BRUCE L. MCDERMOTT
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BMCDERMOTT@MURTHALAW.COM

February 6, 2019

VIA ELECTRONIC MAIL
AND UPS NEXT DAY DELIVERY

Mr. James J. Murphy, Vice-Chairman
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Petition No. 1354 – Chatfield Solar Fund, LLC, petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a 1.98-megawatt AC solar photovoltaic electric generating facility located in Killingworth, Connecticut

Dear Vice-Chairman Murphy:

Enclosed please find the original and fifteen (15) copies of Chatfield Solar Fund, LLC's responses to the Siting Council's Second Set of Interrogatories dated January 16, 2019 in connection with the above-referenced petition.

Please feel free to contact me with any questions concerning this submittal at (203) 772-7787.

Very truly yours,

Bruce L. McDermott

Enclosures

Murtha Cullina LLP
265 Church Street
New Haven, CT 06510
T 203.772.7700
F 203.772.7723

Interrogatory CSC-2-91

Chatfield Solar Fund, LLC | Witness: Charles Geppi

Petition No. 1354 |

Q-CSC-2-91: Provide an estimate the total upfront cost of the proposed project. Break down the total cost into the following categories: Land acquisition, Environmental Studies, Engineering, Permitting.

A-CSC-2-91: a) Land acquisition: $400,000 (developer fee, ZREC extension, PURA performance guarantee). The property for the project will be leased.

b) Environmental Studies & Engineering: $135,750.

c) Permitting: $20,000 (permitting and legal).

d) Interconnection: $110,445.

e) Total Cost to Date: $666,195.

Interrogatory CSC-2-92

Chatfield Solar Fund, LLC | Witness: Alisa Morrison

Petition No. 1354 | Page 1 of 1

Q-CSC-2-92: Due to the submittal of the revised site layout to the Council on January 3, 2019, please revise the information contained in the following interrogatory responses:

a) CSC-1-17
b) CSC-1-18
c) CSC-1-19
d) CSC-1-20 – what is the size of the wooded buffer to all property lines?
e) CSC-1-53 and corresponding diagram.
f) CSC-1-55
g) CSC-1-59 and corresponding diagram (1-18, Att. A)
j) CSC-1-67
h) CSC-1-81

A-CSC-2-92: Please see Chatfield's revised responses to interrogatories CSC-1-17, CSC-1-18, CSC-1-53, and CSC-1-67, which are being filed under separate cover with the Council. No revisions are necessary for responses CSC-1-19, CSC-1-20, CSC-1-55, CSC-1-59, and CSC-1-81.

Interrogatory CSC-2-93

Chatfield Solar Fund, LLC | Witness: Charles Geppi

Petition No. 1354 | Page 1 of 1

Q-CSC-2-93: Referring to CSC-1-22, provide more detail regarding site restoration measures. Are these measures specified in the land-lease?

A-CSC-2-93: These measures are not specified in the land-lease. The details of the site restoration are set forth in Attachment CSC-2-93.

Attachment CSC-2-93

Decommissioning Plan

Chatfield Solar Fund, LLC

2.4 MW (DC) Ground-mount

Date:

January 2019

StandardSolar.com | 1355 Piccard Drive, Suite 300 | Rockville, MD 20850 | Ph: 1-888-474-3843

Table of Contents

1. Background

Photovoltaic (PV) system decommissioning involves the removal of the primary components of the PV system and rehabilitation of the impacted site area. The goal being to restore the site to existing conditions as closely as possible. Decommissioning procedures are intended to protect public health and safety, protect the environment of the project site and surrounding properties, and comply with all applicable regulations and approvals. Typical activities during decommissioning and site reclamation include the de-energizing of the facility, the removal of the PV modules, the dismantling and demolition of above grade structures, the removal of concrete pads and foundations, the dismantling and removal of all above ground and below ground utilities, debris management including hauling, temporary erosion controls, removal of access roads that are not maintained for other uses, the removal of security fencing, and the regrading and revegetation of the Project site. Much of the solid material waste to be removed from the site will be recycled or sold as scrap. Chatfield Solar Fund, LLC will be responsible for decommissioning the Project in accordance with this scope.

2. Solar Facility Lifespan

Distributed Generation solar facilities are typically designed for a minimum expected operational life of 30 plus years or more under certain conditions. While the Project does not have a unilateral right to extend its operational life beyond the 25-year term of its negotiated land contracts, it is possible that technological advances may allow for economical equipment replacements that could prolong the Project's useful life.

3. Facility Materials

PV facilities are constructed using the same basic materials and methods of installation common to their application. Materials include the following.

3.1. Metals

Steel from pier foundations, racking, conduits, electrical enclosures, fencing, and storage containers; aluminum from racking, module frames, electrical wire, and transformers; stainless steel from fasteners, electrical enclosures, and racking; copper from electrical wire, transformers, and inverters.

It is generally agreed that the metals in PV facilities will be highly valued as recyclable materials when these facilities are deconstructed. In the limited number of facility deconstruction projects performed to date, the revenue from the recycling of these materials was found to cover the removal and transportation costs of these materials.

3.2. Concrete

Equipment pads and footings. Includes both reinforced and non-reinforced concrete.

3.3. PV Cells

PV Modules are typically constructed of glass front sheets (some use glass back sheets as well), plastic back sheets and laminates, semiconductor rigid, internal electrical conductors (aluminum or copper), silver solder, plus a variety of micro materials. The semiconductor PV cell materials represent a very small part of a PV module's weight, between one and two percent. As manufacturers pursue lower cost modules, thinner layers of semiconductor materials are used which reduces this percentage. The most commonly used semiconductor material for the construction of PY modules is silicon. Other materials used for the construction of PV modules are copper, glass, aluminum, and copper are recyclable materials, and silicon can be recycled by specialty electronics recyclers.

If a facility is operational at the time of decommissioning and the PV modules are generating power within product specifications, there may be an outlet for the used PV modules in a secondary market. It is also generally understood that the existing global market for used solar PV panels will be even more robust in the future.

3.4. Glass

Most PV modules are approximately 80% glass by weight.

3.5. Plastics

A limited amount of plastic materials are used in PV systems due to a system's continuous exposure to the elements and long operational lifetime. Plastics typically are found in PV facilities as wire insulation, electrical enclosures, control and monitoring equipment, and inverter components. Plastic laminate films are also used in most PV module assemblies.

4. Decommissioning and Restoration Process

The decommissioning and restoration process consists of the following steps. All decommissioning and restoration activities will adhere to the requirements of the appropriate authorities having jurisdiction and will be performed in accordance with all applicable federal, state and local permits and approvals.

Disassemble and remove all above-ground structures.
Remove below-ground structures.
Restore the Project site to the extent possible, or as otherwise desired by the landowner.

Above-ground structures include the solar modules, module support structures, combiner boxes, inverters, switchgear, switchboards, transformers, meteorological station and all structures or concrete pads to support them. Below-ground structures are limited to concrete pad foundations, conduit, pull boxes and electrical conductors. For the purposes of this Decommissioning Plan, it is practical to assume that the underground conduit beneath permanent concrete and asphalt surfaces will not be removed. ·

Following removal of all equipment and structures, the disturbed areas will be re-graded to be consistent with surrounding areas and reseeded to promote the growth of ground cover

vegetation. The cost for disposal for any materials that are not scrapped is considered incidental, unless otherwise noted. The decommissioning process for the Chatfield Solar Fund, LLC project will require an estimated 8 weeks

4.1. Mobilization and Management

This task includes mobilization of trash dumpsters, storage containers, pallets, construction equipment, and tools, and planning and oversight during all activities.

4.2. Module and Rack Disassembly

Individual solar modules will be removed and prepared for shipping. Professional Electricians will oversee the de-energizing of circuits, the disconnection of the PV modules, and the performance of safety checks prior to removal.

Following removal of modules, the racking structure will be demolished by laborers using pneumatic impact tools or saws for disassembly of the racking members. All structural members will be collected by equipment and transferred to salvage trucks for recycling.

4.3. Pile Foundation Removal

Ground screw foundations will be removed from the ground by unscrewing each screw. Each screw will be pulled and loaded into a salvage truck for recycling.

4.4. Electrical Demolition

The majority of the electrical system is composed of power aggregation string wiring, panels, and inverter pads. All circuits will be de-energized, and the conductors, subterranean conduit, and inverter pad equipment will be removed and aggregated for recycling. Inverter pad equipment includes step-up transformers, which may contain Enviro temp FRC that must be contained and recycled separately prior to removal of the transformer equipment.

4.5. Civil Site Reclamation

This task includes concrete pad/skid demolition, fence removal, trench remediation, aggregate base rock removal, re-grading, and rehabilitation of the site. Concrete pads and associated conduits are assumed to be excavated to a depth of 3 feet below grade. Fence removal includes all gates and posts. Trench remediation involves backfill of areas where conduit removal activities have resulted in earth disturbance. Aggregate removal refers to gravel from roads and other areas.

After excavation and removal of underground materials and foundations, all excavated areas will need to be filled, compacted, and re-graded to return the site to pre-project conditions (within reason) or per landowner desires. After grading is complete, rehabilitation activities will depend on the subsequent use for the site. Generally, these activities include sub-grade and topsoil de-compaction to restore appropriate and consistent densities and depths, as well as mowing, disking, and hydraulic seeding of the disturbed area.

Interrogatory CSC-2-94

Chatfield Solar Fund, LLC | Witness: Jobin Michael

Petition No. 1354 | Page 1 of 1

Q-CSC-2-94: Referring to CSC-1-34 and CSC-1-49 – different solar row aisle widths are given, please clarify.

A-CSC-2-94: CSC-1-34 refers to the aisle width between solar panel rows, which will be 14' 8.5". CSC-1-49(c) refers to the emergency access, which is a 20’ wide emergency access path that is designed along the perimeter of the system. The 20’ access path is a cleared area between the edge of the solar panel array and the perimeter fence.

Interrogatory CSC-2-95

Chatfield Solar Fund, LLC | Witness: Jobin Michael

Petition No. 1354 | Page 1 of 1

Q-CSC-2-95: Referring to CSC-1-41, will each row of solar panels connect to an above ground cable tray? Would this cable then connect to a centralized cable tray that extends to the transformers at the Project site entrance?

A-CSC-2-95: The solar panel racking system has an integrated wire management tray (one of the horizontal Z purlins of the racking system is used as a wire tray as well). Inside each row, Chatfield will use the integrated wire management tray, which then transfers to the centralized tray. The centralized tray extends north, up to the switch board and transformer location where the system will interconnect to the utility grid.

Interrogatory CSC-2-96

Chatfield Solar Fund, LLC | Witness: Alisa Morrison

Petition No. 1354 | Page 1 of 1

Q-CSC-2-96: Referring to CSC-1-50, does Chatfield Solar Fund intend to adhere to the recommended tree clearing restriction concerning potential on-site Northern Long-Eared Bat populations? Would other bat species that may inhabit the site benefit from this tree clearing restriction?

A-CSC-2-96: The closest known hibernation of the Long-Eared Bat is in North Branford (shown on Attachment CSC-1-50) and the probability of maternity roosts at the site is low. The pup-rearing phase is between June 1st and July 31st. The tree clearing restriction will also benefit any other bat species that may utilize the site. This time period is within the construction activity timeline and tree clearing will be occurring during this time. During these months, Chatfield intends that construction Phase 1 and Phase 2 will be ongoing and the remainder of the site will not be subjected to tree clearing. Phase locations and boundaries are shown on Attachment CSC-2-104.

Interrogatory CSC-2-97

Chatfield Solar Fund, LLC | Witness: Alisa Morrison

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Q-CSC-2-97: Referring to CSC-1-60, were the infiltration trenches designed specifically to mitigate stormwater flows or thermal impacts to the eastern wetland?

A-CSC-2-97: Potential thermal impacts are a result of clearing the overstory close to the wetlands as well as potentially higher temperature runoff being generated by travel over the solar panels. The series of infiltration trenches that have been designed to contain the water quality volume will act to promote infiltration to the groundwater before the runoff reaches the wetlands, which will, in turn, also prevent any potential thermal impacts to the wetlands and their associated aquatic habitat. While designed to mitigate stormwater flows, the trenches will therefore serve a dual purpose.

