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May 21, 2015

**VIA ELECTRONIC MAIL AND HAND-DELIVERY**

Mr. Robert Stein, Chairman  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

**Re: Petition No. 1150-SolarCity Corporation Petition for a Declaratory Ruling that no Certificate of Environmental Compatibility and Public Need is Required for the Proposed Construction and Operation of a 3.1 Megawatt Community-Shared Solar Photovoltaic Electric Generating Facility Located on Brush Hill Road in Bozrah, Connecticut**

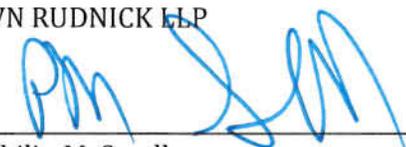
Dear Chairman Stein:

On behalf of SolarCity Corporation ("SolarCity"), we are submitting an original and fifteen (15) copies of SolarCity's Response to Connecticut Siting Council Staff Questions.

Please contact Thomas J. Regan, Esq. at 860-509-6522, or me at 860-509-6575 with any questions or if you need additional information.

Very truly yours,

BROWN RUDNICK LLP

By: 

Philip M. Small  
Counsel for SolarCity Corporation

PMS/jmb

Enclosures

cc: Julie D. Kohler, Esq.  
Mr. William Ballinger

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**STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL**

SOLARCITY CORPORATION PETITION FOR A : PETITION NO. 1150  
DECLARATORY RULING THAT NO CERTIFICATE OF :  
ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED IS :  
REQUIRED FOR THE PROPOSED CONSTRUCTION AND :  
OPERATION OF A 3.1 MEGAWATT COMMUNITY-SHARED :  
SOLAR PHOTOVOLTAIC ELECTRIC GENERATING : MAY 21, 2015  
FACILITY LOCATED ON BRUSH HILL ROAD IN BOZRAH, :  
CONNECTICUT :

**RESPONSE TO CONNECTICUT SITING COUNCIL STAFF QUESTIONS**

SolarCity Corporation hereby responds to the Connecticut Siting Council staff questions issued on May 4, 2015 as follows:

Q1) ATP report RE wetland study.

***Response: Please see attached Exhibit A, Supplemental Wetland Investigation, prepared by All-Points Technology Corporation ("ATP"), dated May 15, 2015, and Exhibit B, Revised Vernal Pool Analysis, prepared by ATP, dated May 15, 2015.***

Q2) ATP report RE bird study.

***Response: Please see attached Exhibit C, Breeding Bird Assessment, prepared by Davison Environmental, LLC, dated April 28, 2015.***

Q3) Tree removal in regards to carbon storage.

***Response: Please see attached Exhibit D, Carbon Debt Analysis, prepared by ATP, dated May 15, 2015.***

Q4) Logging - will logs be chipped on site or removed? If chipped for berms, provide berm details.

***Response: Cleared trees will be used on site to create runoff silt control as shown in attached Exhibit E, Revised Site Plan. Trees and roots will be cleared using mechanical means. The trees and stumps will be ground and chipped on site. The resulting chips will be formed into rows, 6' wide and 2' tall. These will serve as runoff control during the construction process. After construction is complete they will remain on site and degrade back in to the soil. Construction details for the wood chip berm are shown in Sheet 5 of the Revised Site Plan.***

Q5) Stumps - will these be removed from site or buried on site- if so where?

**Response: See Response to Question 4.**

Q6) Retention of stumps between clearing limits and edge of project fence line to reduce soil disturbance.

**Response: As stated in the notes on Sheets 3 and 4 of Exhibit E, Revised Site Plan, "stumps to remain in place in cleared areas outside of proposed fence line."**

Q7) Fence detail showing installation method, mesh size and a clearance for small wildlife passage along bottom edge. Also provide gate detail.

**Response: Exhibit E, Revised Site Plan, Sheet 5 provides the requested information.**

Q8) Details for storm water detention methods/basins.

**Response: See Exhibit E, Revised Site Plan, Sheets 6-7.**

Q9) Frequency of inspections of post construction storm water control features.

**Response: After construction, all storm water control features will be cleaned and inspected to make sure they are operating as designed. Thereafter, annual inspections will be conducted, and silt and debris will be removed as necessary.**

Q10) Detailed sequence of construction events including estimated duration of each task/phase.

**Response: Attached Exhibit F, Construction Schedule for Bozrah – Brush Hill Road Solar Array, provides the requested information.**

Q11) Description of how panels are assembled (concrete poured on site? Direct set into tubs- etc.)

**Response: Once the site is cleared and graded, rack assembly will proceed. The Game Change rack is a surface mounted ballasted system. The rack is built inside large plastic tubs that are then poured-in-place with concrete and allowed to set. These serve to anchor the panels as well as helping the system adhere to the site slopes. After the racking is installed, solar modules are mounted to the rack. Each row will have panels mounted in portrait, one panel high. The panels are then wired together in groups of "strings" of 18 modules. These strings are then combined in the inverter. Inverters are mounted centrally on concrete slab foundations as detailed in Exhibit E, Revised Site Plan. The inverters convert the DC power supplied by the panels into AC power that can be connected to the electric grid. The AC power lines will be installed along with the inverters. All power will be brought together at the utility switchgear located adjacent to Brush Hill Road. There it will be metered and connected to the Bozrah Light and Power Company electric lines.**

Q12) Seed mix detail-is it slow growth seed? If so, how long does it take to grow under normal weather conditions – when is optimum time to sow?

**Response:** *Due to the current construction schedule the site will not be ready for final seeding until the spring of 2016. At the end of construction in October, 2015 the site will be mulched. In the spring of 2016 after April 15<sup>th</sup> the site will be seeded with Crown Vetch, Perennial Ryegrass, Creeping Red Fescue, and Redtop. The grass is designed to be low growth so it does not obstruct the solar panels. The grass will be maintained at least 4 times per year.*

Q13) Clarify language on page 4 - states existing access will be used but at field review, access described as through a wooded road buffer along road.

**Response:** *The proposed access road will be located slightly north of existing access road. The new road will be perpendicular to Brush Hill Road and provide a safe access point to the site. The existing access road area will be landscaped as shown in Exhibit E, Revised Site Plan, Sheet 3.*

Q14) Clearing and Landscape detail along Brush Hill Road.

**Response:** *The existing wooded buffer must be cleared for the installation of the solar arrays. See Exhibit E, Revised Site Plan, Sheets 3 and 6 for the proposed landscaping plan.*

Q15) Statement regarding blasting.

**Response:** *As described in the notes on Sheet 5 of Exhibit E, Revised Site Plan, drilling and blasting is not anticipated and will be avoided as much as possible for this project. If blasting is required, a pre-blasting survey will be completed, and blasting would be performed in accordance with applicable local, state, and federal requirements.*

Q16) Clarify language on page 4 and 7 regarding distance to vernal pool- lists 600 feet then 390 feet.

**Response:** *See Exhibit B, Revised Vernal Pool Analysis, page 2. There is one vernal pool habitat located approximately 380 feet east of the Site. As described in Exhibit B: "This vernal pool feature is hydraulically isolated from all on-site wetlands resources and occurs at a location that affords significant vegetated and topographic buffering to the vernal pool feature, including from the Subject Property."*

Q17) Description of post development vehicle visits (annual).

**Response:** *Traffic to the site after construction is complete will be minimal. Four times per year the site will be mowed. Annual maintenance of the electrical equipment will occur once per year. Any equipment that breaks down will be repaired on an as needed basis. Annual maintenance will typically be two technicians for a day.*

Q18) Preliminary utility design.

**Response: Preliminary utility locations per Bozrah Light and Power Company are shown in Exhibit E, Revised Site Plan, Sheet 3.**

Q19) Description of discussions with Town, when and what.

**Response: We continue an active dialogue with the Town of Bozrah. We have received comments on a request for a vegetative buffer which we have addressed to the Town's satisfaction. On May 18, we received a second set of comments from the Town Engineer that we responded to. We will continue to work with the Town if more questions are raised, but believe the Town is generally supportive of the proposed solar development. Exhibit G, Bozrah Correspondence, contains recent emails and letters between Project representatives and the Town regarding issues within the Siting Council's authority.**

Respectfully submitted,

SOLARCITY CORPORATION

By: 

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Brown Rudnick LLP  
185 Asylum Street  
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Phone: (860) 509-6500  
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Its Attorney

## **LIST OF EXHIBITS**

EXHIBIT A - SUPPLEMENTAL WETLAND INVESTIGATION

EXHIBIT B - REVISED VERNAL POOL ANALYSIS

EXHIBIT C - BREEDING BIRD ASSESSMENT

EXHIBIT D - CARBON DEBT ANALYSIS

EXHIBIT E - REVISED SITE PLAN

EXHIBIT F - CONSTRUCTION SCHEDULE FOR BOZRAH – BRUSH HILL ROAD SOLAR ARRAY

EXHIBIT G - BOZRAH CORRESPONDENCE

# EXHIBIT A

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## *SUPPLEMENTAL WETLAND INVESTIGATION*



**SUPPLEMENTAL WETLAND  
INVESTIGATION**

**May 15, 2015**

**Brightfields Development, LLC  
40 Walnut Street, Suite 301  
Wellesley, MA 02481**

**APT Project No.: CT443100**

**Attn: Michael Singer**

**Re: Proposed 3.1 Megawatt Solar Facility  
80 Brush Hill Road  
Bozrah, Connecticut**

Dear Mr. Singer,

All-Points Technology Corporation, P.C. ("APT") understands that a solar array project ("Project") is proposed by Brightfields Development, LLC ("Brightfields") at 80 Brush Hill Road in Bozrah, Connecticut ("Subject Property"). Soil Scientists with APT originally conducted an inspection of the Subject Property on August 23, 2014 to review and confirm wetland boundaries identified during a previous inland wetlands investigation/delineation performed in 2007 by Demian A. Sorrentino of Boundaries LLC. Mr. Sorrentino identified four (4) regulated areas, consisting primarily of seasonal intermittent watercourse channels formed in moderately to steeply sloping, thin glacial till and exposed bedrock. Please refer to the attached Wetland Map for the locations of these features.

No flowing or standing water was observed in any of the identified intermittent watercourse/wetland features during APT's August 23, 2014 investigation. A review of Mr. Sorrentino's delineation was found to be substantially correct at that time. However, a comprehensive assessment of the hydrology conditions within these features was not possible due to the late summer (dry) conditions. Upon further inspection of these areas during the spring of 2015, field conditions that would conclude that these features should be regulated under Connecticut's Inland Wetlands and Watercourses Act ("IWWA")<sup>1</sup> intermittent watercourse definition were not observed. In situations where the hydrology needed to support intermittent watercourse features is in question, such as on the Subject Property, an evaluation is best performed during the spring when the peak hydroperiod occurs. This is particularly true when the intermittent watercourse in question appears to have a very short-duration hydroperiod and it is questionable if it supports flows beyond a particular storm event.

The IWWA defines intermittent watercourses by a defined permanent channel and bank and the occurrence of two or more of the following characteristics: 1) evidence of scour or deposits of recent alluvium or detritus, 2) the presence of standing or flowing water for a duration longer than a particular storm incident, and 3) the presence of hydrophytic vegetation.

In addition to actual field observations, the small watershed areas that feed each of these intermittent watercourse features also provides a basis to question if sufficient base flow (groundwater discharge) supports a continuation of flow beyond a particular storm event in any of these features. The watershed sizes for each of these intermittent watercourses are as follows: Wetland 1 = 4 acres; Wetland 2 = 9 acres; Wetland 3 = 4.2 acres; and, Wetland 4 = 5.9

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<sup>1</sup> sections 22a-36 through 22a-45 of the General Statutes of Connecticut

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acres.<sup>2</sup> A Vermont USGS study on estimating the probability of a stream having intermittent flow (as opposed to perennial flow) identified the minimum drainage area in their study for intermittent watercourses as 32 acres.<sup>3</sup> Although this study does not evaluate whether a stream is intermittent or not, it does provide anecdotal information with respect to the minimum drainage area for intermittent watercourses. The watersheds that feed the Subject Property's topographic swale features are 3.5 to 8 times smaller than this minimum drainage area.

The four intermittent watercourse features were inspected during the afternoon of April 21, 2015 following over two inches of precipitation that fell between April 20, 2015 and early morning of April 21<sup>st</sup>.<sup>4</sup> This condition was considered to represent a peak hydroperiod event and suitable for observation of flow immediately following the storm event and to determine if flow persisted beyond that precipitation event. Observations from April 21<sup>st</sup> are summarized below:

Wetland 1 – Shallow, discontinuous flows of 3-4 inches in depth were noted; no well-defined permanent channel and bank; flows observed on top of bedrock and pushing leaf duff; no flows or standing water observed near the northern property boundary.

Wetland 2 – The lower (southern) section contained 2-3 inches of shallow, discontinuous flows; no well-defined permanent channel and bank; flows on top of bedrock and pushing leaf duff; no flows observed at northeastern property boundary. The upper (eastern) section contained no flows with no permanent channel or bank; the upper (western) section contained shallow, discontinuous flows of 1 inch or less with a bedrock-formed channel.

Wetland 3 – The depressional area located in the western end of this feature does not have physical qualities of an intermittent watercourse; 3-4 inches of inundation was observed with no amphibians or evidence of breeding. The outlet that provides seasonal flow to the east contained 1 inch or less of shallow flow, no permanent channel or bank.

Wetland 4 – No flows at the end of the swale at the northeastern property boundary; no well-defined permanent channel and bank; shallow, discontinuous flows 1-2 inches in depth in lower (eastern) section reach, upper (western) section contained discontinuous, shallow flows of 1/2 inch or less over bedrock with significant portions of no flow or standing water.

Within two days of the May 21<sup>st</sup> inspection, no flows were observed in any of these areas and the shallow depressional area in Wetland 3 had lowered to 1 inch of inundation. Therefore it was determined that these intermittent watercourses do not sustain base flow beyond a particular storm event.

