2,000	-	40	Empty Theater or Library
Quiet Suburb—Nighttime		-	35	
	632	-	30	Quiet Bedroom at Night
Quiet Rural Area—Nighttime		-	25	Empty Concert Hall
Rustling Leaves	200	-	20	
		-	15	Broadcast and Recording Studios
	63	-	10	
		-	5	
Reference Pressure Level	20	-	0	Threshold of Hearing

Source: Highway Noise Fundamentals. Federal Highway Administration, September 1980.

* mPA – MicroPascals, which describe pressure. The pressure level is what sound level monitors measure.

** dBA – A weighted decibels, which describe sound pressure logarithmically with respect to 20 mPa (the reference pressure level).

A variety of sound level indicators can be used for environmental noise analysis. These indicators describe the variations in intensity and sequential pattern of the sound levels. The indicators used in this analysis are defined as follows:

- Leq is the equivalent continuous A-weighted sound level, which is the value or level of a steady, non-fluctuating sound with the same acoustic energy as the actual time-varying sound levels over a given time period.
- L10 is the A-weighted sound level, which is exceeded for 10 percent of the time over a given time period.
- L90 is the A-weighted sound level, which is exceeded for 90 percent of the time over a given time period. The L90 is generally considered to be the background sound level.

Noise Impact Criteria

The CT DEEP and Town of North Haven Connecticut Noise Ordinance have developed noise impact criteria that establish sound level thresholds deemed to result in adverse impacts for new developments in their jurisdiction.

Connecticut Department of Energy & Environmental Protection

CT DEEP's Noise Control Regulations identify the limits of sound that can be emitted from specific premises and what activities are exempt. The proposed Project is considered a Class C (Industrial) emitter by CT DEEP. Some Adjacent lands are undeveloped or used for non-residential uses such as agriculture. The land use in a Class A noise zone is characterized as generally residential where human beings sleep, or areas where serenity and tranquility are essential to the intended use of the land. The CT DEEP policy states that a source (emitter) located in the various zones shall not emit noise exceeding the levels stated in **Table 2** at the adjacent noise zones.

Daytime is defined by the CT DEEP as the period from 7:00 am to 10:00 pm, and Nighttime from 10:00 pm to 7:00 am the following day.

Table 2. Noise Zone Standards (dBA)

	Receptor Noise Zone			
Emitter Zone	**Class A (Daytime)**	**Class A (Nighttime)**	**Class B**	**Class C**
Class A (Residential)	55	45	55	62
Class B (Commercial)	55	45	62	62
Class C (Industrial)	61	51	66	70

Source: CT DEEP Connecticut Noise Control Ordinance.

Generally, noise with prominent discrete tones is more disruptive than broadband noise at the same level. To account for this, the CT Deep Noise Control Regulations include a 5 dBA penalty to account for noise sources with tonal characteristics when it is not possible to apply the one-third octave band analysis due to a lack of manufactures information on frequency sound data.

Town of North Haven

The town of North Haven has its own Noise Ordinance in compliance with the statewide CT DEEP policy. The town policy states that a source (emitter) located in the various zones shall not emit noise exceeding the levels stated in **Table 3** at the adjacent noise zones. Here, daytime is defined by the CT DEEP as the period from 7:00 am to 9:00 pm, and Nighttime from 9:00 pm to 7:00 am the following day.

Table 3. Noise Zone Standards (dBA)

	Receptor Noise Zone			
Emitter Zone	**Class A (Daytime)**	**Class A (Nighttime)**	**Class B**	**Class C**
Class A (Residential)	55	45	55	62
Class B (Commercial)	55	45	62	62

Class C (Industrial)	61	51	66	70

Source: Town of North Haven Connecticut Noise Control Ordinance.

North Haven's noise criteria are generally equivalent to statewide regulations. However, daytime and nighttime definitions are slightly different. CT DEEP guidance indicates that the most restrictive applicable criterion, whether state or local, shall be applied.

2

Acoustical Assessment

Methodology

This sound study evaluated the sound levels from the Project's proposed mechanical equipment. The Project's noise sources consist of sixteen (16) electrical inverters used to convert the solar energy to usable electricity and two (2) transformers. Equipment locations are presented in **Figure 1**.

The Project-generated sound levels were calculated using manufacturer's sound data and the principles of sound propagation over distance and were calculated for each sensitive receptor location. The sources of operational noise associated with the proposed project include:

- Sixteen (16) CPS 100/125 kW, 1500 Vdc String Inverters; and
- Two (2) Maddox Three Phase Padmount transformers.