Interrogatory CSC-2-98

Chatfield Solar Fund, LLC | Witness: Alisa Morrison

Petition No. 1354 | Page 1 of 1

Q-CSC-2-98: Referring to CSC-1-68, why was a proposed condition of 2-7 percent sloping lawn used in the drainage calculations if the average Project slope is 9 percent, as shown on the CSC-1-59 Attachment? Would the wetlands between each distinct solar array area act as a stormwater divide within the Project site and thus require a stormwater analysis of each sub-drainage area?

A-CSC-2-98: A proposed condition of 2–7% sloping lawn was used for the proposed condition as that value was most closely aligned with the proposed conditions. That value, however, is subject to interpretation. The proposed conditions for the site are a high grass/shrub ground cover. The value for lawn, therefore, would be a fairly conservative number and demonstrates that the runoff volumes between proposed and existing conditions will be similar.

Based on discussions with the DEEP regarding stormwater management at solar farms, Chatfield has modified its drainage calculations based on the Minnesota design guidelines and the drainage calculations for each area of the solar farm that was calculated based on the “effective impervious area” of each solar panel.

Interrogatory CSC-2-99

Chatfield Solar Fund, LLC

Witness: Alisa Morrison; and Charles Geppi

Petition No. 1354

Q-CSC-2-99: Referring to CSC-1-78;

a) How was a land disturbance value of 0.91-acres determined for solar array stump grubbing?
b) Regarding the proposed flush cut tree removal and selective grubbing procedure for the solar field area, has Chatfield Solar Fund used these methods during construction of a solar facility elsewhere in New England? If so, identify the location of the facility.
c) What minimum stump diameter will be used to determine if a stump and associated root ball must be removed for the proper installation of a racking post?

A-CSC-2-99: a) This area was obtained from totaling the potential grubbing locations—the entire area for the driveway, wetlands crossing, and equipment pads—as well as assuming 10% of the area for the solar array would be grubbed for the installation of posts.

For the revised plan layout to include the clearing area for the infiltration/sediment trenches, the new projected area for grubbing operations is estimated to be 2.1 acres. This includes clearing and grubbing for the infiltration trenches and access drive (1.4 acres), and an estimated 10% of the area utilized for the solar array (.7 acres).

b) Yes, Chatfield has successfully utilized this same method for the West Orange Solar project in Orange, Massachusetts. Chatfield also used the same method for its Fort Indiantown Gap project in Jonestown, Pennsylvania.

c) If a stump is located in a position that a racking post is to be located, the stump will be removed regardless of the size to ensure the structural integrity.

Interrogatory CSC-2-100

Chatfield Solar Fund, LLC | Witness: Jobin Michael

Petition No. 1354 | Page 1 of 1

Q-CSC-2-100: Referring to response CSC-1-69, the revised site layout has three distinct solar field areas – northern area, southeast area and southwest area. What is the energy output (AC) of each area?

A-CSC-2-100: The energy output (AC) of each area is as follows:

1. Northern Phase Energy Output: 2,551 MWh/year (i.e., Phase 1).
2. South West Phase Energy Output: 425 MWh/year (i.e., Phase 2).
3. South East Phase Energy Output: 248 MWh/year (i.e., Phase 3).

For Phase locations and boundaries, see Attachment CSC-2-104.

Interrogatory CSC-2-101

Chatfield Solar Fund, LLC | Witness: Alisa Morrison

Petition No. 1354 | Page 1 of 1

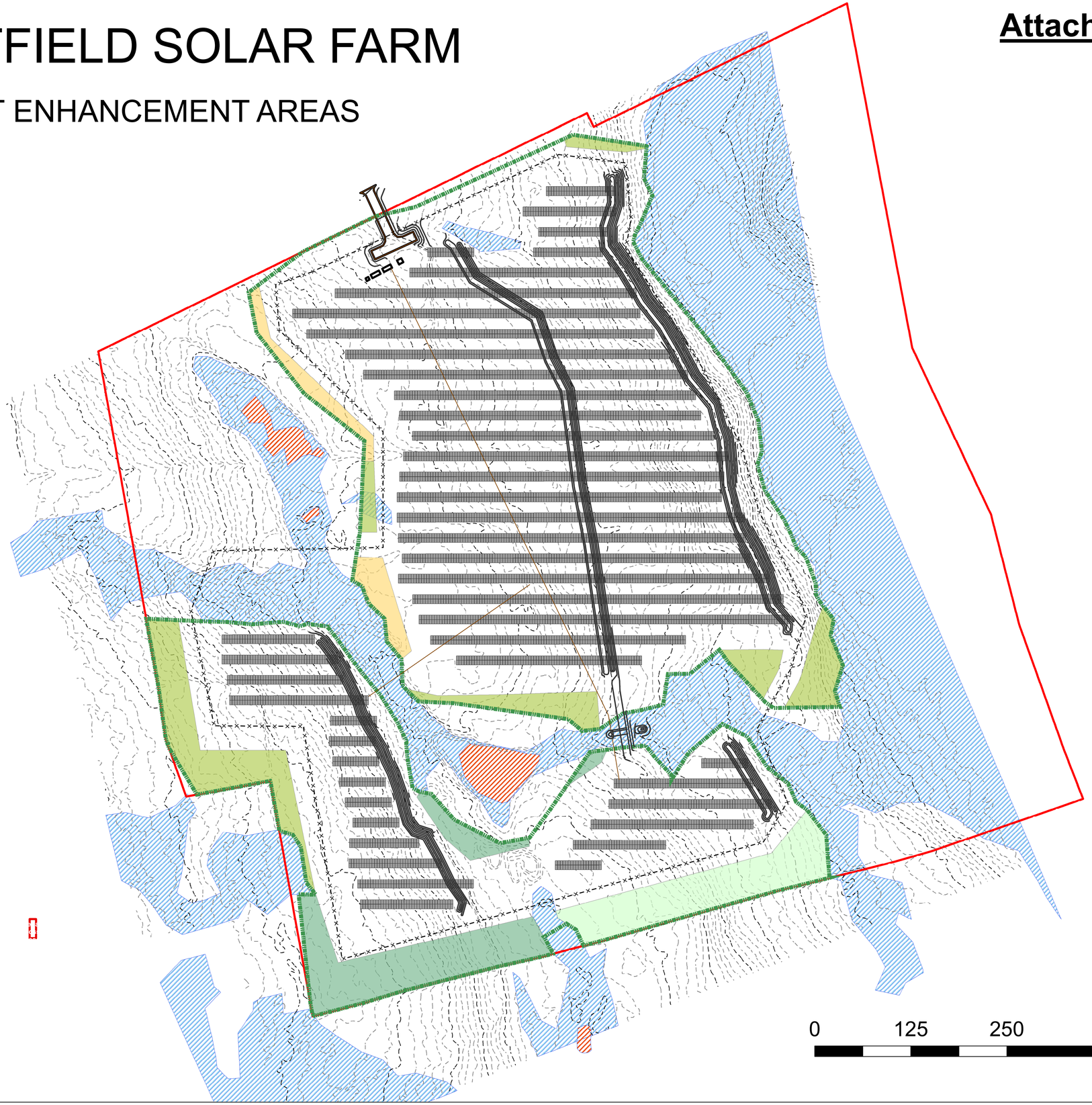
Q-CSC-2-101: The site plans contained within CSC-1-18 depicted forested buffer zones between the development area and on-site wetlands. It appears the revised Project layout (CSC-1-69) eliminates these forested buffer zones. Describe the width of the revised wetland buffer zones to each wetland and the reason for changes.

A-CSC-2-101: Please see Attachment CSC-2-101, which shows the revised habitat enhancement areas.

CHATFIELD SOLAR FARM

HABITAT ENHANCEMENT AREAS

Attachment CSC-2-101



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Waste • Facility Services • Laboratory

Interrogatory CSC-2-102

Chatfield Solar Fund, LLC | Witness: Alisa Morrison

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Q-CSC-2-102: Referring to response CSC-1-69, provide detail for the infiltration trenches, the relocated road crossing, and associated stilling basin (Sheet 2 is reference but was not submitted).

A-CSC-2-102: Please see Attachment CSC-2-102 for details.

Attachment CSC-2-102

NOTES:

1. PROPERTY SURVEY, NORTH BRANFORD ROAD - ROUTE 80, KILLINGWORTH, CONNECTICUT, PREPARED FOR STANDARD SOLAR, SCALE 1"=100', DATED DEC. 4, 2018 BY LOUREIRO ENGINEERING ASSOCIATES, INC., WILLIAM J. NAGLE, JR. LS #70269.
2. HORIZONTAL DATUM: CONNECTICUT STATE PLANE NAD 1983.
3. THE ENTIRE SITE IS FORESTED.
4. WETLANDS WERE FLAGGED ON 8/22/2018 BY JMM WETLAND CONSULTING SERVICES, LLC AND FIELD LOCATED BY LOUREIRO ENGINEERING DURING THE MONTHS OF AUG. TO OCT. 2018.
5. CONTOURS OBTAINED FROM GIS SOURCES, Capitol Region Council of Governments. (2016). *2016 LiDAR DEM*. Retrieved from http://cteco.uconn.edu/data/flight2016/index.htm..

SOILS MAP UNITS

UNIT No.	DESCRIPTION
3	Ridgebury, Leicester, and Whitman soils, extremely stony
17	Timakwa and Natchaug soils
46B	Woodbridge fine sandy Loam, 2 to 8 percent slopes, very stony
47C	Woodbridge fine sandy Loam, 2 to 15 percent slopes, extremely stony
85C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes, very stony
86C	Paxton and Montauk fine sandy loams, 3 to 15 percent slopes, extremely stony

LEGEND

EXISTING

- PROPERTY LINE
- EDGE OF ROADWAY
- CONTOUR (1' INTERVAL)
- WETLAND FLAGGING (VL#XXX)
- SOILS

NORTH BRANFORD ROAD - ROUTE 80

Guiderail

Edge of Pavement

Existing Utility Pole (Approx. Location)

CHD MON (HELD)

CHD MON

IPIPE (HELD)

N 691941.774
E 1040424.938

MON (HELD)

N 63°59'41" E 201.86'

S 63°59'41" W 218.14'

N 63°59'41" E 505.00'

S 26°00'19" E 20.00'

N 63°59'41" E 83.54'

N 63°59'41" E 1366.46'

S 10°36'15" E 456.10'

S 25°10'15" E 239.73'

S 15°44'15" E 146.60'

N 10°08'13" W 443.43'

60' Building Setback

40' Building Setback

50' Solar Setback

PARCEL 26-14B

AREA

1,050,025 S.F.

24.10 AC.

N/F
SHERIDAN W. &
CONSTANCE A. PERKINS

N/F
ARTHUR &
JANINE STONER

POTENTIAL VERNAL POOL PVP#1

STONE PILE (HELD)

MATCH LINE

47C 17 85C

SCALE IN FEET: 20 0 20 40 60

REV.	DESCRIPTION OF REVISION	DATE	APPR.

STAMP

Loureiro Engineering Associates, Inc.
Civil • Land Planning • Water Resources
Waste • Facility Services • Laboratory
100 Northfield Street • Simsbury, CT 06070-1562
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.LoureiroEng.com

SCALE: 1" = 40'
COMM. NO.: 80SS8.01.007
DRAWN BY: WJN/GFB
APPROVED BY: GFA
DATE: 12/28/2018

EXISTING CONDITIONS PLAN

SITING COUNCIL SUBMISSION-CHATFIELD SOLAR FARM

NORTH BRANFORD ROAD, KILLINGWORTH, CONNECTICUT

STANDARD SOLAR

DRAWING: 0A

SHEET NO. 1 NO. OF SHEETS 1

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LEGEND

EXISTING

- PROPERTY LINE
- EDGE OF ROADWAY
- CONTOUR (1' INTERVAL)
- WETLAND FLAGGING (VL-BXXX)
- SOILS

20 0 20 40 60
SCALE IN FEET

MATCH LINE

40' Building Setback

50' Solar Setback

Stonewall (Typ.)