An investigation of soils on the Subject Property revealed bedrock controlled topography with areas of exposed bedrock and thin glacial till, generally less than three (3) feet deep. All four of the drainage features have formed in bedrock-controlled topographic swales that focus surface drainage. In addition, some of these features have been altered during previous logging operations as evident by skid trails that either run parallel or perpendicular to these drainage features, resulting in man-made eroded channels. The surficial and bedrock geologic conditions on the Subject Property result in relatively rapid runoff of stormwater due to the limited capacity of the thin glacial till soils and underlying bedrock to absorb rainfall and therefore provide groundwater discharge base flow. As a result, particularly during the spring and likely during intense summer precipitation events, runoff infiltrates relatively quickly through the thin till then runs along the bedrock surface following the topographic swales. Although observations of flow patterns pushing leaf duff aside and into small drifts, a permanent channel and bank are generally absent from these topographic swale features and where it does exist it is discontinuous in nature.

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<sup>2</sup> Boundaries LLC. Stormwater Management Report. October 2014 (Revised December 2014), 257 p.

<sup>3</sup> Olson, S.A., and Brouillette, M.C., 2006, A logistic regression equation for estimating the probability of a stream in Vermont having intermittent flow: U.S. Geological Survey Scientific Investigations Report 2006-5217, 15 p.

<sup>4</sup> National Oceanic & Atmospheric Administration daily precipitation data.

Even if a defined permanent channel and bank is assumed (as one could possibly argue that discontinuous portions of permanent channel and bank exists sporadically along these topographic swale features), one still needs the occurrence of two or more of the following characteristics: 1) evidence of scour or deposits of recent alluvium or detritus, 2) the presence of standing or flowing water for a duration longer than a particular storm incident, and 3) the presence of hydrophytic vegetation in order to classify as an intermittent watercourse. Documentation collected during the spring of 2015 reveals a lack of hydrophytic vegetation and a lack of standing or flowing water for a duration longer than a particular storm event. Along some portions of these topographic swales scour and deposits of detritus were noted. Based on this evidence, the features referred to as Wetlands 1, 2, 3, and 4 are not considered to have sufficient characteristics to be defined as an intermittent watercourse under Connecticut Inland Wetlands and Watercourse Act regulations.

Wetland 3 was thoroughly investigated to determine if it contained soil conditions to be regulated as a wetland under IWWA regulations. Wetland 3 consists of a shallow topographic depression of thin glacial till soils in a bedrock controlled landscape. The maximum inundation observed during the spring of 2015 was 3 to 4 inches. No amphibians or evidence of breeding were observed within Wetland 3. Therefore, this wetland is not considered to support possible vernal pool breeding habitat. A detailed survey of soil profiles was conducted on May 12, 2015 to document the drainage classification of soils contained within this topographic depressional feature. Soil profiles were found through hand dug test pits to exhibit characteristics of moderately well to well drained soils. Classification of soil profiles were recorded from test pits located at the lowest elevations within this shallow depressional feature. Soil test pit logs and photo documentation of the soil profiles and test pit locations are attached. This shallow topographic depression is highly ephemeral and does not maintain a sufficiently long hydroperiod to develop poorly drained soil conditions or discharge of flow beyond a particular storm event. Based on this evidence, the feature referred to as Wetland 3 is not considered to have sufficient characteristics as a wetland, watercourse or vernal pool as defined by the IWWA regulations.

Although these areas would not be regulated as intermittent watercourse or wetland areas under the IWWA, they do provide some water quality function via biofiltration and wildlife habitat as a result of their ephemeral hydrology (flows only during or immediately after rainfall or snow melt). These ephemeral areas eventually transition into zero order intermittent watercourse features and then wetland areas off the Subject Property. As such, the Wetland Protection Program detailed in Appendix B of the previously submitted March 2015 Environmental Assessment prepared by APT and included in the Connecticut Siting Council Petition filing is still recommended. This protection program will not only aid in protection of the functions supported by the topographic swales located on the Subject Property but will also protect downgradient intermittent watercourse and wetland resources located off site.

If you have any questions regarding the above-referenced information, please feel free to contact me by telephone at (860) 663-1697 ext. 201 or via email at [dgustafson@allpointstech.com](mailto:dgustafson@allpointstech.com).

Sincerely,

All-Points Technology Corporation, P.C.

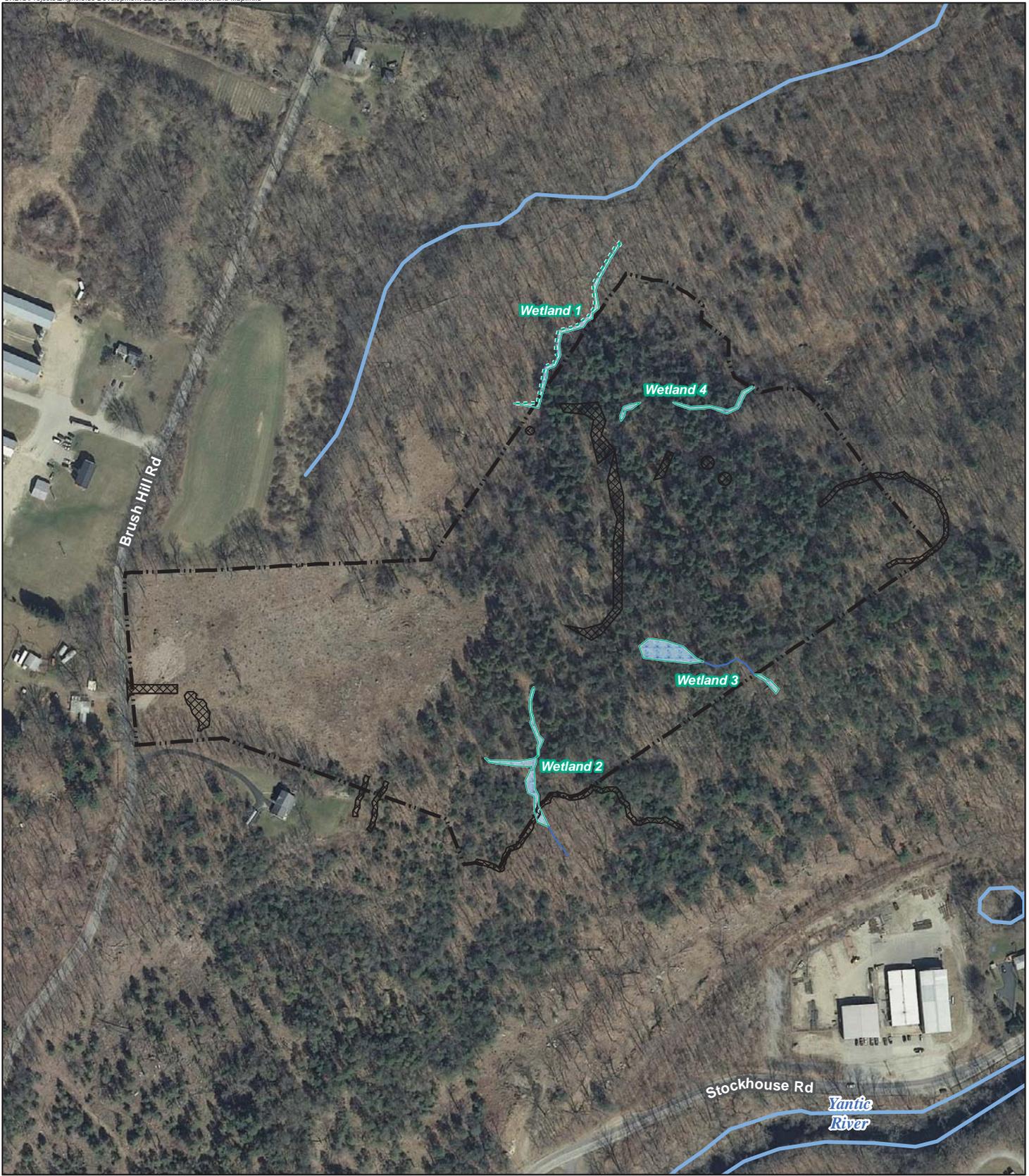


Dean Gustafson  
Professional Soil Scientist  
Senior Wetland Scientist

Enclosures

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# Wetland Map



**Legend**

-  Site (+/- 25.20 Acres)
-  Exposed Ledge
-  CTDEEP Watercourse
-  Field Delineated Watercourse
-  Wetland Line
-  Approximate Wetland Line
-  Wetland Area

**Wetland Map**

Proposed Solar Facility  
 80 Brush Hill Road  
 Bozrah, Connecticut 06334

*Map Notes:*  
 Base Map Source: 2012 Aerial Photograph (CTECO)  
 Map Scale: 1 in = 300 ft Map Date: May 2015



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# Soil Test Pit Logs and Photo Documentation

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## Test Pit TP3-1

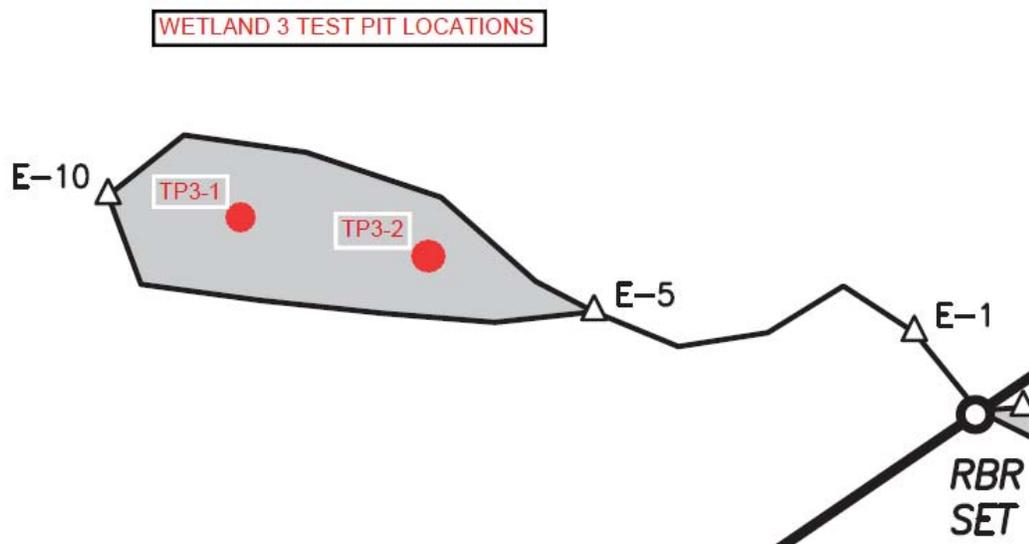
Horizon	Depth	Description
Oe	1 to 0 inches	Partially decomposed leaf litter
A	0 to 3 inches	Very dark Gray (10YR 3/1) fine sandy loam, weak fine granular structure, friable; common fine and medium roots; clear wavy boundary.
Bw1	3 to 12 inches	Dark yellowish Brown (10 YR 4/4); fine sandy loam; moderate medium subangular blocky structure, firm; clear wavy boundary.
Bw2	12 to 22 inches	Yellowish Brown (10 YR 5/6); fine sandy loam; moderate medium subangular blocky structure, firm; clear wavy boundary.
B/C	22 to 28 inches	Yellowish Brown (10 YR 5/4); fine sandy loam; moderate medium subangular blocky structure, firm; clear wavy boundary.
Cr	28 to 37 inches	Weathered schist bedrock.

Bottom of excavation: 37 inches

Depth to Free Water: 16 inches

Date: May 12, 2015

Sketch: TP3-1 located in lowest elevation of topographic depression.



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## Test Pit TP3-2

Horizon	Depth	Description
Oe	2 to 0 inches	Partially decomposed leaf litter
A	0 to 2 inches	Very dark Brown (10YR 2/2) fine sandy loam, weak fine granular structure, friable; common fine and medium roots; clear wavy boundary.
Bw1	2 to 14 inches	Yellowish Brown (10 YR 5/6); fine sandy loam; moderate medium subangular blocky structure, firm; clear wavy boundary.
Bw2	14 to 28 inches	Dark yellowish Brown (10 YR 3/6); fine sandy loam; moderate medium subangular blocky structure, firm; clear wavy boundary.
C	28 to 37 inches	Dark yellowish Brown (10 YR 4/4); fine sandy loam; moderate medium subangular blocky structure, firm; clear wavy boundary.
R	37 inches	Competent schist bedrock.

Bottom of excavation: 37 inches

Depth to Free Water: 26 inches

Date: May 12, 2015

Sketch:

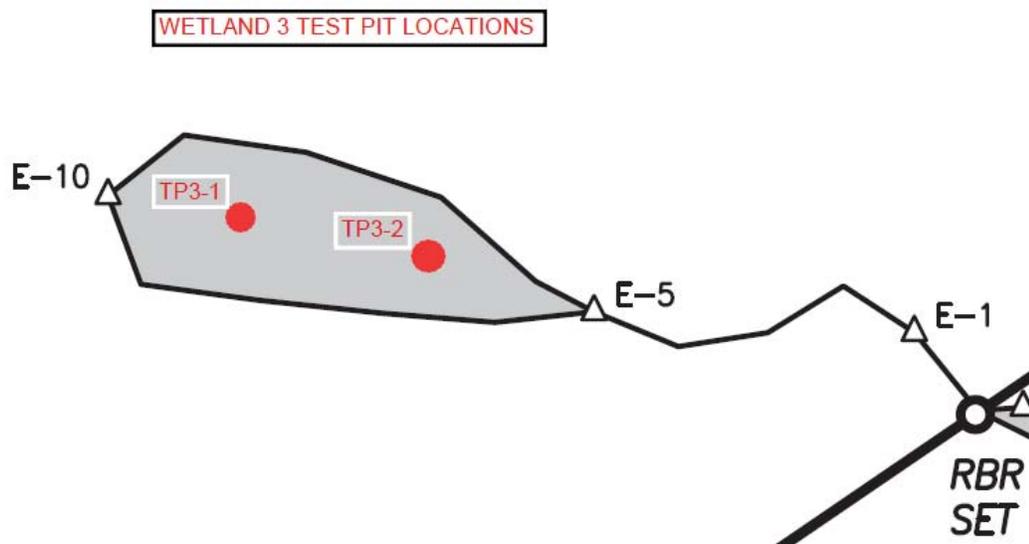




Photo 1: View of soil profile TP3-1.



