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November 22, 2024

Town of Marlborough
Planning Board
21 Milton Turnpike, Suite 200
Milton, NY 12547

Attn: Chris Brand, Planning Board Chair

**RE: ELP MARLBOROUGH SOLAR
335 BINGHAM ROAD, TOWN OF MARLBOROUGH, NEW YORK
TAX MAP ID: 108.3-3-21
NOISE ASSESSMENT - REVISED
C&A # 4996.26**

Dear Chair Brand:

We are providing this revised Noise Assessment as supplemental application material for ELP Marlborough Solar in response to comments received from the Planning Board at the November 4, 2024 Planning Board meeting.

During operation of the facility, the noise relevant to the proposed project will be limited to the equipment pad areas central to the solar facility. The proposed project will utilize inverters located on equipment pads to convert the power from direct current (DC) to alternating current (AC). In addition, lithium-ion battery energy storage systems (BESS), which store energy generated by the solar panels, will also be sited on equipment pads. The locations of the proposed inverters, BESSs, and associated equipment pads is identified on the site plans titled, "ELP Marlborough Solar", by C&A, most current version.

It is our understanding that Town of Marlborough Zoning Code Section 155-32.2 Solar Energy, does not specify noise requirements above otherwise prohibited noises. For the purpose of this assessment, Chapter 105, Noise was referenced. According to Section 105-3, Prohibited Noises, includes:

- **105-3. A.** - *Between the hours of 10:00 p.m. and 7:00 a.m. Sunday through Thursday and 11:00 p.m. and 7:00 a.m. Friday and Saturday, any sound that exceeds 55 decibels as measured at the property line of the property from which the sound emanates or is produced.*
- **105-3. B.** - *Between the hours of 7:00 a.m. and 10:00 p.m. Sunday through Thursday and 7:00 a.m. and 11:00 p.m. on Friday and Saturday, any sound that exceeds 65 decibels as measured at the property line of the property from which in emanates or is produced is prohibited.*

Free field inverse square law was used to determine a conservative estimate of the allowable noise and associated sound pressure level (dB) of the equipment. In accordance with inverse square law, the intensity of a physical quantity decreases as the distance from its source increases, and that this decrease is proportional to the square of the distance. In this case, the inverse square law takes into consideration a known sound pressure level at a measured location, while calculating an unknown sound pressure level at a second location. According to inverse square law, it can be shown that for each doubling of distance from a point source, the sound pressure level decreases by approximately 6 dB.

It is anticipated that the proposed inverters and BESS components located on each equipment pad will produce noise in the range of 70-90 decibels at the source (under various operating conditions). For the purposes of this assessment, the upper limit of the anticipated noise, 90 db, was examined for each. It should be noted that noise is anticipated from both the inverters and BESS components simultaneously. Typical decibel logarithmic calculations can be used to estimate the total noise at the point source, assuming worst case, simultaneous, maximum noise from the proposed inverters and BESS components. It is anticipated that 90 db from each component would result in a combined total of 93 db at the sources. It is assumed that the ambient sound level in the area of the equipment pads is negligible.

For the purposes of this assessment, Equipment Pad Area #1 is identified as the two equipment pads at the north-central portion of the facility area, and Equipment Pad Area #2 is identified as the two equipment pads at the south-central portion of the facility area. Please see table below for reference.

Table 1 – Equipment Pad Area #1

Direction	Distance to Nearest Property Boundary (ft)	Maximum Decibel Rating at the Source (at 3')	Estimated Decibel Rating at Property Boundary
North	450	93	50
East	426	93	50
South	1,220	93	41
West	1,142	93	42

Considering Table 1, Equipment Pad Area #1 could produce noise of up to 50 dB along the north and east property boundaries and 42 dB or less along the south and west property boundaries.

Table 2 – Equipment Pad Area #2

Direction	Distance to Nearest Property Boundary (ft)	Maximum Decibel Rating at the Source (at 3')	Estimated Decibel Rating Property Boundary
North	934	93	43
East	533	93	48
South	747	93	45
West	1,084	93	42

Considering Table 2, Equipment Pad Area #2 could produce noise of up to 48 dB at the east property boundary and 45 dB or less along the north, south, and west property boundaries.

For reference, according to the Decibel Level Comparison Chart from Yale Environmental Health and Safety, a decibel rating of 55 is comparable to that of a household refrigerator and a decibel rating of 40 is comparable to that of a suburban area at night. Table 1 and Table 2 above detail estimated decibel ratings of 50 dB or less at all property boundaries, assuming the ambient sound level is equal to or less than 40 dB.

It should also be noted that the data provided herein can be considered conservative in that inverse square law calculations consider open space, free field, without obstructions. The proposed equipment pads are generally encompassed by the solar panels and 25' min. vegetative buffer, including existing vegetation and proposed landscaping, all of which would provide a sound buffer and further reduce any sound transmission.

The Applicant, ELP Marlborough Solar, commits to adhering to Town of Marlborough Zoning Code Section 105-3, Prohibited Noises.

If you have any questions regarding the information above, please feel free to contact me at (518) 828-2700 x1138.

Sincerely,
Crawford & Associates
Engineering & Land Surveying, P.C.



Christopher J. Knox, PE
Project Manager II

Cc: Chris Brand, Planning Board Chair (cbrand@marlboroughny.us)
Jen Flynn, Planning Board Secretary (marlboroughplanning@marlboroughny.us)