sPower Calverton Solar Energy Facility

Middle Country Road/NYS Route 25 and Peconic Avenue
Hamlet of Calverton, Town of Riverhead
Suffolk County, New York

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June 2017

DRAFT ENVIRONMENTAL IMPACT STATEMENT
sPOWER SOLAR ENERGY FACILITY
MIDDLE COUNTRY ROAD/NYS ROUTE 25 AND
PECONIC AVENUE
HAMLET OF CALVERTON, TOWN OF RIVERHEAD
SUFFOLK COUNTY, NEW YORK

PROJECT LOCATION: South side of Middle Country Road, west of Peconic Avenue
Hamlet of Calverton, Town of Riverhead, Suffolk County

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AVAILABILITY OF DOCUMENT: This document represents a Draft Environmental Impact Statement (DEIS) prepared in accordance with Article 8 of the New York Environmental Conservation Law (the State Environmental Quality Review Act [SEQRA]) and its implementing regulations at 6 NYCRR Part 617. Copies are available for public review and comment at the offices of the lead agency, on the Town of Riverhead website at www.townofriverheadny.gov and at the Riverhead Public Library.

DATE OF ACCEPTANCE: July 6, 2017

DEADLINE FOR COMMENTS:

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Executive Summary

This Executive Summary is designed solely to provide an overview of the proposed action, a brief summary of the potential adverse impacts identified and mitigation measures proposed, as well as alternatives considered. Review of the Executive Summary is not a substitute for the full evaluation of the proposed project performed in Sections 2 through 5 of this DEIS.

1.1 Introduction and Project Description

This document is a Draft Environmental Impact Statement (DEIS) prepared in accordance with the State Environmental Quality Review Act (SEQRA) and its implementing regulations at 6 NYCRR Part 617 for the action contemplated herein, and is based upon the Final Scope issued by the Town of Riverhead Planning Board as the Lead Agency on April 6, 2017. This DEIS evaluates the potential adverse impacts associated with the proposed action, which consists of subdivision, site plan, special permit, and other approvals in connection with the development of the sPower Calverton solar facility, including a 20 megawatt alternating current (MW_{AC}) solar photovoltaic (PV) panel array facility ("solar panel array facility" or "solar panel array field") and a proposed 8,670±-linear foot (LF) underground transmission generation tie-in ("gen-tie") line within a 15±-foot-wide easement connecting the solar panel array facility to a proposed solar collection facility in the hamlet of Calverton, Town of Riverhead (the "proposed action" or the "solar PV energy facility").

This DEIS evaluates the following topics, based on the Final Scope issued by the Planning Board:

- Land Use and Zoning
- Soils and Topography
- Environmental Features
- Glare
- Socioeconomics
- Growth Inducement
- Cumulative Impacts.

The solar panel array facility would be located on a 109.9± parcel ("Parcel A") to be created along the south side of Middle Country Road/NYS Route 25 from the subdivision of two existing tax lots (District 0600 - Section 116.00 – Block 01.00 – Lot 007.002, and District 0600 – Section 098.00 – Block 01.00 – Lot 021.001) to create three new parcels ("A," "B" and "C"), and the development of a solar PV panel array facility on Parcel A. Parcels B and C would remain in their existing use and no new improvements are proposed on either proposed parcel as part of the proposed action. An underground gen-tie line would be installed within a proposed 15±-foot easement that would extend from Parcel A, eastward within private property and across Edwards Avenue, southward within private property to location of the proposed solar collection facility (within property containing an existing solar panel array facility), through the following tax lots (together referred to as the "easement property"):

- District 0600 – Section 116.00 – Block 02.00 – Lot 007.004
- District 0600 – Section 117.00 – Block 01.00 – Lot 006.000, and
- District 0600 – Section 117.00 – Block 02.00 – Lots 007.002 and 008.002.

The gen-tie line connects to the proposed solar collection facility, which is a step up transformer that generates the electricity from a 34.5 kV to 138 kV output that would connect to Edwards Long Island Power Authority (LIPA) Substation. The proposed solar collection facility would be located on the southern portion of tax lot District 0600 – Section 137.00 – Block 01.00 – Lot 032.001, located on the east side of Edwards Avenue and north of the Long Island Railroad (LIRR) tracks. This property is developed with an existing sPower solar PV panel array facility. Construction of the overall facility is expected to occur in a single phase, over a six-to-eight month period.

The solar facility would be operated on an unstaffed basis and monitored remotely, with regular on-site personnel visitations for security, maintenance, and system monitoring. There would be no full-time site personnel on-site during operation. Thus, there would be low level of activity associated with the proposed use (e.g., traffic, noise, occupancy, water use, etc.), and the proposed action would not result in solid waste generation or sewage generation.

The sPower Calverton solar facility has been awarded a 20-year Power Purchase Agreement (PPA) under the LIPA's 280 MW Renewable Request for Proposals. After the expiration of the 20-year PPA, the solar panel array facility would be dismantled

and disposed of as part of a planned decommissioning process. Prior to construction of the sPower Calverton solar facility, the Applicant would provide a bond to the Town for the funds that would be necessary to complete the decommissioning process. The bond would ensure that, in the event that the Applicant company is no longer in existence at the end of the 20-year PPA, funds would be available to the Town for decommissioning.

The proposed action is expected to result in a range of benefits, including:

- Establishment of a clean, renewable source of energy, reducing the demand for electricity generated by the burning of fossil fuels at traditional power plants, and eliminating the air emissions associated therewith.
- Generation of an estimated 37,648 megawatt hours (MWh) of electricity annually, enough to power approximately 5,723 homes.
- Advancing the Town of Riverhead's goal to provide renewable energy facilities within the Town in a responsible manner that safeguards against adverse effects upon natural resources and surrounding properties.
- Generation of approximately 100-to-200 construction jobs and one full-time equivalent job during long-term operations.
- Substantial increase in property taxes and other revenues to the Town of Riverhead and the various relevant taxing jurisdictions. Revenues are estimated at $846,922 - - an increase of $826,414 per year, or over 40 times the existing property tax revenues.

The proposed action (including the gen-tie) is expected to require the following permits and approvals:

Agency	Required Permit/Approval
Town of Riverhead Town Board	Special Permit
Town of Riverhead Planning Board	Subdivision; Site Plan
Town of Riverhead Board of Appeals	Area Variances for Solar Collection Facility
Town of Riverhead Building Department	Building Permit
Town of Riverhead Highway Department	Road Opening Permit
New York State Department of Environmental Conservation	Notice of Intent-SWPPP; SPDES General Permit for Stormwater (GP-0-15-002)
New York State Department of Transportation	Highway Work Permit

1.2 Land Use and Zoning

Land Use

Implementation of the proposed action would result in a change of use from an existing sod farm on Parcel A to a commercial solar energy production system (i.e., the proposed solar panel array field). As discussed below, this proposed facility is a permitted use within the Industrial C zoning district, subject to the issuance of a special permit. The proposed gen-tie line would be 8,670± LF in length within a 15±-foot wide easement, totaling 2.99± acres, and ground cover within the 15±-foot wide easement would be replaced in-kind after installation of the underground conduit such that there would be no change to existing land use along the proposed gen-tie route. The proposed solar collection facility would be contained within a 0.5±-acre area on the same tax parcel as and south of the existing sPower solar facility. Land use on the overall parcel (i.e., the existing sPower solar facility) would remain the same, and the proposed improvements consistent with and complementary to the existing use.

A comparison of existing and proposed site coverages at both the subdivision property indicates that the proposed action would not result in substantial changes in site coverage. Only 0.03 acre of impervious surface area would be created at each the proposed Parcel A (where none exists currently), and the proposed collection facility parcel (in an area currently containing mowed lawn). A total of approximately 34.85 acres of solar panels would be installed at Parcel A, however, the land beneath will be maintained in a pervious condition such that stormwater can infiltrate the land surface. A total of 3.79±acres at Parcel A would be dedicated as Drainage Reserve Areas, and utilized as part of the stormwater management system design. Additionally, a total of 3.90± acres of gravel drive area would be created at Parcel A, and 0.38± acre of additional gravel surface area would be created at the solar collection facility parcel.

The one-quarter-mile radius surrounding the subject property contains sod farm and other agricultural uses, as well as a patchwork of undeveloped woodlands, and religious, industrial, commercial and single-family residential uses. The proposed action would not introduce a unique use within this portion of the Town, as there are two existing solar facilities (including the existing sPower facility along Edwards Avenue, and a facility owned by another entity) within the area. Although the proposed solar array field on Parcel A would differ in use from the adjacent sod farm, residential and commercial uses, it would complement the existing industrial use immediately to the west. In addition, the proposed sPower Calverton solar facility would comply with all use requirements. Overall, it is not expected that operation of a solar farm on the subject property would result in significant adverse land use impacts upon surrounding uses, particularly given the proposed vegetated buffers along the northern and eastern perimeters of Parcel A.

The solar panels would be substantially set back from Middle Country Road/NYS Route 25 due to the proposed "flag lot" configuration of Parcel A, further reducing

the potential for land use-related impacts. The extremely low level of activity associated with the proposed use – i.e., in terms of traffic, noise, occupancy, water use, etc. – minimizes the potential for the proposed action to significantly impact surrounding land uses. Additionally, the proposed solar PV energy facility would be dismantled and properly disposed as part of a planned decommissioning process upon expiration of the 20-year PPA. Accordingly, the potential land use impacts of the proposed action are not permanent.

The Town of Riverhead encompasses approximately 43,445 acres of land. Of that total, 14,996± acres consist of active agricultural land, including several parcels in the vicinity of the subject property. This represents approximately 35 percent of the entire land area of the Township. The conversion of 109.9± acres of active agricultural land (for the term of the 20-year PPA and Special Permit), representing less than three tenths of one percent of the total land area of the Town and less than seven tenths of one percent of the total area of active agricultural land in the Town, would not be a significant adverse impact upon land use or agricultural resources.

Zoning

The proposed solar panel array facility and a portion of the gen-tie line would be located within the Industrial C zoning district of the Town of Riverhead. The solar collection facility, as well as the remaining portion of the gen-tie line, would be located within the Industrial A zoning district. Commercial solar energy production systems (i.e., the solar panel array field) are permitted within the Industrial C zoning district subject to the issuance of a special permit. Consistency of the proposed sPower Calverton solar facility with the bulk and dimensional criteria of the Industrial A and Industrial C zoning districts is presented below.

Consistency with Bulk and Dimensional Zoning Requirements for the Proposed Solar PV Energy Facility (Parcel A)

Regulation	Industrial C	Proposed Solar Array Facility
Minimum lot area	80,000 SF	4,784,110 SF
Minimum lot width at front street	300 feet	50 feet*
Maximum building lot coverage	40%	35%
Maximum impervious surfaces	60%	35%
Maximum height of buildings	30 feet	N/A
Maximum floor area ratio (FAR)	0.40	0
Minimum front yard depth	30 feet	N/A
Minimum side yard depth (each/combined)	30 / 60 feet	30.12 / 61.24 feet
Minimum rear yard depth	50 feet	50.88 feet
Minimum property line buffer	10 feet	25 feet
Minimum street buffer	20 feet	N/A
Minimum parking buffer	20 feet (side yard) 10 feet (rear yard)	N/A

Note: *Flag lot. A lot width of 300 feet or greater is maintained throughout the improved portion of the lot.

Consistency with Bulk and Dimensional Zoning Requirements - Collection Facility Parcel		
Regulation	**Industrial A**	**Collection Facility Parcel**
Minimum lot area	80,000 SF	1,964,687 SF
Minimum lot width at front street	200 feet	1,711 feet
Maximum building lot coverage	40%	28.01%
Maximum impervious surfaces	70%	28.01%
Maximum height of buildings	30 feet	30 feet*
Maximum floor area ratio (FAR)	0.40	0
Minimum front yard depth	100 feet	100.1 feet
Minimum side yard depth (each/combined)	50/100 feet	40.9/91.1 feet**
Minimum rear yard depth	75 feet	46.4 feet**
Minimum property line buffer	10 feet	10 feet
Minimum street buffer	20 feet	20 feet
Minimum parking buffer (front yard)	30 feet	30 feet

Notes: *Proposed solar collection facility height.
**Variance would be required.

As noted above, the proposed action would require variances from the Town Zoning Board of Appeals (ZBA). As Parcel A is a flag lot, the lot width at Middle Country Road/NYS Route 25 (i.e., 50 feet) would not meet the 300-foot minimum lot width requirement. However, the width of the main portions of Parcel A (where the solar facility improvements are proposed) would be at least 300 feet in width and, therefore, would exceed the requirement. At the collection facility parcel, the requested variance to the side yard depth requirement would not be substantial (40.9 feet proposed, 50 feet required for one; 91.1 feet proposed, 100 feet required for both). The rear yard of the collection facility parcel (46.4 feet proposed, 75 feet required) adjoins an undeveloped wooded area of an agricultural use, and, therefore, a smaller rear yard depth would not impact the adjacent use. Overall, the variances to the above-referenced dimensional criteria that would be required for implementation of the proposed action would not adversely impact zoning or land use in the vicinity of the project area.

Pursuant to §301-282 of the Town Code, for the construction of a proposed solar panel array facility on Parcel A, in the Industrial C district. The Town Code contains specific regulations for this type of a use (i.e., a commercial solar energy production system), and the consistency of the proposed action with each regulation is presented below:

A. *The commercial solar energy system shall be on a parcel of not less than five acres.*

The proposed action includes a proposed subdivision, creating Parcels A, B, and C. The proposed solar panel array facility would be situated on Parcel A, which at 109.9± acres complies with this standard.

B. All ground-mounted panels shall not exceed the height of eight feet.

The proposed solar panels would be installed to a maximum top height of eight feet above grade level, in conformance with this standard.

C. All mechanical equipment of commercial solar energy systems, including any structure for batteries or storage cells, are completely enclosed by a minimum eight-foot-high fence with a self-locking gate.

An eight-foot high chain-link fence with a compliant gate would be installed along the perimeter of Parcel A, which would contain the solar panel array field, in conformance with this standard.

D. Notwithstanding any requirement in §301-115, 301-229, 301-123, 301-127 of this chapter, the total surface area of all ground-mounted and freestanding solar collectors, including solar photovoltaic cells, panels, and arrays, shall not exceed 80% of the total parcel area.

Subsequent to the completion of the proposed action, the building lot coverage on Parcel A (i.e., solar panels, concrete pads, and on-site gravel roadways) would be approximately 35 percent, well below the maximum specified in this standard.

E. The installation of a vegetated perimeter buffer to provide year-round screening of the system from adjacent properties.

Vegetated buffers would be installed along the frontage of Parcel A at Middle Country Road/NYS Route 25. Additionally, vegetative screening would be planted along the northern property boundaries of Parcel A with the adjacent residential and commercial uses and along a portion of the eastern property line of Parcel A. These plantings would sufficiently screen the property from potentially sensitive surrounding land uses. Vegetated buffers would be comprised of evergreen species to provide year-round screening of the proposed solar panel array field (see *Solar Facility Planting Plan* [Sheet L-1] in Appendix B). Thus, the proposed action would comply with this standard.

F. All solar energy production systems are designed and located in order to prevent reflective glare toward any habitable buildings as well as streets and rights-of-way.

The solar panel arrays would be placed and constructed to prevent reflective glare to the maximum extent possible.

G. All on-site utility and transmission lines are, to the extent feasible, placed underground.

On-site utility and transmission lines would be installed underground to the maximum extent practicable. The gen-tie line connecting the proposed solar panel facility to the collection facility also would be placed underground.

H. The installation of a clearly visible warning sign concerning voltage must be placed at the base of all pad-mounted transformers and substations.

Clearly visible warning sings regarding voltage would be placed as specified by the above criterion. Overall, all signage at the proposed solar panel array facility would be in conformance with the Town Code.

I. The system is designed and situated to be compatible with the existing uses on adjacent and nearby properties.

The proposed solar panel array facility would be compatible with existing uses in the study area, as evaluated in this section of this DEIS. Moreover, as there are two existing solar panel array facilities within a one-quarter mile radius of the project area, the proposed sPower Calverton solar facility would not represent a unique use in the area. Additionally, as detailed in this section of this DEIS, the proposed solar panel array facility would be decommissioned after expiration of the 20 year PPA, and Parcel A would then be available for future use or restoration.

J. In approving a special exception, the Planning Board [sic] *may waive or modify any of the above criteria if it finds that there is no detriment to public health, safety and welfare.*

The proposed solar panel array facility would be constructed in compliance with all applicable building and fire codes. Based on the analyses in this DEIS, the proposed use would also not pose significant adverse impact with respect to stormwater runoff or construction. It is also anticipated that the establishment of the proposed sPower Calverton solar facility would produce a benefit to public health and welfare by providing a clean, renewable source of energy to the Town and Long Island as an alternative to the burning of fossil fuels that produce greenhouse gas emissions.

Thus, there would be no detriment to public health, safety and welfare as a result of the proposed action, consistent with this standard.

K. Any special permit approval granted under this article shall have a term of 20 years, commencing from the grant of the special permit, which may be extended for additional five-year terms upon application to the Town Board.

All equipment associated with the proposed solar PV energy facility would be removed when the 20-year PPA expires. Although the term of the special permit that would be required for the solar panel array facility would expire after 20 years, no extension of the special permit would be requested, as the PPA would also expire and the entire sPower Calverton solar facility would be decommissioned and removed.

L. *Decommissioning/removal. The decommissioning regulations in §301-282(L) of the Town Code state that "a commercial solar energy production system that is not operated for a continuous period of 24 months shall be deemed abandoned." Further, if the owner does not remove the components of the facility in 90 days, after a 30-day notice, the Town can then remove such components at the owner's expense. The decommissioning provision of the use regulation indicates that the purpose of this criterion is to ensure the proper decommissioning of commercial solar energy production systems in order to "promote the public health, safety and general welfare of Town citizens."*

   With respect to the above regulation, the proposed action has been awarded a 20-year PPA under the LIPA 280 MW RFP. As such, the solar panel array facility would be fully operational and maintained for 20 years by sPower. As previously indicated, after expiration of the 20-year PPA, the solar array facility would be decommissioned and properly disposed as part of a planned decommissioning process. As discussed below, prior to construction of the sPower Calverton solar facility, the applicant would provide a bond to the Town for the funds that would be necessary to complete the decommissioning process.

Applications for commercial solar energy production systems must be accompanied by decommissioning plans that would be implemented upon abandonment or removal of the use. As indicated in §301-283 of the Town Code, decommissioning plans must include information as to the following:

1. *Restoration of the surface grade and soil after removal of aboveground structures and equipment.*
2. *Restoration of soil areas with native seed mixes and/or plant species suitable to the area, which shall not include any invasive species.*
3. *Retention of access roads, fences, gates or buildings or buffer plantings, as required at the discretion of the Town.*
4. *Restoration of the site for agricultural crops or forest resource land, as applicable.*
5. *The disposal of all solid and hazardous waste shall be in accordance with all local, state, and federal waste disposal regulations.*
6. *An applicant of a commercial solar energy system comprising more than 10 acres shall provide a form of surety, either through escrow account, bond or otherwise, to cover the cost of removal in the event the Town must remove the installation and remediate the landscape, in the amount and form deemed to be reasonable by the Town Engineer . . . The applicant of the facility shall submit a fully inclusive estimate of the cost associated with removal, prepared by a professional engineer.*

Prior to implementation of the proposed action, the applicant would submit a plan to the Town that would detail the process for decommissioning of the sPower

Calverton solar facility that would occur after the expiration of the 20-year PPA. In conformance with the above-listed requirements, the decommissioning plan would include provisions for removal of above-ground structures and equipment; restoration of surface grades, soils, and native plant species; and disposal of solid and hazardous waste in accordance with applicable regulations. Access roads, fences, gates and buffer plantings associated with the sPower Calverton solar facility would be retained or removed at the ultimate discretion of the Town. As is also discussed in this section, below, the decommissioning process would allow for the restoration of Parcel A to allow reactivation of the existing sod farm use, other agricultural use, or to become fallow and, possibly, eventually to revert to undeveloped wooded land. The decommissioning plan to be submitted to the Town would include provisions for such restoration of Parcel A.

In addition, as discussed above, prior to construction of the sPower Calverton solar facility, the applicant would provide a bond to the Town to ensure completion of the decommissioning process. The bond would ensure that in the event that the applicant is no longer in existence at the end of the 20 year PPA, funds would be available to the Town for decommissioning. The bond monies would be available to the Town to cover the cost of removal of all improvements and remediation of the landscape. The amount of the bond would be based on an estimate for removal and remediation, as confirmed by the Town engineer.

Based on the foregoing analysis, the proposed solar panel array facility would comply with the standards for the issuance of a special permit in the Industrial C zoning district. Therefore, the proposed solar panel array facility use in the Industrial C zoning district would not result in any significant adverse impacts to zoning.

Mitigation

The proposed action is not expected to result in significant adverse impacts to land use and zoning, such that no mitigation measures are necessary. Nonetheless, in order to minimize potential land use and zoning impacts, the following measures have been incorporated into the proposed action:

- The areas beneath and between the proposed solar panel arrays would be seeded with a variety of grasses after completion of the equipment installation.
- Drought-tolerant evergreen plantings would be installed strategically along property boundaries to provide year-round screening of views from neighboring properties and roadways. On the northern property boundary of Parcel A (i.e., closest to Middle Country Road/NYS Route 25, south of Parcels B and C), a double-row of evergreen shrubs and staggered trees would obscure the limited views of the proposed solar facility from the roadway corridor. Similar additional plantings would be placed on a portion of the eastern property line of Parcel A to screen views facing southwest from along Middle Country Road/NYS Route 25.
- Evergreen plantings and additional landscaping would be installed along the western property line of the solar collection facility, mitigating potential visual

impacts of the proposed equipment from Edwards Avenue upon surrounding land uses.

- The proposed gen-tie line would be installed underground along its entire route so that this component of the proposed action would not involve any change to land use or site coverage.
- The proposed action is designed to be consistent with the goals and objectives of the Town of Riverhead's *2003 Comprehensive Master Plan,* the *Suffolk County Comprehensive Master Plan 2035,* and use regulations for commercial solar energy production systems set forth in §301-282 in the Town Code. The proposed action is designed to meet the standards for the issuance of a special permit set forth in §301-282 of the Town Code.
- The proposed action includes a decommissioning process, which ensures that after the 20-year PPA term expires, the subdivision property could revert back to sod farm use or other agricultural uses.
- The proposed action would establish a solar PV energy facility that would provide a clean and renewable source of electricity to the grid, benefitting the Town by helping to provide for growing energy needs in a non-polluting manner.

1.3 Soils and Topography

According to the *Soil Survey of Suffolk County, New York* (USDA, 1975) ("*Soil Survey*") and the USDA Web Soil Survey data (2013), several soil series are present at the subject property, including the subdivision property, easement property and solar collection facility property, including (predominantly) Riverhead, Haven and Plymouth series soils. Analysis of the planning and engineering limitations for the applicable soil mapping units, as provided within the *Soil Survey*, indicates that the characteristics of on-site soils are not expected to present any significant limitations to the proposed improvements. This is due, in part, to the nature of the proposed facility and the design of the solar PV array structures (i.e., frame on piles), as well as the design of the gen-tie (for installation within a narrow trench), which do not have the requirements of typical construction for buildings, parking areas and landscaping. These factors also limit the extent of land disturbance necessary to install the proposed improvements. To minimize the potential for adverse erosion and sedimentation impacts, an Erosion and Sediment Control Plan would be implemented at the subject property. Measures to be implemented include the establishment of a stabilized construction entrance, installation of drainage inlet protection measures and silt fencing/straw bales, and the use of erosion control blankets, as necessary. Coverage under the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (GP-0-15-002) would be obtained, and a Stormwater Pollution Prevention Plan (SWPPP) acceptable to the Town would implemented during construction. Overall, no significant adverse impacts to soils are expected to result upon implementation of the proposed action.

With respect to topography, potential impacts include minor regrading at Parcel A. Limited grading will be necessary in order to accommodate the proposed improvements, and in connection with the proposed stormwater management system design. The proposed grading plan would maintain the existing grade to the maximum extent practicable, and only minor recontouring of the land surface beneath the solar panel arrays would occur. The underground gen-tie conduit would be installed entirely within a trench, such that the finished grade would be approximately the same as existing grade throughout the easement property. The area where the proposed solar collection facility will be implemented is currently flat throughout, such that no substantial changes to topography are necessary to accommodate the proposed equipment installation. Overall, the proposed action would minimally alter the existing topography of the subject property, and no significant adverse impacts to topography are anticipated.

Various mitigation measures have been incorporated into the design of the proposed action with respect to soil and topography impacts (several of which will be reflected in the Erosion and Sediment Control plan and SWPPP), including:

- Strategic grading and application of topsoil (as needed) to address potential soil limitations.
- Protection of existing vegetation to remain.
- Scheduling of clearing and grading activities to minimize the total area of land disturbed at any one time.
- Limiting the length of time areas are exposed by establishing pavement and plantings at exposed areas as soon as practicable.
- Installation of sediment barriers (e.g., silt fence, hay bales) along the limits of disturbance for the duration of the work. No sediment from the site would be permitted to wash onto adjacent properties, wetlands or roads.
- Stabilization of graded and stripped areas and stockpiles via temporary seeding or other effective cover.
- Protection of drainage inlets through the use of sediment barriers, sediment traps, etc., to prevent sediment buildup.
- Control of fugitive dust (e.g., covering of stockpiles, temporary seeding, use of a water truck during extended dry periods).
- Establishment of a stabilized construction entrance to prevent soil and loose debris from being tracked onto local roads.

1.4 Environmental Features

At the proposed Parcel A, existing habitat and vegetation is limited to turf grasses (associated with the active sod farm operation) and an area of Successional Old Field community that is dominated by the non-native/invasive plant species mugwort, and several other common weedy herbaceous plants. Accordingly, no significant adverse impacts to habitat or vegetation at this property is expected to result from

construction of the proposed solar PV array facility. Following implementation of the proposed action, the proposed solar panel array facility would consist primarily of mowed grass habitats within the solar panel array fields, as well as gravel-surfaced internal driveways, gravel-surfaced equipment areas with concrete equipment pads, grassed drainage swales, two grassed drainage reserve areas and perimeter tree and shrub plantings. It should be noted that the proposed drainage reserve areas would create conditions that are conducive to colonization of these areas by facultative wetland plants, potentially resulting in increased plant diversity, as compared to existing conditions.

The primary impact of the gen-tie line installation to habitats and vegetation would be temporary disturbance and clearing of vegetation through excavation of a utility trench within the 15-foot wide gen-tie route easement between the proposed solar panel array facility and Edwards Avenue. However, as the majority of the gen-tie line route follows the existing and primarily unvegetated Unpaved Road/Trail, vegetative clearing of trees and shrubs would be minimal and limited to the edges of the surrounding Successional Shrubland, Spruce-Fir Plantation and Pitch Pine-Oak Forest communities. Moreover, portions of the three aforementioned communities have already been significantly disturbed due to installation of structures and human activity associated with the adjacent paintball facility. East of Edwards Avenue, the gen-tie route is either vegetated with common grasses and weedy herbaceous plants, or is largely unvegetated. The location of the proposed solar collection facility currently contains mowed lawn areas only. Overall, no significant adverse impacts to habitat or vegetation are expected to occur in connection with the proposed gen-tie or solar collection facility.

A total of 11 current and historic records were identified or New York State-listed Endangered and Threatened plants within the project area vicinity, none of which were observed during the 2014-2016 field surveys. Four of the records are from off-site locations, and the remaining seven are aged (from 61 to 143 years old) and are not necessarily specific to the project area. Four of those seven are for plants that occur within wetlands or wetland edge habitats, where no clearing, filling or other disturbances are proposed. For the three remaining species, potential habitat exists only within or immediately adjacent to the Pitch Pine-Oak forest communities along the gen-tie route and beyond the eastern fence line of the existing solar panel array (at the collection facility property). Minimal or no clearing is proposed in these areas, such that no significant adverse impacts to rare/protected plant species are anticipated.

With respect to wildlife, displacement of certain resident wildlife within the project area would occur during clearing/regrading activities. it is anticipated that the habitats within and in the general surrounding area of the project area would experience a temporary increase in wildlife populations during the clearing/grading and construction phases of the proposed action, due to emigration of individuals from the disturbed areas. Subsequently, it is anticipated that inter- and intra-specific competition for available resources within these surrounding habitats would result in an insignificant net decrease in local population size for most species, until

equilibrium between wildlife populations and available resources is achieved. It is noted that the cessation of periodic ground disturbance due to sod planting and harvesting would likely result in an increased abundance of ground-dwelling wildlife, and the anticipated intermittent inundation events within the two drainage reserve areas would potentially result in increased wildlife species diversity within these portions of the proposed solar panel array facility. A similar wildlife species assemblage is anticipated along the gen-tie route and within the adjacent ecological communities. The same ecological community types that occur under existing conditions (i.e., Mowed Lawn, Paved Road Path) within the existing solar panel array facility would occur following implementation of the proposed action, with a minimal decrease in vegetated habitat within the area of the proposed solar collection facility.

Based upon the foregoing, impacts to wildlife due to the proposed action are expected to be minimal and mostly temporary in nature. Due to identical or similar habitat types as those that occur under existing conditions, a similar wildlife species assemblage to that which currently occurs is expected within the project area, including most resident species that occur within the existing and proposed solar panel array facilities and a more diverse fauna within the more isolated and less disturbed portions of the gen-tie route. Accordingly, no significant adverse impacts to overall wildlife populations within the project area are anticipated as a result of the proposed action.

The subject property was also assessed with respect to rare/protected wildlife species following a review of location-based database research. Wildlife species assessed included the eastern box turtle, northern long-eared bat, short-eared owl, eastern tiger salamander, swamp darter, New Jersey Pine Barrens tiger beetle. An eastern box turtle was observed to the south of the proposed gen-tie route during the September 14, 2016 field survey. no other New York State- or federally-listed Endangered, Threatened, Special Concern or rare plants or wildlife, or significant natural communities, were observed within the project area during the 2014-2016 field surveys.

Due to their territorial behavior and low mobility, eastern box turtle individuals would be at risk during excavation of the gen-tie line trench. Wildlife sweeps could be conducted by trained personnel prior to construction activities to identify the most likely habitat areas and to relocate any observed eastern box turtles to safe areas. Avoiding the use of erosion control barriers that contain plastic or wire mesh would minimize the potential for turtle mortality.

With respect to the remaining aforementioned wildlife species, no significant adverse impacts are anticipated because habitat does not exist at the subject property, or because no significant clearing or construction activity is planned within areas of potential habitat.

Town and State wetland map data were reviewed to determine the potential for the proposed action to adversely affect wetland resources. Of the nine potential features (R-1 through R-9) identified based on Town map data. Only two of these – Features

R-2 and R-7 – are wetlands that are subject to Town regulation, according to the definitions set forth in Town Code §295-3. Features R-2 and R-7 are ponds located at the proposed solar panel array facility and beyond the eastern fence line of the existing solar panel array facility, respectively. No project-related clearing, grading or other ground disturbance is proposed for the two wetlands or within the Town-regulated 150-foot upland areas surrounding each wetland, such that no Town wetland permit is expected to be needed. Feature R-7 (at the overall solar collection facility property) is also regulated by the New York State Department of Environmental Conservation (NYSDEC). However, no permit is expected to be necessary, as no improvements are proposed within the 100-foot regulated adjacent area. As direct impacts to wetlands (e.g., draining, filling, dredging, discharges, construction of structures within regulated waters, etc.) would not occur in association with the proposed action, no US Army Corps of Engineers Jurisdictional Determination requests and/or permitting would be necessary for the proposed action. Overall, no significant adverse impacts to wetlands are anticipated.

Notwithstanding that no significant adverse impacts to the aforementioned environmental features are anticipated, the following measures will be implemented to minimize potential ecological impacts:

- The solar panel array fields, grassed drainage swales and grassed drainage reserve areas of the proposed solar panel array collection facility would be planted with a seed mix comprised of native fescue and rye grass varieties, native or naturalized trees, and native or non-invasive ornamental shrubs.
- Following installation of the gen-tie line, the utility trench will be backfilled and the 15-foot wide easement would be seeded with the native grass seed mix described above.
- Following construction, the surrounding area of the proposed solar collection facility would be loamed and reseeded with Solar Farm native grass seed mix, and eastern red cedar trees would be installed along the perimeter fence of the adjacent LIPA substation.

1.5 Glare

A detailed glare analysis was performed by HMMH as consultants to the Applicant to evaluate the potential for the proposed solar PV energy facility to result in glare impacts. A second, independent glare analysis was performed by Barrett Energy Resources Group (BERG) to further evaluate the potential for the proposed action to result in adverse glare impacts.

The results of the HMMH glare analysis indicate that there would be no glare at the Air Traffic Control Tower (ATCT), and no glare impacts upon aircraft along final approach paths to runway ends at the adjacent EPCAL property. Accordingly, the potential impacts are within the lowest category of potential impact (i.e., no color), and the proposed action would comply with the FAA policy.

The BERG study concluded that "HMMH utilized appropriate guidance for evaluating solar PV projects on airports included in the FAA's Solar Policy." Using conservative assumptions, and similar to the results of the HMMH study discussed above, no glare from the proposed solar PV energy facility was expected to occur at any of the study receptors analyzed within the BERG study's own Solar Glare Hazard Analysis Tool (SGHAT) assessment. The BERG study also described that the single axis tracking system that is proposed as part of the proposed action typically minimizes the potential for glare impacts, and has been used in other projects as a means for mitigating or eliminating potential impacts.

Also presented in the BERG study, is recognition that solar installations exist on at least 100 airports worldwide, and that, when designed and located properly, solar has been demonstrated to be compatible with aviation activities.

Overall, based on the above, and the results of the independent analyses of potential glare impacts by HMMH and BERG, no significant adverse glare impacts are anticipated, and no mitigation measures are warranted.

1.6 Socioeconomics

The proposed action was analyzed with respect to a range of potential socioeconomic impacts. Implementation of the proposed action is expected to result in a range of positive socioeconomic impacts, as summarized further herein.

The proposed action would aid the local economy in that it is expected to generate an estimated 100 – 200 construction jobs and one full-time post-construction employment position for the 20-year operational period.

Construction jobs associated with construction activities are expected to include the services of landscapers, heavy equipment operators, electricians, and building contractors for tasks involving clearing, site grading, array support installation, and electrical equipment installations/connections.

The estimate of 100 – 200 construction jobs is provided by the Applicant, based on its experience in developing similar projects. To further assess the socioeconomic impacts of the proposed facility, an analysis of job generation was performed using the IMPLAN model, based on the anticipated construction cost of $30 million for this proposed development. As presented below, the IMPLAN model for the type of development project considered here, anticipates that approximately 214 direct construction jobs would be generated, along with the associated fiscal benefits of same (e.g., purchasing power and increased spending on local goods and services). Secondary impacts are expected to equate to another 78 secondary jobs. According to the subdivision property owner, there would be no direct loss of full-time jobs due to the redevelopment of the sod farm as a solar PV Energy facility. The existing jobs would be transferred to other farming operations run by the property owner, including other operations in the Town of Riverhead. Therefore, employment opportunities created by the proposed action would represent a net increase of one permanent job within the Town.

Upon implementation of the proposed action, the property tax revenues generated by the subdivision property would significantly increase. The taxes generated under existing conditions total $20,507.44. This low level of property tax generation for these large parcels reflects substantial agricultural and farm building tax exemptions. Upon implementation of the proposed action, the proposed Parcel A (containing the solar PV energy facility) is expected generate substantial property tax revenues (i.e., approximately $273,860.69) in addition to the annual PILOT payments of $560,000 and up. Parcels B and C would also generate property tax revenues. In total, the proposed action will generate a total of approximately $846,922 in annual property tax revenues and PILOT payments to be received by the various taxing jurisdictions in Year 1 of the PILOT. This is a substantial increase over the existing conditions (i.e., an increase of approximately $826,414 per year, or more than 40 times the existing property tax revenues). Moreover, this is a substantial sum that will be generated year-after-year throughout the 20-year lifespan of the proposed solar PV generation facility, and, in fact, will increase yearly in accordance with the 1.5 percent annual PILOT agreement escalator. The increased revenues are expected to have positive economic and socioeconomic benefits within the Town and various taxing jurisdictions (school, fire, ambulance, library, etc.) through the maintenance or enhancement of community services.

As the proposed action is expected to result in significant beneficial socioeconomic impacts, no mitigation measures are necessary.

1.7 Growth Inducement

A detailed analysis of the proposed action's potential to induce growth was undertaken, based on the guidance on the subject contained within the NYSDEC's publication, *The SEQR Handbook* (3rd Edition, 2010).

The proposed solar PV energy facility would not result in increased population. The proposed action would generate clean, renewable energy by means of a "passive" facility which would not produce a significant long-term increase in secondary business activity. Specifically, one additional employment position and periodic demand for equipment and supplies related to maintenance of the proposed passive energy facility would not generate appreciable secondary business activity.

The proposed action would not alter the environmental setting in a manner which facilitates the implementation of other, future projects or activities that would be impossible or unlikely to occur in the absence of the proposed action by creating new demand (e.g., a demand for new housing created by construction of a prison) or a significant new development potential (e.g., non-farm development induced by a sewer main extension in an agricultural district). The capacity of the proposed gen-tie line would be sufficient only for the currently proposed project and would not be capable of accommodating the additional load for another, similar project(s). Additionally, the proposed action would not cause a population increase and would not increase development potential in the project area.

The proposed action is a permitted use, subject to the issuance of a Special Use Permit. If a future application is submitted for a similar project on a parcel with corresponding zoning, it would be governed by the same provisions of the Town Code, would undergo its own discrete, independent review process for discretionary approval by the involved Town agencies, including a new SEQRA assessment. The future project(s) would require its own review and approval process through the Town, and would be expected to be reviewed and decided upon based on its own individual merits. If Town approval ultimately is granted for the proposed action, in no way would that eliminate or diminish the degree to which the Town would have discretion over the disposition of any future applications. The submission of any future application would not be equivalent to the threat of an impact, particularly when a process is in place to evaluate and deliberate on the specifics of such an application separately from the present proposed action.

The requirement for this DEIS to examine the future potential for developments of this type in the Town and the greater Calverton area is based on a presumption, in the absence of any pending application, that development is likely to occur and that previous development would trigger similar future development. This type of speculation is not consistent with the provisions of SEQRA. Section F of the introductory chapter of *The SEQR Handbook* establishes that one basic rule applies to the implementation of SEQRA, the rule of reason; and in applying this rule, "speculative impacts may be ignored" and that "[i]f a potential impact is too speculative, it should not be addressed. The agency's responsibility is to deal with impacts that are reasonably foreseeable."

Overall, the proposed action would not induce growth. Accordingly, no significant adverse impacts associated with same are anticipated, and no mitigation measures are warranted.

1.8 Cumulative Impacts

It is respectfully submitted that, as there are no other actions which may cause impacts to consider cumulatively with those of the proposed action, the reasonable likelihood of the occurrence of any such cumulative impacts is extremely low or nonexistent. Moreover, as demonstrated throughout this DEIS, the nature of the proposed action is such that it would not result in any significant adverse environmental impacts. More specifically:

- the proposed action would result in minimal land disturbance, as the existing topography will be retained to the maximum extent practicable and would not require excavation for large building foundations;
- there would be no daily vehicular traffic generated by operation of the proposed facility;
- potable water use would be minimal, limited to irrigation for screen plantings and periodic washing of solar panel arrays;
- virtually no sanitary waste or other discharges to groundwater are proposed; and

› the land proposed for development with the solar array is already cleared of natural vegetation, and native species will be used to revegetate areas beneath the proposed arrays.

Based on the above summary of information and analyses presented in detail in other sections of this DEIS, it is further respectfully submitted that the potential severity of project-related impacts is minimal, such that only a limited level of detailed analysis of cumulative impact analysis could be justified under 6 NYCRR §617.9(b)(5)(iii).

Notwithstanding the above, an analysis has been performed of agricultural and industrially-zoned lands in the Town of Riverhead, including the greater Calverton area, in accordance with the Final Scope.

The Town of Riverhead encompasses approximately 43,446 acres of land, in total. Of that, approximately 14,996 acres of land in the Town of Riverhead are in active agricultural use. This represents approximately 35 percent of the entire land area of the Township – more than any other Town in Suffolk County. The Town of Riverhead has over 5,500 more acres of farmland than the Town with the next largest proportion (i.e., the Town of Southold), and more farmland than all eight other Towns in Suffolk County, combined. These data confirm that active agricultural land in the Town of Riverhead is not scarce, and that the loss of approximately 109.9± acres of active farmland due to the proposed action would represent only about seven-tenths of one percent of the total area of active farmland in the Town, such that the impact of same would not be significant. It is also noted that active agricultural land is generally well-distributed throughout the Town of Riverhead and the greater Calverton area.

There are approximately 4,930 acres of industrially-zoned land within the Town of Riverhead. It is recognized that, although they are non-conforming to current zoning, there are several industrially-developed properties throughout the Town of Riverhead, including properties within the Town's expansive Agricultural Protection Zone (APZ) which encompasses approximately 12,472 acres of the Town. These data confirm that industrially-zoned land also is not scarce in the Town of Riverhead. The 109.9± acres of land proposed for development with a solar PV energy facility at the subject location represents only a very small portion (i.e., about 2.2 percent) of the industrially-zoned land in the Town, such that the impact of the proposed action would not be severe on the availability of industrial land in the Town. Moreover, the Town of Riverhead Town Code explicitly states the intent of the Town Board to permit commercial solar energy production systems (see §301-281.A). Such uses are only permitted pursuant to this ordinance in the five industrial zoning districts of the Town.

Additional research and analysis was performed in accordance with the Final Scope to identify properties that are industrially-zoned and established in active agricultural use. Of the 43,446± acres of land in the Town, only 988± acres (i.e., about 2.3 percent) are within both an industrial zoning district and an active agricultural use. Of this total, 153± acres (about 15.5 percent) are within protected

agricultural lands, which would not be expected to be available for future development with other uses. After accounting for additional layers of environmental constraints and permitting requirements (i.e., NYSDEC-regulated Freshwater Wetlands [and 150-foot buffer], Wild, Scenic and Recreational Rivers corridor, Long Island Central Pine Barrens [Core Preservation and Compatible Growth Areas]) and subtracting both the existing sPower facility on Edwards Avenue and the subject property for this current application, only 534± acres remain available for potential future applications for solar PV energy facilities. At only 1.2± percent of the land area of the Town, and given that any such development is speculative, and would be subject to intensive review under the rigorous zoning criteria of the Town, as well as further review under SEQRA, and that other development constraints may also apply depending on a given parcel, no significant adverse cumulative impacts are anticipated. Moreover, potential project impacts are typically mitigated or addressed within the specific design of an application for development. The proposed action incorporates extensive screen plantings and is designed to be set back substantially from the roadway (i.e., Middle Country Road/NYS Route 25), such that the potential for adverse visual impacts (including cumulative impacts) is significantly limited.

1.9 Alternatives to the Proposed Action

A total of four alternatives are evaluated in this DEIS. A fifth subsection addresses a requirement of the Final Scope regarding other alternative site considerations. The following are the alternatives evaluated in this DEIS:

- SEQRA-mandated "No Action" Alternative
- Alternative Routing of Gen-Tie in Public Rights-of-Way
- Alternate Locations other than Agricultural or Manufacturing-Industrial Lands in the Town of Riverhead
- Development in Accordance with the Industrial C Zoning District
- Other Alternative Site Considerations

No Action Alternative

The No-Action alternative involves leaving the subject property in its present state. Specifically, the subdivision property would remain in use as a sod farm, and no improvements would occur at the easement property or collection facility. Implementation of the No-Action alternative would forego the various benefits of the proposed action. Moreover, the No-Action alternative does not meet the objectives of the applicant to develop the subject property with a solar PV energy facility as a renewable source of electricity. Additionally, the goals of New York State for 50 percent of electricity generation to come from renewable resources by 2030, and the Town's goal to limit dependence on imported fossil energy and to decrease greenhouse gas emissions, would not be advanced by this alternative.

Alternative Gen-Tie Route

This alternative (the "Alternative Gen-Tie Route") would be identical to the proposed action in all aspects, with the exception that the gen-tie line would be routed within public rights-of-way (ROWs). Under the proposed action, the gen-tie line would be routed underground for a distance of approximately 6,265 feet. Instead, this alternative would establish a gen-tie route that continues east from the subdivision property frontage along Middle Country Road/NYS Route 25, and south along Edwards Avenue (see Figure 17), ultimately reaching the same utility substation as under the proposed action. Under this alternative, the gen-tie would consist of overhead utility cables suspended from poles along the south side of Middle Country Road/NYS Route 25, then along the east side of Edwards Avenue (to avoid potential conflicts with existing poles on the west side of Edwards Avenue). From the point at which this alternative route exits the proposed Parcel A at the subdivision parcel, to the point at which the route enters the existing sPower solar facility parcel on Edwards Avenue (i.e., lot 32.1), this route measures approximately 11,540 linear feet. As such, this alternative route is nearly 85 percent longer than the proposed underground route.

Installation of the alternate gen-tie line on utility poles on the north side of Middle Country Road/NYS Route 25 and on the east side of Edwards Avenue would result in temporary and/or partial traffic closures on these roadways and would require additional coordination with municipal agencies and utilities, to a significantly greater extent than is expected for the single crossing of Edwards Avenue under the proposed action using directional drilling. During installation of any new poles and above-ground lines along Middle Country Road/NYS Route 25, there would be greater traffic impacts on the well-travelled east-west Middle Country Road/NYS Route 25 and on Edwards Avenue, which is used by many trucks as a north-south connecting route.

As the alternate gen-tie line would be suspended from poles along the roadways, the above-ground line would be visible to travelers along area roadways and from many vantage points in the surrounding area. The impact would be incremental to any current effects of existing overhead utilities. However, the construction of a new series of poles with overhead wires on the east side, of such type that may differ from those already present on the west side of Edwards Avenue (depending on final design), would represent a visual impact. Therefore, impacts to aesthetic resources and community character under this alternative would be greater than under the proposed action.

Alternative Locations other than Agricultural or Manufacturing-Industrial Land

It is acknowledged that alternative sites may be evaluated within a DEIS, depending on the nature of the proposed action, and when such an alternative to the proposed action can be found to be reasonable. Within its responses to question nos. 25

and 26, *The SEQR Handbook* confirms and reiterates what the SEQRA regulations explicitly state, at §617.9(b)(5)(v)(g), which is that private project sponsors (such as sPower, in this case) are limited in the alternative sites that may be reasonably considered for the purposes of analysis within an EIS. Therefore, the range of reasonable alternative sites for locating the proposed solar PV energy facility encompasses only those properties that are owned by or under option to sPower. The SEQRA regulations do not support action by a lead agency seeking to compel a private applicant to broadly examine the potential development of a proposed action at alternative locations that are outside of the project sponsor's control.

Notwithstanding the above, solar energy facilities are only permitted within the Town's industrial zoning districts. Hence, alternative sites, or sites located outside of manufacturing-industrial lands, are unavailable within the Town of Riverhead for solar energy facilities. Furthermore, much of this industrially-zoned land contains agricultural use, and the bulk of the non-agricultural acreage is not available for development.

On the basis of the foregoing, there are no reasonable alternative sites that would not affect manufacturing-industrial and/or agricultural land in the Town of Riverhead to a similar degree as the proposed action.

Development in Accordance with the Industrial C Zoning District

An "as-of-right" development was examined whereby Parcel A would be developed with a light industrial use in accordance with the use, bulk and dimensional regulations of the prevailing Industrial C zoning district, as an alternative to the solar PV energy facility contemplated under the proposed action. A conceptual development plan was prepared to facilitate an analysis of this alternative, which includes the further subdivision of Parcel A to create ten conforming lots, and a 50-foot right-of-way (ROW) providing access from Middle Country Road/NYS Route 25. The overall yield of the site is not only limited by the bulk and dimensional regulations of the Industrial C zoning district, but also the sanitary density limitations of Article 6 of the Suffolk County Sanitary Code. Accordingly, although the Industrial C district would theoretically permit up to 1,913,644± SF of industrial development (based on a maximum permitted FAR of 0.4), the maximum development of general industrial use (e.g., warehouse) with conventional on-site sanitary systems in accordance with Article 6 would be approximately 823,710 SF.

With respect to some impact topics, this alternative would have similar environmental impacts to the proposed action (e.g., this alternative would result in ground disturbance across nearly the entire Parcel A; generate other, temporary construction-related impacts [e.g., noise, air emissions, construction traffic]; eliminate the established agricultural land use; and alter views of the subject property [as relevant to visual impacts or impacts to community character]), all of which would be expected to occur to some degree under the proposed action. As there are no sensitive ecological resources on Parcel A, neither this alternative nor the proposed action would be expected to result in significant adverse impacts to

such resources. However, while these impacts would be similar in nature, further analysis indicates that the respective potential impacts of this alternative would actually be greater than those associated with the proposed action, primarily due to the level of intensity of the construction (i.e., buildings and pavement, as opposed to pier foundations for the proposed solar panels).

In nearly all other aspects of the environment, this alternative would result in additional potential adverse impacts that are not expected under the proposed action. These impact topics include traffic; air quality; noise; water resources (including groundwater and stormwater); solid waste; and energy.

Based on published trip generation rates within the Institute for Transportation Engineers' *Trip Generation Manual*, 9th Edition (2012), this alternative has the potential to generate a minimum of 230 trips entering and exiting the subject property at Middle Country Road/NYS Route 25, to as many as 762± new trips in the critical weekday PM peak hour. This additional volume on a busy roadway has the potential to cause significant traffic impacts at the site access on Middle Country Road/NYS Route 25; and also and has the potential to exacerbate conditions at the nearby intersection of NYS Route 25 and Edwards Avenue, for example, which is highly congested and is operating over capacity during peak periods under existing conditions. Furthermore, it is expected that a large fraction of the trip generation under this alternative would comprise heavy trucks, which cause increased impacts to traffic operations as compared to passenger vehicles. The proposed action would generate virtually no vehicular traffic.

The development of the subject property with an industrial subdivision would be expected to include the establishment of various stationary sources of air emissions, such as large boilers combusting fossil fuels to generate heat and hot water, or the operation of heavy machinery. Additionally, vehicular trips generated by the industrial uses (i.e., employees, trucks and delivery vehicles, etc.) would represent mobile emission sources related to this alternative. By contrast, the proposed action would not establish any new sources of air emissions, and in fact would reduce air emissions generated by traditional fossil fuel burning power plants in the area.

Noise associated with HVAC equipment, vehicular traffic (including heavy trucks), and other potential activities related to this alternative would alter the noise environment at the subject property, and would have the potential to impact adjacent properties. The proposed action would not establish any significant sources of noise.

This alternative would be expected to create a substantial demand for potable water, and would generate a substantial quantity of sanitary waste to be discharged to on-site sanitary systems. The theoretical development described herein would be expected to utilize 31,443 gallons of potable water per day for domestic purposes, and generate an equivalent quantity of sanitary waste. Irrigation demand for lawns and landscaped areas, and any process water demands, would be additional to the domestic quantity of water use. Additionally, the industrial subdivision evaluated herein anticipates the establishment of 2,273,203 SF of impervious surfaces at the

subject property, among buildings, paved parking and driveway areas, etc. A substantially greater area could be permitted in the prevailing Industrial C zoning district, which allows up to 60 percent impervious lot coverage (i.e., up to 2,870,466 SF) at the overall subject property. The significant increase in impervious surface area under this alternative would result in the generation of large quantities of stormwater runoff across the site, with the potential to result in associated adverse impacts, such as erosion, sedimentation or localized flooding. None of these considerations apply to the proposed action, which includes a low impact stormwater management system, very limited impervious surface area, and no substantial areas of fertilizer-dependent vegetation.

Under this alternative, the 786,075 SF of industrial uses would be expected to generate approximately 15,721.5 pounds per day of solid waste, or approximately 240 tons of solid waste per month. By comparison, the proposed passive solar PV energy facility would generate virtually no solid waste during operations.

This industrial subdivision alternative would create a demand for energy, to power the buildings, site lighting, potential indoor manufacturing processes, and provide heating and hot water and other domestic functions. While this alternative would not necessarily contravene any state or local energy plan or policy, it would represent a potentially substantial energy demand, and would not advance the Town of Riverhead's stated energy-related goals to "limit dependence on imported fossil energy and decrease greenhouse gas emissions." Instead, the proposed action would not represent a demand for energy, but instead would provide a significant energy benefit, as 20 MW_{AC} of clean, renewable energy generation would be added to the local utility grid in a manner that furthers the Town's goals and substantially complies with its various related design standards.

With respect to socioeconomic impacts, this alternative would generate construction-phase employment to a similar or greater extent as the proposed action, as well as permanent jobs during operation. An estimated 393 permanent jobs may be generated by the full build-out of the industrial subdivision. As with any benefits of this alternative, they are theoretical, as no application exists for the development of the subject property. Development of Parcel A under this alternative could generate approximately $1.1 million in property taxes, based on the assumptions described herein. This is approximately $260,000 more than would be expected in property taxes and PILOT payments from the development of a solar PV energy facility under the proposed action. It is important to note that the projection of property taxes generated by this industrial subdivision alternative does not account for any possible exemptions or PILOT agreements. Moreover, this alternative is a theoretical potential development of the subject property in accordance with prevailing zoning. There is no proposal for such development, which differentiates this alternative from the proposed action in a significant way, and no assurance that the Town would approve a development proposal of this scope and magnitude.

Overall, this alternative would result in greater adverse environmental impacts than the proposed action in virtually every aspect, including, but not necessarily limited to, impacts to land use and agricultural resources, soils and topography, ecology, traffic, air quality, noise, water resources, solid waste, and energy. In some cases, this alternative would have the potential to result in substantially greater impacts (e.g., sanitary waste discharge, traffic, air quality) than the proposed action. Additionally, this alternative would not preclude or minimize any potential adverse environmental impacts of the proposed action identified in this DEIS. It is noted that this alternative would not meet the objective of the project sponsor, to establish a 20 MW_{AC} solar PV energy facility as a source of clean, renewable energy at the subject property.

Other Alternative Site Considerations

The Final Scope identifies the following for consideration in the DEIS:

> *Evaluation of other sites in Suffolk County with similar parcel size and regulatory/permit issues which would permit similar facilities such that available agricultural or manufacturing-industrial lands within Riverhead Town not be depleted for regional benefit without the local benefit of jobs and continued viability of farming within the town. Assess the proportional amount of solar acreage expected in Riverhead compared to Brookhaven, Southold, Southampton, and East Hampton? Price of land should not be used as a factor. Examine and compare the actual solar efficiency compared to the acreage. Example: the efficiency in the northeast compared to Arizona and South California is vastly different. Quantify the solar acres needed to power each home in the NE using the actual efficiency.*

Evaluation of Other Sites in Suffolk County

The intent of the SEQRA regulations, at §617.9(b)(5)(v), regarding the evaluation of alternative sites for a private development application is very narrow, and does not contemplate the type of wide-ranging scenario outlined in the Final Scope. Suffolk County contains ten towns and 33 Villages. These 43 municipalities exhibit a wide range of development patterns and community character; they also have their own, independent, varied zoning ordinances which dictate unique land use requirements within their respective boundaries. These ordinances include, in some cases, provisions governing the siting of solar energy facilities or, in other cases, no such specific regulations. Based on these considerations, it is not reasonable for this DEIS, which has been prepared for a specific development proposal at a specific location in conformance with the prevailing zoning requirements, to be compelled to perform what is essentially a regional planning analysis. Although the requested County-wide analysis is not suitable for inclusion in a project-specific DEIS, it is important to point out that this DEIS does provide this type of analysis on a Town-wide basis, as specified in the Final Scope (see discussions of Cumulative Impacts and alternative sites, above).

Solar Efficiency

A site- and project-specific analysis was performed using the PVsyst Photovoltaic Software model, which is a widely used and recognized industry planning tool that accounts for a range of pertinent variables, including monthly albedo values (i.e., the solar radiance that reaches the earth's surface) at the subject property, project-specific PV array and system generation and loss factors, and loss factors during conversion at the step-up facility. The output from this modeling analysis estimates that the proposed sPower Calverton solar facility would result in an annual supply of 37,648 MWh to the LIPA power grid for use by PSEG Long Island's customers. According to the latest available data (2009) from the U.S. EIA, the average household in New York State consumes 6,578 kWh, annually.[1] Therefore, based on these factors, the proposed action would be expected to generate sufficient electricity to power approximately 5,723 homes, which is equivalent to more than 44 percent of the total number of homes in the Town of Riverhead. These location-specific data and modeling results indicate that sufficient electricity to power 5,723 homes can be generated at the 109.9±-acre Parcel A, or an average of approximately 52 homes per acre of land.

Other Considerations

Maintaining its agricultural base and associated heritage is an important and long-standing planning goal for the Town of Riverhead. The analyses presented in this DEIS demonstrate that the proposed action would not cause a significant depletion of agricultural land as a resource or otherwise significantly impact the viability of farming in the Town, nor would it result in a noticeable effect on manufacturing-industrial activities in the Town.

While it is acknowledged that the proposed action would result in only a minor increase in the permanent employment base (i.e., one new long-term job, associated with the maintenance of the project systems and equipment), it is also important to recognize that there would be a significant short-term boost in employment (estimated at 100-200 jobs) during construction. Additionally, job creation is not the only factor that is relevant to decision-making on the proposed action. The installation of additional solar energy capacity would advance other important, widely accepted goals by increasing the use of renewable energy and reducing dependence on emission-generating fossil fuels. Moreover, the project would have a limited operating life, such that the subject property would become available for reuse after 20 years.

[1] United States Energy Information Administration, *Table CE4.7* from *2009 Residential Energy Consumption Survey (RECS)* (accessed May 2017); available at http://www.eia.gov/consumption/residential/data/2009/index.cfm?view=consumption.

2

Description of the Proposed Action

2.1 Introduction

This document is a Draft Environmental Impact Statement (DEIS) prepared in accordance with the State Environmental Quality Review Act (SEQRA) and its implementing regulations at 6 NYCRR Part 617 for the action contemplated herein, and is based upon the Final Scope issued by the Town of Riverhead Planning Board as the Lead Agency on April 6, 2017 (see Appendix A). This DEIS evaluates the potential adverse impacts associated with the proposed action, which consists of subdivision, site plan, special permit, and other approvals in connection with the development of the sPower Calverton solar facility, including a 20 megawatt alternating current (MW_{AC}) solar photovoltaic (PV) panel array facility ("solar panel array facility" or "solar panel array field") and a proposed 8,670±-linear foot (LF) underground transmission generation tie-in ("gen-tie") line within a 15±-foot-wide easement connecting the solar panel array facility to a proposed solar collection facility in the hamlet of Calverton, Town of Riverhead (the "proposed action" or the "solar PV energy facility").

The solar PV energy facility would be comprised of three primary components:

- Subdivision of land and development of a solar PV panel array
- An underground gen-tie line
- A solar collection facility

The solar PV panel array facility would be located on the proposed "Parcel A" to be created by the subdivision of two existing parcels into three parcels, Parcels "A," "B" and "C" (see Land Division maps in Appendix B). The two existing parcels are known on the Suffolk County Tax Map (SCTM) as follows:

- District 0600 - Section 116.00 – Block 01.00 – Lot 007.002, and
- District 0600 – Section 098.00 – Block 01.00 – Lot 021.001.

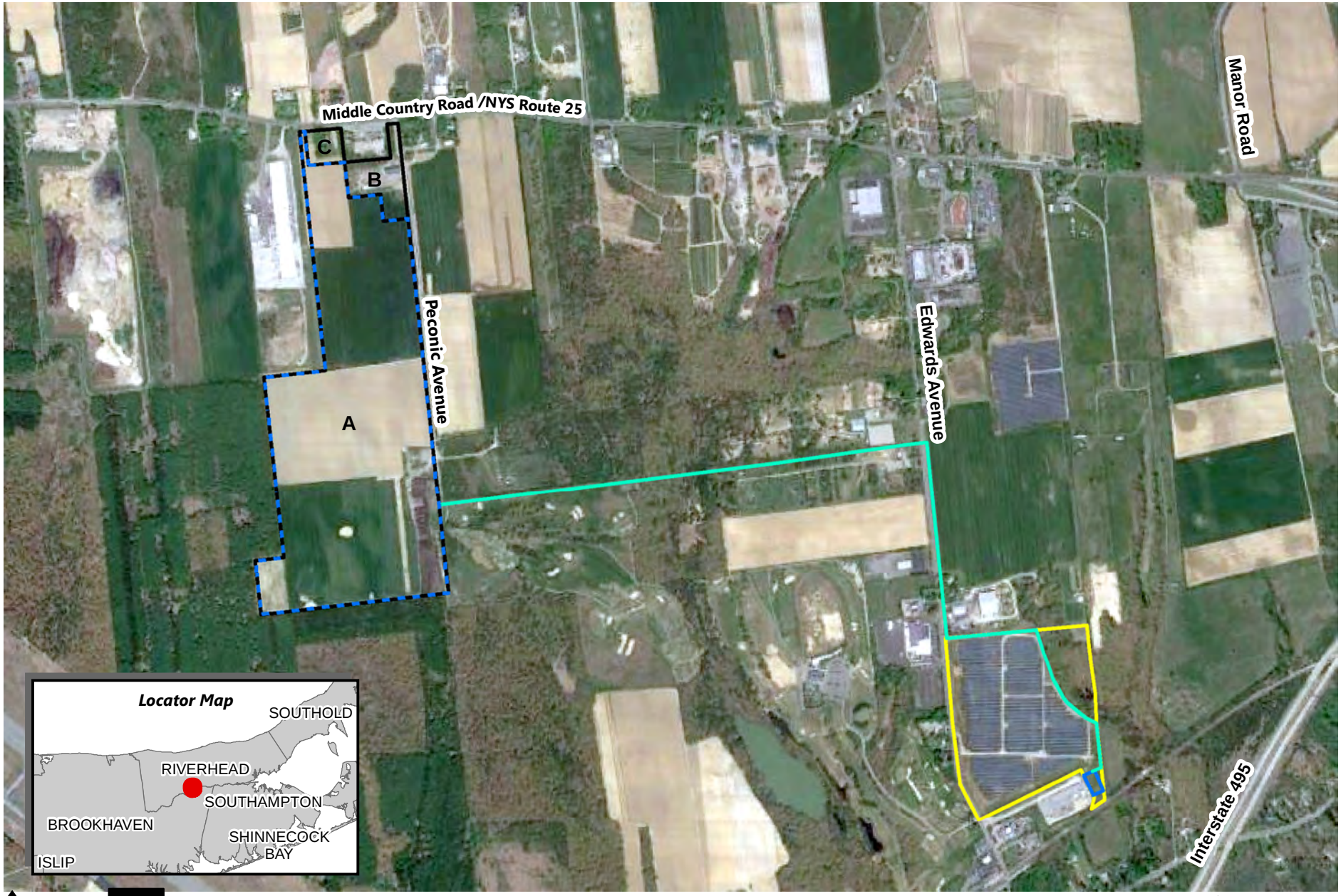
These two SCTM parcels are collectively referred to herein as the "subdivision property." The subdivision property is located on the west side of Peconic Avenue and south of Middle Country Road/New York State [NYS] Route 25. Parcels B and C will remain in their existing use and no new improvements are proposed on either proposed parcel as part of the proposed action.

The underground gen-tie line would be installed within a proposed 15±-foot easement that extend from Parcel A, through the following tax parcels (together referred to as the "easement property"):

- District 0600 – Section 116.00 – Block 02.00 – Lot 007.004
- District 0600 – Section 117.00 – Block 01.00 – Lot 006.000, and
- District 0600 – Section 117.00 – Block 02.00 – Lots 007.002 and 008.002.

The gen-tie line connects to the proposed solar collection facility, which is a step up transformer that generates the electricity from a 34.5 kV to 138 kV output that would connect to Edwards Long Island Power Authority (LIPA) Substation. The proposed solar collection facility would be located on the southern portion of SCTM No. District 0600 – Section 137.00 – Block 01.00 – Lot 032.001, located on the east side of Edwards Avenue and north of the Long Island Railroad (LIRR) tracks. This property is developed with an existing sPower solar PV panel array facility, and is hereinafter referred to as the "existing solar facility and proposed collection facility" or the "collection facility parcel."

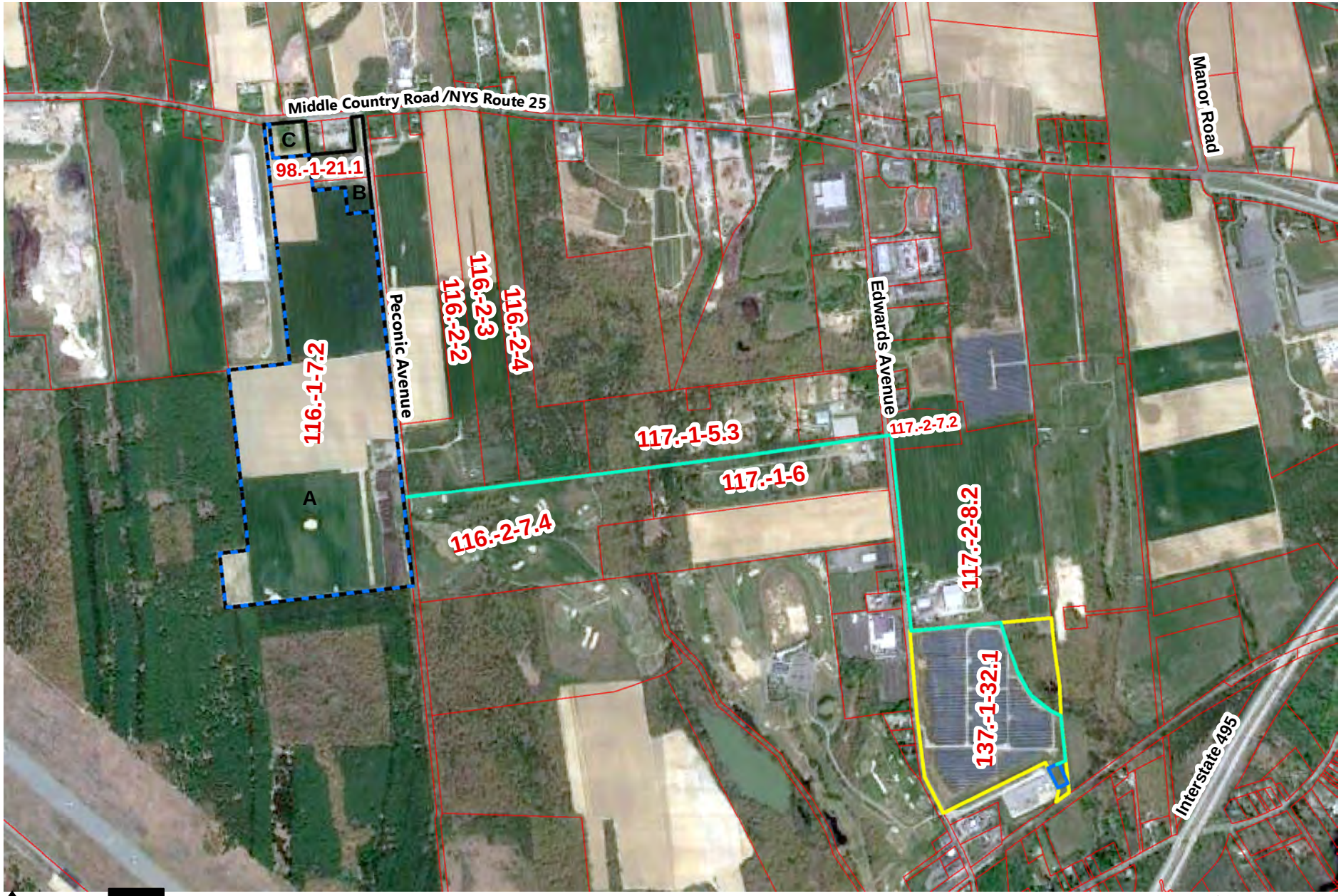
Collectively, the three above-described areas (the "subject property" or the "project area") total 165.4± acres, and are currently developed with sod farm operations, a single-family residence, a former golf course now occupied by another recreational use (i.e., a paintball facility), undeveloped wooded land, a tree farm, and an existing solar facility. The subject property and tax parcels referenced above are depicted within Figure 1 and Figure 2, respectively.



Proposed sPower Solar Energy Facility | Calverton, NY

Site Location Map

Source: Google Earth (May 2016)



0 500 1000 2000 Feet

- Proposed Solar Array Field
- Proposed Subdivision Lots
- Proposed Generation-Tie Line
- Proposed Collection Facility Location
- Existing Solar Facility and Proposed Collection Facility Parcel
- Suffolk County Tax Parcels

Proposed sPower Solar Energy Facility | Calverton, NY

Suffolk County Tax Map Parcels

Sources: Suffolk County Real Property Tax Service Agency; Google Earth (May 2016)

This DEIS is divided into six sections, the first of which is the Executive Summary. This section, Section 2.0, provides a brief discussion of existing site and surrounding area conditions, and provides a description of the components of the proposed project including the special use permit, proposed site layout, a brief history of the site, the project's purpose, need and benefits, proposed construction and phasing, and the required permits and approvals.

Section 3.0 of this DEIS provides a discussion of the environmental setting for the project, by topic. Within each section the existing conditions, potential impacts that are likely to occur upon project implementation, and proposed mitigation measures that reduce or eliminate those impacts are discussed. Section 4.0 discusses cumulative impacts, unavoidable adverse impacts, irreversible and irretrievable commitment of resources, and the effects on the use and conservation of energy resources. Alternatives and their impacts are discussed in Section 5.0 of the DEIS. Among these alternatives is the "No Action" alternative that is required to be discussed pursuant to SEQRA and its implementing regulations at 6 NYCRR Part 617. Other alternatives are evaluated as required by the Final Scope. References are included in Section 6.0 of this DEIS.

It should be noted that the proposed action was the subject of an Expanded Environmental Assessment Form ("Expanded EA" dated September 2016) that was prepared to evaluate the potential impacts of the proposed action with respect to various aspects of the environment, including, but not limited to, construction-related impacts; ecology; water resources; cultural resources; land use and zoning; an aesthetics and community character. The Expanded EA was subsequently supplemented by revised sections and additional submissions to the Town of Riverhead Planning Board (including, but not limited to the December 15, 2016 memorandum from Marwa Fawaz, VHB, to the Town of Riverhead Planning Board) to address concerns raised about potential glare impacts, permitting requirements, and impacts upon agricultural resources. As the proposed action has not been substantially modified since the time of those analyses, the conclusions contained therein remain applicable except as may be superseded by the analyses in this DEIS. This DEIS has not attempted to repeat all of the information contained in the previous analyses submitted to the lead agency, except as required pursuant to the Final Scope.

2.2 Existing Site Conditions

The subdivision property is 117.3± acres in size and is currently developed with a sod farm (proposed Parcel A), structures and equipment associated with farming operations (proposed Parcel B), and a single-family residence (proposed Parcel C) (see Figure 1). The sod farm occupies virtually the entire proposed Parcel A, and no natural areas are present. Historic aerial imagery available via Suffolk County's GIS Viewer,[2] depicts the subject property and its surroundings as predominately

[2] County of Suffolk, *Suffolk County GIS Viewer* (accessed May 2017); available from http://gis3.suffolkcountyny.gov/gisviewer/

agricultural lands since 1947. Based on review of these aerials, Parcel A of the subdivision property has been in agricultural production since at least 1947.

The 15-foot-wide easement property extending from the proposed Parcel C to the east across Edwards Avenue, then extending south within private property alongside the Edwards Avenue right-of-way, totals 2.99± acres in size and contains a portion of a former golf course (now occupied by a recreational paintball facility), a tree farm, sod farms, and undeveloped wooded lands. The easement extends to a parcel containing an existing solar PV energy facility, which was formerly a sod farm and currently contains a solar facility and maintained lawn area.

A *500-foot Radius Map* is included in Appendix D, depicting property ownership of parcels within 500 feet of the subdivision property, the easement property and the collection facility parcel.

The area surrounding the proposed solar PV energy facility (i.e., at Parcel A) is developed with a broad range of land uses, including sod farms and other agricultural uses, industrial uses, transportation centers, a former golf course, residential uses, and existing solar PV energy facilities. Undeveloped woodlands are also present among and adjacent to these uses. Adjacent to the subject property to the north (along Middle Country Road/NYS Route 25) are agricultural, residential and light industrial uses. A sod farm and a portion of the paintball/former golf course use adjoin the subject property to the east. The southern boundary of Parcel A and much of its western boundary abut industrially-zoned, undeveloped woodland owned by the Town of Riverhead (within the Enterprise Park at Calverton "EPCAL" property). At the northern portion of the proposed Parcel A, the site is adjacent to a large industrial warehouse and distribution facility.

2.3 Project Description

The proposed action consists of the development of a PV solar facility, including a 20 MW_{AC} solar panel array field and a proposed 8,670±-LF underground transmission gen-tie line within a 15±-foot-wide easement connecting the solar panel array field to a proposed solar collection facility (see Figure 1 and Appendix B). The sPower Calverton solar facility has been awarded a 20-year Power Purchase Agreement (PPA) under the LIPA's 280 MW Renewable Request for Proposals (RFP), and the proposed action would benefit the Town and Long Island by helping to provide for growing energy needs in a non-polluting fashion (or "clean energy"). Upon completion, the 20 MW_{AC} sPower Calverton solar facility would be interconnected to the LIPA power grid supplying electricity to the system for use by PSEG Long Island's (PSEG-LI) customers via the 20-year PPA.

As previously introduced, there are three primary components to the proposed action – the subdivision of land creating a 109.9±-acre lot for a solar farm and two other lots; the development of a gen-tie for the transmission of electricity; and improvement of a solar collection facility. Each of these components is further described, below.

Subdivision of Land

The proposed action includes the subdivision of two existing SCTM parcels that total 117.3± acres, into three lots. Upon completion of the proposed subdivision, "Parcel A" would consist of 109.9± acres, "Parcel B" would consist of 5.1± acres and "Parcel C" would consist of 2.3± acres.

Parcel A would be developed with the aforementioned solar PV energy facility. The proposed lot is designed as a flag lot allowing access to the proposed solar array field from Middle Country Road/NYS Route 25, while maintaining a significant setback (variable) from Middle Country Road/NYS Route 25, separated by the proposed Parcels B and C as well as other off-site parcels. Secondary access would be from Peconic Avenue, along the eastern property line of Parcel A. The solar PV energy facility would include a field of solar panel arrays on Parcel A, perimeter and centerline access roadways, array access pathways, and site fencing and security. A special permit would be secured for the proposed solar PV energy facility, as required by §301-282 of the Town of Riverhead Code (Town Code), for development of a solar energy production facility in the Industrial C zoning district. Parcels B and C would retain their existing improvements and uses (i.e., farm building and dwelling, respectively) and would operate independent of the proposed solar PV energy facility.

Within Parcel A, the solar panel arrays would interconnect to an above-ground single-axis tracker PV mounting system supported on piles for stability. The piles would be either helical steel piles or pre-cast concrete piles, depending on results of future soil sampling. The module system would be oriented to maximize the amount of incident solar radiation absorbed over the course of the year. The maximum height of the arrays would be approximately eight feet. Additional dimensions have not been determined, but would comply with applicable Town of Riverhead requirements. In addition to the installation of solar panel arrays, the proposed action would include the construction of five gravel equipment areas with pad mounted transformers, switchgear and inverters along the gravel roadway on Parcel A. Proposed utility trenches for medium voltage electrical lines would run vertically along the interior of Parcel A, between the solar panel arrays.