Photo 2: View of TP3-1 soil test pit, looking northwest from between wetland flags WF E-12 and E-13.



Photo 3: View of soil profile TP3-2.



Photo 4: View of TP3-2 soil test pit, looking northwest from wetland flag WF E-13.

# EXHIBIT B

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## *REVISED VERNAL POOL ANALYSIS*



## **REVISED VERNAL POOL ANALYSIS**

May 15, 2015

**Brightfields Development, LLC  
40 Walnut Street, Suite 301  
Wellesley, MA 02481**

**APT Project No.: CT443100**

**Attn: Michael Singer**

**Re: Proposed 3.1 MW Solar Array Project  
80 Brush Hill Road  
Bozrah, Connecticut**

Dear Mr. Singer,

All-Points Technology Corporation, P.C. ("APT") understands that a solar array project ("Project") is proposed by Brightfields Development, LLC ("Brightfields") at 80 Brush Hill Road in Bozrah, Connecticut ("Subject Property"). At your request, APT has completed an update of an earlier assessment of potential impacts to vernal pool habitat located proximate to the Subject Property which may be affected by proposed construction of the Project. This revised evaluation is based on recent field inspections performed on April 9, 11 and 30, 2015 by APT and Davison Environmental<sup>1</sup> (the April 11<sup>th</sup> survey was a nighttime survey only performed by APT) along with a review of site plans prepared by Solar City (titled 3, 163.86 KW Solar PV System for Connecticut Municipal Electric Cooperative – Bozrah dated 1/27/2015). The findings of this revised assessment are presented below.

### **Introduction**

APT wetland scientists conducted an initial inspection of the Subject Property on August 23, 2014 to confirm the presence and extent of previously flagged wetlands and watercourses by others. Numerous additional visits to the Subject Property occurred in 2014 and 2015, including most recently, a wetlands inspection performed on May 12, 2015 to assess wetland conditions within approximately 200 feet of proposed development activities ("Study Area"). A summary of our findings are provided below.

The Project in its entirety would encompass approximately 15.8 acres of the Subject Property to facilitate the installation of the solar arrays and associated equipment. Areas to be occupied by solar arrays, associated equipment and access total 11.5 acres. This includes the removal of approximately nine (9) acres of upland mature forest. The proposed development area includes only areas where moderate slopes exist ( $\pm 1-8\%$ ) and where re-grading can be generally accomplished without significant cuts and fills. The proposed solar array would be comprised of approximately 10,206 310 watt Hanwha solar modules, each measuring approximately 6.4 feet by 3.25 feet and up to four (4) utility scale inverters. The facility would utilize cast-in-place concrete ballasts and racking system with individual panels placed at a 25° tilt to the south. The solar array areas will be re-graded with existing or imported soil covered with a minimum of 4 inches of seeded topsoil. Developed areas beyond the arrays and underlying grass would also be sown with a grass mixture and maintained (occasional mowing) to suppress tree

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<sup>1</sup> Davison Environmental was not involved in the vernal pool evaluation or protective measure recommendations.

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growth. A gravel access drive will extend from Brush Hill Road eastward along the southern side of the development. The Project would be surrounded by a 6-foot tall chain link fence.

The Subject Property consists of an approximately 25.2-acre undeveloped parcel. The Study Area for the wetland investigation is dominated by complexes of upland/wetland forested and scrub/shrub habitats, maintained open field areas, and exposed bedrock ridges/outcroppings. The Subject Property in its entirety does not contain any vernal pool habitat features, however vernal pool habitat was observed in the vicinity of the Subject Property to the east within a historic, relatively small, isolated quarry depression. The surrounding land use generally consists of agricultural use to the north and west and large forested blocks to the east, northeast, and south.

### **Revised Vernal Pool Impact Analysis**

No direct impact to wetlands will result from the proposed Brightfields development. While an inspection of these on-site wetland resources did not reveal any potential vernal pool habitat, the observations in 2014 of two wood frog (*Lithobates sylvaticus*) metamorphs and one adult in the northwest corner of the Subject Property necessitated further inspection of potential off-site vernal pool habitat. Since the timing was not ideal back in the summer/fall of 2014 to conclusively identify vernal pool breeding habitat, APT conservatively estimated areas of potential vernal pool habitat and identified a potential vernal pool area to the north. With the advantage of spring season in 2015, the ideal time to evaluate potential vernal pool breeding habitat, APT has been able to refine the extent of our previous conservative findings. The three April 2015 inspections determined the location, extent and nature of any vernal pool breeding habitat located within 750 feet of the Subject Property. No vernal pool habitat was identified on the Subject Property, with the following herpetofauna observed on site: gray treefrog (*Hyla versicolor*), brown snake (*Storeria dekayi*), red back salamander (*Plethodon cinereus*), northern spring peeper (*Pseudacris crucifer*) and American toad (*Anaxyrus americanus*). These inspections determined that the potential vernal pool habitat identified in 2014 previously thought to provide cryptic style vernal pool habitat north of the Subject Property did not contain any adult vernal pool obligate species or evidence of breeding. The three inspections, including a night visit on April 11, 2015, did confirm one vernal pool habitat located  $\pm 380$  feet east of the Subject Property. This resource is a deep depression (approximately 2 feet in depth of inundation at the time of inspection) east of a steep rock face/cut with seasonal seepage exfiltrating from the rock face/cut. Three wood frog egg masses and one spotted salamander (*Ambystoma maculatum*) egg mass were observed within the pool, in addition to a spotted salamander adult. This vernal pool feature is hydraulically isolated from all on-site wetland resources and occurs at a location that affords significant vegetated and topographic buffering to the vernal pool feature, including from the Subject Property.

### ***Physical Impact to Vernal Pool and Surrounding Terrestrial Habitat***

This section details a recognized scientific method for analyzing the potential impact a Project may have on a particular vernal pool and its surrounding upland habitat.

Construction and operation of the Facility would not result in direct physical impact to the off-site vernal pool. It is widely documented that vernal pool dependent amphibians are not only solely dependent upon the actual vernal pool habitat for breeding and egg and juvenile development but require surrounding upland habitat for most of their adult lives. Recent studies recommend protection of adjacent habitat up to 750 feet from the vernal pool edge for obligate pool-breeding amphibians.<sup>2</sup>

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2 Calhoun, A.J.K. and M.W. Klemens. 2002. Best Development Practices (BDPs): Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States. WCS/MCA Technical Paper No. 5.

In order to evaluate potential impacts to this vernal pool and its surrounding upland habitat, the resource was assessed using methodology developed by Calhoun and Klemens (2002). This methodology assesses vernal pool ecological significance based on two parameters: 1) biological value of the vernal pool, and 2) conditions of the critical terrestrial habitat. The biological rating is based on the presence of federal or state-listed species and abundance and diversity of vernal pool indicator species. (Note: based on the observations of two obligate vernal pool species breeding in this vernal pool, the highest biological value is assigned.) The terrestrial habitat is assessed based on the integrity of the vernal pool envelope (within 100 feet of the pool's edge) and the critical terrestrial habitat (within 100-750 feet of the pool's edge). A priority rating of Tier I was assigned to the off-site vernal pool, with Tier I considered to have relatively high breeding activity and relatively intact terrestrial habitat<sup>3</sup> (Tier II and III pools represent lower amphibian productivity and fragmented terrestrial habitat). Pools with 25% or less developed areas in the critical terrestrial habitat are identified as having high priority for maintaining less than 25% development within this terrestrial habitat, including site clearing, grading and construction<sup>1</sup>.

The vernal pool evaluated in this assessment was rated based on these criteria for both the existing condition and the proposed condition (e.g., Brightfields' proposed development) to determine if the proposed development would result in a reduction in the tier rating system or reduce the terrestrial habitat integrity below the critical 75% non-development criterion. As previously discussed, the vernal pool currently has the highest conservation priority rating of Tier I. The results of this analysis show that the proposed development will not result in further degradation of the existing tier rating or terrestrial habitat integrity of the vernal pool due to the small amount of disturbance associated with the development of the proposed Facility. The vernal pool envelope will not be impacted as the proposed development (proposed eastern extents of the solar arrays) is located approximately 570 feet west of the identified vernal pool. The total area of the critical terrestrial habitat associated with the vernal pool, which primarily includes undeveloped forested land located off the Subject Property, is ±41 acres with ±2 acres consisting of existing industrial development. Please refer to the enclosed Vernal Pool Analysis Map. This equates to approximately 5% of the critical terrestrial habitat as being already developed. A small portion of the proposed solar array encroaches into the critical terrestrial habitat, resulting in proposed development of ±2 acres, which represents an increase of only ±5% of the total critical terrestrial habitat of the vernal pool. Therefore, the proposed Brightfields development represents a de minimis increase in development of the vernal pool's critical terrestrial habitat and does not result in the tipping point of reduction below the 75% non-development criterion<sup>4</sup>. Therefore, the proposed development will not result in a likely adverse impact to existing amphibian productivity and will not result in long-term adverse impact to the terrestrial habitat considering the relatively small area of development and substantial vegetated buffer separating the vernal pool from the proposed development.

The potential exists for possible short-term impact to herpetofauna associated with the nearby vernal pool habitat due to possible encounters with migrating and basking individuals that may intercept the proposed development footprint during construction. Short-term impacts associated with the proposed development within the terrestrial habitat proximate to the vernal pool would be minimized by the proper installation and maintenance of erosion and sedimentation controls in accordance with *2002 Connecticut Guidelines For Soil Erosion and Sediment Control*. Best Management Practices ("BMPs"; Calhoun and Klemens, 2002) are proposed during construction in a subsequent section of this document to avoid/minimize the potential for short-term impact to herpetofauna.

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<sup>3</sup> Vernal Pool Assessment Sheet (source: Calhoun and Klemens 2002)

<sup>4</sup> This threshold is generally used for prioritizing vernal pool conservation efforts: Calhoun, A.J.K. and M.W. Klemens. 2002. Best Development Practices (BDPs): Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States. WCS/MCA Technical Paper No. 5. Pg. 10.

### ***Hydraulic Alterations***

Land-use changes (i.e., clearing, increases in impervious surface) can increase surface runoff in the watershed of a vernal pool. Direct inputs of stormwater flows into a pool may produce sudden water level increases in a short period of time and may lengthen the duration of flooding (hydroperiod). Diversion of stormwater flows past a pool may have the opposite effect of decreasing water levels and shortening the pool's hydroperiod. In addition, stormwater features that create temporary pools of water can result in a biological "sink" as breeding amphibians deposit eggs into a water body without the necessary hydraulic period to allow for successful development of the eggs into juveniles.

The proposed development will not alter existing surface or subsurface flow conditions or directions. Site clearing and grading activities will not de-water the nearby vernal pool or alter surface water drainage patterns associated with the pool. Impervious surfaces associated with the proposed Brightfields project have been minimized with the use of a gravel surface within the Project area. Therefore, the proposed development will not alter the hydrology of the nearby vernal pool. In addition, no stormwater management features are proposed that would result in creation of a temporary "decoy" pool and "sink" features, which could potentially affect breeding amphibians intercepted on their migration to the nearby vernal pool.

### ***Vernal Pool Recommended Best Management Practices***

As a result of the proposed development's location in the vicinity of vernal pool terrestrial habitat, BMPs are recommended to protect wetland resources from temporary impacts and avoid unintentional impact or mortality to vernal pool herpetofauna (i.e., spotted salamander, wood frog, turtles, etc.) during construction activities. In addition to the Wetland Protection Program detailed in the previously submitted March 2015 Environmental Assessment prepared by APT and included in the Connecticut Siting Council Petition filing, an isolation barrier (i.e., silt fence) is recommended to surround the entire eastern end of the Project area in order to discourage amphibian migration into the work zones. The details of the recommended BMPs are principally addressed in Appendix B of the Environmental Assessment document with final details to be provided should the site be approved by the Connecticut Siting Council. With incorporation of these protective measures, no likely adverse impact to this nearby vernal pool or herpetofauna utilizing the breeding and surrounding terrestrial habitat would result from the proposed development.

If you have any questions regarding the above-referenced information, please feel free to contact me by telephone at (860) 663-1697 ext. 201 or via email at [dgustafson@allpointstech.com](mailto:dgustafson@allpointstech.com).

Sincerely,

All-Points Technology Corporation, P.C.