The sound power level assumptions for each piece of equipment is provided in **Table 4**. Reference sound level data for the inverters were calculated using the method described in the *Handbook of Acoustical Measurements and Noise Control*[3] for calculating sound power levels from nearfield measurements based on manufacturer specifications. Similarly, the reference sound levels for the transformers are based on the data provided by the client and the NEMA standard[4] for oil immersed power transformers. The NEMA rating for a 1000-2000 kVA transformer (ONAN or no fans) is a sound pressure level of 58-61 dBA at 0.3 meters. A sound spectrum was developed for the transformer based on the spectrum for a typical large power transformer from the *Handbook of Acoustical Measurements and Noise Control*. See **Attachment A** for manufacturer's specifications.

[3] Cyril M. Harris (ed.), Handbook of Acoustical Measurements and Noise Control, Third Edition, McGraw-Hill inc., Figure 35-1, p. 35.2, 1991.
[4] National Electrical Manufacturers Association (NEMA) TP 80050-2013 (R2024) formerly TR 1-2013 (R2019).

Table 4. Modeled Sound Power Levels

Equipment	Sound Power Levels (dB) by Octave Band Center Frequency (Hz)								Overall	
	63	125	250	500	1k	2k	4k	8k	dBA	dB
CPS Inverter[1]	--	--	--	--	--	--	--	--	79	83
2000 kVA Transformer[2]	53	50	73	76	76	61	52	40	74	80

1 CPS 100/125 kW, 1500 Vdc String Inverters for North America.
2 NEMA TP 80050-2013 (R2024) Rating for 2000 kVA self-cooled transformer.

The Project's predicted sound pressure levels at each receptor location using the acoustic modeling software CadnaA[5] (Computer Aided Noise Abatement) by Datakustik. CadnaA is an internationally accepted sound prediction program that implements the ISO 9613 -2:2024[6] sound propagation standard. The noise prediction model accounts for the sound emissions of equipment, the ground cover, terrain, and the geometry of the project area. The assessment assumed all equipment operating simultaneously during the daytime and nighttime period. Sound propagation was assumed to occur over acoustically "mixed" ground (G=0.6). The ground at the equipment pad – the location at which the inverters and transformers would be installed – was assumed to be acoustically "hard" ground (G=0.0). Receptors were modeled at a height of 1.5-m (5-feet) above the ground at the nearest property line locations and at a height of 4-m (13-ft) at the nearest building façade for residential receivers (representative of a 2nd floor window). The results were compared to the Town of North Haven noise impact criteria, with a 5 dBA penalty to account for any sound tonality, for determining compliance.

Receptor Locations

A total of 34 receptor locations were identified in the vicinity of the Project Site (see **Figure 1**). The receptor locations were selected based on their proximity to the Project Site and their land use. As previously stated, the adjacent land uses are a combination of agricultural, industrial, open space, and residential. All regulations had a 5 dBA penalty added to account for the possibility of tonal noise.

[5] DataKustik GmbH, 2025. Computer Aided Noise Abatement Model.

[6] International Standards Organization (ISO) 9613-2 (2024). Acoustics - Attenuation of sound during propagation outdoors. Part 2: Engineering method for the prediction of sound pressure levels outdoors