Extensive vegetated screening would be installed along the perimeters of Parcel A, protecting the viewshed from surrounding properties and public areas. A *Planting Plan* was developed, and has been substantially enhanced over the course of the application process to date as a result of consultations with the Lead Agency (i.e., the Town of Riverhead Planning Board), representatives of the Town of Riverhead Planning Department, and other stakeholders. The screening has been specifically designed to preclude, minimize and soften views from surrounding areas, such as from along Middle Country Road/NYS Route 25, from adjoining residentially-zoned or used properties, and from several industrially-zoned or used properties that abut the site. As part of the proposed action, enhanced fencing and screen plantings will be installed along an extensive length of Parcel A's perimeter, where the property

abuts an off-site recreational trail within the overall Enterprise Park at Calverton ("EPCAL") property owned by the Town of Riverhead.

Transmission Gen-Tie

The proposed gen-tie line would be 8,670± LF and would require a 15±-foot-wide easement along the north property lines its property tax parcels, such that the total area associated with the gen-tie line would be 2.99± acres. The construction of the trench for installation of the proposed gen-tie line would encompass most of the 15±-foot-wide easement area. The gen-tie line conduit would measure two-feet by two-feet, and would be installed at a depth of three feet below grade. It would be routed underground from Parcel A through a former golf course/current recreational (paintball) facility and traverse east of the subdivision property, to Edwards Avenue. As shown on the Site Location Map (Figure 1), the proposed gen-tie line would continue east across Edwards Avenue, then south, toward an existing sPower solar farm located on the east side of Edwards Avenue. It would then continue south, along the eastern perimeter of the existing sPower solar farm facility, to the proposed solar collection facility described below. The Applicant has secured easements from each of the current property owners of the properties along the gen-tie line to permit trenching of the interconnection. It should be noted that since the gen-tie line would be underground, there would be no change to the existing land uses and site coverages along the proposed route due to its installation.

Solar Collection Facility

The proposed solar collection facility would be constructed within the southeast portion of the overall 45.1-acre parcel (Suffolk County Tax Map Parcel No. 0600-137.00-01.00-032.001) located east of the Edwards Avenue LIPA substation and north of the LIRR tracks, that is improved with existing solar PV energy facility. The proposed solar collection facility would occupy a 0.5±-acre portion of the property that currently contains mowed lawn area, and would include an equipment area and a gravel access drive. Vegetative screening would be installed along the western property line adjacent to the proposed solar collection facility.

The generation output from the proposed solar panel array field at Parcel A would connect to the proposed solar collection facility via one underground medium voltage 34.5 kilovolt (kV) gen-tie line. The generation would flow through the proposed solar collection facility switchgear, which would lead into the step up transformer (34.5 kV to 138 kV). The circuit breaker, disconnect switch, and PSEG-LI metering equipment would be on the high side of this transformer, and all output would connect to Edwards Avenue LIPA substation on a high voltage 138 kV gen-tie line.

Relevant site data for the proposed solar PV energy facility at Lot A, and the proposed solar collection facility at the existing sPower facility, based on the site plans (see Appendix B), for the existing and proposed conditions is provided in the tables below.

Table 1 Existing and Proposed Site Data (Parcel A)

Site Coverage Type	Existing Conditions (Acres)	Proposed Conditions (Acres)
Concrete Pads	0	0.03±
Solar Panels	0	34.85±
Drainage Reserve Areas	0	3.79±
Pervious Surfaces (including sod farm, dirt driveways, and grass areas)	109.9±	67.35±
Gravel Roadway	0	3.9±
TOTAL	**109.9±**	**109.9±**

Table 2 Existing and Proposed Site Data at the Existing Solar Facility and Proposed Collection Facility

Site Coverage Type	Existing Conditions (Acres)	Proposed Conditions (Acres)
Concrete Pads	0.03±	0.03±
Solar Panels	12.77±	12.77±
Drainage Reserve Areas	3.75±	3.75±
Pervious Surfaces (including sod farm, dirt driveways, and grass areas)	26.39±	26.03±
Gravel Roadway/Equipment Areas	1.98±	2.36±
Wetland	0.2±	0.2±
TOTAL	**45.1±**	**45.1±**

Maintenance and Operation

For the duration of the operational phase, the sPower Calverton solar facility would be operated on an unstaffed basis and monitored remotely, with regular on-site personnel visitations for security, maintenance, and system monitoring. There would be no full-time site personnel on-site during operation.

Maintenance requirements would be limited. Any planned maintenance would be scheduled to avoid peak load periods, and unplanned maintenance would be typically responded to as needed depending on the event. There would be one full-time employment position over the life of the sPower Calverton solar facility for operation and maintenance activities. Thus, there would be low level of activity associated with the proposed use (e.g., traffic, noise, occupancy, water use, etc.), and

the proposed action would not result in solid waste generation or sewage generation.

The Applicant would ensure consistent and effective facility operations by responding to automated alarms based on monitored data, including actual versus expected tolerances for system output and other key performance metrics, and by communicating with customers, transmission system operators and other entities involved in facility operations. To ensure the safety of the public and the sPower Calverton solar facility, Parcel A would be fenced. Additional security measures would include controlled site access through installation of gates at the driveway entrance to the property. Additionally, security cameras will be installed. Motion-activated lights would also be installed at the proposed solar collection facility, and the existing fence would remain around the collection facility parcel.

Decommissioning

After the expiration of the 20-year PPA, the solar panel array facility would be dismantled and disposed of as part of a planned decommissioning process. Prior to construction of the sPower Calverton solar facility, the Applicant would provide a bond to the Town for the funds that would be necessary to complete the decommissioning process. The bond would ensure that, in the event that the Applicant company is no longer in existence at the end of the 20-year PPA, funds would be available to the Town for decommissioning. During the process, all support structures, fencing, and associated electrical hardware would also be removed. The subject property would then be available for future reuse or restoration.

2.4 Purpose, Benefit and Need

The proposed action would result in the development of a solar PV energy facility. As a renewable, "green" source of energy, the sPower Calverton solar facility would have a substantial environmental benefit. This alternative energy source would reduce the demand for electricity generated by the burning of fossil fuels (e.g., oil, natural gas) at traditional power plants that produce air emissions of greenhouse gases. Furthermore, the proposed action has been designed to incorporate various measures that will preclude or minimize potential environmental impacts to the maximum extent practicable, including, vegetated screening to mitigate potential impacts to views from roadways and adjacent properties; design of security lighting to minimize potential glare or off-site light spill; and the implementation of erosion and sediment controls during construction in accordance with an approved Stormwater Pollution Prevention Plan (SWPPP).

It should be noted that vehicular trip generation, water use, and sanitary waste generation associated with the construction and day-to-day operation of the sPower Calverton solar facility would be minimal, and no odors or air emissions would be generated by the proposed PV solar panel arrays. Additionally, the proposed action is expected to have various benefits (in addition to those associated with the

proposed renewable energy source), including job generation. The proposed action would aid the local economy through the generation of approximately 100 – 200 construction jobs and one full-time equivalent job during long-term operations. Construction activities are expected to require the services of landscapers, heavy equipment operators, electricians, and building contractors for tasks involving clearing, site grading, array support installation, and electrical equipment installations/connections.

Additional economic benefits would result from the purchase of green industry equipment and supplies and the additional tax base which would result from the proposed project. It should also be noted that, according to the subdivision property owner, employment that is generated by the existing sod farm operation are such that they are routinely moved among various other locations operated by the owner, as needed and based on the farming seasons and facility needs. Full time jobs will not be lost as a result of the proposed actions - - those jobs will continue to exist among the various other existing facilities, including facilities within the Town of Riverhead. Therefore, the proposed action would result in a net increase in jobs within the Town.

Another benefit of the proposed action will be a substantial increase in taxes and other revenues to the Town of Riverhead and the various relevant taxing jurisdictions. The subdivision property, comprised of two tax parcels (SCTM Parcel Nos. 0600-098.00-01.00-021.001 and 0600-116.00-01.00-007.002) currently generates few tax dollars, due to the fact that all the large lot (Lot 7.2) is devoid of physical improvements, and both parcels receive substantial agriculture-related tax exemptions. Those exemptions will no longer apply to the 109.9±-acre proposed Parcel A, which will not only generate tax revenues on the land value, but will also be the subject of a substantial Payment in Lieu of Taxes (PILOT) agreement that will contribute approximately $560,000 per year in the first year, with an escalator that increases the contribution year-after-year over the course of the agreement term. Total annual property tax and PILOT revenues are projected to be $846,922 - - an increase of $826,414 per year, or over 40 times the existing property tax revenues. These benefits will continue year-after-year throughout the 20-year lifespan of the proposed solar PV generation facility.

Moreover, as a source of renewable energy, the proposed action will also benefit the Town by helping to provide for growing energy needs in a sustainable way. Upon completion, it is anticipated that the sPower Calverton solar facility will be interconnected to the LIPA power grid supplying 20 MW_{AC} of electricity to the system for use by PSEG Long Island's customers. Based on site- and project-specific results of a PVsyst Photovoltaic Software model analysis, the proposed facility is expected to generate approximately 37,648 megawatt hours (MWh) of electricity annually. According to the U.S. Energy Information Administration (EIA),[3] the average household in New York State consumes 6,578 kilowatt hours (kWh), or

[3] United States Energy Information Administration, *Table CE4.7* from *2009 Residential Energy Consumption Survey (RECS)* (accessed May 2017); available at http://www.eia.gov/consumption/residential/data/2009/index.cfm?view=consumption.

approximately 6.6 MWh, annually. Therefore, based on these factors, the proposed action would be expected to generate sufficient electricity to power approximately 5,723 homes – the equivalent of over 44 percent of all homes in the Town of Riverhead.[4]

The proposed sPower Calverton solar facility would also be consistent with the Town's requirements for a special permit for solar energy production facilities, set forth in §301-282 of the Town Code. Accordingly, the proposed action would have the benefit of meeting the Town of Riverhead Town Board's stated goal of providing renewable energy facilities within the Town in a responsible manner that safeguards against adverse effects upon natural resources and surrounding properties.

2.5 Construction and Phasing

Construction of the sPower Calverton solar facility would occur in a single phase over a six-to-eight-month period. Based on grid interconnection and permitting timelines, construction is expected to commence in late 2017 or in 2018. The sPower Calverton solar facility would generate an estimated 100 – 200 new jobs during construction. Construction activities are expected to occur during daylight hours, Monday through Friday, and would comply with the Town of Riverhead noise control chapter – Chapter 251 – Noise. It is anticipated that 113.3± acres of the overall project area would be disturbed for construction, including the acreage that would be disturbed for installation of the solar panel array field on Parcel A, trenching of the proposed underground gen-tie line within the proposed 15±-foot-wide easement and directional boring of the gen-tie line beneath Edwards Avenue, and installation of the proposed solar collection facility.

Regrading of the proposed Parcel A and the site of the proposed solar collection facility would occur as necessary for equipment mobility and installation of the solar panel array, associated equipment and the solar collection facility components, and for stormwater management. It is not expected that import of fill material or export of cut material would be necessary at the proposed solar collection facility site. The final grading and drainage plan would be submitted for review and approval by the Town of Riverhead and would minimize cut and fill to the maximum extent practicable.

2.6 Required Permits and Approvals

The permits and approvals that are expected to be required for implementation of the proposed action are identified in Table 3, below.

[4] Based on a total of 12,990 households in the Town of Riverhead (US Census, 2010).

Table 3 Required Permits and Approvals

Agency	Required Permit/Approval
Town of Riverhead Town Board	Special Permit
Town of Riverhead Planning Board	Subdivision; Site Plan
Town of Riverhead Board of Appeals	Area Variances for Solar Collection Facility
Town of Riverhead Building Department	Building Permit
Town of Riverhead Highway Department	Road Opening Permit
New York State Department of Environmental Conservation	Notice of Intent-SWPPP; SPDES General Permit for Stormwater (GP-0-15-002)
New York State Department of Transportation	Highway Work Permit

Gen-Tie Approvals

As provided by Applicant, the New York Public Service Commission (PSC) does not object to Independent Power Producers (IPPs) owning electric facilities such as the proposed gen-tie line that would extend from the proposed solar PV energy facility at Parcel A through the easement property toward the solar collection facility. The PSC may require approval under Article VII of the Public Service Law (PSL) for siting and construction of certain lines. However, the requirement applies only to lines with a design capacity of 110 kV or more extending at least 10 miles, or a capacity of 125 kV or more extending at least one mile, and excluding wholly underground lines in cities with a population over 125,000. The proposed action would install a 34.5 kV line, which would not be subject to the Article VII requirement, and any 138 kV line that may be installed between the transformer and the rest of the grid would be less than one mile in length, such that it also would not be subject to Article VII. With the exception of the crossing beneath Edwards Avenue, the proposed gen-tie line will be installed entirely within private property. For developer-owned lines that are not installed entirely on private property of the developer, the NY PSC could potentially view the developer as a utility subject to NY PSC regulation. Even if the associated requirements could be applicable to the proposed crossing, solar generation under 80 MW is expected to be exempt from such regulation.

New York State's Dig Safe rules (i.e., 16 NYCRR Part 753 – Protection of Underground Facilities) require utilities and other operators of certain underground facilities (including electric lines) to provide project information, including the location of their underground facilities, to the Dig Safe program manager, and also require contractors to check with that program before beginning an excavation. The PSC's regulations are designed to protect public safety and ensure that underground facilities are properly marked before a digging or excavation project begins, to prevent damage. The proposed action is expected to adhere to all Dig Safe program requirements of Part 753.

The improvements within the Edwards Avenue right-of-way are expected to require a Road Opening Permit from the Town of Riverhead, as noted in Table 3, above.

3

Existing Conditions, Potential Impacts and Proposed Mitigation

In accordance with the Final Scope, the following sections of the DEIS evaluate the existing conditions, potential impacts and proposed mitigation for the proposed action with respect to Land Use and Zoning; Soils and Topography; Environmental Features; Glare; Socioeconomics; and Growth Inducement.

3.1 Land Use and Zoning

3.1.1 Existing Conditions

Land Use

Subject Property

The subject property consists of the subdivision property, the easement property, and the collection facility parcel (as defined in Sections 2.3 of this DEIS). Land uses within each of these areas are described below. Photographs documenting existing land use conditions are provided in Appendix E1.

Subdivision Property

In its existing condition, the 117.3±-acre subdivision property contains a sod farm (Parcel A), a warehouse and light industrial equipment associated with the sod farm (Parcel B), and a single-family residence (Parcel C) (see Photograph Nos. 1 through 6 in Appendix E1).

Easement Property

The 15-foot-wide easement property consists of 2.99± acres, and traverses multiple parcels, including a former golf course now occupied by another recreational use (i.e., a paintball facility), a tree farm, sod farms, Edwards Avenue, and an existing sPower solar facility along Edwards Avenue (see Photograph Nos. 8 through 12 in Appendix E1).

Collection Facility Parcel

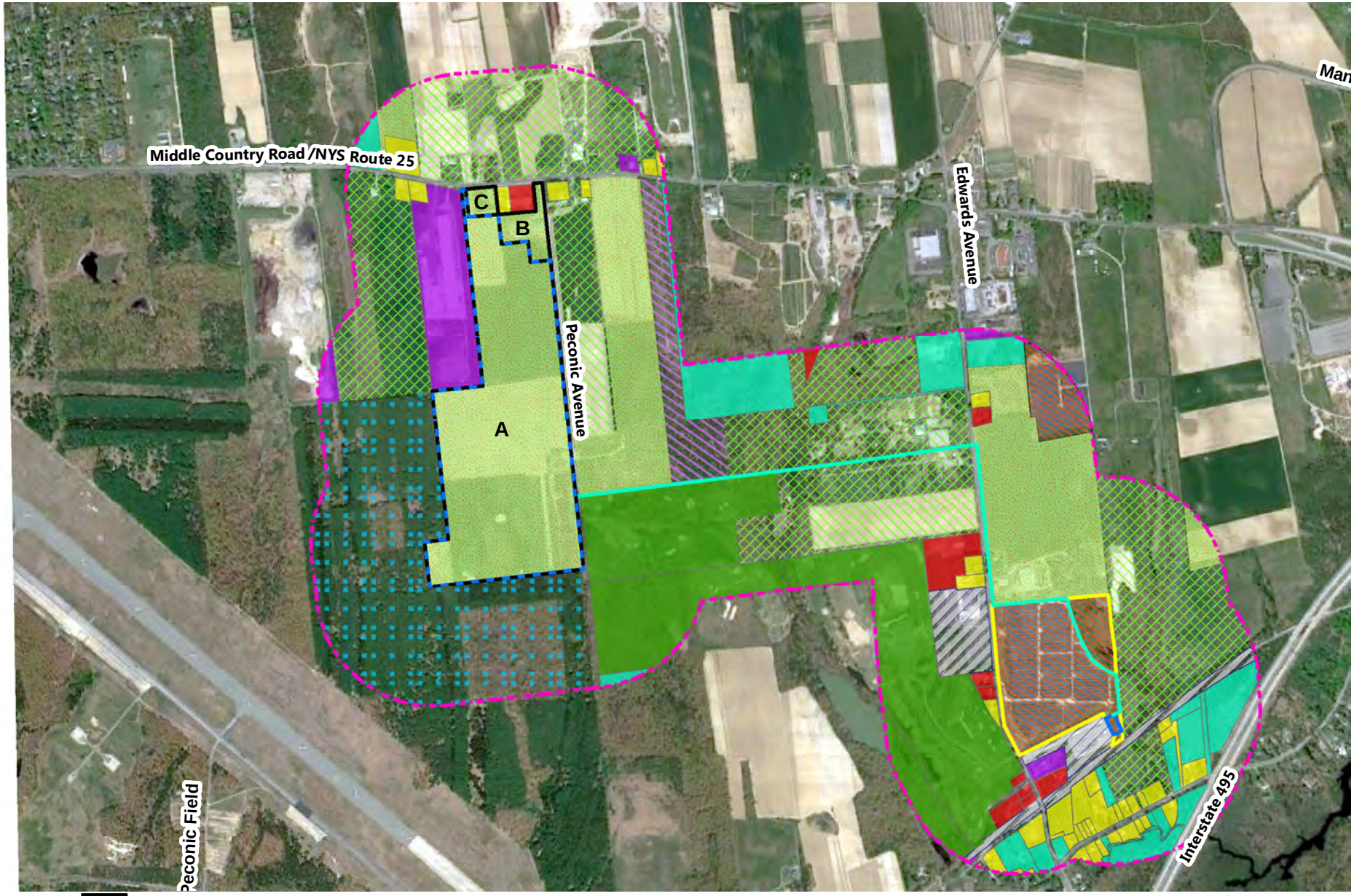
The 45.1±-acre collection facility parcel currently contains the aforementioned existing sPower solar facility, and a mowed grass area in the southern portion of the parcel (Photograph Nos. 13 through 15 in Appendix E1).

Surrounding Land Uses

As shown in Figure 3, land uses within an approximate one-quarter-mile radius of the subject property (the "study area") include a mixture of sod farms, other agricultural operations, and vacant land, and industrial, religious, commercial and single-family residential uses. However, sod farms and other agricultural uses are the predominant land use within the area. The generally agricultural land use pattern is often interrupted by several existing residential, commercial and light industrial uses, as well as the existing solar facility. The land uses surrounding the subject property are depicted in Figure 3, and representative photographs and a photograph location key depicting land use uses on the subject property and in the surrounding area are provided in Appendix E2 and cited herein.

Surrounding land uses are further described below:

North: Agricultural uses represent the predominant land use to the north of the subject property (see Photograph Nos. 2, 4, and 8 in Appendix E2). A commercial use (i.e., a Citgo gasoline service station) and a single-family residence are located immediately north of the subdivision property (see Photograph No. 5 in Appendix E2). Also present is a large materials mining/processing and hauling facility, screened from the Middle Country Road/NYS Route 25 corridor, as well as other industrial uses, vacant parcels, and single-family residences scattered throughout the northern portion of the study area.



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Existing Land Uses

Sources: Google Earth (May 2016); VHB Field Survey

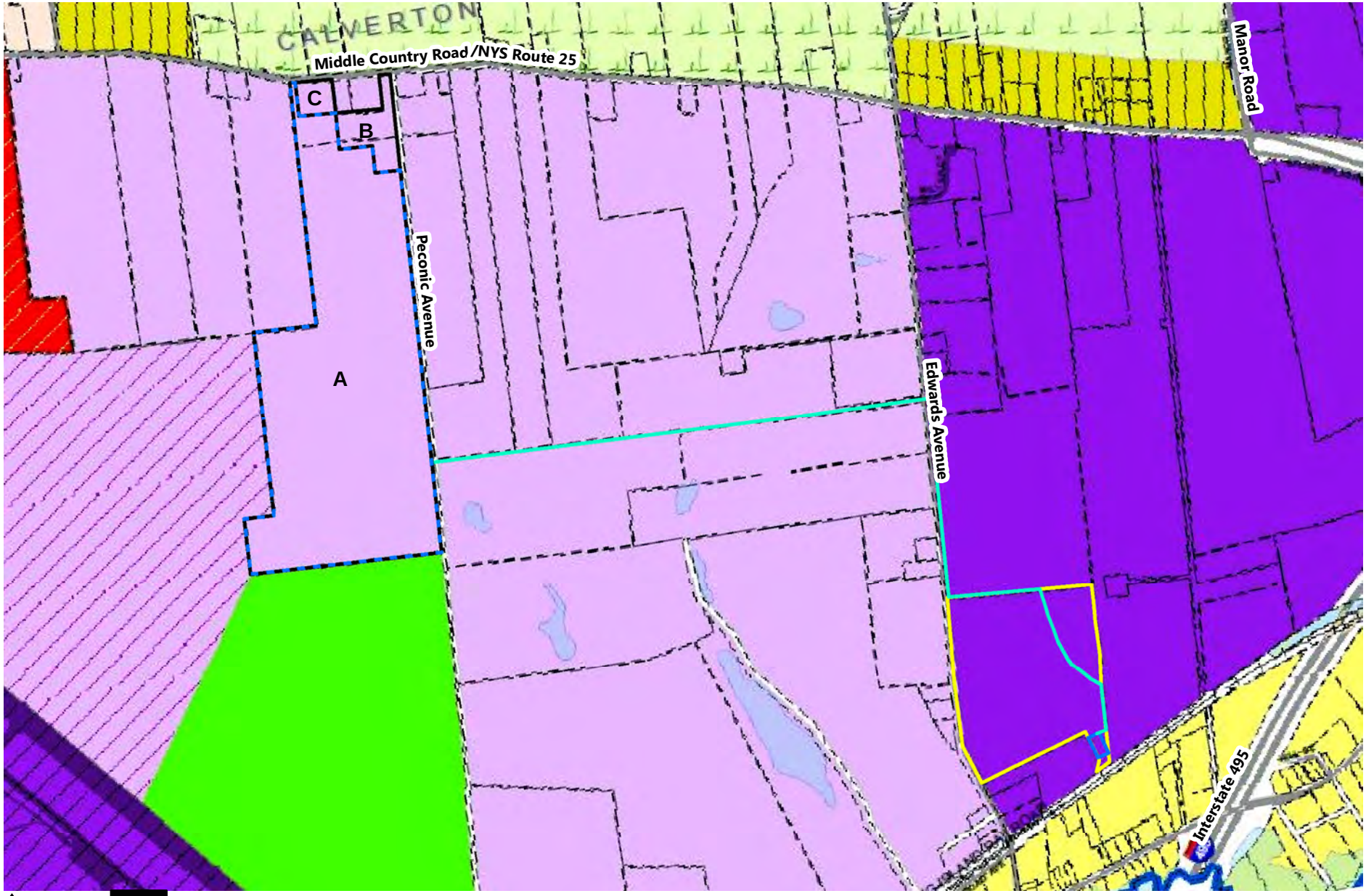
East: To the east of the proposed subdivision property are alternating agricultural uses, single family residences, and commercial and industrial uses (e.g., a liquefied petroleum gas depot, equipment sales and service), and a religious/cemetery use (see Photograph Nos. 6 and 10 in Appendix E2). There are also scattered single-family residences on agricultural land along Edwards Avenue, as well as a DeLalio sod farm along the east side of Edwards Avenue (see Photograph No. 12 in Appendix E2). Additionally, there is a solar facility (owned by others) beyond the DeLalio sod farm, within the eastern portion of the one-quarter mile radius area (see Photograph No. 9 in Appendix E2).

South: The area south of the subdivision property consists of undeveloped wooded land associated with Calverton Executive Airpark (former Naval Weapons Industrial Reserve Plant) and EPCAL. Uses to the south of the easement property include a recreational facility (former golf course, currently used for paintball), a tree farm, and an existing sPower solar facility (see Photograph Nos. 11 and 15 in Appendix E2). Additional uses south of the easement property include transportation (i.e., Hampton Jitney bus terminal and LIRR tracks), industrial, commercial, agricultural, and public utility (i.e., LIPA substation) uses (see Photograph Nos. 13 and 16 through 18 in Appendix E2). South of the LIRR train tracks, within the southeastern portion of the one-quarter mile radius study area, are single-family residences, vacant land, and an agricultural use (see Photograph Nos. 19 and 20 in Appendix E2).

West: West of the project area (i.e., immediately west of the subdivision property) is a light industrial trucking facility, single-family residences, agricultural uses, and undeveloped wooded land associated with Calverton Executive Airpark (see Photograph Nos. 1 and 3 in Appendix E2). In addition, there are scattered single-family residences on agricultural land along the south side of Middle Country Road/NYS Route 25.

Zoning

The project area is situated within the Industrial A and Industrial C zoning districts of the Town of Riverhead (see Figure 4). Specifically, the subdivision property is located within the Industrial C zoning district, the gen-tie line is split between the Industrial C and Industrial A zoning districts, and the collection facility parcel is located within Industrial A zoning district.



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Zoning Districts

Source: 2015 Zoning Use Districts (Town of Riverhead)

The permitted uses within the Industrial A zoning district include, but are not limited to, the following (§301-114 of the Town Code):

- Vocational schools
- Warehouses
- Lumberyards
- Automobile body and fender repair shops
- Agricultural production
- Building trade shops

The permitted uses within the Industrial C zoning district include, but are not limited to, the following (§301-122 of the Town Code):

- Offices
- Warehouses
- Greenhouses
- Wholesale businesses
- Laboratories, including prototype manufacturing
- Vocational schools
- Golf courses
- Parks and playgrounds
- Equestrian facilities
- Commercial sports and recreational facilities
- Dog and horse training and boarding facilities
- Manufacturing (indoor)

In addition, pursuant to §301-281(B) of the Town Code, commercial solar energy production systems are permitted in several zoning districts, including the Industrial A district, and by special permit in the Industrial C zoning district. The Town Code indicates the following with respect to commercial solar energy facilities:

> *"It is the intention of the Town Board of the Town of Riverhead, as part of its goal to limit dependence on imported fossil energy and decrease greenhouse gas emissions, to permit commercial solar energy production systems in the industrial zoning use districts to minimize impacts to residents and scenic viewsheds important to the community."* [Town Code §301-281(A)]

Commercial solar energy production systems are subject to specific use regulations and requirements for decommissioning plans, as specified in §§301-282 and 301-283, respectively. The proposed action's conformance with the use and decommissioning plan requirements, and its consistency with the Town Board's above-stated intent, is analyzed in Section 3.1.2 of this DEIS.

The bulk and dimensional criteria for the Industrial A and Industrial C zoning districts are presented in Table 4. The proposed action's conformance to the relevant criteria is evaluated in Section 3.1.2 of this DEIS.

Table 4 Bulk and Dimensional Requirements for the Industrial A and Industrial C Zoning Districts

Regulation	Industrial A	Industrial C
Minimum lot area	80,000 SF	80,000 SF
Minimum lot width at front street	200 feet	300 feet
Maximum building lot coverage	40%	40%
Maximum impervious surfaces	70%	60%
Maximum height of buildings	30 feet	30 feet
Maximum floor area ratio (FAR)	0.40	0.40
Minimum front yard depth	100 feet	30 feet
Minimum side yard depth (each/combined)	50/100 feet	30/60 feet
Minimum rear yard depth	75 feet	50 feet
Minimum property line buffer	10 feet	10 feet
Minimum street buffer	20 feet	20 feet
Minimum parking buffer	30 feet (front yard)	20 feet (side yard) 10 feet (rear yard)*

Note: * = Off-street parking is not permitted in front yards in the Industrial C zoning district

Several zoning districts exist within the quarter-mile radius study area surrounding the subject property, as follows (see Figure 4):

North: Agriculture Protection, Industrial C, Rural Corridor

East: Industrial A

South: Planned Recreational Park, Industrial A, Industrial C, Residence B-40

West: Industrial C, Light Industrial

As identified on the Town's current Zoning Use Districts map (Figure 4), and as described above, industrial zoning is predominant within the one-quarter mile radius study area surrounding the subject property. This area also contains a small pocket of the Agriculture Protection zoning district (north of the subdivision property and Middle Country Road/NYS Route 25), a small portion of the Residence B-40 zoning district (south of the collection facility parcel), and the Calverton Executive Airpark

property, which is within the Planned Recreational Park zoning district (south of the subdivision property).

Public Policy

Town of Riverhead Comprehensive Plan (2003)

The *Town of Riverhead Comprehensive Plan, November 2003* (*2003 Comprehensive Plan*), was prepared by the Town to "develop a plan that fully takes into account the concerns of the community and strives for fair, balanced solutions to complex problems" (Page 1-1). The *2003 Comprehensive Plan* was formulated through an extensive community outreach process which included the creation of a Citizens Advisory Committee (CAC), two rounds of numerous community workshops, surveys and interviews, and "study circles" intended for brainstorming a long-range vision for the Town. Based on this input, goals and recommendations were formulated for the following elements of the Town:

- Agriculture
- Natural Resource Conservation
- Scenic and Historic Resources Preservation
- Business Districts
- Economic Development
- Housing
- Transportation
- Utility Service
- Parking and Recreation; and
- Community Facilities.

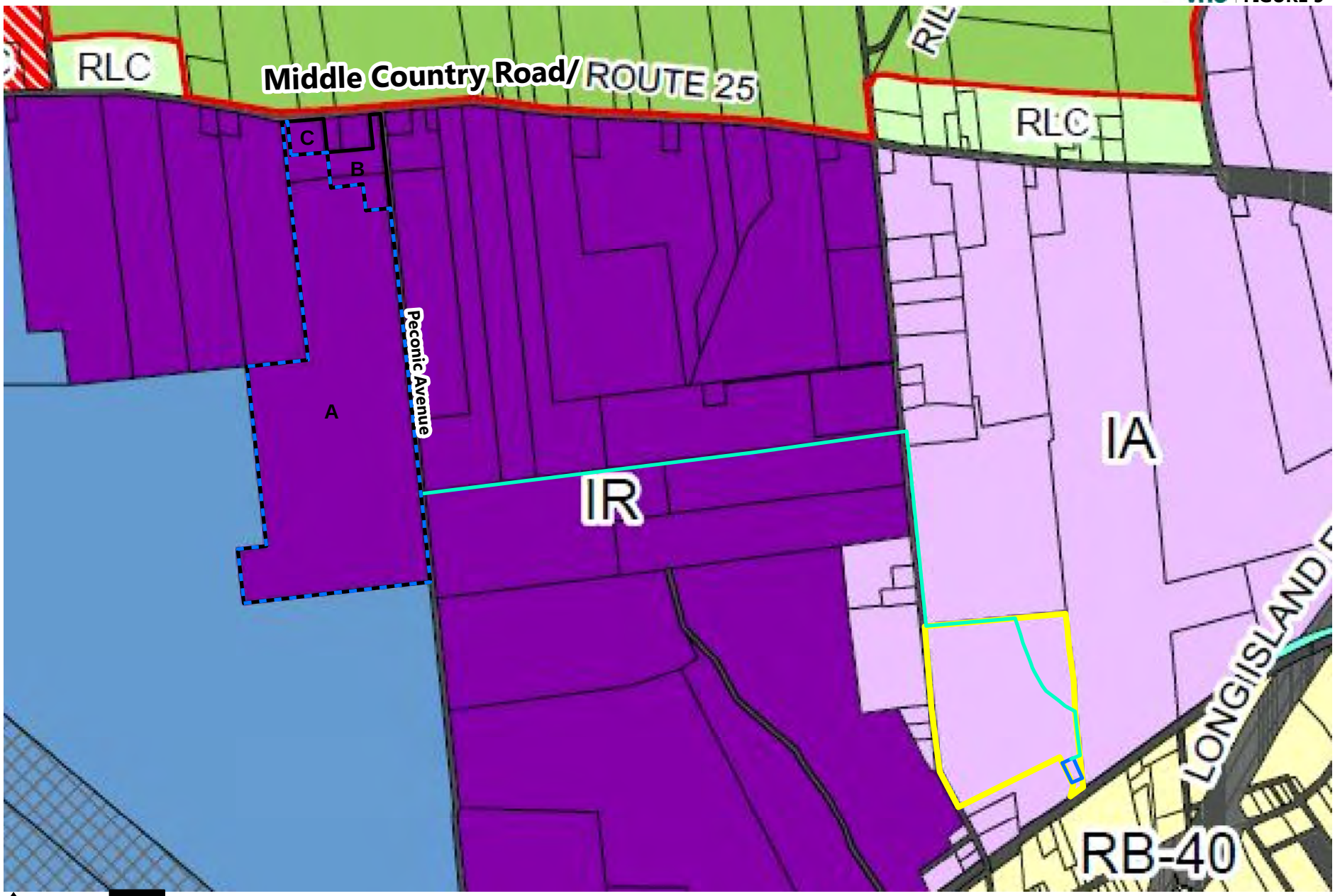
A land use plan was developed that "weaves together those goals and recommendations into a single, coherent plan for development and conservation, providing a snapshot of what the Town would be expected to look like in the future" (Page 1-5). Page 2-1 within the Land Use Element in Chapter 2 of the *2003 Comprehensive Plan* notes, in part, that the Town should have the following characteristics:

- A dynamic office/industrial center in and around Enterprise Park at Calverton.
- Regional recreational and entertainment facilities at Enterprise Park at Calverton.
- A greenbelt of farmland and open space with a prosperous agricultural industry, where housing is clustered and open spaces is permanently preserved.
- A system of parks and greenways that provide abundant recreational opportunities for all age groups.
- Protected streambeds, wetlands, woodlands, bluffs, beaches, and other natural areas, including habitat areas for plant and animal species.

- A strong Town identity and heritage, with protected scenic vistas and beautifully restored and reused historic buildings.
- A reputation as a place that has the best of both the past and the present, and the best of both natural and built environments.

The *2003 Comprehensive Plan* further specifies that the Land Use Element is the "centerpiece" of the comprehensive planning process, as it synthesizes all of the goals and policies of the ten elements mentioned above into one vision. The Land Use Element also predicts and compares numerous "build-out" scenarios under existing zoning patterns and provides a Proposed Land Use Plan within Chapter 2 (see Figure 5 of this DEIS, below). Many properties are proposed to be rezoned in order to implement goals and policies found throughout the *2003 Comprehensive Plan*. The Proposed Land Use Plan map generally defines recommended future land uses for all areas of the Town. Recommended land uses/zoning districts for the project area include Industrial/Recreational and Industrial A. As shown in Figure 5 of this DEIS, the subdivision property is within the proposed "IR" Industrial/Recreational zoning district. As defined in the *2003 Comprehensive Plan*, the recommended new IR zone is "intended to provide a mix of commercial recreation uses and moderate-scale industrial development in the areas generally between Enterprise Park in Calverton and the terminus of the LIE" (Page 2-5). This district would allow the development of recreational attractions to appeal to tourists, while also allowing traditional industrial development. The *2003 Comprehensive Plan* Proposed Land Use Plan also includes a proposed Agriculture Protection Zone and a proposed Agricultural Protection Boundary. However, as shown in Figure 5 of this DEIS, no portion of the project area is located therein.

Chapter 3 contains the Agricultural Element of the *2003 Comprehensive Plan*, which discusses the agricultural industry and the farmland resources within the Town, with respect to the Town's character and economy. The *2003 Comprehensive Plan* states that the Town's farmland resources are under increasing pressure by residential and commercial development. The Agricultural Element encourages the protection of farmland and the agricultural industry in the Town. This section provides information regarding the economic value of agriculture in the area, an overall history of agriculture in the Town, and farmland preservation methods employed by the Town and Suffolk County. In the discussion of agricultural history, the *2003 Comprehensive Plan* indicates that the Town's agricultural products traditionally consisted of vegetable and fruit products. Sod production, which is the current use of the subdivision property, was noted as a more recent agricultural trend.



0 500 1000 2000 Feet

- Proposed Solar Array Field
- Proposed Subdivision Lots
- Proposed Generation-Tie Line
- Proposed Collection Facility Location
- Existing Solar Facility and Proposed Collection Facility Parcel

APZ	Agricultural Protection Zone (TDR Sending)	RB-40	Residence B-40
IA	Industrial A	RLC	Rural Corridor
IR	Industrial/Recreational	TRC	Tourism/Resourt Campus
OSC	Open Space Conservation		
PIP	Planned Industrial Park		
PRP	Planned Recreational Park		

Proposed sPower Solar Energy Facility | Calverton, NY

Town of Riverhead Proposed Land Use Plan

Source: Town of Riverhead Comprehensive Plan (November 2003)

The Agricultural Element indicates that the goals of the *2003 Comprehensive Plan* with respect to agriculture are predominantly focused on preserving farmland, encouraging the agricultural economy, and maintaining the rural character of the Town. It is noted that, while preserving the agricultural land base is a key goal, the *2003 Comprehensive Plan* also establishes that agricultural landowners must be allowed to maintain the equity of their land, and choice with respect to how their farmland is utilized. The Agricultural Element includes a number of recommendations that would enable the Town to realize the above-referenced overarching goals.

In Chapter 4, the Natural Resources Conservation Element, the *2003 Comprehensive Plan* notes the importance of natural resources to the Town's long-term health, safety, and well-being, as well as its economic vitality. Overall, this chapter discusses three major categories of natural resources, including water resources, soils and topography, and plant and animal communities. Water resources include water bodies and wetlands in the Town. Section 3.3.1 of this DEIS discusses existing wetland resources in, and surrounding, the project area. Chapter 4 of the *2003 Comprehensive Plan* indicates that the Town's groundwater and wetland resources can be impacted by pesticides and fertilizers that can contaminate stormwater runoff. This chapter also describes the characteristics of the soils in the Town, and notes areas that are best suited for agricultural uses. In addition, the chapter discusses the importance of protecting plant and animal species and natural communities, specifically those that are rare, endangered or at risk. Section 3.3.1 of this DEIS provides a detailed discussion of existing natural communities and plant and animal species in the project area and vicinity.

As discussed in Chapter 5 of the *2003 Comprehensive Plan*, the Town has a distinct scenic character, comprised of numerous components, including farmland. Farmland plays a role in tourism and contributes to the attractiveness of the area for residents. This portion of the *2003 Comprehensive Plan* recommends that this resource, along with the additional scenic and historic resources listed within the chapter, be protected now, as well as in the future as development occurs.

Chapter 6, the Business Districts Element of the *2003 Comprehensive Plan*, contains recommendations pertaining to specific hamlets along the Route 58 corridor, including the hamlet center area of Calverton located west of the project area. This chapter mainly focuses on commercial retail development, and provides recommendations for development along a portion of Middle Country Road/NYS Route 25 to the west of the subdivision property.

As discussed within the Utility Service Element in Chapter 10 of the *2003 Comprehensive Plan*, utility infrastructure is critical to the health, safety, and welfare of the community. Residents and businesses rely on water, sewer, electric, natural gas, and telecommunications services and facilities for daily activities that contribute to the Town's economic wellbeing. This section notes that utilities should continue to be expanded to meet the Town's growing needs, but also notes that the Town

should aim to limit any potential negative impacts on the natural environment and the Town's historic or scenic resources associated with new utility infrastructure.

The *2003 Comprehensive Plan* provides recommendations for each of the chapters discussed above. These recommendations primarily pertain to Town and other governmental actions. A general discussion of the proposed action's consistency with same is provided in Section 3.1.2, below.

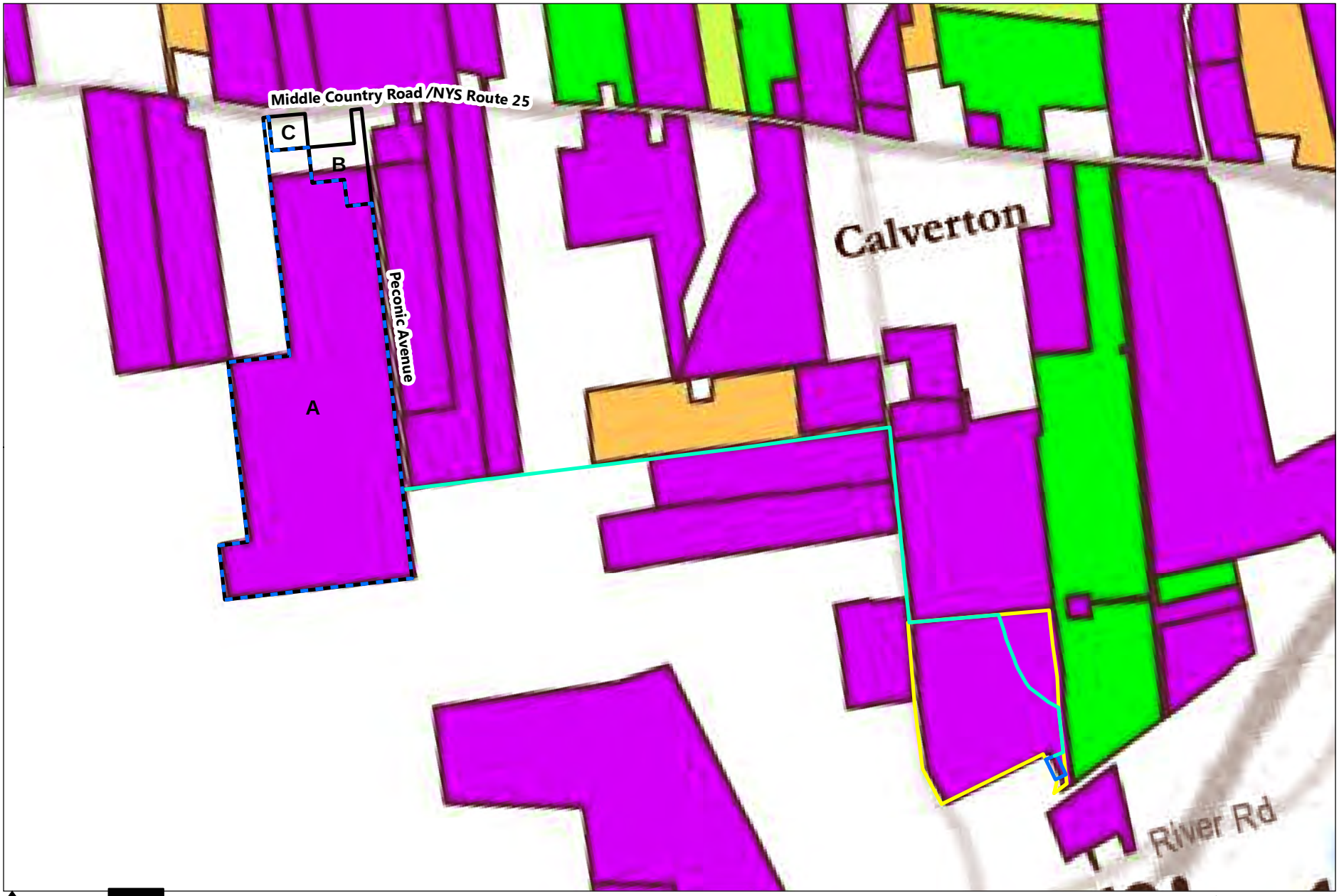
Suffolk County Agricultural and Farmland Protection Plan (2015)

The *Suffolk County Agricultural and Farmland Protection Plan* (SCAFPP) was prepared by the Suffolk County Department of Economic Development and Planning and the Suffolk County Agricultural and Farmland Protection Board in December 2015 through grants from the New York State Department of Agriculture and Markets, the Long Island Community Foundation, and Suffolk County. The 2015 SCAFPP is an update to the 1996 SCAFPP.

According to the 2015 SCAFPP, suburbanization has significantly reduced the amount of farmland in Suffolk County over the last century. The 2015 SCAFPP notes that, despite this loss, farmland acreage has remained stable since 1992 and has slightly increased in the last decade. The 2015 SCAFPP highlights that, based on the 2012 Census of Agriculture for Suffolk County, Suffolk is ranked third of the 62 counties in New York State in terms of the value of agricultural production. The 2015 SCAFPP builds upon the goals and objectives set forth in the 1996 SCAFPP, and public outreach was conducted with farmers and the community. The 2015 SCAFPP ultimately crafted an overall vision to "foster adaptable public policy along with the commitment and support of the farming community to protect, encourage and sustain agriculture as an industry for future generations in Suffolk County."

The 2015 SCAFPP contains an inventory of past and current farmland acreages in the County, and a summary of the economic impacts of the agricultural industry. Several of the parcels comprising the project area are designated on maps included in the 2015 SCAFPP as private, non-protected farmland (see Figure 6), and as farmland parcels in active agriculture. The 2015 SCAFPP indicates that additional active agricultural properties are located to the north, south and east of the subject property; although the agricultural areas in the Town are primarily concentrated to the northeast of the project area.

The 2015 SCAFPP also provides a summary of existing programs and policies that serve to protect farmland and promote agriculture in Suffolk County. Local municipal zoning that is protective of agriculture is noted as one such tool. In addition, Purchase of Development Rights (PDR) programs involve the purchase, by the County, other municipalities or non-profits, of the right to develop agricultural properties for uses other than agriculture, with the existing property owner retaining the underlying fee. Additional conservation programs described in the 2015 SCAFPP include outright fee simple purchase the fee simple of farm property for



0 500 1000 2000 Feet

- Proposed Solar Array Field
- Proposed Subdivision Lots
- Proposed Generation-Tie Line
- Proposed Collection Facility Location
- Existing Solar Facility and Proposed Collection Facility Parcel

Protected Farmland
- County and Town
- County
- Town

Not Protected Farmland
- Private

Proposed sPower Solar Energy Facility | Calverton, NY

Protected and Not Protected Farmland
Town of Riverhead

Source: 2015 Suffolk County Agricultural and Farmland Protection Plan, December 2015

preservation purposes, New York State Agricultural District programs that assist farmers with reduced property taxes and other protections, and marketing campaigns to promote Suffolk County agricultural products.

With respect to Town agricultural preservation tools, the Town instituted an Agricultural Protection Zone to encourage less development in certain agricultural areas. The subject property is not included in this zoning district (see Figure 4). Further, none of the sod farm parcels comprising the subject property have been the subject of a PDR acquisition or other preservation action.

Finally, the 2015 SCAFPP identifies and discusses challenges facing the viability of Suffolk County agriculture. The 2015 SCAFPP indicates that the agricultural industry should have access to affordable, renewable energy sources. However, the 2015 SCAFPP states that farmland should not be converted into solar farms. Section 3.1.2 of this DEIS addresses the goals and concerns identified by the 2015 SCAFPP with respect to the proposed action.

Suffolk County Comprehensive Master Plan 2035 (*Suffolk 2035 Plan*) (2015)

The *Suffolk County Comprehensive Master Plan 2035: Framework for the Future* (Suffolk 2035 Plan), adopted by the Suffolk County Legislature on July 28, 2015, represents the final part of a planning effort that was initiated in 2011 with the publication of an inventory of data relating to demographics, the economy, and quality of life in Suffolk County. The *Suffolk 2035 Plan* is guided by three themes: revitalizing the economy; rebuilding downtowns and infrastructure; and reclaiming the quality of groundwater, surface water and terrestrial resources. The *Suffolk 2035 Plan* identifies priorities such as economic development, environmental protection, transportation, housing diversity, public safety and energy usage.

Key policy areas identified in the *Suffolk 2035 Plan* are listed below, and relevant findings are also noted.

- Build a 21st Century Transit Network to Provide More Transportation Choices to Improve Mobility, Access, and Safety.
- Provide Equitable, Affordable, Fair Housing.
- Enhance Economic Competitiveness and Capacity to Build an Innovation Economy
- Support Vibrant Communities
- Streamline Government, Coordinate Policies
- Protect the Environment and Enhance Our Human Capital

The *Suffolk 2035 Plan* provides recommendations for each of the key priority areas. Those relevant to the proposed action are included in Section 3.1.2 of this DEIS, and an analysis of the proposed action's consistency therewith is provided.

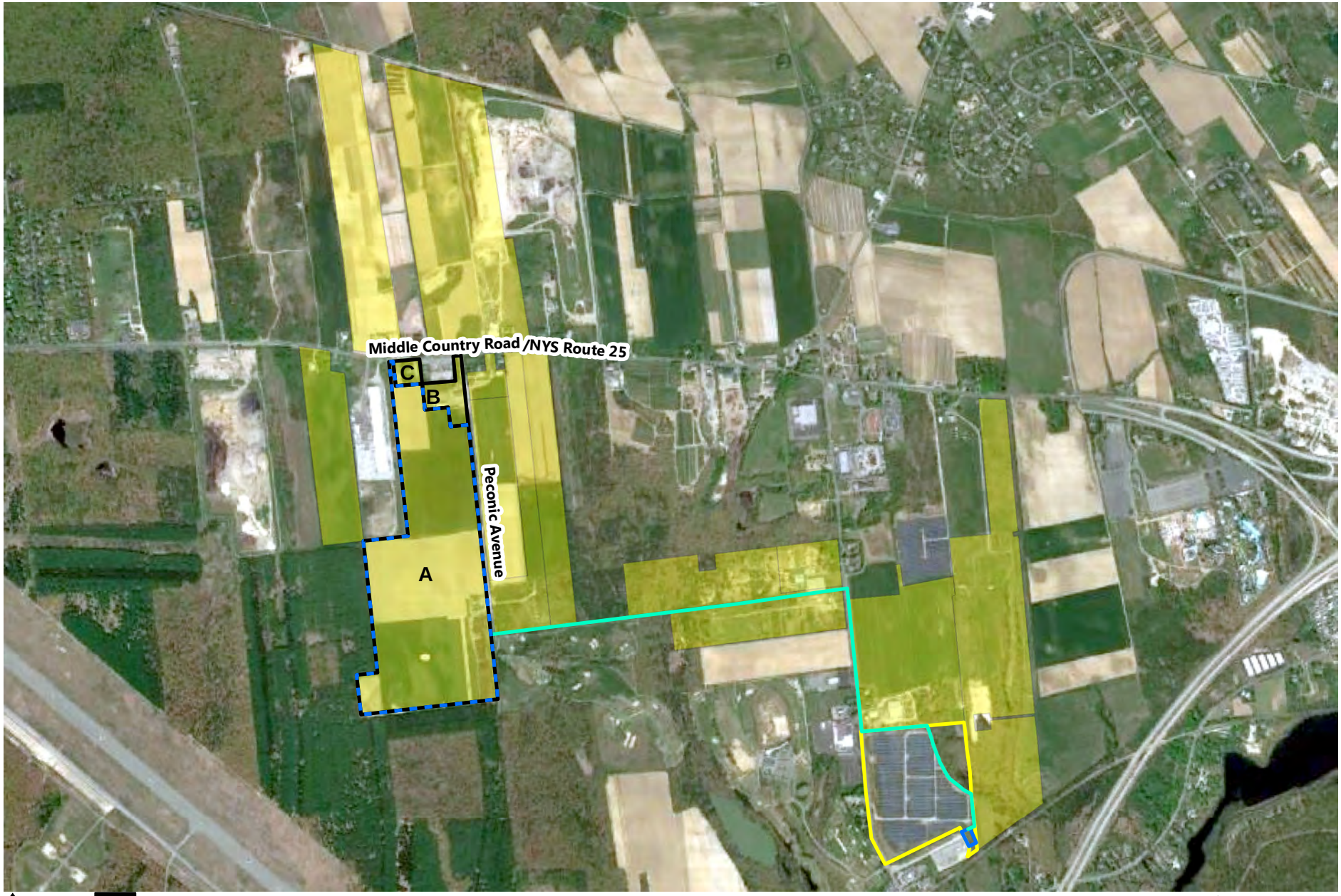
Agricultural Land

As noted above, the project area includes land that is currently utilized for sod farming. Specifically, Parcels A and B of the subdivision property are an existing sod farm operation. The easement property is located on the northern portion of property containing an existing tree nursery, and located just south of property containing an equestrian operation. In addition, the easement property is located along land on the east side of Edwards Avenue that is also used for sod cultivation. Furthermore, as indicated in the 2015 SCAFPP summary, above, the project area is located within a portion of the Town that contains additional sod farms and other agricultural lands. Figure 7, below, shows that the project area does not contain protected farmland; and according to the Town's Zoning Use Districts map (see Figure 4 on Page 18 of this DEIS), the subject property is not within the Agricultural Protection Zone. As also indicated above, the Town's *2003 Comprehensive Plan* recommends an Agricultural Protection Boundary for protection of certain agricultural lands in the Town; and, as shown in Figure 5, the sod farm at the subdivision property and the other agricultural parcels comprising the project area and the adjacent area, were not proposed for inclusion within this Agricultural Protection Boundary.

As mentioned in the summary of the 2015 SCAFPP, the New York State Agricultural Districts Program is one of the tools available to municipalities for farmland preservation. This program encourages active farmland by providing tax relief and other benefits to farmland containing active agricultural operations. Suffolk County administers enrollment and renewal for parcels within these Agricultural Districts. It should be noted that there are no use restrictions associated with Agricultural District parcels. According to information from the Suffolk County Division of Planning and Environment, several of the project area parcels are within Agricultural District 7 (AD7). The Town requires that an Agricultural Data Statement be prepared for a Special Use Permit, site plan approval or subdivision approval on property within an Agricultural District containing a farm operation, or on property within 500 feet of a farm operation located within an Agricultural District.

The Agricultural Data Statement that was submitted to the Town with a site plan application (see Statement in Appendix F indicates that the proposed subdivision property tax parcels and the collection facility parcel are located in AD7. AD7 also includes several parcels comprising the easement property, as well as a number of parcels within 500 feet of the project area that contain an active agricultural operation. Figure 7 shows the project area parcels and surrounding parcels that are located in AD7 and contain an active agricultural operation. Although the collection facility parcel is situated in AD7, it no longer contains an active agricultural operation; therefore, it is anticipated that this parcel will be removed from the Agricultural District Program during Suffolk County's next renewal period.

Section 3.1.2 contains a discussion of potential impacts of the proposed action with respect to the existing agricultural land resources summarized above.



0 500 1000 2000 Feet

Proposed Solar Array Field

X Proposed Subdivision Lots

Proposed Generation-Tie Line

Proposed Collection Facility Location

Existing Solar Facility and Proposed Collection Facility Parcel

Agricultural District Parcels Containing a Farm Operation

Proposed sPower Solar Energy Facility | Calverton, NY

Active Agricultural Land in Agricultural District 7 within 500 feet of the Project Area

Source: Agricultural District parcel information obtained from consultations with the Suffolk County Division of Planning and Environment; Google Earth (May 2016)

3.1.2 Potential Impacts

Land Use

Upon implementation of the proposed action, the two tax parcels comprising the 117.3±-acre subdivision property would be subdivided into three lots: Parcel A at 109.9± acres, Parcel B at 5.1± acres, and Parcel C at 2.3± acres. Parcel A would be created as a flag lot, with a 20-foot-wide gravel roadway to allow access from Middle Country Road/NYS Route 25 to the proposed solar panel array facility. Existing structures on Parcel B (warehouse and equipment associated with the existing sod farm) and Parcel C (single-family residence) would remain.

In addition to the installation of solar panel arrays on Parcel A, the proposed action would include the construction of five gravel equipment areas with pad-mounted transformers, switchgears and inverters along the internal gravel roadway. Utility trenches for medium voltage electrical lines would run along the interior of Parcel A, between the solar panel arrays. Landscaped buffers would also be created on Parcel A, along the northern property line and a portion of the eastern property line, to provide screening and buffering (see *Collection Facility Grading Plan/Landscape Plan* [Sheet C-4] in Appendix B). Implementation of the proposed action would result in a change of use from an existing sod farm on Parcel A to a commercial solar energy production system (i.e., the proposed solar panel array field). As discussed below, this proposed facility is a permitted use within the Industrial C zoning district, subject to the issuance of a special permit. Potential impacts to agricultural land resources in the Town from the conversion of the sod farm use on Parcel A are analyzed below.

The proposed gen-tie line would be 8,670± LF in length within a 15±-foot wide easement, totaling 2.99± acres. The gen-tie is proposed to run along the northern and eastern property lines of the parcel containing the existing sPower solar facility on the east side of Edwards Avenue. Ground cover within the 15±-foot wide easement would be replaced in-kind after installation of the underground conduit, and, thus, there would be no change to existing land use along the proposed gen-tie route as a result of the proposed action.

The proposed solar collection facility would comprise a 0.5±-acre (20,000± SF) area, and would be developed on the same tax parcel as the existing sPower solar facility, east of the Edwards Avenue LIPA substation (i.e., south of the existing sPower solar facility, and north of the LIRR tracks). The proposed solar collection facility would include an equipment area and a gravel roadway. As indicated previously, the proposed solar collection facility would be located on an existing mowed grass area on the southeastern portion of the existing sPower solar facility parcel. Upon implementation of the proposed action, the land use at the existing mowed grass area would change, and there would be solar collection facility equipment that would be similar in appearance to an electric grid substation. However, land use on the overall parcel (i.e., the existing sPower solar facility) would remain the same; and operations for the existing facility would not be adversely impacted, as the proposed

solar collection equipment would not encroach into the area currently developed with sPower solar panel arrays, and as the proposed new use is consistent with and complementary to the existing use. Landscaped buffers are proposed along the western property line of the proposed solar collection facility, to screen potential views of the proposed equipment from Edwards Avenue (see *Collection Facility Grading Plan / Landscape Plan* [Sheet C-4] in Appendix B).

A comparison of existing and proposed site coverages at both the subdivision property and the collection facility parcel is presented in Table 5 and Table 6, below. As previously indicated, the gen-tie line installation would not change site coverages along its route, as existing cover types would be replaced in-kind.

Table 5 Existing and Proposed Site Data – Subdivision Property (Parcel A)

Site Coverage Type	Existing Conditions (Acres)	Proposed Conditions (Acres)
Concrete Pads	0.00	0.03±
Solar Panels	0.00	34.85±
Drainage Reserve Areas	0.00	3.79±
Pervious Surfaces (including sod farm, dirt driveways, and grass areas)	109.9±	67.35±
Gravel Roadway	0.00	3.90±
TOTAL	**109.9±**	**109.9±**

Table 6 Existing and Proposed Site Data – Proposed Collection Facility Parcel

Site Coverage Type	Existing Conditions (Acres)	Proposed Conditions (Acres)
Concrete Pads	0.00±	0.03±
Solar Panels	12.77±	12.77±
Drainage Reserve Areas	3.75±	3.75±
Pervious Surfaces (including sod farm, dirt driveways, and grass areas)	26.39±	25.98±
Gravel Roadway/Equipment Areas	1.98±	2.36±
Wetland	0.20±	0.20±
TOTAL	**45.1±**	**45.1±**

As presented within Table 5 (for Parcel A of the subdivision property), a total of 109.9± acres of the existing sod farm would be replaced by the proposed solar panel array facility. Of the 109.9± acres, 34.88± acres would contain the solar panels and concrete pads. As a result of the proposed action, impervious surfaces on Parcel A of the subdivision property would be as indicated in Table 5. The 34.85± acres of land beneath the solar panels on Parcel A would be maintained as pervious surfaces. Specifically, land beneath and between the proposed solar arrays would be seeded with a variety of grasses (see *Solar Facility Planting Plan* [Sheet L-1] in Appendix B). A combination of trees and shrubs would be planted along the frontage of Parcel A, to serve as a visual buffer from the surrounding land uses and Middle Country Road/NYS Route 25. In addition, screen plantings would be installed along the eastern property line, north of the gen-tie line location.

Site coverages at the collection facility parcel, upon implementation of the proposed action, would be similar to the existing condition. A small area of mowed grass would be replaced by concrete equipment pads and gravel areas. Evergreen plant species would be installed along the western property line of the proposed solar collection facility within existing maintained landscaped (lawn) areas. Upon implementation of the proposed action, impervious and pervious surface area at the collection facility parcel would be as indicated in Table 6.

Temporary ground disturbance would occur throughout the 15±-foot-wide easement. As mentioned above, ground cover would be replaced in-kind, and there would be no significant change to the existing cover type or land use.

As discussed in Section 3.1.1, the one-quarter-mile radius study area predominantly contains sod farm and other agricultural uses. However, this area also contains a patchwork of undeveloped woodlands, and religious, industrial, commercial and single-family residential uses. The proposed action would not introduce a unique use within this portion of the Town, as there are two existing solar facilities (including the existing sPower facility along Edwards Avenue, and a facility owned by another entity) within the study area. Although the proposed solar array field on Parcel A would differ in use from the adjacent sod farm, residential and commercial uses, it would complement the existing industrial use immediately to the west. In addition, the proposed sPower Calverton solar facility would comply with all use requirements, as further detailed below). Overall, it is not expected that operation of a solar farm on the subject property would result in significant adverse land use impacts upon surrounding uses, particularly given the proposed vegetated buffers along the northern and eastern perimeters of Parcel A.

Additionally, the solar panels would be substantially set back from Middle Country Road/NYS Route 25 due to the proposed "flag lot" configuration of Parcel A, further reducing the potential for land use-related impacts. The extremely low level of activity associated with the proposed use – i.e., in terms of traffic, noise, occupancy, water use, etc. – minimizes the potential for the proposed action to significantly impact surrounding land uses.

The proposed solar PV energy facility has been awarded a 20-year PPA under the LIPA's 280 MW Renewable Request for Proposals. After the 20-year PPA, the solar panel array facility would be dismantled and properly disposed as part of a planned decommissioning process (see Section 3.1.2 of this DEIS, below). Accordingly, the potential land use impacts of the proposed action are not permanent.

It is important to understand this impact in the perspective of the existing land use pattern in the community and Town. As discussed in significant detail below, and as demonstrated by Figure 7, the Town of Riverhead encompasses approximately 43,445 acres of land. Of that total, 14,996± acres consist of active agricultural land, including several parcels in the vicinity of the subject property. This represents approximately 35 percent of the entire land area of the Township – more than any other Town in Suffolk County, and over 5,500 acres more than even the Town of Southold which has the next highest proportion of farmland in the County. The conversion of 109.9± acres of active agricultural land (for the term of the 20-year PPA and Special Permit), representing less than three tenths of one percent of the total land area of the Town and less than seven tenths of one percent of the total area of active agricultural land in the Town, would not be a significant adverse impact upon land use or agricultural resources.

Zoning

As described in Section 3.1.1 above, the project area is situated within the Industrial A zoning district and the Industrial C zoning district. Specifically, the proposed solar panel array facility and a portion of the gen-tie line would be located within the Industrial C zoning district; the solar collection facility, as well as the remaining portion of the gen-tie line, would be located within the Industrial A zoning district.

As indicated above, the Town requires a special permit for a commercial solar energy production system (i.e., the solar panel array field) within the Industrial C zoning district. Consistency of the proposed sPower Calverton solar facility with the bulk and dimensional criteria of the Industrial A zoning district and Industrial C zoning district is presented in Table 7 and Table 8, below.

Table 7 Consistency with Bulk and Dimensional Zoning Requirements for the Proposed Solar PV Energy Facility (Parcel A)

Regulation	Industrial C	Proposed Solar Array Facility
Minimum lot area	80,000 SF	4,784,110 SF
Minimum lot width at front street	300 feet	50 feet*
Maximum building lot coverage	40%	35%
Maximum impervious surfaces	60%	35%
Maximum height of buildings	30 feet	N/A
Maximum floor area ratio (FAR)	0.40	0
Minimum front yard depth	30 feet	N/A
Minimum side yard depth (each/combined)	30/60 feet	30.12 / 61.24 feet
Minimum rear yard depth	50 feet	50.88 feet
Minimum property line buffer	10 feet	25 feet
Minimum street buffer	20 feet	N/A
Minimum parking buffer	20 feet (side yard) 10 feet (rear yard)	N/A

Note: *Flag lot. A lot width of 300 feet or greater is maintained throughout the improved portion of the lot.

Table 8 Consistency with Bulk and Dimensional Zoning Requirements - Collection Facility Parcel

Regulation	Industrial A	Collection Facility Parcel
Minimum lot area	80,000 SF	1,964,687 SF
Minimum lot width at front street	200 feet	1,711 feet
Maximum building lot coverage	40%	28.01%
Maximum impervious surfaces	70%	28.01%
Maximum height of buildings	30 feet	30 feet*
Maximum floor area ratio (FAR)	0.40	0
Minimum front yard depth	100 feet	100.1 feet
Minimum side yard depth (each/combined)	50/100 feet	40.9/91.1 feet**
Minimum rear yard depth	75 feet	46.4 feet**
Minimum property line buffer	10 feet	10 feet
Minimum street buffer	20 feet	20 feet
Minimum parking buffer (front yard)	30 feet	30 feet

Notes: *Proposed solar collection facility height.
**Variance would be required.

As shown in Table 7 and Table 8, above, the proposed action would require variances from the Town Zoning Board of Appeals (ZBA). Specifically, regarding the subdivision of the two existing tax parcels into Parcels A, B, and C, there are currently pre-existing, non-conforming conditions on proposed Parcel B of the subdivision property for minimum lot width at front street and minimum front yard depth. However, creation of Parcels B and C would not cause any new non-conforming conditions on those proposed Lots (see Land Division maps [Sheets 1 and 2] in Appendix B).

As Parcel A is a flag lot, the lot width at Middle Country Road/NYS Route 25 would require a variance. However, the width of the main portions of Parcel A (where the solar facility improvements are proposed) would be at least 300 feet in width and, therefore, would exceed the requirement.

At the collection facility parcel, the requested variance to the side yard depth requirement would not be substantial (40.9 feet proposed, 50 feet required for one; 91.1 feet proposed, 100 feet required for both). The rear yard of the collection facility parcel (46.4 feet proposed, 75 feet required) adjoins an undeveloped wooded area of an agricultural use, and, therefore, a smaller rear yard depth would not impact the adjacent use.

Based on the foregoing analysis, the variances to the above-referenced dimensional criteria that would be required for implementation of the proposed action would not adversely impact zoning or land use in the vicinity of the project area.

As stated above, the proposed action requires the issuance of a special permit from the Town Board, pursuant to §301-282 of the Town Code, for the construction of a proposed solar panel array facility on Parcel A, in the Industrial C district. The Town Code contains specific regulations for this type of a use (i.e., a commercial solar energy production system), and the consistency of the proposed action with each regulation is presented below:

M. The commercial solar energy system shall be on a parcel of not less than five acres.

The proposed action includes a proposed subdivision, creating Parcels A, B, and C. The proposed solar panel array facility would be situated on Parcel A, which at 109.9± acres complies with this standard.

N. All ground-mounted panels shall not exceed the height of eight feet.

The proposed solar panels would be installed to a maximum top height of eight feet above grade level, in conformance with this standard.

O. All mechanical equipment of commercial solar energy systems, including any structure for batteries or storage cells, are completely enclosed by a minimum eight-foot-high fence with a self-locking gate.

An eight-foot high chain-link fence with a compliant gate would be installed along the perimeter of Parcel A, which would contain the solar panel array field, in conformance with this standard.

P. Notwithstanding any requirement in §301-115, 301-229, 301-123, 301-127 of this chapter, the total surface area of all ground-mounted and freestanding solar collectors, including solar photovoltaic cells, panels, and arrays, shall not exceed 80% of the total parcel area.

Subsequent to the completion of the proposed action, the building lot coverage on Parcel A (i.e., solar panels, concrete pads, and on-site gravel roadways) would be approximately 35 percent, well below the maximum specified in this standard.

Q. *The installation of a vegetated perimeter buffer to provide year-round screening of the system from adjacent properties.*

Vegetated buffers would be installed along the frontage of Parcel A at Middle Country Road/NYS Route 25. Additionally, vegetative screening would be planted along the northern property boundaries of Parcel A with the adjacent residential and commercial uses and along a portion of the eastern property line of Parcel A. These plantings would sufficiently screen the property from potentially sensitive surrounding land uses. Vegetated buffers would be comprised of evergreen species to provide year-round screening of the proposed solar panel array field (see *Solar Facility Planting Plan* [Sheet L-1] in Appendix B). Thus, the proposed action would comply with this standard.

R. *All solar energy production systems are designed and located in order to prevent reflective glare toward any habitable buildings as well as streets and rights-of-way.*

The solar panel arrays would be placed and constructed to prevent reflective glare to the maximum extent possible.

S. *All on-site utility and transmission lines are, to the extent feasible, placed underground.*

On-site utility and transmission lines would be installed underground to the maximum extent practicable. The gen-tie line connecting the proposed solar panel facility to the collection facility also would be placed underground.

T. *The installation of a clearly visible warning sign concerning voltage must be placed at the base of all pad-mounted transformers and substations.*

Clearly visible warning sings regarding voltage would be placed as specified by the above criterion. Overall, all signage at the proposed solar panel array facility would be in conformance with the Town Code.

U. *The system is designed and situated to be compatible with the existing uses on adjacent and nearby properties.*

The proposed solar panel array facility would be compatible with existing uses in the study area, as evaluated in this section of this DEIS. Moreover, as there are two existing solar panel array facilities within a one-quarter mile radius of the project area, the proposed sPower Calverton solar facility would not represent a unique use in the area. Additionally, as detailed in this section of this DEIS, the proposed solar panel array facility would be

decommissioned after expiration of the 20 year PPA, and Parcel A would then be available for future use or restoration.

V. In approving a special exception, the Planning Board [sic] *may waive or modify any of the above criteria if it finds that there is no detriment to public health, safety and welfare.*

The proposed solar panel array facility would be constructed in compliance with all applicable building and fire codes. Based on the analyses in Sections 3.2.2 or 4.2.1 of this DEIS, the proposed use would also not pose significant adverse impact with respect to stormwater runoff or construction. It is also anticipated that the establishment of the proposed sPower Calverton solar facility would produce a benefit to public health and welfare by providing a clean, renewable source of energy to the Town and Long Island as an alternative to the burning of fossil fuels that produce greenhouse gas emissions.

Thus, there would be no detriment to public health, safety and welfare as a result of the proposed action, consistent with this standard.

W. Any special permit approval granted under this article shall have a term of 20 years, commencing from the grant of the special permit, which may be extended for additional five-year terms upon application to the Town Board.

All equipment associated with the proposed solar PV energy facility would be removed when the 20-year PPA expires. Although the term of the special permit that would be required for the solar panel array facility would expire after 20 years, no extension of the special permit would be requested, as the PPA would also expire and the entire sPower Calverton solar facility would be decommissioned and removed.

X. Decommissioning/removal. The decommissioning regulations in §301-282(L) of the Town Code state that "a commercial solar energy production system that is not operated for a continuous period of 24 months shall be deemed abandoned." Further, if the owner does not remove the components of the facility in 90 days, after a 30-day notice, the Town can then remove such components at the owner's expense. The decommissioning provision of the use regulation indicates that the purpose of this criterion is to ensure the proper decommissioning of commercial solar energy production systems in order to "promote the public health, safety and general welfare of Town citizens."

With respect to the above regulation, the proposed action has been awarded a 20-year PPA under the LIPA 280 MW RFP. As such, the solar panel array facility would be fully operational and maintained for 20 years by sPower. As previously indicated, after expiration of the 20-year PPA, the solar array facility would be decommissioned and properly disposed as part of a planned decommissioning process. As discussed below, prior to construction of the sPower Calverton solar facility, the applicant would

provide a bond to the Town for the funds that would be necessary to complete the decommissioning process.

Applications for commercial solar energy production systems must be accompanied by decommissioning plans that would be implemented upon abandonment or removal of the use. As indicated in §301-283 of the Town Code, decommissioning plans must include information as to the following:

7. *Restoration of the surface grade and soil after removal of aboveground structures and equipment.*
8. *Restoration of soil areas with native seed mixes and/or plant species suitable to the area, which shall not include any invasive species.*
9. *Retention of access roads, fences, gates or buildings or buffer plantings, as required at the discretion of the Town.*
10. *Restoration of the site for agricultural crops or forest resource land, as applicable.*
11. *The disposal of all solid and hazardous waste shall be in accordance with all local, state, and federal waste disposal regulations.*
12. *An applicant of a commercial solar energy system comprising more than 10 acres shall provide a form of surety, either through escrow account, bond or otherwise, to cover the cost of removal in the event the Town must remove the installation and remediate the landscape, in the amount and form deemed to be reasonable by the Town Engineer . . . The applicant of the facility shall submit a fully inclusive estimate of the cost associated with removal, prepared by a professional engineer.*

Prior to implementation of the proposed action, the applicant would submit a plan to the Town that would detail the process for decommissioning of the sPower Calverton solar facility that would occur after the expiration of the 20-year PPA. In conformance with the above-listed requirements, the decommissioning plan would include provisions for removal of above-ground structures and equipment; restoration of surface grades, soils, and native plant species; and disposal of solid and hazardous waste in accordance with applicable regulations. Access roads, fences, gates and buffer plantings associated with the sPower Calverton solar facility would be retained or removed at the ultimate discretion of the Town. As is also discussed in this section, below, the decommissioning process would allow for the restoration of Parcel A to allow reactivation of the existing sod farm use, other agricultural use, or to become fallow and, possibly, eventually to revert to undeveloped wooded land. The decommissioning plan to be submitted to the Town would include provisions for such restoration of Parcel A.

In addition, as discussed above, prior to construction of the sPower Calverton solar facility, the applicant would provide a bond to the Town to ensure completion of the decommissioning process. The bond would ensure that in the event that the applicant is no longer in existence at the end of the 20 year PPA, funds would be

available to the Town for decommissioning. The bond monies would be available to the Town to cover the cost of removal of all improvements and remediation of the landscape. The amount of the bond would be based on an estimate for removal and remediation, as confirmed by the Town engineer.

Based on the foregoing analysis, the proposed solar panel array facility would comply with the standards for the issuance of a special permit in the Industrial C zoning district. Therefore, the proposed solar panel array facility use in the Industrial C zoning district would not result in any significant adverse impacts to zoning.

Public Policy

Town of Riverhead Comprehensive Master Plan (2003)

An evaluation of the proposed action's general consistency with the *2003 Comprehensive Plan* is included herein.

Section 3.1.2 of this DEIS, below, discusses the Proposed Land Use Plan map that is presented in the *2003 Comprehensive Plan* (see Figure 5 on Page 23 of this DEIS). With respect to the recommended land uses/zoning districts for the project area, the subdivision property is recommended for an "IR" zoning district, the purpose of which includes the accommodation of "moderate-scale industrial development." The collection facility parcel is recommended for an "IA" zoning district, the purpose of which includes the accommodation of "Light Industry" development. The proposed use would be less intensive, less impactful and more harmonious with the established land use and development pattern of the neighborhood than the types of development that would be encouraged by the IR or IA recommended land uses/zoning districts. It should be noted that the Town's Proposed Land Use Plan map has not been implemented, and existing zoning districts in the Town are as indicated in the Town's 2015 Zoning Use Districts map (see Figure 4 on Page 18 of this DEIS).