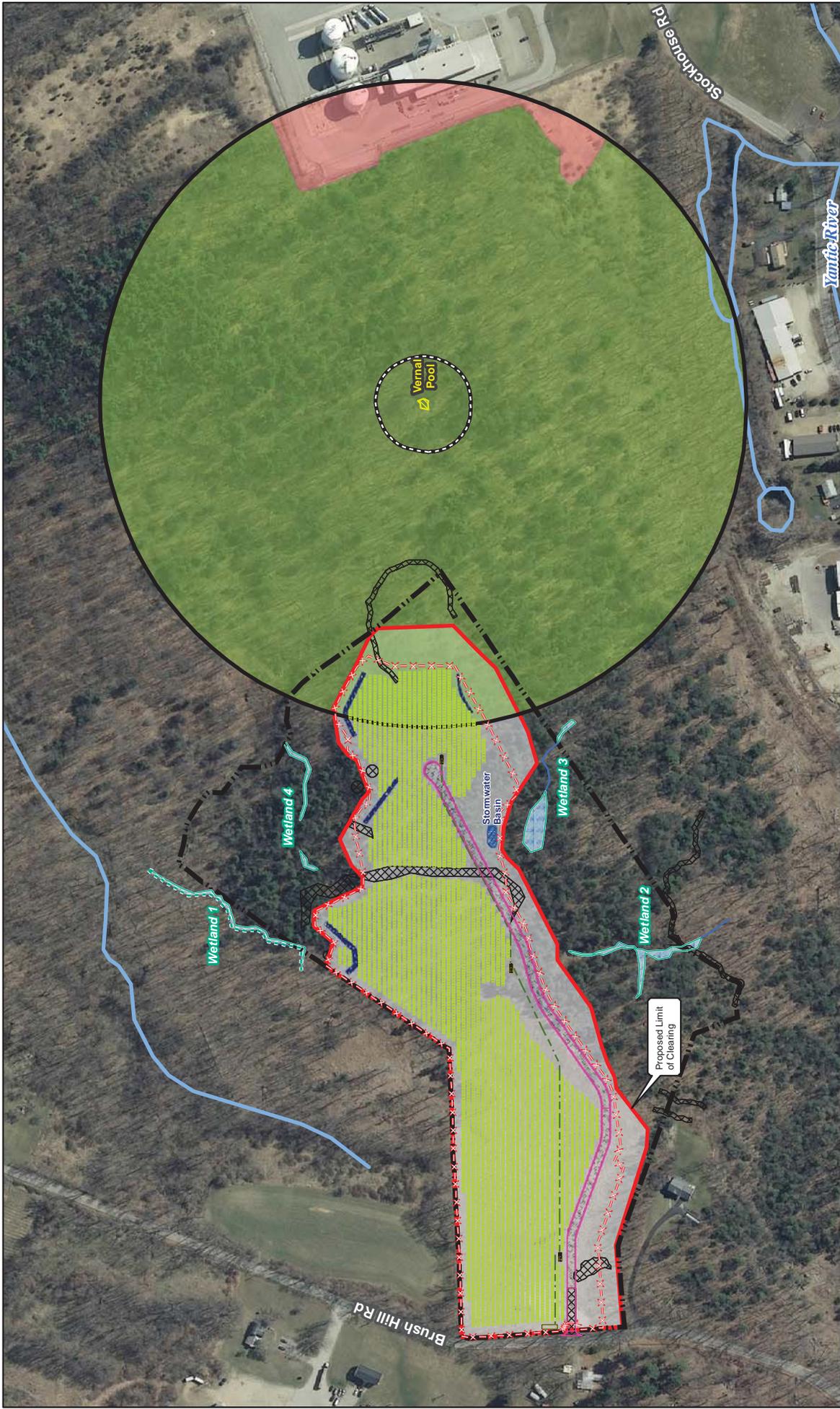


Dean Gustafson  
Senior Wetland Scientist

Enclosure

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# Vernal Pool Analysis Map



**Legend**

- Site (+/- 25.20 Acres)
- Proposed Limit of Clearing
- Proposed Chain Link Security Fence
- Proposed Solar Module Conduit
- Proposed Solar Modules
- Proposed Equipment
- Proposed 20' Gravel Access Drive
- Proposed Stormwater Basin
- Proposed Infiltration Trench
- Exposed Ledge
- Vernal Pool
- 100' Vernal Pool Envelope
- 100'-750' Critical Terrestrial Habitat Area
- CTDEEP Watercourse
- Field Delineated
- Watercourse
- Wetland Line
- Approximate Wetland Line
- Wetland Area
- Critical Terrestrial Habitat Type
- Developed
- Undeveloped - Forested
- Proposed Cover Type
- Developed Maintained Field
- Gravel Access Road

**Vernal Pool - Total 100'-750' Critical Terrestrial Habitat Area: ±41 acres**

**Existing Critical Terrestrial Habitat Areas:**

Developed	±2 acres	5%
Undeveloped	±39 acres	95%

**Proposed Critical Terrestrial Habitat Areas:**

Developed	±4 acres	10%
Undeveloped	±37 acres	90%

**No Impact to 100' Cryptic Vernal Pool Envelope (+/-0.9 acres)**

**Vernal Pool Analysis Map**

Proposed Solar Facility  
 80 Brush Hill Road  
 Bozrah, Connecticut 06334



# EXHIBIT C

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## *BREEDING BIRD ASSESSMENT*



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Biodiversity Studies • Wetland Delineation & Assessment • Habitat Management • GIS Mapping • Environmental Permitting

## Breeding Bird Assessment

80 Brush Hill Road, Bozrah

**Prepared for:**

Brightfields Development, LLC  
40 Walnut Street, Suite 301  
Wellesley, MA 02481

**Prepared by:**

A handwritten signature in blue ink that reads "Eric Davison".

Eric Davison  
Wildlife Biologist  
Davison Environmental, LLC  
10 Maple Street  
Chester, CT 06412

April 28, 2015

## 1.0 Introduction

On behalf of Brightfields Development LLC (Brightfields), Wildlife Biologist Eric Davison has assessed the avian resources within and immediately adjacent to 80 Brush Hill Road in Bozrah. This area is referred to hereinafter as the Project Area. This assessment includes a habitat-based breeding bird inventory, an assessment of the presence of regionally important habitat types within the Project Area and an evaluation of the Project Area's ability to support high-conservation priority species.

This evaluation was conducted as a result of comments received from the Connecticut Department of Energy and Environmental Protection (CTDEEP) in its letter dated February 23, 2015. After review of the proposed plans for Brightfields' proposed development, the CTDEEP determined that "it is unlikely that it will negatively impact State-listed species in the area." While no impacts to State-listed species are anticipated, in its letter the agency also requested consideration of other sensitive wildlife species of conservation concern. Specifically, CTDEEP recommended that tree cutting and other land-clearing activities be conducted outside of the sensitive breeding season of some avian species. The agency suggested that tree cutting conducted from November 1 through March 30 would limit disturbance to bats and some birds since they would not be in the area when these activities take place. The purpose of this report is to document the timing of nesting and fledging of young avian species that might utilize the Project Area.

This report focuses on species considered to be of high conservation priority in Connecticut as designated in the 2015 Connecticut Wildlife Action Plan<sup>1</sup> (WAP, hereinafter). The WAP was created to establish a framework for proactively conserving Connecticut's fish and wildlife, including their habitats. The WAP identifies species of "Greatest Conservation Need", or GCN species that fall into three categories in descending order of significance from "most important to "very important" and finally "important". The WAP also identifies 10 key habitat types that support all of the State's GCN species.

## 2.0 Methodology

The breeding bird inventory is provided in Table 1. The inventory is a list of birds that potentially breed in the Project Area based on the presence of suitable habitat. This list was generated from a database that was developed by reviewing information on the habitat utilization of Connecticut's breeding birds. The primary resource for habitat utilization data was Bevier (Ed., 1994), with A. Poole (1995) and DeGraaf and Yamasaki (2001) utilized as secondary resources. The initial inventory, generated solely based on the presence of suitable habitat, was refined by considering such factors as bio-geographical distribution, the presence or absence of critical habitat features and minimum patch size requirements. The inventory is subdivided by habitat type. A species is listed under the habitat which represents its primary breeding type. However, given that habitats are generally connected by transitional ecotones, a species should be considered to be potentially present within the ecotones associated with their primary habitat. Additionally, the list includes species that favor edge habitat. Edge habitat users are those species that favor the ecotone itself as opposed to the interior of a particular habitat. An example is the Great-crested Flycatcher which nests in mature deciduous trees located near a forest edge.

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<sup>1</sup> The Wildlife Action Plan, formerly Connecticut's Comprehensive Wildlife Conservation Strategy (2005) is currently in preparation by DEEP for release in 2015.

## 3.0 Project Area Characteristics

### 3.1 Landscape Setting

From a regional perspective the Town of Bozrah is located within the Southeast Hills Ecoregion which is characterized by uplands with a near-coastal proximity. Elevations average from 150 feet to 500 feet and the topography consists of low rolling hills, moderately broad and level upland and valley bottoms and localized steep and rugged terrain. Forests are dominated by a central hardwoods-hemlock community type (Dowhan and Craig, 1976). Locally, the Project Area lies east of Brush Hill Road near the village of Fitchville, within the headwaters of Driscoll Brook. Driscoll Brook is a tributary of the Yantic River.

### 3.2 Habitat Types

Five habitat types are present within the Project Area, these include: (1) open field/meadow; (2) beech-birch-maple forest; (3) hemlock forest; (4) oak/hickory forest; and (5) forested wetlands. These habitat types are described in greater detail in APT's Environmental Assessment report and depicted on Figure 3 of that report.

The WAP identifies 10 habitat types considered key habitats as they support all of the State's designated GCN species. Two of these key habitats occur on the site, Upland Forest and Upland Herbaceous. The WAP characterizes these habitats as follows:

*Upland Forest - characterized by deciduous trees, coniferous trees, or a mix forming 60-100% canopy cover. A well-developed understory is generally present, but may be absent in forests composed of shade tolerant trees.*

*Upland Herbaceous - characterized by herbaceous plants such as grasses, herbs and ferns, forming 25% or more of the ground cover. Areas with scattered trees, shrubs and dwarf-shrubs are included where they provide less than 25% cover.*

The Project Area's deciduous and coniferous forest types meet the criteria for Upland Forest and the open field/meadow type meets the criteria for Upland Herbaceous as defined by the WAP. The value of these habitat types for birds is described in Section 5.0.

## 4.0 Breeding Bird Inventory

Table 1 represents the list of breeding birds that potentially utilize the Project Area. The list includes a total of 50 species, 12 of which are resident birds and 38 are migratory. A total of 17 of the 50 species (34%) are WAP GCN species. Of the 17 GCN species, one species (the Wood Thrush) is considered "most important", six species are considered "very important" and 10 species are considered "important". The majority of WAP GCN species (total 10 species) are associated with the Project Area's hardwood forest habitat types.

The inventory includes two State-listed species of special concern<sup>2</sup>, the Northern Saw-whet Owl and the Broad-winged Hawk. Three wetland-dependent species were listed as potential nesters within forested wetlands. It should be noted that the suitable habitat for these species occurs primarily within wetlands

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<sup>2</sup> "**Species of Special Concern**" means any native non-harvested wildlife species documented by scientific research and inventory to have a naturally restricted range or habitat in the state, to be at a low population level, to be in such high demand by man that its unregulated taking would be detrimental to the conservation of its population or has been extirpated from the state.

to the north of proposed development activities, where the wetland is larger and has a longer hydroperiod.

#### 4.1 Predicted Timing of Migration and Breeding

The migration and breeding periods were determined by reviewing the annual cycle of breeding, migration and molt provided by A. Poole (Ed., 2005). This data is included in Table 1 columns 3 through 6 which summarize the following avian life cycle periods: (1) peak end of spring migration (non-resident species); (2) peak egg-laying and incubation period; (3) peak fledgling development period; and (4) peak beginning of fall migration (non-resident species). These data were analyzed to determine the periods that are critical to breeding birds - when migratory birds first arrive, the principal breeding and young development period, and the time when the majority of birds begin fall migration. Figure 1 indicates the end of the peak migration period (non-resident species) when migratory birds have arrived and will begin breeding activity. Figure 2 indicates the end of the peak fledgling period when young-of-the-year birds are mobile and have left the nest. These data indicate that the majority of birds have arrived by late May and the majority of young-of-the-year birds have fledged by early August. These critical time periods can be used to determine the appropriate times of year to restrict tree clearing and other site activities in order to minimize impacts on breeding birds.

## 5.0 Analysis of WAP Key Habitats

As discussed in Section 3.2, the Project Area contains two WAP key habitat types, Upland Forest and Upland Herbaceous. An assessment of the avian utilization and overall value of these habitats is provided in the following sections.

### 5.1 Forest Fragmentation Analysis

The forest within and adjacent to the Project Area was evaluated using the methodology described in the Center for Land Use Education and Research's (CLEAR) Forest Fragmentation Study<sup>3</sup>. The goal was to analyze the level of forest fragmentation present to determine whether the Project Area's forest would be considered valuable to forest-interior birds. Forest-interior birds favor the interior of the forest away from non-forested "edge" habitat. Such conditions are optimized in forests with a low level of habitat fragmentation. The literature suggests that total forest cover within the landscape as well as forest patch size are significant and therefore both factors were assessed (Lee *et al.* 2002; Mortberg, 2001; Villard *et al.* 1999; Andren 1996).

The CLEAR study utilizes findings from The Environment Canada report (2004) which suggests that 250 acres should be considered the absolute minimum forest patch size needed to support area-sensitive edge-intolerant species, with a recommended minimum forest patch size of 500 acres. At that scale, a forest is presumed to provide enough suitable habitat to support more diversity of interior forest species.

The CLEAR study has developed statewide town-by-town forest fragmentation maps in which forests are divided into three categories to indicate the viability of the core patches with respect to the size of the patch (See Figure 3). These three categories are small (< 250 acres), medium (250-500 acres), and large

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<sup>3</sup>CLEAR's Forest Fragmentation Study can be found at:  
[http://clear.uconn.edu/projects/landscape/forestfrag/forestfrag\\_public%20summary.pdf](http://clear.uconn.edu/projects/landscape/forestfrag/forestfrag_public%20summary.pdf)

(>500 acres). Forest areas designated as “core” are greater than 300 feet away from non-forested areas and represent optimal breeding habitat for forest-interior birds. This 300 foot zone is referred to as the “edge width” and represents sub-optimal breeding habitat for forest-interior birds.

Using Geographic Information System (GIS) software to analyze the most recent aerial photography available (2012, source USDA) we calculated 139.5 acres of contiguous forest on and immediately adjacent to the Project Area (see Figure 4). Of the 139.5 acres, 88.3 acres are classified as “edge forest” (within 300ft of non-forested habitat) while 51.2 acres are considered interior forest. The subject forest block has a high percentage of edge versus core forest (58%) due to the long linear shape of the forest block. Our analysis is consistent with the CLEAR’s mapping for the Town of Bozrah which shows the Project Area situated within a small core forest. The landscape surrounding the Project Area consists of a patchwork of residential development, agricultural land and major arterial roads such as Route 2. As a result, small core forests and forest fragments dominate the landscape. The nearest large core forest is located in the southeast portion of Bozrah, a significant distance from the Project Area.

Based on this analysis, the site does not represent high-quality habitat for forest interior birds. Although the inventory includes forest-interior species such as the Scarlet Tanager and the Wood Thrush, the subject forest, while it may provide breeding habitat, is considered sub-optimal and may serve as a population sink.

## 5.2 Meadow Habitat Analysis

The Project Area includes a six acre meadow. Early-successional (i.e., non-forested) habitats such as meadows have the potential to support GCN shrubland and grassland-dependent birds. The subject meadow is in the early old field successional stage characterized by herbaceous groundcover plants being dominant as opposed to woody vegetation (i.e., trees and shrubs). As a result, the field offers limited habitat for shrubland specialists which require woody vegetation for nesting. If the field were to succeed to woody shrubs over time it might provide habitat for some shrubland specialists. However, when considering patch size, an important factor in determining whether a site will support shrubland birds, this meadow is sub-optimal as many shrubland specialists require a minimum patch size of 10 acres. Patch size is also a critical limiting factor for grassland birds, many of which require a minimum patch size of 25 acres or more. Based on the dominant plant community present and the small patch size, this meadow is most suitable for non-forested habitat generalists and edge species rather than early-successional habitat specialists.