Figure 1. Noise Receptor and Equipment Locations

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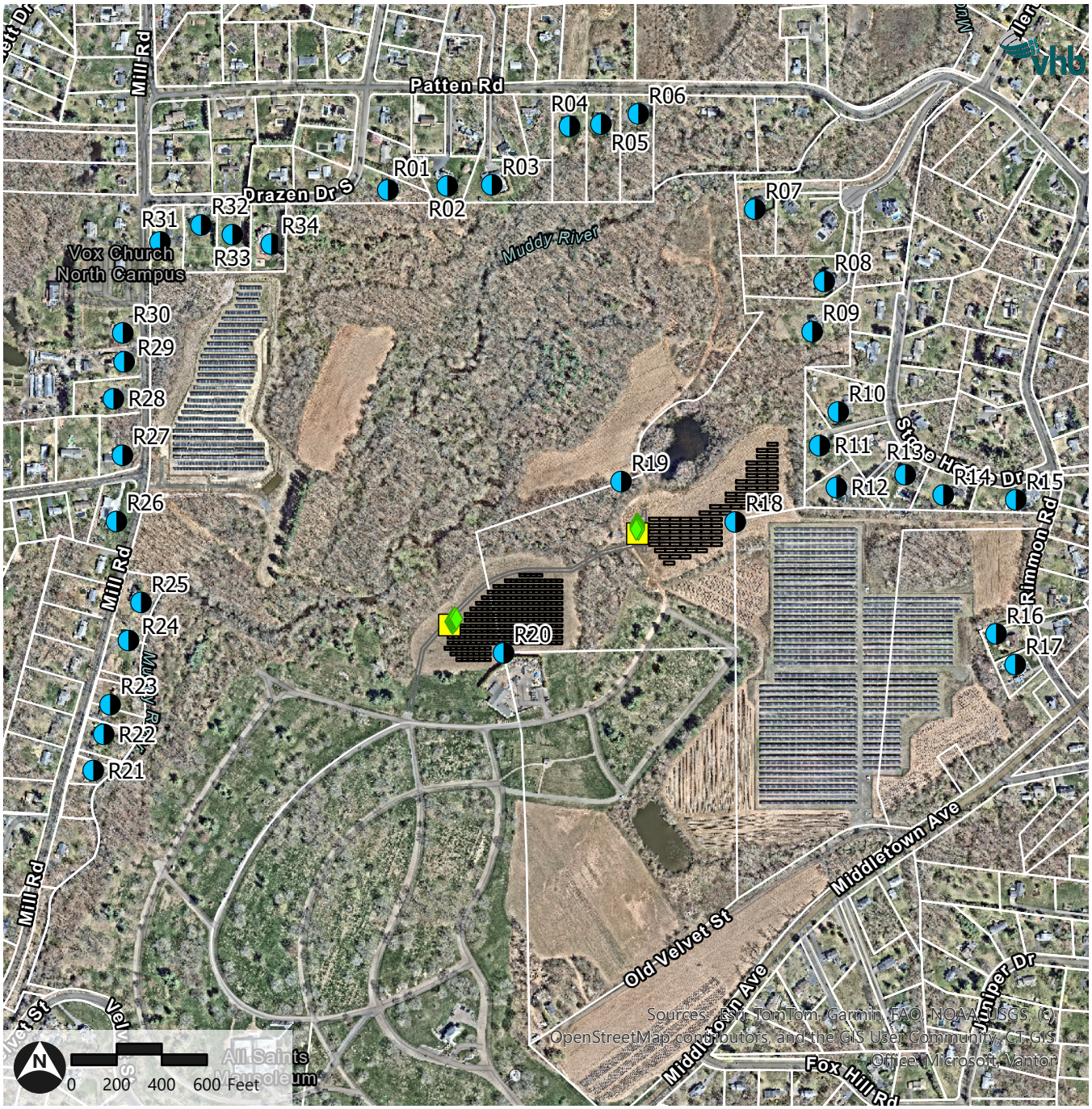

Proposed Equipment

- Transformers
- Inverters
- Fixed-Tilt Solar Panels

- Receptors

Source: VHB, 2026.

Future Conditions

VHB evaluated the potential sound level impacts associated with the Project's proposed mechanical equipment at the nearby sensitive receptor locations. This analysis evaluated the potential sound level impacts from the 16 inverters and two transformers operating simultaneously.

The predicted Project generated sound levels were compared to the Town of New Haven Noise Ordinance nighttime noise regulations, which also includes the 5 dB penalty for tonal sound. The results of the analysis indicate that levels attributed to the proposed equipment range from approximately 38 dBA at R19, the undeveloped parcel northwest of the Project Site, to 21 dBA at the property line of R01, 11 Drazen Dr S.

It should be noted that the results presented in **Table 5** show higher predicted noise levels at the 2nd story windows (receiver height of 13 ft) than at the property line receptors (5 ft). Although the property line receptors are typically closer to the noise source, the 2nd story windows have a more direct line of sight to the inverters and transformers, while the lower property line receptors are often partially shielded by topographical features. Sound paths near the ground are also subject to greater ground-effect attenuation, whereas the elevated receptors experience minimal ground interaction. These factors outweigh the shorter slant distance to the property line, resulting in higher predicted levels at the 2nd story windows in most cases.

Table 5 summarizes the sound levels due to the operation of the inverters and transformers at each receptor location.