N 08°02'05" W 68.47'

N 19°35'01" W 79.71'

111.18'

S 79°24'14" W

N 10°13'19" W 311.16'

APPROX PROP COR STK

APPROX PROP COR STK

POTENTIAL VERNAL POOL PVP-#2

S 75°39'49" W 126.64'

S 73°01'57" W 53.34'

S 75°14'36" W 68.87'

Stonewall (Typ.)

S 77°11'43" W 59.10'

S 75°14'15" W 74.98'

S 73°59'14" W 160.75'

S 74°21'30" W 84.02'

N/F SHERIDAN W. & CONSTANCE A. PERKINS

N/F SHERIDAN W. & CONSTANCE A. PERKINS

N/F SHERIDAN W. & CONSTANCE A. PERKINS

MATCH LINE

IPIPE (HEAD)

S 19°33'15" E 174.69'

IPIPE

S 21°08'15" E 67.83'

35' Solar Setback

40' Building Setback

S 70°53'51" W 160.03'

N 691359.135 E 1041703.196

S 70°56'31" W 45.12'

S 74°03'19" W 50.91'

S 76°07'21" W 155.98'

7C 47C 85C 46B 3 17 86C

SOILS MAP UNITS

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DRAFT

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Loureiro Engineering Associates, Inc.
100 Northfield Street • Simsbury, CT 06070-7602
Phone: 860-747-6181 • Fax: 860-747-8822
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SCALE: 1" = 40'
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EXISTING CONDITIONS PLAN

SITTING COUNCIL SUBMISSION-CHATFIELD SOLAR FARM

NORTH BRANFORD ROAD, KILLINGWORTH, CONNECTICUT
PREPARED FOR
STANDARD SOLAR

DRAWING: 0B

SHEET NO. 1 NO. OF SHEETS 1

V:\CTWILLINGWORTH\NORTH BRANFORD ROAD\STANDARD SOLAR\CAD\KILLINGWORTH SITE EXHS Tab - SITE PLAN-008 Saved: 12/28/2018 2:20 PM Plotted: 12/28/2018 2:21 PM

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LEGEND

EXISTING	PROPOSED
PROPERTY LINE	
EDGE OF ROADWAY	
CONTOUR (1' INTERVAL)	
WETLAND FLAGGING	
SOILS	
FENCE LINE	X
CLEARING LIMITS	
SILT FENCING	
PHASE LIMITS	

EXISTING ROADWAY
NORTH BRANFORD ROAD - ROUTE 80
Guiderail
NEW 12' WIDE GRAVEL ACCESS DRIVE AND ANTI- TRACKING PAD
NEW SOIL EROSION CONTROL FENCING
PROPOSED CLEARING LIMIT
Existing Utility Pole (Approx: Location)
NEW UTILITY POLES (4) WITH RECLOSER EQUIPMENT
PROPOSED FENCING (TYPICAL)
Edge of Pavement
CHD MON (HELD)
MON (HELD)
N 691941.774
E 1040424.938
N 63°59'41" E 201.86'
S 63°59'41" W 218.14'
60' Building Setback
40' Building Setback
50' Solar Setback
NEW GROUNDING TRANSFORMER TOP OF PAD=291.5'
NEW SERVICE 2 WITH DISCONNECT AND METERS TOP OF PAD=288.5'
NEW SERVICE 1 WITH DISCONNECT AND METERS TOP OF PAD=287.5'
TOP OF PAD=287'
N 63°59'41" E 205.00'
CHD MON
S 26°00'19" E 20.00'
N 63°59'41" E 366.46'
N 63°59'41" E 83.54'
IPIPE (HELD)
S 10°36'15" E 456.10'
S 25°10'15" E 239.73'
S 25°43'15" E 146.60'
TEMPORARY SEDIMENT TRAP OUTLET WEIR CREST=265 BOTTOM=263
3' GRAVEL ENERGY DISSIPATOR
TEMPORARY SEDIMENT TRAP OUTLET WEIR CREST=282 BOTTOM=280
3' GRAVEL ENERGY DISSIPATOR
TEMPORARY SEDIMENT TRAP OUTLET WEIR CREST=298 BOTTOM=296
3' GRAVEL ENERGY DISSIPATOR
PHASE 1 175,364.43 SF
PHASE 2 211,706.26 SF
PARCEL 26-34B
AREA
1,050,025 S.F.
24.10 AC.
NEW INVERTERS #21-23 AND ACCUMULATION PANEL NO 2
NEW SOLAR ARRAY MODULES (TYPICAL)
EXISTING WETLANDS AND FLAGS (TYPICAL)
POTENTIAL VERNAL POOL PVP#1
N/F SHERIDAN W. & CONSTANCE A. PERKINS
N 10°08'37" W 443.43'
N/F ARTHUR & JANINE STONER
STONE PILE (FIELD)
MATCH LINE
MATCH LINE
47C
17
85C
SCALE IN FEET
20 0 20 40 60
DRAFT

SCALE: 1" = 40'	COMM. NO. 80SS8.01.007	DATE 12/28/2018	DATE
		DRAWN BY WJN/GFB	APPROVED BY GFA

PROPOSED CONDITONS PLAN

SITING COUNCIL SUBMISSION-CHATFIELD SOLAR FARM
NORTH BRANFORD ROAD, KILLINGWORTH, CONNECTICUT
PREPARED FOR
STANDARD SOLAR

DRAWING **1A**

SHEET NO. 1 NO. OF SHEETS 1

REV. | DESCRIPTION OF REVISION | DATE | APPR.

STAMP

Loureiro Engineering Associates, Inc.
100 Northfield Drive • Windsor, Connecticut 06095
Phone: 860-747-6181 • Fax: 860-747-8822
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V:\CTCIVIL\KILLINGWORTH\NORTH BRANFORD ROAD\STANDARD SOLAR\CAD\KILLINGWORTH SITE EWG Tab - SITE PLAN-01A Saved: 12/28/2018 2:20 PM Plotted: 12/28/2018 2:21 PM

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	EDGE OF ROADWAY	
	CONTOUR (1' INTERVAL)	
VL-BXXX VL-BXXX	WETLAND FLAGGING	
	SOILS	
	FENCE LINE	X
	CLEARING LIMITS	
	SILT FENCING	
	PHASE LIMITS	

N

20 0 20 40 60

SCALE IN FEET

MATCH LINE

40' Building Setback

50' Solar Setback

Stonewall (Typ.)

N 08°02'05" W 68.47'

N 19°35'01" W 79.71'

111.18'

S 79°24'14" W

N 10°13'49" W 311.16'

APPROX PROP COR STK

APPROX PROP COR STK

TEMPORARY SEDIMENT TRAP OUTLET WEIR CREST=298 BOTTOM=296

3' GRAVEL ENERGY DISSIPATOR

CHATFIELD CONDUIT & WETLAND CROSSING (SEE DETAIL SHEET 2)

CHATFIELD CONDUIT & WETLAND CROSSING (SEE DETAIL SHEET 2)

GRAVEL ROAD & WETLAND CROSSING 12' WIDE'

PROPOSED CLEARING LIMIT

PHASE 2 211,706.26 SF

NEW SOLAR ARRAY MODULES (TYPICAL)

RIPRAP STILLING BASIN BOTTOM APPROX. 274.0' (SEE DETAIL SHEET 2)

INV=278.0'

INV=277.0'

25 LF 15" HDPE @ S=0.04 W/ FLARED ENDS

POTENTIAL VERNAL POOL PVP-#2

NEW SOIL EROSION CONTROL FENCING

PHASE 3 213,849.19 SF

EXISTING WETLANDS AND FLAGS (TYPICAL)

TEMPORARY SEDIMENT TRAP OUTLET WEIR CREST=271 BOTTOM=269

3' GRAVEL ENERGY DISSIPATOR

MATCH LINE

IPIPE (HEAD)

IPIPE

S 19°33'15" E 174.69'

S 21°08'15" E 67.83'

35' Solar Setback

40' Building Setback

S 70°53'51" W 160.03'

N 691359.135 E 1041703.196

S 70°56'81" W 45.12'

S 74°03'19" W 50.91'

S 76°02'21" W 155.98'

S 74°21'30" W 84.02'

Stonewall (Typ.)

S 73°59'14" W 160.75'

S 75°14'15" W 74.93'

S 77°11'43" W 59.10'

S 75°39'49" W 126.64'

S 73°01'57" W 53.84'

S 75°14'36" W 68.87'

N/F SHERIDAN W. & CONSTANCE A. PERKINS

N/F SHERIDAN W. & CONSTANCE A. PERKINS

N/F SHERIDAN W. & CONSTANCE A. PERKINS

7C 47C 85C 46B 3 17 86C

SOILS MAP UNITS

UNIT No.	DESCRIPTION
3	Ridgebury, Leicester, and Whitman soils, extremely stony
17	Timakwa and Natchaug soils
46B	Woodbridge fine sandy Loam, 2 to 8 percent slopes, very stony
47C	Woodbridge fine sandy Loam, 2 to 15 percent slopes, extremely stony
85C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes, very stony
86C	Paxton and Montauk fine sandy loams, 3 to 15 percent slopes, extremely stony

DRAFT

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SCALE 1" = 40'

COMM. NO. 80SSB.01.007

DRAWN BY WJN/GFB

DATE 12/28/2018

APPROVED BY GFA

DATE

APROPOSED CONDITONS PLAN

SITING COUNCIL SUBMISSION-CHATFIELD SOLAR FARM

NORTH BRANFORD ROAD, KILLINGWORTH, CONNECTICUT

PREPARED FOR

STANDARD SOLAR

DRAWING 1B

SHEET NO. 1 NO. OF SHEETS 1

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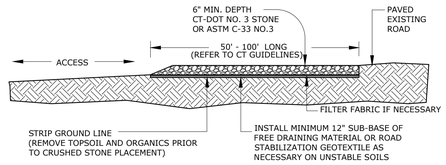
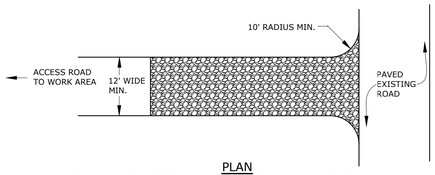


LONGITUDINAL SECTION



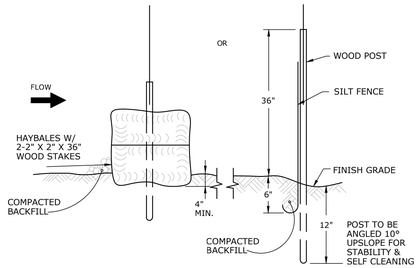
PLAN

NOTE: ALL ANTI-TRACKING PADS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH 2002 CT GUIDELINES FOR SOIL EROSION & SEDIMENT CONTROL, AS AMENDED.

Reference: 2002 CT Guidelines for Erosion and Sediment Control, DEEP Bulletin 34, Chapter 12, Figure CE-2, errata date 3/17/06.

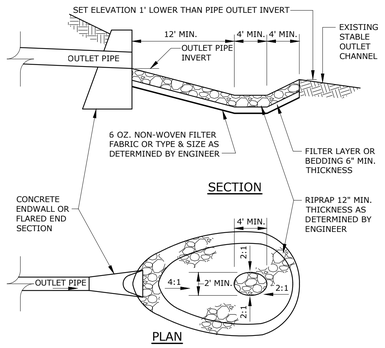
ANTI-TRACKING PAD DETAIL

SCALE: NONE



TYPICAL SEDIMENT BARRIER DETAIL

NOT TO SCALE

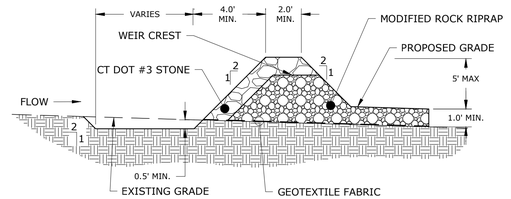


PLAN

NOTES:
1. SEE PLAN FOR EXACT LOCATION AND DIMENSIONS.
2. RIPRAP SIZE AND THICKNESS SHALL VARY AS DETERMINED BY ENGINEER.
3. THE CONTRACTOR SHALL APPLY CEMENTIOUS GROUT IN THE RIPRAP TO PREVENT VANDALISM AND FACILITATE SEDIMENT AND DEBRIS CLEANOUT.
4. ALL OUTLET PROTECTION STRUCTURES SHALL BE FURNISHED, INSTALLED AND MAINTAINED IN ACCORDANCE WITH 2002 CT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROLS, AS AMENDED.