## 6.0 Discussion

The Project Area offers breeding habitat for birds predominately associated with small patch forests (deciduous and coniferous types), birds that favor edge habitats or forest ecotones, and birds associated with small patch meadows. A total of 50 potential breeding birds were identified, most of which are associated with the Project Area’s deciduous forest habitat. Of these 50 species, 17 are designated as GCN species as defined by the WAP. Only one of the GCN species, the wood thrush, is listed in the top conservation tier of “most important” and the habitat present for Wood Thrush is sub-optimal due to the high-level of forest fragmentation present.

Two State-listed species were identified as potentially breeders, the Broad-winged Hawk and Northern Saw-whet Owl. These two species are not considered habitat specialists but rather generalists that require habitat considered common throughout Connecticut. The Broad-winged Hawk inhabits deciduous

or mixed forest types often near a lake, pond or wetland. Bevier (1994:102) noted that “the Broad-winged Hawk exhibits a diversified nest site habitat selection”. The Saw-whet Owl generally inhabits coniferous woodlands or mixed coniferous-deciduous woodlands often near wetlands (Bevier, 1994). The mere presence of deciduous forest, wooded swamps and coniferous forest – all common habitat types statewide, resulted in the inclusion of these two State-listed species. Additionally, neither species is considered to be biogeographically limited in the state and therefore are not restricted to the Southeast Hills Ecoregion.

Although two habitats that are designated as “key habitats” by the State WAP occur in the Project Area (upland forest and meadow), their value for habitat specialists is sub-optimal due primarily to the small patch size. The value of the forest habitat is limited both by patch size as well as the low percentage of forest cover within the surrounding landscape. As a result, the Project Area’s forest offers sub-optimal habitat for forest-interior habitat specialists. The inventory (Table 1) includes forest-interior specialists such as the Scarlet Tanager and the Wood Thrush. However, the subject forest, while it may attract and provide breeding habitat for these species, may function as a population sink. The oak-hickory forest within the Project Area was noted as having high vertical diversity. Vertical diversity refers to the extent to which plants are layered within a stand. Stands with a high degree of vertical diversity characteristically develop multiple vegetative layers including overstories with a rich species composition and well-developed herbaceous, shrub understory, and woody midstory layers. Vertical diversity is probably of greatest importance to most forest birds (DeGraaf, et. al., 2006).

The meadow is of low suitability for early-successional habitat specialists due to its small size (ca. 6 acres) and the lack of woody vegetation. Larger fields (i.e., >10 acres) with inclusions of shrubs and small trees are generally required to support shrubland specialists such as the Golden-winged Warbler.

The timing of nesting, egg/young development and migration are provided in Table 1 and summarized in Figures 1 and 2. These data indicate that the majority of migratory birds arrive between mid-April and late May and the majority of young-of-the-year birds have fledged by early August. Therefore, by avoiding tree-clearing and other site activities from approximately early May through early August, impacts to breeding birds can be minimized.

## 7.0 References

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## APPENDICES

Table 1: Breeding bird inventory

Figure 1: End of peak migration period

Figure 2: End of peak fledgling period

Figure 3: CLEAR forest fragmentation analysis for the Town of Bozrah

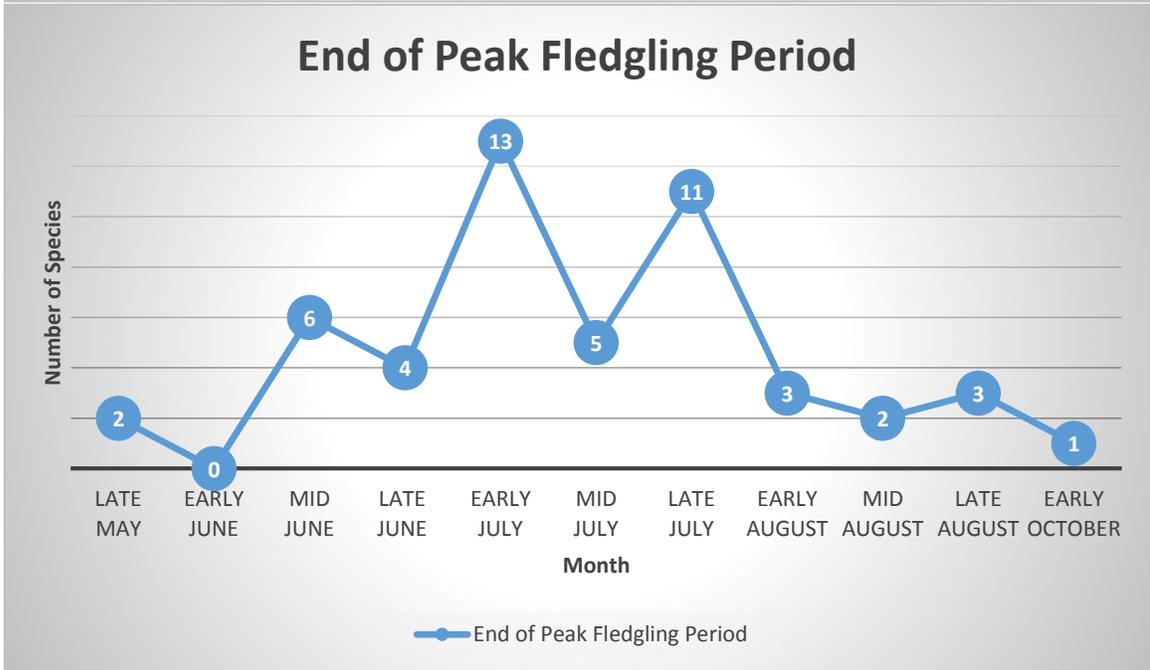
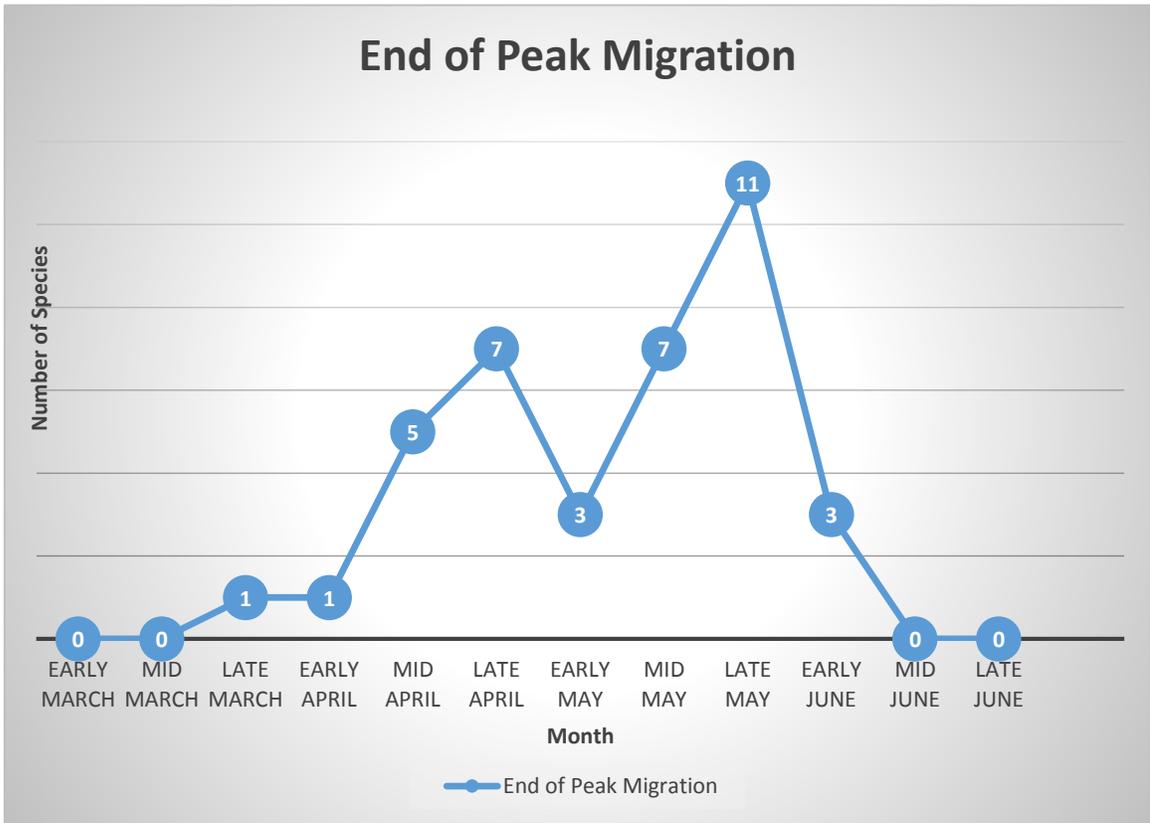
Figure 4: Project Area contiguous forest map

**TABLE 1: Breeding Bird Inventory, 80 Brush Hill Road, Bozrah**

SPECIES		ARRIVE	← MIGRATION →		DEPART	WAP Status	State ESA Listing Status
Common Name	Scientific Name	Peak Spring Migration Ends	BREEDING CYCLE		Peak Fall Migration Begins		
			Peak Egg-Laying and Incubation Period	Peak Fledgling Development Period			
<b>Hemlock Forest</b>							
Black-capped Chickadee	<i>Parus atricapillus</i>		Mid April to late May	Early May to mid June			
Brown Creeper	<i>Certhia americana</i>	Late April	Mid May to late June	Early June to mid July	Late September	I	
Chipping Sparrow	<i>Spizella passerina</i>	Early April	Mid April to late July	Early May to early August	mid October		
Common Raven	<i>Corvus corax</i>		Early March to mid May	mid April to mid June			
Cooper's Hawk	<i>Accipiter cooperii</i>	Late May	Early April to late May	Early May to Late June	Mid September		
Downy Woodpecker	<i>Picoides pubescens</i>		Early May to early June	Late May to early July			
Great Horned Owl	<i>Bubo virginianus</i>		Mid March	Early to mid April			
Northern Saw-whet Owl	<i>Aegolius acadicus</i>	Mid May	Mid March to late May	Mid April to late June	Late September	I	SC
Pine Siskin	<i>Carduelis pinus</i>	Mid April	Mid April to late May	Late April to mid June	Early October		
Pine Warbler	<i>Dendroica pinus</i>	Late April	Mid April to late June	Early May to early July	Late September		
Purple Finch	<i>Carpodacus purpureus</i>	Late April	Mid April to mid July	Mid May to mid August	Early September		
<b>Hardwood Forest Types: Beech/Birch/Maple and Mesic Oak/Hickory</b>							
Barred Owl	<i>Strix varia</i>		Early March to late April	Early April to late July			
Black-and-white Warbler	<i>Mniotilta varia</i>	Late May	Early May to late June	Mid May to mid July	Late August	I	
Blue Jay	<i>Cyanocitta cristata</i>	Late May	Early April to mid May	Mid April to late May	Mid September		
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	Late April	Late April to Early July	Early May to late July	Mid August		
Broad-winged Hawk	<i>Buteo platypterus</i>	Late April	Early to late May	Early June to late July	Early September	VI	SC
Brown-headed Cowbird	<i>Molothrus ater</i>	Late April	Late April to late June	Early May to early July	Early September		
Common Grackle	<i>Quiscalus quiscula</i>	Late March	Mid April to early June	Late April to mid June	Mid October		
Downy Woodpecker	<i>Picoides pubescens</i>		Early May to early June	Early June to early July			
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	Mid May	Early May to mid June	Late May to early July	Early September		

SPECIES		ARRIVE	← MIGRATION →		DEPART	WAP Status	State ESA Listing Status
Common Name	Scientific Name	Peak Spring Migration Ends	BREEDING CYCLE		Peak Fall Migration Begins		
			Peak Egg-Laying and Incubation Period	Peak Fledgling Development Period			
Hairy Woodpecker	<i>Picoides villosus</i>		Early May to mid July				
Hermit Thrush	<i>Catharus guttatus</i>	Mid May	Late May to Late July	Early June to mid August	Late September		
Hooded Warbler	<i>Wilsonia citrina</i>	Late April	Mid May to late June	Early June to Early July	Late August		
Northern Flicker	<i>Colaptes auratus</i>	Mid April	Early to late May	Late May to mid June	Mid September	VI	
Ovenbird	<i>Seiurus aurocapillus</i>	Mid May	Mid May to late June	Mid June to late July	Early July	I	
Pileated Woodpecker	<i>Dryocopus pileatus</i>		Mid May to early June	Early June to early July			
Red-eyed Vireo	<i>Vireo olivaceus</i>	Early June	Mid May to early July	Late May to mid July	Late August		
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>		Mid May to late June	Late May to early August			
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Mid April	Early March to mid June	mid April to mid July	Mid October		
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	Late May	Late May to early July	Early June to mid July	Mid August	I	
Scarlet Tanager	<i>Piranga olivacea</i>	Early May	Early June to mid July	Early-mid June to late July	Mid September	VI	
Tufted Titmouse	<i>Parus bicolor</i>		Early April to mid June	Early May to Early July			
White-breasted Nuthatch	<i>Sitta carolinensis</i>		Mid April to early June	Late May to mid June			
Wild Turkey	<i>Meleagris gallopavo</i>		Mid April to late June	Early June to early December (m); Mid December to late March (f)			
Wood Thrush	<i>Hylocichla mustelina</i>	Mid May	Late May to mid July	Early June to late July	Early September	MI	
Worm-eating Warbler	<i>Helmitheros vermivorus</i>	Early May	Early to late June	Mid June to early July	Early August	VI	
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	Late May	Mid May to late June	Early June to late July	Mid September	VI	
Eastern Wood-Pewee	<i>Contopus virens</i>	Late May	Early June to mid July	Mid June to late July	Late August	I	