Table 5. Predicted Sound Levels at Receptors

Receptor		Applicable Noise Criteria[1]	Predicted Project Generated Sound Levels (dBA)		Compliant with Local Standards?
ID	Address		Property Line	2nd Story Window	
R01	11 Drazen Dr S	46	21	25	Yes
R02	115 Patten Rd	46	22	23	Yes
R03	97 Patten Rd	46	22	23	Yes
R04	83 Patten Rd	46	22	22	Yes
R05	81 Patten Rd	46	22	22	Yes
R06	77 Patten Rd	46	22	24	Yes
R07	5 Winding Brook Rd	46	22	28	Yes
R08	10 Winding Brook Rd	46	24	26	Yes
R09	6 Winding Brook Rd	46	27	27	Yes
R10	27 Stone Hedge Dr	46	25	24	Yes
R11	23 Stone Hedge Dr	46	26	28	Yes
R12	15 Stone Hedge Dr	46	27	28	Yes
R13	11 Stone Hedge Dr	46	24	25	Yes
R14	7 Stone Hedge Dr	46	23	23	Yes
R15	1 Stone Hedge Dr	46	22	24	Yes
R16	242 Rimmon Rd	46	21	21	Yes

Receptor		Applicable Noise Criteria[1]	Predicted Project Generated Sound Levels (dBA)		Compliant with Local Standards?
ID	Address		Property Line	2nd Story Window	
R17	252 Rimmon Rd	46	20	21	Yes
R18	232 Old Velvet St	65	31	NA	Yes
R19	Undeveloped Area – 122 Mill Rd	65	38	NA	Yes
R20	All Saints Cemetery - 700 Middletown Ave	46	36	NA	Yes
R21	96 Mill Rd	46	20	25	Yes
R22	106 Mill Rd	46	20	26	Yes
R23	110 Mill Rd	46	21	26	Yes
R24	116 Mill Rd	46	22	26	Yes
R25	120 Mill Rd	46	24	27	Yes
R26	135 Mill Rd	46	23	24	Yes
R27	103 Roarke Rd	46	24	24	Yes
R28	147 Mill Rd	46	24	24	Yes
R29	151 Mill Rd	46	24	23	Yes
R30	155 Mill Rd	46	23	23	Yes
R31	168 Mill Rd	46	20	24	Yes
R32	31 Drazen Dr S	46	21	22	Yes
R33	25 Drazen Dr S	46	21	22	Yes
R34	19 Drazen Dr S	46	22	26	Yes

Source: VHB, 2026

1 Maximum allowable nighttime noise level for relevant land use, with 5 dBA tonal penalty applied.

Figure 2 presents sound level contours (i.e., lines of equal sound level that are analogous to topographic contours that are lines of equal ground elevation) for the operation of the inverters and transformers.

The noise level experienced by abutters would be a combination of existing ambient and project generated noise. No ambient noise data was collected for this project, however it is still considered that the project would remain below the CT DEEP noise limits given the project generated noise levels are a minimum of 10 dBA below the limits.