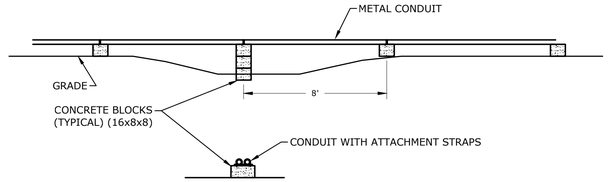
TYPICAL OUTLET PROTECTION DETAIL
RIPRAP STILLING BASIN DETAIL

SCALE: NONE
Reference: 2002 CT Guidelines for Erosion and Sediment Control, DEEP Bulletin 34, Chapter 5-10, Figure OP-3.



TEMPORARY SEDIMENT TRAP OUTLET DETAIL

SCALE: NONE



CHATFIELD CONDUIT CROSSING DETAIL

SCALE: NONE

SOIL EROSION AND SEDIMENTATION CONTROL PLAN

NARRATIVE

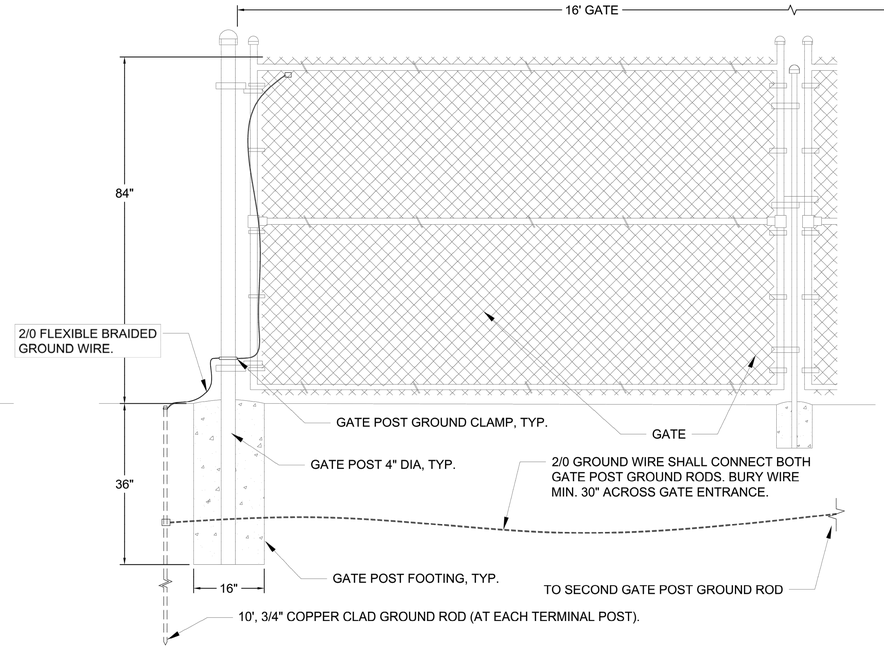
1. THE FOLLOWING SOIL EROSION AND SEDIMENTATION CONTROL (E&S) NOTES APPLY TO THE CONSTRUCTION OF A SOLAR-BASED ELECTRIC GENERATING FACILITY LOCATED ON A 25 ACRE PARCEL OF PROPERTY IN KILLINGWORTH, CONNECTICUT. THE PROJECT INVOLVES THE REMOVAL OF EXISTING VEGETATION BY FLUSH-CUTTING, INSTALLATION OF 6732 SOLAR MODULES, 34 INVERTERS, A 12' X 55' GRAVEL ACCESS DRIVE AND TWO 15' X 20' CONCRETE EQUIPMENT PADS.
2. UPLAND SOILS AT THE SITE CONSIST OF MODERATELY WELL DRAINED WOODBRIDGE EXTREMELY STONY FINE SANDY LOAM. GIVEN THE RELATIVELY STEEP SLOPES IN THE AREA OF CONSTRUCTION THESE SOILS ARE SUSCEPTABLE TO EROSION DURING RAINFALL EVENTS.
3. EROSION CONTROL MEASURES INTENDED TO MINIMIZE SOIL EROSION AND TO CONTROL SEDIMENTATION DURING CONSTRUCTION INCLUDE:
   - THE INSTALLATION OF SILT FENCES AROUND GRUBBED AREAS.
   - THE INSTALLATION OF A TEMPORARY CONSTRUCTION ENTRANCE AND ACCESS ROAD.
   - STABILIZATION OF ALL DISTURBED AREAS.
4. IT IS ANTICIPATED THAT SITE WORK WILL BEGIN IN THE WINTER OF 2019 AND WILL BE COMPLETED BY SPRING OF 2019.

GENERAL E&S REQUIREMENTS

1. THE CONTRACTOR SHALL INSTALL SILT FENCING AS SHOWN ON THE E & S CONTROL PLAN PRIOR TO INITIATING CONSTRUCTION.
2. A TEMPORARY CONSTRUCTION ENTRANCE SHALL BE INSTALLED BEFORE CONSTRUCTION TRAFFIC INTO AND OUT OF THE PROJECT AREA BEGINS.
3. THE CONTRACTOR SHALL COMPLETE PERMANENT SEEDING BETWEEN APRIL 15TH THROUGH JUNE 15TH\. APPLY PERMANENT SOIL STABILIZATION MEASURES TO ALL GRUBBED AREAS WITHIN 7 DAYS OF ESTABLISHING FINAL GRADE.
4. E&S CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE OF CONNECTICUT SOIL EROSION AND SEDIMENT CONTROL HANDBOOK. ALL MEASURES SHALL BE MAINTAINED AND UPGRADED TO ACHIEVE PROPER SEDIMENT CONTROL DURING CONSTRUCTION.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND INSPECTING THE E&S CONTROL MEASURES PER THIS PLAN AND SHALL INFORM ALL SUBCONTRACTORS OF THE OBJECTIVES AND REQUIREMENTS OF THE PLAN. THE CONTRACTOR SHALL NOTIFY THE PROPER TOWN AGENCY OF ANY TRANSFER OF RESPONSIBILITY AND SHALL ADVISE THE TOWN REGARDING THE NEED FOR IMPLEMENTING ADDITIONAL CONTROL MEASURES AS DEEMED NECESSARY DURING CONSTRUCTION.
6. IF NECESSARY DURING CONSTRUCTION, THE CONTRACTOR SHALL INSTALL ADDITIONAL CONTROL MEASURES AS REQUIRED. INSPECTIONS SHALL BE CONDUCTED WEEKLY AND/OR WITHIN 24 HOURS OF THE END OF A STORM HAVING A RAINFALL AMOUNT OF ½ INCH OR GREATER. MONTHLY WRITTEN REPORTS SHALL BE PREPARED DESCRIBING OBSERVATIONS, MAINTENANCE, AND CORRECTIVE ACTIONS.

CONSTRUCTION SEQUENCE

1. INSTALL TEMPORARY CONSTRUCTION ENTRANCE/GRAVEL ACCESS DRIVE.
2. TREES TO BE GRUBBED SHALL BE FLAGGED PRIOR TO START OF CONSTRUCTION.
3. INSTALL SILT FENCE AS SHOWN ON THE PLAN.
4. INSTALL SILT FENCE AT GRUBBING LOCATIONS PRIOR TO INITIATING EARTHWORK.
5. PLACE TEMPORARY CONSTRUCTION MATS ACROSS WETLANDS FOR VEHICULAR ACCESS.
6. CLEAR AND GRUB AREA FOR CONCRETE PAD AND FLUSH-CUT TREES AND BRUSH WITHIN THE LIMITS OF DISTURBANCE AS REQUIRED FOR CONSTRUCTION.
7. PLACE DRIVEWAY FILL AND IMMEDIATELY FINAL GRADE, SEED AND MULCH FILL SLOPE.
8. INSTALL CONCRETE PAD AND IMMEDIATELY FINAL GRADE ALL DISTURBED AREAS, PLACE TOPSOIL, SEED, LANDSCAPING AND MULCH.
9. INSTALL CONDUIT CROSSING OVER WETLANDS.
10. ONCE CONSTRUCTION OF SOLAR ARRAY IS COMPLETED IN SOUTHWESTERN PORTION OF THE SITE, REMOVE TEMPORARY CONSTRUCTION PADS
11. RELOCATE SILT FENCE FOR WETLANDS CROSSING IF NEEDED AND INSTALL CULVERT AND GRAVEL ACCESS DRIVE OVER WETLANDS.
12. UPON COMPLETE STABILIZATION OF THE SITE, REMOVE ALL SILT FENCES, HAYBALES AND OTHER E&S MEASURES.

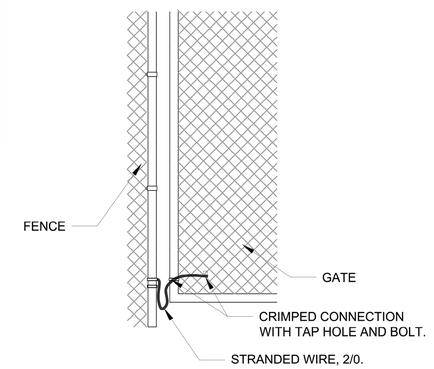


FENCE DETAIL

SCALE: 1/16" = 1'-0"

GATE DETAIL

SCALE: 1/16" = 1'-0"



GATE GROUNDING DETAIL

SCALE: 1/16" = 1'-0"

DRAFT

REV.	DESCRIPTION OF REVISION	DATE	APPR.

STAMP

Loureiro
Engineering • Surveying • Design • Permitting
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northfield Drive • Windsor, Connecticut 06095
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.LoureiroEng.com

SCALE	COMM. NO.	DRAWN BY	APPROVED BY
AS NOTED	80SS8.01	PJA	GFA

DATE 12/28/2018

DETAILS AND NOTES

SITTING COUNCIL SUBMISSION-CHATFIELD SOLAR FARM
NORTH BRANFORD ROAD, KILLINGWORTH, CONNECTICUT
STANDARD SOLAR

DRAWING 2

SHEET NO. 1 NO. OF SHEETS 1

V:\CT\KILLINGWORTH\NORTH BRANFORD ROAD\STANDARD SOLAR\CAD\KILLINGWORTH DETAILSNOTES.DWG Tab: 2 Saved: 12/28/2018 2:20 PM Printed: 12/28/2018 2:22 PM

Interrogatory CSC-2-103

Chatfield Solar Fund, LLC | Witness: Alisa Morrison

Petition No. 1354 | Page 1 of 1

Q-CSC-2-103: Referring to response CSC-1-69, what is the total land disturbance/grubbing associated with the installation of the infiltration trenches?

A-CSC-2-103: The land disturbance for the grading, clearing, and grubbing for the infiltration trenches is approximately 1.4 acres.