As discussed above, the Town's *2003 Comprehensive Plan* contains a number of goals and recommendations with regard to agriculture that, collectively, aim to preserve the agricultural land base, while maintaining equity for the landowners, supporting the local agricultural economy, and maintaining the rural character of the community. It is important to note that, while the proposed action would involve a change in use at the subdivision property from a sod farm operation to a solar panel array field, the subdivision property could be converted back to sod farm or other agricultural use after the expiration of the 20-year PPA. Therefore, the proposed action would not involve a permanent loss in farmland. Further, the 2003 Comprehensive Plan indicates that maintaining the farm landowner's equity is an important aspect of the Town's agricultural policy, and the subdivision property owner's intent is to lease the land to the Applicant for development of a solar energy facility. With respect to recommendations in the *2003 Comprehensive Plan* for municipalities to utilize various farmland preservation tools, no portion of the project area has been specifically targeted for farmland preservation. The proposed action would also not adversely impact the scenic rural character of the surrounding

area, based on the design of the proposed action, the location of the proposed facility relative to the public roadway (i.e., set back significantly behind existing, intervening development to remain), and the extensive screening to be installed.

The Natural Resources Conservation Element of the *2003 Comprehensive Plan* indicates that productive agricultural soils should be preserved. As the collection facility parcel does not contain active agriculture, and as there would be no soil removal for construction of the proposed solar collection facility, the recommendation is not relevant to this parcel. The cut and fill estimates for development of Parcel A of the subdivision property, which is currently an active sod farm operation, are to be determined. However, the preliminary site plans (see Appendix B) propose to retain the existing site grades to the maximum extent practicable throughout the project area. Moreover, the Applicant's decommissioning process for the proposed action would provide for a plan for the restoration of soils and surface grades after the removal of the proposed solar panel array facility. Relevant to other recommendations of the *2003 Comprehensive Plan*, and as indicated in this section of this DEIS, no significant adverse impacts to the existing wetland resources, rare/protected species and communities, wildlife, and habitats/vegetation within the project area would result from the proposed action.

The goals identified within Chapter 5 of the *2003 Comprehensive Plan* are to protect farmland, visual quality of scenic corridors and open space. The required decommissioning plan would ensure that there would not be a permanent conversion of land from a sod growing operation to a solar panel array field. The subdivision property could revert back to sod production or another agricultural use after the PPA expires in 20 years. It is noted that none of the parcels comprising the project area have been identified as preservation targets by the relevant comprehensive planning documents, nor is the project area within the Town's current or proposed agricultural protection use or zoning districts. According to the *2003 Comprehensive Plan*, the project area is not located within a designated scenic corridor. Nonetheless, to minimize potential visual impacts (as detailed on the *Planting and Landscape Plans* [Sheets L-1 and C-4] in Appendix B), extensive plantings would be installed strategically along property boundaries to screen views year-round from neighboring properties and roadways. Therefore, the proposed action would not adversely impact the scenic rural character of the surrounding area. In addition, as indicated in this section of this DEIS, there are no designated open space areas on, or that currently provide views from, the project area. Thus, there would not be any impacts to same. Furthermore, the proposed action would not adversely impact natural features that contribute to the aesthetics and character of the Town, including wildlife, wetlands, habitats and vegetation (see Section 3.1.2 of this DEIS).

Figure 6-5 of the *2003 Comprehensive Plan* recommends that the visual quality of the Middle Country Road/NYS Route 25 corridor proximate to the Calverton hamlet center be preserved. This figure does not include recommendations for the project area, nor does it contain recommendations for the portion of the study area shown therein (which are located outside of the aforementioned portion of the Middle

Country Road/NYS Route 25 corridor). However, in order to ensure views of the sPower Calverton solar facility from Middle Country Road/NYS Route 25 and Edwards Avenue would be screened to the extent practicable, extensive landscaping is proposed to provide maximum year-round buffering along both roadways (see *Planting Plan* [Sheet L-1] and *Landscape Plan* [Sheet C-4] in Appendix B).

As detailed in Section 3.1.2 of this DEIS, there are numerous goals and policies within the Utility Service Element of the *2003 Comprehensive Plan*, which aim to expand utility infrastructure, while also limiting potential negative impacts on the environment. The sPower Calverton solar facility would be consistent with these goals and policies, as it would provide a clean and renewable source of electricity to the grid. Moreover, the proposed action would benefit the Town by helping to provide for growing energy needs in a non-polluting manner.

Suffolk County Agricultural and Farmland Protection Plan (2015)

The 2015 SCAFPP was drafted to guide a public policy to protect and encourage the agricultural industry in Suffolk County, as discussed in Section 3.1.1 of this DEIS. The 2015 SCAFPP indicates that Suffolk County farmland should not be converted into solar farms. Although the subdivision property would change from a sod farm to a solar panel array field under the proposed action, this would be a temporary conversion and there is a required decommissioning plan, such that the proposed action does not represent a permanent conversion of land from a sod growing operation to a solar PV energy facility. Moreover, none of the parcels comprising the subject property have been identified as preservation targets by the relevant comprehensive planning documents analyzed in this Section, nor is the project area within the Town's current or proposed agricultural protection use or zoning districts (see Figure 4 and Figure 5 on pages 18 and 23 of this DEIS, respectively).

Based on the foregoing analysis, the project area has not been specifically identified by the various farmland preservation strategies presented in the 2015 SCAFPP, and any impacts to land currently in sod production would not be permanent. Therefore, the proposed action would be consistent with the 2015 SCAFPP to the extent practicable.

Suffolk County Comprehensive Master Plan 2035 (*Suffolk 2035 Plan*) (2015)

As indicated in Section 3.1.1 of this DEIS, the *Suffolk 2035 Plan* focuses on key policy areas. The key policy area that is relevant to the proposed action encourages renewable energy, greening of public infrastructure, and cooperation with local energy utilities in order to protect the environment and enhance human capital.

The proposed action would be consistent with the above-referenced key policy area, as it would allow the creation of a solar PV energy facility that would provide for the production of additional clean energy in the Town. The proposed action would establish a sustainable and renewable energy source that would help reduce reliance on fossil fuels for energy, and reduce carbon dioxide emissions. Upon completion of the proposed action, the facility would be interconnected to the LIPA power grid,

supplying electricity for sale to LIPA in accordance with the terms in the PPA. Therefore, the proposed action would be consistent with the relevant recommendations in the *Suffolk 2035 Plan*.

Agricultural Land

The subdivision property currently contains a sod farm operation and is within Agricultural District AD7. Upon implementation of the proposed action, the subdivision property would be removed from sod production and replaced with a solar panel array field. As a result, it is expected that the subdivision property parcels would not be renewed as part of AD7 during the next County renewal period. As noted above, there are no restrictions on use associated with inclusion in an Agricultural District. Therefore, if the subdivision property is removed from AD7 as a result of the proposed action, the primary effect of such a change would be felt by the property owner, who would not be afforded the same advantages (e.g., tax benefits) as when the property was within the Agricultural District. The land use of the property that would contain the gen-tie line in a 15-foot-wide easement would not change, as the gen-tie line would be installed in an underground trench, and there would be no impact to any agricultural use(s) on these properties. It should be noted that, although Parcel A would no longer be an active sod farm operation as a result of the proposed action, the property owner has indicated that the existing jobs at this location would be maintained as the employees would continue to work at the owner's other existing farms and operations.

Overall, with respect to agricultural land resources, upon implementation of the proposed action, the subdivision property would no longer be a sod farm use, while the sod farm and other agricultural uses along the gen-tie line route would remain in their current respective uses. With regard to farmland protection efforts of the Town and other entities, neither the proposed subdivision property, nor any other portions of the project area, have been identified for protection or preservation by the Town's 2003 Comprehensive Plan or the 2015 SCAFPP. Although the subdivision property is not currently protected farmland, nor identified as a target for preservation, it is acknowledged that development of the solar array field would result in a change of use from sod farm production to renewable energy generation. However, it is important to recognize that this change would not be permanent, due to the 20-year term of the PPA.

The proposed action includes a decommissioning process, as described throughout this section of this DEIS, above. According to the previously-described decommissioning process, after expiration of the 20-year PPA, all improvements associated with the sPower Calverton solar facility would be removed. Therefore, after decommissioning, the subdivision property would once again be available for sod farm cultivation or other agricultural production.

As discussed in significant detail within Section 3.1.1 of this DEIS, and as demonstrated by Figure 3 and Figure 4 presented in that section, the Town of Riverhead encompasses approximately 43,445 acres of land. Of that total, 14,996±

acres consist of active agricultural land, including several parcels in the vicinity of the subject property. This represents approximately 35 percent of the entire land area of the Township – more than any other Town in Suffolk County, and over 5,500 acres more than even the Town of Southold which has the next highest proportion of farmland in the County. The conversion of 109.9± acres of active agricultural land (for the term of the 20-year PPA and Special Permit), representing less than three tenths of one percent of the total land area of the Town and less than seven tenths of one percent of the total area of active agricultural land in the Town, would not be a significant adverse impact upon land use or agricultural resources.

Based on the foregoing analysis and the proposed action's demonstrated consistency with the Agricultural Element of the Town's 2003 Comprehensive Plan and the 2015 SCAFPP, development of the proposed sPower Calverton solar energy facility would not result in permanent loss of agricultural lands or adverse impacts to agricultural resources in the Town.

3.1.3 Proposed Mitigation

The proposed action is not expected to result in significant adverse impacts to land use and zoning, such that no mitigation measures are necessary. Nonetheless, in order to minimize potential land use and zoning impacts, the following measures have been incorporated into the proposed action:

- The areas beneath and between the proposed solar panel arrays would be seeded with a variety of grasses after completion of the equipment installation.
- Drought-tolerant evergreen plantings would be installed strategically along property boundaries to provide year-round screening of views from neighboring properties and roadways. On the northern property boundary of Parcel A (i.e., closest to Middle Country Road/NYS Route 25, south of Parcels B and C), a double-row of evergreen shrubs and staggered trees would obscure the limited views of the proposed solar facility from the roadway corridor. Similar additional plantings would be placed on a portion of the eastern property line of Parcel A to screen views facing southwest from along Middle Country Road/NYS Route 25.
- Evergreen plantings and additional landscaping would be installed along the western property line of the solar collection facility, mitigating potential visual impacts of the proposed equipment from Edwards Avenue upon surrounding land uses.
- The proposed gen-tie line would be installed underground along its entire route so that this component of the proposed action would not involve any change to land use or site coverage.
- The proposed action is designed to be consistent with the goals and objectives of the Town of Riverhead's *2003 Comprehensive Master Plan,* the *Suffolk County Comprehensive Master Plan 2035,* and use regulations for commercial solar energy production systems set forth in §301-282 in the Town Code. The proposed action is designed to meet the standards for the issuance of a special permit set forth in §301-282 of the Town Code.

- The proposed action includes a decommissioning process, which ensures that after the 20-year PPA term expires, the subdivision property could revert back to sod farm use or other agricultural uses.
- The proposed action would establish a solar PV energy facility that would provide a clean and renewable source of electricity to the grid, benefitting the Town by helping to provide for growing energy needs in a non-polluting manner.

3.2 Soils and Topography

3.2.1 Existing Conditions

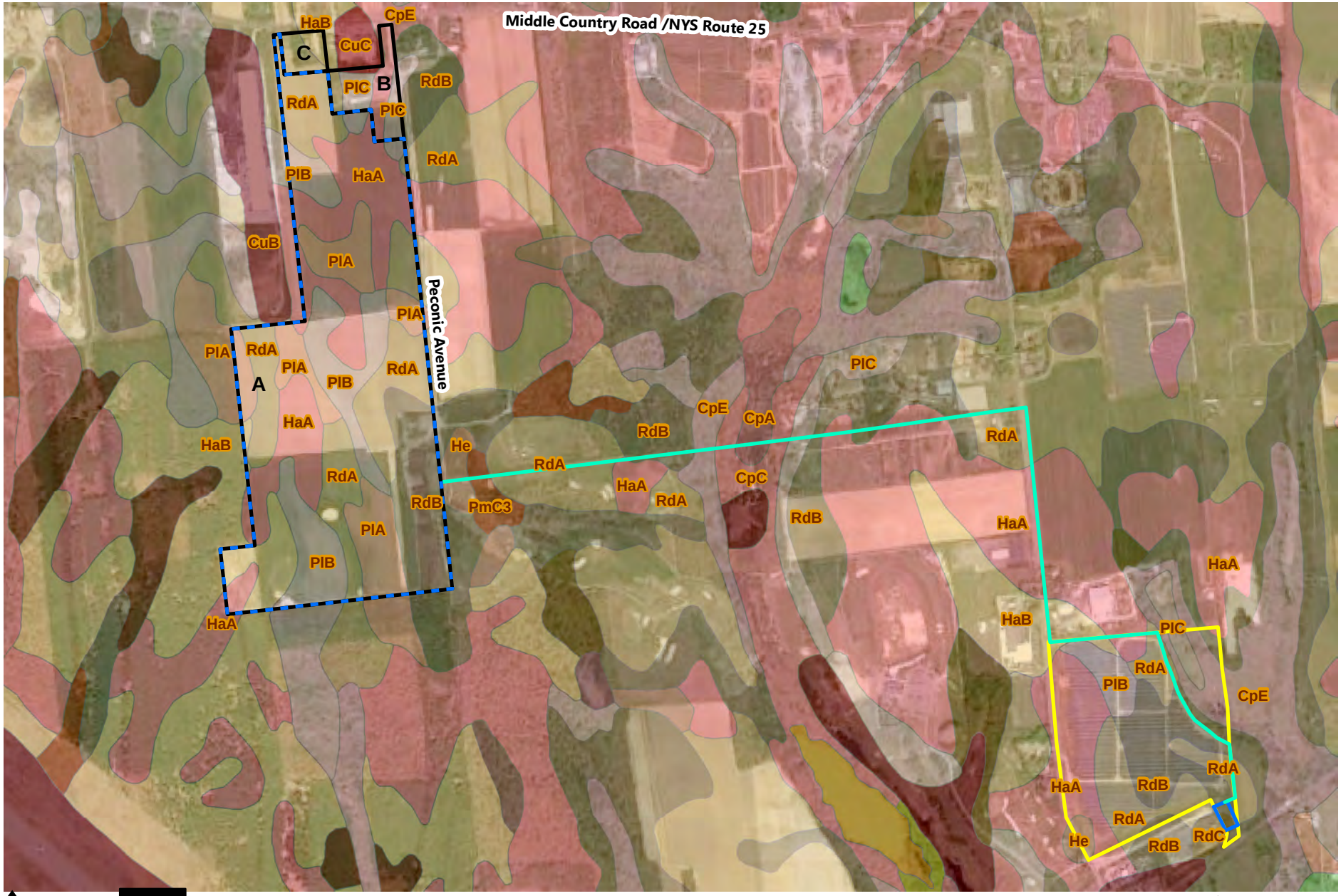
Soils

According to the Soil Survey of Suffolk County, New York (USDA, 1975) ("Soil Survey"), soils are classified according to distinct characteristics and placed (according to these characteristics) into "series" and "mapping units." A "series" is a group of mapping units formed from partly disintegrated and partly weathered rocks that lie approximately parallel to the surface and that are similar in arrangement and differentiating characteristics, such as color, structure, reaction, consistency, mineralogical composition and chemical composition. "Mapping units" differ from each other according to slope, and may differ according to characteristics such as texture.

The mapping units present at the overall subject property, according to the Soil Survey, are as depicted by Table 9 and Figure 8, below.

Table 9 Soil Survey Map Results

Map Unit Symbol	Map Unit Name	Acres in Subject Property	Percent of Subject Property
CpA	Carver and Plymouth sands, 0 to 3 percent slopes	0.1	0.1%
CpC	Carver and Plymouth sands, 3 to 15 percent slopes	0.1	0.1%
CpE	Carver and Plymouth sands, 15 to 35 percent slopes	3.7	2.2%
CuC	Cut and fill land, sloping	0.3	0.2%
HaA	Haven loam, 0 to 2 percent slopes	39.6	24.0%
HaB	Haven loam, 2 to 6 percent slopes	7.6	4.6%
He	Haven loam, thick surface layer	1.0	0.6%
PlA	Plymouth loamy sand, 0 to 3 percent slopes	17.9	10.9%
PlB	Plymouth loamy sand, 3 to 8 percent slopes	22.9	13.9%
PlC	Plymouth loamy sand, 8 to 15 percent slopes	5.1	3.1%
PmC3	Plymouth gravelly loamy sand, 8 to 15 percent slopes, eroded	0.1	0.1%
RdA	Riverhead sandy loam, 0 to 3 percent slopes	40.9	24.8%
RdB	Riverhead sandy loam, 3 to 8 percent slopes	25.3	15.4%
RdC	Riverhead sandy loam, 8 to 15 percent slopes	0.3	0.2%



Proposed sPower Solar Energy Facility | Calverton, NY

Existing Soil Types

Sources: USDA Web Soil Survey (2013); Google Earth (May 2016)

The relevant excerpts of the *Soil Survey* relating to the predominant soil series, i.e., Riverhead, Plymouth, and Haven series, are presented below.

Riverhead Series

The Riverhead series consists of deep, well-drained moderately coarse textured soils that formed in a mantle of sandy loam or fine sandy loam over thick layers of coarse sand and gravel. These soils occur throughout the County in rolling to steep areas on moraines and in level to gently sloping areas on outwash plains. These soils range from nearly level to steep; however, they are generally nearly level to gently sloping. Native vegetation consists of black oak, white oak, red oak and scrub oak.

In a representative profile, the surface layer is brown to dark brown sandy loam about 12 inches thick. The upper part of the subsoil, to a depth of about 27 inches, is strong-brown, friable sandy loam. The lower part of the subsoil is yellowish-brown, very friable loamy sand to a depth of about 32 inches. Below is yellowish-brown, friable gravelly loamy sand to a depth of about 35 inches. The substratum is very pale brown and brown loose sand and gravel or sand to a depth of 65 inches.

Riverhead soils have moderate to high available moisture capacity. Internal drainage is good. Permeability is moderately rapid in the surface layer and in the subsoil and very rapid in the substratum.

Plymouth Series

The Plymouth series consists of deep, excessively drained, coarse-textured soils that formed in a mantle of loamy sand or sand over thick layers of stratified coarse sand and gravel. These nearly level to steep soils are throughout the County on broad, gently sloping to level outwash plains and on undulating to steep moraines. Native vegetation consists of white oak, black oak, pitch pine, and scrub oak.

In a representative profile, the surface layer is very dark grayish-brown loamy sand, about four inches thick, in wooded areas. In cultivated areas, the surface layer is mixed with material formerly in the upper part of the subsoil, and there is a brown to dark-brown plow layer of loam about ten inches thick. The subsoil is yellowish-brown and brown, very friable and loose loamy sand to a depth of about 27 inches. The substratum, to a depth of about 58 inches, is yellowish-brown, loose gravelly coarse sand.

Plymouth soils have low to very low available moisture capacity. Natural fertility is low. Internal drainage is good. Permeability is rapid in all these soils except in those of the silty substratum phase. Permeability is moderate in the silty layer of soils in the silty substratum phase.

Haven Series

The Haven series consists of deep, well-drained medium-textured soils that formed in a loamy or silty mantle over stratified coarse sand and gravel. These soils are present throughout the County, but most areas are on outwash plains between the two terminal moraines. Slopes range from zero to 12 percent, but they generally are one to six percent. Native vegetation consists of black oak, white oak, red oak, scrub oaks, and pitch pines.

In a representative profile a thin layer of leaf litter and decomposed organic matter is on the surface in wooded areas. Below this is the surface layer of dark grayish-brown loam about three inches thick. In cultivated areas the surface layer is mixed with the material formerly in the upper part of the subsoil, and a plow layer of brown or dark-brown loam, about ten inches thick, is present. The subsoil is dark-brown to strong-brown, friable loam to a depth of about 19 inches. The lower part, to a depth of 28 inches, is yellowish-brown, friable gravelly loam. The substratum, to a depth of 55 inches, is yellowish-brown to brownish-yellow loose sand and gravel.

Haven soils have high to moderate available moisture capacity. Reaction is strongly acid to very strongly acid throughout. Natural fertility is low. The response of crops to lime and fertilizer is good. Internal drainage is good. Permeability is moderate in the surface layer and subsoil and rapid or very rapid in the substratum. The root zone is 25 to 35 inches thick.

To further describe existing soils conditions at the subject property, the below describes the predominant soil mapping units within the primary components of the subject property, i.e., the subdivision property; the easement property; and the collection facility parcel.

Subdivision Property

As will be discussed in the corresponding Potential Impacts section (see Section 3.2.2 of this DEIS), proposed improvements are contemplated within "Parcel A" of the subdivision property, only. As indicated in Figure 8, Parcel A contains the following soils, according to the *Soil Survey*:

- Haven loam, ranging from zero-to-two percent slopes (HaA)
- Plymouth loamy sands, ranging from zero-to-three percent slopes (PlA), from three-to-eight percent slopes (PlB), and from eight-to-fifteen percent slopes (PlC).
- Riverhead sandy loam, ranging from zero-to-three percent slopes (RdA) and from three-to-eight percent slopes (RdB).

Other soils comprise nominal portions of Parcel A, i.e., the proposed solar PV energy facility.

Easement Property

As indicated in Figure 8, the easement property contains the following soils, according to the *Soil Survey*:

- Carver and Plymouth sands, ranging from zero-to-three percent slopes (CpA), from three-to-fifteen percent slopes (CpC), and from fifteen-to-thirty five percent slopes (CpE).
- Haven loam, ranging from zero-to-two percent slopes (HaA), and from two-to-six percent slopes (HaB).
- Riverhead sandy loam, ranging from zero-to-three percent slopes (RdA), and from three-to-eight percent slopes (RdB).

Other soils comprise nominal portions of the easement property.

Collection Facility Parcel

As will be discussed in the corresponding Potential Impacts section (see Section 3.2.2 of this DEIS), proposed improvements are contemplated within a small portion of overall 45.1±-acre collection facility parcel (see *Collection Facility Layout & Materials Plan* [Sheet C-3] in Appendix B). As indicated in Figure 8, the area of proposed improvements are comprised of the following soils, according to the Soil Survey:

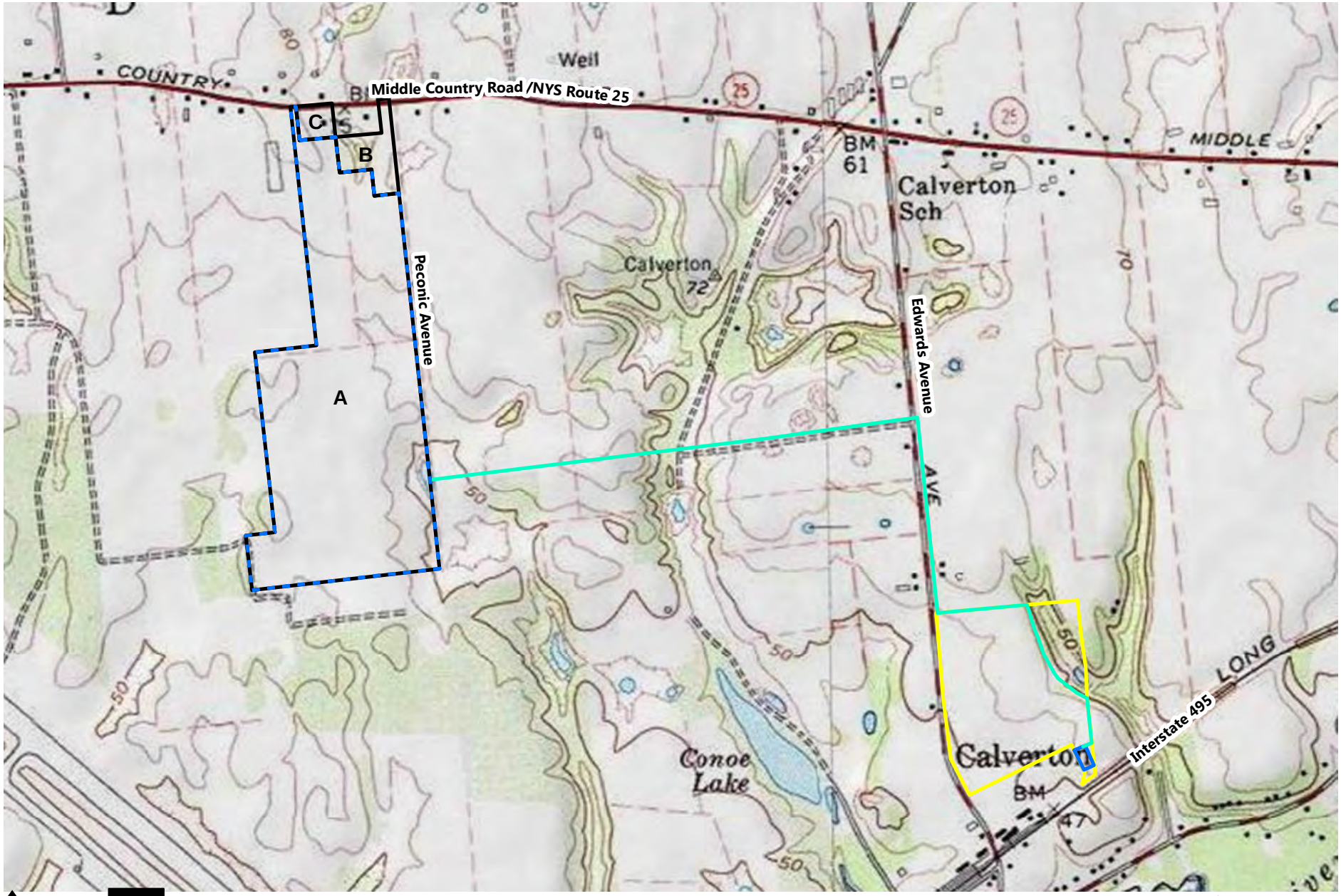
- Haven loam, ranging from zero-to-two percent slopes (HaA),
- Plymouth loamy sand, ranging from three-to-eight percent slopes (PlB)
- Riverhead sandy loam, ranging from zero-to-three percent slopes (RdA)

Other soils previously identified comprise much smaller portions of the proposed solar collection facility.

The corresponding Potential Impacts subsection, below, presents a summary of the potential engineering and planning limitations of each soil type along the proposed solar panel array facility, gen-tie line route, and collection facility parcel (see Table 10 in Section 3.2.2).

Topography

The topographic elevations of the overall subject property (i.e., the subdivision property, the easement property, and the solar collection facility parcel), according to the *USGS Topographic Map*, are depicted by Figure 9, below.



0 500 1000 2000 Feet

Proposed Solar Array Field

Proposed Subdivision Lots

Proposed Generation-Tie Line

Proposed Collection Facility Location

Existing Solar Facility and Proposed Collection Facility Parcel

Proposed sPower Solar Energy Facility | Calverton, NY

USGS Topographic Map
Wading River and Riverhead, NY Quadrangles

Source: 2013 National Geographic Society, i-cubed

The below describes the topography within the primary components of the subject property, i.e., the subdivision property; the easement property; and the collection facility parcel.

Subdivision Property

Based on a field survey, which was performed by Pat. T. Seccafico, Professional Land Surveyor, P.C., dated July 2, 2015 and updated March 20, 2016, the subdivision property generally increases in elevation from a low point in the southeast corner of the subject property (adjacent to the Peconic Avenue paper street) at 46± feet above mean sea level (amsl), toward the west where elevations reach up to approximately 66 feet amsl, and toward the north where elevations along Middle Country Road/NYS Route 25 reach approximately 78± feet amsl. This elevation data generally correlates with the data shown on the USGS Topographic Map (Figure 9).

Easement Property

According to the USGS Topographic Map, (see Figure 9), topography along the proposed gen-tie line and easement property ranges from approximately 45± feet amsl at its connection to the subdivision property, to over 70± feet amsl at its intersection with Edwards Avenue. The topography along the gen-tie line is primarily gently sloping. An area of topographic lows, where elevations decrease from approximately 70 feet to 45± feet, and back to 70 feet± feet amsl, approximately halfway between the subdivision property and Edwards Avenue. From Edwards Avenue to the easement properties terminus at the collection facility parcel, topography ranges from slightly over 70± feet amsl to approximately 60± feet amsl, respectively.

Collection Facility Parcel

As shown on the *Grading and Drainage Plan* for the collection facility parcel (Sheet C-4 in Appendix B), topography within the collection facility parcel ranges from approximately 60± feet amsl at the parcel's northeastern boundary to approximately 50± feet amsl at the parcels southern end. The topography along the area of installation of the proposed step-up facility at the collection facility parcel ranges from approximately 57± feet amsl to approximately 54± feet amsl. As the topography within the collection facility parcel remains relatively constant, it is not expected that import of fill material or export of cut material would be necessary at the proposed solar collection facility site.

Potential impacts to topography are discussed in Section 3.2.2, below.

3.2.2 Potential Impacts

Soils

The Soil Survey identifies planning and engineering limitations of each soil mapping unit. Relevant limitations for each unit identified at the subject property are summarized within Table 10, below.

Table 10 Limitations of Soils at the Subject Property

Soil Type	Acres in Proposed Action	Percent of Proposed Action	Limitations of Soils		
			Streets and Parking Lots	Homesites	Lawns, landscaping and golf fairways
Carver and Plymouth sands (CpA), 0-to-3 percent slopes	0.1	0.1%	SL	SL	S
Carver and Plymouth sands (CpC), 3-to-15 percent slopes	0.1	0.1%	M – S (A)	SL – M (A)	S (B)
Carver and Plymouth sands (CpE), 15-to-35 percent slopes	3.7	2.2%	S (A)	S (A)	S (A) (B)
Cut and fill land (CuC), sloping	0.3	0.2%	S (A)	M (A)	S (B)
Haven loam (HaA), 0-to-2 percent slopes	39.6	24.0%	SL	SL	SL
Haven loam (HaB), 2-to-6 percent slopes	7.6	4.6%	M (A)	SL	SL
Haven loam (He), thick surface layer	1.0	0.6%	S (C)	S (C)	SL
Plymouth loamy sand (PIA), 0-to-3 percent slopes	17.9	10.9%	SL	SL	S (B)
Plymouth loamy sand (PIB), 3-to-8 percent slopes	22.9	13.9%	M (A)	SL	S (B)
Plymouth loamy sand (PIC), 8-to-15 percent slopes	5.1	3.1%	S (A)	M (A)	S (B)
Plymouth gravelly loamy sand (PmC3), 8-to-15 percent slopes, eroded	0.1	0.1%	S (A)	M (A)	S (C) (D) (E)
Riverhead sandy loam (RdA), 0-to-3 percent slopes	40.9	24.8%	SL	SL	SL
Riverhead sandy loam (RdB), 3-to-8 percent slopes	25.3	15.4%	M (A)	SL	SL
Riverhead sandy loam (RdC), 8-to-15 percent slopes	0.3	0.2%	S (A)	M (A)	M (A)

Notes:
Engineering and Planning Limitation Rating:
SL = Slight – Few or no limitations of limitations can be overcome at little cost.
M = Moderate – Limitations are harder to correct or not possible to correct entirely.
S = Severe – Use severely limited by some characteristics difficult or costly to overcome.
Reason for Limitations
(A) Slopes
(B) Sandy Surface Layer
(C) Flooded during prolonged wet periods in places.
(D) Gravel
(E) Erosion

The limitations shown above, as they apply to each primary component of the subject property, are summarized as follows:

Subdivision Property

As indicated in Section 3.2.1 of this DEIS, the subdivision property, and in particular the proposed Parcel A where the proposed solar PV energy facility would be constructed, is comprised of Haven loam (HaA), Plymouth loamy sands (PlA and PlB), and Riverhead sandy loam (RdA and RdB). As provided in the *Soil Survey* and summarized in Table 10, above, HaA soils present slight planning and or/engineering limitations for streets and parking lots, homesites, and lawns, landscaping and golf fairways. PlA and PlB soils present slight to moderate limitations for streets and parking lots, and homesites due to slope (less than eight percent) and severe limitations for lawns, landscaping and golf fairways, due to a sandy surface layer. RdA and RdB soils have no moderate or severe limitations for streets and parking lots, homesites, or lawns, landscaping and golf fairways, except for RdB soils which present moderate limitations for streets and parking lots due to the potential for slopes (less than eight percent).

Due to the nature of the proposed facility and the design of the solar PV array structures (frame on piles), none of the potential slight or moderate planning limitations of on-site soils are expected to limit the proposed action. Supporting the installation on piles, as compared to conventional development (e.g., buildings and parking lots) allows the proposed action to retain the existing topography of the land to the maximum extent practicable, requiring only minimal grading activities to support the stormwater management system design. Potential limitations of some on-site soils for the establishment of plantings due to a sandy surface layer are not expected to be applicable to the subject property, which has been in agricultural use for several years. Overall, no significant adverse impacts associated with on-site soil characteristics are anticipated.

Easement Property

The majority of the easement property is comprised of Carver and Plymouth sands (CpA, CpC, and CpE), Haven loam (HaA and HaB), and Riverhead sandy loam (RdA and RdB). As provided in the *Soil Survey* and summarized in Table 10, above, CpA soils present slight planning and/or engineering limitations for streets and parking lots and for homesites, and severe limitations for lawns landscaping and golf fairways. CpC and CpE soils present moderate to severe limitations for streets and parking lots, homesites, and lawns, landscaping and gold fairways due to the potential for slopes and a sandy surface layer. HaA and HaB soils present slight limitations for streets and parking lots, homesites, and lawns, landscaping and golf fairways, except for HaB soils which present a moderate limitation for streets and parking lots due to the potential for slopes. RdA and RdB soils also present slight limitations for streets and parking lots, homesites, and lawns, landscaping

and golf fairways, except for RdB soils which present a moderate limitation for streets and parking lots due to the potential for slopes.

The proposed action includes the installation of a subsurface gen-tie connection within the easement property. The transmission infrastructure would be installed by excavating a narrow trench, and replacing soils over top of the infrastructure. Accordingly, planning limitations associated with the soil types identified above are not relevant to the proposed action, and no associated impacts are anticipated.

Collection Facility Parcel

The majority of the overall collection facility parcel (Lot 32.1) is comprised of HaA, PlB and RdA soils. As provided in the *Soil Survey* and outlined in Table 10, above, HaA soils present slight planning and/or engineering limitations for streets and parking lots, homesites, and lawns, landscaping and golf fairways. PlB soils present moderate limitations for streets and parking lots due to the potential for slopes, slight limitations for homesites, and severe limitations for lawns, landscaping and golf fairways due to a sandy surface level. In the area of the proposed improvements, soils are mapped as RdA, RdB and RdC, soils. Potential limitations associated with RdB and RdC soils are related to slope (less than 15 percent), as indicated above. However, actual field conditions indicate that the site of the proposed improvements (i.e., gravel areas and concrete equipment pads) is generally flat throughout, such that slope limitations are not expected to apply. Therefore, no adverse impacts are anticipated.

Overall, the potential limitations presented within the *Soil Survey* for soils mapped at the proposed solar panel array facility, along the proposed gen-tie line route, and at the area of the proposed solar collection facility, are not expected to apply due to the specific nature of the proposed improvements, and due to actual field conditions present (as compared to the assumed conditions within the Soil Survey). Any actual limitations would be overcome through additional site preparation (e.g., minor grading) and best management practices (BMPs). Further discussion of proposed mitigation measures to be implemented during the construction process are discussed in Section 3.2.3, below.

The disturbance of soils for construction and grading activities increases the potential for erosion and sedimentation. To minimize the potential for adverse erosion and sedimentation impacts, an Erosion and Sediment Control Plan would be implemented at the subject property (see *Solar Facility Erosion and Sediment Control Plan* [Sheet C-8] in Appendix B). Measures to be implemented in accordance with the aforementioned plan include the establishment of a stabilized construction entrance, installation of drainage inlet protection measures and silt fencing/straw bales, and the use of erosion control blankets, as necessary. The New York State Department of Environmental Conservation (NYSDEC) requires coverage under the SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-15-002) for construction projects that will involve soil disturbance of one or more

acres. As the proposed action would disturb more than one acre, a SWPPP acceptable to the Town would be developed and submitted to both the Town and the NYSDEC (Notice of Intent), prior to the commencement of construction activity. Overall, therefore, no significant adverse impacts to soils resulting from construction disturbances are expected to result upon implementation of the proposed action.

Topography

As previously discussed, the total acreage of the proposed action is approximately 165.4±-acres, which includes the proposed solar panel array facility area, the 15±-foot-wide gen-tie easement, and parcel upon which the solar collection facility would be located. Approximately 113.3±-acres would be disturbed for the construction of the project. The development of the solar panel arrays, and most of the area of disturbance, would occur on 109.9± acres of the proposed solar panel array facility area (Parcel A), with the balance of the disturbed acreage related to the gen-tie easement and proposed solar collection facility.

Further discussion of potential impacts to topography, as they apply to each primary component of the subject property, may be summarized as follows:

Subdivision Property

Potential impacts to the subdivision property include land disturbance and minor regrading through much of Parcel A. However, the proposed grading plan would maintain the existing grade to the maximum extent practicable. Furthermore, the style of the proposed structures (i.e., frame supports on pilings) would not necessitate regrading of the property in a manner or to the extent that typical construction would (i.e., for buildings or parking lots). Limited grading will be necessary in order to accommodate the proposed improvements, and in connection with the proposed stormwater management system design (see *Solar Facility Grading and Drainage Plan* [Sheet C-6] in Appendix B). As indicated on the preliminary plan, only minor recontouring of the land surface beneath the solar panel arrays would occur, such that no significant topographic impacts would occur.

Easement Property

The proposed gen-tie line and associated conduits would require a 15±-foot wide easement. The gen-tie line would be routed underground from the subdivision property through a former golf course/current recreational facility and a tree nursery east of the proposed solar panel area facility area, to Edwards Avenue. The proposed gen-tie line would continue east across Edwards Avenue and south, toward an existing sPower solar farm located on the east side of Edwards Avenue. The majority of the gen-tie would be a trench excavation except for the crossing of Edwards Avenue, which would be directional boring. As the underground gen-tie conduit would be installed entirely within a trench, such that the finished grade would be approximately

the same as existing grade, there would be no topographical impacts as a result of the installation of the proposed gen-tie line.

Collection Facility Parcel

Improvements within the collection facility parcel (i.e., installation of the proposed step-up facility) would occur within a small area along the western portion of the collection facility parcel that is currently relatively flat throughout, such that no substantial changes to topography are necessary to accommodate the proposed equipment installation. As such, no substantial impacts to topography will result from implementation of the proposed action.

Overall, the proposed action would minimally alter the existing topography of the subject property, and the existing site elevations would be maintained to the extent practicable. The final grading and drainage plan would be submitted for review and approval by the Town of Riverhead and would minimize cut and fill to the maximum extent practicable. Therefore, no significant adverse topographic impacts are anticipated.

3.2.3 Proposed Mitigation

Ground disturbance and regrading activities increase the potential for erosion and sedimentation. To minimize the potential for adverse erosion and sedimentation impacts to result from these activities, an Erosion and Sediment Control Plan would be implemented at the subject property (see preliminary *Erosion and Sediment Control Plan* [Sheet C-8] in Appendix B). The NYSDEC requires coverage under the SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-15-002) for construction projects that will involve soil disturbance of one or more acres. As the proposed action would disturb more than one acre, a SWPPP acceptable to the Town would be developed and submitted to both the Town of Riverhead and the NYSDEC (Notice of Intent), prior to the commencement of construction activity. Erosion and sedimentation controls would be implemented during construction as part of an approved SWPPP and would include:

- Strategic grading and application of topsoil (as needed) to address potential soil limitations.
- Protection of existing vegetation to remain.
- Scheduling of clearing and grading activities to minimize the total area of land disturbed at any one time.
- Limiting the length of time areas are exposed by establishing pavement and plantings at exposed areas as soon as practicable.
- Installation of sediment barriers (e.g., silt fence, hay bales) along the limits of disturbance for the duration of the work. No sediment from the site would be permitted to wash onto adjacent properties, wetlands or roads.

- Stabilization of graded and stripped areas and stockpiles via temporary seeding or other effective cover.
- Protection of drainage inlets through the use of sediment barriers, sediment traps, etc., to prevent sediment buildup.
- Control of fugitive dust (e.g., covering of stockpiles, temporary seeding, use of a water truck during extended dry periods).
- Establishment of a stabilized construction entrance to prevent soil and loose debris from being tracked onto local roads.

The above measures are designed to be consistent with the relevant portions of the New York State Stormwater Management Design Manual (NYSDEC, 2010) and the New York Standards and Specifications for Erosion and Sediment Control (NYSDEC, 2016), as required by Town Code Chapter 275 – Stormwater Management and Erosion and Sediment Control, and would be regularly inspected and maintained (e.g., removal of accumulated sediment and debris from drainage structures, repair of damaged sediment barriers, etc.) to ensure proper function. Sediment barriers and other erosion control measures would remain in place until upland disturbed areas are permanently stabilized. With the aforementioned control measures employed, no significant adverse erosion or sedimentation-related impacts are expected.

Revegetating and reseeding of the entire solar panel array site (109.9± acres) would occur after completion of equipment installation per the approved planting plan, which utilizes Residential-Use and Industrial C-1 Screening schemes. Revegetation of the solar array area would utilize a loam seed mix at a seeding rate of six pounds per 1,000 SF. Areas disturbed as a result of the construction that are not being planted or re-vegetated shall receive a minimum of six inches of loam and specified seed mix per the planting plan (see *Collection Facility Grading Plan/Landscape Plan* (Sheet C-4) in Appendix B for additional detail). Plant materials shall be guaranteed for one year following the date of final acceptance of the Landscape Architect. After one year, the contractor would replace dead or dying plants, and then turn over maintenance to the sPower Calverton solar facility maintenance staff.

No significant adverse soil impacts are expected to result from implementation of the proposed action. Notwithstanding this, the measures above would minimize any potential soil impacts. Several of the erosion control measures to be implemented would minimize the potential for adverse construction-related air quality impacts, as follows:

- Limiting of the total area of soil exposed at any given time.
- Paving or planting of exposed areas as soon as practicable to minimize the duration of soil exposure.
- Protection of stockpiles.
- Establishment of stabilized construction entrances.
- Providing a water truck on-site during dry periods to dampen exposed soils.

3.3 Environmental Features

The 165.4±-acre project area includes the existing sod farm where the proposed solar panel array facility would be located, the parcels under which the subsurface gen-tie line would run, and the existing solar panel array facility where the proposed solar collection facility would be located. Existing ecological conditions were assessed through field surveys of the various parcels comprising the project area conducted on April 9-11, 2014, June 27-28, 2015 and September 14-15 and 18, 2016. The field surveys included habitat assessments, vegetation and wildlife species inventories, rare/protected species assessments and identification of potential wetland habitats. United States Fish and Wildlife Service (USFWS), New York State Department of Environmental Conservation (NYSDEC) and New York Natural Heritage Program5 (NYNHP) maps and records were also reviewed as part of the ecological resources assessment.

3.3.1 Existing Conditions

3.3.1.1 Habitats/Vegetation

As observed during the field surveys, the various ecological communities that occur within the project area are primarily cultural (i.e., created or altered by humans) in origin. In order to characterize the observed communities, the NYNHP publication "Ecological Communities of New York State"[6] (ECNYS) was consulted. This guidance provides detailed descriptions and global and state rarity rankings for various ecological communities that occur within New York. Utilizing ECNYS, a total of 11 ecological communities were identified within or immediately adjacent to the project area. An additional community that is not included within ECNYS was also identified within the project area. The 12 ecological communities identified within the project area are shown on Figure 10 and summarized in Table 11 below.

[5] The NY Natural Heritage Program is a partnership between the New York State Department of Environmental Conservation and the State University of New York College of Environmental Science and Forestry.

[6] Edinger, G.J., D.J. Evans, S. Gebauer, T.G. Howard, D.M. Hunt, and A.M. Olivero (editors). 2014. *Ecological Communities of New York State.* Second Edition. A revised and expanded edition of Carol Reschke's Ecological Communities of New York State. New York Natural Heritage Program, New York State Department of Environmental Conservation, Albany, NY.



0 500 1000 2000 Feet

- Proposed Solar Array Field
- X Proposed Subdivision Lots
- Proposed Generation-Tie Line
- Proposed Collection Facility Location
- Existing Solar Facility and Proposed Collection Facility Parcel

Ecological Communities

ML: Mowed Lawn
URP: Unpaved Road/Path
MRP: Mowed Roadside/ Pathway
RSE: Rural Structure Exterior
SOF: Successional Old Field
SS: Successional Shrubland
SSH: Successional Southern Hardwoods
PL: Pastureland
SFP: Spruce/Fir Plantation
PPF: Pitch Pine-Oak Forest
SA: Stockpile Area
FAP: Farm Pond/Artificial Pond

Proposed sPower Solar Energy Facility | Calverton, NY

Ecological Communities

Sources: Google Earth (May 2016);
VHB Field Surveys (04/09-11/2014, 06/27-28/2015, 09/14-15/2016, 09/18/2016);
Ecological Communities as described in Edinger, et. al. (2014)

Table 11 Existing Ecological Communities

Community	Global/NYS Rarity Ranking	Community Distribution	Location
Rural Structure Exterior	unranked cultural	Throughout NYS	proposed solar facility
Unpaved Road/Path	unranked cultural	Throughout NYS	proposed solar facility gen-tie route existing solar facility
Mowed Roadside/Pathway	unranked cultural	Throughout NYS	gen-tie route
Mowed Lawn	unranked cultural	Throughout NYS	proposed solar facility existing solar facility
Pastureland	unranked cultural	Throughout NYS	gen-tie route
Successional Old Field	G5/S5	Throughout NYS	proposed solar facility gen-tie route
Successional Shrubland	G5/S5	Throughout NYS	gen-tie route
Successional Southern Hardwoods	G5/S5	Southern NYS	proposed solar facility
Spruce/Fir Plantation	unranked cultural	Throughout NYS	gen-tie route
Pitch Pine-Oak Forest	G5G4/S4	Coastal Lowlands and Hudson Valley Ecozones	gen-tie route
Farm Pond/Artificial Pond	unranked cultural	Throughout NYS	proposed solar facility
Stockpile Area	NA	NA	proposed solar facility

NA – Not Applicable

As indicated in Table 11, the majority (seven) of the ecological communities that occur within or adjacent to the project area have been designated by the NYNHP as "unranked cultural" communities that are distributed throughout New York State. Three communities have been designated as G5/S5 and are either distributed throughout New York State or occur within southern New York State. According to the NYNHP, G5 indicates a community that is considered "*demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery*." The S5 ranking refers to a community that is considered by the NYNHP to be "*demonstrably secure in New York State*." The remaining ECNYS community, (Pitch Pine-Oak Forest) is ranked by the NYNHP as G5G4, S4. G4 indicates a community that is considered "*Apparently secure globally, though it might be quite rare in parts*

of its range, especially at the periphery." The S4 ranking denotes a community that is considered "*Apparently secure in New York State*." The Pitch Pine-Oak Forest occurs within the Hudson Valley and Coastal Lowlands Ecozones (i.e., Long Island and New York City). As the Stockpile Area community is not described in ECNYS, it has no associated community ranking or distribution status.

Based on the above rankings and distribution statuses of the ecological communities observed during the field surveys, the project area is comprised of common communities that are unranked or considered demonstrably or apparently secure globally and locally, with wide distributions in New York State. No rare or protected ecological communities were observed at the project area during the field surveys.

With respect to individual plant species, a total of 33 tree species, 32 shrub and woody vine species, and 104 herbaceous plant/groundcover species were identified within the project area during the 2014-2016 field surveys. An inventory of the observed flora is provided in Appendix G.

The following narrative provides a description of the existing conditions, ecological communities and dominant vegetation within and immediately adjacent to the proposed solar array facility, the gen-tie route and the proposed solar collection facility.

Subdivision Property

The majority of the proposed solar panel array facility is occupied by an active sod farm and has therefore been classified under the ECNYS Mowed Lawn community description. As observed during the field surveys, the community is comprised of a monoculture of maintained turf grasses, including bluegrass (*Poa sp.*) and fescue (*Festuca sp.*). As such, the plant species diversity of the sod farm is extremely low. Due to periodic sod harvesting, the fields comprising the sod farm alternately consist of bare, unvegetated soil or growing turf grasses. The unsurfaced vehicle/equipment roads that occur adjacent to the sod fields are largely unvegetated and have been classified as Unpaved Road/Path communities. Similarly, the facility buildings/maintenance area at the northern portion of the sod farm are essentially unvegetated areas that are representative of the Rural Structure Exterior and Unpaved Road/Path communities.

A small wooded area occurs to the north of the facility buildings/ maintenance area and is representative of the Successional Southern Hardwoods ecological community. The wooded area occurs within a topographic depression that appears to have been historically cleared or otherwise disturbed. The canopy stratum is comprised of non-native/invasive Norway maple (*Acer plantanoides*), tree-of-heaven (*Ailanthus altissima*) and black locust (*Robinia pseudoacacia*) trees, along with white mulberry (*Morus alba*), black cherry (*Prunus serotina*), sassafras (*Sassafras albidum*) and scattered white oak (Quercus alba) and pitch pine (*Pinus rigida*) trees.

Woody vines, including Asiatic bittersweet (*Celastrus orbiculatus*) Japanese honeysuckle (*Lonicera japonica*), Virginia creeper (*Parthenocissus quinquefolia*) and poison ivy (*Toxicodendron radicans*) are prevalent within and beneath the canopy. The shrub stratum is generally sparse and comprised of non-native/invasive multiflora rose (*Rosa multiflora*), Japanese barberry (*Berberis thunbergii*), scattered native northern arrowwood (*Viburnum recognitum*) and saplings of the aforementioned trees. The herbaceous groundcover stratum is sparse to non-existent.

Also occurring at the northern portion of the sod farm is a small, isolated pond situated within a shallow topographic depression located adjacent to the sod fields and the maintenance area. The pond, which is representative of the ECNYS Farm Pond/Artificial Pond ecological community, has no inlets or outlets and does not support submerged, floating or emergent vegetation. Shoreline vegetation includes pale smartweed (*Polygonum lapathifolium*), Pennsylvania smartweed (*Polygonum pensylvanicum*), lady's thumb (*Polygonum persicaria*), yellow flatsedge (*Cyperus esculentus*), rough barnyard grass (*Echinochloa muricata*), tall beggarticks (*Bidens vulgata*) and other herbaceous plants that are typically along pond margins. Additional information regarding the pond is provided below in the Wetlands discussion.

A fallow agricultural field dominated by herbaceous vegetation that is characteristic of the ECNYS Successional Old Field community occurs within the southwestern corner of the proposed solar array facility. The Successional Old Field community represents the initial stage in the process of ecological succession, which is the process by which a cleared or otherwise disturbed terrestrial habitat progresses by stages to a climax forest community over time. As observed during the field surveys, the Successional Old Field community is dominated by the non-native/invasive herbaceous plant mugwort (*Artemesia vulgaris*). Also growing within the fallow field are giant foxtail (*Seteria faberi*), yellow foxtail (*Setaria pumilla*), grass-leaved goldenrod (*Solidago graminifolia*), slender-leaved goldenrod (*Solidago tenuifolia*), sweet everlasting (*Gnaphalium obtusifolium*), hemp dogbane (*Apocynum cannabinum*), Canada thistle (*Cirsium arvense*), bushy aster (*Symphyotrichum dumosum*), purpletop grass (*Tridens flavus*) and other herbaceous plants.

The southeastern portion of the proposed solar array facility includes a disturbed area containing various stockpiles of soils, woodchips, landscaping debris and other mostly organic matter. As ECNYS does not include a community that describes organic materials stockpiles, the Stockpile Area community has been created to characterize this portion of the property. Many of the more recently disturbed stockpiles are essentially unvegetated, while others support vegetation. The largest of the stockpiles is a linear, steeply sloped feature situated parallel to the eastern boundary of the property. The stockpile, which is 474± feet in length and up to 125± feet in

width, is overgrown with pioneering early successional plant species that commonly occur in disturbed surroundings, including non-native/invasive mugwort, Japanese knotweed (*Polygonum cuspidatum*) and giant foxtail, as well as yellow foxtail, pale smartweed, pokeweed (*Phytolacca americana*) and jimsonweed (*Datura Stramonium*). Non-native/invasive tree-of-heaven saplings have also colonized portions of the stockpile slopes and crest.

Easement Property

The proposed 15-foot wide easement of the gen-tie line route generally follows the course of an existing unpaved trail (Unpaved Road/Path community) that begins at the eastern boundary of the proposed solar array facility and runs east to Edwards Avenue by crossing through several ECNYS ecological community types. The gen-tie line route then travels south along the eastern shoulder of Edwards Avenue to the location of existing solar panel array facility, where it runs east and then south to the location of the proposed solar collection facility.

Beginning at the eastern boundary of the proposed solar array facility, the gen-tie line follows the route of a golf cart path that parallels the northern boundary of the closed/inactive golf course. Due to the cessation of regular mowing and maintenance at the golf course, the formerly maintained fairways, greens and portions of the cart path have become overgrown with early successional vegetation and therefore have been classified according to the ECNYS Successional Old Field community description. Dominant herbaceous vegetation includes the pre-existing golf course grasses (e.g. bluegrasses, fescues and ryegrasses [*Lolium spp.*]), as well as large crabgrass (*Digitaria sanguinalis*), orchard grass (*Dactylis glomerata*), mugwort, goldenrods, horseweed (*Conzya canadensis*), annual sowthistle (*Sonchus oleraceus*), common mullein (*Verbascum thapsus*), pearly everlasting (*Anaphalis margaritacea*), common ragweed (*Ambrosia artemisiifolia*) and other herbaceous plants. Scattered shrubby vegetation, including multiflora rose, have also begun to colonize the golf course.

East of the golf course, the gen-tie line route generally follows the course of an unpaved trail through an ECNYS Pitch Pine-Oak Forest community. Dominant tree species observed within this community are pitch pine, white oak, black oak (*Quercus velutina*) and scarlet oak (*Quercus coccinea*). The shrub stratum cover is generally dense and continuous in undisturbed portions of the community to sparse or non-existent in disturbed areas and includes blueberries (*Vaccinium pallidum* and *V. angustifolium*) and black huckleberry (*Gaylussacia baccata*). The herbaceous layer is sparse to non-existent and includes bracken fern (*Pteridium aquilinum*), wintergreen (*Gaultheria procumbens*) and striped wintergreen (*Chimaphila maculata*). Pennsylvania sedge (*Carex pensylvanica*) and scattered bayberry (*Myrica pensylvanica*), bearberry (*Arctostaphylos uva-ursi*) and sweet fern (*Comptonia peregrina*) shrubs and occur within forest openings and along the trail

margins. As observed during the field survey, the majority of the Pitch Pine-Oak Forest community that occurs along the gen-tie line route has been disturbed as a result of usage as a paintball course. Clearing/trampling of shrub and groundcover vegetation has occurred within the community through placement of numerous obstacles (e.g. pallets, plywood barriers, concrete drainage structures, abandoned vehicles, netting etc.) and associated human activity.

To the east of the disturbed Pitch Pine-Oak Forest community, the gen-tie line route follows the unpaved trail through mixed Successional Old Field and Successional Shrubland communities. The Successional Shrubland community represents the second stage in the process of ecological succession, following Successional Old Field. ECNYS defines Successional Shrubland as:

> *"…a shrubland that occurs on sites that have been cleared (for farming, logging, development, etc.) or otherwise disturbed. This community has at least 50% cover of shrubs."*

The Successional Shrubland community adjacent to the south of the unpaved trail is comprised of eastern red cedar (*Juniperus virginiana*) shrubs with various grasses and other herbaceous plants, including orchard grass, crabgrass (*Digitaria sp.*), switchgrass (*Panicum virgatum*), broomsedge (*Andropogon virginicus*), little bluestem (*Schizachyrium scoparium*), cat's ear (*Hypochaeris radicata*), yellow hawkweed (*Hieracium caespitosum*), goldenrods (*Solidago spp.*) and others. The Successional Old Field community contains a similar herbaceous plant flora, with only scattered eastern red cedar shrubs. A narrow vegetated border comprised of eastern redcedar, black cherry and oak trees with multiflora rose and other thicket vegetation occurs to the north of the trail. A horse farm (ECNYS Pastureland community) occurs beyond the vegetated border.

Further east, the gen-tie line route continues along the unpaved trail through an area planted with fir (*Abies sp.*), Colorado blue spruce (*Picea pungens*) and red spruce (*Picea rubens*) trees planted for retail sale and also as border plantings/windbreaks along the boundary with the horse farm property. This area is representative of the ECNYS Spruce/Fir Plantation community. Various grasses, poison ivy and Virginia creeper are among the dominant groundcover plant species adjacent to the trail of the coniferous tree community.

Before reaching Edwards Avenue, the gen-tie line route traverses an additional Successional Old Field community occurring adjacent to the grass-surfaced parking area for the paintball facility and several seemingly abandoned buildings, including a residential dwelling. Dominant vegetation within this community includes various grasses, mugwort, goldenrods, pokeweed, Japanese knotweed and foxtails.

Immediately east of Edwards Avenue the gen-tie line route turns south along the eastern shoulder of Edwards Avenue, which is an ECNYS Mowed Roadside/Pathway community dominated by mowed turf grasses and various "weedy" herbaceous plants, including common dandelion (*Taraxacum officinale*), narrow-leaved plantain (*Plantago lanceolata*), broad-leaved plantain (*Plantago major*) and bedstraw (*Galium sp.*).

From Edwards Avenue, the gen-tie line route crosses Mowed Lawn and Unpaved Road/Path communities at the northern and eastern portions of the existing solar panel array facility, where it terminates at the location of the proposed solar collection facility. The Mowed Lawn community is dominated by turf grasses and also supports various other weedy herbaceous species, while the Unpaved Road community consists of largely unvegetated, gravel or bare earth surfaces with scattered herbaceous plants, such as spotted spurge (*Euphorbia maculata*), purslane (*Portulaca oleracea*) and intermediate pinweed (*Lechea intermedia*). A Pitch Pine-Oak Forest community containing an isolated pond occurs beyond the eastern fence line of the existing solar panel array facility.

Collection Facility Parcel

The proposed solar collection facility is located within a Mowed Lawn community located at the southeastern corner of the existing solar panel array facility. The flora is dominated by turf grasses and crabgrass. Other herbaceous plants also occur, including foxtails, plantains, clovers, sowthistles (*Sonchus spp.*), mugwort, yellow toadflax (*Linaria vulgaris*), bedstraw (*Gallium mollugo*), curled dock (*Rumex crispus*), pearly everlasting, sweet everlasting, moth mullein (*Verbascum blattaria*) and sorrel (*Oxalis sp.*). The woody vines poison ivy and Virginia creeper are also present. Periodic mowing prevents the aforementioned plants from reaching heights greater than several inches above the ground surface. With the exception of a lone black cherry tree, the Mowed Lawn community is devoid of trees.

3.3.1.2 Wildlife

In addition to the 2014-2016 field surveys, and in order to further investigate the potential on-site species assemblage, VHB consulted with the NYNHP and performed research of NYSDEC and USFWS records regarding the potential presence or absence of particular species at and in the vicinity of the project area. Based upon these resources and the field surveys, a summary of the birds, mammals and herpetofauna (amphibians and reptiles) observed or expected at the project area follows.

Birds

The 12 ecological communities that occur within the project area represent potential habitat for a variety of birds, including species commonly associated with agricultural fields, early successional and forested habitats. A total of 54 avian

species were observed (i.e., seen or heard) at or over the project area during the 2014-2016 field surveys (observed species list included in Appendix G).

In order to provide a detailed estimate of other avian species potentially utilizing the site, *The New York State Breeding Bird Atlas*[7] (NYSBBA) was consulted. According to this resource, a total of 93 bird species were identified within the two survey blocks in which the project area is located (Blocks 6853C and 6853D) during the 2000-2005 breeding bird survey, which was administered by the NYSDEC. Of these species, 42 are confirmed as breeding, 37 are listed as probable breeders and 14 are listed as possibly breeding. Copies of the atlas reports for Blocks 6853C and 6853D are included in Appendix G.

It is noteworthy that Blocks 6853C and 6853D total 18 square miles in area and supports a diverse range of habitats that are not supported within the project area (e.g., native grasslands, riverine corridors and open water lacustrine habitats). Specifically, portions of Block 6853C that are located over one mile west of the project area include the largest remaining native grassland habitat on Long Island (the former Naval Weapons Industrial Plant at Calverton). Similarly, both atlas blocks include the riverine and lacustrine habitats of the Peconic River system, located to the south of the project area. As such, some of the avian species recorded for Blocks 6853C and 6853D, including obligate grassland birds and various waterfowl, require breeding and non-breeding habitats that are not supported within the project area. Therefore, these birds are not expected to utilize the site, except perhaps as occasional transients.

Based upon the foregoing observations, the project area is best-suited for avian species that favor agricultural, early successional and forested habitats, including the species observed during the field surveys and other expected species noted during the NYSBBA survey.

Observed and expected birds within the sod fields that currently occupy the majority of the proposed solar panel array facility include European starling (*Sterna vulgaris*), American robin (*Turdus migratorius*), barn swallow (*Hirundo rustica*), American crow (*Corvus brachyrhynchos*), mourning dove (*Zenaida macroura*), chipping sparrow (*Spizella passerine*), killdeer (*Charadrius vociferus*), eastern bluebird (*Sialia sialis*) and other species common to agricultural fields and maintained lawn habitats, as noted on the 2014-2016 bird species inventory and NYSBBA survey reports. Due to mowing, sod harvesting, and other activities that occur within the sod fields throughout the avian breeding season (i.e., from April 1 through August 15), the proposed solar panel array facility does not represent a significant breeding habitat for resident bird species.

The gen-tie line route includes habitat for birds of forested habitats, within the Pitch Pine-Oak Forest community. Observed and expected species include pine warbler

[7]McGowan, K.J. and K. Corwin, eds. 2008. *The Atlas of Breeding Birds in New York State*. Cornell University Press. Data also available online at http://www.dec.ny.gov/animals/51030.html . Accessed September 20, 2016.

(*Pipilo erythrophthalmus*), common yellowthroat, eastern towhee (*Pipilo erythrophthalmus*), blue jay (*Cyanocitta cristata*), ovenbird (*Seiurus aurocapilla*), black-and white warbler (*Mniotilta varia*), red-bellied woodpecker (*Melanerpes carolinus*), eastern wood-peewee (*Contopus virens*), white-breasted nuthatch (*Sitta carolinensis*), black-capped chickadee (*Poecile atricapillus*), brown thrasher (*Toxostoma rufum*) and other avian species that occur within mixed-deciduous forests. However, given the disturbance and associated human activity within the Pitch Pine-Oak Forest community as a result of the paintball course, the forest does not represent a significant habitat for reclusive avian species of deep forest interiors.

Observed and expected species within the Successional Old Field, Successional Shrubland and Spruce/Fir Plantation communities that occur along the gen-tie line route include gray catbird (*Dumetella carolinensis*), song sparrow (*Melospiza melodia*), yellow warbler (*Setophaga petechia*), American goldfinch (*Spinus tristis*), Carolina wren (*Thryothorus ludovicianus*), northern cardinal (*Cardinalis cardinalis*), northern mockingbird (*Mimus polyglottos*) and other birds of early- and mid-successional communities.

Due to similar Mowed Lawn and Unpaved Road habitats, the existing solar panel array facility, including the gen-tie route and the proposed solar collection facility, supports a similar observed/expected avian species assemblage to that of the proposed panel array facility (existing sod farm). Observed/expected species include European starling, American robin, barn swallow, American crow, mourning dove, chipping sparrow, killdeer, song sparrow and other similar species of maintained lawn communities.

Mammals

Multiple sightings of whitetail deer (*Odocoileus virginianus*), woodchuck (*Marmota monax*), eastern cottontail (*Sylvilagus floridanus*), eastern gray squirrel (*Sciurus carolinensis*) and eastern chipmunk (*Tamias striatus*) occurred within the project area during the field surveys. The majority of the mammal observations occurred within the forested and successional communities of the gen-tie line route. Additionally, a red fox (*Vulpes vulpes*) was observed along the southwestern boundary of the proposed solar panel array facility.

In order to determine other mammal species that may utilize the project area, existing surveys of Long Island mammalian populations, including *The Mammals of Long Island, New York*[8] (Connor, 1971) were consulted. Based upon these resources, as well as an evaluation of existing ecological conditions, 21 mammal species have been identified as potentially utilizing the project area (species list included in Appendix G).

Small rodent species (e.g., mice, moles and shrews) are expected to be the most abundant mammals within the project area. However, due to their diminutive sizes

[8] Connor, Paul F. 1971. *The Mammals of Long Island. New York* State University of New York, New York Museum and Science Service.

and predominantly subterranean life histories, these species are not easily observed. Primarily nocturnal mammals such as raccoon and Virginia opossum are also expected to occur. Red fox is likely the top mammalian predator present at the project area. The six species observed during the field surveys are expected to be the most commonly observed mammal species within the gen-tie route and sod farm portions of project area, however they are not expected to occur with frequency within the existing solar panel array facility, due to the surrounding perimeter fencing and/or the existing habitat conditions.

Herpetofauna

The New York State Special Concern species eastern box turtle (*Terrapene carolina*) was observed within the Spruce/Fir Plantation community located adjacent to the south of the gen-tie line route during the September 14, 2016 field survey. Additional discussion of eastern box turtle, including identifying characteristics, life history and habitat information is provided below in the Rare/Protected Species and Communities discussion. Further west along the gen-tie line route, eastern garter snake (*Thamnophis sirtalis*) was observed within the Successional Old Field community of the closed golf course. Green frogs were noted along the shoreline area of the pond at the proposed solar panel array facility (Farm Pond/Artificial Pond community).

In order to identify other herpetofauna that may utilize the project area, an evaluation of existing site conditions was performed. Additionally, the 1990-1995 New York State Amphibian and Reptile Atlas Project (NYSARAP) database[9] was consulted. According to this resource, a total of 30 herpetofauna species were identified within the United States Geological Survey (USGS) Riverhead and Wading River, New York Quadrangles between 1990 and 1995 (copy of NYSARAP database list included in Appendix G). However, as the project area does not provide the necessary habitat requirements for some of these species, it is not expected that the project area is utilized by all of the herpetofauna included on the list.

Specifically, due to the absence of permanent surface waters at or immediately adjacent to the project area, the highly- or fully-aquatic herpetofauna on the NYSARAP database are not expected to occur within the project area. These are: American bullfrog (*Rana catesbeiana*), green frog (*Rana clamitans*), southern leopard frog (*Rana utricularia*), pickerel frog (*Rana palustris*), eastern painted turtle (*Chrysemys picta*), common musk turtle (*Sternotherus oderatus*), red-eared slider (*Trachemys scripta*), common snapping turtle (*Chelydra serpentina*), common musk turtle (*Sternotherus odoratus*), northern diamondback terrapin (*Malaclemys terrapin*) and northern water snake (*Nerodia sipedon*).

The majority of the upland portions of the existing sod farm property are subject to regular ground disturbance associated with agricultural and stockpiling activities,

[9] New York State Department of Environmental Conservation. 2014. New York State Amphibian and Reptile Atlas Project. Available online at: http://www.dec.ny.gov/animals/7140.html. Accessed November 17, 2014.

and therefore do not represent optimal habitat for most herpetofuana. Similarly, the Mowed Lawn and Unpaved Road/Path communities of the existing solar panel array facility represent marginal potential habit for a limited number of herpetofuana species on the NYSARAP list.

The Pitch Pine Oak Forest, Successional Old Field, Successional Shrubland, Successional Southern Hardwoods and Spruce/Fir Plantation communities that occur along the gen-tie route represent potential habitat for some of herpetofuana species on the NYSARAP list, particularly those species adapted to dry, upland conditions and sandy soils. Specifically, the vegetated upland site conditions are habitat for eastern box turtle (observed on-site) and several species of colubrid snakes noted on the NYSARAP database, including eastern garter snake (*Thamnophis sirtalis*) (observed on-site), northern black racer (*Coluber c. constrictor*) and eastern milk snake (*Lampropeltis triangulum*). Potential habitat also occurs for smooth green snake (*Opheodrys vernalis*) within the Successional Old Field community. Marginal potential habitat also exists for northern ringneck snake (*Diadophis punctatus*), although this species is typically associated with wetter soil conditions than those found over the majority of the four aforementioned terrestrial communities. The Pitch Pine-Oak Forest community provides potential habitat for the highly terrestrial northern redback salamander (*Plethodon cinereus*).

The upland communities that occur along the gen-tie route represent potential terrestrial habitat for the adult life stages for several amphibian species included on the NYSARAP database: Fowler's toad (*Bufo fowleri*), gray tree frog (*Hyla versicolor*), spring peeper (*Pseudacris crucifer*) and/or the vernal pool obligate species, wood frog (*Rana sylvatica*) and spotted salamander (*Ambystoma maculatum*). However, surface water or seasonal pool breeding habitats for these species do not occur at or adjacent to the gen-tie route.

3.3.1.3 Rare/Protected Species and Communities

Eastern Box Turtle

The New York State Special Concern species eastern box turtle (*Terrapene carolina*) was observed within the Spruce/Fir Plantation community located adjacent to the south of the gen-tie line route during the September 14, 2016 field survey. New York State Special Concern species are defined in 6 NYCRR §182.2(u) as:

> *"…native species of fish and wildlife found by the department to be at risk of becoming threatened in New York based on the criteria for listing in section 182.4(a) of this Part and that are listed species of special concern in subdivision (c) of section 182.5 of this Part. Species of special concern do not qualify as either endangered or threatened, as defined in subdivisions (e) and (y) of this section, but have been determined by the department to require some measure of protection to ensure that the species does not become threatened. Species of special concern are listed in subdivision (c) of section 182.5 of this Part and are*

protected wildlife pursuant to Environmental Conservation Law section 11-0103(5)(c)."

The eastern box turtle is a small-to-medium sized, mostly terrestrial turtle with a highly-domed carapace featuring varying patterns of yellow, orange or olive markings over a dark brown or black background.[10] Habitat for eastern box turtle includes open woodlands, meadows, old fields and power line cuts, where it forages for a variety of food sources, including slugs, earthworms, wild strawberries and mushrooms.[11] As such, the Spruce-Fir Plantation were the species was observed, as well as the Successional Old Field, Successional Shrubland and Pitch Pine Oak Forest communities that occur within and adjacent to the gen-tie route represent habitat for this species.

No other New York State- or federally-listed Endangered, Threatened, Special Concern or rare plants or wildlife, or significant natural communities, were observed within the project area during the 2014-2016 field surveys.

In order to determine the potential for other rare/protected species to occur within the project area, a review of USFWS, NYNHP and NYSDEC records was performed, as detailed below.

USFWS Records

The USFWS Trust Resources Report[12] for the project area lists four wildlife species and two plant species (copy included in Appendix G). The listed species include three marine shorebirds: piping plover (*Charadrius melodus*), red knot (*Calidris canutus rufa*) and roseate tern (*Sterna dougallii dougallii*). Also included in the report are sandplain gerardia (*Agalinis acuta*) and seabeach amaranth (*Amaranthus pumilus*), which are plants of undisturbed native grass prairies and marine shorelines, respectively. As suitable habitat to support these five species does not exist within or adjacent to the project area, they are not expected to occur on-site and were not observed during the field surveys.

Northern Long-eared Bat

The Trust Resources Report also includes the federally-Threatened northern long-eared bat (NLEB) (*Myotis septenrionalis*). According to the USFWS NLEB Fact Sheet,[13] this species is a brown colored, medium-sized bat, ranging in size from 3 to 3.7 inches, with a wingspan of 9 to 10 inches. Winter roosting habitat for NLEB occurs within caves, mines or similar habitats, while summer roosting habitat occurs either

[10] Gibbs, J.P., et. al. 2007. The Amphibians and Reptiles of New York State. Oxford University Press.

[11] The Amphibians and Reptiles of New York State. 2007. Gibbs J.P., et. al. Oxford University Press.

[12] United States Fish and Wildlife Service. 2016. Information Planning and Conservation System. Available online at: http://ecos.fws.gov/ipac/. Accessed September 21, 2016.

[13] United States Fish and Wildlife Service. April 2015. Northern Long-Eared Bat (*Myotis septenrionalis*) Fact Sheet. Available online at: https://www.fws.gov/Midwest/Endangered/mammals/nleb/nlebFactSheet.html. Accessed September, 21 2016.

singly or in colonies, underneath the bark or in cavities or crevices of living or dead trees. At dusk, the bats emerge from roosts to feed on insects, which they catch in flight using echolocation or glean from vegetation and water surfaces. Foraging habitat includes forested understories, as well as the surfaces of aquatic habitats. Based on the foregoing habitat description, the wooded portions of the project area represent potential summer roosting and foraging habitat for NLEB. The sod fields of the proposed solar panel array facility and the developed portion of the existing solar panel array facility are devoid of trees and therefore do not represent summer roost habitat for NLEB. As such, potential summer roosting and foraging habitat for NLEB at the project area is limited to the forested area located beyond the eastern fence line of the existing solar panel array facility and the treed portions of the gen-tie line route.

The NLEB is listed as federally Threatened by the USFWS under section 4(d) of the federal Endangered Species Act of 1973, due to significant population declines as a result of the white-nose syndrome fungal disease.[14] According to the most recent USFWS white-nose syndrome zone map (Appendix G), Suffolk County is included among the counties containing hibernacula (winter hibernation sites) that are infected with white-nose syndrome. As such, the provisions of the USFWS final 4(d) rule for NLEB (effective February 16, 2016)[15] are applicable to Suffolk County and the project area. The final 4(d) rule includes certain prohibitions against incidental take, which is defined as killing, wounding, harassing or otherwise disturbing a species that would occur incidental to, and is not the purpose of, an otherwise lawful activity. Pursuant to the final 4(d) rule, incidental take of NLEB within white-nose syndrome zone counties (i.e., Suffolk County) is prohibited if it occurs within a hibernacula or if it results from tree removal activities that occur within 0.25 mile of a known, occupied hibernacula. Further, incidental take of NLEB is also prohibited if it results from cutting or destroying a known, occupied maternity roost tree or other trees within a 150-foot radius from a maternity roost tree during the pup season (from June 1 through July 31). Any proposed activity that would result in prohibited incidental take of NLEB, as described above, would require USFWS consultation and/or permitting. Activities that would not result in prohibited incidental take of NLEB as described above can proceed without USFWS consultation or permitting, provided that the activity does not require federal authorization, funding or approvals.

The final 4(d) rule further indicates that information for the locations of known, occupied hibernacula and maternity roost trees can be obtained from "*state Natural Heritage Inventory databases*." Accordingly, correspondence was submitted to the NYNHP to determine whether records exist for known, occupied NLEB hibernacula and maternity roost trees at or in the vicinity of the project area (copy included in Appendix G). In correspondence dated October 13, 2016, the NYNHP indicated that no such records currently exist (copy of NYNHP correspondence included in

[14] Federal Register Vol. 80, No. 63. Thursday, April 2, 2015.

[15] Federal Register Vol. 81, No. 9. Thursday, January 14, 2016.

Appendix G). As such, USFWS NLEB prohibitions described above are not applicable to the project area at present, and USFWS consultation and/or permitting for NLEB would not be required unless new NYNHP records for hibernacula and/or roost locations within the project area or vicinity are documented.