Figure 2. Modeled Sound Level Contours with Inverters and Transformers

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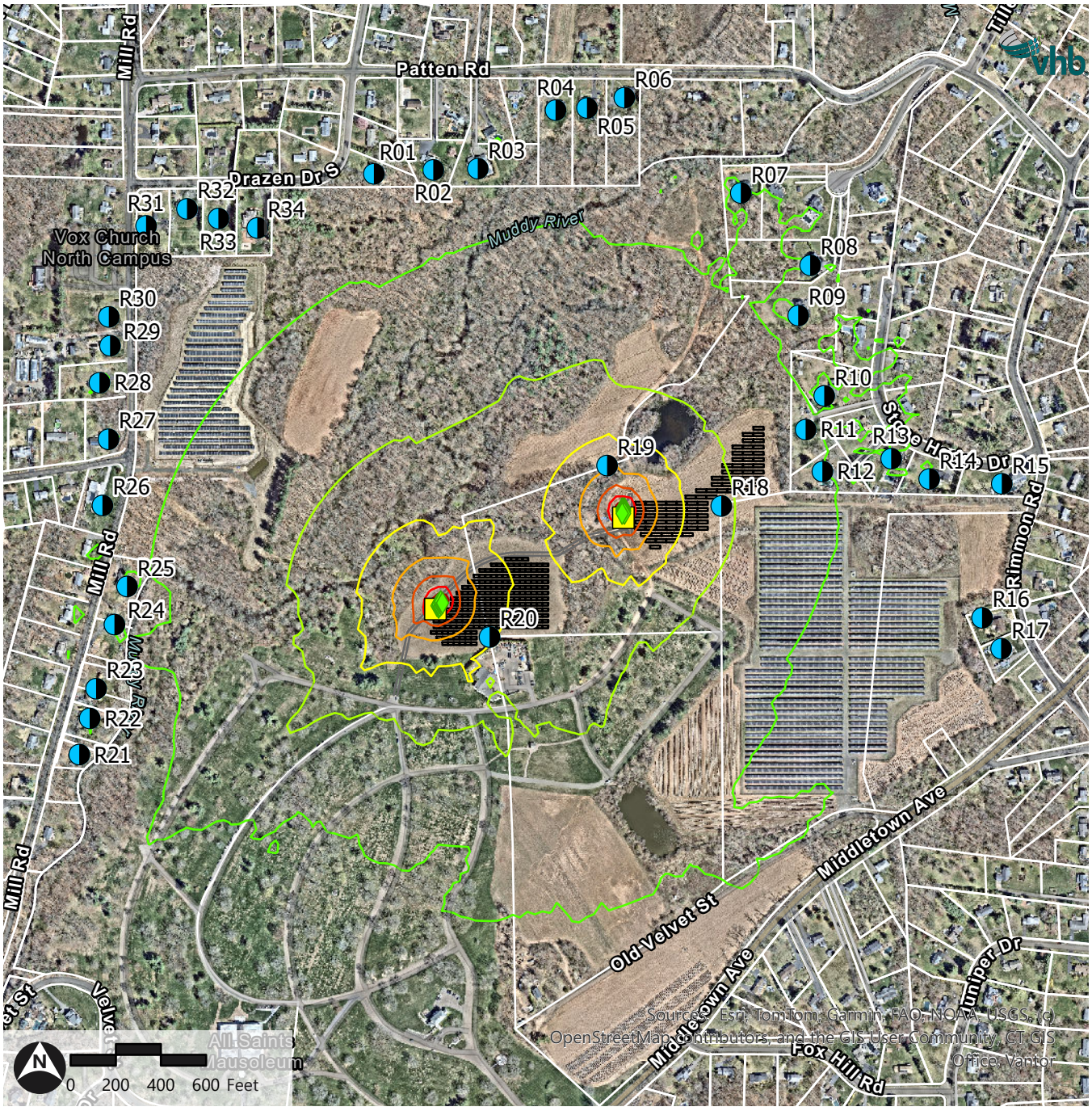


Sound Pressure Level (dBA)

- 25
- 30
- 35
- 40
- 45
- 50
- 55

Proposed Equipment

- Transformers
- Inverters
- Fixed-Tilt Solar Panels

- Receptors

Source: VHB, 2026.

Construction Activities

Construction activities, including the intermittent use of heavy machinery, may result in temporary increases in nearby sound levels at the proposed Project. The Project is expected to generate typical sound levels from construction activities, including track movements, heavy equipment operations, and general construction activities. Heavy machinery, such as front-end loaders, graders, bull dozers, and backhoes, would be used intermittently throughout the proposed Projects construction.

Section 22a-69-1.8(g) of the CT DEEP's noise control regulation states that noise associated with construction activities are exempt from the regulation. However, even though construction noise is exempt from the regulation, construction activities such as site excavation/grading and installation of the solar panel systems would typically be limited to normal daytime working hours. Construction activities beyond normal daytime work hours would be minimized to the extent practicable.

3

Summary

VHB evaluated the sound levels associated with the Project's noise generating equipment, which includes 16 inverters and two transformers. The Project is predicted to generate sound levels ranging from 21 to 38 dBA at nearby receptors. Due to the nature of the project, the noise emitting equipment is not expected to operate during the nighttime most of the year but may operate during early morning hours during the summer when the sun rises earliest. This assessment conservatively assumes full facility operation during nighttime hours, to evaluate the worst-case scenario.