Interrogatory CSC-2-104

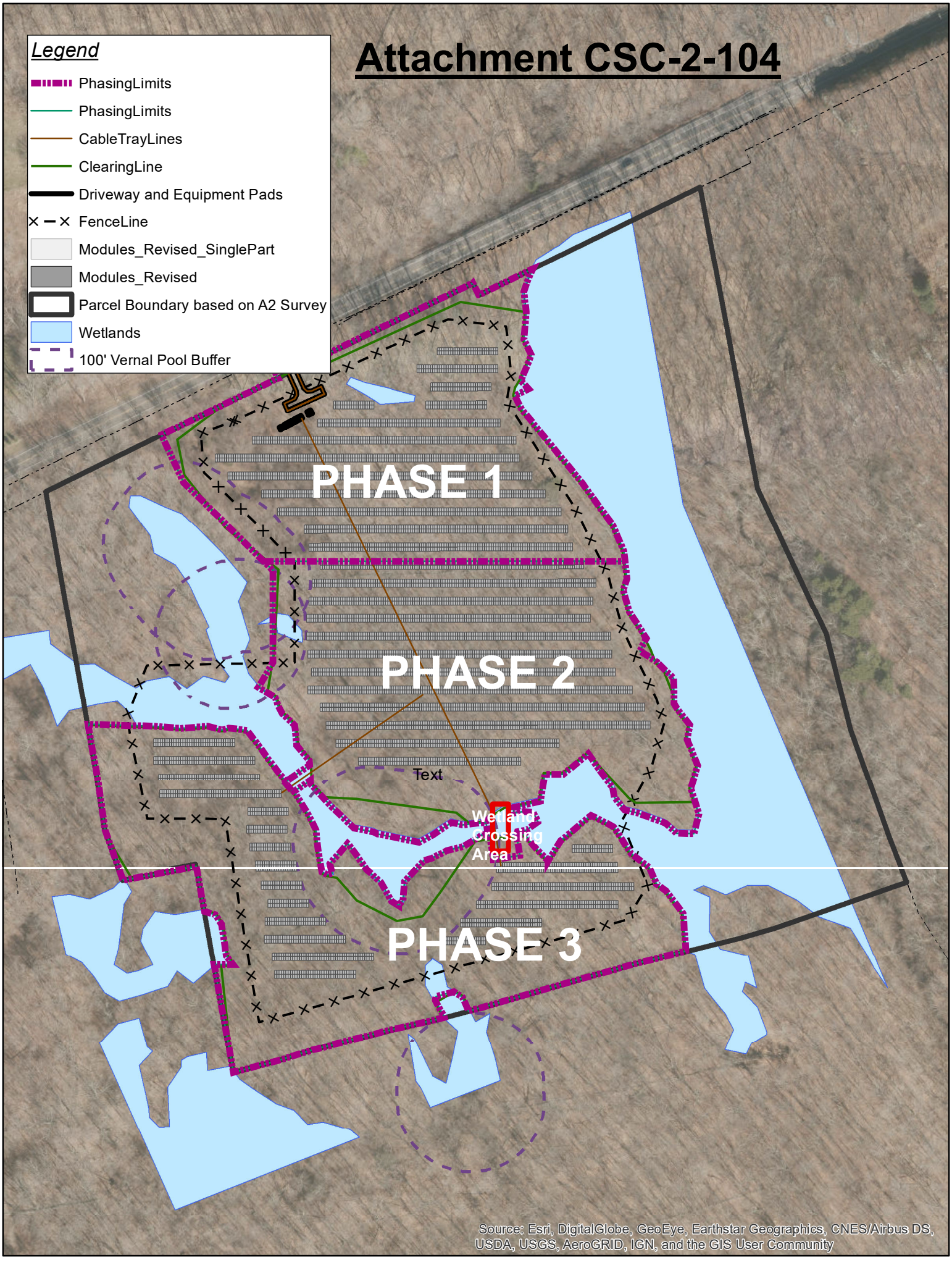
Chatfield Solar Fund, LLC | Witness: Alisa Morrison

Petition No. 1354 |

Q-CSC-2-104: Referring to response CSC-1-69, three site phases are shown. What is the acreage of each phase? Detail the activities that would occur in each phase. Would each phase be constructed concurrently? If not, provide a phasing timeline.

A-CSC-2-104: The construction will be completed in three phases, with each phase consisting of less than 5 acres of disturbed land. Phase locations and boundaries are shown on Attachment CSC-2-104. Each phase will be completed, and the land stabilized prior to beginning the next phase. The areas for each phase and the estimated time to complete are as follows:

Phase 1 – 4.02 acres (2-3 weeks),
Phase 2 – 4.86 acres (4 weeks), and
Phase 3 – 4.91 acres (4 weeks).


Legend
PhasingLimits
PhasingLimits
CableTrayLines
ClearingLine
Driveway and Equipment Pads
FenceLine
Modules_Revised_SinglePart
Modules_Revised
Parcel Boundary based on A2 Survey
Wetlands
100' Vernal Pool Buffer
Attachment CSC-2-104
PHASE 1
PHASE 2
PHASE 3
Text
Wetland Crossing Area
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Interrogatory CSC-2-105

Chatfield Solar Fund, LLC | Witness: Alisa Morrison

Petition No. 1354 |

Q-CSC-2-105: Referring to response CSC-1-69, Attachment 1-69-2 tree clearing is depicted up to the edge of potential vernal pool 2. How would site clearing and subsequent construction affect the water quality of this vernal pool? How would thermal effects be mitigated? How would trees be removed to prevent direct tree fall into the pool?

A-CSC-2-105: Tree clearing is depicted up to the edge of potential Vernal Pool 2. One row of mature trees will be left standing at the northern edge of the potential vernal pool habitat to provide shading from the north. Also, to the extent possible, trees to the south, southwest, and southeast of this habitat will be left standing within 10 to 15 feet of the delineated wetland boundary to provide adequate shading to the old farm pond. Additional solar exposure of waters should not have a significant impact upon any potential amphibian breeding and reproduction, especially for species adapted to somewhat higher temperature regimes, such as green frog, bullfrog, and eastern toad.

Based on the revised site plan, the closest tree clearing is not within 40' of any vernal pool.

Four specific Habitat Enhancement Treatments are proposed using native planting materials. These habitat enhancement treatments target the conversation of wetlands and watercourses, including potential vernal pools, and provide a preferred foraging habitat for the Special Concern species, whip-poor-will, which is lacking at the subject site (except possibly along the site's frontage on North Branford Road).

The following are the four Habitat Enhancement Treatments:

a. Treatment Area A: Scrub-Shrub, Moist-Dry Meadow Mosaic. Use the New England Roadside Matrix Upland Seed Mix, which includes the following shrub seeds: grey dogwood, silky dogwood, staghorn sumac. Plant one shrub per 500 sq. ft. in same species clusters of 5 to 8 plants of the following: grey dogwood, bayberry, American hazelnut, pink azalea, and nannyberry. Any volunteer or re-sprouting tree species shall be removed when it reaches 10 feet. Invasive shrubs shall be controlled/eradicated for three years after planting/seeding.

b. Treatment Area B: Moist-Dry Meadow. Use New England Conservation Wildlife Mix. Maintain as meadow by rotational mowing at 6" or higher, every other year, before May 1st or after October 30th.

c. Treatment Area C: Scrub-Shrub, Moist-Wet Meadow Mosaic. Use New England Roadside Matric Wet Meadow Seed Mix, which includes the following shrub seeds: elderberry, silky dogwood, arrowwood viburnum. Plant one shrub per 500 sq. ft. in same species clusters of 5 to 8 plants of the following: sweet pepperbush, winterberry holly, spicebush, and with-rod/wild raisin viburnum. Any volunteer or re-sprouting tree species shall be removed when it reaches 10 feet. Invasive shrubs shall be controlled/eradicated for three years after planting/seeding.

d. Treatment Area D: Moist-Wet Meadow. Use New England Conservation Wildlife Mix. Maintain as meadow by rotational mowing at 6" or higher, every other year, before May 1st or after October 30th.

Interrogatory CSC-2-106

Chatfield Solar Fund, LLC | Witness: Alisa Morrison

Petition No. 1354 | Page 1 of 1

Q-CSC-2-106: Referring to the January 3, 2019 submittal to the Council, the clearing limits shown on the CSC-1-69 response Site Plan Attachment and the December 27, 2018 Addendum Figure 2 Proposed Conditions Plan do not match. Provide revised drawings and associated wetland and upland clearing values.

A-CSC-2-106: Please see Existing Conditions Plan (Attachment CSC-1-18 REVISED) and the Proposed Conditions Plan (Attachment CSC-2-106).

Attachment CSC-2-106

Proposed Conditions Plan - Interrogatory # 106 Witness: Alisa Morrison, PE

WetlandsPoly
Cable Tray
Modules
Fence Line
Clearing Line
Driveway
Equipment Pads and Driveway
Cleaned Area in Wetlands
DrainageArea_Crossing

0 250 500 Feet

Area of Parcel - 24.1 Acres
Area of Proposed Clearing - 13.4 Acres
Wetland Area within Clearing Limit - 0.13 Acres
Upland Area within Clearing Limit - 13.27 Acres

Proposed wetlands crossing to be located adjacent

N
W E
S

Figure 3
Proposed Conditions Plan

Interrogatory CSC-2-107

Chatfield Solar Fund, LLC | Witness: Alisa Morrison

Petition No. 1354 | Page 1 of 1

Q-CSC-2-107: Referring to the January 3, 2019 submittal to the Council, p. 3 of the December 27, 2018 Addendum describes an initial site evaluation for listed NDDB species. Provide a copy of the referenced evaluation.

A-CSC-2-107: Please see “Listed Species Report” (Attachment CSC-2-107).

Attachment CSC-2-107

● Soil & Wetland Studies
● Ecology ● Application Reviews
● Listed Species Surveys ● GPS
● Environmental Planning & Management
● Ecological Restoration & Habitat Mitigation
● Expert Testimony ● Permitting

VIA EMAIL

November 5, 2018

JMM Wetland Consulting Services, LLC
23 Horseshoe Ridge Road
Newtown, CT 06482

ATTN: Mr. James McManus, MS, CPSS

RE: ***Listed Species & Habitat Surveys***
Proposed Chatfield Solar Farm,
Lot 14B, North Branford Road (Route 80), Killingworth, CT

Dear Mr. McManus:

At your request, REMA Ecological Services, LLC (REMA), is providing herein the results of surveys for the Connecticut-listed species reported from the vicinity of the subject site, in a letter from the CT DEEP's Wildlife Division, dated October 23rd, 2018. The Registrant needs this information for a CT DEEP *General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities*[1] for the above-referenced ground-mounted Solar Electric Generating Facility. This report includes descriptions of the habitats on the subject site.

The targeted species, two plants and one bird, and their State Status are:

Rubus cuneifolius	Sand Blackberry	Special Concern
Platanthera flava var. herbiola	Pale green orchid	Special Concern
Caprimulgus vociferus	Eastern whippoorwill	Special Concern

[1] The registration is being submitted by Loureiro Engineering, Inc. of Groton, CT

1.0 INTRODUCTION

The subject site ("site," "study area") encompasses roughly 26.35 acres of second growth forest. It is located to the south of Route 80 (North Branford Road), and to the east of Chestnut Hill Road, in southwestern Killingworth. In the larger landscape, Lake Hammonasset lies roughly half a mile to the northwest, and Chatfield Hollow State Park is about two thirds of a mile to the northeast. Wetlands and watercourses on the site drain southeasterly towards Chatfield Hollow Brook, a tributary to the Hammonasset River. The site is at the southern edge of the Southeast Hills Ecoregion, just north of the coastal Hardwoods Zone. It is located in the predominately rural southwestern section of Killingworth, with low density residential land uses, high forest cover, and several large protected preserves.

The list of three (3) species from DEEP's Natural Diversity Database (NDDB) was provided to REMA by JMM on October 26th, 2018; the CTDEEP preliminary listed species assessment had been mailed to the registrant on October 23rd, 2018. This DEEP communication recommended that field surveys for the State-listed species should be conducted by qualified biologists/ecologists, at the time when these targeted species are identifiable. The letter also asked that site habitats be described and photographed, and any appropriate habitat enhancements be discussed. Surveys were conducted immediately on October 26th, 2018 by several REMA staff. However, it should be noted that it was too late in the season for detection of two of the target species, the Eastern whip-poor-will and the pale green orchid. Resident breeding whip-poor-wills would in all likelihood already have migrated, and the pale green orchid would have been damaged by several frost events that occurred prior to the date of the in-field survey.

Accordingly, characterization of the habitats used by the target species was emphasized. The report already submitted to CTDEEP by Loureiro Engineering Assoc., dated Sept 20th, 2018, describes the site's topography, wetlands, soils, and land use history. Accordingly this present report focuses on the target taxa, and provides more detail on vegetation and habitat.

Avian surveys were conducted by George T. Logan, Certified Senior Ecologist and Wildlife Biologist. *Plant surveys* and habitat characterizations were conducted by Sigrun N. Gadwa, Ecologist/Botanist, assisted by George T. Logan and by Tony Ianello, Natural Resources Specialist.

1.1 METHODS & RESULTS

Site visits by REMA focused on rare species and their habitats, and were conducted at the study area on Friday, October 27th, 2018. The morphological characteristics of the target species were reviewed beforehand. Habitat characteristics were noted, and wildlife, and plant species observed were recorded, and survey routes were marked on a 2016 aerial photograph (see Figure 1, attached). Note that wetlands had been characterized and delineated by JMM Consulting on August 20th and August 22nd. Findings are summarized in Table 1, below.