SPECIES		ARRIVE	← MIGRATION →		DEPART	WAP Status	State ESA Listing Status
Common Name	Scientific Name	Peak Spring Migration Ends	BREEDING CYCLE		Peak Fall Migration Begins		
			Peak Egg-Laying and Incubation Period	Peak Fledgling Development Period			
Yellow-throated Vireo	<i>Vireo flavifrons</i>	Late May	Early to mid June	Mid to late June	Early September		
<b>Old Field</b>							
American Goldfinch	<i>Carduelis tristis</i>	Early June	Mid July to early August	Late July to late August	Early November		
American Redstart	<i>Setophaga ruticilla</i>	Late May	Late May to late June	Early June to early July	Late August		
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	Early June	Mid June to late July	Late June to late August	Early September	VI	
Northern Oriole	<i>Icterus galbula</i>	Mid May	Mid May to early June	Mid June to late June	Early August	I	
Eastern Bluebird	<i>Sialia sialis</i>	Mid April	Early March to mid July	Early April to early August	Early October		
Eastern Kingbird	<i>Tyrannus tyrannus</i>	Late May	Early to late June	Mid June to late July	Mid August	I	
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	Late May	Early May to late September	Mid May to early October	Early August		
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Early May	Mid June to late July	Late June to late August	Late September		
<b>Forested Wetlands</b>							
Northern Waterthrush	<i>Seiurus noveboracensis</i>	Late May	Late May to early July	Mid June to late July	Early August	I	
Wood Duck	<i>Aix sponsa</i>	Mid April	Early May to mid June	Early June to early July	Early October		
Veery	<i>Catharus fuscescens</i>	Mid May	Late May to Late June	Early June to Early July	Late August	I	
<p>KEY:</p> <p>CT Endangered Species Act Status: E- Endangered, T- Threatened, SC- Special Concern</p> <p>Wildlife Action Plan (WAP) Tier Status: MI- Most Important, VI- Very Important, I- Important</p> <p><span style="display: inline-block; width: 15px; height: 10px; background-color: #f4a460; border: 1px solid black; margin-right: 5px;"></span> Indicates resident bird species</p> <p>Migration and breeding data taken from the annual cycle of breeding, migration and molt charts in: The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <a href="http://bna.birds.cornell.edu">http://bna.birds.cornell.edu</a></p>							



*Figures 1 (top) and 2 (bottom): Line graphs showing the end of peak migration indicating the period in which the majority of migratory birds are expected to be present on the site and the end of the peak fledgling period, indicating the period when young-of-the-year birds have fledged and are mobile.*

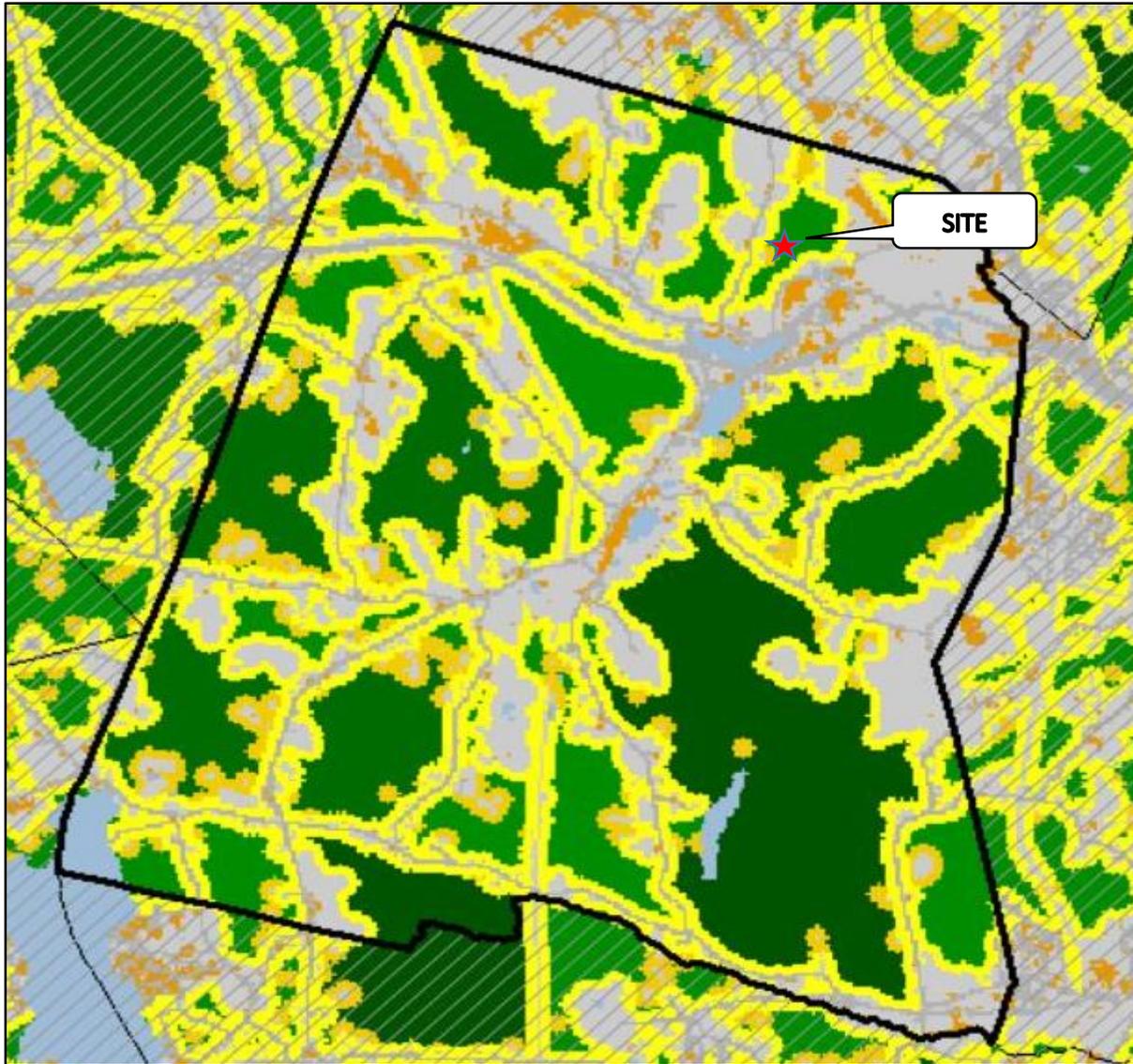
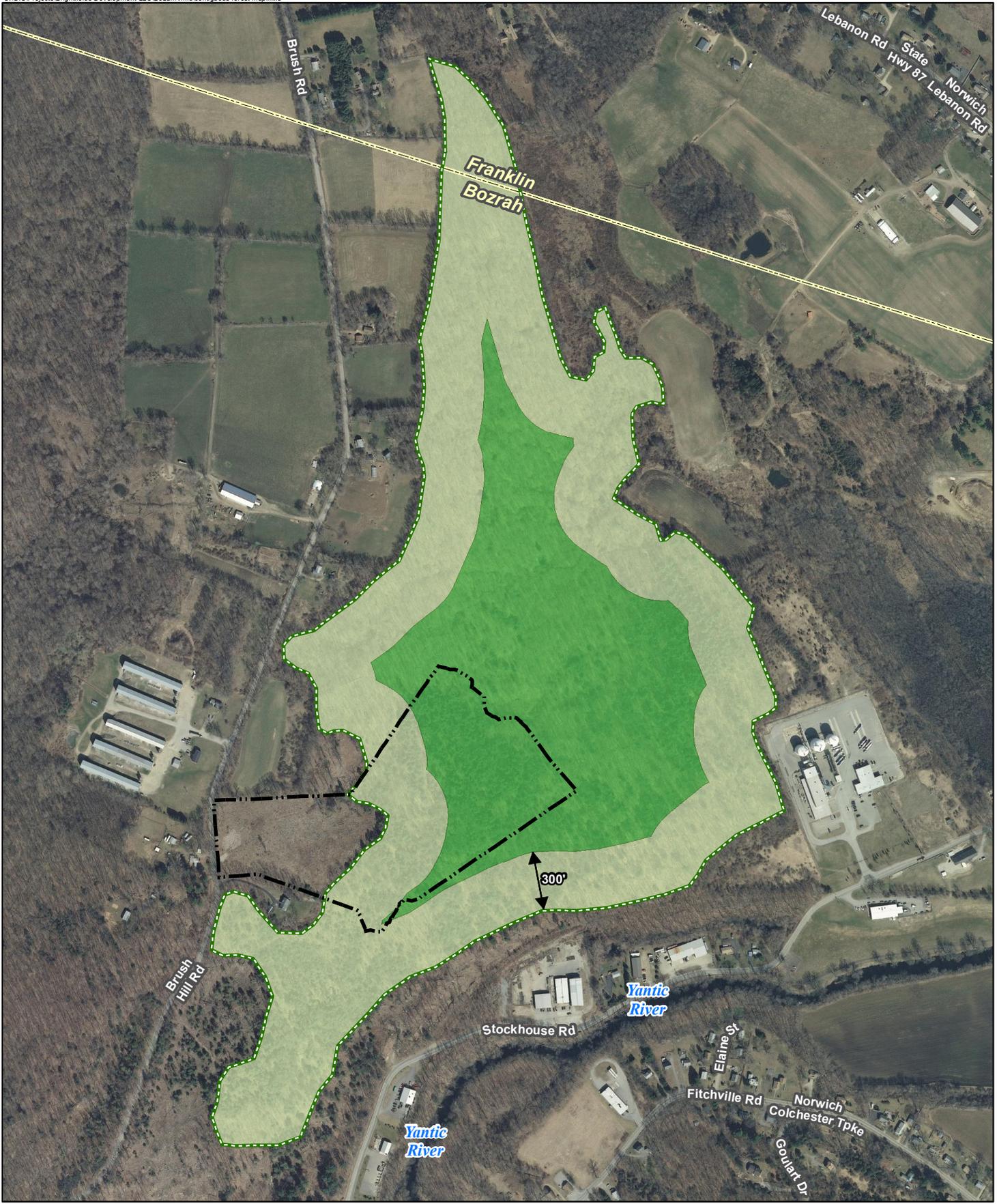
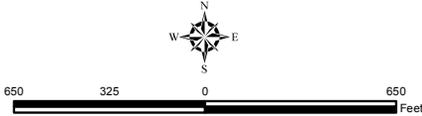


Figure 3: Center for Land Use Education and Research (CLEAR) 2006 forest fragmentation analysis for the Town of Bozrah. Core forest pixels are sub-classified into three categories (and three shades of green) - small core, medium core, and large core. The largest core patches, shown in the darkest green color, are over 500 acres in size. The next least-disturbed category, perforated pixels, make up the interior edge of small non-forested areas within a core forest, such as a house built within the woods. These areas, which appear as “holes” or perforations, are shown in light orange. Edge pixels, shown in yellow, make up the exterior periphery of core forest tracts where they meet with non-forested areas. The most disturbed category, patch pixels (dark orange), are small fragments of forest that are completely surrounded by non-forested areas.



- Legend**
- Site (+/- 25.20 Acres)
  - Forest Block (+/- 139.5 Acres)
  - Forest Block Type:
    - Edge Forest (+/- 88.3 Acres)
    - Interior Forest (+/- 51.2 Acres)

**Map Notes:**  
 Base Map Source: 2012 Aerial Photograph (CTECO)  
 Map Scale: 1 inch = 650 feet  
 Map Date: March 2015



**Figure 4**  
**Contiguous Forest Map**  
 Proposed Solar Facility  
 80 Brush Hill Road  
 Bozrah, Connecticut 06334

# EXHIBIT D

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## *CARBON DEBT ANALYSIS*



## **CARBON DEBT ANALYSIS**

**May 15, 2015**

**Brightfields Development, LLC  
40 Walnut Street, Suite 301  
Wellesley, MA 02481**

**APT Project No.: CT443100**

**Attn: Michael Singer**

**Re: Proposed 3.1 Megawatt Solar Facility  
80 Brush Hill Road  
Bozrah, Connecticut**

Dear Mr. Singer,

On behalf of Brightfields Development LLC, All-Points Technology Corporation, P.C. ("APT") performed an analysis to determine whether the proposed solar array installation ("Project") at the referenced site ("Subject Property") has the ability to produce a net improvement in carbon reduction compared to the loss of approximately 9 acres of forested land. This analysis accounts for the loss of the trees, the carbon associated with the manufacture of the solar panels, and the carbon associated with the installation activity.

The Project requires the removal of 208 trees within a Maple-Beech-Birch forest, which includes a strong component of Eastern Hemlock. The result of this analysis is that the solar project would result in a significant net improvement in carbon reduction. Consider the accounting of "carbon debt" in the following table - which includes the energy used and CO<sub>2</sub> released in the manufacture and installation of the solar arrays as well as the existing and future carbon reduction derived from the trees to be displaced by the solar array<sup>1</sup> - and the subsequent payback analysis<sup>2</sup>.

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<sup>1</sup> The calculations used in determining amount of energy used and CO<sub>2</sub>e created in manufacture and installation of solar array uses industry standard data sourced from: The Environmental Protection Agency (EPA) CO<sub>2</sub> emissions calculator; Franklin Life Cycle Analysis Database; NREL US Life Cycle Inventory; Aluminum Association Life Cycle Inventory; Ecoinvent Life Cycle Inventory; Annual Energy Review, EIA; DOE Life Cycle Inventory.

<sup>2</sup> Tree CO<sub>2</sub>E calcs are based off volumetric equations by McClure, J. and Cost, N. (2010) and the component ratio method by Health et al. 2009. This estimation method is adopted by US Forest Service Forest Inventory Analysis (FIA) program and California's pre-compliance market (AB 32), is peer-reviewed and widely considered to be the standard methodology for calculating carbon sequestration. USDA/Forestry Service/ Northern Research Station: "Measurement guidelines for the sequestration of forest carbon." Pearson, Timothy R.H. Brown, Sandra L. Birdsey, Richard A. 2007.