NLEB is also listed as a New York State Threatened wildlife species, which are defined in 6 NYCRR §182.2(y) as:

> *"…native species likely to become an endangered species within the foreseeable future in New York…or any species listed as threatened by the U.S. Department of the Interior in the Code of the Federal Regulations (50 CFR part 17)."*

Pursuant to 6 NYCRR §182.2(e), New York State Threatened wildlife species receive the following protection:

> *"No person shall take or engage in any activity that is likely to result in a take of any species listed as endangered or threatened in this Part, except as authorized by an incidental take permit issued by the department pursuant to this Part or as otherwise authorized as an exempt activity in section 182.13 of this Part."*

The NYSDEC's current regulations and guidelines for tree clearing and other activities[16] are divided among the NLEB's winter and summer activity seasons, and are applicable for tree cutting that would occur within 0.25 mile of known hibernacula or 1.5 miles of known roost trees. As indicated previously, in correspondence dated October 13, 2016, the NYNHP indicated that records currently do not exist for NLEB hibernacula or roost trees at or in the vicinity of the project area. Accordingly, the NYSDEC NLEB prohibitions described above are not applicable to the project area at present, and NYSDEC consultation and/or permitting for NLEB would not be required unless new NYNHP records for hibernacula and/or roost locations within the project area or vicinity are documented.

NYNHP Records

As indicated above, correspondence was submitted to the NYNHP to determine whether records exist for known occurrences of rare or State-listed wildlife, plants or significant natural communities at or in the immediate vicinity (generally within one-half mile) of the project area. A summary of the NYNHP records for the project area and vicinity is provided in Table 12 and Table 13, and copies of the agency correspondence and records are included in Appendix G.

[16] New York State Department of Environmental Conservation. 2016. Protection of Northern Long-Eared Bats Available online at: http://www.dec.ny.gov/animals/106090.html. Accessed September 22, 2016.

Table 12 Summary of NYNHP Wildlife Records for the Project Area and Vicinity

Species Type	Common Name	Scientific Name	NYS Protection Status	Record Date	Location
bird	short-eared owl	*Asio flammeus*	Endangered	None provided	0.25 mile from proposed solar panel array facility
amphibian	eastern tiger salamander	*Ambystoma tigrinum*	Endangered	None provided	0.25 mile from proposed solar panel array facility
amphibian	eastern tiger salamander	Ambystoma tigrinum	Endangered	None provided	0.4 mile from proposed solar collection facility
fish	swamp darter	*Etheostoma fusiforme*	Threatened	None provided	0.4 mile from proposed solar collection facility
insect	New Jersey Pine Barrens tiger beetle	*Cicindela patruela consentanea*	unlisted	1946	Calverton

The five NYNHP wildlife records detailing four rare/endangered species are discussed in detail below.

Short-eared Owl

The short-eared owl is a small-to-medium sized owl identified by a white facial disk with a dark area around its yellow eyes, as well as barely visible ear tufts. [17] Breeding habitat for this raptor includes grasslands and freshwater and tidal marshes, while wintering habitat includes similar open locations that support large numbers of small prey mammals. The NYNHP indicates that a wintering location for the short-eared owl occurs approximately 0.25-mile of the proposed solar panel array facility. As wintering short-eared owls have been documented within the native grassland community at the Enterprise Park at Calverton (EPCAL) property,[18] located 0.25-mile to the southwest of the proposed solar panel array facility, it is likely the NYNHP record refers to this location (subject to confirmation by the NYSDEC).

The maintained turf grasses at the proposed solar panel array facility are subject to continuous maintenance and removal, and, therefore, do not represent an optimal

[17] New York Natural Heritage Program. Short-eared Owl Conservation Guide. 2014-2015. Available online at: http://www.acris.nynhp.org/guide.php?id=6949. Accessed November 14, 2016.

[18] Coalition for Open Space. 2016. Available online at: http://www.calvertongrasslands.org/EPCAL_Ecology.php. Accessed November 14, 2016.

habitat for small prey mammals or a significant potential wintering or breeding habitat for short-eared owl.

Eastern Tiger Salamander

According to the NYNHP Eastern Tiger Salamander Conservation Guide,19 the eastern tiger salamander (*Ambystoma tigrinum*) is the largest terrestrial salamander in New York State, with adult salamanders ranging in size from six to over 12 inches. Distinguishing characteristics include a long tail with compressed sides, wide head, yellow lower lip and dark brown to black coloration, with irregular yellow to olive blotches. As a member of the mole salamanders (Family *Ambystomatidae*), the eastern tiger salamander spends the majority of its life cycle underground in self-excavated burrows or in the burrows of small mammals, where they feed on earthworms, arthropods and small animals, including other amphibians. Adults spend an average of only 12 days per year in breeding ponds, with the remaining portions of the life cycle spent in surrounding terrestrial habitat. On Long Island, migration of adults to breeding ponds occurs between late November and early April (most often during February and March), typically on rainy nights. Favored breeding habitat includes deep, vegetated areas of ponds that do not support predatory fish populations, are open to sunlight and have at least some surrounding forest cover. The larvae hatch within four weeks and remain in the breeding pond until late July or early August, when migration to adjacent terrestrial habitat occurs. Based upon multiple studies, adult eastern tiger salamanders on Long Island typically range within 250 meters (820 feet) of breeding ponds during the non-breeding season, but are typically found much closer. Preferred adult terrestrial habitat is deciduous and mixed pine-deciduous forests with friable soils suitable for burrowing or extensive small mammal burrow networks.

The eastern tiger salamander is listed as a New York State Endangered wildlife species. Pursuant to 6 NYCRR §182.2(e), New York State Endangered wildlife species are defined as:

> *"…native species in imminent danger of extirpation or extinction in New York…or any species listed as endangered by the United States Department of the Interior in the Code of the Federal Regulations (50 CFR part 17)."*

Pursuant to 6 NYCRR §182.2(e), New York State Endangered wildlife species receive the following protection:

[19] New York Natural Heritage Program. Tiger Salamander Conservation Guide. 2013. Available online at: http://www.acris.nynhp.org/guide.php?id=6689 Accessed September 21, 2016.

> *"No person shall take or engage in any activity that is likely to result in a take of any species listed as endangered or threatened in this Part, except as authorized by an incidental take permit issued by the department pursuant to this Part or as otherwise authorized as an exempt activity in section 182.13 of this Part."*

In keeping with the foregoing protected status and life history information, the NYSDEC has established a series of guidelines for projects that would occur within 1,000 feet of known eastern tiger salamander breeding ponds.[20] The guidelines include the preservation of all existing upland forest habitat within 535 feet of breeding ponds, the preservation of a minimum of 50 percent of upland area within 1,000 feet of breeding ponds and other requirements regarding roadways, swimming pools, window wells, lighting and other development-related items located within 1,000 feet of breeding ponds.

Based upon the existing ecological conditions observed during the field surveys, the project area does not support breeding habitat for eastern tiger salamander. The Pitch Pine-Oak Forest communities that occur along the gen-tie line route and at the eastern portion of the existing solar panel array facility are potentially suitable non-breeding, upland habitat for the eastern tiger salamander. The remaining portions of the project area, including the existing and proposed solar panel array facilities, do not represent habitat for this species.

According to the NYNHP correspondence, eastern tiger salamander has been documented approximately 0.25 mile (1,320 feet) from the proposed solar panel array facility and approximately 0.4 mile (2,012 feet) from the proposed solar collection facility. As such, subject to confirmation by the NYSDEC, the NYNHP records appear to reference off-site breeding ponds located greater than 1,000 feet from the project area, and, therefore, beyond the NYSDEC 535-foot and 1,000-foot buffers established for preservation of uplands surrounding eastern tiger salamander breeding ponds.

Based on the lack of available eastern tiger salamander breeding habitat located within the project area and the limited potential upland habitat within the gen-tie route, as well as the location of the project area beyond the NYSDEC eastern tiger salamander land preservation buffers, the project area does not represent a significant potential habitat area for this species.

Swamp Darter

According to the NYNHP *Eastern Swamp Darter Conservation Guide,*[21] the New York State Threatened swamp darter (*Etheostoma fusiforme*) is a small, slender light brown-to-olive-colored fish that rarely exceeds two inches in length. Swamp darters

[20] New York State Department of Environmental Conservation. October 2010 (last updated March 2011). *Guidance for Land Cover Set Asides for Conservation of the Eastern Tiger Salamander and Suggested Methods to Avoid, Minimize, and Mitigate Impacts*

[21] New York Natural Heritage Program. Swamp Darter Conservation Guide. 2013. Available online at: http://www.acris.nynhp.org/guide.php?id=7337&part=2 Accessed September 22, 2016.

feed on aquatic invertebrates and inhabit murky, sluggish waters, including ponds, lakes and river backwaters with muddy, debris-filled bottoms and abundant aquatic vegetation. The species is known to tolerate a wide range of water temperatures, as well as waters with low oxygen and pH. The swamp darter is known to have occurred historically within 16 waterbodies on Long Island, including the Peconic River system.

As indicated in the NYNHP correspondence, swamp darter has been documented at approximately 0.4 mile from the proposed solar collection facility. Subject to confirmation by the NYSDEC, the species record location appears to be the Peconic River system, location to the south of the proposed solar collection facility.

New Jersey Pine Barrens Tiger Beetle

The New Jersey Pine Barrens tiger beetle (*Cicindela patruela consentanea*) is a sub-species of the Northern Barrens tiger beetle (*Cicindela patruela patruela*), which is known in New York State to inhabit sandy sites with pitch pine and scrub oak vegetation.[22] The NYNHP correspondence indicates that the New Jersey Pine Barrens tiger beetle was documented within the Calverton area in an historical record dating from 1946. According to the NYNHP correspondence, historical species records are defined as records which are from 1979 or earlier and/or are species records for which:

> *"…there is uncertainty regarding their continued presence. There is no recent information on these plants and animals in the vicinity of the project site, and their current status there is unknown. In most cases, the precise location of the plant or animal in this vicinity at the time it was last documented is also unknown."*

NYNHP Plant Records

The NYNHP correspondence further denotes this species as "unlisted," indicating that New Jersey Pine Barrens tiger beetle has no New York State legal status. As observed during the field surveys, the Pitch Pine-Oak Forests that occur along the gen-tie route and beyond the eastern fence line of the existing solar panel array facility represent potential habitat for New Jersey Pine Barrens tiger beetle, although it remains unclear if this species is still present within the Calverton area.

According to the NYNHP records, 11 current and historic records exist for New York State-listed Endangered or Threatened plants within the project area vicinity. The 11 records are summarized in Table 13.

[22] New York Natural Heritage Program. Northern Barrens Tiger Beetle Conservation Guide. 2013. Available online at: http://www.acris.nynhp.org/guide.php?id=37144&part=2 Accessed September 22, 2016.

Table 13 Summary of NYNHP and NYNE Plant Records for the Project Area and Vicinity

Common Name	Scientific Name	NYS Protection Status	Record Date	Location
trinerved white boneset	*Eupatorium album var. subvenosum*	Threatened	1985	Conoe Pond
tooth-cup	*Rotala ramosior*	Threatened	1984	Conoe Pond
drowned beakrush	*Rhynchospora inundata*	Threatened	1929	Conoe Pond
autumnal water-starwort	*Callitriche hermaphroditica*	Endangered	1927	Peconic River
Atlantic white cedar	*Chamaecyparis thyoides*	Threatened	1923	Calverton
marsh straw sedge	*Carex homathodes*	Threatened	1927	Calverton
primrose-leaf violet	*Viola primulifolia*	Threatened	1927	Calverton
silvery aster	*Symphyotrichum concolor var. concolor*	Endangered	1873	Calverton
stargrass	*Aletris farinose*	Threatened	1927	Calverton
Great Plains flatsedge	*Cyperus lupulinus ssp. lupulinus*	Threatened	1955	Calverton
flax-leaf whitetop	*Sericocarpus linifolius*	Threatened	1927	Calverton

As indicated on Table 13, four of the 11 plant records are from off-site locations (Conoe Pond, the Peconic River, and an unidentified off-site field). The seven remaining records are historical records from the Calverton area in general, dated between circa 1873 and 1955. As such, it is important to note that these records range from 61 to 143 years old and are not necessarily specific to the project area. The seven remaining recent and historical records include one New York State Endangered and six New York State Threatened plant species. Pursuant to 6 NYCRR v193.3, New York State Endangered plants are defined as:

> *"…species in danger of extirpation throughout all or a significant portion of their ranges within the state and requiring remedial action to prevent such extinction."*

New York State Threatened plants are defined in 6 NYCRR §193.3 as:

> *"…species that are likely to become endangered within the foreseeable future throughout all or a significant portion of their ranges within the state."*

New York State Endangered and Threatened plants receive the following protection under New York State Environmental Conservation Law (ECL) Section 9-1503:

> *"It is a violation for any person, anywhere in the state to pick, pluck, sever, remove, damage by the application of herbicides or defoliants, or carry away, without the consent of the owner, any protected plant. Each protected plant so picked, plucked, severed, removed, damaged or carried away shall constitute a separate violation."*

As indicated in the text of this law, it is not a violation of New York State law for a property owner or those authorized by the property owner to remove or otherwise disturb New York State-protected plants growing at their property.

The seven historical plant species records from the Calverton area include six species that are most often associated with wetlands or wetland edge habitats, including ponds, pond margins and moist forest openings: Marsh straw sedge (*Carex homathodes*), primrose-leaf violet (*Viola primulifolia*), stargrass (*Aletris farinose*) and the coniferous tree Atlantic white cedar (*Chamaecyparis thyoides*). As such, potential habitat for these four plant species is limited to within or immediately adjacent to the two ponds located at the existing and proposed solar panel array facilities. However, these four plant species were not observed at these locations or elsewhere within the project area during the field surveys.

With respect to the three remaining plant records (silvery aster [*Symphyotrichum concolor var. concolor]*, Great Plains flatsedge [*Cyperus lupulinus ssp. Lupulinus]* and flax-leaf whitetop [*Sericocarpus linifolius]*, these herbaceous species are most often associated with dry, sandy woodland openings or woodland edge habitats. As such, potential habitat for the three plants exists within or immediately adjacent to the Pitch Pine Oak forest communities that occur along the gen-tie route and beyond the eastern fence line of the existing solar panel array facility. However, the three plant species were not observed within the project area during the field surveys.

New York State Exploitably Vulnerable Plants

Pursuant to 6 NYCRR §193.3(d), Exploitably Vulnerable plant species are defined as:

> *"…vulnerable native plants likely to become threatened in the near future throughout all or a significant portion of their range within the state if causal factors continue unchecked."*

The Exploitably Vulnerable category contains plants that are likely to be picked for commercial and personal purposes and affords property owners extra protection ability. Similar to New York State Endangered, Threatened and Rare plant categories described above, it is a violation of New York State law for those other than the property owner or those authorized by the property owner to remove or otherwise disturb exploitably vulnerable plants growing at their property.

Seven New York State Exploitably Vulnerable shrubs and herbaceous plants were observed within the project area during the field surveys: American holly, sheep laurel (*Kalmia angustifolia*), mountain laurel *(Kalmia latifolia*), striped wintergreen, pipsissewa (*Chimaphila umbellata*), cinnamon fern (*Osmunda cinnamomea*) and Christmas fern (*Polystichum acrostichoides*). The seven species were noted within or

adjacent to the gen-tie route or within the Pitch Pine-Oak Forest community located beyond the eastern fence line of the existing solar panel array facility.

3.3.1.4 Wetlands

The Town of Riverhead regulates wetlands and surface waters, including the surrounding upland area within 150 feet of these features, pursuant to Town Code §295 (Wetlands). According to the Town's Wetland Map (see Figure 11), there are nine potential wetland features located at or within 150 feet of the project area. For the purposes of this assessment, the nine potential wetland features have been designated as Features R-1 through R-9, as summarized in Table 14, below.



0 500 1000 2000 Feet

- Town of Riverhead Wetlands
- Town 150-Foot Regulated Area
- Proposed Solar Array Field
- Proposed Subdivision Lots
- Proposed Generation-Tie Line
- Proposed Collection Facility Location
- Existing Solar Facility and Proposed Collection Facility Parcel

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Town of Riverhead Wetlands

Sources: Town of Riverhead; Google Earth (May 2016)

Table 14 Summary of Town of Riverhead Wetland Map Features

Feature	Location	Wetland Assessment Result	NYSDEC Jurisdiction
R-1	proposed solar facility	upland	no
R-2	proposed solar facility	wetland	no
R-3	proposed solar facility	upland	no
R-4	gen-tie route	upland	no
R-5	proximate to gen-tie route	upland	no
R-6	existing solar facility	upland	no
R-7	existing solar facility	wetland	yes
R-8	proximate to existing solar facility	assessment not performed	no
R-9	proximate to existing solar facility	upland	no

A wetland assessment of the project area was conducted on September 14 and 18, 2016, based on the Town wetland definitions set forth in Town Code §295-3 and pursuant to the procedures of the 1987 USACE Wetland Delineation Manual[23] and the 2012 USACE Regional Supplement for the Northcentral and Northeast Region.[24] Based on the results of the wetland assessment, Features R-2 and R-7 are wetlands that are subject to Town regulation, according to the definitions set forth in Town Code §295-3. As detailed previously, Features R-2 and R-7 are ponds located at the proposed solar panel array facility and beyond the eastern fence line of the existing solar panel array facility, respectively. The boundaries of the two wetlands were delineated by VHB in 2015 and 2014, respectively.

As determined during the wetland assessment, Features R-1, R-4, R-5, R-6 and R-9 are topographic depressions with upland hydrology, soils and vegetation (USACE data forms included in Appendix G). Feature R-3 is currently the site of a materials stockpile located at the southeastern portion of the proposed solar panel array facility. Accordingly, subject to confirmation by the Town, the six aforementioned

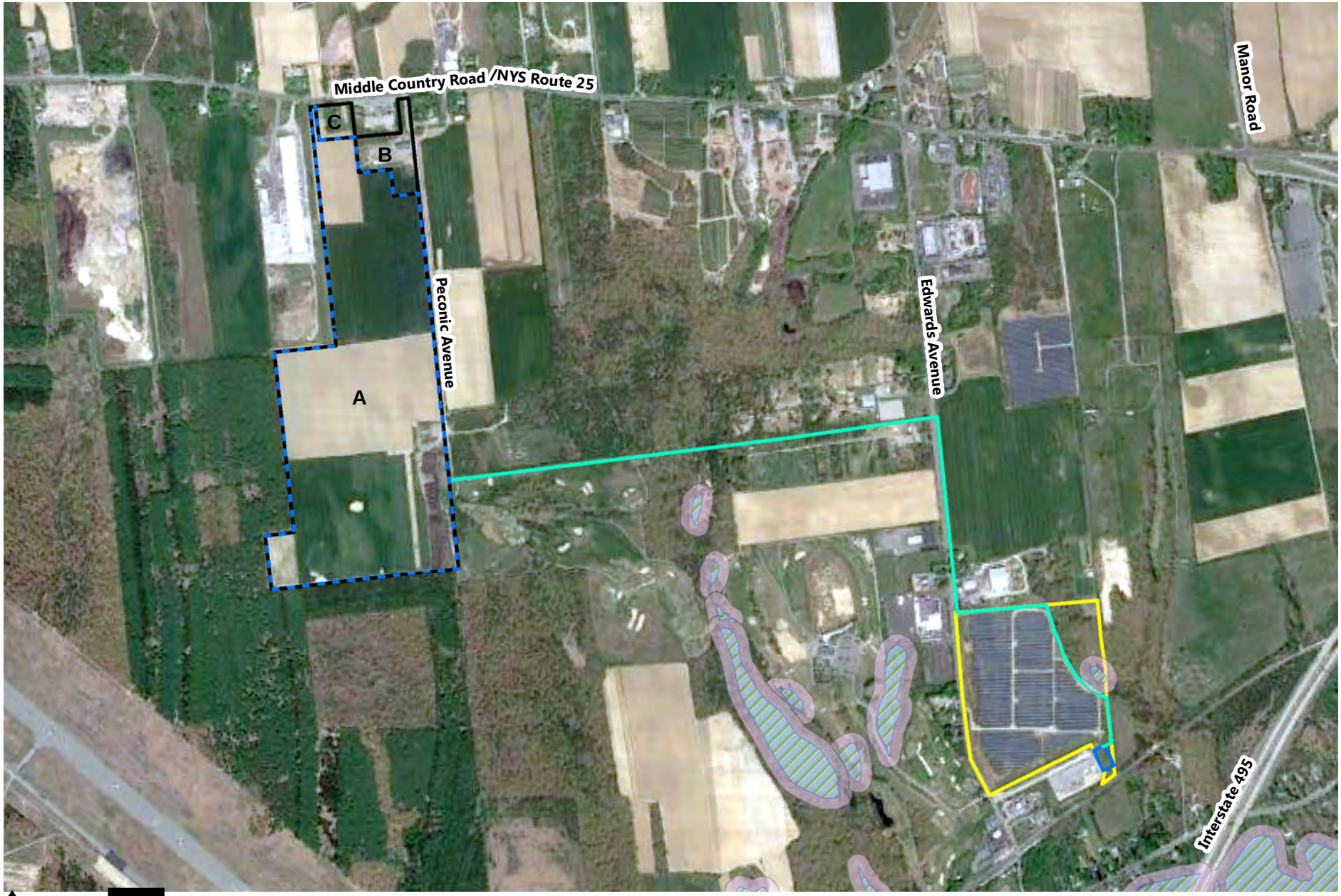
[23] Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

[24] United States Army Corps of Engineers Engineer Research and Development Center. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0).

features are currently upland habitats rather than wetlands, as defined in Town Code §295-3.

As shown on Figure 11, Feature R-8 is located beyond Edwards Avenue, to the west of the existing solar panel array facility. Based on aerial imagery review and off-site observations during the wetland assessment, those portions of Feature R-8 located within 150 feet of the project area are currently the site of a facility building, paved parking area and landscaping associated with the Hampton Jitney bus terminal. Therefore, based on field observations, there are no portions the of Feature R-8 or the Town-regulated 150-foot wetland adjacent area associated with Feature R-8 within or adjacent to the project area.

Based on the NYSDEC Freshwater Wetland Map (see Figure 12), the pond located beyond the eastern fence line of the existing solar panel array facility (Feature R-7) is regulated by the NYSDEC as Freshwater Wetland R-41. Pursuant to 6 NYCRR Parts 663 and 664, various land uses and activities that occur within New York State-regulated freshwater wetlands and the surrounding 100-foot adjacent area are regulated and subject to permitting by the NYSDEC. The wetland boundary associated with the pond was delineated by VHB on April 11, 2014, in association with the construction of the existing solar panel array facility. The NYSDEC confirmed the delineated wetland boundary and issued a determination of Non-Jurisdiction for the existing facility, dated September 14, 2016 (see Appendix G). As shown on Figure 12, there are no other NYSDEC-regulated freshwater wetlands located at or adjacent to the project area.



0 500 1000 2000 Feet

- Proposed Solar Array Field
- Proposed Subdivision Lots (X)
- Proposed Generation-Tie Line
- Proposed Collection Facility Location
- Existing Solar Facility and Proposed Collection Facility Parcel
- NYSDEC Freshwater Wetlands
- NYSDEC 100-Foot Regulated Area

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NYSDEC Freshwater Wetlands

Sources: NYSDEC Regulatory Freshwater Wetlands (2013); Google Earth (May 2016)

The United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) Maps provide information to the public on the extent and status of the Nation's wetlands. The NWI Maps are guidance documents made available "*…to provide [USFWS biologists] and others with information on the distribution of wetlands to aid in wetland conservation efforts."*[25] Although certain wetlands and surface waters that appear on the NWI maps *may* be regulated by the federal government as "waters of the United States," according to the NWI Wetlands Mapper website, "*There is no attempt to define the limits of proprietary jurisdiction of any Federal, state, or local government, or to establish the geographical scope of the regulatory programs of government agencies."*[26]

The NWI classifies wetlands according to the Wetland and Deepwater Habitats Classification System.[27] According to the NWI Map (see Figure 13), Features R-3 and R-7 are classified as PUBHx (Palustrine, Unconsolidated Bottom. Permanently Flooded, Excavated) wetlands.

[25] United States Fish and Wildlife Service National Wetland Inventory - Overview. 2016. Available online at http://www.fws.gov/wetlands/NWI/index.html. Accessed September 22, 2016.

[26] United States Fish and Wildlife Service National Wetlands Inventory – Data Limits, Exclusions and Precautions. 2016. Available online at: https://www.fws.gov/wetlands/data/Limitations.html. Accessed September 22, 2016.

[27] Cowardin, et al. *Classification of Wetlands and Deepwater Habitats of the United States*. United States Fish and Wildlife Service. 1979.



0 500 1000 2000 Feet

- Proposed Solar Array Field
- Proposed Subdivision Lots
- Proposed Generation-Tie Line
- Proposed Collection Facility Location
- Existing Solar Facility and Proposed Collection Facility Parcel
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Other

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NWI Wetlands

Sources: NWI Wetlands, USFWS (2014); Google Earth (May 2016)

Currently, the United States Army Corps of Engineers (USACE) determines federal jurisdiction over waters of the United States on a case-by-case basis, through Jurisdictional Determinations. In general, traditional navigable waters (TNWs) and their tributaries, as well as wetlands and surface waters with a "significant nexus" to TNWs are generally regulated as waters of the United States by the USACE, while isolated wetlands and surface waters with no significant nexus to TNWs are generally considered non-jurisdictional. Land uses and activities that result in direct impacts to jurisdictional waters of the United States (e.g., draining, filling, dredging, discharges, construction of structures within regulated waters, etc.) require a permit from the USACE. A USACE permit is not required for land uses and activities that would not result in such impacts.

In summary, Features R-2 and R-7 and the surrounding 150-foot adjacent areas surrounding the two features are regulated wetlands pursuant to Town Code §295-3. Based on the wetland assessment, Features R-1, R-3 through R-6, R-8 and R-9 are not wetlands, as defined in Town Code §295-3. Therefore, pursuant to confirmation by the Town, these six features would not be subject to Town wetland regulations. Feature R-7 and the surrounding 100-foot adjacent area of this pond are regulated by the NYSDEC pursuant to 6 NYCRR Parts 663 and 664.

3.3.2 Potential Impacts

An impact assessment of the proposed action with respect to the existing ecological resources at the project area follows.

3.3.2.1 Habitats/Vegetation

The proposed action would result in the clearing and regrading of portions of the existing ecological communities identified in Existing Conditions, as described below.

Subdivision Property

The primary impact of the proposed action would be the clearing and regrading of the majority of the existing Mowed Lawn, Unpaved Road/Path, Successional Old Field and Stockpile Area communities comprising the existing sod farm, in order to construct the proposed solar panel array facility. As described in Section 3.3.1, the NYNHP considers the former three communities to be unranked cultural communities that are distributed throughout New York State, while the latter community is an unlisted disturbed area comprised of un-vegetated surfaces or predominantly non-native/invasive vegetation.

Under existing conditions, the sod farm is planted with turf grasses and subject to periodic disturbance due to the planting, maintenance and harvesting of sod. As such, vegetative diversity within the Mowed Lawn community is extremely low. Due to periodic harvesting, the community

alternately consist of bare, unvegetated soil or growing turf grasses. The unsurfaced vehicle/equipment roads (Unpaved Road/Path community) surrounding the sod fields are largely unvegetated. Vegetative diversity within the Successional Old Field community at the southwestern portion of the sod farm is low, as the community is dominated by the non-native/invasive plant species mugwort, and several other common weedy herbaceous plants. Accordingly, clearing and regrading of the three cultural communities would not result in significant adverse impacts to rare or pristine habitats or noteworthy plant species associations.

The remaining four unranked cultural communities that occur at the proposed solar panel array facility (Successional Southern Hardwoods, Rural Structure Exterior, Unpaved Road/Path and Farm Pond/Artificial Pond) would not be subject to clearing or regrading due to installation of the proposed solar panel array facility. Accordingly, no significant adverse impacts to these four communities are anticipated.

Following implementation of the proposed action, the proposed solar panel array facility would consist primarily of mowed grass habitats within the solar panel array fields, as well as gravel-surfaced internal driveways, gravel-surfaced equipment areas with concrete equipment pads, grassed drainage swales, two grassed drainage reserve areas and perimeter tree and shrub plantings. These improvements are representative of the three ECNYS unranked cultural communities: Mowed Lawn, Unpaved Road Path and Groundwater Recharge Basin.

As detailed on the planting plan, the solar panel array fields, grassed drainage swales and grassed drainage reserve areas would be planted with a "Solar Farm" seed mixed comprised of native fescue and rye grass varieties (sheep fescue [*Festuca ovina*], hard fescue [*Festuca brevipila*], creeping red fescue [*Festuca rubra*] and annual ryegrass [*Lolium multiflorum*]). Trees to be installed along the northern and eastern perimeter fences and the site entrance driveway are native or naturalized species, including eastern redcedar, white spruce (*Picea glauca*), Norway spruce (*Picea abies*) and Colorado spruce. Shrubs proposed for the fence and driveway areas are native species or non-invasive ornamental varieties, including American holly, holly olive (*Osmanthus heterophyllus*), shipka laurel (*Prunus laurocerasus*) and Prague viburnum (*Viburnum pragense*).

The anticipated periodically saturated soils and intermittent inundation of the two drainage reserve areas would create conditions that are conducive to colonization of these areas by facultative wetland plants, potentially resulting in increased plant diversity, as compared to existing conditions.

Based on the foregoing, similar to existing conditions, the proposed solar panel array facility would support primarily grass-dominated, pervious surfaces comprised of unranked ECNYS cultural communities following implementation of the proposed action. Accordingly, no significant impacts

to exiting habitats or vegetation are anticipated due to construction of the proposed solar panel array facility.

Easement Property

As described in Section 3.3.1, the gen-tie line route is currently comprised of the ECNYS Unpaved Road/Path ecological community and adjacent Successional Old Field, Successional Shrubland, Spruce-Fir Plantation, Mowed Roadside/Pathway, Mowed Lawn and Pitch Pine-Oak Forest communities. The former five communities have been designated as unranked cultural communities by the NYNHP, while the latter community is considered demonstrably or apparently secure in New York State. The vegetative species observed along the gen-tie route during the field surveys include both native and non-native species that commonly occur within the six aforementioned communities.

The primary impact of the gen-tie line installation to habitats and vegetation would be temporary disturbance and clearing of vegetation through excavation of a utility trench within the 15-foot wide gen-tie route easement between the proposed solar panel array facility and Edwards Avenue. However, as the majority of the gen-tie line route follows the existing and primarily unvegetated Unpaved Road/Trail, vegetative clearing of trees and shrubs would be minimal and limited to the edges of the surrounding Successional Shrubland, Spruce-Fir Plantation and Pitch Pine-Oak Forest communities. Moreover, as noted in Section 3.3.1, portions of the three aforementioned communities have already been significantly disturbed due to installation of structures and human activity associated with the adjacent paintball facility.

East of Edwards Avenue and within the existing solar panel array facility, the temporary disturbance within the gen-tie line route easement would occur to the Mowed Roadside/ Pathway, Unpaved Road Path and Mowed Lawn communities, which are either vegetated with common grasses and weedy herbaceous plants or are largely unvegetated. Given the minimal nature of the clearing that would occur within the perimeters of common communities that are not considered rare by the NYNHP, no significant adverse impacts to these communities or individual plant species populations are anticipated as a result of the proposed action.

Following installation of the gen-tie line, the utility trench will be backfilled and the 15-foot wide easement would be seeded with the native grass seed mix described above. As such, following implementation of the proposed action, the gen-tie line route would be grass-dominated and periodically mowed/maintained.

Collection Facility Parcel

The proposed solar collection facility is currently a Mowed Lawn community located at the southeastern corner of the existing solar panel array facility

and dominated by turf grasses, crabgrass and common weedy herbaceous plants. As a result of the proposed action, portions of the existing vegetation within this area would be cleared for the installation of the gravel equipment area (Unpaved Road/Path community) and equipment. Surrounding disturbed areas would be loamed and reseeded with native grasses and eastern red cedar trees would be installed along the perimeter fence of the adjacent LIPA substation. No clearing or other disturbance is proposed for the Pitch Pine-Oak Forest community located beyond the eastern fence line of the existing solar panel array facility.

Given the minimal removal of Mowed Lawn community that would occur and the proposed revegetation of adjacent disturbed areas, no significant adverse impacts to habitats or resident plant species populations within the existing solar panel array facility are anticipated.

3.3.2.2 Wildlife

Pursuant to information provided by the Applicant, the proposed action is expected to occur over a six-to-eight month time period. The primary impact of the proposed action on wildlife would be the clearing of existing habitat during the six-to-eight month construction phase. The impacts of clearing are expected to be predominantly temporary in nature and would be mitigated to the extent practicable.

As detailed in Section 3.3.1, the wildlife species assemblages within the existing and proposed solar panel array facilities are dominated primarily by avian and mammal species adapted to cultural, grass-dominated habitats. A more diverse fauna of birds, mammals and herpetofuana occurs within the mixed habitats of the gen-tie route between the existing solar array facility and Edwards Avenue, and within the Pitch Pine-Oak Forest community located beyond the eastern fence line of the existing solar panel array facility. As no clearing or other disturbance is proposed for the latter community, no potential adverse impacts to resident wildlife are anticipated.

Displacement of certain resident wildlife within the project area would occur during clearing/regrading of the existing ecological communities identified in Section 3.3.1. In analyzing the overall potential impacts of the proposed project on local and regional wildlife populations due to displacement, many other limiting factors influence wildlife population densities (i.e. disease, parasites, predation, weather, human disturbances, etc.) other than resource availability. Therefore, it is possible that wildlife species populations may already be below the theoretical carrying capacities of the project area and surrounding properties due to one or more of these limiting factors. For example, cultural property uses, ongoing ground disturbance, human activity and the presence of non-native/invasive vegetation at the proposed solar panel array facility are likely limiting factors for wildlife species at that portion of the project area. Under the assumption that resource availability is the only limiting factor affecting population density, in the short-term, it is anticipated that the habitats within and in the general surrounding area of the

project area would experience a temporary increase in wildlife populations during the clearing/grading and construction phases of the proposed action, due to emigration of individuals from the disturbed areas. Subsequently, it is anticipated that inter- and intra-specific competition for available resources within these surrounding habitats would result in an insignificant net decrease in local population size for most species, until equilibrium between wildlife populations and available resources is achieved.

Following implementation of the proposed action, the proposed solar panel array facility would support primarily grass-dominated, pervious surfaces comprised of unranked ECNYS cultural communities, similar to those that occur under existing conditions. As such, a similar wildlife species assemblage to that which occurs under existing conditions is expected at the proposed solar panel array facility, although the installation of proposed eight-foot high chain link perimeter fencing around the facility would likely preclude larger mammals (e.g., whitetail deer) from accessing the site on a regular basis. The anticipated decrease in the level of human activity levels would likely result in an increased abundance of certain birds and mammals that are more reclusive and prefer lower noise and activity levels than those of existing conditions. The cessation of periodic ground disturbance due to sod planting and harvesting would likely result in an increased abundance of ground-dwelling wildlife. As noted previously, the anticipated intermittent inundation events and periodically saturated soils are anticipated within the two drainage reserve areas, potentially resulting in increased wildlife species diversity within these portions of the proposed solar panel array facility.

Along the gen-tie line route, similar habitat settings to existing conditions (e.g., an unpaved, grass-dominated corridor through surrounding vegetated communities) would exist following completion of work activities. As such, a similar wildlife species assemblage is anticipated along the gen-tie route and within the adjacent ecological communities. Similarly, the same ecological community types that occur under existing conditions (i.e., Mowed Lawn, Paved Road Path) within the existing solar panel array facility would occur following implementation of the proposed action, with a minimal decrease in vegetated habitat within the area of the proposed solar collection facility. Accordingly, a similar fauna similar to that which occurs under existing conditions is anticipated within the existing solar panel collection facility.

Based upon the foregoing, impacts to wildlife due to the proposed action are expected to be minimal and mostly temporary in nature. Due to identical or similar habitat types as those that occur under existing conditions, a similar wildlife species assemblage to that which currently occurs is expected within the project area, including most resident species that occur within the existing and proposed solar panel array facilities and a more diverse fauna within the more isolated and less disturbed portions of the gen-tie route. Accordingly, no significant adverse impacts to overall wildlife populations within the project area are anticipated as a result of the proposed action.

3.3.2.3 Rare/Protected Species and Communities

Eastern Box Turtle

As described in Section 3.3.1, portions of the gen-tie line route represent suitable habitat for the New York State Special Concern species eastern box turtle, and an individual of this species was observed within the Spruce/Fir Plantation community located adjacent to the south of the gen-tie line route during the September 14, 2016 field survey.

Due to their territorial behavior and low mobility, individuals of this species would be at risk during excavation of the gen-tie line trench. Potential avoidance and minimization measures for direct impacts to eastern box turtle include the following:

Wildlife sweeps conducted by trained personnel prior to clearing activities, in order to identify the most likely habitat areas. Any observed eastern box turtles within the targeted areas would be relocated to safe areas.

Erosion control barriers containing plastic or wire mesh have been documented as ensnaring turtles and other reptiles, often resulting in mortality. The use of non-mesh silt fencing can minimize the potential for turtle mortality.

Removal of erosion control barriers as soon as work is complete or site stabilization has occurred, so as not to impede turtle movement.

As detailed is Section 3.3.1, no other New York State- or federally-listed Endangered, Threatened, Special Concern or rare plants or wildlife, or significant natural communities, were observed within the project area during the 2014-2016 field surveys.

Northern Long-eared Bat

As indicated in Section 3.3.1, potential summer roost habitat for NLEB is limited to the Pitch Pine-Oak forest community located beyond the eastern fence line of the existing solar panel array facility and the treed portions of the gen-tie line route. No clearing of trees is proposed for the Pitch Pine-Okay Forest community, which represents the most extensive forested habitat located within the project area. Minimal clearing of trees would occur within the 15-foot wide easement of the gen-tie line route during excavation of the utility trench.

In correspondence dated October 13, 2016, the NYNHP indicated that records for NLEB hibernacula or roosts at or in the vicinity of the project area currently do not exist. As such, the USFWS NLEB prohibitions described in Section 3.3.1 are not applicable to the project area at present, and USFWS consultation and/or permitting for NLEB would not be necessary, provided that the proposed action does not require federal authorization, funding or approvals, and/or unless new NYNHP records for hibernacula and/or roost locations within the project area or vicinity are documented.

Similarly, given the lack of NLEB records for the project area and vicinity, the NYSDEC NLEB prohibitions described in Section 3.3.1 are not applicable to the project area at present, and NYSDEC consultation and/or permitting for NLEB would not be required unless new NYNHP records for hibernacula and/or roost locations within the project area or vicinity are documented.

Based on the minimal proposed disturbance to potential NLEB roost trees within the gen-tie route, as well as the current lack of documented NLEB hibernacula or roost locations within the project area or vicinity, no significant adverse impacts to NLEB are anticipated as a result of the proposed action.

Short-eared Owl

As summarized in Section 3.3.1, the NYNHP records indicate that a wintering location for short-eared owl occurs approximately 0.25-mile of the proposed solar panel array facility. As wintering short-eared owls have been documented within the native grassland community at the EPCAL property, located 0.25-mile to the southwest of the proposed solar panel array facility, it is likely the NYNHP record refers to this location (subject to confirmation by the NYSDEC).

The maintained turf grasses at the proposed solar panel array facility are subject to continuous maintenance and removal, and, therefore, do not represent an optimal habitat for small prey mammals or a significant potential wintering or breeding habitat for the short-eared owl. Accordingly, subject to confirmation by the NYSDEC, no significant adverse impacts to short-eared owl are anticipated as a result of the proposed action.

Eastern Tiger Salamander

As indicated in Section 3.3.1, the project area does not support breeding habitat for eastern tiger salamander. The Pitch Pine-Oak Forest communities that occur along the gen-tie line route and at the eastern portion of the existing solar panel array facility are potentially suitable non-breeding, upland habitat for the eastern tiger salamander. The remaining portions of the project area, including the existing and proposed solar panel array facilities, do not represent upland habitat for this species.

According to the NYNHP correspondence summarized in Section 3.3.1, the eastern tiger salamander has been documented approximately 0.25 mile (1,320 feet) from the proposed solar panel array facility and approximately 0.4 mile (2,012 feet) from the proposed solar collection facility. As such, subject to confirmation by the NYSDEC, the NYNHP records appear to reference off-site breeding ponds located greater than 1,000 feet from the project area, and, therefore, beyond the NYSDEC 535-foot and 1,000-foot buffers established for preservation of uplands surrounding eastern tiger salamander breeding ponds.

Based on the lack of available eastern tiger salamander breeding habitat located within the project area and the limited potential upland habitat within the gen-tie route, as well as the location of the project area beyond the NYSDEC eastern tiger

salamander land preservation buffers, the project area does not represent a significant potential habitat area for this species. Accordingly, subject to confirmation by the NYSDEC, no significant adverse impacts to eastern tiger salamander are anticipated as a result of the proposed action.

Swamp Darter

Swamp darter, a New York State Threatened fish, has been documented as occurring either at or within 0.4 mile of the proposed solar panel array facility. Subject to confirmation by the NYSDEC, the species record location appears to be the Peconic River system, located to the south of the proposed solar collection facility. Based upon this location for the species record, no significant adverse impacts to swamp darter are anticipated as a result of the proposed action.

New Jersey Pine Barrens Tiger Beetle

The New Jersey Pine Barrens tiger beetle was documented within the Calverton area in an historical record dating from 1946. The species is unlisted, indicating that New Jersey Pine Barrens tiger beetle has no New York State legal status. As observed during the field surveys, the Pitch Pine-Oak Forests that occur along the gen-tie route and beyond the eastern fence line of the existing solar panel array facility represent potential habitat for New Jersey Pine Barrens tiger beetle, however no clearing is proposed for the former community and minimal clearing is proposed for the latter community. Moreover, it remains unclear if this species is still present within the Calverton area. Accordingly, no significant adverse impacts to New Jersey Pine Barrens tiger beetle are anticipated.

NYNHP Plant Records

As summarized in Table 13, there are 11 current and historic records for New York State-listed Endangered or Threatened plant records within the project area vicinity. The 11 plants were not observed within the project area during the 2014-2016 field surveys. Pursuant to (ECL) Section 9-1503, it is not a violation of New York State law for a property owner or those authorized by the property owner to remove or otherwise disturb New York State-protected plants growing at their property.

Four of the 11 aforementioned plant records are from off-site locations. The seven remaining records from the Calverton area in general, are dated between circa 1873 and 1955. As such, it is important to note that these records range from 61 to 143 years old and are not necessarily specific to the project area.

As discussed in Section 3.3.1, four of the seven remaining records are for plants that occur within wetlands or wetland edge habitats, including ponds, pond margins and moist forest openings. As such, potential habitat for these four plant species occurs within or immediately adjacent to the two ponds located at the existing and proposed solar panel array facilities. However, these four plant species were not observed at these locations or elsewhere within the project area during the field

surveys. Moreover, no clearing, filling or other disturbance is proposed for either of the ponds in association with the proposed action.

The three remaining plant records are for species most often associated with dry, sandy woodland openings or woodland edge habitats. As such, potential habitat for the three plants exists within or immediately adjacent to the Pitch Pine Oak forest communities that occur along the gen-tie route and beyond the eastern fence line of the existing solar panel array facility. However, the three plant species were not observed within the project area during the field surveys. Furthermore, minimal clearing is proposed for the former area and no clearing or other disturbance is proposed for the latter area.

Based upon the foregoing, no significant adverse impacts to the 11 New York State-protected plants described above are anticipated as a result of the proposed action.

3.3.2.4 Wetlands

Pursuant to information provided by the Applicant, no clearing, grading, filling or other direct or indirect impacts to wetlands or the surrounding uplands within 150 feet of any wetland are proposed in association with the proposed action. Accordingly, no significant adverse impacts to wetlands are anticipated.

As identified in Section 3.3.1 and shown on the Town Wetland Map (Figure 11), there are nine potential wetland features located at or within 150 feet of the project area (Features R-1 through R-9). As summarized in Table 14 and based on the wetland assessment of the project area conducted on September 14 and 18, 2016, Features R-1, R-4, R-5, R-6 and R-9 are topographic depressions with upland hydrology, soils and vegetation. Feature R-3 is currently the site of a materials stockpile located at the southeastern portion of the proposed solar panel array facility. Accordingly, subject to confirmation by the Town, the six aforementioned features are currently upland habitats rather than wetlands, as defined in Town Code §295-3. Feature R-8 is located beyond Edwards Avenue, to the west of the existing solar panel array facility. Based on aerial imagery review and off-site observations during the wetland assessment, those portions of Feature R-8 located within 150 feet of the project area (see the Town Wetlands Map in (Figure 11) are currently the site of a facility building, paved parking area and landscaping associated with the Hampton Jitney bus terminal. Accordingly, based on field observations, there are no portions of Feature R-8 or the Town-regulated 150-foot wetland adjacent area associated with Feature R-8 within or adjacent to the project area.

Features R-2 and R-7 are wetlands that are subject to Town regulation, according to the definitions set forth in Town Code §295-3. Features R-2 and R-7 are ponds located at the proposed solar panel array facility and beyond the eastern fence line of the existing solar panel array facility, respectively. The boundaries of the two wetlands were delineated by VHB in 2015 and 2014, respectively. Pursuant to information provided by the Applicant, no project-related clearing, grading or other

ground disturbance is proposed for the two wetlands or within the Town-regulated 150-foot upland areas surrounding each wetland.

Based upon the foregoing, and subject to confirmation by the Town, a Town wetland permit would not be required for the proposed action.

Feature R-7 and the surrounding 100-foot adjacent area surrounding this pond are regulated by the NYSDEC, pursuant to 6 NYCRR Parts 663 and 664. The wetland boundary associated with the pond was delineated by VHB on April 11, 2014, in association with the construction of the existing solar panel array facility. The NYSDEC confirmed the delineated wetland boundary and issued a determination of Non-Jurisdiction for the existing facility, dated September 14, 2016. As the limits of clearing, grading and ground disturbance for the proposed action would occur greater than 150 feet from Feature R-7, an NYSDEC Freshwater Wetlands Permit would not be required for the proposed action.

As direct impacts to wetlands (e.g., draining, filling, dredging, discharges, construction of structures within regulated waters, etc.) would not occur in association with the proposed action, USACE Jurisdictional Determination requests and/or permitting would not be necessary for the proposed action.

3.3.3 Proposed Mitigation

As described in Section 3.3.2, no significant adverse impacts to existing ecological resources are anticipated as a result of the proposed action. Moreover, the following ecological mitigation measures are proposed:

- As detailed on the planting plan, the solar panel array fields, grassed drainage swales and grassed drainage reserve areas of the proposed solar panel array collection facility would be planted with a Solar Farm seed mix comprised of native fescue and rye grass varieties (sheep fescue [*Festuca ovina*], hard fescue [*Festuca brevipila*], creeping red fescue [*Festuca rubra*] and annual ryegrass [*Lolium multiflorum*]). Trees to be installed along the northern and eastern perimeter fences and the site entrance driveway are native or naturalized species, including eastern redcedar, white spruce (*Picea glauca*), Norway spruce (*Picea abies*) and Colorado spruce. Shrubs proposed for the fence and driveway areas are native species or non-invasive ornamental varieties, including American holly, holly olive (*Osmanthus heterophyllus*), shipka laurel (*Prunus laurocerasus*) and Prague viburnum (*Viburnum pragense*).
- Following installation of the gen-tie line, the utility trench will be backfilled and the 15-foot wide easement would be seeded with the native grass seed mix described above.
- Following construction, the surrounding area of the proposed solar collection facility would be loamed and reseeded with Solar Farm native grass seed mix and eastern redcedar trees would be installed along the perimeter fence of the adjacent LIPA substation.

3.4 Glare

A detailed glare analysis was performed by HMMH as consultants to the Applicant to evaluate the potential for the proposed solar PV energy facility to result in glare impacts. Specifically, HMMH evaluated the potential for glare impacts on the existing Air Traffic Control Tower (ATCT) and the two aircraft runways (Runway 14-32 and Runway 5-23) at the EPCAL property, which were identified as the only potential sensitive glare resources at or adjacent to the subject property. The analysis utilized the specific design details of the proposed facility, the relationship of the subject property to the aforementioned resources at the EPCAL property, and the latest version of the GlareGauge solar glare software tool, and reviewed the results relative to the Federal Aviation Administration's (FAA) policy for solar projects at airports. The analysis is contained in its entirety within a memorandum by HMMH dated December 7, 2016. The results of the detailed glare analysis are presented below, and the HMMH memorandum is appended in its entirety within Appendix H to this DEIS.

A second, independent glare analysis was performed by Barrett Energy Resources Group (BERG) to further evaluate the potential for the proposed action to result in adverse glare impacts. The findings of the BERG study are also presented herein, and the study is appended in its entirety with the HMMH study in Appendix H.

The HMMH glare analysis utilized several design parameters of the proposed solar PV energy farm, including the tracking system (i.e., single axis tracking), orientation, maximum tracking angle, tilt angle, and panel height above grade level (see Table 15, below). The GlareGauge model was utilized to determine the potential for glare to impact the ATCT, as well as aircraft anywhere along the flight path within two miles of the subject property from each runway end at EPCAL.

Table 15 sPower Calverton Solar Facility Design Parameters (Glare)

System Type	Orientation	Maximum Tracking Angle	Tilt Angle	Panel Height (above grade level)
Single Axis Tracking	180° / 0°	45°	0°	8 feet

Although the HMMH study refers to the FAA published policy related to solar projects at airports,[28] it should be noted that the proposed action is not subject to the FAA's jurisdiction. As explained by HMMH, "the FAA affirmed that it has jurisdiction to regulate potential glare impacts" with respect to solar projects on Federally-obligated airports. However, the subject property is not within such an airport, or any type of airport. The FAA states within its policy that it "urges

[28] Interim Policy for Solar Projects at Airports. Federal Aviation Administration. October, 23, 2013.

proponents of off-airport solar-installations to voluntarily implement the provisions" of the policy. The Applicant has voluntarily sought to comply with the FAA policy.

The FAA policy establishes multiple color-coded categories for glare impacts upon the ATCT and approaching aircraft, based on the severity of the potential for glare, after-image, and permanent eye damage. The four categories increase in severity from no glare (no color) to low potential for after-image (green), potential for after-image (yellow), and potential for permanent eye damage (red). These categories are further described in Table 16, below:

Table 16 Levels of Glare and FAA Policy Summary

Airport Sensitive Receptor	Level of Glare	Color Result	Compliance with FAA Policy
ATCT Cab	No glare	None	Yes
	Low Potential for After-Image	Green	No
	Potential for After-Image	Yellow	No
	Potential for Permanent Eye Damage	Red	No
Aircraft along final approach path	No glare	None	Yes
	Low Potential for After-Image	Green	Yes
	Potential for After-Image	Yellow	No
	Potential for Permanent Eye Damage	Red	No

The results of the HMMH glare analysis indicate that there would be no glare at the ATCT, and no glare impacts upon aircraft along final approach paths to runway ends at EPCAL. Accordingly, the potential impacts are within the lowest category of potential impact (i.e., no color), and the proposed action would comply with the FAA policy. Therefore, no glare-related impacts are expected to occur upon implementation of the proposed action.

The BERG study introduced above was performed to supplement the HMMH study, and also included an independent review of the HMMH study findings. With respect to the latter, the BERG study concluded that "HMMH utilized appropriate guidance for evaluating solar PV projects on airports included in the FAA's Solar Policy" and confirmed the results that the proposed action would not be expected to result in glare impacts upon relevant resources at the EPCAL property that adjoins Parcel A.

Also presented in the BERG study, is recognition that solar installations exist on at least 100 airports worldwide, and that, when designed and located properly, solar has been demonstrated to be compatible with aviation activities.

The BERG study included a Solar Glare Hazard Analysis Tool (SGHAT) model analysis of the proposed solar PV energy facility, based on the specific location and design characteristics of the proposed facility, to determine the potential for glare impacts upon aircraft on approach to each of the four runway ends, as well as at the ATCT and other locations on the EPCAL property. Using conservative assumptions, and similar to the results of the HMMH study discussed above, no glare from the

proposed solar PV energy facility was expected to occur at any of the study receptors. The BERG study also described that the single axis tracking system that is proposed as part of the proposed action typically minimizes the potential for glare impacts, and has been used in other projects as a means for mitigating or eliminating potential impacts.

Overall, based on the above, and the results of the independent analyses of potential glare impacts by HMMH and BERG, no significant adverse glare impacts are anticipated, and no mitigation measures are warranted.

3.5 Socioeconomics

3.5.1 Existing Conditions

As indicated in Section 2.0 of this DEIS, the overall subject property is approximately 165.4 acres in size, and is comprised of three primary components: the subdivision property; the easement property (for the gen-tie); and the solar collection facility. As shown in Figure 1 (see Page 3 of this DEIS), Parcels A, B, and C, which comprise the subdivision property, total 117.3± acres. The subdivision property is currently developed with a sod farm on the proposed Parcel A, structures and equipment associated with the sod farm operation on Parcel B, and single-family residence on Parcel C. The total area within the 15-foot-wide easement property is 2.99± acres, and currently consists of undeveloped wooded land, a former golf course now occupied by another recreational use (i.e., a paintball facility), a tree farm, sod farms, etc. The solar collection facility property is 45.1± acres in size and is currently developed with a solar PV energy facility. The proposed solar collection facility will occupy a portion of the southeast corner of the property that currently contains maintained lawn area.

Job Generation

The existing sod farm at the proposed Parcel A currently generates a limited number of jobs. The property owner has indicated that the farm employees work for DeLea Sod Farms (which has multiple locations, including other locations in the Town of Riverhead) and are routinely moved to the various locations as needed by the seasons. Accordingly, the existing operation does not generate full-time employment *per se*.

The single-family home on Lot 21.1 does not employ anyone directly on a permanent basis. Similarly, permanent jobs are not directly generated by the 15-foot easement property or the lawn area (within the existing solar PV energy facility) where a solar collection facility is proposed.

Overall, based on the above, the subject property only contributes nominally to local job generation under existing conditions.

Property Taxes

The subdivision property is comprised of two tax parcels identified as SCTM Parcel Nos. 0600-098.00-01.00-021.001 ("Lot 21.1") and 0600-116.00-01.00-007.002 ("Lot 7.2"). Property taxes for the subdivision property are shown in Table 17, below:

Table 17 Existing Property Tax Revenues

Lot 7.2 (Existing) with Agricultural Exemption			
	Taxable Value	Tax Rate per $1,000	Tax Amount
County General Fund	$ 10,500	1.411	$ 14.82
NYS Real Property Tax Law	$ 10,500	0.526	$ 5.52
NYS MTA Tax	$ 10,500	0.048	$ 0.50
Out of County Tuition	$ 10,500	0.174	$ 1.83
Riverhead Town Tax	$ 10,500	43.157	$ 453.15
Town Highway 1,2,3,4	$ 10,500	8.483	$ 89.07
Riverhead CSD #2	$ 10,500	106.607	$ 1,119.37
Riverhead Free Library	$ 10,500	3.861	$ 40.54
Baiting Hollow Free Library	$ 10,500	0.014	$ 0.15
Riverhead Ambulance District (AM001)	$ 447,800	1.945	$ 870.97
Riverhead Fire Zone 1 (FD302)	$ 447,800	7.438	$ 3,330.74
Lighting District (LT301)	$ 447,800	1.305	$ 584.38
		Total Property Taxes	**$ 6,511.04**

Lot 21.1 (Existing) with Farm Building and Agricultural Exemptions			
	Taxable Value	Tax Rate per $1,000	Tax Amount
County General Fund	$ 75,700	1.411	$ 106.81
NYS Real Property Tax Law	$ 75,700	0.526	$ 39.82
NYS MTA Tax	$ 75,700	0.048	$ 3.63
Out of County Tuition	$ 75,700	0.174	$ 13.17
Riverhead Town Tax	$ 75,700	43.157	$ 3,266.98
Town Highway 1,2,3,4	$ 75,700	8.483	$ 642.16
Riverhead CSD #2	$ 75,700	106.607	$ 8,070.15
Riverhead Free Library	$ 75,700	3.861	$ 292.28
Baiting Hollow Free Library	$ 75,700	0.014	$ 1.06
Riverhead Ambulance District (AM001)	$ 133,900	1.945	$ 260.44
Riverhead Fire Zone 1 (FD302)	$ 133,900	7.438	$ 995.95
Lighting District (LT301)	$ 133,900	1.305	$ 174.74
Water Ext. 37 (RWD343)	$ 133,900	1.036	$ 129.21
		Total Property Taxes	**$ 13,996.40**

Based on foregoing, the property tax revenues generated by the two parcels that comprise the subdivision property total $20,507.44.

It is noted that the overall property on which the solar collection facility is proposed (i.e., SCTM Parcel No. 0600-137.00-01.00-032.001) currently generates approximately $117,466.01 in annual property taxes related to the existing solar PV energy facility that is developed thereon.

3.5.2 Potential Impacts

The proposed action includes the subdivision of two existing SCTM parcels that total 117.3± acres, into three lots (i.e., Parcels A, B and C). Upon completion of the proposed subdivision, Parcel A would consist of 109.9± acres, Parcel B would consist of 5.1± acres and Parcel C would consist of 2.3± acres. A solar PV energy facility will be constructed at the proposed Parcel A. Parcels B and C will remain in their existing condition, though the tax lots would be reconfigured. The proposed action is expected to have various benefits, in addition to those associated with the proposed renewable energy source, including construction and operation phase job generation and other positive socioeconomic impacts, as described below.

Job Generation

The proposed action would also aid the local economy in that it is expected to generate an estimated 100 – 200 construction jobs and one full-time post-construction employment position for the 20-year operational period.

Construction jobs associated with construction activities are expected to include the services of landscapers, heavy equipment operators, electricians, and building contractors for tasks involving clearing, site grading, array support installation, and electrical equipment installations/connections.

The estimate of 100 – 200 construction jobs is provided by the Applicant, based on its experience in developing similar projects. To further assess the socioeconomic impacts of the proposed facility, an analysis of job generation was performed using the IMPLAN model[29], based on the anticipated construction cost of $30 million for this proposed development. As presented below, the IMPLAN model for the type of development project considered here, anticipates that approximately 214 direct construction jobs would be generated, along with the associated fiscal benefits of same (e.g., purchasing power and increased spending on local goods and services). Secondary impacts are expected to equate to another 78 secondary jobs.

Specifically, the labor income, total value added and output of the construction period is as follows:

[29] Impact Analysis for Planning (IMPLAN) economic impact model (www.implan.com). Regional economic multipliers utilized for relevant zip codes in Suffolk County, New York.

Table 18 Projected Construction Job Generation

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	214	$13,032,216.3	$18,510,957.9	$30,000,001.4
Indirect Effect	20	$1,301,491.7	$1,988,888.6	$3,282,149.6
Induced Effect	58	$2,880,009.9	$5,114,294.4	$8,080,898.9
Total Effect	**292**	**$17,213,717.9**	**$25,614,140.9**	**$41,363,049.9**

According to the subdivision property owner, there would be no direct loss of full-time jobs due to the redevelopment of the sod farm as a solar PV Energy facility. The existing jobs would be transferred to other farming operations run by the property owner, including other operations in the Town of Riverhead. Therefore, employment opportunities created by the proposed action would represent a net increase of one permanent job within the Town.

It should be noted that, if the existing sod farm were to cease operations (i.e., in the absence of the proposed action), there is no guarantee that there would be any agricultural employment opportunities at the subject property. While the land is currently used for agricultural purposes, it is zoned Industrial C, which permits myriad principal uses, but includes only greenhouses and not agricultural production, in general. Thus, the property could be redeveloped at any time for any one of several permitted uses. Few, if any, which would involve agriculture.

The secondary jobs associated with the current agricultural use of the property, similar to the direct permanent jobs, would also generally be transferred to other sod farms operated by the owner of the facility. Therefore, while there could be some job loss associated with the loss of agricultural land, agricultural jobs would not be lost overall. It should also be noted that the solar PV energy facility is proposed for a finite period, after which the subject property could be converted for other beneficial use. Accordingly, such future property use(s) would have the potential for job creation, such that any potential adverse impacts of the proposed action on job generation would not be permanent.

The Final Scope requires that examination of "the potential for the loss of future employment opportunities…considering the temporary (20-year) time frame and reversibility of the proposed action at the end of that term." The "Industrial C" zoning of the property allows for numerous as-of-right uses as well as special permit uses on the property. As detailed in the Section 3.1.1 of this DEIS, the permitted uses within the Industrial C zoning district include, but are not limited to, the following (see §301-114 of the Town Code): offices, warehouses, greenhouses, wholesale businesses, laboratories (including prototype manufacturing), vocational schools, golf courses, parks and playgrounds, equestrian facilities, commercial sports and recreational facilities, dog and horse training and boarding facilities, and manufacturing (indoor). Special permit uses include: outdoor theaters, sports arena, motor coach terminal, agricultural production (with limits), and one-family dwelling

units (with limits). In addition, pursuant to §301-281.B. of the Town Code, commercial solar energy systems are allowed by special permit.

With the variety of uses permitted, the number of permanent jobs created by such uses greatly varies. Parks and playgrounds and one-family dwellings could generate a minimal number of jobs, if any. Offices and sports arenas may generate hundreds of jobs, but would produce other potential adverse impacts, such as increased traffic, sewage generation, water demand, and demand for community services). Furthermore, continuation of the sod farm use would continue to have a limited employment impact. Accordingly, the specific opportunity cost of the proposed action (i.e., use of the subject property as proposed, as compared with other potential uses) cannot accurately be predicted. Section 5 of this DEIS presents and evaluates alternatives to the proposed action, including, but not limited to, an alternative development of the subject property with an as-of-right light industrial use.

Property Taxes

Upon implementation of the proposed action, the property tax revenues generated by the subdivision property would significantly increase, as detailed below. No significant changes are expected to occur at the easement property or at the solar collection facility - - the proposed action would have a limited potential to result in increased property tax revenues from those properties, and may not change property taxes at all. Accordingly, the analysis of property taxes herein is focused on the subdivision property.

As previously described, the 117.3±-acre subdivision property consists of two tax parcels (i.e., Lots 21.1 and 7.2), and would be subdivided to create three new lots (i.e., Parcels A, B and C). The taxes generated under existing conditions (see Table 17 on Page 102 of this DEIS) total $20,507.44. This low level of property tax generation for these large parcels reflects substantial agricultural and farm building tax exemptions. The proposed Parcel A will be redeveloped from a sod farm to a solar PV energy facility resulting in substantial changes in the generation of property tax revenues from that portion of the subject property. Proposed Parcels B and C will retain their existing improvements (i.e., farm buildings and a single-family residence) and continue their existing uses. Accordingly, for the purposes of estimating future property tax revenues, the analysis considers two components - - Parcel A, and Parcels B & C, combined.

With respect to Parcel A, the proposed action will result in a substantial increase in the revenues received by all taxing jurisdictions. It is expected that a Payment in Lieu of Taxes (PILOT) agreement will be reached, which will augment property tax generation, such that revenues to several of the local taxing jurisdictions will be in the form of a combination of limited property taxes and PILOT payments. All special districts (e.g., ambulance, fire, and lighting districts) will receive the full property tax payments and will not participate in the PILOT. As described within the April 1, 2016 correspondence from the Town of Riverhead Board of Assessors, the proposed

action is expected to make an initial PILOT payment in the amount of $560,000 in the first year, with a 1.25 percent annual escalator starting in Year 2 (i.e., increasing to approximately $666,375 in Year 15 of the PILOT agreement). The specific expected revenues are explained in detail below.

The expected revenues from the proposed solar PV energy facility at Parcel A have been estimated based on the approximate tax rates as of the 2016-2017 tax rolls,[30] land and improvement values for the existing sPower solar PV energy facility in Calverton (SCTM Parcel No. 0600-137.00-01.00-032.001), and other available data. The estimated revenues to each of the taxing jurisdictions to be generated by the proposed solar PV energy facility at Parcel A, and the total of the estimated property taxes and PILOT payments, are presented in Table 19 below.

Table 19 Projected Tax Revenues (Parcel A)

Proposed Parcel A – Solar PV Energy Facility with PILOT			
	Taxable Value	Tax Rate per $1,000	Tax Amount
County General Fund	$ 1,309,200	1.411	$ 1,847.28
NYS Real Property Tax Law	$ 1,309,200	0.526	$ 688.64
NYS MTA Tax	$ 1,309,200	0.048	$ 62.84
Out of County Tuition	$ 1,309,200	0.174	$ 227.80
Riverhead Town Tax	$ 1,309,200	43.157	$ 56,501.14
Town Highway 1,2,3,4	$ 1,309,200	8.483	$ 11,105.94
Riverhead CSD #2	$ 1,309,200	106.607	$ 139,569.88
Riverhead Free Library	$ 1,309,200	3.861	$ 5,054.82
Baiting Hollow Free Library	$ 1,309,200	0.014	$ 18.33
Riverhead Ambulance District (AM001)	$ 5,500,000	1.945	$ 10,697.50
Riverhead Fire Zone 1 (FD302)	$ 5,500,000	7.438	$ 40,909.00
Lighting District (LT301)	$ 5,500,000	1.305	$ 7,177.50
		Total Property Taxes	**$ 273,860.69**
		Plus PILOT (Year 1)	**$ 833,860.69**

As calculated above, the proposed Parcel A is expected generate substantial property tax revenues (i.e., approximately $273,860.69) in addition to the annual PILOT payments of $560,000 and up.

Further, in addition to the revenues described above, the existing improvements at the subject property that are to be retained within proposed Parcels B and C will also generate property tax revenues. For the purposes of this estimate, the land value per acre from Lot 21.1 has been applied to both parcels, and the known taxable value of the existing improvements has been maintained. To be conservative, it is assumed that the same agricultural and farm building exemptions (i.e., $43,200 and $15,000, respectively) would apply to the combined taxable value of these parcels in the

[30] Available at http://www.townofriverheadny.gov/, accessed May 2017.

future. The projected tax revenues for Parcels B and C are presented in Table 20, below.

Table 20 Projected Tax Revenues (Parcels B & C)

Proposed Parcels B & C – Existing Farm Building and Residence to be Retained			
	Taxable Value	Tax Rate per $1,000	Tax Amount
County General Fund	$ 70,331	1.411	$ 99.24
NYS Real Property Tax Law	$ 70,331	0.526	$ 36.99
NYS MTA Tax	$ 70,331	0.048	$ 3.38
Out of County Tuition	$ 70,331	0.174	$ 12.24
Riverhead Town Tax	$ 70,331	43.157	$ 3,035.27
Town Highway 1,2,3,4	$ 70,331	8.483	$ 596.62
Riverhead CSD #2	$ 70,331	106.607	$ 7,497.78
Riverhead Free Library	$ 70,331	3.861	$ 271.55
Baiting Hollow Free Library	$ 70,331	0.014	$ 0.98
Riverhead Ambulance District (AM001)	$ 128,531	1.945	$ 249.99
Riverhead Fire Zone 1 (FD302)	$ 128,531	7.438	$ 956.01
Lighting District (LT301)	$ 128,531	1.305	$ 167.73
Water Ext. 37 (RWD343)	$ 128,531	1.036	$ 133.16
		Total Property Taxes	**$ 13,060.94**

Based on the above estimates for Parcels A, B and C, the proposed action will generate a total of approximately $846,922 in annual property tax revenues and PILOT payments to be received by the various taxing jurisdictions in Year 1 of the PILOT. This is a substantial increase over the existing conditions, where only $20,507.44 is generated (i.e., an increase of approximately $826,414 per year, or more than 40 times the existing property tax revenues). Moreover, this is a substantial sum that will be generated year-after-year throughout the 20-year lifespan of the proposed solar PV generation facility, and, in fact, will increase yearly in accordance PILOT agreement escalator. The increased revenues are expected to have positive economic and socioeconomic benefits within the Town and various taxing jurisdictions (school, fire, ambulance, library, etc.) through the maintenance or enhancement of community services.

Other Considerations

In addition to the socioeconomic analyses performed herein, the "Socioeconomics" section of the Final Scope discusses solar energy efficiency and the potential future development of other properties in the Town of Riverhead with solar energy facilities. The relevant analyses addressing these topics are found within the Land Use and Zoning, Energy and Cumulative Impacts sections of this DEIS, in satisfaction of the Final Scope requirements.

3.5.3 Proposed Mitigation

The proposed action is expected to result in significant beneficial socioeconomic impacts. Accordingly, no mitigation measures are necessary.

3.6 Growth-Inducement

3.6.1 Regulatory Setting

The SEQRA regulations, at §617.9(b)(5)(iii), specify that among the items a DEIS "should identify and discuss… only where applicable and significant [are]… any growth-inducing aspects of the proposed action…" The regulations do not, however, define the terms "growth-inducing aspects" or "growth-inducement".

The NYSDEC's publication, *The SEQR Handbook* (3rd Edition, 2010) provides practical guidance on the implementation of the requirements of SEQRA in a question-and-answer format. Chapter 4 (Section B.*A*, Questions 30-32) includes discussion on the definition of growth-inducement, examples of growth-inducement, and how the significance of growth-inducement is assessed. The information from *The SEQR Handbook* regarding these questions is provided below, along with an analysis of the implications of each response in reference to the proposed action.

30. What is growth-inducement?

Some activities will encourage or lead to further increases in population or business activity. This type of secondary impact is called growth inducement. When conducting an environmental assessment, it is important to recognize activities which may induce growth because a consideration of the whole action must examine likely impacts of such growth, such as the need for additional sewer, water and other services; increased traffic congestion; or accelerated loss of open space.

Analysis: The proposed solar PV energy facility would not result in increased population. The proposed action would generate clean, renewable energy by means of a "passive" facility which would not produce a significant long-term increase in secondary business activity. As discussed in Section 4.2.2 of this DEIS, long-term maintenance of the proposed facility during project operation would entail the equivalent of approximately one full-time employment position, involving periodic inspections, cleaning of the panels, equipment repairs, and similar activities. Additionally, it is anticipated that a minimal amount of equipment and supplies would be required in association with maintenance work. One additional employment position and periodic demand for equipment and supplies related to maintenance of the proposed passive energy facility would not generate appreciable secondary business activity.

31. What are some examples of growth inducement?

The following are examples of how actions may induce growth-related impacts:

- *The extension of public utilities such as sewer and water into an agricultural area, previously not serviced by these utilities, may encourage non-farm development and undermine the area's agricultural base.*
- *The construction of a new prison in a rural community may result in the construction of single family homes and support industries or businesses to serve the prison staff.*

- *The construction of a new interchange on a limited access highway may cause the construction of fast food establishments, motels and gasoline stations catering to highway travelers.*
- *The expansion of an existing sewage treatment plant may result in the construction of additional single family homes and businesses within the plant's service area.*
- *The stocking of a species of game fish in a particular water body may increase the number of anglers using that water body, which may lead to the construction of businesses catering to those anglers.*

Analysis: The above examples show that growth-inducement as defined under SEQRA involves a proposed action altering the environmental setting in a manner which facilitates the implementation of other, future projects or activities that would be impossible or unlikely to occur in the absence of the proposed action. Such potential secondary impacts involve a significant new demand created by the proposed action (e.g., a demand for new housing created by construction of a prison) or a significant new development potential created by the proposed action (e.g., non-farm development induced by a sewer main extension in an agricultural district). As discussed throughout this section of the DEIS, this type of scenario does not pertain to the sPower Calverton Solar Energy Facility, a passive clean energy project. The proposed project would not create a significant new demand or development potential.

In addition to the solar panel array which comprises the bulk of the proposed facility footprint, the project also includes a gen-tie line connection. The capacity of this line would be sufficient only for the currently proposed project and would not be capable of accommodating the additional load for another, similar project. Furthermore, the establishment of an easement to carry the gen-tie line for the proposed facility would not significantly facilitate other potential solar energy projects since decisions on any such future applications would predominantly rely upon the suitability of a given property for the siting of a solar panel array. Additional easements would likely be necessary to provide the required connections for any additional projects.

32. *How do you assess the significance of growth inducement?*

The method for determining the significance of an induced impact is the same as for any other impact. First, consider the likelihood that the proposed action may induce further development. Then, identify the type of activities and the impacts that would result and determine whether any of them may have a significant environmental effect. When discussing potential growth inducement, it is desirable to quantify or at least estimate the anticipated growth, and to document predictions and data.

Analysis: As discussed above, the only growth-inducing aspect of the proposed action would involve a minor increase in employment during operations (i.e., one full-time job equivalent) and a minor demand for materials and equipment for the long-term maintenance of the project. This would be a net employment increase, as the property owner has indicated that the existing agricultural jobs on the subject property would be transferred to another location, and would

not be eliminated, if the proposed facility were constructed. These circumstances – i.e., one new job and occasional demand for equipment and supplies used in the long-term maintenance of the proposed passive energy facility – would not entail a significant increase in business activity. Therefore, the proposed project would not create a significant growth inducing impact.

The SEQR Handbook (Chapter 5 Section C, Question 43) also discusses the content of an EIS regarding growth-inducement, as follows:

43. The growth inducement section of an EIS should thus describe any further development which the proposed action may support or encourage, such as:

i. attracting significant increases in local population by creating or relocating employment, or by providing support facilities or services (stores, public services, etc.), or
ii. increasing the development potential of a local area, for example, by the extension of roads, sewers, water mains, or other utilities.

Analysis: As discussed previously in this section of the DEIS, the proposed action would not cause a population increase and would not increase development potential in the project area.

Based on a detailed analysis of the proposed action present above, the proposed action would not result in any significant growth-inducing impacts, as defined under SEQRA, per the relevant guidance presented in *The SEQR Handbook*.

The Final Scope for the proposed action (see Appendix A), outlines the required content of this DEIS. The scope for the assessment of growth-inducing impacts is discussed in the "Potentially Significant Impacts" section of the Final Scope and states:

As set forth in the Positive Declaration, this section of the DEIS will assess the potential for implementation of the proposed action to lead to additional future applications for similar projects (i.e., conversion of large tracts of agricultural or manufacturing-industrial land for passive solar use). This analysis will identify similarly situated lands in the greater Calverton area and the Town of Riverhead as a whole – i.e., available large parcels having both industrial zoning (eligible for development with a Commercial Solar Energy Production System) as an active industrial use – and will review the status of such parcels.

As discussed previously in this section of the DEIS, the issues cited above from the Final Scope do not conform to the definition of growth-inducement as explained in *The SEQR Handbook*. Furthermore, it is arguable whether some of these issues are appropriate for inclusion in a project-specific DEIS. The implication that the proposed action potentially may trigger the future development of solar facilities on similarly situated lands is not supported by the regulations or the guidance in *The SEQR Handbook*. The proposed action is a permitted use, subject to the issuance of a Special Use Permit. If a future application is submitted for a similar project on a parcel with corresponding zoning, it would be governed by the same provisions of the Town Code, would undergo its own discrete, independent review process for

discretionary approval by the involved Town agencies, including a new SEQRA assessment. The future project(s) would require its own review and approval process through the Town, and would be expected to be reviewed and decided upon based on its own individual merits. If Town approval ultimately is granted for the proposed action, in no way would that eliminate or diminish the degree to which the Town would have discretion over the disposition of any future applications. The submission of any future application would not be equivalent to the threat of an impact, particularly when a process is in place to evaluate and deliberate on the specifics of such an application separately from the present proposed action.