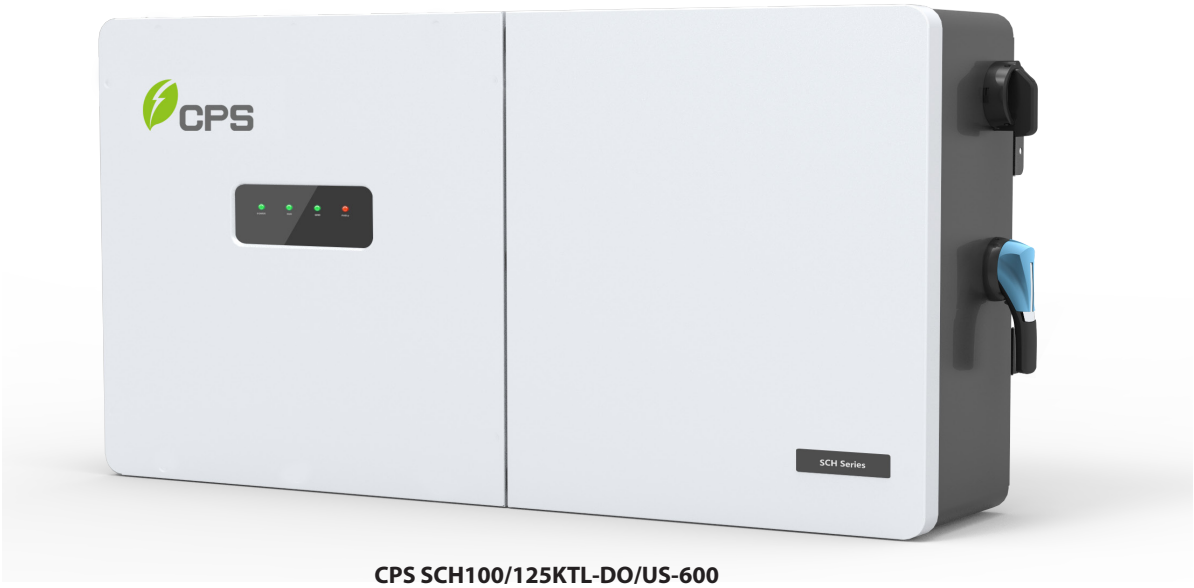
Anticipated sound levels from the Project are expected to fall well within Town of North Haven and CT DEEP regulations.

Construction activities would generate typical temporary noise from heavy equipment during normal daytime hours, as permitted under CT DEEP and town regulations which exempt construction noise from state limits.

Attachments

Attachment A: Equipment Noise Specifications

100/125 kW, 1500 Vdc String Inverters for North America



CPS SCH100/125KTL-DO/US-600

The 100 and 125 kW high power CPS three-phase string inverters are designed for ground mount applications. The units are high performance, advanced and reliable inverters designed specifically for the North American environment and grid. High efficiency at 99.1% peak and 98.5% CEC, wide operating voltages, broad temperature ranges and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications. The CPS 100/125 kW products ship with the Standard or Centralized Wire-box, each fully integrated and separable with AC and DC disconnect switches. The Standard Wire-box includes touch-safe fusing for up to 20 strings. The CPS FlexOM Gateway enables communication, controls and remote product upgrades.

Key Features

- NFPA 70 and NEC compliant
- Touch-safe DC Fuse holders add convenience and safety
- CPS FlexOM Gateway enables remote firmware upgrades
- Integrated AC and DC disconnect switches
- 1 MPPT with 20 fused inputs for maximum flexibility
- Copper- and Aluminum-compatible AC connections
- NEMA Type 4X outdoor rated enclosure
- Advanced Smart-Grid features (CA Rule 21 certified)
- kVA headroom yields 100 kW @ 0.9 PF and 125 kW @ 0.95 PF
- Generous 1.87 (100 kW) and 1.5 (125 kW) DC/AC inverter load ratios
- Separable wire-box design for fast service
- Standard 5-year warranty with extensions to 20 years

100/125KTL Standard Wire-box

100/125KTL Centralized Wire-box

C SP US

This device complies with part 15 of the FCC Rules

Chint Power Systems America
1380 Presidential Drive, Suite 100, Richardson, TX 75081
Tel: 855-584-7168 Mail: AmericaSales@chintpower.com Web: www.chintpowersystems.com