**ALL-POINTS TECHNOLOGY CORPORATION, P.C.**

3 SADDLEBROOK DRIVE · KILLINGWORTH, CT 06419 · PHONE 860-663-1697 · FAX 860-663-0935

P.O. BOX 504 · 116 GRANDVIEW ROAD · CONWAY, NH 03818 · PHONE 603-496-5853 · FAX 603-447-2124

<b>Brightfields Bozrah Solar Facility Debt Analysis Table<sup>3</sup></b>	
<b>Bozrah Solar Array (3.2 MW) - carbon footprint in product manufacture and project execution</b>	<b>CO<sup>2</sup>e (Metric Tons)</b>
PV Modules	4519
Racking	278
Module Interconnection	5
Junction Boxes	12
Conduits and Fittings	60
Wire and Grounding Devices	103
Inverters and Transformers	163
Grid Connections	14
Office Facilities Concrete	24
Concrete	29
Trees Removed (Current Stock <sup>2</sup> )	208
Trees (Future Lost Carbon Reduction)	480
<b>Total CO<sup>2</sup>e to Payback</b>	<b>5896</b>
<b>Annual PV Production Benefits (- CO<sup>2</sup>e)</b>	<b>2388</b>
<b>Carbon Payback of Solar Array (Yrs)</b>	<b>2.47</b>

<sup>3</sup> Data and calculations provided by Solar City on May 14, 2015.

# EXHIBIT F

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*CONSTRUCTION SCHEDULE*

*FOR BOZRAH – BRUSH*

*HILL ROAD SOLAR ARRAY*



# EXHIBIT G

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*BOZRAH*

*CORRESPONDENCE*



Boundaries LLC  
179 Pachaug River Drive  
P.O. Box 184  
Griswold, CT 06351  
T 860.376.2006 | F 860.376.5899

[www.boundariesllc.net](http://www.boundariesllc.net)

May 20, 2015

Mr. William Ballinger, First Selectman  
Town of Bozrah  
Bozrah Town Hall  
1 River Road  
Bozrah, CT 06334

**RE: Response to Consulting Engineer's Review Comments Dated May 6, 2015  
Proposed Solar Photovoltaic System Installation  
Brush Hill Road, Bozrah, CT**

Dear Mr. Ballinger-

In response to review comments provided by Matthew N. Brown, P.E. of Anchor Engineering Services, Inc. dated May 6, 2015, we have attached six (6) copies of revised Site Development Plans (revised to 5/20/15), and offer the following responses:

*1. Plans show infiltration trenches as part of the drainage design. The Stormwater Management Report includes a description of these infiltration trenches, but the calculations do not appear to take into account any infiltration that would occur. The applicant should clarify if these trenches are designed to infiltrate stormwater and, if so, provide testing data to document the infiltration capacity of the soils within the vicinity of the infiltration trenches.*

**Boundaries Response:** The potential infiltration within the proposed trenches was not considered in our design in order to provide conservative results for the peak flow rate analysis. The intent of the trenches is to provide peak flow rate attenuation in a small, level footprint as compared to detention/retention basins in order to maximize the available areas for the solar arrays. The NRCS Soil Survey Map for the site indicates that the materials in the vicinity of the infiltration trenches are Charlton-Chatfield Complex, 3 to 15% slopes; Sutton fine sandy loam, 2 to 15% slopes, extremely stony; and Canton and Charlton soils, 8 to 15% slopes. These soils are Hydrologic Soil Group B and have the following permeabilities as published by NRCS: Charlton-Chatfield Complex, 1.42 inches per hour; Sutton fine sandy loam, 3.97 inches per hour; and Canton and Charlton soils, 13.04 inches per hour. A factor of safety of 2 was used to confirm that the infiltration trenches will drain in the required time frame. The required effective bottom area required to drain within 72 hours (recommended in the 2004 Stormwater Quality Manual) is presented below. Each infiltration measure exceeds the required effective bottom area, providing an additional factor of safety.



$$A = (12 * V)/(T * P * n)$$

#### Infiltration Recharge Trench #1

V = Storage Volume Provided = 2,633 cubic feet

P = Design Infiltration Rate = 0.71 inches/hour (Charlton-Chatfield Complex)

n = Porosity of Crushed Stone = 0.4

T = Maximum Drain Time = 72 hours

A = Required Trench Bottom Area = 1,545 square feet (1,650 square feet provided, meets requirement)

#### Infiltration Recharge Trench #2

V = Storage Volume Provided = 1,786 cubic feet

P = Design Infiltration Rate = 1.99 inches/hour (Sutton fine sandy loam)

n = Porosity of Crushed Stone = 0.4

T = Maximum Drain Time = 72 hours

A = Required Trench Bottom Area = 374 square feet (1,300 square feet provided, meets requirement)

#### Infiltration Recharge Trench #3

V = Storage Volume Provided = 2,526 cubic feet

P = Design Infiltration Rate = 1.99 inches/hour (Sutton fine sandy loam/Canton and Charlton soil, lowest permeability used)

n = Porosity of Crushed Stone = 0.4

T = Maximum Drain Time = 72 hours

A = Required Trench Bottom Area = 529 square feet (1,600 square feet provided, meets requirement)

#### Infiltration Recharge Trench #4

V = Storage Volume Provided = 523 cubic feet

P = Design Infiltration Rate = 0.71 inches/hour (Charlton-Chatfield Complex)

n = Porosity of Crushed Stone = 0.4

T = Maximum Drain Time = 72 hours

A = Required Trench Bottom Area = 307 square feet (500 square feet provided, meets requirement)

Due to the proximity of exposed ledge outcrops to Infiltration Trenches #2 and #3, outlet control structures have been provided to effectively drain the trenches at a controlled rate. Infiltration trenches #1 and #4 are intended to infiltrate into the soil, and have adequate footprints to drain within 72 hours, including a design factor of safety of 2.

*2. The plans show several areas where outcrops of ledge are present. The applicant should provide test pit data in the areas of all stormwater detention basins and infiltration trenches in order to demonstrate the stormwater treatment structures can be built to proposed depths without encountering bedrock, to ensure that they will function as proposed.*

**Boundaries Response:** Test pits will be conducted in the vicinity of the proposed stormwater management structures prior to construction.



3. *Sediment and Erosion control proposed on site do not appear to meet the standards of the "2002 Connecticut Guidelines for Soil Erosion and Sediment Control" (Guidelines). We recommend that the site plans be revised to implement water handling and phasing during the construction process. The site is proposed to be cleared of all vegetation and topsoil stripped and stockpiled. Per Chapter 5-11 of the Guidelines, Sediment Impoundments, Barriers and Filters, Temporary Sediment Basins or Traps shall be used to intercept and retain sediment during construction. The applicant has only proposed silt fence.*

**Boundaries Response:** In addition to the proposed silt fence/wood chip filter berm that will be installed at the limit of disturbance, the stormwater basins will be constructed to serve as temporary sediment traps during the anticipated three month construction period.

Sizing calculations for the temporary sediment traps are presented below in accordance with the recommendations of Chapter 5-11 of the Guidelines:

*Required Storage = 134 CY/acre x drainage area in acres*

Stormwater Basin #1

Drainage Area = 2.65 acres

Required Storage = 134 CY/acre x 2.65 acres = 355.1 CY of storage required

Provided Storage = 356.5 CY (exceeds requirement, bottom width revised to 15 feet over original 8 feet width proposed to provide required sediment storage)

Wet Storage Required = 177.6 CY (At least 1/2 of total storage).

Wet Storage Provided = 267.8 CY (Exceeds requirement, structure orifices to be covered with filter fabric and crushed stone for duration of construction)

Stormwater Basin #2

Drainage Area = 0.66 acres

Required Storage = 134 CY/acre x 0.66 acres = 88.4 CY of storage required

Provided Storage = 92.0 CY (exceeds requirement)

Wet Storage Required = 44.2 CY (At least 1/2 of total storage).

Wet Storage Provided = 74.2 CY (Exceeds requirement, lower structure orifice to be covered with filter fabric and crushed stone for duration of construction)

The proposed construction approach for the project will minimize the extent of the disturbed areas with only limited vegetation/grass removal and stripping required. The proposed cut and fill work will be limited to the areas shown on the drawings. The entire site will not be cleared, grubbed, and/or stripped of topsoil at one time. Conversely, the smaller portions of the site will be addressed in order to limit disturbances to less than 5 acres at any given time.

A proposed construction approach/phasing is outlined below and has been added to the construction plans.

1. Secure all necessary local, state, and federal permits. Register for all applicable state and federal permits as required.
2. Install anti-tracking pad at construction entrance from Brush Hill road.



3. Clear and remove all trees within the proposed clearing limits. Chip trees for use as wood chip berms for erosion control.
4. Install wood chip berms as shown down gradient of proposed development area.
5. Install chain link security fence along entire perimeter of solar farm and access road.
6. Grub stumps and strip topsoil only as required to install proposed access drive and stormwater basins/temporary sediment traps. Stockpile all topsoil at the locations indicated or at other approved location. Seed these stockpiles with ryegrass and surround with sediment fence or wood chip berms. All stumps are to be ground or disposed of off-site. (Maximum soil disturbance = 2.3 +/- acres)
  - 6.1. Install stormwater basins/temporary sediment traps, outlet control structures, outlet pipes, and riprap aprons.
  - 6.2. Rough grade (cut and fill as required) access drive. Place and compact driveway base, install drainage/cross culverts as required and install traffic bound gravel surface for access drive. Stabilize all side slopes as soon as completed by loaming all disturbed areas (4" minimum), seed with grass/hydroseed and mulch. Install stone check dams in swale areas at 50' on center (maximum spacing).
7. Grub stumps and strip topsoil as required for proposed grading (Phase 1) of solar array area. Stockpile all topsoil at the locations indicated or other approved location. Seed these stockpiles with ryegrass and surround with sediment fence or wood chip berm. All stumps are to be ground or disposed of off- site. (Maximum soil disturbance = 4.9 +/- acres)
  - 7.1. Grade Phase 1 area per plan with maximum slopes not to exceed 7% and associated side slopes not greater than 3:1. Import, place and compact suitable clean fill material as required to meet design grades for solar array areas. Install infiltration trenches, outlet control structures, outlet pipes and rip rap aprons.
  - 7.2. Loam all disturbed Phase 1 areas (4" minimum), seed with grass and mulch.
8. Grub stumps and strip topsoil as required for proposed grading (Phase 2) of solar array area. Stockpile all topsoil at the locations indicated or other approved location. Seed these stockpiles with ryegrass and surround with sediment fence or wood chip berm. All stumps are to be ground or disposed of off-site. (Maximum soil disturbance = 4.3 +/- acres)
  - 8.1. Grade Phase 2 area per plan with maximum slopes not to exceed 7% and associated side slopes not greater than 3:1. Import, place and compact suitable clean fill material as required to meet design grades for solar array areas.
  - 8.2. Loam all Phase 2 disturbed areas (4" minimum), seed with grass and mulch.
9. Install proposed racking system, connect and anchor the solar panels to the racks. Install conduit, concrete utility pads and electrical equipment as required for harvesting power.
10. After all areas have been permanently stabilized, remove erosion control measures. If final seeding cannot be accomplished during the appropriate phase as noted above due to time of year, disturbed areas shall be mulched for winter stabilization and seeded and mulched during the growing season of Spring 2016.

By coupling the proposed construction phasing outlined above, the limited amount of soil disturbance, the proposed temporary sediment traps/stormwater basins, and the installation of the proposed wood chip filter berms and/or silt fence at the limits of the proposed area of disturbances, we believe the Sediment and Erosion Control Plan meets the requirements of the Guidelines. Additionally, it should be noted that the use of silt fence at the limits of proposed site disturbances is one of the recommended measures included in Chapter 5-11 of the Guidelines.



4. *Detail of staked hay bales should to be provided on the plans.*

**Boundaries Response:** The requested detail has been added to the plans.

5. *The plans should show any proposed utility conduits within the proposed access drive and the town right-of-way along Brush Hill Road.*

**Boundaries Response:** The revised plan includes the location of proposed interconnection utilities as specified by Bozrah Light and Power. The interconnection to the Brush Hill Road distribution lines will be via overhead wires and all of BL&P required poles and equipment will be located outside of the Town's right-of-way. Additional information regarding the location of proposed conduit interior to the site will be included on the final plan set to be submitted for a building permit prior to the start of construction.

We trust that the modifications shown on the attached Site Development Plan and the responses included above adequately address the review comments dated May 6, 2015. If you have any further questions or concerns related to the attached plans or this correspondence, please contact me at your convenience.

Sincerely,



David C. McKay, P.E.  
Professional Engineer  
Boundaries LLC

Attach. (6)

C: File



**From:** Richard Serra [<mailto:rserra@seccog.org>]

**Sent:** Wednesday, May 20, 2015 8:45 AM

**To:** Mike Singer

**Cc:** [firstselectman@bozrahct.org](mailto:firstselectman@bozrahct.org); 'Robert Miller'; 'Alex Sarly'; [dmckay@boundariesllc.net](mailto:dmckay@boundariesllc.net); 'John Faulise'; 'Mike Libertine'; Caitlin McSherry

**Subject:** RE: Brush Hill Rd.

Thank you for the information Mike. I'll let you know if there are additional questions/comments.

Richard

---

**From:** Mike Singer [<mailto:MSinger@renovapartners.com>]

**Sent:** Tuesday, May 19, 2015 3:37 PM

**To:** Richard Serra ([rserra@seccog.org](mailto:rserra@seccog.org)) ([rserra@seccog.org](mailto:rserra@seccog.org))

**Cc:** [firstselectman@bozrahct.org](mailto:firstselectman@bozrahct.org); Robert Miller ([rmiller@solarcity.com](mailto:rmiller@solarcity.com)); Alex Sarly ([asarly@solarcity.com](mailto:asarly@solarcity.com)); [dmckay@boundariesllc.net](mailto:dmckay@boundariesllc.net); John Faulise ([jfaulise@boundariesllc.net](mailto:jfaulise@boundariesllc.net)); 'Mike Libertine'; Caitlin McSherry

**Subject:** Brush Hill Rd.

Richard:

Thanks for the note. We will be sending more submittals your way, including a copy of the final package that goes back to the Siting Council. I have taken a shot at each of your questions below. Please note as more information comes out, we will continue to keep you and the Town updated.