Two existing solar generating facilities of the type involved in the proposed action already are present in the greater Calverton area within the Town of Riverhead, including the existing sPower solar facility on the east side of Edwards Avenue, and another solar facility located northeast of the project area, further east of Edwards Avenue. These existing facilities have not created any significant growth-inducing effect, such as by attracting significant increases in local population, by creating or relocating employment, providing support facilities or services, or increasing the development potential of the local area. The requirement for this DEIS to examine the future potential for developments of this type in the Town and the greater Calverton area is based on a presumption, in the absence of any pending application, that development is likely to occur and that previous development would trigger similar future development. This type of speculation is not consistent with the provisions of SEQRA. Section F of the introductory chapter of *The SEQR Handbook* establishes that one basic rule applies to the implementation of SEQRA, the rule of reason; and in applying this rule, "speculative impacts may be ignored" and that "[i]f a potential impact is too speculative, it should not be addressed. The agency's responsibility is to deal with impacts that are reasonably foreseeable."

Notwithstanding the foregoing, these issues raised in the "Growth Inducement" section of the Final Scope regarding other parcels in the greater Calverton area and the Town are analyzed in Section 4.1 (*Cumulative Impacts*) of the DEIS. Section 4.1 discusses the extent of active farmland in the Town of Riverhead as compared to Suffolk County and other East End towns. A small percentage of the overall industrial and farmland acreage in the Town would be occupied by the proposed solar PV energy farm (i.e., 2.2 percent and 0.7 percent, respectively – see Figure 14 on Page 120 and Figure 15 on Page 122). Furthermore, unlike building development, which involves an indefinite duration for occupancy and use, the proposed solar energy facility would have a finite term of 20 years under the agreement between the property owner and sPower, and with the requested Special Permit. The proposed action would then be decommissioned, allowing for the restoration of the land.

The Final Scope also indicates the following, with respect to the required analysis of potential growth-inducing impacts:

> *The DEIS will also review the degree to which the characteristics of the subject property make it suitable for the proposed facility in a manner that does not pertain to other locations.*

Sections 3.1 through 3.3 of this DEIS discuss how the proposed action avoids or minimizes significant adverse impacts to land use, zoning, soils, topography, and environmental features. Section 4.1 discusses how other parcels with zoning that

allows solar facility installations have certain environmental sensitivities constraints and limitations (e.g., presence of freshwater wetlands or wetland buffer areas, location in the Long Island Pine Barrens Core Preservation or Compatible Growth Area, location in the Peconic River Wild, Scenic and Recreational River Corridor, etc.). Due to the environmental constraints and limitations, these parcels are less suitable for solar development. These constraints do not apply to the subject property.

The second principal paragraph in the Final Scope under the heading "Growth-Inducing Impacts" is as follows:

> *The specific routing of the gen tie through private property and not in the public right of way raises questions regarding the use and future development of these parcels and specific review of the topographical and environmental features of these parcels and comparative routing alternatives. The route for the gen tie in needs further investigation as to potential future impacts. Example – the easements being offered limit use of industrial property in the future. The easement on the east side of Edwards Ave must be far enough off the road to account for future road expansion.*

The foregoing issues do not pertain to potential growth-inducement. However, they are addressed and analyzed in this DEIS. Topographical and environmental conditions in the proposed easement area are discussed in Sections 3.2 and 3.3 of this DEIS, respectively. The proposed easement, with an 8,670±-LF length and 15±-foot width, would be approximately three acres in size, or less than two percent of the overall acreage for the proposed project. The proposed easement does not contain any severely steep grades or unusual or critical environmental resources.

With regard to the potential for the proposed easement to limit future use of industrial property, the entire easement area encompasses a small area of approximately 3.0 acres. The easement is located primarily along the edges of the involved tax parcels so that, for the most part, its 15-foot width is situated within property line setbacks and other dimensional requirements of the respective prevailing zoning districts. Thus, the proposed easement would not significantly constrain future development. Additionally, the proposed easement is a matter of private negotiation between the applicant and the affected property owners, who have consented to the easement in consideration of any possible development constraints and other applicable terms and conditions.

The proposed easement that extends along the east side of Edwards Avenue would be located on private property. Therefore, any proposed roadway expansion in this area within the existing right-of-way would not be hindered by the proposed easement. The implication that additional, privately-owned land should be held in reserve and sterilized from use in order to accommodate a hypothetical scenario of future roadway widening would not be reasonable and could be considered an improper taking.

The Final Scope separately specifies, in the "Extent and Quality of Information Needed to Adequately Address Potentially Significant Adverse Impacts" section, an additional requirement for the DEIS, under the heading "Cumulative Impacts and Growth Inducement", as follows:

An evaluation of a proportionate of solar use and facilities existing and proposed in the Town of Riverhead as a full build out in comparison to a build out of similar facilities in the Town of Southampton, Town of Southold, Town of East Hampton and the villages within these aforementioned boundaries. A proportionate assessment based on the amount of power generated by solar and the solar facility land areas of these municipalities is to be compared to existing and potential facilities of solar power and land areas used for solar within Riverhead.

For reasons similar to those discussed above with respect to the Final Scope's inclusion of a requirement for the DEIS to analyze the solar development potential in Calverton and the Town of Riverhead, this item does not constitute a growth-inducing impact issue. Furthermore, because it entails a speculative assessment of a scenario of potential build-out of solar facilities beyond pending applications, and encompasses impacts beyond what reasonably can be considered as affecting the same environmental resources as the subject proposed action, it is not properly the topic of a cumulative impact analysis for a project-specific DEIS. This issue goes well beyond the proper scope of analysis required by SEQRA by seeking an analysis of circumstances in other municipalities which have no involvement in the subject proposed action and have independently formulated policies and procedures regarding solar panel installations; they have no bearing on the pending application in the Town of Riverhead.

Notwithstanding the foregoing objection, a survey was conducted and included in this DEIS regarding local regulations governing solar facilities in Long Island's East End towns and villages. This information is summarized in Table 20, below.

Table 21 Summary of East End Municipal Solar Ordinances

Municipality	Solar Ordinance (Yes/No)	Summary of Code Regulations for Solar Energy Facilities
Town of East Hampton	Yes	Chapter 102, Article III, Building Construction: Discusses fast-track permits on commercial and residential properties, criteria and safety. Solar is not restricted to any specific zoning districts. There is no separate zoning ordinance regulating solar energy facilities.
Village of East Hampton	No	N/A
Town of Shelter Island	Yes	§43.10.2 Discusses residential installations only
Village of Dering Harbor	No	N/A
Town of Southampton	Yes	Defines solar energy system, solar energy equipment, solar electric system or photovoltaic system, roof-mounted and ground-mounted systems. Renewable energy facilities (including solar) are allowed in Gabreski Airport Commercial/Industrial PDD (primary permitted use) and Riverside Overlay District in RO-1, RO-2, RO-3, RO-4 and RO-7 districts as principal uses.
Village of North Haven	Yes	N/A
Village of Quogue	No	Solar only mentioned in General Purpose and Home Improvement sections of code – no separate ordinance, nothing about specific zoning districts.
Village of Sagaponack	No	N/A
Village of Sag Harbor	No	Defines solar and alternative energy systems. There are no specific regulations, except for placement in Historic Districts.
Village of Southampton	No	N/A
Village of Westhampton Beach	Yes	§197-44 Accessory Solar Energy Systems are permitted as an accessory use in all residential zoning districts in the Village, subject to certain requirements. Cannot provide off-site power. Building-integrated solar system is defined – not limited to any specific district. Solar also mentioned in Home Improvement section of Code.
Village of West Hampton Dunes	Yes	§472 – Solar Energy Systems - separate ordinance; solar energy systems are permitted as an accessory use in all residential zoning districts in the Village, subject to certain requirements
Town of Southold	Yes	§280-4B – Defines Commercial Solar Energy Production System – similar to Town of Riverhead. Permitted within certain zoning districts as a Special Exception use – with criteria similar to Riverhead: Light Industrial, Light Industrial Park/Planned Office Park, and Plum Island Conservation and Plum Island Research zoning districts
Village of Greenport	No	N/A

Table 21 identifies that the Towns of Southold and Southampton also have ordinances allowing for commercial solar installations in specific zoning districts, similar to the regulations in the Town of Riverhead. The Town of East Hampton does not restrict solar facility applications to any specific zoning districts and does not have separate zoning provisions governing such facilities. Most of the incorporated villages do not have solar facility ordinances, and those that do primarily pertain to residential solar installations. Accordingly, even if it were appropriate or applicable to perform the multi-jurisdictional analysis specified in the Final Scope as a component of this DEIS, it would be difficult to formulate objective criteria to create a build-out scenario due to lack of guidance on how such applications might be handled in most municipalities. Where there are specific code provisions governing such uses, it is not possible to predict site-specific outcomes. Therefore, any analysis of potential impacts would be entirely speculative.

3.6.2 Proposed Mitigation

The proposed action is not expected to induce growth, such that there would be no resultant environmental impacts associated with same. Accordingly, no mitigation measures are necessary.

4

Other Required Sections

4.1 Cumulative Impacts

The guiding principles and specific requirements of SEQRA are established in the implementing regulations at 6 NYCRR Part 617. *The SEQR Handbook* (3rd Edition, 2010) published by the NYSDEC, the State agency charged under the law with overseeing the implementation of SEQRA, provides further elaboration to assist in the practical application of SEQRA.

According to *The SEQR Handbook*, cumulative impacts occur when multiple actions affect the same resource. Pursuant to the SEQRA regulations, specifically 6 NYCRR §617.9(b)(5)(iii), a DEIS must identify and discuss, only where applicable and significant, "reasonably related short-term and long-term impacts, cumulative impacts and other associated impacts" at a level of detail that "reflects the severity of the impacts and the reasonable likelihood of their occurrence." (emphasis added) *The SEQR Handbook* goes further to state that, "Cumulative impacts must be assessed when actions are proposed, or can be foreseen as likely, to take place simultaneously or sequentially in a way that the combined impacts may be significant. As with direct impacts, assessment of cumulative impacts should be limited to consideration of reasonably foreseeable impacts, not speculative ones." (emphasis added)

The foregoing citations from the SEQRA regulations and *The SEQR Handbook* call into question whether it is proper for the present DEIS to be required to examine the potential future development of solar energy facilities throughout the Town of

Riverhead when there are no pending applications in the Town for this type of project, other than the instant proposed action. Additionally, parcels having an appropriate zoning classification to accommodate possible future solar energy facilities require discrete discretionary approvals from the Town (i.e., Special Permit and/or site plan approval) and further review under SEQRA. Such discretionary approvals and review are required before any development of this nature could proceed on any such off-site location. Even so, the Applicant has undertaken an analysis of potential cumulative impacts in accordance with the Final Scope, as discussed below.

The Final Scope promulgated by the Town of Riverhead (see Appendix A) requires that, "the impacts of the proposed action and the reasonably foreseeable impacts of other proposed actions will be evaluated" in this section of the DEIS. Based on consultations with the Town of Riverhead Planning Department, there are no planned developments in the area surrounding the subject property that have the potential to result in cumulative environmental impacts, when taken together with the proposed action. As such, there is no potential for reasonably foreseeable impacts of such other actions that could be evaluated together with the potential impacts of the proposed action (as evaluated and presented throughout this DEIS), and no significant adverse cumulative impacts are expected.

The Final Scope also directs that this DEIS will:

> *"assess the potential for implementation of the proposed action to lead to additional future applications for similar projects (i.e., conversion of large tracts of agricultural or manufacturing-industrial land for passive solar use)"*

and further directs that:

> *"[t]his analysis will identify similarly situated lands in the greater Calverton area and in the Town of Riverhead as a whole – i.e., available large parcels having both industrial zoning (eligible for development with a Commercial Solar Energy Production System) and an active agricultural use."*

It is respectfully submitted that, as there are no other actions which may cause impacts to consider cumulatively with those of the proposed action, the "reasonable likelihood" of the occurrence of any such cumulative impacts is extremely low or nonexistent. Moreover, as demonstrated throughout this DEIS, the nature of the proposed action is such that it would not result in any significant adverse environmental impacts. More specifically:

- the proposed action would result in minimal land disturbance, as the existing topography will be retained to the maximum extent practicable and would not require excavation for large building foundations;
- there would be no daily vehicular traffic generated by operation of the proposed facility;
- potable water use would be minimal, limited to irrigation for screen plantings and periodic washing of solar panel arrays;

- virtually no sanitary waste or other discharges to groundwater are proposed; and
- the land proposed for development with the solar array is already cleared of natural vegetation, and native species will be used to revegetate areas beneath the proposed arrays.

Based on the above summary of information and analyses presented in detail in other sections of this DEIS, it is further respectfully submitted that the potential severity of project-related impacts is minimal, such that only a limited level of detailed analysis of cumulative impact analysis could be justified under 6 NYCRR §617.9(b)(5)(iii).

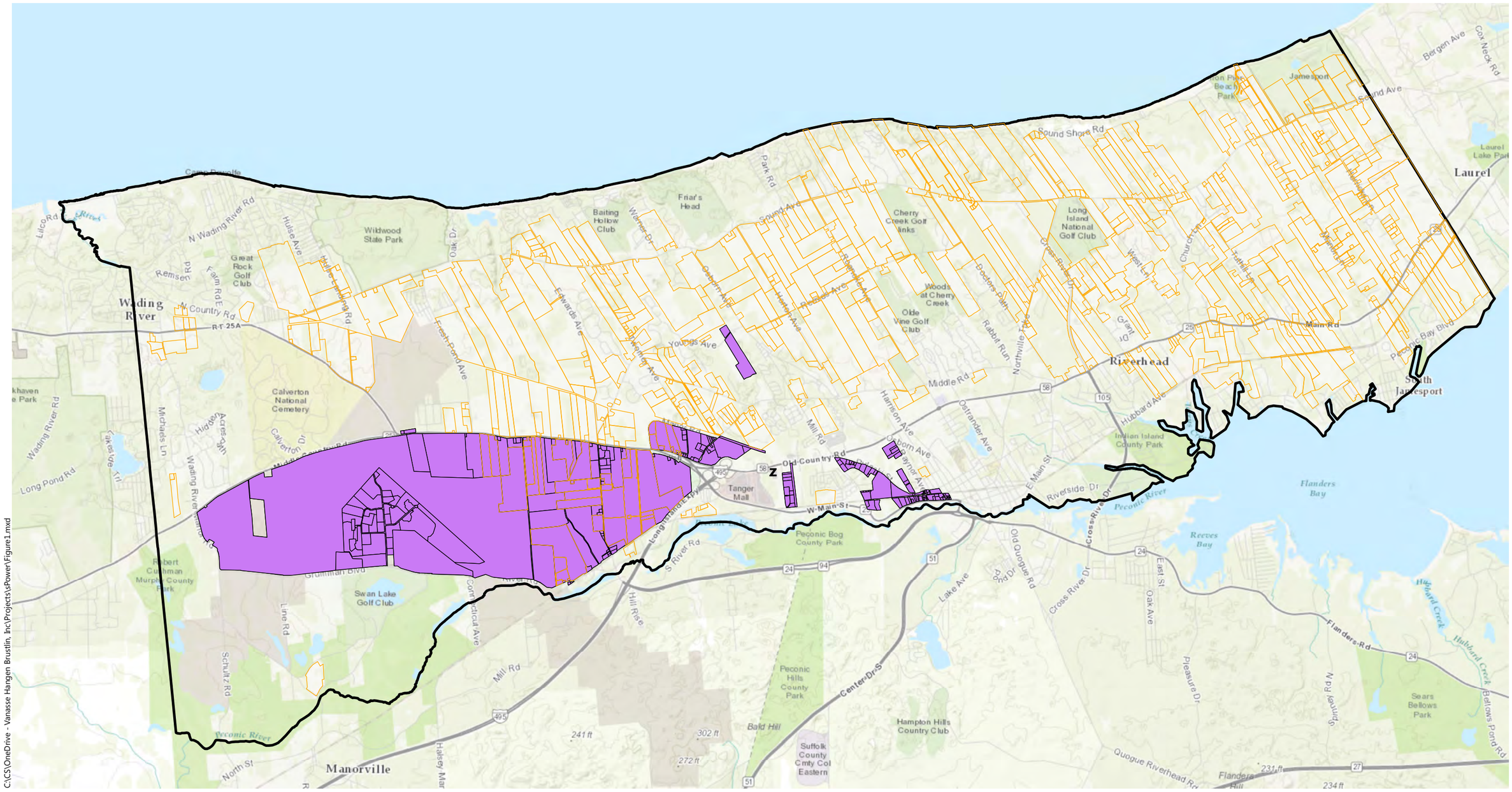
Notwithstanding the above, an analysis has been performed of agricultural and industrially-zoned lands in the Town of Riverhead, including the greater Calverton area, in accordance with the Final Scope.

As shown in Figure 14, the Town of Riverhead encompasses approximately 43,446 acres of land, in total. Of that, based upon the inventory presented the *Suffolk County Agriculture and Farmland Protection Plan* (Suffolk County, 2015), approximately 14,996 acres of land in the Town of Riverhead are in active agricultural use. This represents approximately 35 percent of the entire land area of the Township – more than any other Town in Suffolk County. Per the Suffolk County plan, the Town of Riverhead has over 5,500 more acres of farmland than the Town with the next largest proportion (i.e., the Town of Southold), and more farmland than all eight other Towns in Suffolk County, combined. The fact that approximately 35 percent of the Town of Riverhead's land area is in active agricultural use means that the Township has a density of farmland more than five times that of Suffolk County as a whole.[31]

These data confirm that active agricultural land in the Town of Riverhead is not scarce, and that the loss of approximately 109.9± acres of active farmland[32] due to the proposed action would represent only about seven-tenths of one percent of the total area of active farmland in the Town, such that the impact of same would not be significant. It is also noted that, as seen in Figure 14, active agricultural land is generally well-distributed throughout the Town of Riverhead and the greater Calverton area.

[31] *Suffolk County Agriculture and Farmland Protection Plan* (Suffolk County, 2015). Table 3-1.

[32] Only approximately 106.14 acres of the subject property (at Lot A) are classified within the Suffolk County plan as active agricultural land.



0 1900 3800 7600 Feet

- Active Agricultural Lands (Total Acreage: 14,995.85 ac)
- Industrial Zoned Parcels (Total Acreage: 4,929.67 ac)
- Town of Riverhead (Total Acreage: 43,444.61 ac)

Proposed sPower Solar Energy Facility | Calverton, NY

Active Agriculture and Industrial Zoning Districts in the Town of Riverhead
Town of Riverhead

Sources: Active Agricultural Lands (Suffolk County Agriculture & Farmland Protection Plan, Suffolk County, 2015, digitized by VHB 2017); Industrial Zoned Parcels (Town of Riverhead, provided to VHB 2011); Town of Riverhead boundary (NYSITS GPO, April 2017); Topographic Basemap: Esri 2017

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Figure 14 also indicates that there are approximately 4,930 acres of industrially-zoned land within the Town of Riverhead. It is recognized that, although they are non-conforming to current zoning, there are several industrially-developed properties throughout the Town of Riverhead, including properties within the Town's expansive Agricultural Protection Zone (APZ) which encompasses approximately 12,472 acres of the Town. These data confirm that industrially-zoned land also is not scarce in the Town of Riverhead. The 109.9± acres of land proposed for development with a solar PV energy facility at the subject location represents only a very small portion (i.e., about 2.2 percent) of the industrially-zoned land in the Town, such that the impact of the proposed action would not be severe on the availability of industrial land in the Town. Moreover, the Town of Riverhead Town Code explicitly states the intent of the Town Board to permit commercial solar energy production systems (see §301-281.A). Such uses are only permitted pursuant to this ordinance in the five industrial zoning districts of the Town.

Additional research and analysis was performed in accordance with the Final Scope to identify properties that are industrially-zoned and established in active agricultural use. Although a simplified approach was taken (as detailed below), it is respectfully submitted that the analysis was performed at a level of detail well beyond what could be justified under 6 NYCRR §617.9(b)(5)(iii), given that no cumulative impacts are anticipated and further given the low potential severity of impacts due to the proposed action. The data presented in Figure 14 were further analyzed and used as a basis for Figure 15, which focuses on all industrially-zoned lands in the Town, and highlights among those lands the parcels which are established in active agricultural use. As shown in the Area Values on Figure 15, of the 43,446± acres of land in the Town, only 988± acres (i.e., about 2.3 percent) are within both an industrial zoning district and an active agricultural use. Of this total, only 153± acres (about 15.5 percent) are within protected agricultural lands, which would not be expected to be available for future development with other uses.

Area Values
Active Agriculture in Industrial Zoned Area: 942.93 ac*
Protected Agricultural Lands: 153.11 ac
Unprotected Agricultural Lands: 789.83 ac*
Potentially Developable Industrial-Zoned Active Agricultural Land: 638.38 ac*

*Excluding the 45.06-ac Existing sPower PV farm

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0 950 1900 3800 Feet

- Parcel A
- Existing sPower PV farm
- NYSDEC Freshwater Wetlands
- Wetlands 150ft Buffer
- Wild Scenic Recreational River Corridor
- Pine Barrens - CGA
- Pine Barrens - Core
- Protected Agricultural Lands
- Unprotected Agricultural Lands
- Industrial Zoned Area

Proposed sPower Solar Energy Facility | Calverton, NY

Active Agriculture and Industrial Zoning Districts Established in Active Agricultural Use

Town of Riverhead

Sources: Active, Protected and Unprotected Agricultural Lands (Suffolk County, 2015, digitized by VHB 2017); Regulatory Freshwater Wetlands (NYSDEC, July 2013); Wetland Buffer (VHB, 2017); Wild Scenic Recreational River Corridor, Pine Barrens, Industrial Zoning District and Tax Parcel data (Town of Riverhead, 2011); Topographic Basemap: Esri 2017

Other relevant land use planning and permitting constraints would apply to the potential future development of solar PV energy facilities at these identified properties. It would be highly speculative to attempt to identify which, if any, would receive discretionary approvals by the agencies having jurisdiction, or to determine which properties are most likely to be developed with solar PV energy facilities, and it would require an extraordinary level of detail to do any such speculative analysis, to a level that is disproportionate to the likelihood of any associated potential impact or the severity thereof.[33] Instead, the most relevant and basic of the potential constraints have been utilized in this analysis, recognizing that any number of other constraints may apply. Specifically, the data presented within Figure 15 include the following potential permitting and environmental constraints:

- New York State Department of Environmental Conservation (NYSDEC) Freshwater Wetlands
- Freshwater Wetlands 150-foot buffer (as regulated by the Town of Riverhead)
- NYSDEC Wild, Scenic and Recreational Rivers Corridor (Peconic River)
- Long Island Central Pine Barrens (Core Preservation and Compatible Growth Areas)

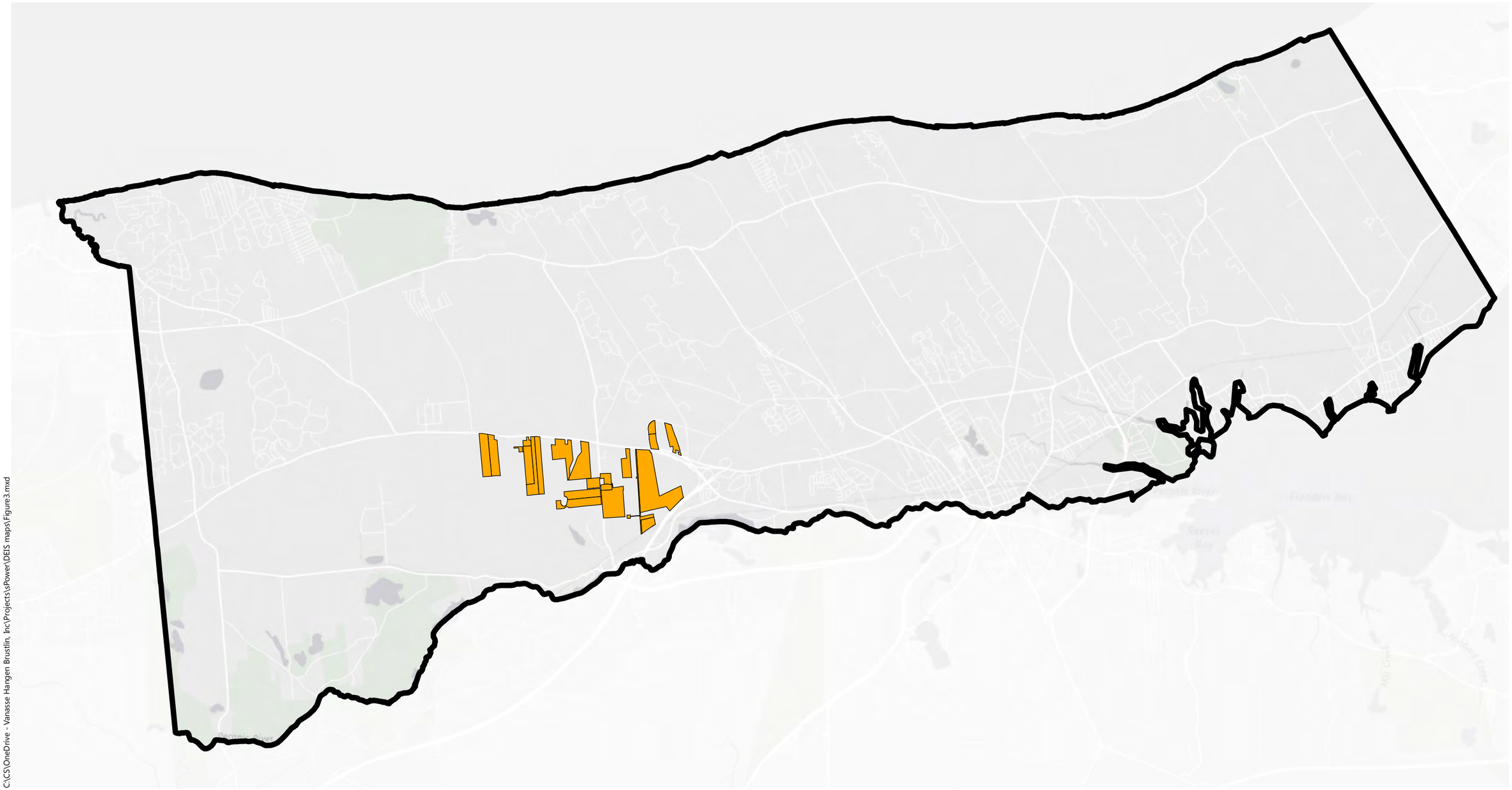
For the purposes of this analysis, the area of land within these potential constraint categories was subtracted from the total area of active agricultural land within industrial zones. As indicated in Figure 15, after accounting for the above-referenced constraints, the total area of "Potentially Developable Industrial-Zoned Active Agricultural Land" is reduced to 638± acres[34] within the entire Town of Riverhead.

The proposed action (i.e., the solar development at the proposed Parcel A) already includes another 106± of the identified acres.[35] After adjusting for this, based on the basic assumptions described herein, only 534± acres of active agricultural land in an industrial zoning district remain available for potential future applications for solar PV energy facilities. To illustrate and provide perspective, an additional figure has been created to highlight only the potential developable acreage within the context of the overall Township (see Figure 16). At only 1.2± percent of the land area of the Town, and given that any such development is speculative, and would be subject to intensive review under the rigorous zoning criteria of the Town, as well as further review under SEQRA, and that other development constraints may also apply depending on a given parcel, no significant adverse cumulative impacts are anticipated.

[33] Impacts assessed pursuant to SEQRA should not include speculative impacts. As noted previously, the NYSDEC publication, *The SEQR Handbook* (3rd Edition, 2010) specifically states, with respect to cumulative impact analysis, that "[a]s with direct impacts, assessment of cumulative impacts should be limited to consideration of reasonably foreseeable impacts, not speculative ones." See Chapter 4, Section B, Question 17 of *The SEQR Handbook*.

[34] The 45± acres that were previously developed with a solar PV energy facility (SCTM Parcel No. 0600-137.00-01.00-032.001) have been subtracted to yield the stated total 638± acres.

[35] A small portion of the 109.9±-acre proposed Parcel A is not identified for active agricultural use within the *Suffolk County Agriculture and Farmland Protection Plan* (Suffolk County, 2015).



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0 1900 3800 7600 Feet

Town of Riverhead (Total Acreage: 43,444.61 ac)

Other Developable Industrially-Zoned Active Agricultural Land (534.49 ac)
(Excludes 106.14 acres of Parcel A and 45.06 acres of Existing sPower PV Farm)

Proposed sPower Solar Energy Facility | Calverton, NY

Developable Industrially Zoned Active Agricultural Land
Town of Riverhead

Sources: Active Agricultural Lands (Suffolk County Agriculture & Farmland Protection Plan, Suffolk County, 2015, digitized by VHB 2017); Industrial Zoned Parcels (Town of Riverhead, provided to VHB 2011); Town of Riverhead boundary (NYSITS GPO, April 2017); Topographic Basemap: Esri 2017

Potential project impacts are typically mitigated or addressed within the specific design of an application for development. The proposed action incorporates extensive screen plantings and is designed to be set back substantially from the roadway (i.e., Middle Country Road/NYS Route 25), such that the potential for adverse visual impacts is significantly limited. Any possible future applications for solar PV energy facilities in the Town of Riverhead would be subject to the Town's development criteria, and would have the opportunity, and indeed the requirement, to similarly minimize potential impacts by incorporating context-sensitive design solutions appropriate to the merits of the application during the Site Plan and/or Special Permit application processes.

4.2 Unavoidable Adverse Impacts

The environmental impacts associated with the proposed project and relevant mitigation measures have been described in Section 3.0 of this DEIS, in detail. Those impacts that cannot be either entirely avoided or fully mitigated are described below.

4.2.1 Short-Term Impacts (Construction)

Based upon the analyses presented in this DEIS, there would be short-term, construction-related impacts that cannot be completely mitigated. These impacts are associated with site preparation and development – they would be of relatively short duration, and would cease upon project completion. Specific impacts are identified below:

1. Soils would be disturbed by minor site grading activities, installation of pile foundations for the PV array support frames, trenching of utilities and cable conduit, and creation of slab foundations for electrical equipment, etc., during site redevelopment;
2. Despite the use of extensive and strategically-placed erosion and sediment control measures, minor occurrences of erosion may occur;
3. Clearing and development activities may impact individuals of some wildlife species (e.g., less-mobile animals, underground dwelling mammals and reptiles, eggs and juveniles of certain species); however, as stated in Section 3.3 Environmental Features, impacts would be minimal and should be avoided;
4. There is the potential for minor releases of air contaminants that would occur from construction equipment and emissions of fugitive dust during dry periods, although dust would, for the most part, would be controlled by covering of soil piles and watering down of the site;
5. Operation of construction equipment, trucks and worker vehicles may temporarily impact traffic in the area of the project site;
6. The visual quality of the area may be temporarily degraded by the presence and operation of construction equipment on the project site (to the minimal extent they may be visible from surrounding areas); and
7. Increases in noise levels at the site boundaries may result from construction activities. However, construction would occur only during hours permitted by the Town of Riverhead.

4.2.2 Long-Term Impacts (Operation)

Operation of the passive solar PV energy facility will result in few, if any, long-term impacts. These have been identified within the respective sections of this DEIS, along

with the mitigation measures that have been incorporated into the proposed action to reduce or eliminate these impacts. Those adverse long-term impacts that cannot be fully mitigated are set forth below:

1. Site development would temporarily discontinue the use of the existing sod farm use at Parcel A, and commit the land to use as a solar PV energy facility for the 20-year duration of proposed action.
2. Limited quantities of woodland and other natural vegetation will be removed, particularly within portions of the easement property, to accommodate the trenching of the gen-tie line. The use of native vegetation and the re-establishment of vegetative ground cover within these areas would minimize these impacts.
3. The introduction of a limited quantity of impervious surface area at the subject property (e.g., equipment pads) and the minor regrading activities proposed at Parcel A would modify drainage patterns. However, runoff would be contained and recharged on-site via the proposed comprehensive stormwater management system.
4. The visual character of the site would be minimally modified; however, despite that the proposed solar PV energy facility will be significantly screened from view from surrounding properties and roadways.

4.3 Irreversible and Irretrievable Commitment of Resources

The proposed project would require a commitment of natural and manmade resources, as well as time. Certain resources related to the construction aspects of the development would be committed, including, but not necessarily limited to, concrete, gravel, structural frame and solar panel materials, paint and topsoil. Mechanical equipment resources would be committed to assist personnel in the construction at the property. The operation of construction equipment would require electricity, water resources and fossil fuels. Furthermore, the construction phase of the proposed project would require the commitment of manpower resources.

During the operational phase of the proposed development, minimal electricity, water resources, and fossil fuels would be used for Project site maintenance.

4.4 Use and Conservation of Energy

4.4.1 Existing Conditions

Energy Use/Generation

The existing sod farm on the proposed Parcel A, the existing storage and equipment facilities on Parcel B, and the single-family residence on Parcel C of the subdivision property represent existing energy demands. It is expected that the vehicles and other equipment and structures associated with the sod farm use various combustible fuels as well as electricity, operating on an intermittent basis for the maintenance and harvesting of the sod farm. Single-family residences use nominal quantities of electricity and fuel for heating and/or to power appliances in the home. Overall, there are no significant energy demands, such as large boilers or heavy industrial equipment, operated at the subject property under existing conditions. There are currently no significant sources of energy generation (e.g., solar PV panels, wind turbine, etc.) present at the subject property.

Energy Plans/Initiatives

Relevant energy plans are summarized below, including the latest energy plan for New York State. The proposed action's consistency with the goals and overall intent of the plans is discussed in the corresponding *Potential Impacts* section, below.

LIPA Electric Resource Plan 2010-2020 (February 2010)

LIPA's *Electric Resource Plan 2010-2020* (the "*Electric Resource Plan*") was prepared to provide "…the analytical support and policy framework necessary to enable LIPA to continue providing safe and reliable electricity service to its customers at stable costs." The *Electric Resource Plan* notes that LIPA projects a need for 200 MW of new electric generation or efficiency and demand response resources in 2020 to meet demand in the service area, which includes the subject property. The plan further states that LIPA may need to select new generation with acceptable environmental impacts, as LIPA is dedicated to promoting a healthy environment and will need to meet the anticipated growth in electricity demand.

The LIPA Board of Trustees passed a resolution on February 25, 2010, adopting the *Electric Resource Plan*. Within the resolution, five strategic objectives of the plan are identified, as follows:

- Meet the reliability requirements established by the NYS Reliability Council and the NY Independent System Operator.
- Improve operating efficiencies and attract funding to reduce customer bills and support economic development on Long Island.
- Pursue cost-effective energy efficiency programs and assistance to reduce electric use.

- Pursue cost-effective renewable energy resources.
- Pursue the reduction of greenhouse gas emissions.

The plan indicates initiatives LIPA is currently undertaking, or is planning to undertake, to meet its goals. Those relevant to the proposed project are listed below.

- Continue efforts to further diversify LIPA's generation portfolio toward cleaner non-combustion based energy resources, including renewable energy, etc.
- Reduce the land, water, and air pollutant impacts associated with power generation and operation of the LIPA bulk transmission and distribution systems, implementing cost effective policies, practices, and technologies for preserving and protecting the environment.

As is detailed in the *Electric Resource Plan*, in an effort to diversify its portfolio of electricity sources, LIPA contracted with various solar facilities for electricity purchase agreements. According to the plan, purchases from renewable sources, including solar, assist in LIPA's goal to lessen air emissions related to its contracted power supply resources.

LIPA's power planning process includes balancing long-term forecasts of customer electricity requirements with the strategic objectives mentioned above. To meet its goal to pursue renewable energy, consistent with the New York State goal of 30 percent renewable energy by 2015, and 50 percent generation of electricity from renewable energy sources by 2030. LIPA intends to procure its share of renewable energy resources to help the State achieve its goal. In order to address greenhouse gas emissions resulting from the generation of electricity it buys, the *Electric Resource Plan* indicates that LIPA plans to take cost-effective actions to reduce CO_2 emissions by 20 percent from 2005 levels by the year 2020.

The planning for the *Electric Resource Plan* considered almost one hundred different alternative technologies for inclusion in the ultimate plan. Technologies were grouped into resource types, such as efficiency, supply, renewable, repowering, transmission and retirement options. The renewable options selected for inclusion are solar pioneer (typically private residential installations), solar installation, photovoltaic roof, on-shore wind, offshore wind and off-island renewable energy.

In addition to meeting its strategic objectives, the *Electric Resource Plan* aims to promote a healthy environment, which the plan states is supported by environmental initiatives, including an investment in utility scale renewable energy projects.

2015 New York State Energy Plan (2015)

The *2015 New York State Energy Plan* (hereinafter, the "*NYS Energy Plan*") is a "comprehensive roadmap to build a clean, resilient, and affordable energy system for all New Yorkers." It also coordinates Governor Andrew Cuomo's Reforming the Energy Vision (REV) initiative that was introduced in 2014, and seeks to spur private

sector innovation and investment in energy generation and infrastructure. The *NYS Energy Plan:*

- Contains actionable policy recommendations and analyses to guide the State's efforts to advance new energy technologies that foster an innovative clean energy economy
- Addresses energy use, its sources and impacts, and provides details on how the State developed its overarching vision and initiatives
- Forecasts energy supply and demand
- Provides a statewide inventory of greenhouse gas emissions and vulnerabilities of the energy system; and
- Informs New Yorkers on the environmental and public health impacts associated with energy production and use.

The *NYS Energy Plan,* along with REV, seek to set forth a path for New York to achieve the following by 2030:

- 40 percent reduction in greenhouse gas emissions from 1990 levels
- 50 percent of energy generation from renewable energy sources (including solar)
- 600 trillion British thermal units (Btu) increase in statewide energy efficiency, which equates to a 23 percent decrease in energy use by buildings as compared to 2012 levels.

The *NYS Energy Plan* indicates that an important need for the future is to attract greater private sector financing for clean energy technologies. The *NYS Energy Plan* and REV also direct the State to coordinate its renewable energy policies to incentivize further development of renewable sources, such as solar, to improve portfolio diversity and contribute to the State's environmental goals.

The *NYS Energy Plan* notes that the State has already implemented various initiatives that are helping the State to meet its goal for a cleaner energy system. New York State's NY-Sun initiative provides long-term support to the solar industry. Due to State support for solar, it is expected that an addition 3,000 MW of solar capacity will be added to the State's electricity mix by 2023.

The solar market on Long Island is identified by the *NYS Energy Plan* as "one of the hottest solar markets on the east coast." The *NYS Energy Plan* further indicates that Long Island's solar market will play an integral role in advancing REV's goals.

PSEG Long Island Integrated Resource Plan and Repowering Studies (April 2017)

PSEG-LI replaced LIPA as the Long Island electric service provider in January 2014. PSEG-LI is responsible for all electric transmission, distribution, and load serving activities for the safe and reliable operation and maintenance of the electric transmission and distribution system, including expansions and replacements to meet the requirements of its contract with LIPA and LIPA's mission to provide clean, reliable, and affordable electric service for its customers. In addition to the annual Long Range Plans, (i.e., Utility 2.0 plan) that PSEG-LI files, which include specific

goals of reducing peak demand and improving efficiency, PSEG-LI prepared Integrated Resource Plan (IRP), which includes identification of energy resource needs and solutions (i.e., conventional, renewables, repowering, etc.). The IRP was submitted to the New York State Department of Public Service (DPS) on April 24, 2017, and the DPS is currently seeking public comments.

According to the *Integrated Resource Plan (IRP) and Repowering Studies – Frequently Asked Questions* document published by LIPA,[36] an IRP is prepared to study the generation and transmission investments that a utility may need to make over the next twenty years to provide reliable electric service to customers under a range of scenarios. In terms of Long Island power plants, repowering means building new power plants at the sites of existing plants. As part of the IRP, PSEG-LI, which supplies electricity to the LIPA power grid, conducted a 20-year study (2016-2035) with a 10-year action period (2016-2025).

The IRP study considers factors including supply diversity, system resiliency, compliance with federal and State regulatory policy, environmental impact and the cost of various repowering proposals.

The key findings of PSEG-LI's analysis, are as follows:[37,38]

- *LIPA is forecast to have surplus power plant generation capacity through 2035. Therefore, there is no need to build new large baseload combined cycle plants to supply Long Island's energy needs at this time, as compared with 2013 forecasts, which indicated a need for power plants in 2030 on Long Island*
- *The need for power plants has declined by 1,700 MW (24 percent) since 2013, the equivalent of 3-5 large baseload central station power plants.*
- *The reduction in future energy demand is primarily due to greater adoption of energy efficiency (modern appliances, building codes, utility incentives) as well as rooftop solar. The decline is consistent with state and national trends.*
- *LIPA will comprehensively evaluate whether existing power plants continue to provide a benefit to customers at each contract expiration. Nearly all of LIPA's generation contracts expire by 2030, providing substantial flexibility to rebuild and modernize Long Island's electric grid.*
- *New York has adopted a 50 percent renewable by 2030 goal (50 x 30). For the State to meet the 50 x 30 goal, each electric utility must supply an increasing share of its energy needs each year from renewable generation. For Long Island, this means adding approximately 800 MW of new renewable generation by 2030, enough to power approximately 350,000 homes.*

[36] Long Island Power Authority, *Integrated Resource Plan (IRP) and Repowering Studies – Frequently Asked Questions,* 2017 (accessed May 23, 2017); available from http://www.lipower.org/papers/reports.html.

[37] Ibid.

[38] PSEG Long Island, *2017 Integrated Resource Plan: PSEG Long Island Analysis Summary,* April 10, 2017 (accessed May 23, 2017(; available from http://www.lipower.org/pdfs/company/trans/2017-04-10_PSEG_IRP_Summary_Report.pdf.

- *LIPA expects energy efficiency programs and advancements to reduce the need for generation by 950 megawatts by 2030.*
- *Individual projects, such as off-shore wind and solar, will be selected over the next decade and beyond through competitive solicitations among multiple sites, technologies, and developers so as to obtain the lowest cost and best solutions for customers*

Town of Riverhead

While the Town of Riverhead does not implement a specific Town-wide energy plan, it is noted that the Code of the Town of Riverhead sets forth the following Town goals for renewable energy:

> *"It is the intention of the Town Board of the Town of Riverhead, as part of its goal to limit dependence on imported fossil energy and decrease greenhouse gas emissions, to permit commercial solar energy production systems in the industrial zoning use districts* [of the Town] *to minimize impacts to residents and scenic viewsheds important to the community."* [Town Code §301-281]

4.4.2 Potential Impacts

Energy Use/Generation

As previously indicated, the sPower Calverton solar facility has been awarded a 20-year PPA under the LIPA 280 MW RFP. The proposed action would benefit the Town and Long Island by providing renewable energy in a non-polluting fashion (or "clean energy"). As a renewable, "green" source of energy, the sPower Calverton solar facility would have a substantial environmental benefit. The electricity generated by the proposed solar PV energy facility would reduce the demand for electricity generated by the burning of fossil fuels (e.g., oil, natural gas) at traditional power plants that produce air emissions of greenhouse gases.

Upon completion, the 20 MW_{AC} sPower Calverton solar facility would be interconnected to the LIPA power grid supplying electricity to the system for use by PSEG-LI customers via the aforementioned 20-year PPA. Based on site- and project-specific results of a PVsyst Photovoltaic Software model analysis, which accounts for a range of variables including monthly albedo values (i.e., the solar radiance that reaches the earth's surface) at the subject property, project-specific PV array and system generation and loss factors, and loss factors during conversion at the step-up facility (see model results in Appendix I), the sPower Calverton solar facility will result in an annual supply of 37,648 megawatt hours (MWh) to the LIPA power grid for use by PSEG Long Island's customers. According to the latest available data (2009) from the U.S. Energy Information Administration (EIA), the average household in New York State consumes 6,578 kilowatt hours (kWh), or approximately 6.6 MWh,

annually.[39] Therefore, based on these factors, the proposed action would be expected to generate sufficient electricity to power approximately 5,723 homes - - the equivalent of over 44 percent of the total number of homes in the Town of Riverhead.

The proposed 20 MW_{AC} solar facility would supply the grid with additional electricity that would be available to existing LIPA customers, enabling the utility in meeting electricity demand. Moreover, as indicated in LIPA's *Electric Resource Plan*, above, the electric system will require an additional 200 MW of electric generation in 2020 to meet customer demand in the service area. Therefore, electricity generated by the proposed project would contribute to meeting this identified need, and would not encourage further development. Should there be no need for additional energy generation, the proposed facility would continue to help accomplish the various goals of the *NYS Energy Plan* for increasing renewable energy deployment, decreasing greenhouse gas emissions, etc., as discussed below.

Energy Plans/Initiatives

This section of the DEIS provides a consistency analysis with the relevant energy plans introduced above.

LIPA Electric Resource Plan 2010-2020 (February 2010)

As summarized above, the *Electric Resource Plan* was prepared to demonstrate LIPA's strategy to provide reliable electric service to its customers through 2020. As discussed above in this section of the DEIS, the *Electric Resource Plan* indicates that LIPA projected a need for 200 MW of new electric generation or efficiency and demand response resources in 2020 to meet demand in the service area. As the proposed project would result in 20 MW_{AC} of new electricity generation from a PV solar facility, which does not involve greenhouse gas emissions, it would be consistent with this identified need. The plan further states that LIPA seeks new sources of generation with acceptable environmental impacts. As a utility-scale renewable energy project, the proposed solar farm would aid in increasing the electric grid's share of renewable energy resources, and in reducing CO_2 emissions, toward its goal of a 20 percent reduction below 2005 levels by 2020. Four of LIPA's strategic goals are relevant to the proposed project and a consistency analysis follows.

› *Meet the reliability requirements established by the NYS Reliability Council and the NY Independent System Operator.*

  The proposed project would add 20 MW_{AC} of new electricity generation to the system, and would contribute toward the reliability of electric service for the utility's customers. Therefore, the proposed action is consistent with this goal.

[39] United States Energy Information Administration, *Table CE4.7* from *2009 Residential Energy Consumption Survey (RECS)* (accessed May 2017); available at http://www.eia.gov/consumption/residential/data/2009/index.cfm?view=consumption.

› *Improve operating efficiencies and attract funding to reduce customer bills and support economic development on Long Island.*

  The proposed project would locate a clean electricity generating facility on Long Island, thereby creating jobs and contributing to economic development on Long Island, in keeping with the intent of this goal.

› *Pursue cost-effective renewable energy resources.*

  The proposed solar farm would produce electricity generation from PV solar panels, a renewable energy source, and therefore be consistent with this goal.

› *Pursue the reduction of greenhouse gas emissions.*

  PV solar technology does not involve the combustion of greenhouse gas-emitting fuels. Therefore, the proposed project would add to the capacity of the electric system, without a related increase in greenhouse gas emissions, in keeping with this goal.

Additional initiatives indicated in the *Electric Resource Plan* include:

› *Continue efforts to further diversify LIPA's generation portfolio toward cleaner non-combustion based energy resources, including renewable energy, etc.*

  As the proposed project would add 20 MW_{AC} of electricity generated by PV solar panels, it would assist in diversifying the utility's generation portfolio with electricity from a renewable resource.

› *Reduce the land, water, and air pollutant impacts associated with power generation and operation of the LIPA bulk transmission and distribution systems, implementing cost effective policies, practices, and technologies for preserving and protecting the environment.*

  The proposed project would result in the generation of 20 MW_{AC} of electricity that would supply the existing electric grid. As PV solar technology does not involve greenhouse gas emissions, it would not result in air pollution. Further, as demonstrated in Sections 3.1 and 3.3 of this DEIS, the proposed project would not result in significant impacts on land or water resources. As such, the proposed project consistent with this goal.

2015 New York State Energy Plan (2015)

As a clean energy technology, the proposed PV solar farm would be a step toward the State's goal to advance the use of such technologies in New York. Further, by adding 20 MW_{AC} of electricity from a non-carbon emitting generating source, the proposed project would help to reduce the intensity of carbon emissions in the State's energy sector, in keeping with the stated goals in the *NYS Energy Plan* to

› *cut greenhouse gas emissions by 40 percent below 1990 levels by 2030, and ultimately to achieve an 80 percent reduction in total emissions by 2050*

› *source 50 percent of electricity generation from renewable energy sources, including solar, wind, hydropower, and biomass*

› *induce private capital investment and innovation in clean energy*

A discussion of the proposed action's consistency with the *NYS Energy Plan* follows.

The proposed project involves the deployment of a utility-scale PV solar farm that would add 20 MW_{AC} of capacity to the electric system. The proposed project involves a significant private investment, and would not utilize public resources. The proposed utility-scale PV solar farm would be located on Long Island and generate electricity from a renewable resource, and, therefore, would involve economic investment in New York State. Finally, the proposed project could obviate the need for electricity generation from sources that cause greenhouse gas emissions, and thus, would assist in decreasing greenhouse gas emissions in New York.

PSEG Long Island Integrated Resource Plan and Repowering Studies (April 2017)

As discussed above in this section of the DEIS, the IRP indicates that LIPA has a targeted goal to supply an addition 800 MW of new electric generation from renewable sources by 2030 in order to meet the State's 50 x 30 goal (i.e., for New York State to meet 50 percent of its electricity needs with renewable generation by 2030).

As a utility-scale renewable energy project, the proposed solar farm would aid in increasing the electric grid's share of renewable energy resources, and in reducing carbon dioxide (CO_2) emissions, by adding 20 MW_{AC} of "clean" electricity generation to the system. It is expected that the proposed solar PV energy facility would contribute sufficient energy to the grid to power approximately 5,723 homes. This would be a step toward meeting the renewable energy goals for the region, as the estimate of 5,273 homes represents over 44 percent of the total number of homes in the Town of Riverhead.

As mentioned above, the majority of LIPA's generation contracts expire in 2030. The proposed solar farm, which would supply electricity to the system via the 20-year PPA, is an opportunity to modernize the grid's generation capacity and increase the proportion of generation from renewable energy sources. As a renewable source of electricity generation, the proposed solar farm would result in enhanced system resiliency and diversified energy supplies, without causing significant environmental impacts.

Overall, the proposed project would complement the findings of the IRP.

Town of Riverhead

While the Town of Riverhead does not implement a specific Town-wide energy plan, it is respectfully submitted that the proposed action would achieve the Town's stated goal of limiting dependence on imported fossil energy and decreasing greenhouse gas emissions, in a manner that minimizes potential impacts to residents and scenic viewsheds important to the community.

4.4.3 Proposed Mitigation

No significant adverse impacts to energy have been identified, and the proposed action is consistent with the State's energy plan, such that no mitigation measures

are proposed. Moreover, the proposed project would result in beneficial energy impacts, including the generation of 20 MW_{AC} of energy using clean, renewable technology from a renewable source (reducing reliance on fossil fuels), and an increase in clean energy business activity within the Town. Therefore, no mitigation is proposed as no significant adverse impacts would occur.

5

Alternatives and Their Impacts

A total of four alternatives are evaluated in this DEIS. A fifth subsection addresses a requirement of the Final Scope regarding other alternative site considerations. The following are the alternatives evaluated in this DEIS:

- SEQRA-mandated "No Action" Alternative
- Alternative Routing of Gen-Tie in Public Rights-of-Way
- Alternate Locations other than Agricultural or Manufacturing-Industrial Lands in the Town of Riverhead
- Development in Accordance with the Industrial C Zoning District
- Other Alternative Site Considerations

5.1 No Action Alternative

The No-Action alternative involves leaving the subject property in its present state. Specifically, the subdivision property would remain in use as a sod farm, and no improvements would occur at the easement property or collection facility.

Implementation of the No-Action alternative would forego the various benefits of the proposed action discussed throughout this DEIS. Notably, the proposed alternative energy source would reduce the demand for electricity generated by the burning of fossil fuels (e.g., oil, natural gas) at traditional power plants that produce emissions of greenhouse gases. Without the proposed renewable "green" source of energy, the energy demands of the surrounding community would continue to rely on traditional sources to provide sufficient electricity to power approximately 5,723

homes. The No-Action alternative would not necessarily be expected to result in adverse impacts upon air quality. However, the beneficial effects on air quality that would result from implementation of the proposed action (due to the utilization of a clean, emission-free, renewable source of electricity in lieu of traditional sources that produce air emissions), would not occur under this alternative.

Other beneficial effects of the proposed action that would be foregone under the No-Action alternative are the various socioeconomic benefits that are expected to result from the proposed solar PV energy facility. These benefits would entail the generation of 100-to-200 construction jobs, investment in the local "green" economy, and a substantial increase in annual revenues – approximately $826,414 per year – to the Town of Riverhead, the local school district, and other property tax jurisdictions.

This alternative would not involve any change in land use, such that there would be no loss of agricultural land. It is noted, however, that the proposed action (i.e., the development of a solar PV energy facility) would represent a temporary use with a bonded decommissioning plan on file at the Town. The land beneath the solar array expected to become available in the future could be developed as another use, or revert back to sod production or another agricultural use.

The sod farm would continue to operate as a non-conforming use in the Industrial C zoning district, as the existing use is not permitted in the prevailing zone. The existing use would continue to contravene the recommendations of the Town's *2003 Comprehensive Plan*, which identifies the subject property for development with commercial recreation and moderate-scale industrial uses as part of the proposed "IR" Industrial/Recreational zoning district (see Figure 5 on Page 23 of this DEIS).

Because no physical improvements would result from the implementation of this alternative, there would be no potential impacts to soils or topography, or ecological resources, and/or visual impacts. There would be no glare impacts upon surrounding properties, and the existing sod farm use would not induce growth in the surrounding community. It is noted that, although the proposed action would entail physical improvements, no significant adverse impacts in the aforementioned categories are expected under the proposed action as evaluated throughout this DEIS.

If the No-Action alternative is implemented, there would be no construction-related impacts. As the site would remain in its existing use, there would be no impacts associated with additional traffic generation nor would there be any sanitary waste generation or adverse impacts upon groundwater associated therewith. With respect to other water resource impacts, the use of fertilizers and pesticides during operation of the established agricultural use would be expected to continue, with no change to the related potential impacts to groundwater, surface water or stormwater runoff. The proposed action would also not generate traffic, or sanitary waste. Operation of the proposed solar energy facility would not require the regular use of fertilizers or pesticides, and a stormwater management system would be

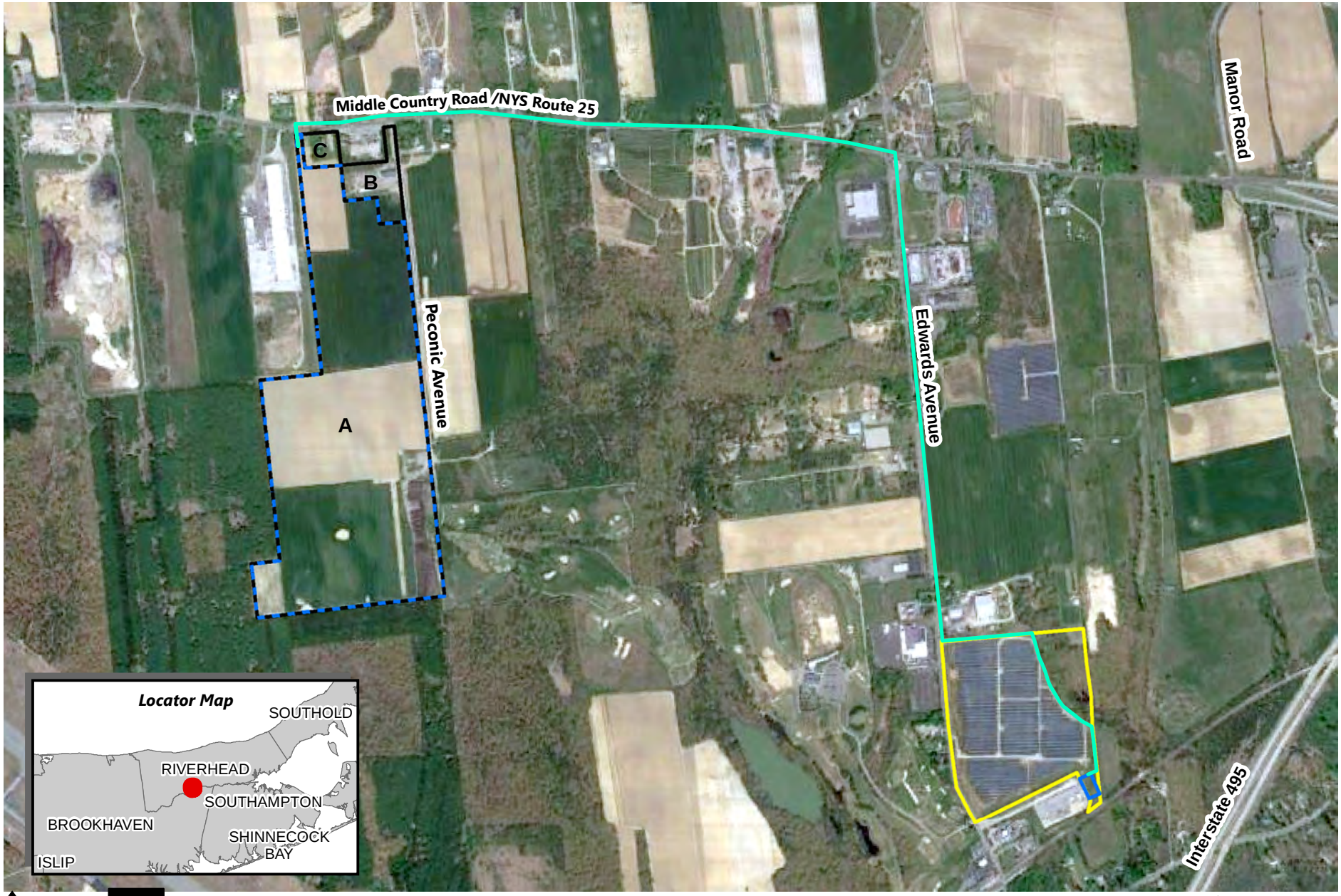
installed to contain and manage stormwater, whereas no such system would be installed under the No Action alternative.

It is important to note that the No-Action alternative does not meet the objectives of the applicant to develop the subject property with a solar PV energy facility as a renewable source of electricity. Additionally, New York State has set a goal for 50 percent of electricity generation to come from renewable resources by 2030. These goals, along with the Town's goal to limit dependence on imported fossil energy and to decrease greenhouse gas emissions, are outlined in Section 4.4 of this DEIS.

5.2 Alternative Gen-Tie Route

This alternative (the "Alternative Gen-Tie Route") would be identical to the proposed action in all aspects, with the exception that the gen-tie line would be routed within public rights-of-way (ROWs). The subdivision property would be divided to create Parcels A, B, and C, and Parcel A would be developed with a solar PV energy facility in the same manner as under the proposed action.

Under the proposed action, the gen-tie line would be routed underground. The gen-tie line would traverse from the eastern boundary of the subdivision property, eastward within an easement to Edwards Avenue, then southward within an easement along the east side of Edwards Avenue (on private property), until reaching the collection facility property. Instead, this alternative would establish a gen-tie route that continues east from the subdivision property frontage along Middle Country Road/NYS Route 25, and south along Edwards Avenue (see Figure 17), ultimately reaching the same utility substation as under the proposed action. Under this alternative, the gen-tie would consist of overhead utility cables suspended from poles along the south side of Middle Country Road/NYS Route 25, then along the east side of Edwards Avenue (to avoid potential conflicts with existing poles on the west side of Edwards Avenue). From the point at which this alternative route exits the proposed Parcel A at the subdivision parcel, to the point at which the route enters the existing sPower solar facility parcel on Edwards Avenue (i.e., lot 32.1), this route measures approximately 11,540 linear feet. By comparison, the equivalent measurement for the proposed action (i.e., underground gen-tie within the easement property) is approximately 6,265 feet. As such, this alternative route is nearly 85 percent longer than the proposed underground route.



Proposed sPower Solar Energy Facility | Calverton, NY

Alternative Interconnection Route

Source: Google Earth (May 2016)

Development of the Alternative Interconnection Route would result in nearly identical impacts as the proposed action with respect to ecology, land use and zoning (including agricultural land) due to the identical change in use from a sod farm and the development of a 20 MW_{AC} solar PV energy facility thereon. See Sections 3.2 through 3.5 for a detailed discussion of each of the above referenced impacts.

It is expected to be necessary to install the alternate gen-tie line on existing and new utility poles within the ROWs of Middle Country Road/NYS Route 25 and Edwards Avenue, due to the presence of existing subsurface utility infrastructure within these ROWs. Such above-ground installation of the gen-tie line would result in greater construction-related impacts and impacts to aesthetic resources and community character than the proposed action, as discussed below.

Installation of the alternate gen-tie line on utility poles on the north side of Middle Country Road/NYS Route 25 and on the east side of Edwards Avenue would result in temporary and/or partial traffic closures on these roadways and would require additional coordination with municipal agencies and utilities, to a significantly greater extent than is expected for the single crossing of Edwards Avenue under the proposed action using directional drilling. During installation of any new poles and above-ground lines along Middle Country Road/NYS Route 25, there would be greater traffic impacts on the well-travelled east-west Middle Country Road/NYS Route 25 and on Edwards Avenue, which is used by many trucks as a north-south connecting route. Based on the anticipated schedule for a six-to-eight-month construction period to begin in late 2017 or early 2018, the construction-related traffic impacts would potentially occur during the busier summer season, and, thus, this alternative could lead to traffic delays for necessary temporary road closures (although it is expected such closures would be managed to maintain vehicular traffic flow to the extent possible).

Construction staging and installation of poles and overhead wires would occur along the roadways. As with the proposed action, such activities would result in short-term, construction-related impacts to soil, noise and air quality. It is expected that such impacts could be minimized through the use of best management practices, and that the construction period would be brief.

As the alternate gen-tie line would be suspended from poles along the roadways, the above-ground line would be visible to travelers along area roadways and from many vantage points in the surrounding area. The impact would be incremental to any current effects of existing overhead utilities. However, the construction of a new series of poles with overhead wires on the east side, of such type that may differ from those already present on the west side of Edwards Avenue (depending on final design), would represent a visual impact. Therefore, impacts to aesthetic resources and community character under this alternative would be greater than under the proposed action, which would route the gen-tie underground on private property and result in almost no aesthetic or character impacts.

5.3 Alternative Locations other than Agricultural or Manufacturing-Industrial Land

In accordance with the Final Scope (see Appendix A), this section of the DEIS evaluates "[a]lternate locations (that would not entail use of agricultural or manufacturing-industrial lands in the Town of Riverhead)".

With respect to the consideration of alternative sites within an Environmental Impact Statement (EIS), the SEQRA regulations indicate the following at §617.9(b)(5)(v)(g):

> *"For private project sponsors, any alternative for which no discretionary approvals are needed may be described. Site alternatives may be limited to parcels owned by, or under option to, a private project sponsor"* (emphasis added)

Further guidance regarding the analysis of alternative sites within an EIS is provided within Chapter 5, Section C of the NYSDEC's publication, *The SEQR Handbook*, as follows:

24. Are there specific kinds of alternatives that should be considered?

This will depend on the nature of the proposed action. Paragraph 617.9(b)(5)(v) of the statewide SEQR regulations suggests that, in addition to the "no action" alternative, it may be appropriate in a draft EIS to consider alternative:

- *sites;*
- *technologies;*
- *scale or magnitude of action;*
- *project designs;*
- *timing or phasing of action;*
- *uses; and*
- *types of actions.*

25. When is an alternative "reasonable"?

What constitutes a "reasonable" alternative will depend on the nature of the proposed action, the nature and range of potential adverse impacts, the sponsor of the action, and the general nature or class of the possible alternative. For example, government sponsors have a greater obligation to consider alternative locations than do private sponsors; and not all technological alternatives will be relevant to all classes of proposed actions.

26. Under what circumstances should a discussion of alternative sites be included in the EIS?

Paragraph 617.9(b)(5)(v) ('g') specifically states that for private applicants, alternatives may be limited to sites which the sponsors own or have under a purchase option. For direct government actions, however, there is no parallel

limitation, because governments are presumed to have ability under eminent domain to acquire any appropriate site.

It is acknowledged that alternative sites may be evaluated within a DEIS, depending on the nature of the proposed action, and when such an alternative to the proposed action can be found to be reasonable. Within its responses to question nos. 25 and 26, *The SEQR Handbook* confirms and reiterates what the SEQRA regulations explicitly state, at §617.9(b)(5)(v)(g), which is that private project sponsors (such as sPower, in this case) are limited in the alternative sites that may be reasonably considered for the purposes of analysis within an EIS. Therefore, the range of reasonable alternative sites for locating the proposed solar PV energy facility encompasses only those properties that are owned by or under option to sPower. The SEQRA regulations do not support action by a lead agency seeking to compel a private applicant to broadly examine the potential development of a proposed action at alternative locations that are outside of the project sponsor's control.

Section 3.1.1 of this DEIS provides a detailed analysis of the Town of Riverhead's zoning regulations as they relate to solar energy facilities such as that proposed. Specifically discussed is Chapter 301, Article LII of the Town Code, entitled, "Commercial Solar Energy Production Systems." Under that ordinance, commercial solar energy production systems (such as that contemplated by the proposed action) are permitted only within certain of the Town's 36 zoning districts, namely the five districts listed below:

- Light Industrial (LI)
- Industrial A (Ind A)
- Industrial B (Ind B)
- Industrial C (Ind C), by Special Permit
- Planned Industrial Park (PIP).

Solar energy facilities are only permitted within the aforementioned zoning districts, which are variations of industrial zoning classifications. Hence, alternative sites, or sites located outside of manufacturing-industrial lands, are unavailable within the Town of Riverhead for solar energy facilities. Furthermore, much of this industrially-zoned land contains agricultural use, and the bulk of the non-agricultural acreage is not available for development. The expansive Enterprise Park at Calverton and large, stable uses such as the Splish Splash recreational facility are not available for solar generation development.

On the basis of the foregoing, there are no reasonable alternative sites that would not affect, manufacturing-industrial and/or agricultural land in the Town of Riverhead to a similar degree as the proposed action. Notwithstanding this conclusion, detailed analyses presented in Section 3.1.2 of this DEIS demonstrate that the proposed action would not significantly diminish the availability of manufacturing-industrial and/or agricultural land or significantly hinder the continuing viability of these uses in the Town of Riverhead.

5.4 Development in Accordance with the Industrial C Zoning District

This section examines an alternative "as-of-right" development as described in the Final Scope, whereby Parcel A would be developed with a light industrial use in accordance with the use, bulk and dimensional regulations of the prevailing Industrial C zoning district, as an alternative to the solar PV energy facility contemplated under the proposed action. The subdivision property would be subdivided to create three lots - i.e., Parcels A, B and C - in the same manner as under the proposed action, and the uses and improvements at Parcels B and C would remain as-is. The underground gen-tie within the easement property and the equipment installation within a small portion of the collection facility parcel would not be necessary under this alternative. Accordingly, this section evaluates the potential impacts of an as-of-right development of Parcel A, and contrasts the impacts of such development with the anticipated impacts of the proposed action as detailed throughout this DEIS.

As set forth at §301-121 of the Town Code, the purpose of the Industrial C zoning district is "to allow a mix of light industrial, warehouse development, and office campuses in the area between Enterprise Park and the terminus of the Long Island Expressway." The range of permitted uses includes offices, warehouses, greenhouses, wholesale businesses, indoor manufacturing, recreation facilities, and others. For the purposes of this analysis, it is assumed that the subject property would be developed with warehouse uses, which is intended to be representative of the district.

A conceptual development plan was prepared to facilitate an analysis of this alternative. As depicted in the *Alternative Industrial 'C' Concept Plan* [Sheet ACP-1] in Appendix C, the conceptual development includes the further subdivision of Parcel A to create ten conforming lots, and a 50-foot right-of-way (ROW) providing access from Middle Country Road/NYS Route 25 to all ten lots. Although the subdivision would slightly reduce the overall yield of the property (based on the maximum permitted floor area ratio [FAR] in the Industrial C zoning district, etc.), due to the loss of gross lot area in the ROW, this reduction is not critical to the conclusions of this analysis.

It is noted that the overall yield of the site is not only limited by the bulk and dimensional regulations of the Industrial C zoning district, but also the sanitary density limitations of Article 6 of the Suffolk County Sanitary Code. Accordingly, although the Industrial C district would theoretically permit up to 1,913,644± SF of industrial development (based on a maximum permitted FAR of 0.4), the maximum

development of general industrial use (e.g., warehouse) with conventional on-site sanitary systems in accordance with Article 6 would be approximately 823,710 SF.[40]

Specifically, the conceptual development plan contemplates the development of Parcel A with ten industrial lots, as summarized in Table 22, below:

[40] Based on a factor of 0.04 gallon per day (gpd) per square foot of General Industrial use (Suffolk County Department of Health Services *Standards for Approval of Plans and Construction for Sewage Disposal Systems for Other than Single Family Residences*, Table 1 [2009]) and a maximum permitted sanitary density of 300 gpd per acre within Groundwater Management Zone III.

Table 22 Summary of Bulk Dimensions for Industrial C Warehouse Alternative

Dimension	Lot 1	Lot 2	Lot 3	Lot 4	Lot 5	Lot 6	Lot 7	Lot 8	Lot 9	Lot 10	Total
Lot Area	491,441 SF (11.28 Ac)	455,659 SF (10.46 Ac)	454,893 SF (10.44 Ac)	454,508 SF (10.43 Ac)	454,508 SF (10.43 Ac)	454,508 SF (10.43 Ac)	457,907 SF (10.51 Ac)	451,011 SF (10.35 Ac)	445,200 SF (10.22 Ac)	447,303 SF (10.26 Ac)	**4,566,938 SF (104.8 Ac)***
Floor Area	84,600 SF	78,450 SF	78,300 SF	78,225 SF	78,225 SF	78,225 SF	78,825 SF	77,625 SF	76,650 SF	76,950 SF	**786,075 SF**
Impervious Lot Coverage	234,909 SF (5.39 Ac)	219,172 SF (5.03 Ac)	218,804 SF (5.02 Ac)	219,073 SF (5.03 Ac)	219,073 SF (5.03 Ac)	219,073 SF (5.03 Ac)	218,880 SF (5.02 Ac)	249,409 SF (5.72 Ac)	237,292 SF (5.45 Ac)	237,518 SF (5.45 Ac)	**2,273,203 SF (52.17 Ac)**
Building Height	30 feet	30 feet	30 feet	30 feet	30 feet	30 feet	30 feet	30 feet	30 feet	30 feet	**(n/a)**
Parking Spaces	13	12	12	12	12	12	12	12	12	12	**121 spaces**
Loading Spaces	6	6	6	6	6	6	6	6	6	6	**60 spaces**
Sanitary Waste Discharge	3,384 gpd	3,138 gpd	3,132 gpd	3,129 gpd	3,129 gpd	3,129 gpd	3,153 gpd	3,105 gpd	3,066 gpd	3,078 gpd	**31,443 gpd**

***Excludes 217,172 SF (4.99 Ac) of land within the 50-foot roadway right-of-way serving Lots 1 through 10.

With respect to some impact topics, this alternative would have similar environmental impacts to the proposed action, while this alternative would have significantly greater impacts with respect to various others (see additional discussion below). Specifically, this alternative would be expected to result in ground disturbance across nearly the entire Parcel A; generate other, temporary construction-related impacts (e.g., noise, air emissions, construction traffic); eliminate the established agricultural land use; and alter views of the subject property (as relevant to visual impacts or impacts to community character), all of which would be expected to occur to some degree under the proposed action. As there are no sensitive ecological resources on Parcel A, neither this alternative nor the proposed action would be expected to result in significant adverse impacts to such resources. However, while these impacts would be similar in nature, further analysis indicates that the respective potential impacts of this alternative would actually be greater than those associated with the proposed action, primarily due to the level of intensity of the construction (i.e., buildings and pavement, as opposed to pier foundations for the proposed solar panels), as further discussed below.

With respect to ground disturbance, this alternative would have the potential to result in substantial regrading and excavation, due to the establishment of large building foundations and level floor plates, installation of stormwater management infrastructure, and improvement of the common roadway, internal drives and parking and loading areas. Depending upon the site requirements for the specific future developments, these disturbances could also involve the importation or exportation of large quantities of fill or natural material. By contrast, only minimal regrading activities are contemplated under the proposed action, primarily to accommodate the proposed low-impact stormwater management system components. The proposed foundations for the solar PV energy facility are limited to piles for the frame supports, which have a minimal footprint as compared to the foundations for typical building construction. No large areas of pavement (e.g., roadways, driveways, or parking and loading areas) would be required for the proposed action, such that there would be no disturbance or regrading associated with same. The proposed action is designed to be compatible with, and maintain, to the extent practicable, the existing grades of the site, thereby minimizing the need for significant grade changes or the importation or exportation of large quantities of natural material. Overall, while the spatial limits of ground disturbance would be similar, this alternative would have a greater potential for impacts upon soils and topography as compared with the proposed action.

Other construction impacts would result from implementation of this alternative. As with any typical construction activity, there would be the potential to generate fugitive dust, air emissions and noise from construction equipment operations, and traffic impacts from equipment and materials deliveries and construction worker vehicles. The build-out of an industrial subdivision under this alternative is likely to occur over a greater period of time, as compared to the concentrated six-to-eight-month construction period expected for the proposed action. Despite that an approved SWPPP and Erosion and Sediment Control (ESC) plan would likely be in effect, the longer potential duration of construction would increase the potential for

adverse impacts under this alternative. Moreover, the more complex and larger scale of development that would occur under this alternative would yield a greater number of materials deliveries and a greater number of contractors may be working at the site at any one time, accompanied by similar intensification of construction activities, which would be less easily organized or controlled than under the proposed action.

The initial land use impacts of this alternative would be similar to those of the proposed action, in that the established agricultural use would be discontinued under both scenarios. However, the land use contemplated under this alternative (i.e., an industrial subdivision) would have an indefinite, more permanent lifetime. In contrast, the proposed solar PV energy facility. The proposed action would have a finite term of 20 years, after which the site could be re-purposed for another beneficial use (such as its original use). Accordingly, the land use impacts of the proposed action are less significant than those that would result from implementation of this alternative.

Regarding visual impacts and the potential effects upon community character, it is noted that this alternative, like the proposed action, would modify views of the site and its visual character. However, whereas the solar PV energy facility improvements would be relatively low to the ground, and obscured from view by perimeter plantings, this alternative would result in the construction of a series of industrial uses, with each building reaching up to 30 feet in height (i.e., the maximum permitted in the prevailing Industrial C zoning district). This alternative would result in substantially greater adverse visual impacts compared to the proposed action. It should also be noted that neither this alternative, nor the proposed action, are expected to result in adverse glare impacts upon surrounding properties, including the EPCAL property. Further, this alternative would have a longer-lasting effect on visual resources, as the industrial buildings would have an indefinite life span, as compared to the 20-year life span for the proposed solar facility.

As indicated above, neither this alternative nor the proposed action is expected to result in significant adverse environmental impacts upon ecological resources, as sensitive resources are not present on or near the subject property under existing conditions. However, the proposed action would create a form of habitat under and between the solar panel arrays (see discussion in Section 3.3.2 of this DEIS, and the *Planting Plan* [Sheet L-1] in Appendix B), which would have some ecological value. By contrast, implementation of this alternative would dedicate a large portion of the overall Parcel A property to building footprints, parking areas, and other impervious surfaces – an estimated 52.17± acres, as depicted on the *Alternative Industrial 'C' Concept Plan* [Sheet ACL-1] in Appendix B. The balance of the property is likely to be established in lawns and landscaping, as compared with the native grasses and plantings that would be established under the proposed action.