Table 1: List of species for review, provided by CTDEEP, with summary of conclusions

Scientific names	*Common names*	*State Status*	*Observed*	*Use by Breeding Individuals*
Avians				
Caprimulgus vociferus	Eastern Whip-poor-will	SC	No	Forest with lower branches for perching and open understory in NE and E-C portions of site; field edges & clearings very limited
Plants				
Rubus cuneifolius	Sand blackberry	SC	No	Soils are too moist for this species, and few clearings remain on site due to forest succession.
Platanthera flava var. herbiola	Pale green orchid	SC	No	Suitable moist/wet wooded/ meadow habitat have declined greatly due to dense barberry and forest succession

2.0 HABITAT CHARACTERIZATION

2.1 GEOLOGY, SOILS, AND TOPOGRAPHY

The site is underlain by Monson gneiss, an acidic bedrock, and the hillside soils are deep fine sandy loams, with a hardpan (compact glacial till), and a shallow seasonal water table. Moderately well-drained Woodbridge fine sandy loams predominate on most of the site's uplands; well-drained Paxton–Montauk soils occupies the southeastern portion, and poorly drained Ridgebury soils occur in the hillside wetlands. These are acidic soils, suitable for the two target plants, which do not require soils enriched with calcium or other mineral cations.

In the uplands, within former pastures, the ground is even and largely cleared of rocks, from which multiple stone walls were built. Although the stone walls themselves are a valuable habitat component for herptiles and insects, the smoothed, even ground, lacks the microhabitat diversity that fosters diverse plant and insect communities, for foraging by whip-poor-will and other insectivorous songbirds. Herbivorous insects also avoid the leaves of the Japanese barberry which colonized the pastures (avoided by livestock), and is overwhelmingly dominant in the herb stratum of the western and west central fields.

By contrast, boulders and large cobbles are abundant in the hillside intermittent streams and swamps that drain southeasterly towards the eastern semi-perennial tributary of Chatfield Hollow Brook. Pockets of temporary flooding, up to six feet wide, were common in the hillside wetlands on the day of the REMA survey, which took place after heavy recent rain; infiltration is limited by rocks and hardpan soils. Though these soil types typically have little available moisture during droughts, they are generally too moist for a dry-site species such as *Rubus cuneifolius*. The moisture regimes are however, are somewhat well-suited to pale green orchid (*Platantherea flava* var. *herbiola*). Unfortunately, moist soil is also preferred by Japanese barberry, which has such a high cover, that minimal little space remains for other plant species. The attached plant list is relatively long, but only one or a very few individuals were observed for most of them, because the relative abundance of Japanese barberry is so high, especially in the moister areas.

The broad riparian corridor along that eastern stream has deep, organic soils (Timakwa and Natchaug series), with natural topography, abundant woody debris, and complex vegetation structure (well-characterized in the JMM wetlands report). Solar arrays will not be installed within this large important wetland system.

2.2 UPLAND VEGETATION

Upland habitats on this site may be grouped into four broad categories: (1) hardwood forest, (2) partial clearings and wood roads (3) pole-size woodland, (4) scrub-shrub thicket-meadow mosaic. Each of these cover types, as well as the wetland cover types, are shown in the attached photorecord (Attachment D).

2.2.1 Hardwoods Forest

Forest habitat is predominant, and hardwood trees rooted in upland soil also overhang the narrower and smaller wetlands. Dead red cedar trees are scattered throughout, evidence that these forest stands were once pasture, prior to 1934, the date of the oldest aerial photograph observed[2]. Species composition varies, across the site, but overall diversity is high. Red maple, sugar maple, and black birch are common throughout the site. Red oak, white oak, shagbark hickory, and young American beech trees are concentrated in the drier northeastern and east-central portions, along former hedgerows and walls, and near Route 80. Tupelo, yellow birch, and American basswood were observed along the southern intermittent stream. Trees mostly have single trunks, rather than the multiple trunks characteristic of resprouts, indicating that logging has not taken place at the site since it reverted from pasture.

Forest structure is similar across most of the site, with a few exceptions: Most trees are moderate-size (10 to 16 inches dbh) though larger trees occur in former hedgerows, along stone walls, and near Route 80. The understory is generally open within the northeastern and east-central sections, with very few medium or large size shrubs, few tree saplings or seedlings; one exception is a stand in the west-central portion of the site dominated by large tulip trees, with ample saplings, small trees, and grape vines. A nearly continuous low shrub layer of Japanese barberry characterizes all the forested areas except for the aforementioned two areas: the west-central tulip tree stand has only about 60% barberry cover, and barberry groundcover is minimal in a large stand in the northeastern and east-central portion of the site with better drained soil (mapped as Paxton-Montauk by USDA-NRCS).

Herbs other than Japanese barberry included the common species that would be expected given moisture regime and soil type, but their numbers and cover levels are much lower than in a similar forest not infested by barberry: New York fern in most soil near the intermittent stream corridor; cinnamon fern on the slope down to the eastern potential vernal pool, lady fern, false Solomon's seal, partridgeberry, bristly dewberry in other areas with mesic conditions. Sedges, residual grasses, brambles, and composites like goldenrods and asters were absent, limited to clearings and old woods roads, called out as a separate cover type, except in the tulip tree stand, where they were interspersed with moderate cover barberry.

[2] Archival aerials (e.g. 1934, 1965, etc.) show that portions of the site remained open till the 1970s before they were abandoned and reverted to forest.

2.2.2 Partial Clearings and Wood Road Habitats

Two old woods roads traverse the forested cover type, north to south. A forty-foot diameter partial clearing borders the west-central tulip tree grove. These areas were likely regularly mowed in the past to prevent establishment of woody species, which also prevented Japanese barberry establishment. They support seedlings of tree species in the adjacent forest and several sedge species, mostly in the Laxiflorae section (often blue-green or very wide-bladed). Sensitive fern, rough-stem goldenrod, and several species of native forest aster were present in these few cleared areas, but not in adjacent forest. One non-native bramble species (wineberry) was also observed along wood roads. They have not had vehicular traffic in 2018; no ruts or tracks were observed.

2.2.3 Pole size Woodland Habitats

Two areas were allowed to revert to forest substantially later than the rest of the site, and now support dense stands of pole-size trees, less than five inches in diameter. Both were open fields in the archival 1965 aerial photo (CT State Library). An approximately two to three-acre, level area borders Route 80 in the north central portion of the site with moist soil. Multiple sizes of young black birches, ironwoods, red maples, and gray birches have colonized this former field, and some young native shrubs (American hazelnut and huckleberry) were also noted.

The other smaller stand of pole-size woods borders the old farm pond to the north. Japanese barberry is present in the understory, but density and diversity of other native herbs is much higher than in the more mature forest stands. This is potential habitat for *Platanthera flava,* which has some shade tolerance; though a putative population would have been more robust before forest succession was this far advanced. This habitat type could be used by whip-poor-will. Density of flying insects is likely to be higher here.

2.2.3 Scrub-Shrub thicket – Meadow mosaic

Both the target plant species could be found in meadow habitat. A small area of this cover type occurs in only one on-site location, east of the wide road that passes southerly, on the west side of the pole-size woods described above. Dense mats of deer tongue grass, clones of rough-stem goldenrod, and sprawling prickly dewberry are bordered by saplings, grape vines, forming a thicket cover type. Grassy meadow is also off-site just to the north, at the side of Route 80, and goldenrod-dominated meadow occurs to the northwest, at the rear of

properties fronting on Chestnut Hill Road, associated with multiflora rose, burning bush, autumn olive, and bittersweet thickets. This cover type, which likely provides nesting habitat for thicket songbirds, nectar and pollen for insects and seeds for songbirds, is in short supply at the subject site.

2.3 WETLAND HABITAT

Forested wetland habitat at this site is severely degraded by dense Japanese barberry, which has significantly greater density and height (often three to four feet) than in adjacent upland forest. Most of the wetlands also have a high shrub stratum consisting of mature spicebush (*Lindera benzoin*), up to 6 or 7 feet in height. Diverse trees comprise the wetland canopy, including upland trees rooted nearby in upland soil, as well as wetland trees like red maple, tupelo (a.k.a. black gum), and yellow birch. However, tree seedlings and saplings and native shrubs are nearly absent, excluded by the dense barberry. Only one highbush blueberry shrub was observed during the entire survey.

Herbaceous diversity is greatest in the wetland areas that experience seasonal flooding, because Japanese barberry is intolerant of inundation. Herbs observed in the southwestern wooded swamp include the following species: stout wood reedgrass *(Cinna arundinacea*), hooked buttercup *(Ranunculus recurvatus*), white avens (*Geum canadensis*), heart-leaved aster *(Symphiotrichum cordifolium*), tall meadow-rue (*Thalictrum pubescens*), white sweet violet (*Viola pallens*), marsh violet (*Viola cucullata*), lady fern (*Athyrium felix-femina*), a manna grass (*Glyceria*) species, and prickly bedstraw (*Galium asprellum*). However, as with the upland herbs, only one or a few individuals of each species were seen. A single skunk cabbage (*Symplocarpus foetidus*) plant was noted. Competitive exclusion is far advanced at this site, greatly reducing the probability that *Platanthera flava* could be found if a search were conducted in the correct season (i.e., mid-summer)

3.0 STATE-LISTED SPECIES HABITAT ASSESSMENT

3.1 AVIANS

3.1.1 Eastern Whip-poor-will (*Caprimulgus vociferus*)

(CT Status: Special Concern)

The Eastern Whip-poor-will is a crepuscular to nocturnal, insectivorous, neotropical migrant bird, that has seen significant declines throughout its breeding range since breeding

records have been kept, beginning in 1966 (Donovan et al. 2002[3]). This is a ground nesting species, which will lay its eggs directly on leaf litter of the forest floor. It prefers dry deciduous or mixed forests with little or no woody understory (Cink 2002[4]). The degree of forest understory openness may be more important than forest composition, but oaks, white pine, aspen, and birch are more closely correlated to this avian's presence in forested habitats. While whip-poor-will uses forested habitat for breeding, proximity to open areas and forest edges for foraging are considered special habitat requirements (DeGraff and Yamasaki 2001[5]).

The Atlas of Breeding Birds of Connecticut (1994) shows "probable" breeding of whip-poor-will in Block 'A' of the Clinton (#98) USGS quadrangle topographic map, which includes the subject site. According to "E-bird," and on-line birding resource, the closest recent sighting of this species was recorded in July 2015, approximately 1.25 miles northwesterly of the subject site.

Assessment: Whip-poor-will was not observed at the subject site during our late October 2018 daytime walkthrough (see attached list of observed avians). This is due to several factors: (1) these birds are very difficult to detect especially in the daytime and past their active breeding season, and (2) these birds had in likelihood begun their migration south. REMA's major objective was primarily to assess the quality of the existing habitat to meet the breeding and foraging requirements of the whip-poor-will.

With respect to breeding, the well-drained, oak-hickory dominated maturing forest that occupies much of the northeastern and east-central sections of the site is suitable breeding habitat (see Figure 1). The forest understory is relatively open and sparsely vegetated and dense leaf litter is suitable for the nesting. In contrast, the balance of the site is mostly occupied by deciduous forests that has a thick understory of Japanese barberry and/or is wetland habitat that is not suitable for nesting. However, we find that the foraging requirements for this species are quite limited at the subject site and its immediate vicinity. Open managed clearcuts, grassland, and forest edges are not at all abundant near the on-site

[3] Donovan, T.M., C. J. Beardmore, D. N. Bonter, J.D. Brawn, R. J. Cooper, J. A. Fitzgerald, R. F. Ford, S. A. Gauthreaux, T. L. George, W. C. Hunter, T. E. Martin, J. Price, K. V. Rosenberg, P. D. Vickery, and T. B. Wigley. 2002. Priority research needs for the conservation of Neotropical migrant landbirds. The Partners in Flight Working Group. Journal of Field Ornithology 73 (4): 329-339.
[4] Cink, C. L. 2002. Whip-poor-will (*Caprimulgus vociferus*). In the Birds of North America, No. 620. (A. Poole and F. Gill, edgs.). The Birds of North America, Inc., Philadelphia, PA.
[5] DeGraff, R.M. and M. Yamasaki. 2001. New England Wildlife: habitat, natural histroy, and distribution. University Press of New England. Hanover, NH.

preferred breeding habitat. Thus the overall quality of the habitat for whip-poor-will is *suboptimal* to *marginal*, and the probability of this species utilizing the subject site is considered to be *low*.