*Q: The P&Z Commission discussed the proposal at length and the final major concern regarded the timing of truck traffic on Brush Hill Road during construction. Is there information submitted in this regard?*

*A: At this time here are our initial projections. Please note that for materials we estimate the following deliveries spread out over a 2 month construction duration.*

- *Cement Trucks for Ballast – 100 trucks*
- *Racking System – 20 trucks*
- *Solar Modules- 18 trucks*
- *General Equipment – 10 trucks*
- *Road Materials – 40 trucks*
- *Civil Materials – 40 trucks*
- *Drainage Materials – 5 trucks*
- *Misc. – 20 trucks*

*Total = 253 trucks – Over 40 work days = 6.3 trucks per day on average*

*Additionally, we estimate onsite personnel of approximately 15-20 people per day for a 2 months average. We would not expect that the traffic would exceed a typical construction project, but given the size/width of Brush Hill Road, we understand that this is something we will need to monitor carefully. Once we have selected our contractors, we will work with the Town to update our traffic projections and durations.*

*Q: As mentioned previously the Town Engineer reviewed the Drainage Report and his comments are attached.*

*A: Thanks. We are currently reviewing the Town Engineer's questions and comments and expect to issue a response back to the Town later this week.*

*Q: Here is a question regarding who the responsible party is to monitor and enforce the Site Plan approved by the Siting Council – is it the Town? If so that should be noted on the plan or a statement that weekly (regular interval) status reports be submitted to the town – which may be preferred due to limited town staffing. Many of the reports submitted conclude that BMP's/erosion & sedimentation measures proposed will negate adverse impacts. Accordingly their installation and monitoring are important.*

*A: The Siting Council is the party responsible for enforcement of the site plan, and DEEP is the party responsible for enforcement of the storm water general permit. That being said, we are willing to facilitate any requested Town inspections of the Site and are ready to submit weekly update reports to the Town for your review and comment.*

*Q: The other concerns with regard to landscaping along Brush Hill Road and sightline have been addressed with the revised (5-6-15) plan.*

*A: Please see the attached updated plan set. Please note that we have made a couple of minor modifications to the proposed planting plan along Brush Hill Road in order to facilitate BL&P interconnection poles and equipment. We are awaiting final approval from BL&P on these changes, but hope that the Town still finds the proposed planting plan acceptable.*

Please let us know if you have any additional questions or need any additional information. We will respond to the Town Engineer's comments later this week.

Thanks again for the quick response.

Mike Singer

Michael Singer  
Renova Partners, LLC  
Brightfields Development, LLC  
40 Walnut Street, Suite 301  
Wellesley, MA 02481  
Direct: 860-216-2293  
Main Office Phone: 781-431-8101  
Mobile Phone: 860-214-7195 (Primary)  
[msinger@renovapartners.com](mailto:msinger@renovapartners.com)

---

**From:** Richard Serra [<mailto:rserra@seccog.org>]  
**Sent:** Monday, May 18, 2015 11:17 AM  
**To:** Mike Singer  
**Cc:** William Ballinger  
**Subject:** RE: Brush Hill Rd.

Hi Mike. Thank you for the follow-up environmental supplements (5-15-15). These have been forwarded to the Inland Wetlands Commission for review with a question/comment return date by the end of this week (5-22-15).

The P&Z Commission discussed the proposal at length and the final major concern regarded the timing of truck traffic on Brush Hill Road during construction. Is there information submitted in this regard?

As mentioned previously the Town Engineer reviewed the Drainage Report and his comments are attached.

Also there is a question regarding who the responsible party is to monitor and enforce the Site Plan approved by the Siting Council – is it the Town? If so that should be noted on the plan or a statement that weekly (regular interval) status reports be submitted to the town – which may be preferred due to limited town staffing. Many of the reports submitted conclude that BMP's/erosion & sedimentation measures proposed will negate adverse impacts. Accordingly their installation and monitoring are important.

*The other concerns with regard to landscaping along Brush Hill Road and sightline have been addressed with the revised (5-6-15) plan.*

I will keep you informed as to whether there are further questions/comments on the environmental supplements and again I expect that to be by the end of this week.

Best  
Richard

---

**From:** Mike Singer [<mailto:MSinger@renovapartners.com>]  
**Sent:** Friday, May 15, 2015 2:39 PM  
**To:** 'Richard Serra'  
**Cc:** [firstselectman@bozrahct.org](mailto:firstselectman@bozrahct.org); Caitlin McSherry; Alex Sarly ([asarly@solarcity.com](mailto:asarly@solarcity.com)); Sarah Hill ([shill@solarcity.com](mailto:shill@solarcity.com)); 'Rob Miller'  
**Subject:** RE: Brush Hill Rd.

Richard:

As promised, I am attaching copies of the additional reports that I received from All Points Technologies earlier today. We will copy you on our formal response to the Siting Counsel which is due out next week, but due to the fact that the Town expressed an interest in the wetlands and vernal pool studies, I wanted to get those over to you as soon as possible.

Additionally, I also wanted to check in to see how the Planning and Zoning meeting went last night.

We stand by ready to address any issues that may have been raised during your meeting or your subsequent review. When you have a second, please send over any items you would like us to address and we will respond to them as quickly as possible. As discussed previously, it is our goal to address the Town's concerns proactively, and avoid any delay in the Siting Council approval process.

We are confident that we can find workable solutions to any issues raised by the Town and look forward to working with you to address your concerns.

Have a great weekend.

Mike Singer

Michael Singer  
Renova Partners, LLC  
Brightfields Development, LLC  
40 Walnut Street, Suite 301  
Wellesley, MA 02481  
Direct: 860-216-2293  
Main Office Phone: 781-431-8101

Mobile Phone: 860-214-7195 (Primary)  
[msinger@renovapartners.com](mailto:msinger@renovapartners.com)

---

**From:** Richard Serra [<mailto:rserra@seccog.org>]  
**Sent:** Wednesday, May 13, 2015 8:31 AM  
**To:** 'Rob Miller'; Mike Singer  
**Cc:** [firstselectman@bozrahct.org](mailto:firstselectman@bozrahct.org); Caitlin McSherry; 'Armando Grijalva Valencia'  
**Subject:** RE: Brush Hill Rd.

Sounds good.

**From:** Rob Miller [<mailto:rmiller@solarcity.com>]  
**Sent:** Tuesday, May 12, 2015 9:46 PM  
**To:** Richard Serra; 'Mike Singer'  
**Cc:** [firstselectman@bozrahct.org](mailto:firstselectman@bozrahct.org); 'Caitlin McSherry'; Armando Grijalva Valencia  
**Subject:** RE: Brush Hill Rd.

Hi Richard,

We will add the note about landscaping to be regularly maintained and send over a final copy.

Best, Rob

Robert Miller | Project Manager | SolarCity | T:914.584.6894 | F:866.270.6397 | [rmiller@solarcity.com](mailto:rmiller@solarcity.com) | [www.solarcity.com](http://www.solarcity.com)  
AZ ROC 243771/ROC 245450, CA CSLB 888104, CO EC8041, CT HIC 0632778/ELC 0125305, DE 2011120386/ T1-6032, DC 410514000080/ECC902585, FL EC13006226, HI CT-29770, MA HIC 168572/EL-1136MR, MD HIC 128948/11805, NC 30801-U, NH 0347C/12523M, NV NV20121135172/B2-0078648/C2-0079719, NJ NJHIC#13/H06160600/34EI01732700, NM EE98-379590, OR CB180498/C562, PA HICPA077343, RI AC004714/Reg 38313, TX TECL27006, UT 8726950-5501, VA ELE2705153278, VT EM-05829, WA SOLARC\*91901/SOLARC\*905P7.  
Nassau H2409710000, Greene A-486, Suffolk 52057-H, Putnam PC6041, Rockland H-11864-40-00-00, Westchester WC-26088-H13, N.Y.C #2001384-DCA.  
SCENYC: N.Y.C. Licensed Electrician, #12610, #004485, 155 Water St, 6th Fl., Unit 10, Brooklyn, NY 11201, #2013966-DCA

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**From:** Richard Serra [<mailto:rserra@seccog.org>]  
**Sent:** Monday, May 11, 2015 2:40 PM  
**To:** 'Mike Singer'; Rob Miller  
**Cc:** [firstselectman@bozrahct.org](mailto:firstselectman@bozrahct.org); 'Caitlin McSherry'; Armando Grijalva Valencia  
**Subject:** RE: Brush Hill Rd.

Yeah it was understood that the vernal pool was on adjacent property. Commissioners were curious as the assessment states that a conclusive determination as to impact couldn't be made until survey is completed (p23).

Richard

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**From:** Mike Singer [<mailto:MSinger@renovapartners.com>]  
**Sent:** Monday, May 11, 2015 1:59 PM  
**To:** Richard Serra; 'Rob Miller'  
**Cc:** [firstselectman@bozrahct.org](mailto:firstselectman@bozrahct.org); Caitlin McSherry; 'Armando Grijalva Valencia'  
**Subject:** RE: Brush Hill Rd.

Richard:

We should have the final vernal pool study completed by the end of the week. As discussed, during the Site visit, the vernal pool was detected on the adjacent property and will not be impacted by this development.

We will forward along the completed report as soon as it is finalized for your review.

Thanks again for all the help.

Mike Singer

Michael Singer  
Renova Partners, LLC  
Brightfields Development, LLC  
40 Walnut Street, Suite 301  
Wellesley, MA 02481  
Direct: 860-216-2293  
Main Office Phone: 781-431-8101  
Mobile Phone: 860-214-7195 (Primary)  
[msinger@renovapartners.com](mailto:msinger@renovapartners.com)

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**From:** Richard Serra [<mailto:rserra@seccog.org>]  
**Sent:** Monday, May 11, 2015 1:46 PM  
**To:** 'Rob Miller'  
**Cc:** [firstselectman@bozrahct.org](mailto:firstselectman@bozrahct.org); Mike Singer; Caitlin McSherry; 'Armando Grijalva Valencia'  
**Subject:** RE: Brush Hill Rd.

Hi Rob. Thanks – first look over is good. Could a note be added stipulating that the front landscaping will be regularly maintained by the property owner? The Bozrah IWWC met last Thursday and had a question re: proposed spring vernal pool study (p23 environmental assessment) and P&Z will meet this Thursday. The Drainage Calculations have been reviewed by the Town Engineer also. These several comments will be summarized for you after P&Z meets. Thanks again.

Richard

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**From:** Rob Miller [<mailto:rmiller@solarcity.com>]  
**Sent:** Friday, May 08, 2015 4:05 PM  
**To:** Richard Serra  
**Cc:** [firstselectman@bozrahct.org](mailto:firstselectman@bozrahct.org); [msinger@renovapartners.com](mailto:msinger@renovapartners.com); Caitlin McSherry ([CMcSherry@brightfieldsllc.com](mailto:CMcSherry@brightfieldsllc.com)); Armando Grijalva Valencia  
**Subject:** RE: Brush Hill Rd.

Hi Richard,

Here is our first draft of planting details for the Brush Hill Rd. Solar Array.

I also got a call from Laura Stauning who is the neighbor to the south. She asked if we could provide some planting for screening for her house as well. So we have also included planting between that house and the array.

Please let me know if you have any comments or questions.

Best, Rob

Robert Miller | Project Manager | SolarCity | T:914.584.6894 | F:866.270.6397 | [rmiller@solarcity.com](mailto:rmiller@solarcity.com) | [www.solarcity.com](http://www.solarcity.com)  
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SCENYC: N.Y.C. Licensed Electrician, #12610, #004485, 155 Water St, 6th Fl., Unit 10, Brooklyn, NY 11201, #2013966-DCA

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**From:** Richard Serra [<mailto:rserra@seccog.org>]

**Sent:** Wednesday, May 06, 2015 8:04 AM

**To:** Rob Miller

**Subject:** Brush Hill Rd.

Thanks for the update Rob. It seems to me that the short distance between the edge of pavement and proposed fence along with sightline standards have got to be challenging also. I'm interested in seeing the solution.

Richard



May 6, 2015

Mr. William Ballinger, First Selectman  
Town of Bozrah  
Bozrah Town Hall  
1 River Road  
Bozrah, CT 06334

RE : Engineering Review  
Proposed Solar Photovoltaic System Installation  
Brush Hill Road, Bozrah, CT

Dear Mr. Ballinger:

Per your request, Anchor Engineering Services, Inc. has reviewed the plans titled "Site Development Plan, Proposed Solar Photovoltaic System Installation, Prepared for Brightfields Development LLC., Brush Hill Road, Bozrah, CT, Assessor's I.D. 04/006A1, October 2014." and has the following comments:

- 1) Plans show infiltration trenches as part of the drainage design. The Stormwater Management Report includes a description of these infiltration trenches, but the calculations do not appear to take into account any infiltration that would occur. The applicant should clarify if these trenches are designed to infiltrate stormwater and, if so, provide testing data to document the infiltration capacity of the soils within the vicinity of the infiltration trenches.
- 2) The plans show several areas where outcrops of ledge are present. The applicant should provide test pit data in the areas of all stormwater detention basins and infiltration trenches in order to demonstrate the stormwater treatment structures can be built to proposed depths without encountering bedrock, to ensure that they will function as proposed.
- 3) Sediment and Erosion control proposed on site do not appear to meet the standards of the "2002 Connecticut Guidelines for Soil Erosion and Sediment Control" (Guidelines). We recommend that the site plans be revised to implement water handling and phasing during the construction process. The site is proposed to be cleared of all vegetation and topsoil stripped and stockpiled. Per Chapter 5-11 of the Guidelines, Sediment Impoundments, Barriers and Filters, Temporary Sediment Basins or Traps shall be used to intercept and retain sediment during construction. The applicant has only proposed silt fence.
- 4) Detail of staked hay bales should to be provided on the plans.

Mr. William Ballinger

May 6, 2015

Page 2 of 2

- 5) The plans should show any proposed utility conduits within the proposed access drive and the town right-of-way along Brush Hill Road.

If you have any questions regarding the above or the enclosed information, please don't hesitate to contact me at (860) 633-8770.

Sincerely,

A handwritten signature in blue ink that reads "Matt Brown". The signature is written in a cursive, slightly slanted style.

Matthew N. Brown, P.E.

Associate