The above illustrates that this alternative would have some environmental impacts that are similar in nature to those expected under the proposed action, but that the magnitude and significance of those potential impacts are greater for this alternative. In nearly all other aspects of the environment, this alternative would

result in additional potential adverse impacts that are not expected under the proposed action. These impact topics are further analyzed below, and include:

- Traffic
- Air quality
- Noise
- Water resources (including groundwater and stormwater)
- Solid waste
- Energy

With respect to potential traffic impacts, an industrial subdivision of this size would have the potential to generate substantial volumes of vehicular trips in-and-out of the subject property and on area roadways during peak hours of activity. While the number of vehicular trips could vary significantly from one use permitted in the Industrial C zoning district, to another, an analysis of typical uses is provided herein to provide a reasonable characterization of the potential traffic impacts of this alternative.

Based on published trip generation rates within the Institute for Transportation Engineers' *Trip Generation Manual*, 9th Edition (2012), the number of vehicular trips generated by this alternative during relevant peak traffic hours are estimated and provided below. Note that multiple trip generation rates are included for the types of uses that could be expected, in order to provide a range of results under the general category of "industrial" uses.

Table 23 Trip Generation Estimates for Industrial Subdivision Alternative

Land Use Code	Size	AM Peak		PM Peak		Saturday Midday	
		Rate*	Trips	Rate*	Trips	Rate*	Trips
Warehouse (150)	786,075 SF	0.30	236±	0.32	252±	0.13	102±
Light Industrial (110)	786,075 SF	0.92	**723±**	0.97	**762±**	0.14	110±
Industrial Park (130)	786,075 SF	0.82	645±	0.85	668±	0.35	**275±**

*Rates expressed in trips per 1,000 SF of floor area.

The range of vehicular trip generation rates shown above indicates that this alternative has the potential to generate a minimum of 230 trips entering and exiting the subject property at Middle Country Road/NYS Route 25, to as many as 762± new trips in the critical weekday PM peak hour. This additional volume on a busy roadway has the potential to cause significant traffic impacts at the site access on Middle Country Road/NYS Route 25; and also and has the potential to exacerbate conditions at the nearby intersection of NYS Route 25 and Edwards Avenue, for example, which is highly congested and is operating over capacity during peak periods under existing conditions. Furthermore, it is expected that a large fraction of the trip generation under this alternative would comprise heavy trucks, which cause increased impacts to traffic operations as compared to passenger vehicles. The proposed action would generate virtually no vehicular

traffic, except as related to occasional maintenance or security activities, such that this alternative would cause substantially greater adverse traffic impacts.

This alternative would also have the potential to result in adverse impacts to air quality. The development of the subject property with an industrial subdivision would be expected to include the establishment of various stationary sources of air emissions, such as large boilers combusting fossil fuels to generate heat and hot water. While this alternative assumes a typical warehouse use for the general purposes of analysis, it is noted that the prevailing Industrial C zoning district also allows indoor manufacturing as a principal use, such that one or more of the industrial uses could also involve the operation of heavy machinery, with the potential for generating additional emissions. Electricity usage for the various uses would also generate air emissions, indirectly, if traditional fossil fuel-burning power plants are used to generate the electricity off-site. Additionally, vehicular trips generated by the industrial uses (i.e., employees, trucks and delivery vehicles, etc.) would represent mobile emission sources related to this alternative, and any significant traffic delays caused at area intersections by additional vehicular activity would lead to increased vehicle idling, and air quality impacts associated therewith, including increased diesel emissions from heavy trucks. By contrast, the proposed action would not establish any new sources of air emissions, and would not represent a significant demand for electricity. On the contrary, the proposed 20 MW_{AC} solar PV energy facility would reduce air emissions generated by traditional fossil fuel burning power plants in the area, by helping to meet the community's demand for electricity with a clean, renewable energy source.

Similar to air quality, this alternative would also have the potential to result in adverse noise impacts. Although it is assumed that any development of the subject property in accordance with this alternative would comply with the relevant Town noise restrictions, noise associated with HVAC equipment, vehicular traffic (including heavy trucks), and other activity related to this alternative would alter the noise environment at the subject property, and would have the potential to impact adjacent properties. The proposed action would not establish any significant sources of noise, and there would be virtually no vehicular or truck traffic associated with this passive facility. Accordingly, this alternative would have greater potential noise impacts than the proposed action.

With respect to water resources, this alternative would be expected to create a substantial demand for potable water, and would generate a substantial quantity of sanitary waste to be discharged to on-site sanitary systems (as the subject property is not located within an existing sewer district). Based on a factor of 0.04 gpd per square foot of floor area, the theoretical development described herein would be expected to utilize 31,443 gallons of potable water per day for domestic purposes, and generate an equivalent quantity of sanitary waste. Irrigation demand for lawns and landscaped areas would be additional to the domestic quantity of water use. Further, although this analysis assumes a warehouse use, the prevailing Industrial C zoning district allows indoor manufacturing as a permitted principal use, which could involve additional water demand and discharges associated with industrial

processes. In contrast, with the exception of limited irrigation (to support perimeter screen plantings), the proposed action would utilize very little potable water, would not involve industrial process water, and would not result in any sanitary waste for discharge to on-site sanitary systems or the potential groundwater impacts associated therewith.

The industrial subdivision evaluated herein (see *Alternative Industrial 'C' Concept Plan* [Sheet ACP-1] in Appendix C) anticipates the establishment of 2,273,203 SF of impervious surfaces at the subject property, among buildings, paved parking and driveway areas, etc. A substantially greater area could be permitted in the prevailing Industrial C zoning district, which allows up to 60 percent impervious lot coverage (i.e., up to 2,870,466 SF) at the overall subject property. The significant increase in impervious surface area under this alternative would result in the generation of large quantities of stormwater runoff across the site, with the potential to result in associated adverse impacts, such as erosion, sedimentation or localized flooding. It is expected that a stormwater management system(s) would be required to accommodate such runoff as part of formal development plans for industrial use of the subject property. However, traditional stormwater management systems may involve extensive grading and excavation to accommodate large volumes of stormwater, resulting in related soil and topography impacts. Additionally, stormwater runoff at the subject property would have the potential for transporting any fertilizers and pesticides that may be utilized as part of routine landscape maintenance at the industrial subdivision development. None of these considerations apply to the proposed action, which includes a low impact stormwater management system, very limited impervious surface area,[41] and no substantial areas of fertilizer-dependent vegetation.

From the perspective of solid waste management, this alternative would have a substantially greater potential for impacts than would the proposed action. The proposed passive solar PV energy facility would generate virtually no solid waste during operations. Under this alternative, based on a factor of two pounds per day per 100 square foot of warehouse floor area[42], the 786,075 SF of industrial uses would be expected to generate approximately 15,721.5 pounds per day of solid waste, or approximately 240 tons of solid waste per month.

This industrial subdivision alternative would create a demand for energy, to power the buildings, site lighting, potential indoor manufacturing processes, and provide heating and hot water and other domestic functions. The actual level of energy usage would rely heavily upon the specific industrial uses that would occupy the subdivision (manufacturing, warehouse, etc.) and the specific design of the building and its systems, and would likely vary over time, such that it is not practical or constructive to provide an estimate of usage. While this alternative would not necessarily contravene any state or local energy plan or policy, it would represent a

[41] The area beneath the proposed solar panel array, totaling 34.85± Ac (i.e., approximately 31.7 percent of Parcel A) would not function as typical impervious surface area, as the ground beneath the solar panels would allow stormwater runoff from adjacent areas to infiltrate the soil and recharge groundwater.

[42] Salvato, Joseph A., et al. *Environmental Engineering*, Fifth Edition. 2003.

potentially substantial energy demand, and would not advance the Town of Riverhead's stated energy-related goals to:

> *"…limit dependence on imported fossil energy and decrease greenhouse gas emissions, to permit commercial solar energy production systems in the industrial zoning use districts to minimize impacts to residents and scenic viewsheds important to the community."* [Town Code §301-281.A]

By contrast, the proposed action would not represent a demand for energy, but instead would provide a significant energy benefit, as 20 MW_{AC} of clean, renewable energy generation would be added to the local utility grid in a manner that furthers the Town's goals and substantially complies with its various related design standards.

With respect to socioeconomic impacts, this alternative would generate construction-phase employment to a similar or greater extent as the proposed action, as well as permanent jobs during operation (as compared to the single permanent job that would be supported by the proposed action). Based on a relevant factor from the Regional Plan Association publication, *Logistics Trends and Specific Industries that Will Drive Warehouse and Distribution Growth and Demand for Space* (2010), typical warehouse and storage uses can be expected to accommodate approximately one worker per 2,000 square feet of building area (page 11). Applied to the 786,075 SF of building floor area expected under this alternative, approximately 393 permanent jobs may be generated by the full build-out of the industrial subdivision. As with any benefits of this alternative, they are theoretical, as no application exists for the development of the subject property as described in this section.

A projection of potential property tax revenues generated by full build-out of the industrial subdivision under this alternative is presented below (see Table 24). This estimate is based upon the property value and value of improvements for the existing industrial use on the property adjacent to and west of Parcel A, i.e., SCTM parcel no. 0600 – 116.00 – 01.00 – 007.004 (hereinafter, "Lot 7.4").

Table 24 Projected Tax Revenues (Alternative Industrial Use)

Alternative Site Development – Industrial Subdivision			
	Taxable Value	Tax Rate per $1,000	Tax Amount
County General Fund	$ 6,178,414	1.411	$ 8,717.74
NYS Real Property Tax Law	$ 6,178,414	0.526	$ 3,249.85
NYS MTA Tax	$ 6,178,414	0.048	$ 296.56
Out of County Tuition	$ 6,178,414	0.174	$ 1,075.04
Riverhead Town Tax	$ 6,178,414	43.157	$ 266,641.81
Town Highway 1,2,3,4	$ 6,178,414	8.483	$ 52,411.49
Riverhead CSD #2	$ 6,178,414	106.607	$ 658,662.18
Riverhead Free Library	$ 6,178,414	3.861	$ 23,854.86
Baiting Hollow Free Library	$ 6,178,414	0.014	$ 86.50
Riverhead Ambulance District (AM001)	$ 6,178,414	1.945	$ 12,017.02
Riverhead Fire Zone 1 (FD302)	$ 6,178,414	7.438	$ 45,955.04
Lighting District (LT301)	$ 6,178,414	1.305	$ 8,062.83
Water Ext. 37 (RWD343)	$ 6,178,414	1.036	$ 133.16
		Total Property Taxes	**$ 1,094,225.02**

As indicated in Table 24, above, development of Parcel A under this alternative could generate approximately $1.1 million in property taxes, based on the assumptions described herein. This is approximately $260,000 more than would be expected in property taxes and PILOT payments from the development of a solar PV energy facility under the proposed action. It is important to note that the projection of property taxes generated by this industrial subdivision alternative does not account for any possible exemptions or PILOT agreements. Moreover, this alternative is a theoretical potential development of the subject property in accordance with prevailing zoning. There is no proposal for such development, which differentiates this alternative from the proposed action in a significant way, and no assurance that the Town would approve a development proposal of this scope and magnitude.

Overall, based on the analyses performed herein, the theoretical as-of-right development of the subject property (i.e., Parcel A) with an industrial subdivision would result in greater adverse environmental impacts than the proposed action in virtually every aspect, including, but not necessarily limited to, impacts to land use and agricultural resources, soils and topography, ecology, traffic, air quality, noise, water resources, solid waste, and energy. In some cases, this alternative would have the potential to result in substantially greater impacts (e.g., sanitary waste discharge, traffic, air quality) than the proposed action. Additionally, this alternative would not preclude or minimize any potential adverse environmental impacts of the proposed action identified in this DEIS. It is noted that this alternative would not meet the objective of the project sponsor, to establish a 20 MW_{AC} solar PV energy facility as a source of clean, renewable energy at the subject property. Similarly, this alternative would not meet the State of New York's goal to reduce greenhouse gas emissions by 50 percent, or the Town's goal to limit dependence on imported fossil fuels and decrease greenhouse gas emissions as evaluated in Section 4.4 of this DEIS.

5.5 Other Alternative Site Considerations

The Final Scope identifies the following, fifth alternative for consideration in the DEIS:

> *Evaluation of other sites in Suffolk County with similar parcel size and regulatory/permit issues which would permit similar facilities such that available agricultural or manufacturing-industrial lands within Riverhead Town not be depleted for regional benefit without the local benefit of jobs and continued viability of farming within the town. Assess the proportional amount of solar acreage expected in Riverhead compared to Brookhaven, Southold, Southampton, and East Hampton? Price of land should not be used as a factor. Examine and compare the actual solar efficiency compared to the acreage. Example: the efficiency in the northeast compared to Arizona and South California is vastly different. Quantify the solar acres needed to power each home in the NE using the actual efficiency.*

Evaluation of Other Sites in Suffolk County

The SEQRA regulations, at §617.9(b)(5)(v), specify that the alternatives discussion in a DEIS should include:

> *a description and evaluation of the range of reasonable alternatives to the action that are feasible, considering the objectives and capabilities of the project sponsor… For private project sponsors, any alternative for which no discretionary approvals are needed may be described. Site alternatives may be limited to parcels owned by, or under option to, a private project sponsor.*

As set forth above, the intent of SEQRA regarding the evaluation of alternative sites for a DEIS for a private development application is very narrow, and does not contemplate the type of wide-ranging, almost open-ended scenario outlined in the foregoing item in the Final Scope. Suffolk County is the second largest County by area in New York State, encompassing more than 900 square miles. Suffolk County contains ten towns and 33 Villages. These 43 municipalities exhibit a wide range of development patterns and community character; they also have their own, independent, varied zoning ordinances which dictate unique land use requirements within their respective boundaries. These ordinances include, in some cases, as discussed in Section 3.6 of this DEIS, provisions governing the siting of solar energy facilities or, in other cases, no such specific regulations. Based on these considerations, it is not reasonable for this DEIS, which has been prepared for a specific development proposal at a specific location in conformance with the prevailing zoning requirements, to be compelled to perform what is essentially a regional planning analysis.

Furthermore, even if the applicant were to undertake the requested extensive County-wide analysis, the information rendered by such a study would not be relevant to the ultimate decision as to whether the proposed solar PV energy facility meets the Town of Riverhead's standards for approval which, it is respectfully

submitted, this DEIS demonstrates to be the case. Such an analysis also would not be relevant to SEQRA decision-making which, pursuant to §617.11(d)(5), requires the Town of Riverhead Planning Board and other involved agencies to issue findings which either do or do not:

> *certify that consistent with social, economic and other essential considerations from among the reasonable alternatives available, the action is one that avoids or minimizes adverse environmental impacts to the maximum extent practicable, and that adverse environmental impacts will be avoided or minimized to the maximum extent practicable by incorporating as conditions to the decision those mitigative measures that were identified as practicable.*

Although, as discussed above, the requested County-wide analysis is not suitable for inclusion in a project-specific DEIS, it is important to point out that this DEIS does provide this type of analysis on a Town-wide basis, as specified in the Final Scope and included in Sections 4.1 and 5.3 of this DEIS.

Solar Efficiency

As described in Section 4.4 of this DEIS, and as specified in the Final Scope, estimates are provided below regarding the quantity of electricity expected to be generated by the proposed solar PV energy facility and the number of homes to be served.

A site- and project-specific analysis was performed using the PVsyst Photovoltaic Software model, which is a widely used and recognized industry planning tool that accounts for a range of pertinent variables, including monthly albedo values (i.e., the solar radiance that reaches the earth's surface) at the subject property, project-specific PV array and system generation and loss factors, and loss factors during conversion at the step-up facility (see model results in Appendix I). The output from this modeling analysis estimates that the proposed sPower Calverton solar facility would result in an annual supply of 37,648 MWh to the LIPA power grid for use by PSEG Long Island's customers. According to the latest available data (2009) from the U.S. EIA, the average household in New York State consumes 6,578 kWh, annually.[43] Therefore, based on these factors, the proposed action would be expected to generate sufficient electricity to power approximately 5,723 homes, which is equivalent to more than 44 percent of the total number of homes in the Town of Riverhead. These location-specific data and modeling results indicate that sufficient electricity to power 5,723 homes can be generated at the 109.9±-acre Parcel A, or an average of approximately 52 homes per acre of land.

As indicated above, one of the key factors in determining the electrical generation capacity of a given configuration of a solar PV energy facility is the albedo, or reflection coefficient that is the reflectivity or reflecting power of a surface. The albedo is dependent on factors related to geographic location, such as latitude,

[43] United States Energy Information Administration, *Table CE4.7* from *2009 Residential Energy Consumption Survey (RECS)* (accessed May 2017); available at http://www.eia.gov/consumption/residential/data/2009/index.cfm?view=consumption.

percent occurrence of sunlight, days, and clear skies per year. For this reason, a solar facility in a desert area in the southwestern part of the United States (e.g., Arizona and southern California) can typically generate electricity at a higher rate than the same facility located elsewhere in the country. However, this does not override the benefits of solar power in other areas of the country, since significant, emissions-free energy is still produced. Furthermore, advancing the widely supported goal of increasing the output of renewable energy on Long Island and in New York State requires on the siting of local facilities, since there is a steady loss of power as the distance over which electricity is transmitted increases (which is another factor in the PVsyst Photovoltaic Software model discussed above).

Other Considerations

The discussion in the Final Scope regarding Alternative E indicates an objective "such that available agricultural or manufacturing-industrial lands within Riverhead Town not be depleted for regional benefit without the local benefit of jobs and continued viability of farming within the town." Although maintaining its agricultural base and associated heritage is an important and long-standing planning goal for the Town of Riverhead, the analyses presented in Sections 3.6 and 4.1 of this DEIS demonstrate that the proposed action would not cause a significant depletion of this resource or otherwise significantly impact the viability of farming in the Town, nor would it result in a noticeable effect on manufacturing-industrial activities in the Town.

While it is acknowledged that the proposed action would result in only a minor increase in the employment base (i.e., one new long-term job, associated with the maintenance of the project systems and equipment), it is also important to recognize that there would be a significant short-term boost in employment (estimated at 100-200 jobs) during construction, over a period of approximately six to eight months. Additionally, job creation is not the only factor that is relevant to decision-making on the proposed action, or any other proposed development for that matter. The installation of additional solar energy capacity would advance other important, widely accepted goals by increasing the use of renewable energy and reducing dependence on emission-generating fossil fuels. Moreover, the project would have a limited operating life, such that the subject property would become available for reuse after 20 years.

6

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TOWN OF RIVERHEAD
PLANNING BOARD
201 HOWELL AVENUE, RIVERHEAD, NEW YORK 11901-2596
(631) 727-3200, EXT. 240, FAX (631) 727-9101

Stanley Carey, Chairman — *Joseph Baier, Member* — *Richard O' Dea, Member*
Ed Densieski, Vice-Chair/Secretary — *George Nunnaro, Member*

April 6, 2017

Chris Kent, Esq.
Farrell Fritz, P.C.
100 Motor Parkway, Suite 138
Hauppauge, NY 11788

Adopts Final Scope for Preparation of a DEIS pursuant to SEQRA for Minor Subdivision, Site Plan, and Special Permit of Green Meadow, LLC and sPower Solar Power Generating Facility, Step-up Facility, and Subsurface Transmission Power Line
4153 Middle Country Road, Calverton, NY
SCTM Nos. 600-116-1-7.2 & 600-98-1-21.1
Resolution 2017-030

The following resolution was duly adopted by the Town of Riverhead Planning Board at a meeting held on April 6, 2017;

WHEREAS, the Riverhead Planning Board is in receipt of an application from sPower, with offices at 2180 South 1300 East, Salt Lake City, Utah, for a minor subdivision of land, application for site plan and routing plan, and Special Permit for the construction of a 20 megawatt solar photovoltaic energy production facility proposed on the west side of Peconic Avenue, south of Middle Country Road, Calverton, NY, described as SCTM# 600-116-1-7.2 and SCTM # 600-98-1-21.1 located within the Industrial C (IC) zoning use district; and

WHEREAS, the site plan proposes an underground electrical transmission line (gen-tie line) which runs from the solar collection facility in an easterly direction in a 15 ft. easement across parcels identified as SCTM Nos. 600-116-2-7.4, 600-117-1-6, crosses underneath Edwards Avenue, and then continues in a southerly direction in a 15 ft. easement across parcels identified as SCTM Nos. 600-117-2-7.2, 600-117-2-8.2 and 600-137-1-32.1, and terminates at a proposed electrical voltage step-up facility located on an existing solar photovoltaic energy production facility; and

WHEREAS, the proposed subdivision of land will results in three (3) parcels identified by the applicant as parcel A ±109.9 acres; Lot B ±5.8 acres and Lot C ±2.35 acres; and

WHEREAS, the construction of the gen-tie line will involve land disturbance of approximately 18,000 sq. ft.; and

WHEREAS, the subdivided parcel on which the solar collection facility will be located is ±109.9 acres in size and is located in the Industrial C (IC) zoning use district; and

WHEREAS, the application, was accompanied by a completed SEQRA FEAF Part 1 dated April 18, 2016 with a narrative describing the proposed subdivision and land use, prepared by VHB Engineering, Surveying and Landscape Architecture, P. C. (VHB); and

WHEREAS, the Planning Board has reviewed and analyzed the subdivision, site plan, routing plan, SEQRA FEAF Part 1 with narrative; and

WHEREAS, the Planning Department completed the SEQRA Full Environmental Assessment Form Part 2 dated July 7, 2016 and issued a SEQRA report dated July 13, 2016 recommending the proposed action be classified a Type I Action pursuant to 6NYCRR Part 617.4 (b) (6) (i) mandating coordinated SEQRA review with involved agencies; and

WHEREAS, the Riverhead Planning Board declared the subdivision, site plan and Special Permit petitions of sPower to be a Type I action pursuant to 6NYCRR Part 617.4(b)(6)(i) and further directed the Planning Department to circulate a request for the Town Board to be the Lead Agency in the project's SEQRA review by Resolution No. PB 2016-0115 dated November 3, 2016; and

WHEREAS, the Planning Board assumed Lead Agency status for the purpose of SEQRA coordinated review with involved agencies; and

WHEREAS, the Planning Board, by resolution No. 2017-10, dated February 2, 2017, issued a Positive Declaration pursuant to SEQRA for the minor subdivision, site plan and special permit of Green Meadow, LLC and sPower solar power generating facility, step-up facility, and subsurface transmission power line; and

WHEREAS, the applicant submitted a Draft Scope entitled Draft Environmental Impact Statement for Proposed sPower Solar Power Generating Facility on February 16, 2017; and

WHEREAS, the Planning Board held a public scoping session at its meeting on the evening of March 16, 2017 to receive public input on the contents of the Draft Environmental Impact Statement; and

WHEREAS, a letter was circulated to involved agencies allowing for submission of any additional input or comments in writing regarding the contents of the Draft Environmental Impact Statement; and

WHEREAS, all comments that have been received have been reviewed, analyzed, and assembled into a final draft scope.

NOW, THEREFORE BE IT RESOLVED, that the Planning Board of the Town of River head hereby finds the contents of the Final Scope attached herewith to be in an acceptable form to prepare a Draft Environmental Impact Statement on; and be it further

RESOLVED, that the Town Clerk is hereby authorized to forward a certified copy of this resolution to the Planning Department, the ENB and to the applicant or his agent; and be it further

RESOLVED, that all Town Hall Departments may review and obtain a copy of this resolution from the electronic storage device and if needed, a certified copy of same may be obtained from the Office of the Town Clerk.

A motion was made by Mr. Densieski and seconded by Mr. Baier that the aforementioned resolution be approved:

THE VOTE

BAIER _X_ YES ___ NO O'DEA _X_ YES ___ NO

NUNNARO _X_ YES ___ NO DENSIESKI _X_ YES ___ NO

CAREY _X_ YES ___ NO

THIS RESOLUTION _X_ WAS ___ WAS NOT THEREFORE DULY ADOPTED

Very truly yours,

Stanley Carey, Chairman
Riverhead Planning Board

CC: Building Department
Town Clerk
Richard Ehlers, Attorney to the Planning Board

sPower c/o John Moran
2180 South 1300 East Suite 600
Salt lake City, UT 84106
Green Meadows, LLC
444 Elwood Road
East Northport, NY 11731

VHB Engineering Surveying & Landscape Architecture c/o Courtney Riley

100 Motor Parkway
Hauppauge, NY 11788

SCOPE

DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR
PROPOSED sPOWER SOLAR POWER-GENERATING FACILITY

4153 MIDDLE COUNTRY ROAD, CALVERTON
TOWN OF RIVERHEAD, SUFFOLK COUNTY, NEW YORK

Lead Agency:
Town of Riverhead Planning Board
201 Howell Avenue
Riverhead, NY 11901
631-727-3200
March 23, 2017

I.Overview

This document is the Final Scope for the Draft Environmental Impact Statement (DEIS) for a proposed action which involves multiple components for a solar power-generating facility (the "sPower Calverton Solar Facility") on property totaling 165± acres; this includes a minor subdivision, special permit and site plan approval for a solar panel array facility on a 110±-acre parcel located at 4153 Middle Country Road in the hamlet of Calverton, Town of Riverhead.

To ensure that the DEIS will address all significant issues, the Town of Riverhead Planning Board, as lead agency, has issued a Positive Declaration, as set forth in correspondence dated February 2, 2017, and conducted a formal scoping session on March 16, 2017 pursuant to 6 NYCRR §617.8 of the implementing regulations of the New York State Environmental Quality Review Act (SEQRA). This Scope provides a description of the proposed action and the Applicant's proposed content for the DEIS. This Scope has been prepared in accordance with 6 NYCRR §617.8(b), and sets forth the following:

- Brief description of the proposed action
- Potentially significant adverse impacts, as identified in the Positive Declaration
- Extent and quality of information needed to adequately address potentially significant adverse impacts
- Initial identification of mitigation measures
- Reasonable alternatives to be considered

II. Site Location

The proposed development is located on the west side of Peconic Avenue and south of Middle Country Road, Calverton, NY identified as SCTM #'s 0600-116-01.00-007.002 and SCTM # 0600-98-01.00-021.001.

III. Brief Description of the Proposed Action

The proposed action involves the subdivision of land, site plan, and requested easements within public and private real property for the development of a solar power-generating facility, including a 20-megawatt alternating current (MW_{AC}) solar photovoltaic (PV) panel array facility and 8,670±-linear foot (LF) underground transmission generation tie-in ("gen-tie") line within a 15±-foot-wide easement connecting the solar panel array facility to a proposed solar collection facility.

The applicant seeks approval for a three (3) lot subdivision to accommodate construction of a 20 megawatt solar voltaic energy facility located on the west side of Peconic Avenue and south of Middle Country Road, Calverton, NY. The subject site is comprised of approximately 125 acres. The dominant land use is currently agriculture (sod production), with additional uses identified as warehouse, industrial equipment and one (1) single family residential dwelling. The subject site is located in the Industrial C (IC) zoning use district. The proposed subdivision of land will results in three (3) parcels identified by the applicant as parcel A (+/-) 109 acres; Lot B (+/-) 5.8 acres and Lot C (+/-)2.35 acres. The proposed Lot A is currently in sod farming and soil amendment production, proposed Lot B is currently where the warehouse and industrial equipment are located and proposed Lot C includes the existing residential dwelling.

The proposed sPower Calverton Solar Facility consists of three components.

1. A solar panel array facility, to be located on "Lot A", comprising a 110±-acre parcel to be subdivided from the 117±-acre property identified on the Suffolk County Tax Map (SCTM) as District 600 - Section 98 - Block 1 - Lot 021.1 (600-98-1-21.1) and 600-116-1-7.2 (collectively, the "subdivision property"), which property is located on the west side of Peconic Avenue and south of Middle Country Road/New York State (NYS) Route 25.

2. A 15±-foot easement which would contain the underground gen-tie line running through SCTM Nos. 600-116-2-7.4, 600-117-1-6, and 600-117-2-7.2 & 8.2 (the "easement property") and would run in an easterly direction underneath the Edwards Avenue right-of-way, owned by the Town of Riverhead. The Applicant has secured easements from each of the current owners of the properties, except from the Town of Riverhead along the gen-tie route to permit trenching of the interconnection.

3. The gen-tie line will connect to a solar collection facility, which is a step-up transformer that generates the electricity from a 34.5-kV to 138-kV output linked to the Edwards Avenue Long Island Power Authority (LIPA) Substation. The solar collection facility would be located on the southern portion of SCTM No. 600-137-1-32.1, on the east side of Edwards Avenue and north of the Long Island Railroad (LIRR) tracks. This parcel is developed with an existing sPower solar PV panel array facility (the "collection facility parcel").

Collectively, the three above-described areas comprise the proposed project site, which is a total of 165± acres, and currently is developed with sod farm operations, a single-family residence, a former golf course now occupied by another recreational use (i.e., a paintball facility), undeveloped wooded land, a tree farm, and an existing solar facility.

The sPower Calverton Solar Facility has been awarded a 20-year Power Purchase Agreement (PPA) under the LIPA's 280-MW Renewable Request for Proposals (RFP). Upon completion, the 20 MW_{AC} sPower Calverton Solar Facility will be interconnected to the LIPA power grid supplying electricity to the system for use by PSEG Long Island's customers pursuant to the 20-year PPA.

The "Description of the Proposed Action" section of the DEIS will discuss the proposed action in greater detail and will also include, but not be limited to:

(1) Detailed site data
(2) Project purpose, needs and benefits
(3) Required permits and approvals
(4) Anticipated construction period and phasing
(5) Best Available Technologies (BAT) for constructing the proposed actions' above ground surface (AGS) and below ground surface (BGS) infrastructure.
(6) List and brief description of federal, NY State and local laws, codes, rules and regulations governing the proposed action's mandatory safe operation, its maintenance and a demonstration of compliance associated with electrical/public/private utilities.
(7) The DEIS review of analysis of required permits/approvals will include a review of regulatory agency requirements for operating a private utility in the Edwards Avenue public right-of-way, as specified in the Positive Declaration.

IV. Potentially Significant Adverse Impacts

The Positive Declaration identifies the general potential adverse impact issues regarding the proposed action. The Positive Declaration requires that potential for impact be assessed in the DEIS:

- Efficiency of passive solar use as an alternative energy source as balanced against the loss of scarce agricultural or manufacturing-industrial property in the greater Calverton area.
- Impacts relating to the routing of the gen-tie through private property and areas not within the public right-of-way, including topographic and environmental features along the proposed route.
- Potential for proposed action to lead to additional applications for the conversion of large tracts of agricultural or manufacturing-industrial land to passive solar uses.
- Potential for cumulative loss of agricultural or manufacturing-industrial property without job creation.
- Potential for visual impact on the local view shed and aviation use at EPCAL due to reflectivity (glare).
- Potential to impact existing and future expansion of roadway(s), utilities and infrastructure within the proposed gen-tie route.
- Potential impacts to land use and zoning.

V. Impacts & Issues Identified in the Positive Declaration

A. Potential Land Use and Zoning Impacts

This section of the DEIS will describe the existing land use and zoning of the subject property, as well as the surrounding area. The requirements and standards of the Industrial A and Industrial C zoning districts in which the site is located will be evaluated, as will the standards for the issuance of a special use permit for the proposed facility.

The DEIS will also analyze the agricultural and manufacturing-industrial land use setting in the Town of Riverhead as a whole, as well as in the greater Calverton area. Historic and recent trends in the development and use of these lands will be researched and described. The proposed action will be evaluated in the context of these trends, with particular focus on the temporary (20-year) time frame and reversibility of the proposed action at the end of that time frame, in contrast to land uses entailing the construction of buildings and similar permanent structures.

Additionally, the DEIS will describe existing land uses on private property along the gen-tie route, and the effect that construction of the gen-tie component of the proposed action would have on the potential future development of said property. Alternative routes proposed for the gen-tie line will be evaluated for construction impacts and potential for impacts to land uses.

B. Potential Impacts to Topography and Environmental Features

As indicated above, the Positive Declaration indicates concern regarding the routing of the gen-tie component of the proposed action through private property and not in the public right-of-way, and specifically points to the potential for impacts to topographic and environmental features along the proposed route. The DEIS will address both of these environmental parameters, as follows:

1. Soils and Topography – The *Soil Survey of Suffolk County* will be used to determine the general soil types along the proposed gen-tie route, and the characteristics of such soils. The suitability of the soils (stability, quality, etc.) and potential engineering limitations for the proposed installation will also be examined.
   The existing topography along the proposed gen-tie route will be evaluated through *USGS Topographic Maps*, and site-specific topographic information if available. Existing slope characteristics will also be identified (e.g., 0-10 percent, 11-15 percent, and 15 percent or greater). The proposed changes to site topography and the need for stabilization methods will be evaluated. Also, feasible measures to minimize potential impacts associated with excavation and grading will be identified.

2. Environmental Features – The results of site investigations by a qualified biologist/ecologist or landscape architect, and an inventory of ecological resources along the proposed gen-tie route will be provided in the DEIS. The habitat value of the affected land and adjacent area will be assessed, and any endangered, threatened and/or special concern species will be identified. A vegetation map will also be prepared. To supplement the site investigations, the New York Natural Heritage Program will be contacted regarding records of significant species.

In order to assess potential adverse ecological impacts, site data will be evaluated to identify areas of native vegetation to be removed and to remain, and an assessment of the impacts of vegetation clearing will be presented. A determination will also be made as to the habitat to be reduced or eliminated, and the impact that such habitat

reduction or elimination will have on identified species. Plans for the re-vegetation of disturbed areas will also be evaluated in this section of the DEIS.

C. Potential Socioeconomic Impacts

This section of the DEIS will discuss the benefit of the proposed action with respect to the creation of employment during construction, including the number of construction jobs, as well as the direct and secondary economic effect of these jobs. An assessment will also be provided regarding the number of existing jobs that would be eliminated or relocated as a result of the proposed action. Additionally, the potential for the loss of future employment opportunities will be examined, again considering the temporary (20-year) time frame and reversibility of the proposed action at the end of that term.

The potential for a cumulative loss of agricultural or manufacturing-industrial property without job creation must be fully analyzed as well as the true efficiency of passive solar use as alternative energy source as balanced against the loss of scarce agricultural or manufacturing-industrial parcels in the greater Calverton area. This shall include farm workers, tractor mechanics, fertilizer supply, and truck drivers. The temporary construction trade work should not be considered as a trade off as they are very temporary.

The Town of Riverhead has limited large tracts of land available for agriculture and manufacturing-industrial uses. The location and private ownership of the gen tie could lead to additional applications for the conversion of large tracts of agricultural or manufacturing-industrial land to passive solar use. Parcels in the Township that have the potential to be used for solar. Acreage near (within several miles) power sub stations seem to be most beneficial to identify

D. Potential Cumulative Impacts and Growth-Inducing Impacts

To address potential cumulative impacts of the proposed action, the impacts of the proposed action and the reasonably foreseeable impacts of other proposed actions will be evaluated in this section of the DEIS. Other planned projects (including solar energy projects, if any) will be identified in consultation with the Town of Riverhead.

As set forth in the Positive Declaration, this section of the DEIS will assess the potential for implementation of the proposed action to lead to additional future applications for similar projects (i.e., conversion of large tracts of agricultural or manufacturing-industrial land for passive solar use). This analysis will identify similarly situated lands in the greater Calverton area and the Town of Riverhead as a whole – i.e., available large parcels having both industrial zoning (eligible for development with a Commercial Solar Energy Production System) and an active agricultural use – and will review the status of such parcels. The DEIS will also review the degree to which the characteristics of the subject property make it suitable for the proposed facility in a manner that does not pertain to other locations.

The specific routing of the gen tie through private property and not in the public right of way raises questions regarding the use and future development of these parcels and specific review of the topographical and environmental features of these parcels and comparative routing alternatives. The route for the gen tie in needs further investigation as to potential future impacts. Example -the easements being offered limit the use of industrial property in the future. The easement on the east side of Edwards Ave must be far enough off the road to account for future road expansion.

VI. Extent and Quality of Information Needed to Adequately Address Potentially Significant Adverse Impacts

In order to conduct the analyses of potential adverse impacts, publicly-available information will be collected and reviewed. While it is not possible to determine all information sources to be used, the following represent sources/research that have been preliminarily identified for inclusion in the required analyses in the DEIS.

A. Land Use and Zoning

Existing zoning and land use will be obtained from available maps, aerial photographs, Planning Department records, Town of Riverhead Comprehensive Plan, utility information and expansion plans, Suffolk County Planning, NYSDEC, NYSDOT, and similar verifiable reports, studies and municipal sourced data.

B. Soils and Topography

Soil classification will be described based on the *Soil Survey of Suffolk County*. Existing on-site soil borings, if available, and proposed grading plans, will be reviewed. *USGS Topographic Maps* and site-specific topographic information (as available) will be utilized to assess slope conditions and associated impacts along the gen-tie route.

C. Environmental Features

Field inspections will be undertaken to identify ecological resources along the proposed gen-tie route. Publicly-available information will be reviewed to determine expected species that may not be observed during site inspections. Consultations will also be undertaken with appropriate sources including, but not limited to, the New York Natural Heritage Program. Town, Federal and State wetland maps will also be consulted.

D. Visual

Define the significance of existing view sheds and alteration generated by the proposed action. Define the FAA limitations of acceptable glare and impact thresholds for aviation use at EPCAL. Provide mitigating measures as may be required.

E. Socioeconomics

Existing reports and databases will be reviewed, including U.S. Census data. Economic benefits will be calculated using standard factors. A description of methods and "standard factors" generally acceptable for land use and planning shall be provided to support the analysis.

Complete review of regulatory agency requirements for operating a private utility in the public right of way of Edwards Avenue. Evaluation of a franchise agreement or tax for the electric line crossing and operating under a town road and compliance under NYS Industrial Code Rule 753 as an operator; and on call system for 24/7 to response within 2 hours.

Complete economic evaluation regarding taxes, fees, leases, etc. associated with the easement and crossing associated with work and placement of a private gen-tie line located with the Town of Riverhead Right of Way and Town road known as Edwards Avenue.

Evaluation of the potential impacts and mitigating measures of the proposed gen tie-location associated with the widening of Edwards Avenue and expansion of the Right of Way.

A solar facility efficiency assessment is required to evaluate the number of households a solar facility can provide electricity (average annual kilowatts per household) based on the number of acres needed to generate this equivalent amount of power. (How many acres of land are needed for solar facility development in order to generate the average annual electrical needs for a typical single family residential dwelling unit).

F. Cumulative Impacts and Growth-Inducement

A review of the Town of Riverhead Comprehensive Plan, the Planning Department's maps, reports and databases will be reviewed to identify planned developments in the area surrounding the subject property that have potential to be impacted by the proposed action.

An evaluation of a proportionate of solar use and facilities existing and proposed in the Town of Riverhead as a full build out in comparison to a build out of similar facilities in the Town Southampton, Town of Southold, Town of East Hampton and villages within these aforementioned municipal boundaries. A proportionate assessment based on the amount of power generated by solar and the solar facility land areas of these municipalities is to be compared to existing and potential facilities of solar power and land areas used for solar within Riverhead.

VII. Initial Identification of Mitigation Measures

In accordance with the provisions of §617.8(f) (4) of the SEQRA regulations, the following mitigation measures have been preliminarily identified to minimize the potential adverse impacts of the proposed action:

A. Land Use

1. The proposed action will be reversible after the project's temporary (20-year) term elapses, at which time other land uses can be developed at the subject location in accordance with prevailing zoning and land use controls.

B. Soils and Topography

1. Standard sediment and erosion control measures as required by the preparation of an approved SWPPP will be implemented during construction along the proposed gen-tie route.

C. Environmental Features

1. Existing native vegetation will be maintained in the construction area along the proposed gen-tie route, to the extent practicable.

2. Description of the habitats and natural resources within the project area, inclusive of the subject property.

3. In restoring the proposed areas of clearing, the amount of fertilizer-dependent vegetation will be minimized and the amount of existing plantings will be maximized, to the extent practicable.

D. Socioeconomics

1. Employment opportunities will be created during construction, and approximately one full-time employment position will be created over the 20-year life of the project for operation and maintenance. Current employment opportunities at the subject property may be relocated to other existing facilities and operations in the Town of Riverhead.

2. The temporary (20-year) term of proposed project will allow the proposed development to be reversed, which will make the subject property available at that time for other uses, including future uses that would generate employment opportunities.

E. Growth-Inducement

1. The mitigation assessment will be based on information from the Town of Riverhead regarding other planned solar energy developments in the greater Calverton area and the Town.

VIII. Reasonable Alternatives to be Considered

Pursuant to 6 NYCRR Part 617, the DEIS must contain a description and evaluation of reasonable alternatives to the proposed action. Thus, the DEIS will analyze the impacts of the following alternatives and quantitatively and qualitatively compare these impacts to those associated with implementation of the proposed action, specifically including those alternatives which are identified in the Positive Declaration:

A. No-Action (site remains as it currently exists)
B. Alternative Routing of Gen-Tie in Public Rights-of-Way
C. Alternate Locations (that would not entail use of agricultural or manufacturing-industrial lands in the Town of Riverhead)
D. As-of-right development of the subject property with a permitted use in the prevailing Industrial C zoning district, pursuant §301-122.A of the Code of the Town of Riverhead
E. Evaluation of other sites in Suffolk County with similar parcel size and regulatory/permit issues which would permit similar facilities such that available agricultural or manufacturing-industrial lands within Riverhead Town not be depleted for a regional benefit without the local benefit of jobs and continued viability of farming within the town. Assess the proportional amount of solar acreage expected in Riverhead compared to Brookhaven, Southold, Southampton, and East Hampton? Price of land should not be used as a factor. Examine and compare the actual solar efficiency compared to acreage. Example: the efficiency in the northeast compared to Arizona or Southern California is vastly different. Quantify the solar acres needed to power each home in the NE using the actual efficiency.

IX. Proposed Table of Contents for DEIS

Although not required as part of a Draft Scope – see 6 NYCRR §617.8(b) – the following is the proposed table of contents for the DEIS:

1. Executive Summary

2. Description of the Proposed Action

   2.1 Introduction
   2.2 Existing Conditions
   2.3 Site and Project History
   2.4 Project Description
   2.5 Purpose, Need and Benefits (including Job Generation)
   2.6 Construction and Phasing
   2.7 Required Permits and Approvals

3. Existing Conditions, Potential Impacts and Proposed Mitigation

   a. Land Use and Zoning

      i. Existing Conditions
      ii. Potential Impacts
      iii. Proposed Mitigation

   b. Soils and Topography

      i. Existing Conditions
      ii. Potential Impacts
      iii. Proposed Mitigation

   c. Environmental Features

      i. Existing Conditions
      ii. Potential Impacts
      iii. Proposed Mitigation

   d. Socioeconomics

      i. Existing Conditions
      ii. Private Utility entity use of municipal highway- right of way and legal and regulatory aspects associated with the project
      iii. Potential Impacts
      iv. Proposed Mitigation

   e. Cumulative Impacts and Growth-Inducement

      i. Existing Conditions
      ii. Potential Impacts
      iii. Proposed Mitigation

4. Alternatives and Their Impacts

    4.1 No-Action
    4.2 Alternative Routing in Public Rights-of-Way
    4.3 Alternate Locations
    4.4 As-of-Right Development Alternative

5. Irreversible and Irretrievable Commitment of Resources

6. Use and Conservation of Energy

    6.1 Consistency with the latest New York State Energy Plan

7. Solid Waste Management

8. References

9. Bibliography

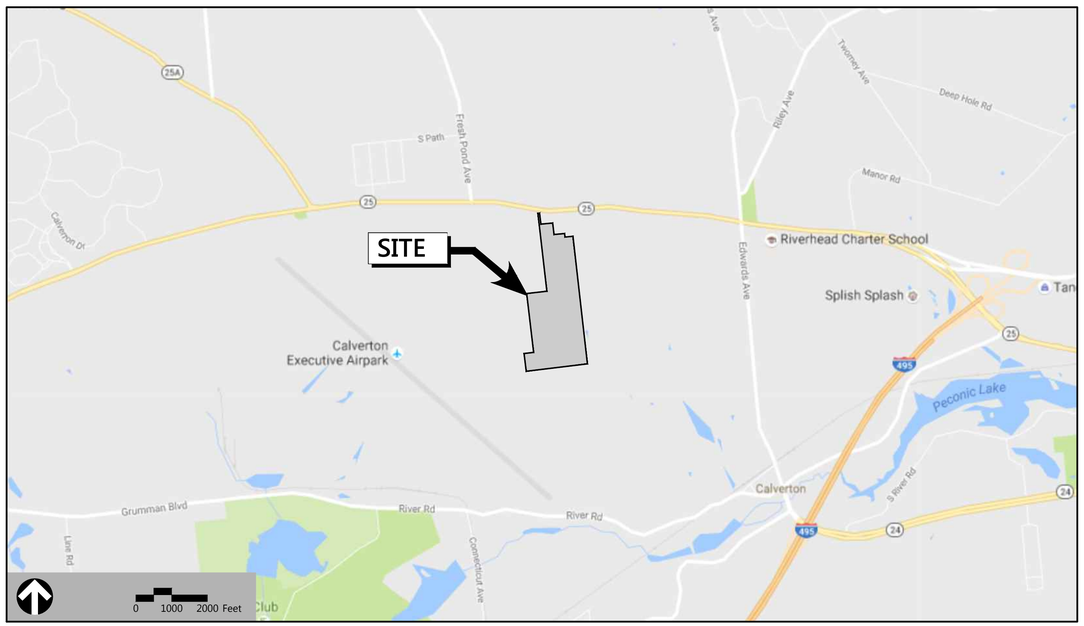
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Site Plans

Issued for	**Site Plan Review**
Date Issued	**August 15, 2016**
Latest Issue	**January 26, 2017**

sPower Calverton

Middle Country Road (NYS 25) & Peconic Avenue
Town of Riverhead, Calverton, New York



Owner

Delea Sod Farms, Inc.
444 Elwood Road
East Northport, NY 11731
(631)368-3264

Applicant

sPower
2180 South 1300 East
Suite 600
Salt Lake City, UT 84106-2749
(801)679-3500

Sheet Index

No.	Drawing Title	Latest Issue
C-1	Legend And General Notes	January 26, 2017
C-2	Gen-Tie Route	January 26, 2017
C-3	Collection Facility Layout & Materials Plan	January 26, 2017
C-4	Collection Facility Grading Plan / Landscape Plan	January 26, 2017
C-5	Solar Facility Layout, Materials and Utility Plan	January 26, 2017
C-6	Solar Facility Grading and Drainage Plan	January 26, 2017
C-7	Solar Facility Drainage Reserve Area Detail	January 26, 2017
C-8	Solar Facility Erosion and Sediment Control Plan	January 26, 2017
C-9	Site Details 1	January 26, 2017
C-10	Site Details 2	January 26, 2017
C-11	Solar Facility Soil Borings	November 14, 2016
C-12	Solar Facility Test Pits	November 14, 2016
L-1	Solar Facility Planting Plan	November 14, 2016
PR-1	Edwards Avenue Gen-Tie Route Utility Profile	January 26, 2017

Reference Drawings

No.	Drawing Title	Latest Issue
CF-1	Collection Facility Details	November 14, 2016
	Subdivision Map	August 15, 2016
	Existing Conditions Plan of Land	March 30, 2016

PLANNING BOARD CERTIFICATION

This is to certify that this site plan has been approved by the Planning Board of the Town of Riverhead by Planning Board Resolution number _____ dated_____

Signature by Planning Board Chairperson _____

Date of signature_____

vhb.com

vhb

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VHB Project : 29194.03
Issued for : Site Plan Review 11/14/16

P:\29194.03 SPOWER CALVERTON\CAD\LD\PLANSET\29194.03-CV 26 January 2017

Legend

Exist.	Prop.	
		PROPERTY LINE
		PROJECT LIMIT LINE
		RIGHT-OF-WAY/PROPERTY LINE
		EASEMENT
		BUILDING SETBACK
		PARKING SETBACK
10+00	10+00	BASELINE
		CONSTRUCTION LAYOUT
		ZONING LINE
		TOWN LINE
		LIMIT OF DISTURBANCE
		WETLAND LINE WITH FLAG
		FLOODPLAIN
BLSF	BLSF	BORDERING LAND SUBJECT TO FLOODING
BZ	BZ	WETLAND BUFFER ZONE
NDZ	NDZ	NO DISTURB ZONE
200'RA	200'RA	200' RIVERFRONT AREA
		GRAVEL ROAD
EOP		EDGE OF PAVEMENT
BB	BB	BITUMINOUS BERM
BC	BC	BITUMINOUS CURB
CC	CC	CONCRETE CURB
CG	CG	CURB AND GUTTER
ECC	ECC	EXTRUDED CONCRETE CURB
MCC	MCC	MONOLITHIC CONCRETE CURB
PCC	PCC	PRECAST CONC. CURB
SGE	SGE	SLOPED GRAN. EDGING
VGC	VGC	VERT. GRAN. CURB
		LIMIT OF CURB TYPE
		SAWCUT
		BUILDING
	EN	BUILDING ENTRANCE
	LD	LOADING DOCK
		BOLLARD
D	D	DUMPSTER PAD
		SIGN
		DOUBLE SIGN
		STEEL GUARDRAIL
		WOOD GUARDRAIL
		PATH
		TREE LINE
		CHAINLINK FENCE
		STOCKADE FENCE
		STONE WALL
		RETAINING WALL
		STREAM / POND / WATER COURSE
		DETENTION BASIN
		HAY BALES
		SILT FENCE
		SILT SOCK / STRAW WATTLE
4	4	MINOR CONTOUR
20	20	MAJOR CONTOUR
	10	DEPRESSION CONTOUR
10	10	PARKING COUNT
	C10	COMPACT PARKING STALLS
DYL	DYL	DOUBLE YELLOW LINE
SL	SL	STOP LINE
		CROSSWALK
		ACCESSIBLE CURB RAMP
		ACCESSIBLE PARKING
VAN	VAN	VAN-ACCESSIBLE PARKING

Exist.	Prop.	
		CONCRETE
		HEAVY DUTY PAVEMENT
		GRAVEL
		CONSTRUCTION ENTRANCE
27.35 TC×	27.35 TC×	TOP OF CURB ELEVATION
26.85 BC×	26.85 BC×	BOTTOM OF CURB ELEVATION
132.75 ×	132.75 ×	SPOT ELEVATION
45.0 TW× 38.5 BW	45.0 TW× 38.5 BW	TOP & BOTTOM OF WALL ELEVATION
		BORING LOCATION
		TEST PIT LOCATION
MW	MW	MONITORING WELL
UD	UD	UNDERDRAIN
12"D	12"D	DRAIN
6"RD	6"RD	ROOF DRAIN
12"S	12"S	SEWER
FM	FM	FORCE MAIN
OHW	OHW	OVERHEAD WIRE
6"W	6"W	WATER
4"FP	4"FP	FIRE PROTECTION
	2"DW	DOMESTIC WATER
3"G	G	GAS
E	E	ELECTRIC
STM	STM	STEAM
T	T	TELEPHONE
FA	FA	FIRE ALARM
CATV	CATV	CABLE TV
		CATCH BASIN
		DOUBLE CATCH BASIN
		GUTTER INLET
		DRAIN MANHOLE
		TRENCH DRAIN
		PLUG OR CAP
CO	CO	CLEANOUT
		FLARED END SECTION
		HEADWALL
		DRY WELL
		DIFFUSION WELL
		SEWER MANHOLE
CS	CS	CURB STOP & BOX
WV	WV	WATER VALVE & BOX
TSV	TSV	TAPPING SLEEVE, VALVE & BOX
		SIAMESE CONNECTION
HYD	HYD	FIRE HYDRANT
WM	WM	WATER METER
PIV	PIV	POST INDICATOR VALVE
W	W	WATER WELL
GG	GG	GAS GATE
GM	GM	GAS METER
	EMH	ELECTRIC MANHOLE
EM	EM	ELECTRIC METER
		LIGHT POLE
	TMH	TELEPHONE MANHOLE
T	T	TRANSFORMER PAD
		UTILITY POLE
		GUY POLE
		GUY WIRE & ANCHOR
HH	HH	HAND HOLE
PB	PB	PULL BOX
		SOLAR ARRAY
Matchline		MATCHLINE

Abbreviations

General

ABAN	ABANDON
ACR	ACCESSIBLE CURB RAMP
ADJ	ADJUST
APPROX	APPROXIMATE
BIT	BITUMINOUS
BS	BOTTOM OF SLOPE
BWLL	BROKEN WHITE LANE LINE
CONC	CONCRETE
DYCL	DOUBLE YELLOW CENTER LINE
EL	ELEVATION
ELEV	ELEVATION
EXIST	EXISTING
FDN	FOUNDATION
FFE	FIRST FLOOR ELEVATION
GRAN	GRANITE
GTD	GRADE TO DRAIN
LA	LANDSCAPE AREA
LOD	LIMIT OF DISTURBANCE
MAX	MAXIMUM
MIN	MINIMUM
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
PERF	PERFORATED
PROP	PROPOSED
REM	REMOVE
RET	RETAIN
R&D	REMOVE AND DISPOSE
R&R	REMOVE AND RESET
SWEL	SOLID WHITE EDGE LINE
SWLL	SOLID WHITE LANE LINE
TS	TOP OF SLOPE
TYP	TYPICAL

Utility

CB	CATCH BASIN
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
DCB	DOUBLE CATCH BASIN
DMH	DRAIN MANHOLE
CIP	CAST IRON PIPE
COND	CONDUIT
DIP	DUCTILE IRON PIPE
FES	FLARED END SECTION
FM	FORCE MAIN
F&G	FRAME AND GRATE
F&C	FRAME AND COVER
GI	GUTTER INLET
GT	GREASE TRAP
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HH	HANDHOLE
HW	HEADWALL
HYD	HYDRANT
INV	INVERT ELEVATION
I=	INVERT ELEVATION
LP	LIGHT POLE
MES	METAL END SECTION
PWW	PAVED WATER WAY
PVC	POLYVINYLCHLORIDE PIPE
PIV	POST INDICATOR VALVE
RCP	REINFORCED CONCRETE PIPE
R=	RIM ELEVATION
SMH	SEWER MANHOLE
TSV	TAPPING SLEEVE, VALVE AND BOX
UG	UNDERGROUND
UP	UTILITY POLE

Notes:

General

1. CONTRACTOR SHALL NOTIFY "NEW YORK 811" (1-800-524-7603) AT LEAST 72 HOURS BEFORE EXCAVATING.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS.
3. ACCESSIBLE ROUTES, PARKING SPACES, RAMPS, SIDEWALKS AND WALKWAYS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE FEDERAL AMERICANS WITH DISABILITIES ACT AND WITH STATE AND LOCAL LAWS AND REGULATIONS (WHICHEVER ARE MORE STRINGENT).
4. AREAS DISTURBED DURING CONSTRUCTION AND NOT RESTORED WITH IMPERVIOUS SURFACES (BUILDINGS, PAVEMENTS, WALKS, ETC.) SHALL RECEIVE 6 INCHES LOAM AND SEED. (SEE ATTACHED PLANTING PLAN)
5. WITHIN THE LIMITS OF THE BUILDING FOOTPRINT, THE SITE CONTRACTOR SHALL PERFORM EARTHWORK OPERATIONS REQUIRED UP TO SUBGRADE ELEVATIONS.
6. WORK WITHIN THE LOCAL RIGHTS-OF-WAY SHALL CONFORM TO LOCAL MUNICIPAL STANDARDS. WORK WITHIN STATE RIGHTS-OF-WAY SHALL CONFORM TO THE LATEST EDITION OF THE STATE HIGHWAY DEPARTMENTS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
7. UPON AWARD OF CONTRACT, CONTRACTOR SHALL MAKE NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND IN THE CONTRACT DOCUMENTS. DO NOT CLOSE OR OBSTRUCT ROADWAYS, SIDEWALKS, AND FIRE HYDRANTS, WITHOUT APPROPRIATE PERMITS.
8. TRAFFIC SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE FEDERAL MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING NEW YORK STATE SUPPLEMENTS.
9. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
10. IN THE EVENT THAT SUSPECTED CONTAMINATED SOIL, GROUNDWATER, AND OTHER MEDIA ARE ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION ACTIVITIES BASED ON VISUAL, OLFACTORY, OR OTHER EVIDENCE, THE CONTRACTOR SHALL STOP WORK IN THE VICINITY OF THE SUSPECT MATERIAL TO AVOID FURTHER SPREADING OF THE MATERIAL, AND SHALL NOTIFY THE OWNER IMMEDIATELY SO THAT THE APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN.
11. CONTRACTOR SHALL PREVENT DUST, SEDIMENT, AND DEBRIS FROM EXITING THE SITE AND SHALL BE RESPONSIBLE FOR CLEANUP, REPAIRS AND CORRECTIVE ACTION IF SUCH OCCURS.
12. DAMAGE RESULTING FROM CONSTRUCTION LOADS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
13. CONTRACTOR SHALL CONTROL STORMWATER RUNOFF DURING CONSTRUCTION TO PREVENT ADVERSE IMPACTS TO OFF SITE AREAS, AND SHALL BE RESPONSIBLE TO REPAIR RESULTING DAMAGES, IF ANY, AT NO COST TO OWNER.
14. THIS PROJECT DISTURBS MORE THAN 1 ACRE OF LAND AND FALLS WITHIN THE NYSDEC CONSTRUCTION GENERAL PERMIT PROGRAM AND MS4 JURISDICTION OF THE TOWN. THE CONTRACTOR IS ADVISED THAT STORM WATER POLLUTION PREVENTION PLAN DOCUMENTS HAVE BEEN PREPARED AND A NOTICE OF INTENT HAS BEEN FILED FOR THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL PREVISIONS OF THE GENERAL PERMIT AND SWPPP DOCUMENTS, INCLUDING COORDINATING MANDATORY INSPECTIONS AND MAINTAINING SWPPP DOCUMENTS ON-SITE FOR THE DURATION OF CONSTRUCTION.

Utilities

1. THE LOCATIONS, SIZES, AND TYPES OF EXISTING UTILITIES ARE SHOWN AS AN APPROXIMATE REPRESENTATION ONLY. THE OWNER OR IT'S REPRESENTATIVE(S) HAVE NOT INDEPENDENTLY VERIFIED THIS INFORMATION AS SHOWN ON THE PLANS. THE UTILITY INFORMATION SHOWN DOES NOT GUARANTEE THE ACTUAL EXISTENCE, SERVICEABILITY, OR OTHER DATA CONCERNING THE UTILITIES, NOR DOES IT GUARANTEE AGAINST THE POSSIBILITY THAT ADDITIONAL UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN ON THE PLANS. PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY AND DETERMINE THE EXACT LOCATIONS, SIZES, AND ELEVATIONS OF THE POINTS OF CONNECTIONS TO EXISTING UTILITIES AND, SHALL CONFIRM THAT THERE ARE NO INTERFERENCES WITH EXISTING UTILITIES AND THE PROPOSED UTILITY ROUTES, INCLUDING ROUTES WITHIN THE PUBLIC RIGHTS OF WAY.
2. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, OR EXISTING CONDITIONS DIFFER FROM THOSE SHOWN SUCH THAT THE WORK CANNOT BE COMPLETED AS INTENDED, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED IN WRITING TO THE OWNER'S REPRESENTATIVE FOR THE RESOLUTION OF THE CONFLICT AND CONTRACTOR'S FAILURE TO NOTIFY PRIOR TO PERFORMING ADDITIONAL WORK RELEASES OWNER FROM OBLIGATIONS FOR ADDITIONAL PAYMENTS WHICH OTHERWISE MAY BE WARRANTED TO RESOLVE THE CONFLICT.
3. SET DIFFUSION WELL RIMS, AND INVERTS OF DRAINS, AND DITCHES IN ACCORDANCE WITH ELEVATIONS ON THE GRADING AND UTILITY PLANS.
4. RIM ELEVATIONS FOR DRAIN MANHOLES, WATER VALVE COVERS, ELECTRIC AND TELEPHONE PULL BOXES, AND MANHOLES, AND OTHER SUCH ITEMS, ARE APPROXIMATE AND SHALL BE SET/RESET AS FOLLOWS:

   A. PAVEMENTS AND CONCRETE SURFACES: FLUSH

   B. ALL SURFACES ALONG ACCESSIBLE ROUTES: FLUSH

   C. LANDSCAPE, LOAM AND SEED, AND OTHER EARTH SURFACE AREAS: ONE INCH ABOVE SURROUNDING AREA AND TAPER EARTH TO THE RIM ELEVATION.
5. THE LOCATION, SIZE, DEPTH, AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE INSTALLED ACCORDING TO THE REQUIREMENTS PROVIDED BY, AND APPROVED BY, THE RESPECTIVE UTILITY COMPANY (GAS, TELEPHONE, ELECTRIC, FIRE ALARM, ETC.). FINAL DESIGN LOADS AND LOCATIONS TO BE COORDINATED WITH OWNER AND ARCHITECT.
6. CONTRACTOR SHALL MAKE ARRANGEMENTS FOR AND SHALL BE RESPONSIBLE FOR PAYNG FEES FOR POLE RELOCATION AND FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, FIRE ALARM, AND ANY OTHER PRIVATE UTILITIES, WHETHER WORK IS PERFORMED BY CONTRACTOR OR BY THE UTILITIES COMPANY.
7. CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR AND SHALL FURNISH EXCAVATION, INSTALLATION, AND BACKFILL OF ELECTRICAL FURNISHED SITEWORK RELATED ITEMS SUCH AS PULL BOXES, CONDUITS, DUCT BANKS, LIGHT POLE BASES, AND CONCRETE PADS. SITE CONTRACTOR SHALL FURNISH CONCRETE ENCASEMENT OF DUCT BANKS IF REQUIRED BY THE UTILITY COMPANY AND AS INDICATED ON THE DRAWINGS OR CONSULTANTS DRAWINGS.
8. CONTRACTOR SHALL EXCAVATE AND BACKFILL TRENCHES FOR ELECTRIC IN ACCORDANCE WITH ELECTRIC COMPANY'S REQUIREMENTS.
9. ALL DRAINAGE STRUCTURES INTERIOR DIAMETERS (4' MIN.) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS AND LOCAL MUNICIPAL STANDARDS. FOR MANHOLES THAT ARE 20 FEET IN DEPTH AND GREATER, THE MINIMUM DIAMETER SHALL BE 5 FEET.

Layout and Materials

1. SEE SOLAR CONSULTANT DRAWNGS FOR EXACT SOLAR ARRAY DIMENSIONS AND DETAILS, UTILITY PENETRATIONS, ETC.
2. PROPOSED BOUNDS, ANY EXISTING PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION, ALL PROPOSED GRADES AND BENCHMARKS SHALL BE SET OR RESET BY A PROFESSIONAL LICENSED SURVEYOR.
3. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL VERIFY EXISTING ELEVATIONS AT INTERFACE WITH PROPOSED ELEVATIONS, AND EXISTING GROUND ELEVATIONS ADJACENT TO DRAINAGE OUTLETS TO ASSURE PROPER TRANSITIONS BETWEEN EXISTING AND PROPOSED FACILITIES.
4. SYMBOLS AND LEGENDS OF PROJECT FEATURES ARE GRAPHIC REPRESENTATIONS AND ARE NOT NECESSARILY SCALED TO THEIR ACTUAL DIMENSIONS OR LOCATIONS ON THE DRAWINGS. THE CONTRACTOR SHALL REFER TO THE DETAIL SHEET DIMENSIONS, MANUFACTURERS' LITERATURE, SHOP DRAWINGS AND FIELD MEASUREMENTS OF SUPPLIED PRODUCTS FOR LAYOUT OF THE PROJECT FEATURES.
5. CONTRACTOR SHALL NOT RELY SOLELY ON ELECTRONIC VERSIONS OF PLANS, SPECIFICATIONS, AND DATA FILES THAT ARE OBTAINED FROM THE DESIGNERS, BUT SHALL VERIFY LOCATION OF PROJECT FEATURES IN ACCORDANCE WITH THE PAPER COPIES OF THE PLANS AND SPECIFICATIONS THAT ARE SUPPLIED AS PART OF THE CONTRACT DOCUMENTS.

Demolition

1. CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING MANMADE SURFACE FEATURES WITHIN THE LIMIT OF WORK INCLUDING STRUCTURES, PAVEMENTS, SLABS, CURBING, FENCES, UTILITY POLES, SIGNS, ETC. UNLESS INDICATED OTHERWISE ON THE DRAWINGS. REMOVE AND DISPOSE OF EXISTING UTILITIES, FOUNDATIONS AND UNSUITABLE MATERIAL BENEATH AND FOR A DISTANCE OF 10 FEET BEYOND THE PROPOSED ARRAY FOOTPRINT.
2. EXISTING UTILITIES SHALL BE TERMINATED, UNLESS OTHERWISE NOTED, IN CONFORMANCE WITH LOCAL, STATE AND INDIVIDUAL UTILITY COMPANY STANDARD SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES.
3. CONTRACTOR SHALL DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND STATUTES.
4 THE DEMOLITION LIMITS DEPICTED IN THE PLANS IS INTENDED TO AID THE CONTRACTOR DURING THE BIDDING AND CONSTRUCTION PROCESS AND IS NOT INTENDED TO DEPICT EACH AND EVERY ELEMENT OF DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING THE DETAILED SCOPE OF DEMOLITION BEFORE SUBMITTING ITS BID/PROPOSAL TO PERFORM THE WORK AND SHALL MAKE NO CLAIMS AND SEEK NO ADDITIONAL COMPENSATION FOR CHANGED CONDITIONS OR UNFORESEEN OR LATENT SITE CONDITIONS RELATED TO ANY CONDITIONS DISCOVERED DURING EXECUTION OF THE WORK.
5. UNLESS OTHERWISE SPECIFICALLY PROVIDED ON THE PLANS OR IN THE SPECIFICATIONS, THE ENGINEER HAS NOT PREPARED DESIGNS FOR AND SHALL HAVE NO RESPONSIBILITY FOR THE PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF HAZARDOUS MATERIALS, TOXIC WASTES OR POLLUTANTS AT THE PROJECT SITE. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY CLAIMS OF LOSS, DAMAGE, EXPENSE, DELAY, INJURY OR DEATH ARISING FROM THE PRESENCE OF HAZARDOUS MATERIAL AND CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE ENGINEER FROM ANY CLAIMS MADE IN CONNECTION THEREWITH. MOREOVER, THE ENGINEER SHALL HAVE NO ADMINISTRATIVE OBLIGATIONS OF ANY TYPE WITH REGARD TO ANY CONTRACTOR AMENDMENT INVOLVING THE ISSUES OF PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF ASBESTOS OR OTHER HAZARDOUS MATERIALS.

Erosion Control

1. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
2. CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES, AND REMOVE SEDIMENT THEREFROM ON A WEEKLY BASIS AND AS NECESSARY TO COMPLY WITH SPDES PERMIT REQUIREMENTS. DISPOSE OF SEDIMENTS IN AN UPLAND AREA SUCH THAT THEY DO NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.
3. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
4. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
5. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE AND SEWER SYSTEMS.

Existing Conditions Information

1. BASE PLAN: THE PROPERTY LINES SHOWN WERE DETERMINED BY AN ACTUAL FIELD SURVEY CONDUCTED BY PAT T. SECCAFICO, PROFESSIONAL LAND SURVEYOR, P.C.. THE TOPOGRAPHY AND PHYSICAL FEATURES ARE BASED ON AN ACTUAL FIELD SURVEY PERFORMED ON THE GROUND BY PAT T. SECCAFICO, PROFESSIONAL LAND SURVEYOR, P.C., DATED 7/2/15 AND UPDATED 3/30/16.
2. TOPOGRAPHY: ELEVATIONS ARE BASED ON N.G.V.D. 1988.
3. GEOTECHNICAL DATA INCLUDING TEST PIT AND BORING LOCATIONS AND ELEVATIONS WERE OBTAINED FROM GZA GEOENVIRONMENTAL OF NEW YORK.

Document Use

1. THESE PLANS AND CORRESPONDING CADD DOCUMENTS ARE INSTRUMENTS OF PROFESSIONAL SERVICE, AND SHALL NOT BE USED, IN WHOLE OR IN PART, FOR ANY PURPOSE OTHER THAN FOR WHICH IT WAS CREATED WITHOUT THE EXPRESSED, WRITTEN CONSENT OF VHB. ANY UNAUTHORIZED USE, REUSE, MODIFICATION OR ALTERATION, INCLUDING AUTOMATED CONVERSION OF THIS DOCUMENT SHALL BE AT THE USER'S SOLE RISK WITHOUT LIABILITY OR LEGAL EXPOSURE TO VHB.

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631.787.3400

PLANNING BOARD CERTIFICATION

This is to certify that this site plan has been approved by the Planning Board of the Town of Riverhead by Planning Board Resolution number _____ dated _____

Signature by Planning Board Chairperson _____

Date of signature _____

sPower Calverton

Middle Country Road & Peconic Avenue
Town of Riverhead, Calverton, NY

No.	Revision	Date	Appvd.
1	PER PLANNING BOARD COMMENTS	1/26/2017	CR
1	PER TOWN COMMENTS	11/14/2016	CR
1	PER TOWN COMMENTS	11/14/2016	CR

Designed by DP | Checked by CR

Issued for: Site Plan Review

Date: August 15, 2016

Not Approved for Construction

Drawing Title: Legend and General Notes

Drawing Number: C-1.0

Sheet 1 of 13

Project Number: 29194.03

Saved Monday, November 14, 2016 11:17:33 AM DPONTIERI Plotted Thursday, January 26, 2017 5:26:47 PM Pontieri, Danielle

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MIDDLE COUNTRY ROAD

(APZ) AGRICULTURAL PROTECTION
(Ind C) INDUSTRIAL C

(RLC) RURAL CORRIDOR
(Ind A) INDUSTRIAL A

Section-98
Block-1
Lot-7

Section-98
Block-1
Lot-21.1

Section-116
Block-1
Lot-7.2

Section-116
Block-2
Lot-1.1

PECONIC AVENUE

Section-116
Block-1
Lot-7.4

Section-116
Block-2
Lot-3

Section-135
Block-1
Lot-7.33

(Ind C) INDUSTRIAL C
(LI) LIGHT INDUSTRIAL

PARCEL B

PROPOSED SOLAR FACILITY

Section-116
Block-1
Lot-7.2
(part of)

Section-98
Block-1
Lot-21.1
(part of)

Section-116
Block-2
Lot-2

Section-116
Block-2
Lot-4

Section-117
Block-1
Lot-5.3

Section-117
Block-1
Lot-5.1

DIRECTIONAL DRILLING UNDER EDWARDS AVENUE

EDWARDS AVENUE

(Ind C) INDUSTRIAL C
(Ind A) INDUSTRIAL A

Section-117
Block-2
Lot-9.2

Section-117
Block-2
Lot-7.2

(LI) LIGHT INDUSTRIAL

UNDERGROUND GEN-TIE ROUTE IN 15 FOOT EASEMENT (LOCATED ON LOTS 7.4 AND 6)

Section-117
Block-1
Lot-6

UNDERGROUND GEN-TIE ROUTE IN 15 FOOT EASEMENT (LOCATED ON LOTS 7.2 & 8.2)

Section-117
Block-2
Lot-12.8

Section-116
Block-2
Lot-7.4

Section-117
Block-1
Lot-8.4

Section-117
Block-2
Lot-8.2

Section-117
Block-1
Lot-8.3

Section-137
Block-1
Lot-2.1

Section-117
Block-1
Lot-8.2

Section-117
Block-1
Lot-9.1

Section-135
Block-1
Lot-7.33

(LI) LIGHT INDUSTRIAL
(PRP) PLANNED RECREATIONAL PARK

(PRP) PLANNED RECREATIONAL PARK

Section-136
Block-1
Lot-1

(Ind C) INDUSTRIAL C

Section-117
Block-1
Lot-8.6

PARCEL A

EXISTING SOLAR FACILITY & PROPOSED SOLAR COLLECTION FACILITY

Section-137
Block-1
Lot-32.1

CANOE LAKE STREET

Section-137
Block-1
Lot-3

Section-137
Block-1
Lot-4

Section-137
Block-1
Lot-5

Substation

L.I.R.R.