The conversion of deciduous forest for the proposed solar power generating facility could in fact *increase the probability* of whip-poor-will utilizing the landscape in the vicinity of the site. For instance suitable breeding habitat is located immediately to the south of the subject site, and foraging opportunities for whip-poor-will would greatly increase by the creation of forest edge habitat that could be managed to allow for some low shrub/sapling re-growth, which would attract lepidopterans, the preferred food item for these birds. Recent studies have shown that forest management that allows for regenerating woody patches, forest edges, and a higher abundance of open land in close proximity to suitable breeding habitat is positively correlated with occupancy by breeding whip-poor-will (Tozer et al. 2014[6], Wilson and Watts 2008[7]).

3.2 PLANTS

*3.2.1 **Sand blackberry*** (*Rubus cuneifolius*)

(CT Status: Special Concern)

This distinctive, rare blackberry species grows in open sandy, dry habitats, per the botanical manuals that cover southern New England: State Geological & Natural History Survey Bulletin No. 14 (Charles Graves et al., 1910), Gray's Manual of Botany, 8th Edition by M.L. Fernald 91950); Manual of Vascular Plants of NE US and Adjacent Canada by Gleason & Cronquist (1991); The vascular Flora of SE Connecticut by Gordon Tucker (1995), and Flora Novae-Angliae by Arthur Haines (1913). It occurs most often on the coastal plain of Connecticut and in the southwestern part of the state. Open sandy habitats do not occur on this site. Soils are fine sandy loams, not sands. Mesic to moist or wet moisture regimes predominate, and open, sunny areas are very limited, since the site has reverted from pastureland to largely forested habitat. As a group *Rubus* species (brambles) tend to be early-successional colonizers of cleared, non-forested land, and populations dwindle as forest mature.

[6] Tozer, C.D., J. C. Hoare, J. E. Inglis, J. Yaraskabvitch, H. Jitching, and S. Dobbyn. 2014. Clearcut with seed trees in red pine forests associated with increased occupancy by Eastern Whip-poor-wills. Forest Ecology and Management 330:1-7.
[7] Wilson, M.D. and B.D. Watts. 2008. Landscape configuration effects on distribution and abundance f whip-poor-wills. The Wilson Journal of Ornithology 120(4):778-783.

The plant is distinctive, year-round. Stout, curved prickles have red bases; canes have a green color, and leaves are wedge-shaped, obovate, very hairy beneath, and usually trifoliate, persisting well into the fall. This blackberry is at least several feet tall. If present it would not have been missed in a late October survey.

*3.2.2 **Pale Green Orchid*** (*Platanthera flava, var. herbiola*)

(CT Status: Special Concern)

The northern *herbiola* variety of *Platanthera flava*, formerly *Habenaria flava*, grows in moist habitats, including wooded swamps, wet meadows, and shores of waterbodies, according to the botanical references listed above. The *herbiola* variety, per Fernald, occurs more often in open habitats. In the prior century, before the tree canopy had closed, and the Japanese barberry had spread to its current density, the site would have had ample suitable habitat: moist fields and open swamps. Population remnants could persist, especially in the northwestern wetlands and in the north-central area with pole-size woods; search effort was most intense in these areas.

The likelihood of finding this species if growing in small gaps between barberry clumps, would depend on its height, which can range from ten to seventy centimeters. The tapering sizes of the leaves and the long bracts among the flowers are distinctive for this orchid, even when out of bloom, and would still be visible after frost in mid-fall, but small individuals would be very difficult to see among the barberry clumps. In fact no orchids of any species were observed during the survey. A factor reducing likelihood of its presence at the site is that most of the gaps in wetlands supporting native hydrophytic vegetation are associated with seasonally flooded areas, whereas the target orchid does not grow in very wet saturated soils.

4.0 CONCLUSION

In conclusion, though none of these species were observed, it is our professional opinion that portions of the subject site, in its current successional state, are *potentially somewhat* suitable for pale green orchid, and even less for the Eastern whip-poor-will, but not for sand blackberry. However, the severe infestation of Japanese barberry greatly limits the available, suitable habitat for these species. Pale green orchid is more difficult to observe outside its bloom time, especially after frost, but could have been detected, based on other

vegetative characteristics. The high prevalence of Japanese barberry, especially in the site's moist soils, greatly reduces the likelihood of a viable population.

Please call us if you have any questions on the above or need further assistance.

Respectfully submitted,

REMA ECOLOGICAL SERVICES, LLC

George T. Logan, MS, PWS, CSE
Certified Senior Ecologist
Wildlife Biologist

Sigrun N. Gadwa, MS, PWS
Professional Wetland Scientist
Principal Ecologist

Attachments: A: Vegetation inventory
B: Inventory of Observed Avians
C: Figure 2
D: Annotated Photographs (1-35)

ATTACHMENT A: VEGETATION INVENTORY

Conducted on: Friday, October 26, 2018 Route 80, Lot 14B, Killingworth, CT
Conducted by: By Sigrun N. Gadwa, MS

HERBS:

Athyrium felix-femina	lady fern
Arisaema triphyllum	Jack-in-the-pulpit
Brachyeletrum aristosum	long-awned wood reed grass
Cinna arundinacea	wood reed grass
Carex spp.	Laxiflorae sedges
Galium asprellum	Prickly bedstraw
Chimaphila maculata	spotted wintergreen
Dennstaedtia punctilobula	hay-scented fern
Dryopteris carthusiana	Spinulose wood fern
Eurybia divaricata	white wood aster
Geum canadensis	white avens
Onoclea sensibilis	sensitive fern
Osmunda regalis	royal fern
Osmundastrum cinnamomeum	cinnamon fern
Parathelypteris connectilis	New York fern
Panicum clandestinum	deer tongue grass
Polystichum acrostichoides	Christmas fern
Potentilla simplex	European cinquefoil
Maianthemum racemosum	false Solomon's seal
Mitchella repens	partridgeberry
Ranunculus recurvatus	hooked buttercup
Impatiens capensis	Jewelweed
Symplocarpus foetidus	Skunk cabbage
Solidago rugosa	rough stem goldenrod
Symphiotrichum cordifolium	heart-leaved aster
Symphiotrichum lowrieanum	Lowrie's aster
Thalictrum pubescens	tall meadow–rue

SHRUBS AND WOODY VINES:

Berberis thunbergii	Japanese barberry
Celastrus orbiculatus	Asiatic bittersweet
Corylus Americana	American hazelnut

Euonymus alatus	Winged Euonymus
Gaylussaccia baccata	black huckleberry
Rubus hispidus	bristly dewberry
Lindera benzoin	Spicebush
Rubus phoenicolasius	wineberry
Rubus flagellaris	prickly dewberry
Toxidendron radicans	poison ivy
Vaccinium corymbosum	high-bush blueberry
Vitis labrusca	fox grape

TREES:

Acer rubrum	red maple
Acer saccharum	sugar maple
Betula alleghaniensis	yellow birch
Betula lenta	black birch
Betula populifolia	gray birch
Carpinus caroliniana	ironwood
Carya glabra	pignut hickory
Carya ovata	shagbark hickory
Hamamelis virginiana	witch hazel
Fagus grandifolia	American beech
Fraxinus alba	white ash seedling
Fraxinus pensylvanica	green ash seedling
Juniperus virginiana	red cedar
Liriodendron tulipifera	Tulip tree
Nyssa sylvatica	tupelo
Pinus strobus	white pine
Prunus serotina	black cherry
Quercus alba	white oak
Quercus rubra	northern red oak
Quercus velutina	black oak
Tilia Americana	American basswood
Tsuga canadensis	northern hemlock
Ulmus rubra	slippery elm
Ulmus americana	American elm

ATTACHMENT B: AVIAN INVENTORY

Conducted on: Friday, October 26, 2018 Route 80, Lot 14B, Killingworth, CT
Conducted by: By George T. Logan, MS

Buteo jamaicencis	Red-tailed hawk
Meleagris gallopavo	Wild turkey
Zenaida macroura	Mourning dove
Strix varia	Barred owl
Picoides pubescens	Downy woodpecker
Dryocopus pileatus	Pileated woodpecker
Cyaonicitta cristata	Blue jay
Corvus brachyrhynchos	American crow
Corvus corax	Common raven (flyover)
Parus atricapillus	Black-capped chickadee
Parus bicolor	Tufted titmouse
Sitta caroliniensis	White-breasted nuthatch
Regulus calendula	Ruby-crowned kinglet
Catharus guttatus	Hermit thrush
Turdus migratorius	American robin
Bombycilla cedrorum	Cedar waxwing
Dendroica coronnata	Yellow-rumped warbler
Cardinalis cardinalis	Cardinal
Zonotrichia albicollis	White-throated sparrow
Junco hyemalis	Dark-eyed junco
Carduelis tristis	American goldfinch

ATTACHMENTS ***C: FIGURE 2***
D: ANNOTATED PHOTOGRAPHS

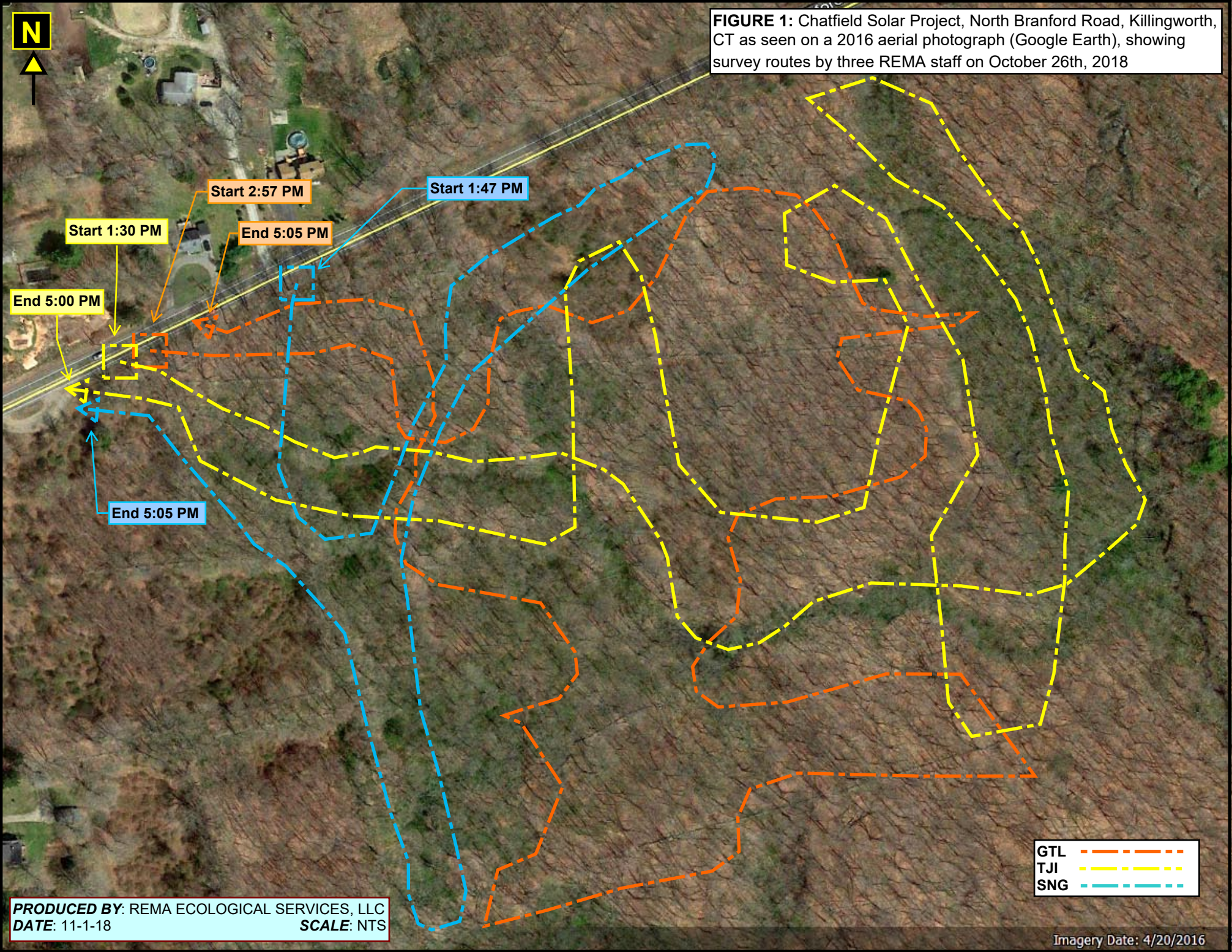


FIGURE 1: Chatfield Solar Project, North Branford Road, Killingworth, CT as seen on a 2016 aerial photograph (Google Earth), showing survey routes by three REMA staff on October 26th, 2018

Chatfield Solar Project, North Branford Road, Killingworth, CT
Photos taken on October 19, 2018, by REMA Ecological Services, LLC

Photo 1: Upland forest – NW section; facing northerly.