Model Name	CPS SCH100KTL-DO/US-600	CPS SCH125KTL-DO/US-600
DC Input		
Max. PV power	187.5 kW	
Max. DC input voltage	1500 V	
Operating DC input voltage range	860-1450 Vdc	
Start-up DC input voltage / power	900 V / 250 W	
Number of MPP trackers	1	
MPPT voltage range[1]	870-1300 Vdc	
Max. PV input current (Isc x 1.25)	275 A	
Number of DC inputs	Standard Wire-box: 20 PV source circuits, pos. and neg. fused Centralized Wire-box: 1 input circuit, 1-2 terminations per pole, non-fused	
DC disconnection type	Load-rated DC switch	
DC surge protection	Type II MOV (with indicator/remote signaling)	
AC Output		
Rated AC output power	100 kW	125 kW
Max. AC output power[2]	100 kVA (111 kVA @ PF>0.9)	125 kVA (132 kVA @ PF>0.95)
Rated output voltage	600 Vac	
Output voltage range[3]	528-660 Vac	
Grid connection type[4]	3Φ / PE / N (neutral optional)	
Max. AC output current @ 600 Vac	96.2 / 106.8 A	120.3 / 127.0 A
Rated output frequency	60 Hz	
Output frequency range[3]	57-63 Hz	
Power factor	>0.99 (±0.8 adjustable)	>0.99 (±0.8 adjustable)
Current THD	<3%	
Max. fault current contribution (1-cycle RMS)	41.47 A	
Max. OCPD rating	200 A	
AC disconnection type	Load-rated AC switch	
AC surge protection	Type II MOV (with indicator/remote signaling)	
System		
Topology	Transformerless	
Max. efficiency	99.1%	
CEC efficiency	98.5%	
Stand-by / night consumption	<4 W	
Environment		
Enclosure protection degree	NEMA Type 4X	
Cooling method	Variable speed cooling fans	
Operating temperature range	-22°F to +140°F / -30°C to +60°C (derating from +108°F / +42°C)	
Non-operating temperature range[5]	-40°F to +158°F / -40°C to +70°C maximum	
Operating humidity	0-100%	
Operating altitude	8202 ft / 2500 m (no derating)	
Audible noise	<65 dBA @ 1 m and 25°C	
Display and Communication		
User interface and display	LED indicators, WiFi + APP	
Inverter monitoring	Modbus RS485	
Site-level monitoring	CPS FlexOM Gateway (1 per 32 inverters)	
Modbus data mapping	SunSpec / CPS	
Remote diagnostics / firmware upgrade functions	Standard / (with FlexOM Gateway)	
Mechanical		
Dimensions (W x H x D)	Standard Wire-box: 45.28 x 24.25 x 9.84 in (1150 x 616 x 250 mm) Centralized Wire-box: 39.37 x 24.25 x 9.84 in (1000 x 616 x 250 mm)	
Weight	Inverter: 121 lbs (55 kg) Standard Wire-box: 55 lbs (25 kg) Centralized Wire-box: 33 lbs (15 kg)	
Mounting / installation angle	15 - 90 degrees from horizontal (vertical or angled)	
AC termination	M10 stud type terminal [3Φ] (wire range: 1/0 AWG - 500 kcmil CU/AL; lugs not supplied) Screw clamp terminal block [N] (#12 - 1/0 AWG CU/AL)	
DC termination	Standard Wire-box: Screw clamp fuse holder (wire range: #12 - #6 AWG CU) Centralized Wire-box: Busbar, M10 bolts (wire range: #1AWG - 500kcmil CU/AL [1 termination per pole], #1 AWG - 300 kcmil CU/AL [2 terminations per pole]; lugs not supplied)	
Fused string inputs	20 A fuses provided (fuse values up to 30 A acceptable)	
Safety		
Certifications and standards	UL 1741-SA/SB Ed. 3, CSA-C22.2 NO.107.1-01, IEEE 1547-2018, FCC PART15	
Selectable grid standard	IEEE 1547a-2014, IEEE 1547-2018[6], CA Rule 21, ISO-NE	
Smart-grid features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-VAR, Freq-Watt, Volt-Watt	
Warranty		
Standard[7]	5 years	
Extended terms	10, 15 and 20 years	

1) See user manual for further information regarding MPPT voltage range when operating at non-unity PF.
2) "Max AC apparent power" rating valid within MPPT voltage range and temperature range of -30°C to +40°C (-22°F to +104°F) for 100 kW PF≥0.9, and 125 kW PF≥0.95.
3) The "output voltage range" and "output frequency range" may differ according to the specific grid standard.
4) Wye neutral-grounded; delta may not be corner-grounded.
5) See user manual for further requirements regarding non-operating conditions.
6) Firmware version 12.0 or later required.
7) 5-year warranty effective for units purchased after October 1, 2019.

THREE PHASE PADMOUNT TRANSFORMERS

Short for "Tamper-proof, compartmentalized, liquid-filled, pad mounted transformer", all padmount designs feature fully enclosed tamper-proof terminal compartments and can be supplied with dead-front or live-front configuration, for loop or radial feed applications, with Type II mineral oil, or environmentally friendly and high flash-point Envirotemp™ FR3™.