(PRP) PLANNED RECREATIONAL PARK

(RB40) RESIDENCE B-40

N

0 150 300 600 Feet

LEGEND

- PROPERTY BOUNDARY
- LOT LINES
- GEN-TIE ROUTE
- ZONE LINE
- SOLAR PROPERTIES

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No.	Revision	Date	Appvd.
1	PER TOWN COMMENTS	11/14/2016	CR

Designed by CS | Checked by CR

Issued for

Date: May 25, 2016

Not Approved for Construction

Drawing Title: Gen-Tie Route

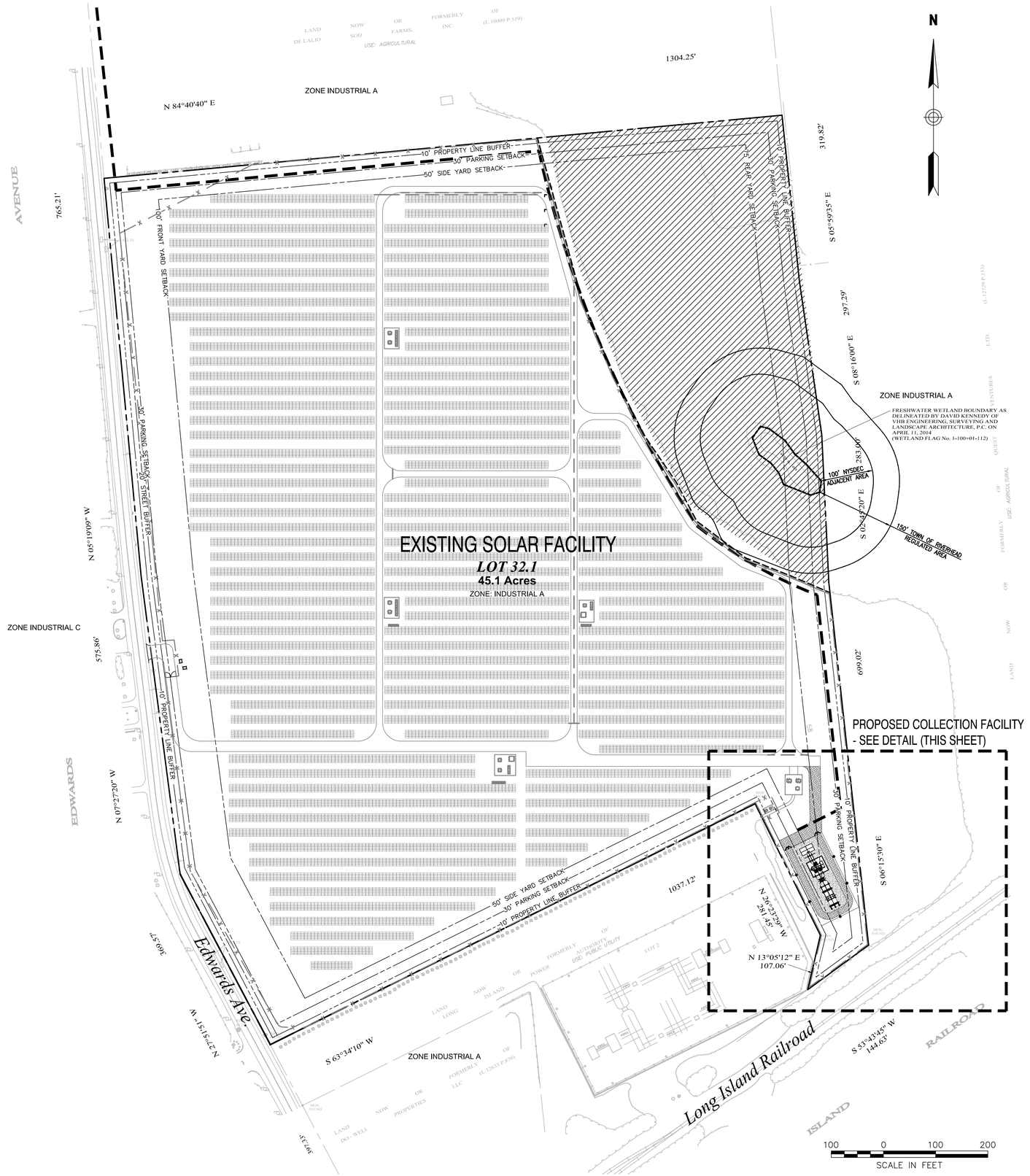
Drawing Number: C-2

Sheet 2 of 13

Project Number: 29194.03

Saved Wednesday, November 16, 2016 2:37:22 PM DPONTIER Plotted Thursday, January 26, 2017 5:26:26 PM Pontieri, Danielle

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Reference

BOUNDARY & TOPOGRAPHIC SURVEY PREPARED BY:
PJM LAND SURVEYING, PLLC
132 CLYDE STREET / SUITE 16
WEST SAYVILLE, NY 11796
DATED: 2/28/14

Zoning Summary Chart - Parcel A

Existing Zoning District:	Industrial A
Overlay District:	Commercial Solar Energy Production Systems
Existing Use:	Solar Facility
Proposed Use:	Solar Facility

Industrial A Dimensional Criteria

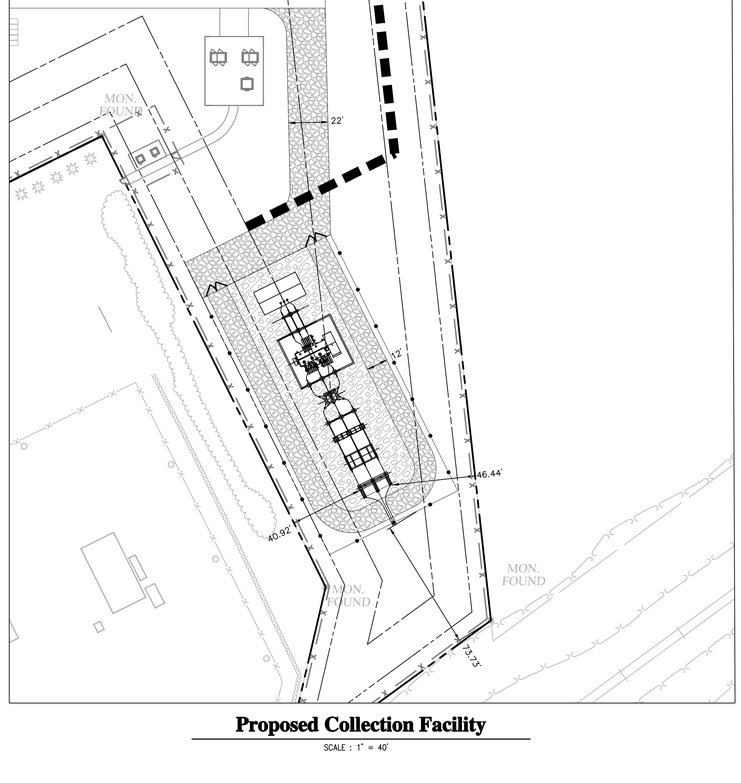
Section	Zoning Regulation	Requirement	Previously Approved	Proposed	Conforms
§108 ATTACHMENT 3	MINIMUM LOT AREA	80,000 SF	1,964,687 SF (45.1 AC)	1,964,687 SF (45.1 AC)	YES
§108 ATTACHMENT 3	MINIMUM LOT WIDTH AT FRONT STREET	200 Feet	1,711 Feet	1,711 Feet	YES
§108 ATTACHMENT 3	BUILDING LOT COVERAGE	40 %	28.00%	28.01%	YES
§108 ATTACHMENT 3	MAXIMUM IMPERVIOUS SURFACE	70	28.00%	28.01%	YES
§108 ATTACHMENT 3	MAXIMUM HEIGHT OF BUILDINGS	30 Feet	N/A	30 Feet +	YES
§108 ATTACHMENT 3	MAXIMUM F.A.R.	0.40	0.00	0.00	YES
§108 ATTACHMENT 3	MINIMUM FRONT YARD DEPTH	100 Feet	100.1 FEET	100.1 Feet	YES
§108 ATTACHMENT 3	MINIMUM SIDE YARD DEPTH (EACH/COMBINED)	50/100 Feet	50.2/100.5 Feet	40.9/91.1 Feet	NO
§108 ATTACHMENT 3	MINIMUM REAR YARD DEPTH	75 Feet	89.0 Feet	46.4 Feet	NO
§108 ATTACHMENT 3	PROPERTY LINE BUFFER	10 Feet	10 Feet	10 Feet	YES
§108 ATTACHMENT 3	STREET BUFFER	20 Feet	20 Feet	20 Feet	YES
§108 ATTACHMENT 3	PARKING BUFFER	30 Feet	30 Feet	30 Feet	YES

\+ PROPOSED COLLECTION FACILITY HEIGHT

Commercial Solar Energy Production Systems

Section	Zoning Regulation	Requirement	Previously Approved	Proposed	Conforms
§108 ARTICLE XL	MINIMUM LOT AREA	5 Acres	1,964,687 Sq. Ft.	1,964,687 Sq. Ft.	YES
§108 ARTICLE XL	MAXIMUM LOT COVERAGE	80 %	0%	28.01%	YES
§108 ARTICLE XL	MAXIMUM GROUND MOUNTED PANEL HEIGHT	8 Feet	N/A	≤10 Feet *	NO

* PRE-EXISTING NON-CONFORMING CONDITION



Proposed Collection Facility
SCALE : 1" = 40'

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631.787.3400

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Signature by Planning Board Chairperson _____

Date of signature _____

sPower Calverton

Middle Country Road & Peconic Avenue
Town of Riverhead, Calverton, NY

No.	Revision	Date	Appvd.
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1	PER TOWN COMMENTS	11/14/2016	CR
1	PER TOWN COMMENTS	11/14/2016	CR

Designed by DP | Checked by CR

Issued for: Site Plan Review | Date: August 15, 2016

Not Approved for Construction

Drawing Title
Collection Facility Layout & Materials Plan

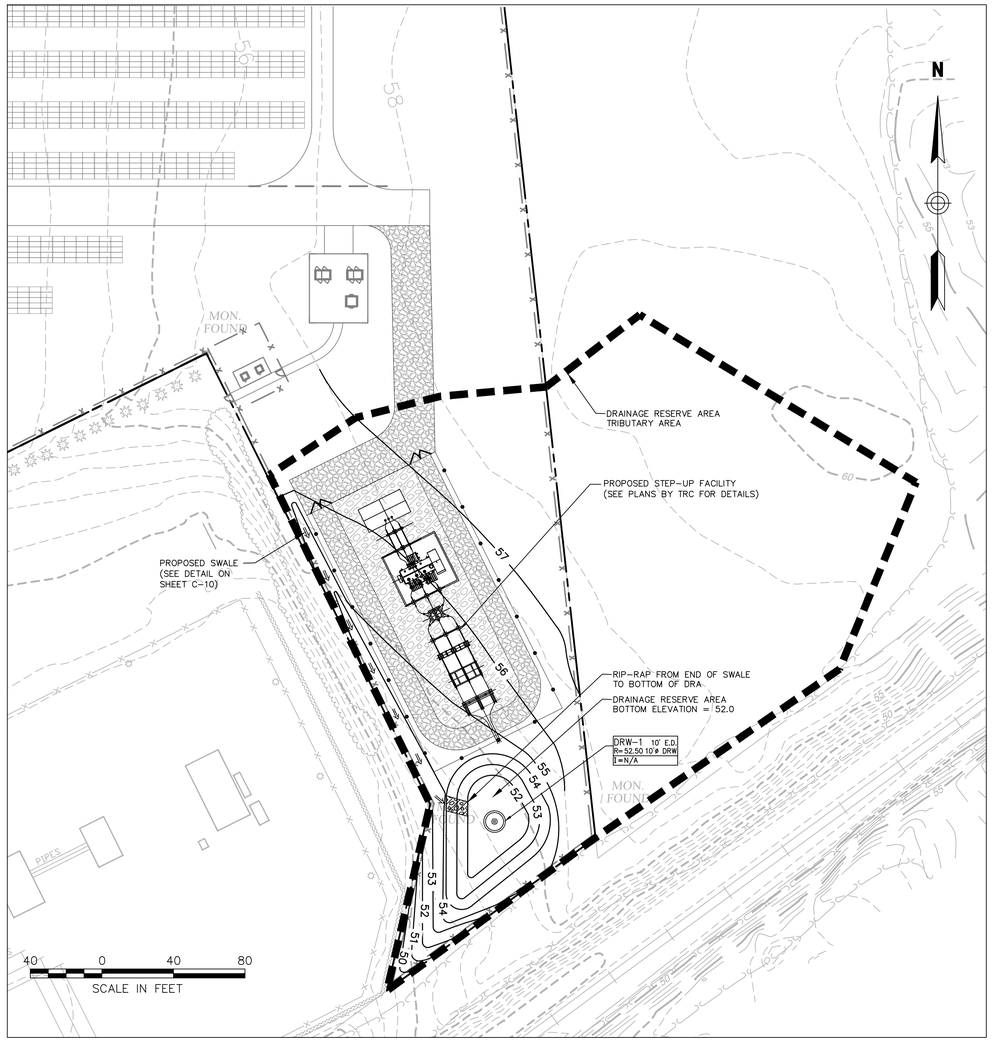
Drawing Number
C-3

Sheet 3 of 13

Project Number
29194.03

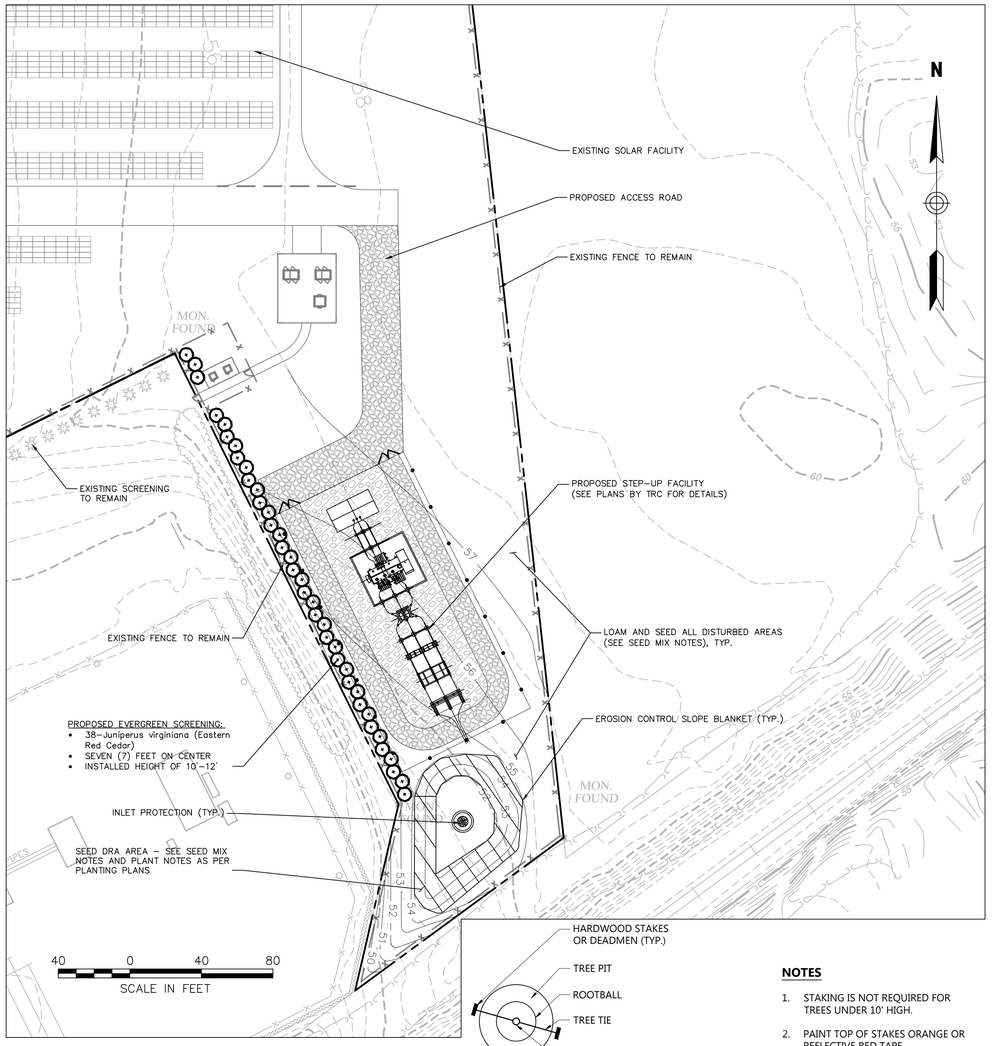
Saved Tuesday, November 15, 2016 5:18:48 PM DPONTIERI Plotted Thursday, January 26, 2017 5:24:56 PM Pontieri, Danielle

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Grading & Drainage Plan

SCALE : 1" = 40'



Landscape / Erosion Control Plan

SCALE : 1" = 40'

Drainage Calculation Summary

1. STORAGE VOLUME BASED ON A 2-INCH RAINFALL
2. RUNOFF COEFFICIENTS FOR:
   - DRAINAGE RESERVE AREAS = 1.00
   - LANDSCAPED, GRASSED, NATURAL, OTHER PERVIOUS AREAS = 0.30
   - GRAVEL ROADS/ EQUIPMENT AREAS = 0.50

Drainage Reserve Area	Contributing Area (SF)		Runoff C		Rainfall (FT)		Volume (CF)
REQUIRED STORAGE VOLUME CALCULATION							
DRAINAGE RESERVE AREA	3,708	X	1.0	X	2/12	=	618
LANDSCAPED / GRASSED AREAS	53,245	X	0.30	X	2/12	=	2,662
GRAVEL ROADS / EQUIPMENT AREAS	13,420	X	0.50	X	2/12	=	1,118
					REQUIRED STORAGE VOLUME	=	**4,399**
PROVIDED STORAGE VOLUME DESIGN:							
STORAGE VOLUME PROVIDED IN DRAINAGE RESERVE AREA:	4,825 CF						

Erosion Control Notes

1. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
2. INSTALL EROSION CONTROL MEASURES AS SHOWN ON PLANS AND DETAILS PRIOR TO CONSTRUCTION. EXCAVATED MATERIAL THAT IS CONTAINED ON SITE SHALL BE SURROUNDED BY HAY BALES AND/OR SILT FENCE AS REQUIRED. SILT FENCES AND HAY BALES SHOULD BE INSPECTED AFTER EVERY STORM AND AT THE END OF THE WORKING DAY.
3. SEDIMENT SHALL BE CONTAINED WITHIN THE CONSTRUCTION SITE AND AWAY FROM ALL DRAINAGE STRUCTURES. INSTALL TEMPORARY EROSION CONTROLS AT DESIGNATED CATCH BASIN GRATES TO PREVENT SEDIMENT FROM ENTERING NEWLY CONSTRUCTED OR EXISTING DRAINAGE SYSTEMS.
4. CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES, AND REMOVE SEDIMENT THEREFROM ON A WEEKLY BASIS AND WITHIN TWELVE HOURS AFTER EACH STORM EVENT AND DISPOSE OF SEDIMENTS IN AN UPLAND AREA SUCH THAT THEY DO NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS AS OUTLINED IN SWPPP.
5. ALL SLOPES GREATER THAN 3:1 (HORIZONTAL TO VERTICAL) WILL BE STABILIZED WITH SEED AND SECURED BY GEO-TEXTILE FABRIC, OR ROCK RIP-RAP AS REQUIRED TO PREVENT EROSION DURING CONSTRUCTION.
6. EROSION CONTROL BLANKETS ARE TO BE INSTALLED ON 1:6 DRAINAGE RESERVE AREA SLOPES ADJACENT TO SHEET FLOW UNTIL VEGETATION IS ESTABLISHED.
7. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
8. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
9. ALL ADJACENT PUBLIC ROADS SHALL BE KEPT CLEAN AND FREE OF SEDIMENT AND DEBRIS AT ALL TIMES.
10. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE AND SEWER SYSTEMS.

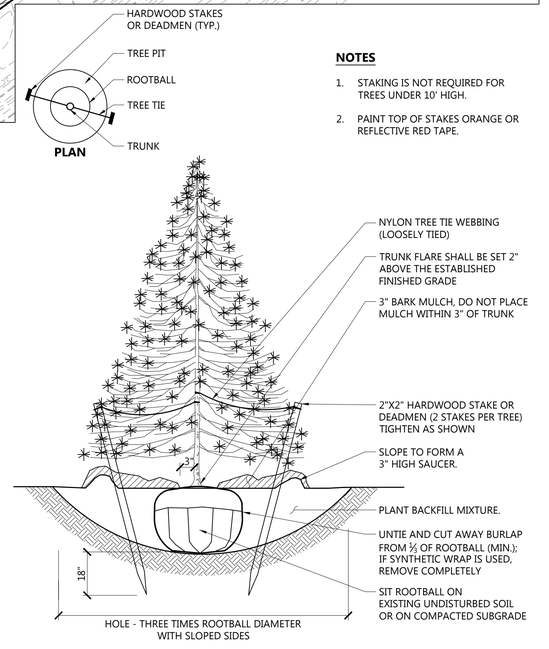
SOLAR FARM SEED MIX

% SEED	BOTANICAL NAME	COMMON NAME
30%	Festuca rubra	Creeping Red Fescue
30%	Festuca ovina 'Whisper'	Sheep Fescue 'Whisper'
15%	Festuca ovina var. duriuscula (F. longifolia) 'Heron'	Hard Fescue 'Heron'
15%	Festuca brevipila 'Chariot'	Hard Fescue 'Chariot'
10%	Lolium multiflorum (L. perenne var. italicum)	Annual Ryegrass

Total 100%

SEED MIX NOTES:

1. DISTURBED AREAS TO BE SEEDED ONLY. SEEDING RATE TO BE 6 LB PER 1,000 SF. SEED MIX TO BE ERNMX-186 "SOLAR FARM SEED MIX" AS MANUFACTURED BY ERNST CONSERVATION SEEDS, 8884 MERCER PIKE, MEADVILLE PA, 16335 (800) 873-3321.
2. CONTRACTOR SHALL INSTALL & MAINTAIN (DURING MAINTENANCE PERIOD & PRIOR TO ACCEPTANCE) SEED APPLICATION AS PER MANUFACTURER'S ESTABLISHMENT AND RECOMMENDATIONS.
3. CONTRACTOR SHALL SUBMIT SOURCE, SAMPLE, CERTIFIED SEED ANALYSIS, AND DETAILED METHOD OF INSTALLATION & ESTABLISHMENT FOR LANDSCAPE ARCHITECT APPROVAL PRIOR TO ORDERING.



NOTES

1. STAKING IS NOT REQUIRED FOR TREES UNDER 10' HIGH.
2. PAINT TOP OF STAKES ORANGE OR REFLECTIVE RED TAPE.

Evergreen Tree Planting

1/16

N.T.S. Source: VHB LD_604

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Engineering, Surveying & Landscape Architecture, PC
100 Motor Parkway
Suite 135
Hauppauge, NY 11788
631.787.3400

PLANNING BOARD CERTIFICATION

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Signature by Planning Board Chairperson _____

Date of signature _____

sPower Calverton

Middle Country Road & Peconic Avenue
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Designed by DP | Checked by CR

Issued for: Site Plan Review | Date: August 15, 2016

Not Approved for Construction

Drawing Title: Collection Facility Grading Plan / Landscape Plan

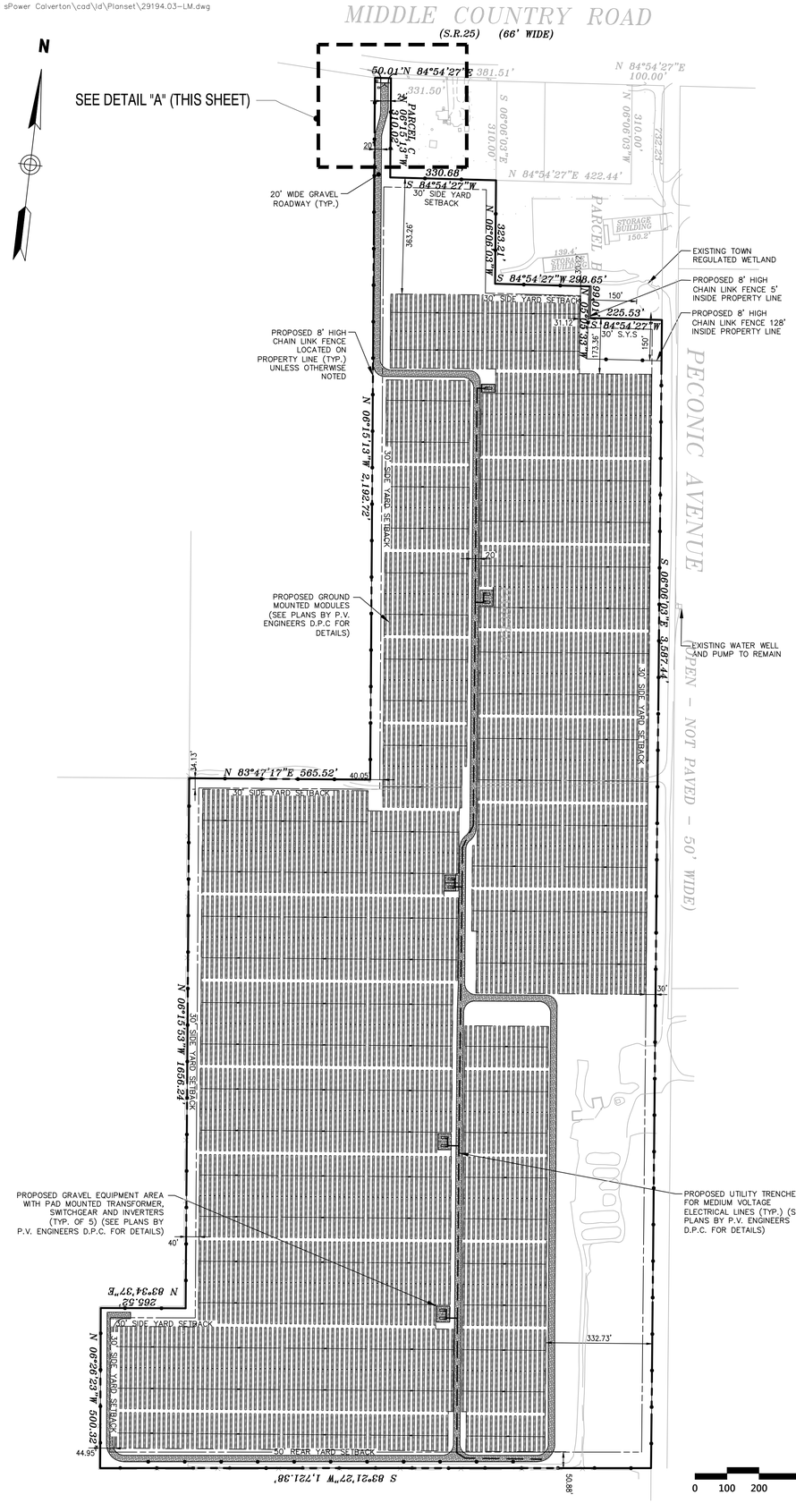
Drawing Number: C-4

Sheet 4 of 13

Project Number: 29194.03

Saved Tuesday, November 15, 2016 5:18:48 PM DPONTIERI Plotted Thursday, January 26, 2017 5:24:14 PM Pontieri, Danielle

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Zoning Summary Chart- Parcel B

Existing Zoning District:	Industrial C
Overlay District:	Commercial Solar Energy Production Systems
Existing Use:	Sod Operations
Proposed Use:	Solar Facility

Industrial C Dimensional Criteria

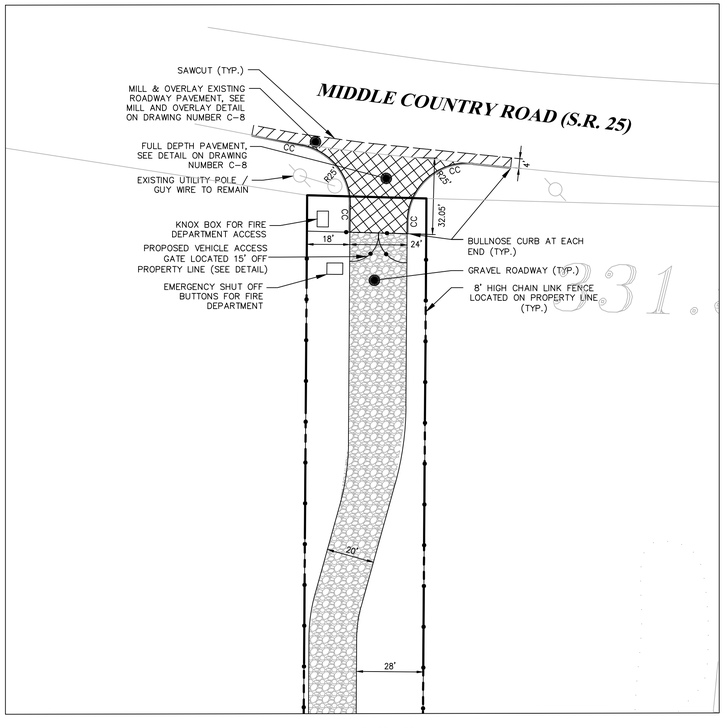
Section	Zoning Regulation	Requirement	Existing	Proposed	Conforms
§108 ATTACHMENT 3	MINIMUM LOT AREA	80,000 SF	N/A	4,784,110 SF (109.9 Acres)	YES
§108 ATTACHMENT 3	MINIMUM LOT WIDTH AT FRONT STREET	300 Feet	N/A	50 Feet	NO
§108 ATTACHMENT 3	BUILDING LOT COVERAGE	40 %	0%	35%	YES
§108 ATTACHMENT 3	MAXIMUM IMPERVIOUS SURFACE	60 %	0%	35%	YES
§108 ATTACHMENT 3	MAXIMUM HEIGHT OF BUILDINGS	30 Feet	N/A	N/A	YES
§108 ATTACHMENT 3	MAXIMUM F.A.R.	0.40	0.00	N/A	YES
§108 ATTACHMENT 3	MINIMUM FRONT YARD DEPTH	30 Feet	> 30 Feet	N/A	YES
§108 ATTACHMENT 3	MINIMUM SIDE YARD DEPTH (EACH/COMBINED)	30 Feet / 60 Feet	> 30 Feet / > 60 Feet	30.12 Feet / 61.24 Feet	YES
§108 ATTACHMENT 3	MINIMUM REAR YARD DEPTH	50 Feet	> 50 Feet	50.88 Feet	YES

Commercial Solar Energy Production Systems

Section	Zoning Regulation	Requirement	Existing	Proposed	Conforms
§108 ARTICLE XL	MINIMUM LOT AREA	5 Acres	N/A	4,784,110 SF (109.9 Acres)	YES
§108 ARTICLE XL	MAXIMUM LOT COVERAGE	80 %	0%	35%	YES
§108 ARTICLE XL	MAXIMUM PANEL HEIGHT	8 Feet	N/A	8 Feet	YES

Notes

1. CONTRACTOR TO VERIFY AND MARK OUT ANY UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. ANY WELLS FOUND SHALL BE ABANDONED IN ACCORDANCE WITH SUFFOLK COUNTY REGULATIONS.



Detail "A"

SCALE : 1" = 30'

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100 Motor Parkway
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631.787.3400

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Date of signature _____

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Town of Riverhead, Calverton, NY

No.	Revision	Date	Appvd.
1	PER PLANNING BOARD COMMENTS	1/26/2017	CR
1	PER TOWN COMMENTS	11/14/2016	CR
1	PER TOWN COMMENTS	11/14/2016	CR

Designed by DP | Checked by CR

Issued for: Site Plan Review | Date: August 15, 2016

Not Approved for Construction

Drawing Title: Solar Facility Layout, Materials and Utility Plan

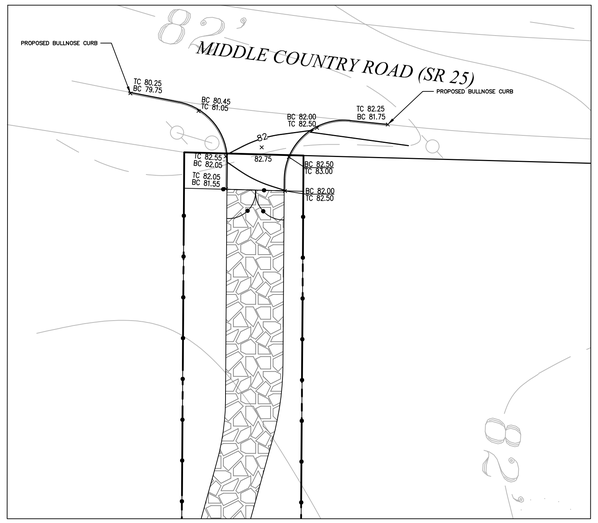
Drawing Number: C-5

Sheet 5 of 13

Project Number: 29194.03

Saved Tuesday, November 15, 2016 4:35:20 PM DPONTIERI Plotted Thursday, January 26, 2017 6:03:45 PM Pontieri, Danielle

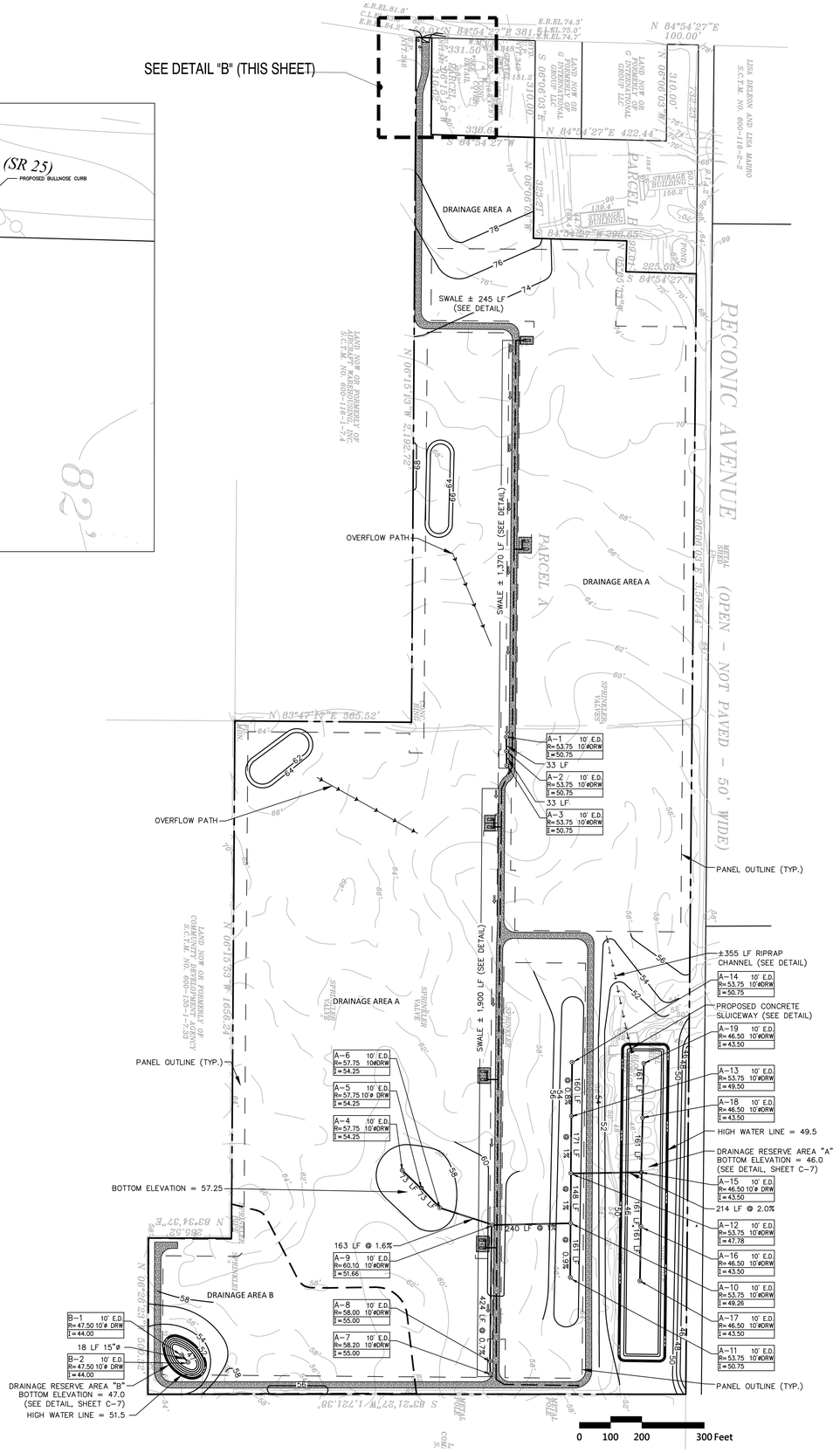
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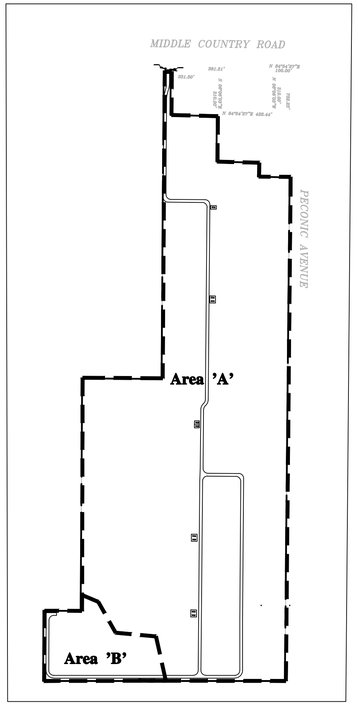


Detail "B"

SCALE : 1" = 30'

SEE DETAIL "B" (THIS SHEET)





Tributary Area Map

Legend

→	OVERFLOW PATH
⇒	SWALE
⟶	RIPRAP CHANNEL

Notes

1. EXCESS MATERIAL FROM EXCAVATION OF GEN-TIE ROUTE WILL BE PLACED ON THE PROPOSED SITE (LOT A).

Drainage Calculation Summary

Local Drainage Design Criteria

1. STORAGE VOLUME BASED ON A 2-INCH RAINFALL
2. RUNOFF COEFFICIENTS FOR:
   - CONCRETE PADS = 1.00
   - PANELS = 1.00
   - DRAINAGE RESERVE AREAS = 1.00
   - LANDSCAPED, GRASSED, NATURAL, OTHER PERVIOUS AREAS = 0.30
   - GRAVEL ROADS/ EQUIPMENT AREAS = 0.50
3. PER THE GEOTECHNICAL REPORT PREPARED BY GZA GEOENVIRONMENTAL OF NEW YORK DATED SEPTEMBER 1, 2015 GROUNDWATER WAS NOT OBSERVED IN ANY OF THE TEST BORINGS OR TEST PITS HOWEVER A WET SAMPLE WAS ENCOUNTERED AT A DEPTH OF 30 FEET AND 40 FEET AT TEST BORINGS B-4 AND B-1, RESPECTIVELY.
4. INTERCONNECTING PIPE BETWEEN DRYWELLS SHALL BE 15-INCH DIAMETER HDPE SMOOTH INTERIOR WALL CORRUGATED PLASTIC PIPE (CPP), UNLESS OTHERWISE NOTED ON THE PLANS.
5. FOR GRADING AND DRAINAGE DESIGN IT IS ASSUMED THAT ALL SOD IS TO REMAIN IN PLACE.

Drainage Area - A	Contributing Area (SF)		Runoff C		Rainfall (FT)		Volume (CF)
REQUIRED STORAGE VOLUME CALCULATION							
CONCRETE PADS	1,211	X	1.0	X	2/12	=	202
PANELS	1,406,157	X	1.0	X	2/12	=	234,360
DRAINAGE RESERVE AREAS	154,717	X	1.0	X	2/12	=	25,786
LANDSCAPED / GRASSED AREAS	2,716,460	X	0.30	X	2/12	=	135,823
GRAVEL ROADS / EQUIPMENT AREAS	139,032	X	0.50	X	2/12	=	11,586
					REQUIRED STORAGE VOLUME	=	**407,757**
PROVIDED STORAGE VOLUME DESIGN:							
STORAGE VOLUME PROVIDED IN DRAINAGE RESERVE AREA A:	434,681 CF						

Drainage Area - B	Contributing Area (SF)		Runoff C		Rainfall (FT)		Volume (CF)
REQUIRED STORAGE VOLUME CALCULATION							
CONCRETE PADS	0	X	1.0	X	2/12	=	0
PANELS	111,844	X	1.0	X	2/12	=	18,640.67
DRAINAGE RESERVE AREAS	10,240	X	1.00	X	2/12	=	1707
LANDSCAPED / GRASSED AREAS	217,326	X	0.30	X	2/12		10866
GRAVEL ROADS / EQUIPMENT AREAS	27,123	X	0.50	X	2/12		2260
					REQUIRED STORAGE VOLUME	=	**33,473.88**
PROVIDED STORAGE VOLUME DESIGN:							
STORAGE VOLUME PROVIDED IN DRAINAGE RESERVE AREA B: 34,384 CF							

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Engineering, Surveying & Landscape Architecture, PC
100 Motor Parkway
Suite 135
Hauppauge, NY 11788
631.787.3400

PLANNING BOARD CERTIFICATION

This is to certify that this site plan has been approved by the Planning Board of the Town of Riverhead by Planning Board Resolution number _____ dated _____

Signature by Planning Board Chairperson _____

Date of signature _____

sPower Calverton

Middle Country Road & Peconic Avenue
Town of Riverhead, Calverton, NY

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Designed by DP | Checked by CR

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Not Approved for Construction

Drawing Title: **Solar Facility Grading and Drainage Plan**

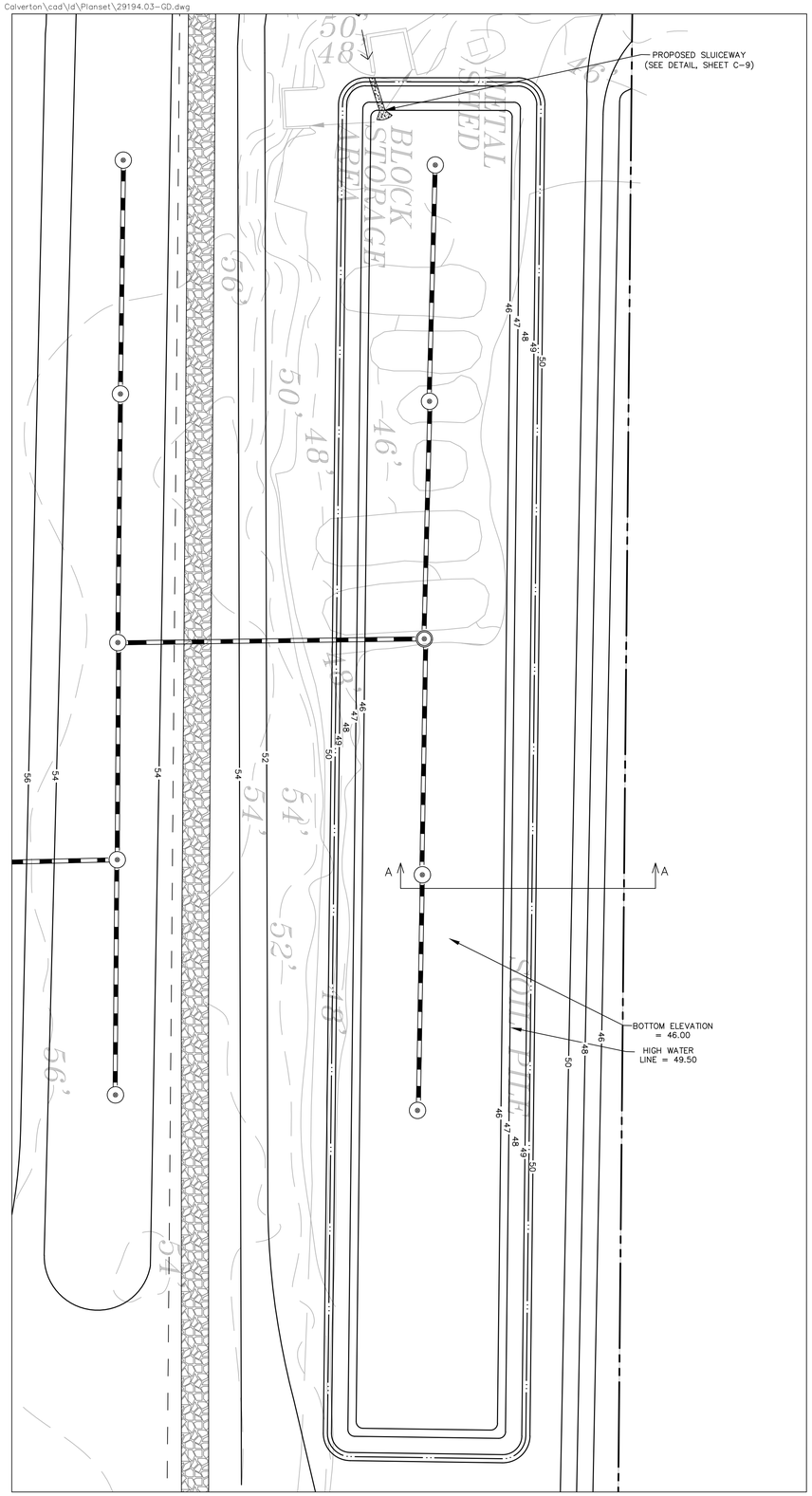
Drawing Number: **C-6**

Sheet 6 of 13

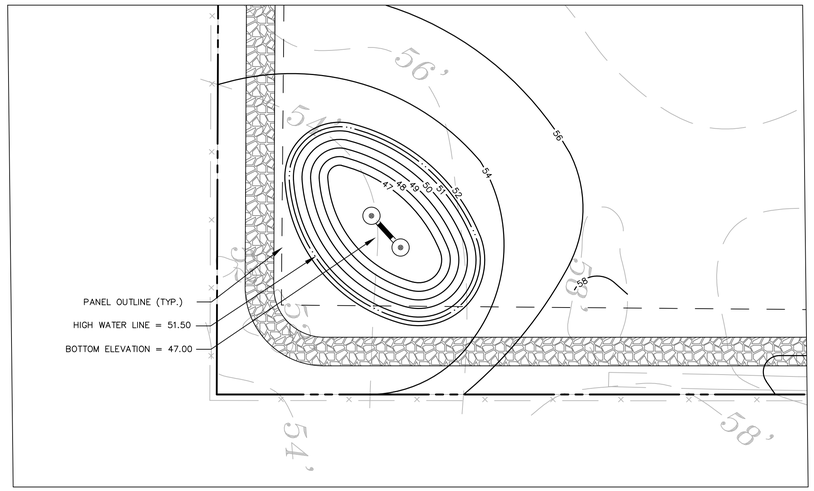
Project Number: 29194.03

Saved Monday, November 14, 2016 11:52:11 AM DPONTIERI Plotted Thursday, January 26, 2017 5:25:57 PM Pontieri, Danielle

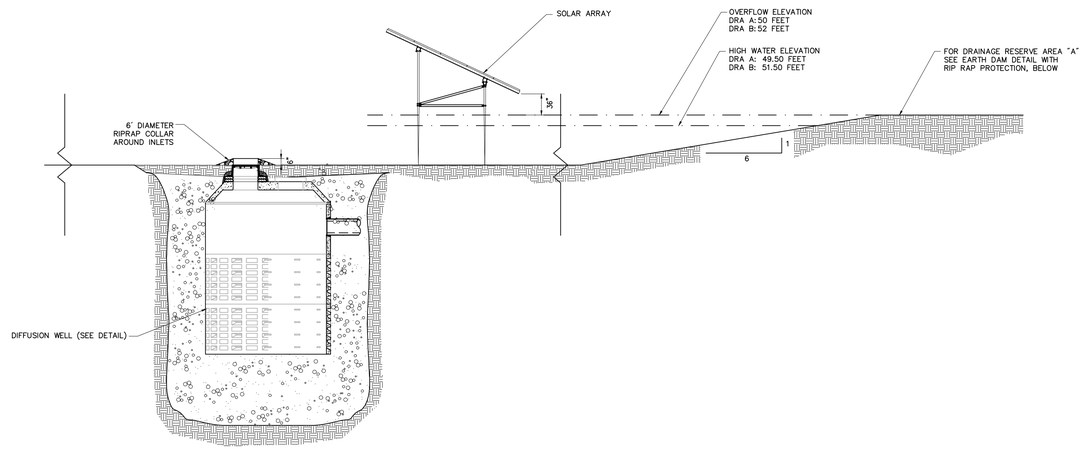
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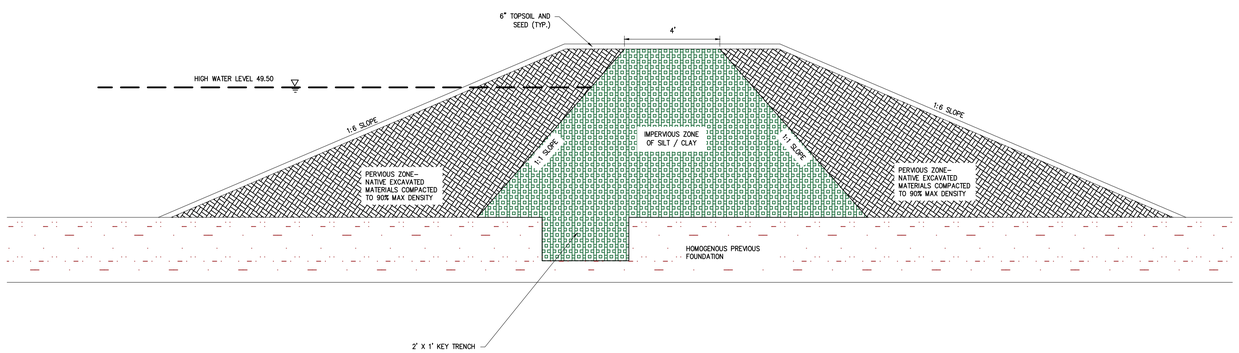
Drainage Reserve Area "A"
1"=50'



Drainage Reserve Area "B"
1"=50'



Drainage Reserve Area Section (A-A)
N.T.S.



Earth Dam Detail (Drainage Reserve Area "A")
N.T.S.

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Landscape Architecture, PC
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Suite 135
Hauppauge, NY 11788
631.787.3400

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Signature by Planning Board Chairperson _____

Date of signature _____

sPower Calverton

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Designed by DP | Checked by CR

Issued for: Site Plan Review | Date: August 15, 2016

Not Approved for Construction

Drawing Title
Solar Facility Drainage Reserve Area Detail

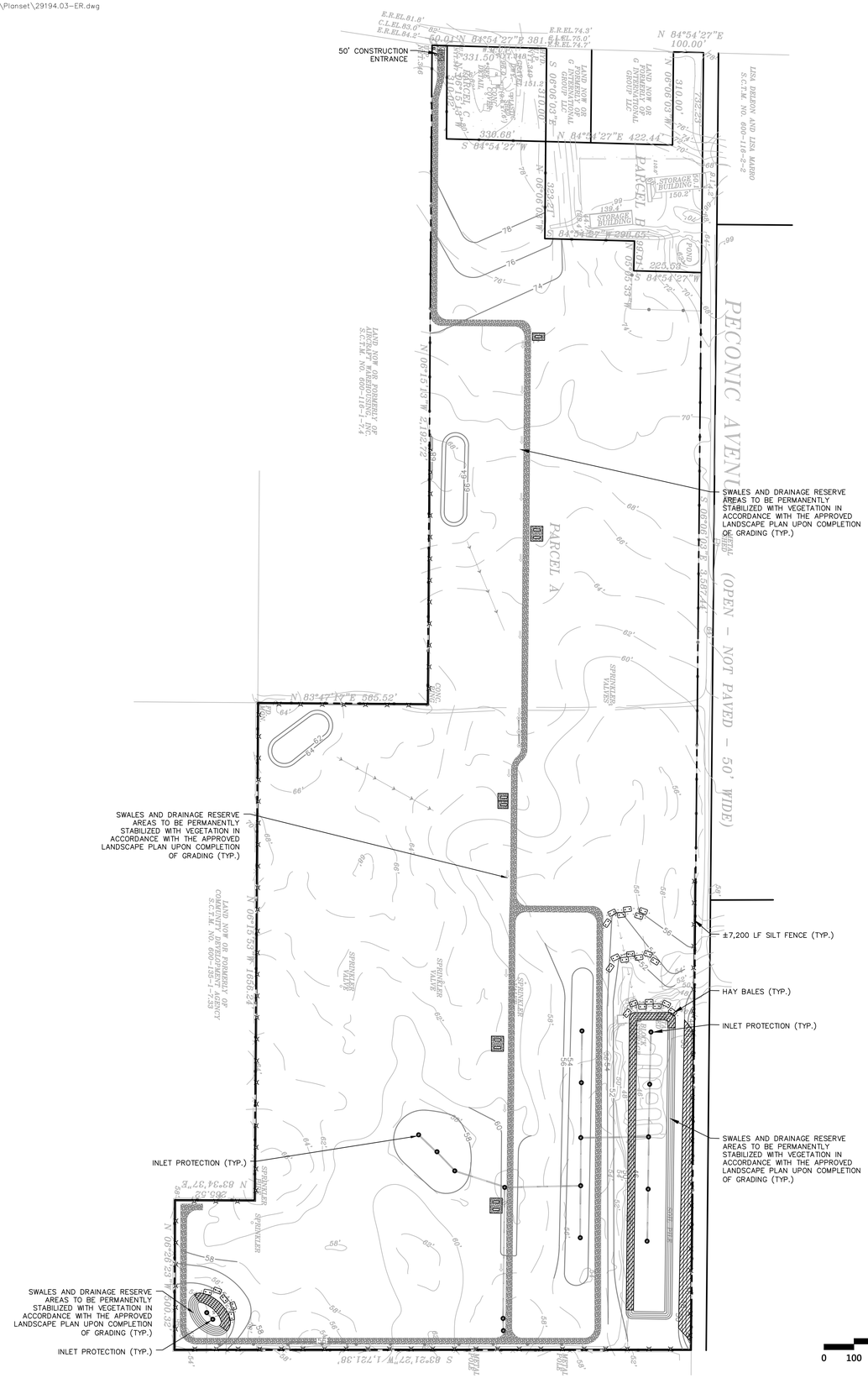
Drawing Number
C-7

Sheet 7 of 13

Project Number
29194.03

Saved Monday, November 14, 2016 11:52:11 AM DPONTIERI Plotted Thursday, January 26, 2017 5:25:42 PM Pontieri, Danielle

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Erosion Control Notes

1. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
2. INSTALL EROSION CONTROL MEASURES AS SHOWN ON PLANS AND DETAILS PRIOR TO CONSTRUCTION. EXCAVATED MATERIAL THAT IS CONTAINED ON SITE SHALL BE SURROUNDED BY HAY BALES AND/OR SILT FENCE AS REQUIRED. SILT FENCES AND HAY BALES SHOULD BE INSPECTED AFTER EVERY STORM AND AT THE END OF THE WORKING DAY.
3. SEDIMENT SHALL BE CONTAINED WITHIN THE CONSTRUCTION SITE AND AWAY FROM ALL DRAINAGE STRUCTURES. INSTALL TEMPORARY EROSION CONTROLS AT DESIGNATED CATCH BASIN GRATES TO PREVENT SEDIMENT FROM ENTERING NEWLY CONSTRUCTED OR EXISTING DRAINAGE SYSTEMS.
4. CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES, AND REMOVE SEDIMENT THEREFROM ON A WEEKLY BASIS AND WITHIN TWELVE HOURS AFTER EACH STORM EVENT AND DISPOSE OF SEDIMENTS IN AN UPLAND AREA SUCH THAT THEY DO NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS AS OUTLINED IN SWPPP.
5. ALL SLOPES GREATER THAN 3:1 (HORIZONTAL TO VERTICAL) WILL BE STABILIZED WITH SEED AND SECURED BY GEO-TEXTILE FABRIC, OR ROCK RIP-RAP AS REQUIRED TO PREVENT EROSION DURING CONSTRUCTION.
6. EROSION CONTROL BLANKETS ARE TO BE INSTALLED ON 1:6 DRAINAGE RESERVE AREA SLOPES ADJACENT TO SHEET FLOW UNTIL VEGETATION IS ESTABLISHED.
7. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
8. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
9. ALL ADJACENT PUBLIC ROADS SHALL BE KEPT CLEAN AND FREE OF SEDIMENT AND DEBRIS AT ALL TIMES.
10. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE AND SEWER SYSTEMS.

LEGEND

- CONSTRUCTION ENTRANCE
- INLET PROTECTION
- SILT FENCE
- STRAW BALE BARRIER
- EROSION CONTROL BLANKET

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631.787.3400

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Drawing Title
Erosion and Sediment Control Plan

Drawing Number
C-8

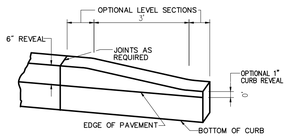
Sheet 8 of 13

Project Number
29194.03

Saved Tuesday, November 15, 2016 4:35:13 PM DPONTIERI Plotted Thursday, January 26, 2017 5:25:17 PM Pontieri, Danielle

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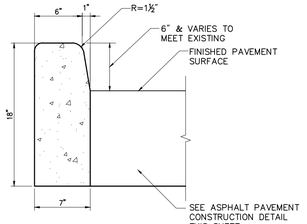
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Concrete Curb Transitions(Bullnose Curb)

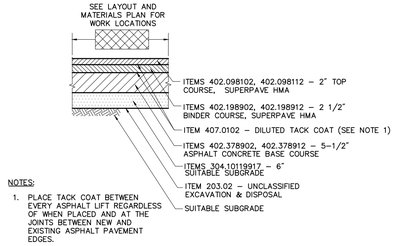
4/07

N.T.S. Source: VHB REV LD_



Concrete Curb - Type A - Item 97A (On Middle Country Rd.)

N.T.S. Source: SCDPW LD_400_A_SCDPW

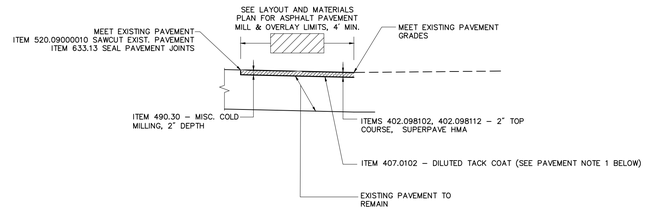


NOTES:

1. PLACE TACK COAT BETWEEN EVERY ASPHALT LIFT REGARDLESS OF WHEN PLACED AND AT THE JOINTS BETWEEN NEW AND EXISTING ASPHALT PAVEMENT EDGES.

Asphalt Pavement Construction Detail

N.T.S.

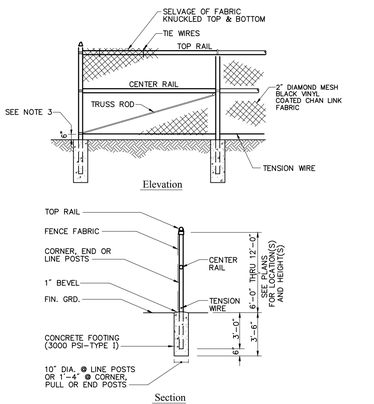


Asphalt Pavement Mill & Overlay Detail- Middle Country Road (NYS 25)

N.T.S.

PAVEMENT NOTES:

1. PLACE TACK COAT BETWEEN EVERY ASPHALT LIFT REGARDLESS OF WHEN PLACED AND AT THE JOINTS BETWEEN NEW AND EXISTING ASPHALT PAVEMENT EDGES.



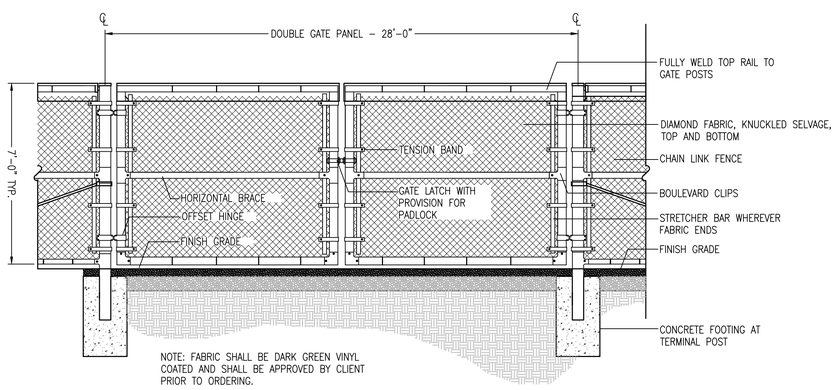
Notes:

1. MATERIALS TO BE SUPPLIED AND INSTALLED IN CONFORMANCE WITH "CHAIN LINK MANUFACTURER'S INSTITUTE" PRODUCT MANUAL.
2. MATERIAL SHALL BE APPROVED BY CLIENT PRIOR TO ORDERING
3. FENCE FABRIC TO BE INSTALLED 6" ABOVE GRADE TO ALLOW FOR SMALL ANIMAL ACCESS

6' to 12' Chain Link Fence

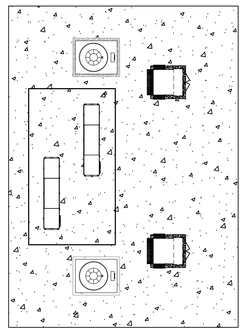
6/08

N.T.S. Source: VHB REV LD_480

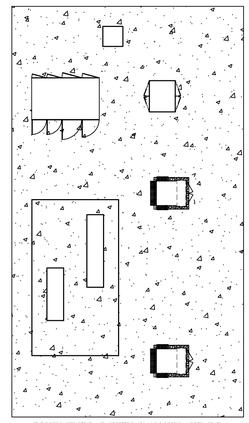


Vehicle Gate

N.T.S. Source: P.V. ENGINEERS



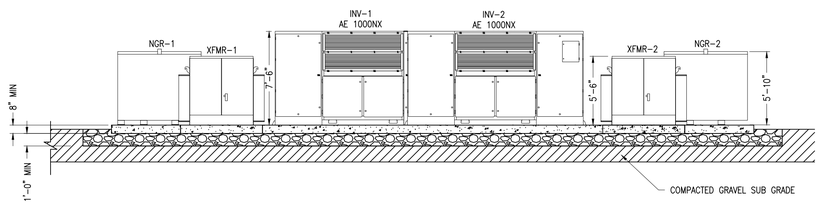
EQUIPMENT PAD WITH RTU, MV SWITCHGEAR, MV METER CABINET, 1000KVA XFMR, 500KVA XFMR, 1000NX INVERTER, LV SWITCHGEAR



EQUIPMENT PAD WITH (2) 1000KVA XFMRS, (2) NGRs, AND (2) 1000NX INVERTERS (TYP U.O.N.)

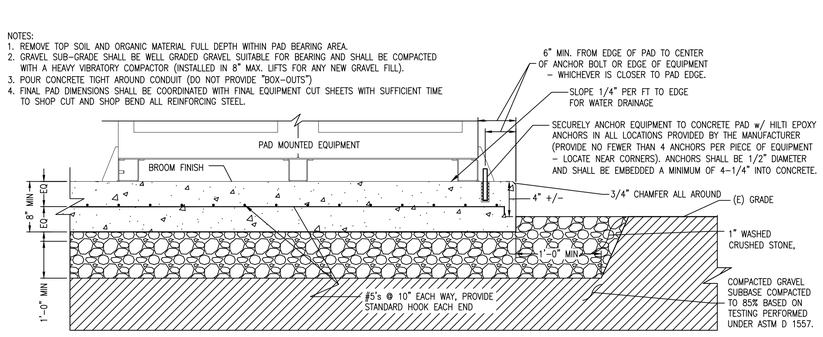
Typical Equipment Pad - Plan View

N.T.S. Source: P.V. ENGINEERS



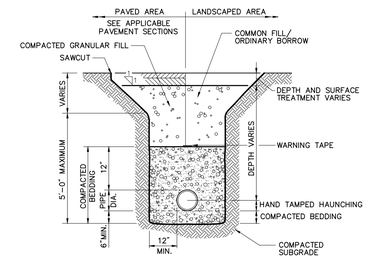
Typical Equipment Pad- Elevation

N.T.S. Source: Borrego Solar



Typical Equipment Pad

N.T.S. Source: P.V. ENGINEERS



Notes:

1. WHERE UTILITY TRENCHES ARE CONSTRUCTED THROUGH DETENTION BASIN BERMS OR OTHER SUCH SPECIAL SECTIONS, PLACE TRENCH BACKFILL WITH MATERIALS SIMILAR TO THE SPECIAL SECTION REQUIREMENTS.
2. USE METALLIC TRACING/WARNING TAPE OVER ALL PIPES.

Utility Trench

8/11

N.T.S. Source: VHB REV LD_300

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Date of signature _____

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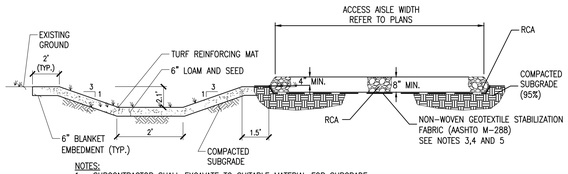
Drawing Title: Site Details 1

Drawing Number C-9

Sheet 9 of 13

Project Number 29194.03

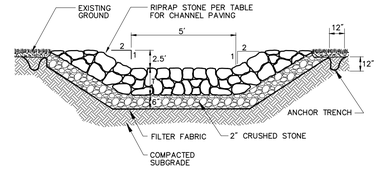
Saved Tuesday, November 15, 2016 4:01:26 PM DPONTIERI Plotted Thursday, January 26, 2017 5:16:14 PM Pontieri, Danielle



NOTES:
1. SUBCONTRACTOR SHALL EXCAVATE TO SUITABLE MATERIAL FOR SUBGRADE.
2. SUBCONTRACTOR SHALL COMPACT SUBGRADE TO PROVIDE SUITABLE SURFACE TO PLACE ROAD.
3. GEOTEXTILE FABRIC SHALL MEET THE FOLLOWING REQUIREMENTS:
   - TENSILE STRENGTH: 150 LB MIN.
   - ELONGATION: 50%
   - CBR PUNCTURE: 400 LB MIN.
   - MINIMUM WATER FLOW RATE: 120 GPM / FT²
4. SUBCONTRACTOR SHALL FOLLOW GEOTEXTILE FABRIC MANUFACTURER INSTALLATION PROCEDURES.
5. WHERE OVERLAPPING OF GEOTEXTILE FABRIC IS REQUIRED, SUBCONTRACTOR SHALL OVERLAP A MINIMUM OF 24".
6. SUBCONTRACTOR SHALL REMOVE CONSTRUCTION ACCESS ONLY AND RESTORE TO PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE OWNER AND THE GOVERNING AGENCIES.

Gravel Access Cross Section / Grassed Swale

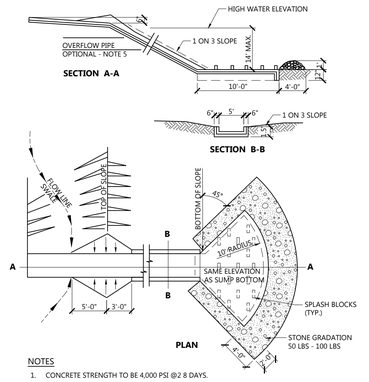
N.T.S. Source: Borrego Solar / VHB



Riprap Channel

6/08

N.T.S. Source: VHB REV LD_170

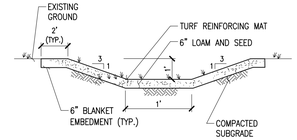


NOTES
1. CONCRETE STRENGTH TO BE 4,000 PSI @2 8 DAYS.
2. REINFORCE WITH WWM #6 6"x6".
3. SUBGRADE SHALL BE COMPACTED TO 95% MAX. DENSITY.
4. ONLY MONOLITHIC POUR WILL BE PERMITTED.
5. OVERFLOW MAY BE INCORPORATED INTO SLUICE WHEN APPROVED BY THE TOWN ENGINEER.

Sluiceway

7/16

N.T.S.



NOTES:
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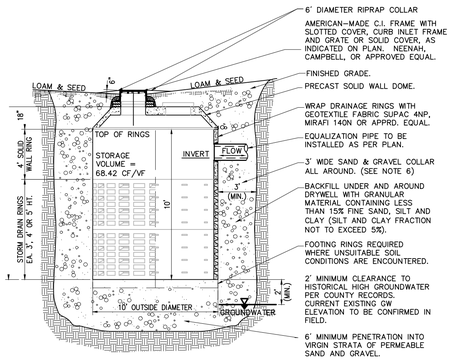
Grassed Swale (Edwards Avenue Site)

6/08

N.T.S. Source: VHB LD_170



Half Plan - Shallow Dome



Half Profile / Half Section

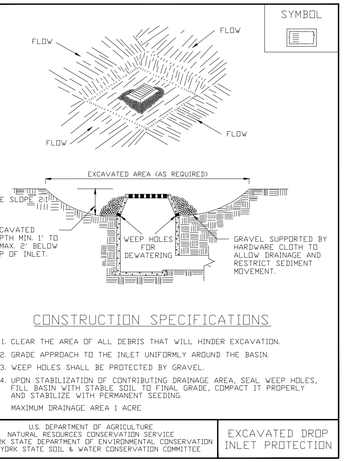
Notes:

1. ALL PRECAST STRUCTURES SHALL BE PROVIDED WITH SUFFICIENT STEEL REINFORCEMENT FOR TEMPERATURE AND SHRINKAGE, AND SHALL BE DESIGNED FOR HS-20 LOADING.
2. ALL SHOP DRAWINGS AND DRILL SHEETS FOR PRECAST STRUCTURES SHALL INCLUDE MANUFACTURER'S CERTIFICATION THAT THE STRUCTURES ARE DESIGNED TO WITHSTAND SAID LOADING.
3. ALL PRECAST STRUCTURES SHALL BE MANUFACTURED WITH 4,000 PSI / 28 DAY STRENGTH CONCRETE.
4. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE JOINTS.
5. FRAME AND COVER SHALL BE SET IN FULL MORTAR BED, ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES, MIN.; 5 BRICK COURSES, MAX.)
6. NATIVE MATERIAL TO BE USED AS COLLAR MATERIAL IF DETERMINED TO BE SUITABLE BY THE ENGINEER.
7. CONTRACTOR SHALL PROVIDE NECESSARY PROTECTION FOR ADJACENT PROPERTIES AND UTILITIES DURING EXCAVATION OF DRYWELLS.

Precast Storm Water Drainage Drywell - 10-foot Dia. (DRW)

9/06

N.T.S. Source: VHB REV DRYWELL



Notes:

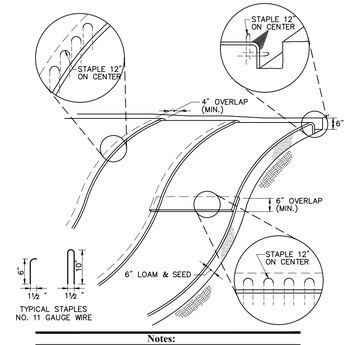
CLASS I, II, OR III COMPACTED BACKFILL MATERIAL REQUIRED IN ALL PIPE ZONES, PER SUFFOLK COUNTY DHS STANDARDS.

IF DEPTH OF TRENCH EXCEEDS 5', THE CONTRACTOR MUST PROVIDE SHEETING AND BRACING OR A SHEETING BOX IN ACCORDANCE WITH OSHA REGULATION AS AN ALTERNATIVE, IF PERMITTED BY THE ENGINEER, THE TRENCH WALLS MAY BE CUT BACK TO A 1:1 SLOPE OR THE NATURAL ANGLE OF REPOSE FOR THE SOIL, WHICHEVER IS GREATER.

WHERE PIPE IS INSTALLED WITH LESS THAN 3' OF COVER, ALL BACKFILL MATERIAL THROUGH THE PIPE ZONE IS TO BE CLASS I MATERIAL.

Pipe Trench

N.T.S. Source: VHB REV



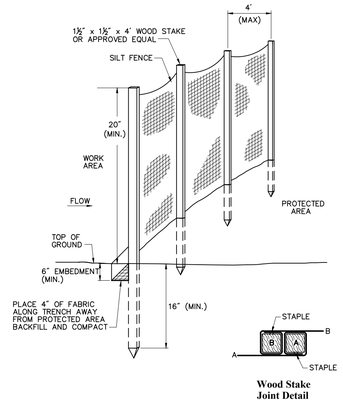
Notes:

1. BEGIN AT THE TOP OF BLANKET INSTALLATION AREA BY ANCHORING BLANKET IN A 6" DEEP TRENCH BACKFILL AND COMPACT TRENCH AFTER STAPLING.
2. ROLL THE BLANKET DOWN THE SWALE IN THE DIRECTION OF THE WATER FLOW.
3. THE EDGES OF BLANKETS MUST BE STAPLED WITH APPROX. 4 INCH OVERLAP WHERE 2 OR MORE STRIP WIDTHS ARE REQUIRED.
4. WHEN BLANKETS MUST BE SPLICED DOWN THE SWALE, PLACE UPPER BLANKET END OVER LOWER END WITH 6 INCH (MIN.) OVERLAP AND STAPLE BOTH TOGETHER.
5. METHOD OF INSTALLATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS.
6. EROSION CONTROL BLANKETS SHALL BE USED IN ALL AREAS WHERE SLOPES EXCEED 3:1.

Erosion Control Blanket Slope Installation

1/10

N.T.S. Source: VHB REV LD_680



Wood Stake Joint Detail

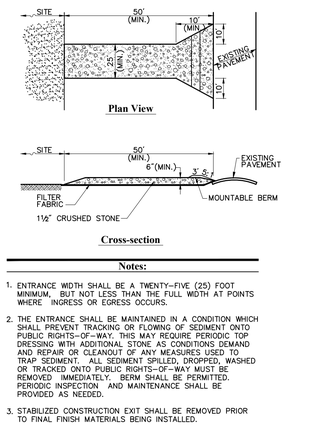
Silt Fence Barrier

6/08

N.T.S. Source: VHB LD_650

Excavated Drop Inlet Protection

N.T.S. Source: NYSDEC



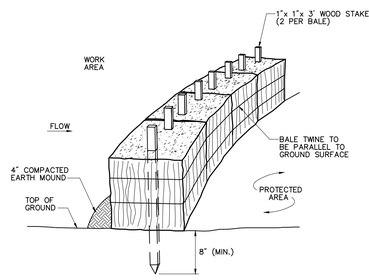
Notes:

1. ENTRANCE WIDTH SHALL BE A TWENTY-FIVE (25) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY. BERM SHALL BE PERMITTED. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED AS NEEDED.
3. STABILIZED CONSTRUCTION EXIT SHALL BE REMOVED PRIOR TO FINAL FINISH MATERIALS BEING INSTALLED.

Stabilized Construction Exit

6/08

N.T.S. Source: VHB REV LD_682



Straw Bale Barrier

2/11

N.T.S. Source: VHB REV LD_653

vhb.com

vhb

Engineering, Surveying & Landscape Architecture, PC
100 Motor Parkway
Suite 135
Hauppauge, NY 11788
631.787.3400

PLANNING BOARD CERTIFICATION

This is to certify that this site plan has been approved by the Planning Board of the Town of Riverhead by Planning Board Resolution number _____ dated _____

Signature by Planning Board Chairperson _____

Date of signature _____

sPower Calverton

Middle Country Road & Peconic Avenue
Town of Riverhead, Calverton, NY

No.	Revision	Date	Appvd.
1	PER PLANNING BOARD COMMENTS	1/26/2017	CR
1	PER TOWN COMMENTS	11/14/2016	CR
1	PER TOWN COMMENTS	11/14/2016	CR

Designed by DP | Checked by CR

Issued for: Site Plan Review | Date: August 15, 2016

Not Approved for Construction

Drawing Title: Site Details 2

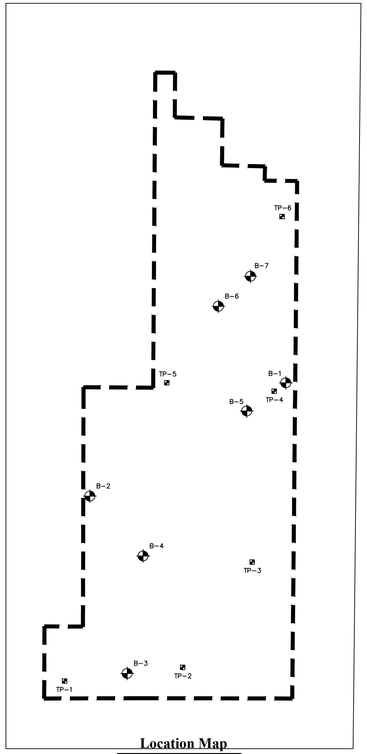
Drawing Number: C-10

Sheet 10 of 13

Project Number: 29194.03

Saved Tuesday, November 15, 2016 4:01:26 PM DPONTIERI Plotted Thursday, January 26, 2017 5:16:04 PM Pontieri, Danielle

P:\29194.03 sPower Calverton\cad\d\Planset\29194.03-BOR.dwg



Location Map

TEST BORING LOG

GZA GeoEnvironmental, Inc. — Engineers and Scientists

Proposed Solar Power Facility — Peconic Avenue — Calverton, NY 11933

EXPLORATION NO.: B-01 — SHEET: 1 of 2 — PROJECT NO: 41.0162323.00 — REVIEWED BY: M. Khaleel

Logged By: J. Jackson — Drilling Co.: LAWES — Foreman: E. Santiago

Type of Rig: Diedrich — Rig Model: 7800 — Drilling Method: Drive

Boring Location: See Note [*] — Ground Surface Elev. (ft.): 62 — Final Boring Depth (ft.): 42 — Date Start - Finish: 8/13/2015 - 8/13/2015

H. Datum: NAD 83 — V. Datum: NAVD 88

Hammer Type: Automatic Hammer — Hammer Weight (lb.): 140 — Hammer Fall (in.): 30 — Auger or Casing O.D./I.D Dia (in.): 3.5/3.0

Sampler Type: SS — Sampler O.D. (in.): 2.0 — Sampler Length (in.): 24 — Rock Core Size:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
SEE	NOTE 1		

Depth (ft)	Casing Blows / Size	Sample No.	Sample Depth (ft)	Sample Pen (in)	Sample Rec (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identifications (Modified Burmister Procedure)	Sample Stratum	Field Test Data	Stratum El. (ft)	Stratum Description	Stratum Depth (ft)
0		S-1	0-2	24	18	1 1 1	2 3	S-1 : Very loose, brown, fine to coarse SAND, trace Silt, some fine Gravel.	1		1.0	TOPSOIL	60.0
5		S-2	2-4	24	19	4 1 2	1 3	S-2 : Very loose, tan, fine to coarse SAND and GRAVEL, little Silt. (SP)					
		S-3	4-6	24	18	1 6	3 7	S-3 : Loose, tan, fine to coarse SAND, trace fine Gravel. trace Silt. (SP)					
		S-4	6-8	24	20	6 8	8 14	S-4 : Medium dense, light brown, fine to medium SAND, trace fine Gravel, trace Silt. (SP)				SAND (SP)	
10		S-5	8-10	24	20	5 6	6 12	S-5 : Medium dense, light brown, fine to medium SAND, trace fine Gravel, trace Silt. (SP)					
		S-6	10-12	24	15	6 4	8 12	S-6 : Medium dense, light brown, fine to medium SAND, trace fine Gravel, trace Silt. (SP)					
15		S-7	15-17	24	22	7 5	4 9	S-7 : Loose, tan, fine to medium SAND, trace Silt, trace fine Gravel. (SP)					
20		S-8	20-22	24	18	7 5	5 10	S-8 : Medium dense, light brown, fine to coarse SAND, some fine Gravel, trace Silt. (SP)					
25		S-9	25-27	24	19	3 4	4 8	S-9 : Loose, light brown, fine SAND, trace fine Gravel, trace Silt. (SP)					
30													

REMARKS: - * N 40.55' 18.4", W 72.45' 47.2" (taken using GPS map 60 CSx handheld gps).