Photo 2: Hay scented fern and sparse, low barberry; wetland in background; northwestern section of site; facing southerly.

Chatfield Solar Project, North Branford Road, Killingworth, CT
Photos taken on October 19, 2018, by REMA Ecological Services, LLC

Photo 3: Northwestern wetlands; Spicebush and low Japanese barberry; facing westerly.

Photo 4: Maintained trail; northwestern section of site; facing northeasterly.

Photo 5: Southwestern wetland; spicebush, boulders and barberry; facing northwesterly.

Photo 6: Young spicebush.

Chatfield Solar Project, North Branford Road, Killingworth, CT
Photos taken on October 19, 2018, by REMA Ecological Services, LLC

Photo 7: Moist upland with Japanese barberry; western section; facing northerly.

Photo 8: Old farm road; northern section; facing northerly.

Photo 9: Tulip poplar grove; west-central section; facing northeasterly.

Photo 10: Small clearing with diverse herbs; facing northwesterly.

Photo 11: Tulip poplar grove with grape; facing northeasterly.

Photo 12: West central section; partial clearing; facing easterly.

Photo 13: Avens and Laxiflorae sedges; in northwest section.

Photo 14: Upland forest – southwest section; facing southerly.

Chatfield Solar Project, North Branford Road, Killingworth, CT
Photos taken on October 19, 2018, by REMA Ecological Services, LLC

Photo 15: Southwest property corner; facing northeasterly.

Photo 16: Southwestern moist forest with dense barberry understory; facing southwesterly.

Photo 17: Forested wetland - SW section; facing westerly.

Photo 18: Southwestern wetlands; facing northwesterly.

Photo 19: Southwest wetlands; including seasonally flooded areas; facing northwesterly.

Photo 20: Wetland corridor – SW section; facing southwesterly.

Photo 21: Southwest wetlands; facing northerly.

Photo 22: Laxiflorae sedges and bedstraw – SW section.

Chatfield Solar Project, North Branford Road, Killingworth, CT
Photos taken on October 19, 2018, by REMA Ecological Services, LLC

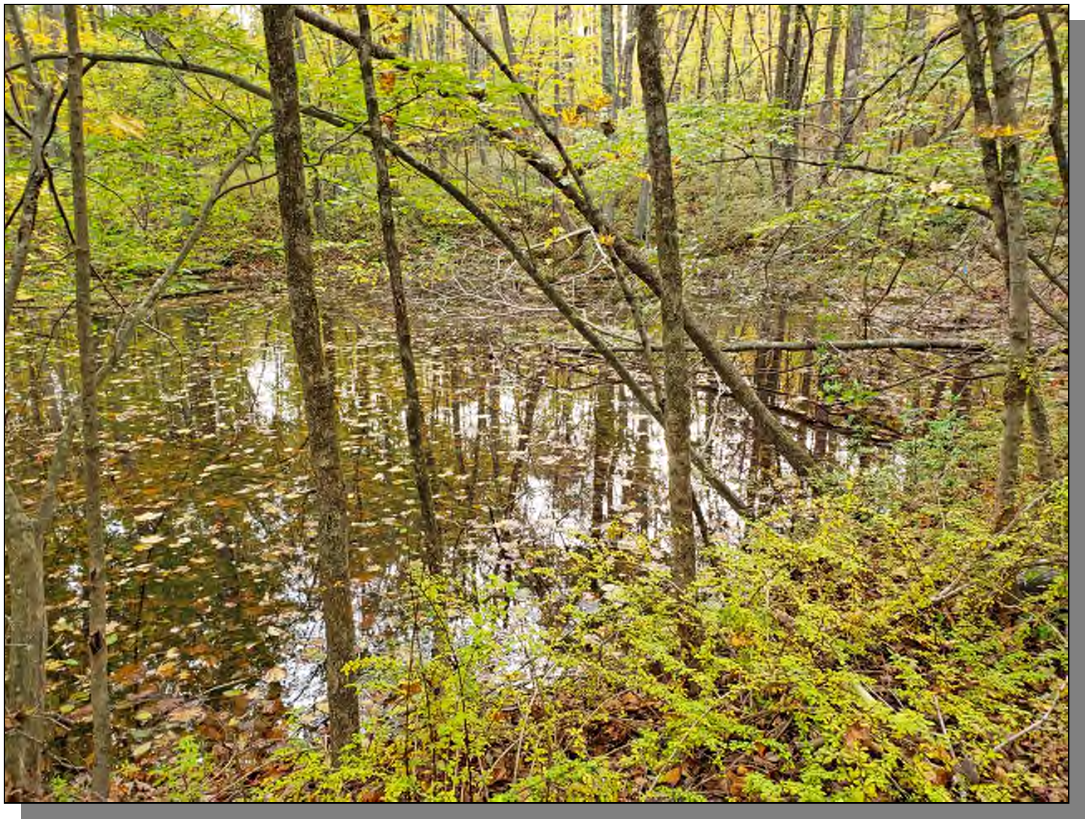


Photo 23: Old farm pond – south central - amphibian breeding habitat; facing southwesterly.

Photo 24: Old farm road – north central; facing southerly.

Chatfield Solar Project, North Branford Road, Killingworth, CT
Photos taken on October 19, 2018, by REMA Ecological Services, LLC

Photo 25: Edge of wetland – north-central section; facing southwesterly.

Photo 26: North-central wetland with potential vernal pool habitat; facing southeasterly.

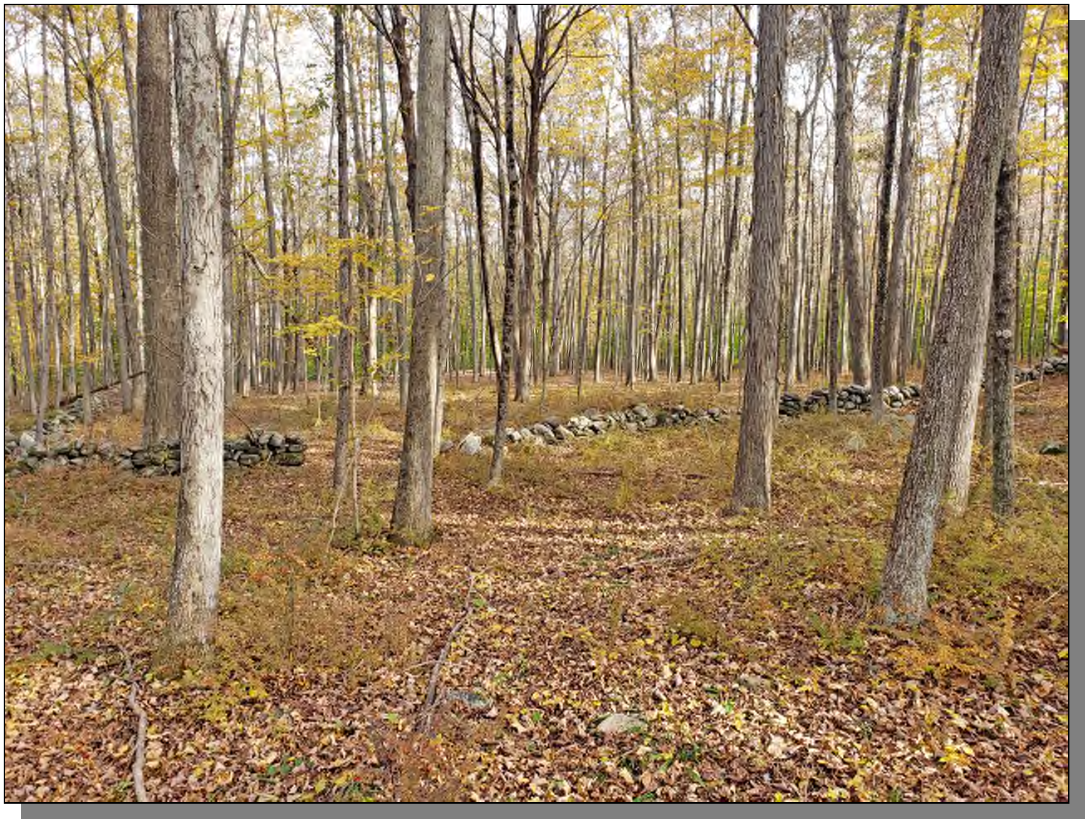


Photo 27: Hardwood forest – NE section; good habitat for whip-poor-will nesting; facing southeasterly.

Photo 28: Hardwood forest - NE section; facing northeasterly.

Photo 29: East-central forested section; facing southwesterly.

Photo 30: East-central forest; facing easterly.

Photo 31: Old pasture reverted to forest; facing northwesterly.

Photo 32: Immature forest in prior old field; facing southerly.

Photo 33: Hermit thrush (*Catharus guttatus*); one of many migrating through the site.

Photo 34: White throated sparrow (*Zonotrichia albicolis*); part of large mixed flock migrating through the site.

Photo 35: Green frog tadpole; one of many observed at old farm pond.

Interrogatory CSC-2-108

Chatfield Solar Fund, LLC | Witness: Alisa Morrison

Petition No. 1354 | Page 1 of 1

Q-CSC-2-108: Referring to the January 3, 2019 submittal to the Council, Appendix A of the December 27, 2018 Addendum uses a proposed condition drainage area description of “wooded (light underbrush)”. Is this representative of post- construction conditions if part of the drainage area will be a grassy solar field?

A-CSC-2-108: After the installation of the solar arrays, the ground cover under the panels will be allowed to return to its natural condition, but with no tree growth allowed. The underbrush will remain. Grass will be planted in areas of grubbing only and natural vegetation will be allowed to infill these areas over time.

Interrogatory CSC-2-109

Chatfield Solar Fund, LLC | Witness: Alisa Morrison

Petition No. 1354 | Page 1 of 1

Q-CSC-2-109: Is a Federal Aviation Administration No Hazard Determination required for this facility? Was any filing made to the FAA?

A-CSC-2-109: Yes, the No Hazard Determination application has been submitted.

Interrogatory CSC-2-110

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: CJ Colavito

Q-CSC-2-110: Please address the comments from Town of Killingworth Fire Marshal that were submitted to the Council on January 4, 2019.

A-CSC-2-110: Regarding the Fire Marshal's comment in connection with site access, there will be multiple means of access at the site, including fire access, and a service lane that will be available for use around the perimeter of the solar facility. This perimeter lane will be underlain with grass, but it will reach all areas of the site.

Regarding the Fire Marshal's comment in connection with on-site water storage, all means to accomplish this request will exceed the restrictions set forth by the Connecticut DEEP for site modification and storm water management.

Regarding the Fire Marshal's comment in connection with forest line clearance, the site as designed has approximately 20ft from the panels to the perimeter fence and 10ft from the perimeter fence to the tree line.

Regarding the Fire Marshal's comment in connection with Connecticut fire codes and the requirement of a non-combustible base, in the 2018 NFPA, this requirement has been replaced with a requirement for a vegetation management plan, which must be approved by an agency having authority. Chatfield will use a vegetation management plan for the project.

Regarding the Fire Marshal's comment in connection with Connecticut fire codes and certain clearance requirements (i.e., a 10ft clearance around a ground-mounted photovoltaic system), Chatfield accomplished this with the design "as-is".