All new Maddox padmount transformers are constructed of the highest quality materials and built in the US to heavy duty industrial standards, making them ideal for commercial and industrial applications such as data centers, solar step-up, manufacturing facilities, shopping centers, etc. Our padmounts are designed to the latest department of energy efficiency standards built and tested in accordance with industry standards including NEMA, ANSI C.57, DOE, and IEEE as applicable.

With thousands of new units in stock and ready-to-ship, and the manufacturing ability to produce almost any custom design, Maddox stands ready to meet your transformer need(s). Maddox stocks all standard configurations to match most common applications and deliver on short notice.

Design

HV Bushing Config.:
- Dead front or live front
- Loop feed or radial feed

Fluid Options:
- Type II Mineral Oil
- Envirotemp™ FR3™

Standard Gauge/Accessory Package:
- Pressure relief valve
- Pressure vacuum gauge
- Liquid temp & level gauges
- Drain & sample valve
- Adjustment taps

Switch Options:
- 2 Position LBOR Switch
- 4 Position LBOR Switch (V-blade or T-blade)
- (3) 2 Position LBOR Switches

Fusing Options:
- Bayonets w/ isolation links or CLFs

Construction:
- 5-legged core
- Rectangular wound copper or aluminum windings
- Carbon rienforced or stainless steel tank
- Steel divider between HV and LV cabinets
- Penta-head captive bolt

Optional Design Features & Accessories:
- Gauges w/ Contacts
- External drain and sample valve
- Electrostatic Shielding
- Step-up Design
- Surge-Arresters

Available Ratings

Table 1. Typical Transformer Ratings

Sizes (kVA)	45, 75, 112.5, 150, 225, 300, 500, 750, 1000, 1500, 2000, 2500, 3000, 3750, 5000
Frequency	60 Hz or 50 Hz
Cooling Class	ONAN or KNAN
Temp Rise	55°C, 65°C, 55/65°C, 75°C
Voltages	*Available in Δ or Y configuration*
600V	208
	240
	416
	480
	600
2.5kv – 5kv	2400
	4160
	4800
15kV	12000
	12470
	13200
	13800
	14400
25kV	20780
	21600
	22900
	24940
	26400
35kV	33000
	34500

Fig 1. Padmount Transformer Outline

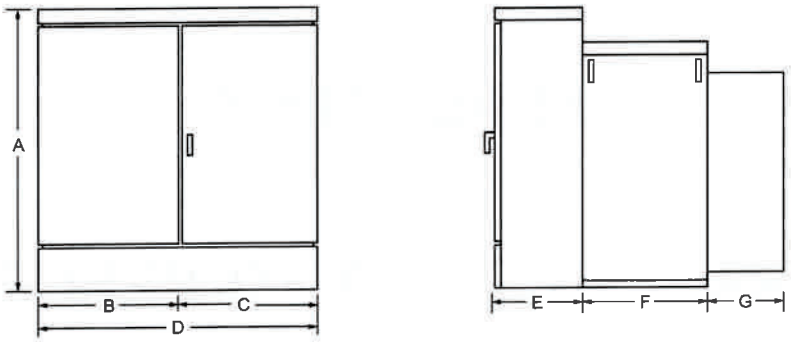


Table 2. Approximate Transformer Dimensions

kVA	A	B	C	D	E	F	G	Gallons	Weight (Lbs)
300	59"	29.5"	22"	51.5"	20.5"	24"	10"	196	4,056
500	59"	33"	26.5"	59.5"	24"	26.5"	10"	210	5,023
750	73"	36"	29"	65"	24"	26.5"	10"	358	7,664
1000	73"	36"	29"	65"	24"	27"	10"	354	8,530
1500	73"	36"	35.5"	71.5	24"	33.5"	10"	410	10,782
2000	75"	39.5"	28"	67.5	24"	35"	27"	433	12,490
2500	78"	39.5"	35.5"	75.5"	24"	37.5"	22.5"	545	14,246
3000	84"	30.5"	32"	62.5"	24"	37.5"	38"	550	14,014
3750	75"	50.5"	30"	80.5"	25.5"	42"	38"	730	17,785

Fig 2. Three Phase Maddox Padmount Transformer

Table 3. Common Accessories

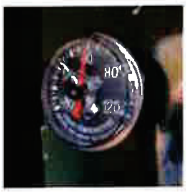
1. Bayonet Fuses

2. Loadbreak Switch

3. Tap-changer

4. Bushings

5. Parking Stand



6: Gauges