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-01

TEST BORING LOG

GZA GeoEnvironmental, Inc. — Engineers and Scientists

Proposed Solar Power Facility — Peconic Avenue — Calverton, NY 11933

EXPLORATION NO.: B-41 — SHEET: 1 of 2 — PROJECT NO: 41.0162323.00 — REVIEWED BY: M. Khaleel

Logged By: J. Jackson — Drilling Co.: LAWES — Foreman: E. Santiago

Type of Rig: Diedrich — Rig Model: 7800 — Drilling Method: Drive

Boring Location: See Note [*] — Ground Surface Elev. (ft.): 60 — Final Boring Depth (ft.): 42 — Date Start - Finish: 8/12/2015 - 8/12/2015

H. Datum: NAD 83 — V. Datum: NAVD 88

Hammer Type: Automatic Hammer — Hammer Weight (lb.): 140 — Hammer Fall (in.): 30 — Auger or Casing O.D./I.D Dia (in.): 3.5/3.0

Sampler Type: SS — Sampler O.D. (in.): 2.0 — Sampler Length (in.): 24 — Rock Core Size:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
SEE	NOTE 1		

Depth (ft)	Casing Blows / Size	Sample No.	Sample Depth (ft)	Sample Pen (in)	Sample Rec (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identifications (Modified Burmister Procedure)	Sample Stratum	Field Test Data	Stratum El. (ft)	Stratum Description	Stratum Depth (ft)
30	S-10	30-32	24	15	8 7	9 8	15	S-10 : Medium dense, light brown, fine to medium SAND, trace fine Gravel, little Silt. (SP)	1				
	S-11	35-37	24	19	5 8	7 7	13	S-11 : Medium dense, light brown, fine to medium SAND, trace Silt, trace Silt. (SP)				SAND (SP)	
40	S-12	40-42	24	18	3 9	5 10	14	S-12 : Medium dense, light brown, fine to medium SAND, wet. (SP)					
								End of exploration at 42 feet.	2		40		20.0
50													
55													
60													

REMARKS: 1 - Wet sample at 40-42 feet. 2 - Backfilled with gravel upon completion.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-01

TEST BORING LOG

GZA GeoEnvironmental, Inc. — Engineers and Scientists

Proposed Solar Power Facility — Peconic Avenue — Calverton, NY 11933

EXPLORATION NO.: B-02 — SHEET: 1 of 1 — PROJECT NO: 41.0162323.00 — REVIEWED BY: M. Khaleel

Logged By: J. Jackson — Drilling Co.: LAWES — Foreman: E. Santiago

Type of Rig: Diedrich — Rig Model: 7800 — Drilling Method: Drive

Boring Location: See Note [*] — Ground Surface Elev. (ft.): 65 — Final Boring Depth (ft.): 22 — Date Start - Finish: 8/13/2015 - 8/13/2015

H. Datum: NAD 83 — V. Datum: NAVD 88

Hammer Type: Automatic Hammer — Hammer Weight (lb.): 140 — Hammer Fall (in.): 30 — Auger or Casing O.D./I.D Dia (in.): 3.5/3.0

Sampler Type: SS — Sampler O.D. (in.): 2.0 — Sampler Length (in.): 24 — Rock Core Size:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
NOT ENCOUNTERED			

Depth (ft)	Casing Blows / Size	Sample No.	Sample Depth (ft)	Sample Pen (in)	Sample Rec (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identifications (Modified Burmister Procedure)	Sample Stratum	Field Test Data	Stratum El. (ft)	Stratum Description	Stratum Depth (ft)
0		S-1	0-2	24	19	1 1	2 3	S-1 : Very loose, light brown, fine to coarse SAND, trace fine Gravel, little Silt. (SP)	1		0.2	TOPSOIL	64.7
		S-2	2-4	24	20	3 3	4 7	S-2 : Loose, tan, fine to coarse SAND, trace fine Gravel, trace Silt. (SP)					
5		S-3	4-6	24	17	2 6	5 11	S-3 : Medium dense, tan, fine to coarse SAND, trace fine Gravel, trace Silt. (SP)					
		S-4	6-8	24	16	3 5	6 11	S-4 : Medium dense, fine to coarse SAND, trace fine to coarse Gravel, trace Silt. (SP)				SAND (SP)	
10		S-5	8-10	24	18	4 5	4 9	S-5 : Loose, tan, fine to medium SAND, trace fine to coarse Gravel, trace Silt. (SP)					
		S-6	10-12	24	17	4 7	3 7	S-6 : Loose, tan, fine to coarse SAND, trace fine to coarse Gravel, trace Silt. (SP)					
15		S-7	15-17	24	24	5 7	7 14	S-7 : Medium dense, fine to coarse SAND, trace fine Gravel, trace Silt. (SP)					
20		S-8	20-22	24	15	7 8	7 15	S-8 : Medium dense, fine to coarse SAND, trace fine Gravel, trace Silt. (SP)					
25								End of exploration at 22 feet.	1		22		43.0
30													

REMARKS: - * N 40.55' 9.8", W 72.46' 5.3" (Taken using GPS map 60 CSx handheld gps). 1 - Backfilled with gravel upon completion.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-02

TEST BORING LOG

GZA GeoEnvironmental, Inc. — Engineers and Scientists

Proposed Solar Power Facility — Peconic Avenue — Calverton, NY 11933

EXPLORATION NO.: B-03 — SHEET: 1 of 1 — PROJECT NO: 41.0162323.00 — REVIEWED BY: M. Khaleel

Logged By: J. Jackson — Drilling Co.: LAWES — Foreman: E. Santiago

Type of Rig: Diedrich — Rig Model: 7800 — Drilling Method: Drive

Boring Location: See Note [*] — Ground Surface Elev. (ft.): 61 — Final Boring Depth (ft.): 22 — Date Start - Finish: 8/12/2015 - 8/12/2015

H. Datum: NAD 83 — V. Datum: NAVD 88

Hammer Type: Automatic Hammer — Hammer Weight (lb.): 140 — Hammer Fall (in.): 30 — Auger or Casing O.D./I.D Dia (in.): 3.5/3.0

Sampler Type: SS — Sampler O.D. (in.): 2.0 — Sampler Length (in.): 24 — Rock Core Size:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
NOT ENCOUNTERED			

Depth (ft)	Casing Blows / Size	Sample No.	Sample Depth (ft)	Sample Pen (in)	Sample Rec (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identifications (Modified Burmister Procedure)	Sample Stratum	Field Test Data	Stratum El. (ft)	Stratum Description	Stratum Depth (ft)
0		S-1	0-2	24	20	3 4	7 9	S-1 : Very loose, brown, fine to coarse SAND, little Silt, trace fine Gravel.	1		1	TOPSOIL	60.0
		S-2	2-4	24	17	4 6	4 10	S-2 : Medium dense, tan, fine to coarse SAND, trace fine Gravel, trace Silt. (SP)					
5		S-3	4-6	24	16	7 8	7 15	S-3 : Medium dense, tan, fine to coarse SAND, trace fine Gravel, trace Silt. (SP)					
		S-4	6-8	24	20	6 8	8 14	S-4 : Medium dense, light tan, fine to coarse SAND, trace fine Gravel, trace Silt. (SP)				SAND (SP)	
10		S-5	8-10	24	24	6 5	6 11	S-5 : Medium dense, tan to light tan, fine to medium SAND, trace fine Gravel, trace Silt. (SP)					
		S-6	10-12	24	24	4 5	5 10	S-6 : Medium dense, light tan, fine to coarse SAND, trace fine Gravel, trace Silt. (SP)					
15		S-7	15-17	24	22	7 9	9 18	S-7 : Medium dense, light brown, fine to medium SAND, trace Silt. (SP)					
20		S-8	20-22	24	19	5 13	12 25	S-8 : Medium dense, tan, fine to medium SAND, trace Silt, trace fine Gravel. (SP)					
25								End of exploration at 22 feet.	1		22		38.0
30													

REMARKS: - * N 40.54' 57.4", W 72.45' 59.6" (Taken using GPS map 60 CSx handheld gps). 1 - Backfilled with gravel upon completion.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-03

TEST BORING LOG

GZA GeoEnvironmental, Inc. — Engineers and Scientists

Proposed Solar Power Facility — Peconic Avenue — Calverton, NY 11933

EXPLORATION NO.: B-43 — SHEET: 1 of 2 — PROJECT NO: 41.0162323.00 — REVIEWED BY: M. Khaleel

Logged By: J. Jackson — Drilling Co.: LAWES — Foreman: E. Santiago

Type of Rig: Diedrich — Rig Model: 7800 — Drilling Method: Drive

Boring Location: See Note [*] — Ground Surface Elev. (ft.): 62 — Final Boring Depth (ft.): 42 — Date Start - Finish: 8/12/2015 - 8/12/2015

H. Datum: NAD 83 — V. Datum: NAVD 88

Hammer Type: Automatic Hammer — Hammer Weight (lb.): 140 — Hammer Fall (in.): 30 — Auger or Casing O.D./I.D Dia (in.): 3.5/3.0

Sampler Type: SS — Sampler O.D. (in.): 2.0 — Sampler Length (in.): 24 — Rock Core Size:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
SEE	NOTE 1		

Depth (ft)	Casing Blows / Size	Sample No.	Sample Depth (ft)	Sample Pen (in)	Sample Rec (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identifications (Modified Burmister Procedure)	Sample Stratum	Field Test Data	Stratum El. (ft)	Stratum Description	Stratum Depth (ft)
30	S-10	30-32	24	20	4 4	5 5	9	S-10 : Loose, light brown, fine to medium SAND, trace fine Gravel, little Silt. (SP)	1				
	S-11	35-37	24	24	6 15	13 12	28	S-11 : Medium dense, light brown, fine to medium SAND, trace fine Gravel, trace Silt. (SP)				SAND (SP)	
40	S-12	40-42	24	0	19 16	14 19	33	S-12 : No recovery.					
								End of exploration at 42 feet.	2		40		22.0
50													
55													
60													

REMARKS: - * N 40.55' 5.5", W 72.46' 59.4" (Taken using GPS map 60 CSx handheld gps).

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-04

TEST BORING LOG

GZA GeoEnvironmental, Inc. — Engineers and Scientists

Proposed Solar Power Facility — Peconic Avenue — Calverton, NY 11933

EXPLORATION NO.: B-44 — SHEET: 2 of 2 — PROJECT NO: 41.0162323.00 — REVIEWED BY: M. Khaleel

Logged By: J. Jackson — Drilling Co.: LAWES — Foreman: E. Santiago

Type of Rig: Diedrich — Rig Model: 7800 — Drilling Method: Drive

Boring Location: See Note [*] — Ground Surface Elev. (ft.): 65 — Final Boring Depth (ft.): 42 — Date Start - Finish: 8/13/2015 - 8/13/2015

H. Datum: NAD 83 — V. Datum: NAVD 88

Hammer Type: Automatic Hammer — Hammer Weight (lb.): 140 — Hammer Fall (in.): 30 — Auger or Casing O.D./I.D Dia (in.): 3.5/3.0

Sampler Type: SS — Sampler O.D. (in.): 2.0 — Sampler Length (in.): 24 — Rock Core Size:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
NOT ENCOUNTERED			

Depth (ft)	Casing Blows / Size	Sample No.	Sample Depth (ft)	Sample Pen (in)	Sample Rec (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identifications (Modified Burmister Procedure)	Sample Stratum	Field Test Data	Stratum El. (ft)	Stratum Description	Stratum Depth (ft)
30	S-10	30-32	24	20	4 4	5 5	9	S-10 : Loose, light brown, fine to medium SAND, trace fine Gravel, little Silt. (SP)	1				
	S-11	35-37	24	24	6 15	13 12	28	S-11 : Medium dense, light brown, fine to medium SAND, trace fine Gravel, trace Silt. (SP)				SAND (SP)	
40	S-12	40-42	24	0	19 16	14 19	33	S-12 : No recovery.					
								End of exploration at 42 feet.	2		40		22.0
50													
55													
60													

REMARKS: 1 - Wet sample at 35-37 feet. 2 - Backfilled with gravel upon completion.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-04

TEST BORING LOG

GZA GeoEnvironmental, Inc. — Engineers and Scientists

Proposed Solar Power Facility — Peconic Avenue — Calverton, NY 11933

EXPLORATION NO.: B-45 — SHEET: 1 of 1 — PROJECT NO: 41.0162323.00 — REVIEWED BY: M. Khaleel

Logged By: J. Jackson — Drilling Co.: LAWES — Foreman: E. Santiago

Type of Rig: Diedrich — Rig Model: 7800 — Drilling Method: Drive

Boring Location: See Note [*] — Ground Surface Elev. (ft.): 59 — Final Boring Depth (ft.): 22 — Date Start - Finish: 8/12/2015 - 8/12/2015

H. Datum: NAD 83 — V. Datum: NAVD 88

Hammer Type: Automatic Hammer — Hammer Weight (lb.): 140 — Hammer Fall (in.): 30 — Auger or Casing O.D./I.D Dia (in.): 3.5/3.0

Sampler Type: SS — Sampler O.D. (in.): 2.0 — Sampler Length (in.): 24 — Rock Core Size:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
NOT ENCOUNTERED			

Depth (ft)	Casing Blows / Size	Sample No.	Sample Depth (ft)	Sample Pen (in)	Sample Rec (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identifications (Modified Burmister Procedure)	Sample Stratum	Field Test Data	Stratum El. (ft)	Stratum Description	Stratum Depth (ft)
0		S-1	0-2	24	18	1 1	2 2	S-1 : Very loose, brown, fine to coarse SAND, little Silt, trace fine Gravel.	1		1.0	TOPSOIL	58.0
		S-2	2-4	24	18	1 2	3 4	S-2 : Loose, tan, light brown, fine to coarse SAND, trace fine to coarse Gravel, trace Silt. (SP)					
5		S-3	4-6	24	15	5 6	5 9	S-3 : Medium dense, brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt. (SP)					
		S-4	6-8	24	12	5 10	9 19	S-4 : Medium dense, tan, fine to coarse SAND, trace fine Gravel, trace Silt. (SP)				SAND (SP)	
10		S-5	8-10	24	14	9 11	10 21	S-5 : Medium dense, tan, fine to coarse SAND, trace to some fine Gravel, trace Silt. (SP)					
		S-6	10-12	24	22	8 11	10 21	S-6 : Medium dense, tan, fine to coarse SAND, trace fine Gravel, trace Silt. (SP)					
15		S-7	15-17	24	21	7 11	10 21	S-7 : Medium dense, tan, fine to coarse SAND, trace fine Gravel, trace Silt. (SP)					
20		S-8	20-22	24	18	8 13	12 25	S-8 : Medium dense, tan, fine to coarse SAND, trace to fine Gravel, trace Silt. (SP)					
25								End of exploration at 22 feet.	1		22		36.0
30													

REMARKS: - * N 40.55' 16.1", W 72.45' 51.1" (Taken using GPS map 60 CSx handheld gps). 1 - Backfilled with gravel upon completion.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-05

TEST BORING LOG

GZA GeoEnvironmental, Inc. — Engineers and Scientists

Proposed Solar Power Facility — Peconic Avenue — Calverton, NY 11933

EXPLORATION NO.: B-46 — SHEET: 1 of 1 — PROJECT NO: 41.0162323.00 — REVIEWED BY: M. Khaleel

Logged By: J. Jackson — Drilling Co.: LAWES — Foreman: E. Santiago

Type of Rig: Diedrich — Rig Model: 7800 — Drilling Method: Drive

Boring Location: See Note [*] — Ground Surface Elev. (ft.): 68 — Final Boring Depth (ft.): 22 — Date Start - Finish: 8/13/2015 - 8/13/2015

H. Datum: NAD 83 — V. Datum: NAVD 88

Hammer Type: Automatic Hammer — Hammer Weight (lb.): 140 — Hammer Fall (in.): 30 — Auger or Casing O.D./I.D Dia (in.): 3.5/3.0

Sampler Type: SS — Sampler O.D. (in.): 2.0 — Sampler Length (in.): 24 — Rock Core Size:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
NOT ENCOUNTERED			

Depth (ft)	Casing Blows / Size	Sample No.	Sample Depth (ft)	Sample Pen (in)	Sample Rec (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identifications (Modified Burmister Procedure)	Sample Stratum	Field Test Data	Stratum El. (ft)	Stratum Description	Stratum Depth (ft)
0		S-1	0-2	24	19	1 2	3 3	S-1 : Very loose, brown, fine to coarse SAND, little Silt, trace fine Gravel, trace Silt.	1		0.2	TOPSOIL	67.8
		S-2	2-4	24	19	3 5	3 8	S-2 : Loose, tan, light brown, fine to coarse SAND, trace fine to coarse Gravel, trace Silt. (SP)					
5		S-3	4-6	24	13	4 6	8 11	S-3 : Medium dense, tan, fine to coarse SAND, trace fine to coarse Gravel, trace Silt. (SP)					
		S-4	6-8	24	18	8 9	9 17	S-4 : Medium dense, tan, fine to coarse SAND, some fine to coarse Gravel, trace Silt. (SP)				SAND (SP)	
10		S-5	8-10	24	17	8 8	11 19	S-5 : Medium dense, tan, fine to coarse SAND, some fine to coarse Gravel, trace Silt. (SP)					
		S-6	10-12	24	18	8 8	9 16	S-6 : Medium dense, tan, fine to coarse SAND, some fine to coarse Gravel, trace Silt. (SP)					
15		S-7	15-17	24	21	10 18	11 29	S-7 : Dense, tan, fine to coarse SAND, trace fine Gravel, trace Silt. (SP)					
20		S-8	20-22	24	20	12 12	9 21	S-8 : Medium dense, tan, fine to coarse SAND, some fine to coarse Gravel, trace Silt. (SP)					
25								End of exploration at 22 feet.	1		22		46.0
30													

REMARKS: - * N 40.55' 23.3", W 72.45' 54.7" (Taken using GPS map 60 CSx handheld gps). 1 - Backfilled with gravel upon completion.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-06

TEST BORING LOG

GZA GeoEnvironmental, Inc. — Engineers and Scientists

Proposed Solar Power Facility — Peconic Avenue — Calverton, NY 11933

EXPLORATION NO.: B-47 — SHEET: 1 of 1 — PROJECT NO: 41.0162323.00 — REVIEWED BY: M. Khaleel

Logged By: J. Jackson — Drilling Co.: LAWES — Foreman: E. Santiago

Type of Rig: Diedrich — Rig Model: 7800 — Drilling Method: Drive

Boring Location: See Note [*] — Ground Surface Elev. (ft.): 70 — Final Boring Depth (ft.): 22 — Date Start - Finish: 8/13/2015 - 8/13/2015

H. Datum: NAD 83 — V. Datum: NAVD 88

Hammer Type: Automatic Hammer — Hammer Weight (lb.): 140 — Hammer Fall (in.): 30 — Auger or Casing O.D./I.D Dia (in.): 3.5/3.0

Sampler Type: SS — Sampler O.D. (in.): 2.0 — Sampler Length (in.): 24 — Rock Core Size:

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
NOT ENCOUNTERED			

Depth (ft)	Casing Blows / Size	Sample No.	Sample Depth (ft)	Sample Pen (in)	Sample Rec (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identifications (Modified Burmister Procedure)	Sample Stratum	Field Test Data	Stratum El. (ft)	Stratum Description	Stratum Depth (ft)
0		S-1	0-2	24	19	2 3	3 5	S-1 : Very loose, brown, fine to coarse SAND, trace fine Gravel.	1		1.4	TOPSOIL	68.6
		S-2	2-4	24	19	5 7	4 7	S-2 : Loose, tan, fine to coarse SAND, some fine Gravel, trace Silt. (SP)					
5		S-3	4-6	24	13	7 10	8 18	S-3 : Medium dense, tan to light brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt. (SP)					
		S-4	6-8	24	18	6 5	6 11	S-4 : Medium dense, tan, fine to coarse SAND, some fine Gravel, trace Silt.					
		S-5	8-10	24	18	2 5	5 10	S-5 : Medium dense, tan, fine to coarse SAND, little Gravel, trace Silt. (SP)				SAND (SP)	
10		S-6	10-12	24	18	6 5	5 10	S-6 : Medium dense, tan, fine to coarse SAND, trace fine Gravel, trace Silt. (SP)					
		S-7	15-17	24	20	3 4	3 7	S-7 : Loose, tan, fine to coarse SAND, trace fine Gravel, trace Silt. (SP)					
15		S-8	20-22	24	12	4 5	4 9	S-8 : Loose, tan, fine to coarse SAND, trace fine Gravel, trace Silt. (SP)					
20								End of exploration at 22 feet.	1		22		48.0
25													
30													

REMARKS: - * N 40.55' 25.7", W 72.45' 51.5" (Taken using GPS map 60 CSx handheld gps). 1 - Backfilled with gravel upon completion.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-07

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vhb

Engineering, Surveying & Landscape Architecture, PC
100 Motor Parkway
Suite 135
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631.787.3400

PLANNING BOARD CERTIFICATION

This is to certify that this site plan has been approved by the Planning Board of the Town of Riverhead by Planning Board Resolution number _____ dated _____

Signature by Planning Board Chairperson _____

Date of signature _____

sPower Calverton

Middle Country Road & Peconic Avenue
Town of Riverhead, Calverton, NY

No.	Revision	Date	Appvd.
1	PER TOWN COMMENTS	11/14/2016	CR

Designed by — Checked by

Issued for — Date

Site Plan Review — August 15, 2016

Not Approved for Construction

Drawing Title

Soil Borings

Drawing Number

C-11

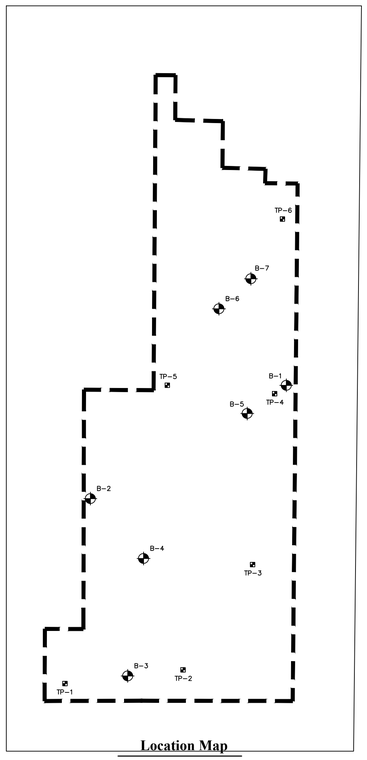
Sheet 11 of 13

Project Number

29194.03

Saved Monday, August 15, 2016 3:28:34 PM dPONTIERI Plotted Monday, November 14, 2016 11:45:34 AM Pontieri, Danielle

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Location Map

GZA GeoEnvironmental, Inc. — Proposed Solar Power Facility, Calverton, NY 11933

Test Pit No. TP-1 | Page No. 1 of 1 | File No. 41.0162323.00 | Checked By: M. Khatari

Excavation Equipment: Contractor: L.A.W. Environmental Services; Operator: Chris; Make: Terex; Model: TX860SR; Capacity: 0.5 CuYd; Reach: 15 ft

GZA Rep. J. Jackson | Weather Sunny 84 Degrees | Date 8/14/2015 | Ground Elev. 70 | Time Started 7:51 | Time Completed 8:09

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders Count/ Class	Note No.
0	Dark brown to brown, fine to medium SAND, little Silt, trace roots (TOPSOIL)		N/A	E	-	1
1'	Tan to light brown, fine to coarse SAND, trace fine to coarse gravel.		N/A	E	-	
2'			N/A	E	-	
3'			N/A	E	-	
4'	Brown, fine to medium SAND and SILT, trace Clay.		N/A	E	-	
5'	Tan to light brown, fine to coarse SAND, little fine to coarse Gravel.		N/A	E	-	2
6'			N/A	E	-	
7'			N/A	E	-	
8'			N/A	E	-	
9'			N/A	E	-	3
10'						

Bottom of test pit at 10 feet

Notes:
1. Location coordinates estimated based on a hand held GPS Device (GPSMap 60CSx).
Coordinates: N. 40° 54' 36.3", W. 72° 51' 03.3"
2. Soils of fill/p found approximately 4' down.
3. Backfilled test pit in lifts with excavated material upon completion and tamped with excavator bucket until soil was firm and unyielding.

Test Pit Plan: 10' x 8' — NORTH — Volume = 53.3 cu. yd.

Soil Color Chart: Letter Designation (A - E); Hue Range Classification (5Y - 10Y, 2.5Y and Larger); Dimension Abbr: in = inches, ft = feet, cm = centimeters, m = meters

Proportion Used: TRACE (TR.) 1 - 10%; LITTLE (LI.) 11 - 20%; SOME (SO.) 21 - 35%; AND 35 - 50%

Abbreviations: P = Fine, M = Med (+), C = Coarse, F/M = Fine to med or med, F/C = Fine to coarse, M/C = Med to coarse, GR = Gravel, CO = Cobble, BO = Boulder, TCL = Cobble

GROUNDWATER: Encountered (Yes/No); Depth (ft.); Elevation (ft.); Stabilized (ft.); Depth; Time (hr.); Elevation; date

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.

GZA GeoEnvironmental, Inc. — Proposed Solar Power Facility, Calverton, NY 11933

Test Pit No. TP-2 | Page No. 1 of 1 | File No. 41.0162323.00 | Checked By: M. Khatari

Excavation Equipment: Contractor: L.A.W. Environmental Services; Operator: Chris; Make: Terex; Model: TX860SR; Capacity: 0.5 CuYd; Reach: 15 ft

GZA Rep. J. Jackson | Weather Sunny 84 Degrees | Date 8/14/2015 | Ground Elev. 69 | Time Started 8:09 | Time Completed 8:24

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders Count/ Class	Note No.
0	Brown, fine to coarse SAND, little Silt, trace fine roots (TOPSOIL)		N/A	E	-	1
1'			N/A	E	-	
2'			N/A	E	-	
3'			N/A	E	-	
4'			N/A	E	-	
5'			N/A	E	-	
6'			N/A	E	-	
7'			N/A	E	-	
8'			N/A	E	-	
9'			N/A	E	-	
10'			N/A	E	-	2

Bottom of test pit at 10 feet

Notes:
1. Location coordinates estimated based on a hand held GPS Device (GPSMap 60CSx).
Coordinates: N. 40° 54' 37.7", W. 72° 51' 54.7"
2. Backfilled test pit in lifts with excavated material upon completion and tamped with excavator bucket until soil was firm and unyielding.

Test Pit Plan: 10' x 8' — NORTH — Volume = 53.3 cu. yd.

Soil Color Chart: Letter Designation (A - E); Hue Range Classification (5Y - 10Y, 2.5Y and Larger); Dimension Abbr: in = inches, ft = feet, cm = centimeters, m = meters

Proportion Used: TRACE (TR.) 1 - 10%; LITTLE (LI.) 11 - 20%; SOME (SO.) 21 - 35%; AND 35 - 50%

Abbreviations: P = Fine, M = Med (+), C = Coarse, F/M = Fine to med or med, F/C = Fine to coarse, M/C = Med to coarse, GR = Gravel, CO = Cobble, BO = Boulder, TCL = Cobble

GROUNDWATER: Encountered (Yes/No); Depth (ft.); Elevation (ft.); Stabilized (ft.); Depth; Time (hr.); Elevation; date

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.

GZA GeoEnvironmental, Inc. — Proposed Solar Power Facility, Calverton, NY 11933

Test Pit No. TP-3 | Page No. 1 of 1 | File No. 41.0162323.00 | Checked By: M. Khatari

Excavation Equipment: Contractor: L.A.W. Environmental Services; Operator: Chris; Make: Terex; Model: TX860SR; Capacity: 0.5 CuYd; Reach: 15 ft

GZA Rep. J. Jackson | Weather Sunny 84 Degrees | Date 8/14/2015 | Ground Elev. 74 | Time Started 8:33 | Time Completed 8:50

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders Count/ Class	Note No.
0	Brown, fine to coarse SAND, little Silt, trace fine roots (TOPSOIL)		N/A	E	-	1
1'			N/A	E	-	
2'	Grayish brown fine to coarse SAND and Silt, trace fine gravel		N/A	E	-	
3'			N/A	E	-	
4'			N/A	E	-	
5'	Tan, fine to coarse SAND, trace fine to coarse gravel.		N/A	E	-	
6'			N/A	E	-	
7'			N/A	E	-	
8'			N/A	E	-	
9'			N/A	E	-	
10'			N/A	E	-	2

Bottom of test pit at 8' feet

Notes:
1. Location coordinates estimated based on a hand held GPS Device (GPSMap 60CSx).
Coordinates: N. 40° 55' 0.17", W. 72° 51' 49.024"
2. Backfilled test pit in lifts with excavated material upon completion and tamped with excavator bucket until soil was firm and unyielding.

Test Pit Plan: 10' x 8' — NORTH — Volume = 29.7 cu. yd.

Soil Color Chart: Letter Designation (A - E); Hue Range Classification (5Y - 10Y, 2.5Y and Larger); Dimension Abbr: in = inches, ft = feet, cm = centimeters, m = meters

Proportion Used: TRACE (TR.) 1 - 10%; LITTLE (LI.) 11 - 20%; SOME (SO.) 21 - 35%; AND 35 - 50%

Abbreviations: P = Fine, M = Med (+), C = Coarse, F/M = Fine to med or med, F/C = Fine to coarse, M/C = Med to coarse, GR = Gravel, CO = Cobble, BO = Boulder, TCL = Cobble

GROUNDWATER: Encountered (Yes/No); Depth (ft.); Elevation (ft.); Stabilized (ft.); Depth; Time (hr.); Elevation; date

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.

GZA GeoEnvironmental, Inc. — Proposed Solar Power Facility, Calverton, NY 11933

Test Pit No. TP-4 | Page No. 1 of 1 | File No. 41.0162323.00 | Checked By: M. Khatari

Excavation Equipment: Contractor: L.A.W. Environmental Services; Operator: Chris; Make: Terex; Model: TX860SR; Capacity: 0.5 CuYd; Reach: 15 ft

GZA Rep. J. Jackson | Weather Sunny 84 Degrees | Date 8/14/2015 | Ground Elev. 70 | Time Started 9:03 | Time Completed 10:54

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders Count/ Class	Note No.
0	Brown, fine to coarse SAND, little Silt, trace roots (TOPSOIL)		N/A	E	-	1
1'			N/A	E	-	
2'			N/A	E	-	
3'	Tan to light brown, fine to coarse SAND, trace fine to coarse gravel.		N/A	E	-	
4'			N/A	E	-	
5'			N/A	E	-	
6'			N/A	E	-	
7'			N/A	E	-	
8'			N/A	E	-	
9'			N/A	E	-	2
10'						

Bottom of test pit at 8.5 feet

Notes:
1. Location coordinates estimated based on a hand held GPS Device (GPSMap 60CSx).
2. Backfilled test pit in lifts with excavated material upon completion and tamped with excavator bucket until soil was firm and unyielding.

Test Pit Plan: 10' x 8' — NORTH — Volume = 36.7 cu. yd.

Soil Color Chart: Letter Designation (A - E); Hue Range Classification (5Y - 10Y, 2.5Y and Larger); Dimension Abbr: in = inches, ft = feet, cm = centimeters, m = meters

Proportion Used: TRACE (TR.) 1 - 10%; LITTLE (LI.) 11 - 20%; SOME (SO.) 21 - 35%; AND 35 - 50%

Abbreviations: P = Fine, M = Med (+), C = Coarse, F/M = Fine to med or med, F/C = Fine to coarse, M/C = Med to coarse, GR = Gravel, CO = Cobble, BO = Boulder, TCL = Cobble

GROUNDWATER: Encountered (Yes/No); Depth (ft.); Elevation (ft.); Stabilized (ft.); Depth; Time (hr.); Elevation; date

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.

GZA GeoEnvironmental, Inc. — Proposed Solar Power Facility, Calverton, NY 11933

Test Pit No. TP-5 | Page No. 1 of 1 | File No. 41.0162323.00 | Checked By: M. Khatari

Excavation Equipment: Contractor: L.A.W. Environmental Services; Operator: Chris; Make: Terex; Model: TX860SR; Capacity: 0.5 CuYd; Reach: 15 ft

GZA Rep. J. Jackson | Weather Sunny 84 Degrees | Date 8/14/2015 | Ground Elev. 63 | Time Started 10:20 | Time Completed 10:43

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders Count/ Class	Note No.
0	Brown, fine to coarse SAND, little Silt, trace fine roots (TOPSOIL)		N/A	E	-	
1'			N/A	E	-	
2'	Reddish brown fine to medium SAND, some coarse sand, trace fine gravel.		N/A	E	-	
3'			N/A	E	-	
4'			N/A	E	-	
5'	Grayish brown, fine to coarse SAND and SIL, trace clay.		N/A	E	-	
6'			N/A	E	-	
7'			N/A	E	-	
8'	Light brown, fine to coarse SAND, trace fine to coarse gravel, trace silt.		N/A	E	-	2
9'			N/A	E	-	
10'			N/A	E	-	
11'			N/A	E	-	
12'			N/A	E	-	3
13'			N/A	E	-	
14'						
15'						
16'						
17'						
18'						
19'						
20'						

Bottom of test pit at 9' feet

Notes:
1. Location coordinates estimated based on a hand held GPS Device (GPSMap 60CSx).
Coordinates: N. 40° 55' 28.5", W. 72° 51' 59.7"
2. Approximate 8" pieces of gravel observed.
3. Backfilled test pit in lifts with excavated material upon completion and tamped with excavator bucket until soil was firm and unyielding.

Test Pit Plan: 10' x 8' — NORTH — Volume = 36.7 cu. yd.

Soil Color Chart: Letter Designation (A - E); Hue Range Classification (5Y - 10Y, 2.5Y and Larger); Dimension Abbr: in = inches, ft = feet, cm = centimeters, m = meters

Proportion Used: TRACE (TR.) 1 - 10%; LITTLE (LI.) 11 - 20%; SOME (SO.) 21 - 35%; AND 35 - 50%

Abbreviations: P = Fine, M = Med (+), C = Coarse, F/M = Fine to med or med, F/C = Fine to coarse, M/C = Med to coarse, GR = Gravel, CO = Cobble, BO = Boulder, TCL = Cobble

GROUNDWATER: Encountered (Yes/No); Depth (ft.); Elevation (ft.); Stabilized (ft.); Depth; Time (hr.); Elevation; date

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.

GZA GeoEnvironmental, Inc. — Proposed Solar Power Facility, Calverton, NY 11933

Test Pit No. TP-6 | Page No. 1 of 1 | File No. 41.0162323.00 | Checked By: M. Khatari

Excavation Equipment: Contractor: L.A.W. Environmental Services; Operator: Chris; Make: Terex; Model: TX860SR; Capacity: 0.5 CuYd; Reach: 15 ft

GZA Rep. J. Jackson | Weather Sunny 84 Degrees | Date 8/14/2015 | Ground Elev. 74 | Time Started 11:10 | Time Completed 11:45

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders Count/ Class	Note No.
0	Brown, fine to coarse SAND, little Silt, trace fine roots, trace fine gravel, (TOPSOIL)		N/A	E	-	1
1'			N/A	E	-	
2'	Reddish brown fine to coarse SAND, some fine to coarse gravel		N/A	E	-	
3'			N/A	E	-	2
4'			N/A	E	-	
5'			N/A	E	-	
6'	Light brown, fine to coarse SAND, trace fine to coarse gravel.		N/A	E	-	
7'			N/A	E	-	
8'			N/A	E	-	
9'			N/A	E	-	
10'			N/A	E	-	
11'			N/A	E	-	2
12'						
13'						
14'						
15'						
16'						
17'						
18'						
19'						
20'						

Bottom of test pit at 8' feet

Notes:
1. Location coordinates estimated based on a hand held GPS Device (GPSMap 60CSx).
Coordinates: N. 40° 55' 28.3", W. 72° 51' 58.7"
2. Excavated alleviated pit lined 4" drainage pipe at approximately 3'
3. Backfilled test pit in lifts with excavated material upon completion and tamped with excavator bucket until soil was firm and unyielding.

Test Pit Plan: 10' x 8' — NORTH — Volume = 29.7 cu. yd.

Soil Color Chart: Letter Designation (A - E); Hue Range Classification (5Y - 10Y, 2.5Y and Larger); Dimension Abbr: in = inches, ft = feet, cm = centimeters, m = meters

Proportion Used: TRACE (TR.) 1 - 10%; LITTLE (LI.) 11 - 20%; SOME (SO.) 21 - 35%; AND 35 - 50%

Abbreviations: P = Fine, M = Med (+), C = Coarse, F/M = Fine to med or med, F/C = Fine to coarse, M/C = Med to coarse, GR = Gravel, CO = Cobble, BO = Boulder, TCL = Cobble

GROUNDWATER: Encountered (Yes/No); Depth (ft.); Elevation (ft.); Stabilized (ft.); Depth; Time (hr.); Elevation; date

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.

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vhb

Engineering, Surveying & Landscape Architecture, PC
100 Motor Parkway
Suite 135
Hauppauge, NY 11788
631.787.3400

PLANNING BOARD CERTIFICATION

This is to certify that this site plan has been approved by the Planning Board of the Town of Riverhead by Planning Board Resolution number _____ dated _____

Signature by Planning Board Chairperson _____

Date of signature _____

sPower Calverton

Middle Country Road & Peconic Avenue
Town of Riverhead, Calverton, NY

No.	Revision	Date	Appvd.
1	PER TOWN COMMENTS	11/14/2016	CR

Designed by | Checked by

Issued for: Site Plan Review | Date: August 15, 2016

Not Approved for Construction

Drawing Title: Test Pits

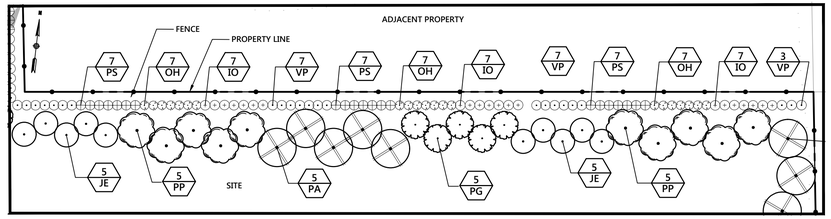
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Sheet 12 of 13

Project Number: 29194.03

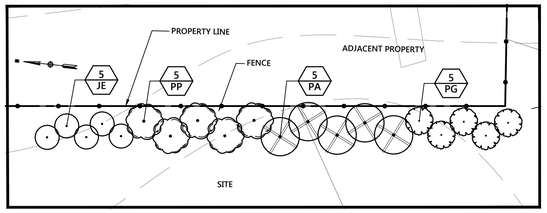
Saved Monday, August 15, 2016 3:28:34 PM DPONTIERI Plotted Monday, November 14, 2016 11:45:47 AM Pontieri, Danielle

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Residential-Use Screening

SCALE: 1"=30'



Industrial C-1 Screening Typical Scheme

SCALE: 1"=30'

PLANT SCHEDULE

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
JE	101	Juniperus virginiana	Eastern Red Cedar	7 - 8` HT.	10` o.c.
PA	86	Picea abies	Norway Spruce	7 - 8` HT.	16` o.c.
PG	92	Picea glauca	White Spruce	7 - 8` HT.	12` o.c.
PP	88	Picea pungens	Colorado Spruce	7 - 8` HT.	15` o.c.

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
IO	35	Ilex opaca	American Holly	2 - 3` HT.	48"` o.c.
OH	47	Osmanthus heterophyllus	Holly Olive	2 - 3` HT.	48"` o.c.
PS	42	Prunus laurocerasus `Schipkaensis`	Schip Laurel	2 - 3` HT.	48"` o.c.
PS6	827	Prunus laurocerasus `Schipkaensis`	Schip Laurel	6 - 7` HT.	60"` o.c.
VP	45	Viburnum x `Pragense`	Prague Viburnum	2 - 3` HT.	48"` o.c.

SOLAR FARM SEED MIX

% SEED	BOTANICAL NAME	COMMON NAME
30%	Festuca rubra	Creeping Red Fescue
30%	Festuca ovina 'Whisper'	Sheep Fescue 'Whisper'
15%	Festuca ovina var. duriuscula (F. longifolia) 'Heron'	Hard Fescue 'Heron'
15%	Festuca brevipila 'Chariot'	Hard Fescue 'Chariot'
10%	Lolium multiflorum (L. perenne var. italicum)	Annual Ryegrass

Total 100%

SEED MIX NOTES:

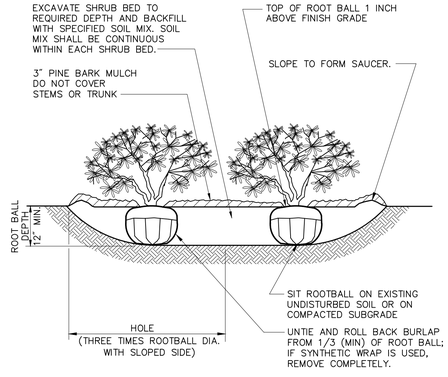
1. DISTURBED AREAS TO BE SEEDED ONLY. SEEDING RATE TO BE 6 LB PER 1,000 SF. SEED MIX TO BE ERNMX-186 "SOLAR FARM SEED MIX" AS MANUFACTURED BY ERNST CONSERVATION SEEDS, 8884 MERCER PIKE, MEADVILLE PA, 16335 (800) 873-3321.
2. CONTRACTOR SHALL INSTALL & MAINTAIN (DURING MAINTENANCE PERIOD & PRIOR TO ACCEPTANCE) SEED APPLICATION AS PER MANUFACTURER'S ESTABLISHMENT AND RECOMMENDATIONS.
3. CONTRACTOR SHALL SUBMIT SOURCE, SAMPLE, CERTIFIED SEED ANALYSIS, AND DETAILED METHOD OF INSTALLATION & ESTABLISHMENT FOR LANDSCAPE ARCHITECT APPROVAL PRIOR TO ORDERING.

LANDSCAPE NOTES

1. ALL PROPOSED PLANTING LOCATIONS SHALL BE STAKED AS SHOWN ON THE PLANS FOR FIELD REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
2. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL BELOW GRADE AND ABOVE GROUND UTILITIES AND NOTIFY OWNERS REPRESENTATIVE OF CONFLICTS.
3. NO PLANT MATERIALS SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA. CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE OF ANY CONFLICT.
4. A 3-INCH DEEP MULCH PER SPECIFICATION SHALL BE INSTALLED UNDER ALL TREES AND SHRUBS, AND IN ALL PLANTING BEDS, UNLESS OTHERWISE INDICATED ON THE PLANS, OR AS DIRECTED BY OWNER'S REPRESENTATIVE.
5. ALL TREES SHALL BE BALLED AND BURLAPPED, UNLESS OTHERWISE NOTED IN THE DRAWINGS OR SPECIFICATION, OR APPROVED BY THE OWNER'S REPRESENTATIVE.
6. FINAL QUANTITY FOR EACH PLANT TYPE SHALL BE AS GRAPHICALLY SHOWN ON THE PLAN. THIS NUMBER SHALL TAKE PRECEDENCE IN CASE OF ANY DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND ON THE PLAN. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLANT LIST AND PLANT LABELS PRIOR TO BIDDING.
7. ANY PROPOSED PLANT SUBSTITUTIONS MUST BE REVIEWED BY LANDSCAPE ARCHITECT AND APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE.
8. ALL PLANT MATERIALS INSTALLED SHALL MEET THE SPECIFICATIONS OF THE "AMERICAN STANDARDS FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN AND CONTRACT DOCUMENTS.
9. ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE.
10. ANY AREAS DISTURBED AS A RESULT OF CONSTRUCTION PRACTICES AND THAT ARE NOT BEING PLANTED OR RE-VEGETATED WITH PROPOSED PLANT MATERIAL, SHALL RECEIVE MINIMUM 6" OF LOAM AND SPECIFIED SEED MIX. LAWNS OVER 2:1 SLOPE SHALL BE PROTECTED WITH EROSION CONTROL FABRIC. NO LOAM SHALL BE PLACED IN DRAINAGE RESERVE AREAS.
11. ALL DISTURBED AREAS NOT OTHERWISE NOTED ON CONTRACT DOCUMENTS SHALL BE LOAM AND SEEDED OR MULCHED AS DIRECTED BY OWNER'S REPRESENTATIVE.
12. THIS PLAN IS INTENDED FOR PLANTING PURPOSES. REFER TO SITE / CIVIL DRAWINGS FOR ALL OTHER SITE CONSTRUCTION INFORMATION.

Irrigation Notes

1. CONTRACTOR SHALL PROVIDE COMPLETE IRRIGATION SYSTEM DESIGN AND INSTALLATION FOR SCREEN PLANTINGS. DESIGN SHALL BE CERTIFIED BY A PROFESSIONAL LANDSCAPE ARCHITECT, ENGINEER, OR CERTIFIED IRRIGATION DESIGNER. DESIGN PLANS SHALL BE SUBMITTED TO OWNER'S REPRESENTATIVE FOR APPROVAL.
2. CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, AND EQUIPMENT FOR THE COMPLETE INSTALLATION OF THE IRRIGATION SYSTEM.
3. CONTRACTOR SHALL PROVIDE DRAWINGS, MATERIAL SPECIFICATIONS, SCHEMATICS, AND OTHER LITERATURE AS MAY BE REQUIRED, FOR ALL CONDUIT, CONTROLS,TIMERS, VALVES, SPRINKLER HEADS, DRIP HOSES, CONNECTORS, WIRING, RAIN GUAGE, ETC. TO THE OWNER'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO INSTALLATION.
4. IRRIGATION WATER SHALL BE SOURCED FROM ON-SITE EXISTING IRRIGATION WELLS, CONTRACTOR SHALL VERIFY REQUIREMENTS FOR BACKFLOW PREVENTION DEVICE.
5. CONTRACTOR SHALL COORDINATE HIS/HER WORK WITH THE GENERAL CONTRACTOR AND SUB CONTRACTORS.
6. IRRIGATION CONTROL PANEL SHALL BE LOCATED IN A LOCKABLE WEATHERPROOF CABINET DESIGNED TO HOUSE THE CONTROL PANEL.
7. SITE CONTRACTOR SHALL PROVIDE 4" SCHEDULE 40 PVC SLEEVES UNDER PAVEMENT OR ACCESS ROADS TO PROVIDE ACCESS FOR IRRIGATION LINES TO ALL IRRIGATED AREAS.



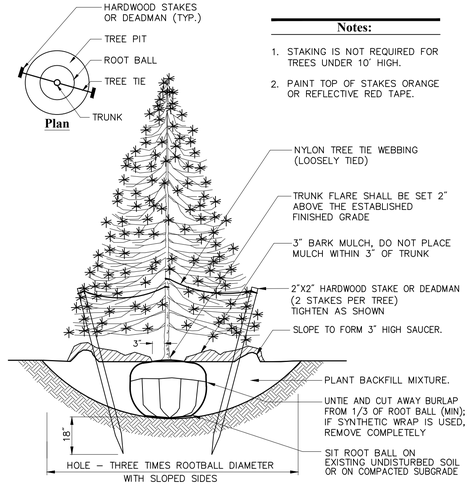
Notes:

1. LOOSEN ROOTS AT THE OUTER EDGE OF ROOTBALL OF CONTAINER GROWN SHRUBS.

Shrub Bed Planting

6/08

N.T.S. Source: VHB LD_601



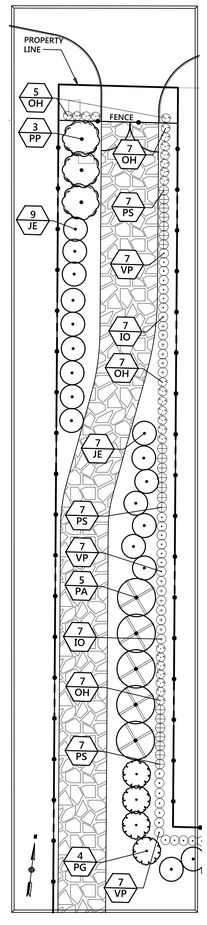
Notes:

1. STAKING IS NOT REQUIRED FOR TREES UNDER 10` HIGH.
2. PAINT TOP OF STAKES ORANGE OR REFLECTIVE RED TAPE.

Evergreen Tree Planting

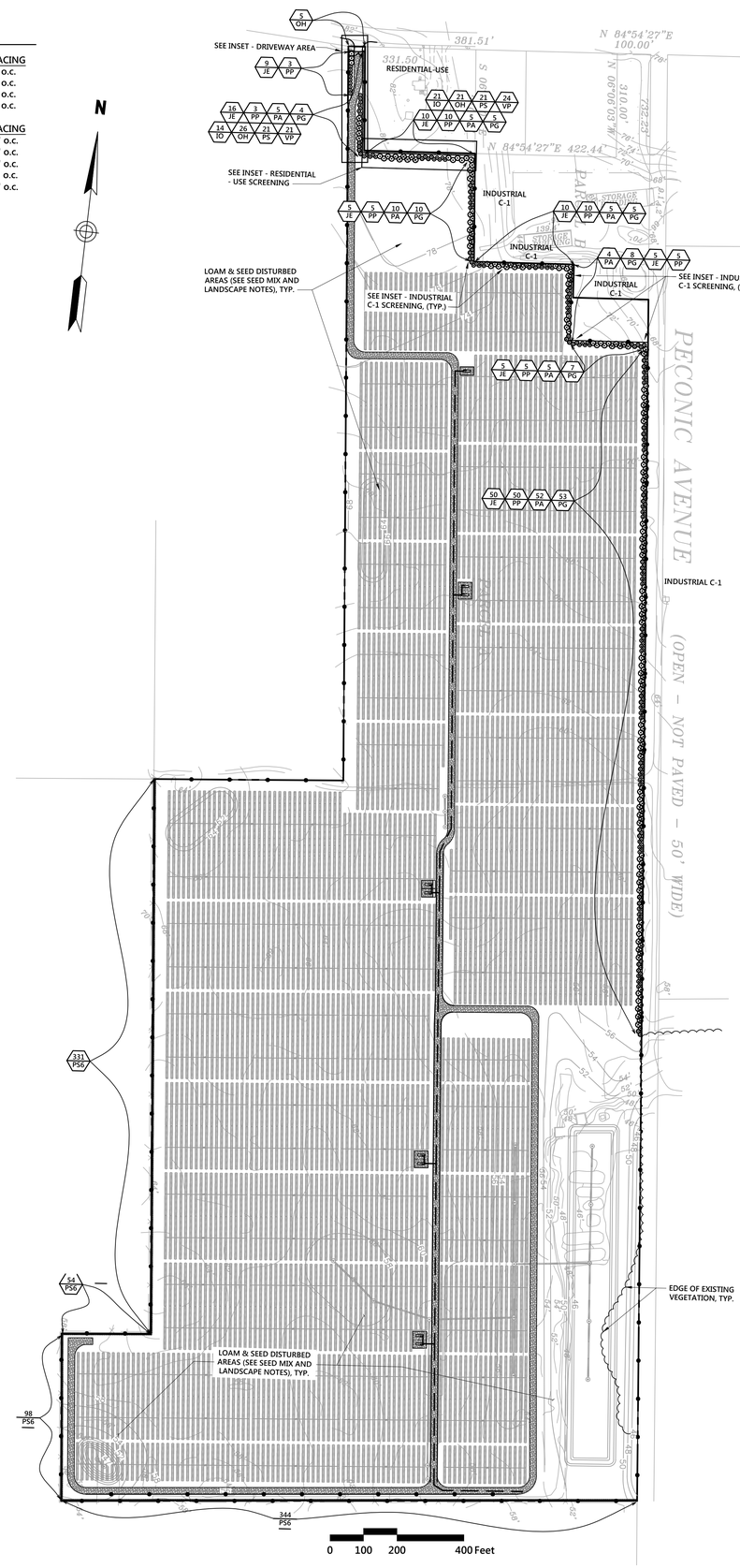
6/15

N.T.S. Source: VHB LD_604



Inset - Driveway Area

SCALE: 1"=30'



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Engineering, Surveying & Landscape Architecture, PC
100 Motor Parkway
Suite 135
Hauppauge, NY 11788
631.787.3400

PLANNING BOARD CERTIFICATION

This is to certify that this site plan has been approved by the Planning Board of the Town of Riverhead by Planning Board Resolution number _____ dated _____

Signature by Planning Board Chairperson _____

Date of signature _____

sPower Calverton

Middle Country Road & Peconic Avenue
Town of Riverhead, Calverton, NY

No.	Revision	Date	Appvd.
1	PER TOWN COMMENTS	11/14/2016	CR

Designed by | Checked by CV

Issued for: Site Plan Review — Date: August 15, 2016

Not Approved for Construction

Drawing Title: Planting Plan

Drawing Number: L-1

Sheet 13 of 13

Project Number: 29194.03

Saved Monday, November 14, 2016 2:17:06 PM CVARGAS Plotted Monday, November 14, 2016 6:17:05 PM Vargas, Carlos

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MIDDLE COUNTRY ROAD

(APZ) AGRICULTURAL PROTECTION
(Ind C) INDUSTRIAL C

(RLC) RURAL CORRIDOR
(Ind A) INDUSTRIAL A

Section-98 Block-1 Lot-7

Section-98 Block-1 Lot-21.1

Section-116 Block-1 Lot-7.2

Section-116 Block-2 Lot-1.1

PECONIC AVENUE

Section-116 Block-1 Lot-7.4

Section-116 Block-2 Lot-3

Section-135 Block-1 Lot-7.33

(Ind C) INDUSTRIAL C

(LI) LIGHT INDUSTRIAL

Section-135 Block-1 Lot-7.33

(LI) LIGHT INDUSTRIAL

(Ind C) INDUSTRIAL C

PARCEL B

PROPOSED SOLAR FACILITY

Section-116 Block-1 Lot-7.2 (part of)

Section-98 Block-1 Lot-21.1 (part of)

Section-116 Block-2 Lot-2

Section-116 Block-2 Lot-4

Section-117 Block-1 Lot-5.3

Section-117 Block-1 Lot-5.1

DIRECTIONAL DRILLING UNDER EDWARDS AVENUE

EDWARDS AVENUE

Section-117 Block-2 Lot-9.2

Section-117 Block-2 Lot-7.2

A

A

UNDERGROUND GEN-TIE ROUTE IN 15 FOOT EASEMENT (LOCATED ON LOTS 7.4 AND 6)

Section-117 Block-1 Lot-6

REFER TO EDWARDS AVENUE PROFILE THIS SHEET FOR UNDERGROUND UTILITIES

UNDERGROUND GEN-TIE ROUTE IN 15 FOOT EASEMENT (LOCATED ON LOTS 7.2 & 8.2)

Section-117 Block-2 Lot-12.8

Section-116 Block-2 Lot-7.4

Section-117 Block-1 Lot-8.4

Section-117 Block-2 Lot-8.2

Section-117 Block-1 Lot-8.3

Section-137 Block-1 Lot-2.1

Section-117 Block-1 Lot-8.2

Section-117 Block-1 Lot-9.1

Section-117 Block-1 Lot-8.6

PARCEL A

EXISTING SOLAR FACILITY & PROPOSED SOLAR COLLECTION FACILITY

Section-137 Block-1 Lot-32.1

Section-137 Block-1 Lot-3

Section-137 Block-1 Lot-4

Section-137 Block-1 Lot-5

CANOE LAKE STREET

Substation

L.I.R.R.

(PRP) PLANNED RECREATIONAL PARK

(PRP) PLANNED RECREATIONAL PARK

(LI) LIGHT INDUSTRIAL

(PRP) PLANNED RECREATIONAL PARK

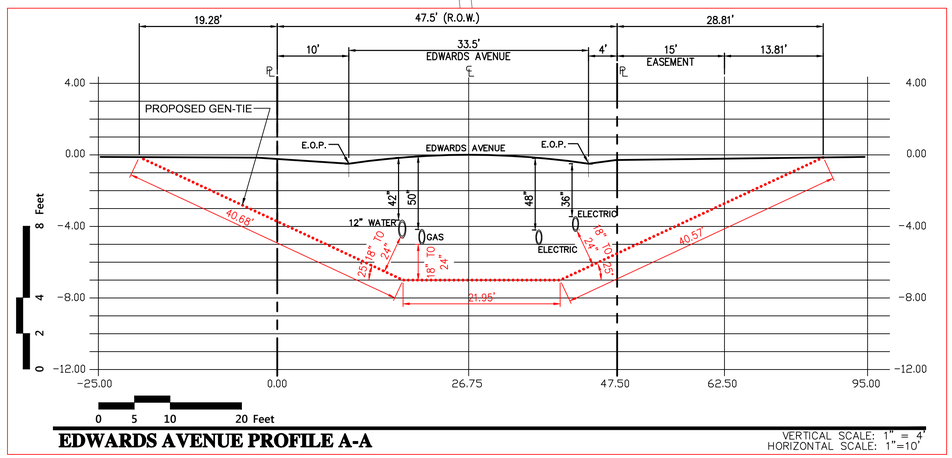
(PRP) PLANNED RECREATIONAL PARK

Section-135 Block-1 Lot-7.33

(Ind C) INDUSTRIAL C

Section-136 Block-1 Lot-1

(RB40) RESIDENCE B-40



EDWARDS AVENUE PROFILE A-A

VERTICAL SCALE: 1" = 4'
HORIZONTAL SCALE: 1"=10'

Notes

1. CONTRACTOR TO CONTACT ONE CALL TO MARK OUT SERVICES PRIOR TO COMMENCEMENT OF WORK.
2. CONTRACTOR TO DETERMINE LOCATION & DEPTH OF EXISTING UTILITIES USING GROUND PENETRATING RADAR (GPR) OR EQUIVALENT METHODS AND REVIEW WITH ENGINEER AND THE TOWN HIGHWAY DEPARTMENT PRIOR TO CONSTRUCTION.
3. ALL UTILITY COMPANIES SHALL BE CONTACTED BEFORE AND DURING CONSTRUCTION.

LEGEND

- PROPERTY BOUNDARY
- LOT LINES
- GEN-TIE ROUTE
- ZONE LINE
- SOLAR PROPERTIES

N

0 150 300 600 Feet

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Engineering, Surveying & Landscape Architecture, PC
100 Motor Parkway
Suite 135
Hauppauge, NY 11788
631.787.3400

sPower Calverton

Middle Country Road & Peconic Avenue
Town of Riverhead, Calverton, NY

No.	Revision	Date	Appvd.

Designed by CS | Checked by CR

Issued for

January 26, 2017

Not Approved for Construction

Drawing Title

Edwards Avenue Gen-Tie Route Utility Profile

Drawing Number

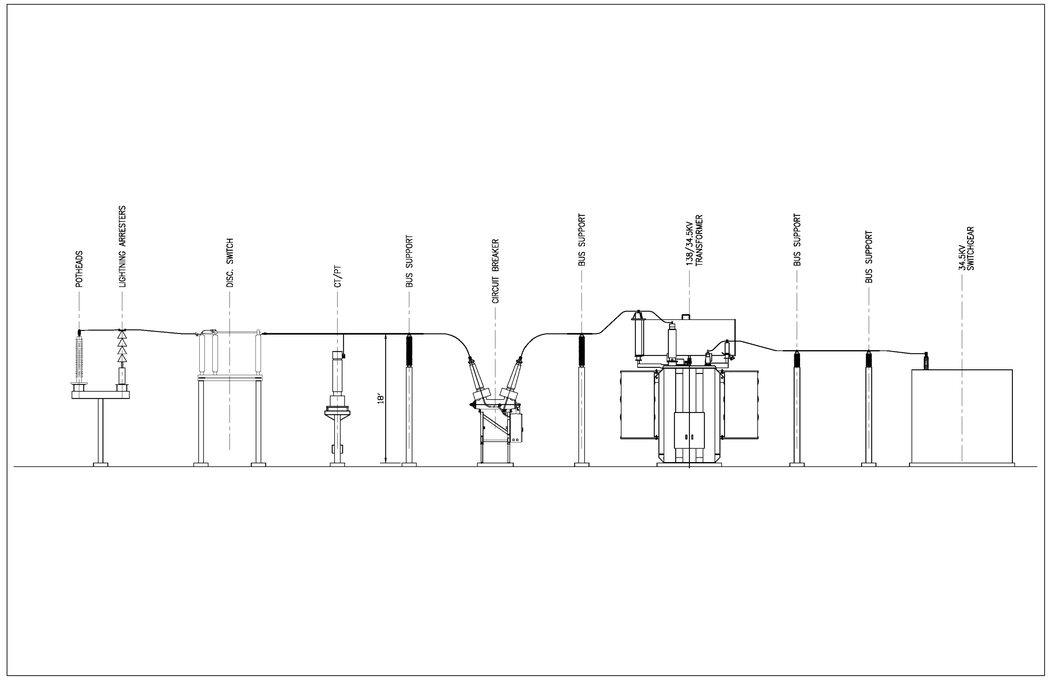
PR-1

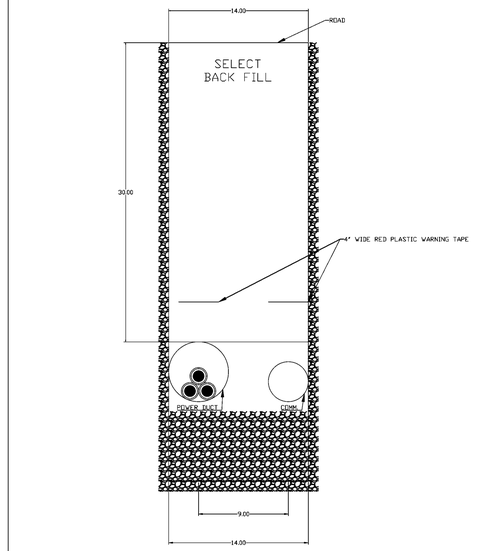
Sheet 1 of 1

Project Number 29194.03

Saved Thursday, January 26, 2017 5:06:02 PM DPONTIERI Plotted Thursday, January 26, 2017 5:17:46 PM Pontieri, Danielle

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Notes

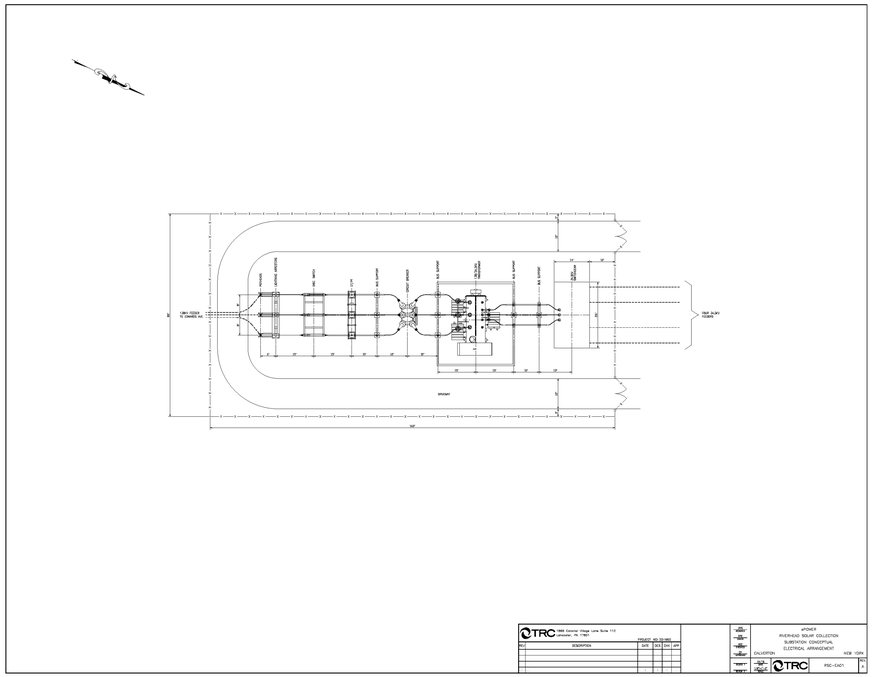
1. SEE SHEET PR-1 FOR ROADWAY PROFILE
2. 6" POWER CONDUIT CONTAINS ONLY 20MW PROJECT

34KV Duct Bank General Notes

1. Conduit shall be HPDE.
2. All Power conduits are 6 inch, installed. Communication conduits are 4 inch, installed.
3. Soils shall be compacted to avoid settlement after construction. Unstable soil shall be removed and replaced until a stable base can be provided with compacted well graded stone with large size 2 inches.
4. Confirm phasing prior to final design.
5. Select Back Fill to be clean soil, free of rocks or construction debris.

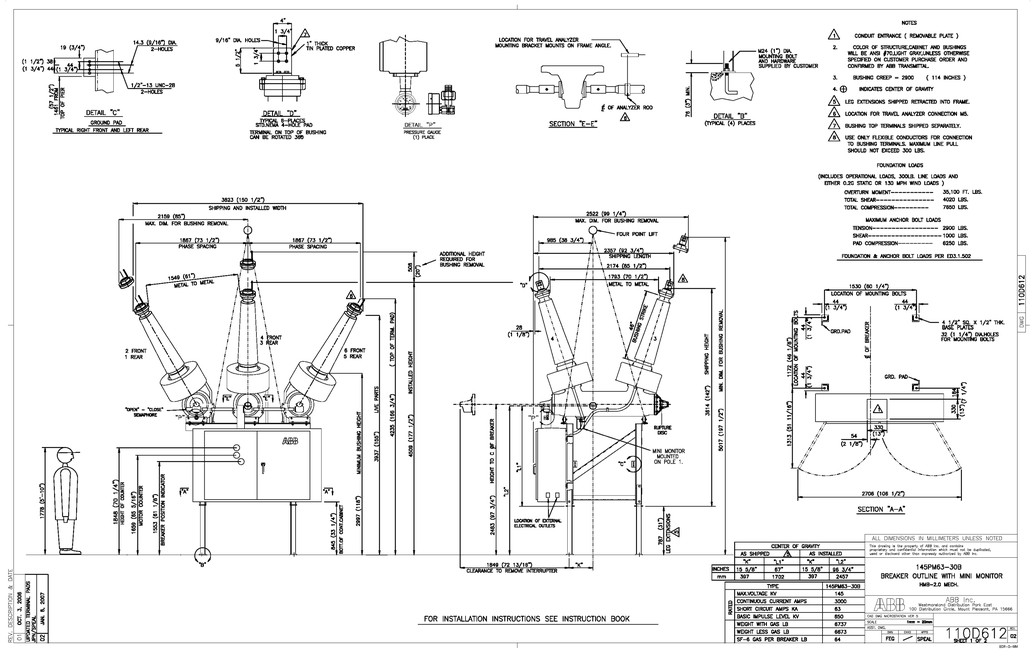
TRC 1200 Colonial Village Lane Suite 112 Lancaster, PA 17601	PROJECT NO. 251861			
REV	DESCRIPTION	DATE	DES	CHK	APP

sPOWER
34KV TRENCH CROSS SECTION
SUBSTATION CONCEPTUAL
ELECTRICAL ARRANGEMENT
CALVERTON NEW YORK
SCALE: AS NOTED
TRC RSC-T002
REV A



TRC 1200 Colonial Village Lane Suite 112 Lancaster, PA 17601	PROJECT NO. 251861			
REV	DESCRIPTION	DATE	DES	CHK	APP
02	UPDATED TERMINAL PADS	4/6/2007			
01	ORIGINAL	4/6/2007			

sPOWER
RIVERHEAD SOLAR COLLECTION
SUBSTATION CONCEPTUAL
ELECTRICAL ARRANGEMENT
CALVERTON NEW YORK
SCALE: AS NOTED
TRC RSC-E007
REV 02



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Engineering, Surveying & Landscape Architecture, PC
100 Motor Parkway
Suite 135
Hauppauge, NY 11788
631.787.3400

PLANNING BOARD CERTIFICATION

This is to certify that this site plan has been approved by the Planning Board of the Town of Riverhead by Planning Board Resolution number _____ dated _____

Signature by Planning Board Chairperson _____

Date of signature_____

sPower Calverton

Middle Country Road & Peconic Avenue
Town of Riverhead, Calverton, NY

No.	Revision	Date	Appvd.
1	PER PLANNING BOARD COMMENTS	1/26/2017	CR
1	PER TOWN COMMENTS	11/14/2016	CR
1	PER TOWN COMMENTS	11/14/2016	CR

Designed by DP | Checked by

Issued for
Site Plan Review

Date
August 15, 2016

Not Approved for Construction

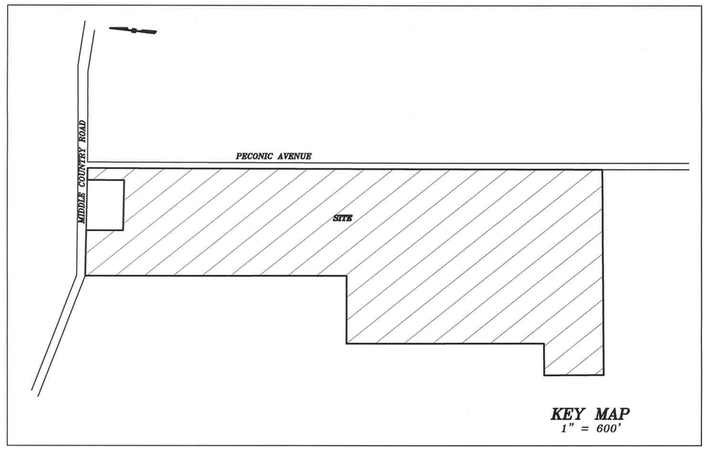
Drawing Title
Collection Facility Details

Drawing Number
CF-1

Sheet 1 of 1

Project Number
29194.03

Saved Tuesday, November 15, 2016 4:01:26 PM DPONTIERI Plotted Thursday, January 26, 2017 6:14:13 PM Pontieri, Danielle



KEY MAP
1" = 600'

AREA SUMARY:
PARCEL A = 4,784,110 SQ. FT./109.9 ACRES
PARCEL B = 222,066.5 SQ. FT./5.1 ACRES
PARCEL C = 102,621 SQ. FT./2.3 ACRES
TOTAL AREA = 5,108,797 SQ. FT./117.3 ACRES

LEGEND OF SYMBOLS AND ABBREVIATIONS:

○	TREE
———	WATER LINE
○	DRAIN (DI.)
⌀	UTILITY POLE (U.P.)
———	PROPERTY LINE
- - - - -	FENCE (FE.)
■	MONUMENT
A, B, A1, B1	SEPTIC REFERENCE POINTS
EL.42.4'	ELEVATIONS
□	HOT BOX
T.C.EL.	TOP CURB ELEVATION
B.C.EL.	BOTTOM CURB ELEVATION
E.R.EL.	EDGE ROAD ELEVATION
S.T.	SEPTIC TANK
C.I.C.	CAST IRON COVER
D.G.	DOWN GUY
U.P. N.Y.T.	UTILITY POLE NEW YORK TELEPHONE
C.L.EL.	CENTERLINE ELEVATION
W.M.	WATER METER

Zoning Summary Chart

PROPOSED PARCEL "A"

Existing Zoning District:	Industrial C
Existing Use:	Sod Operations
Proposed Use:	Solar Facility

Industrial C Dimensional Criteria

Section	Zoning Regulation	Requirement	Existing	Proposed	Conforms
§108 ATTACHMENT 3	MINIMUM LOT AREA	80,000 SF	N/A	4,784,110 SF (109.9 Acres)	YES
§108 ATTACHMENT 3	MINIMUM LOT WIDTH AT FRONT STREET	300 Feet	N/A	50 Feet	NO
§108 ATTACHMENT 3	BUILDING LOT COVERAGE	40 %	0%	≤ 40%	YES
§108 ATTACHMENT 3	MAXIMUM IMPERVIOUS SURFACE	60 %	0%	≤ 60%	YES
§108 ATTACHMENT 3	MAXIMUM HEIGHT OF BUILDINGS	30 Feet	N/A	≤ 30 Feet	YES
§108 ATTACHMENT 3	MAXIMUM F.A.R.	0.40	0.00	≤ 0.40	YES
§108 ATTACHMENT 3	MINIMUM FRONT YARD DEPTH	30 Feet	> 30 Feet	≥ 30 Feet	YES
§108 ATTACHMENT 3	MINIMUM SIDE YARD DEPTH (EACH/COMBINED)	30 Feet / 60 Feet	> 30 Feet / > 60 Feet	≥ 30 Feet / ≥ 60 Feet	YES
§108 ATTACHMENT 3	MINIMUM REAR YARD DEPTH	50 Feet	> 50 Feet	≥ 50 Feet	YES

Commercial Solar Energy Production Systems

Section	Zoning Regulation	Requirement	Existing	Proposed	Conforms
§108 ARTICLE XL	MINIMUM LOT AREA	5 Acres	N/A	4,784,110 SF (109.9 Acres)	YES
§108 ARTICLE XL	MAXIMUM LOT COVERAGE	80 %	0%	≤ 80%	YES
§108 ARTICLE XL	MAXIMUM PANEL HEIGHT	8 Feet	N/A	≤8 Feet	YES

PROPOSED PARCEL "B"

Existing Zoning District:	Industrial C
Existing Use:	Warehouse
Proposed Use:	Warehouse

Industrial C Dimensional Criteria

Section	Zoning Regulation	Requirement	Existing	Proposed	Conforms
§108 ATTACHMENT 3	MINIMUM LOT AREA	80,000 SF	N/A	222,066.5 SF (5.1 Acres)	YES
§108 ATTACHMENT 3	MINIMUM LOT WIDTH AT FRONT STREET	300 Feet	100 Feet	100 Feet	NO *
§108 ATTACHMENT 3	BUILDING LOT COVERAGE	40 %	N/A	6%	YES
§108 ATTACHMENT 3	MAXIMUM IMPERVIOUS SURFACE	60 %	N/A	40%	YES
§108 ATTACHMENT 3	MAXIMUM HEIGHT OF BUILDINGS	30 Feet	N/A	< 30 Feet	YES
§108 ATTACHMENT 3	MAXIMUM F.A.R.	0.40	N/A	0.06	YES
§108 ATTACHMENT 3	MINIMUM FRONT YARD DEPTH	30 Feet	> 30 Feet	0	NO*
§108 ATTACHMENT 3	MINIMUM SIDE YARD DEPTH (EACH/COMBINED)	30 Feet / 60 Feet	> 30 Feet / > 60 Feet	39 Feet / 142 Feet	YES
§108 ATTACHMENT 3	MINIMUM REAR YARD DEPTH	50 Feet	> 50 Feet	147 Feet	YES

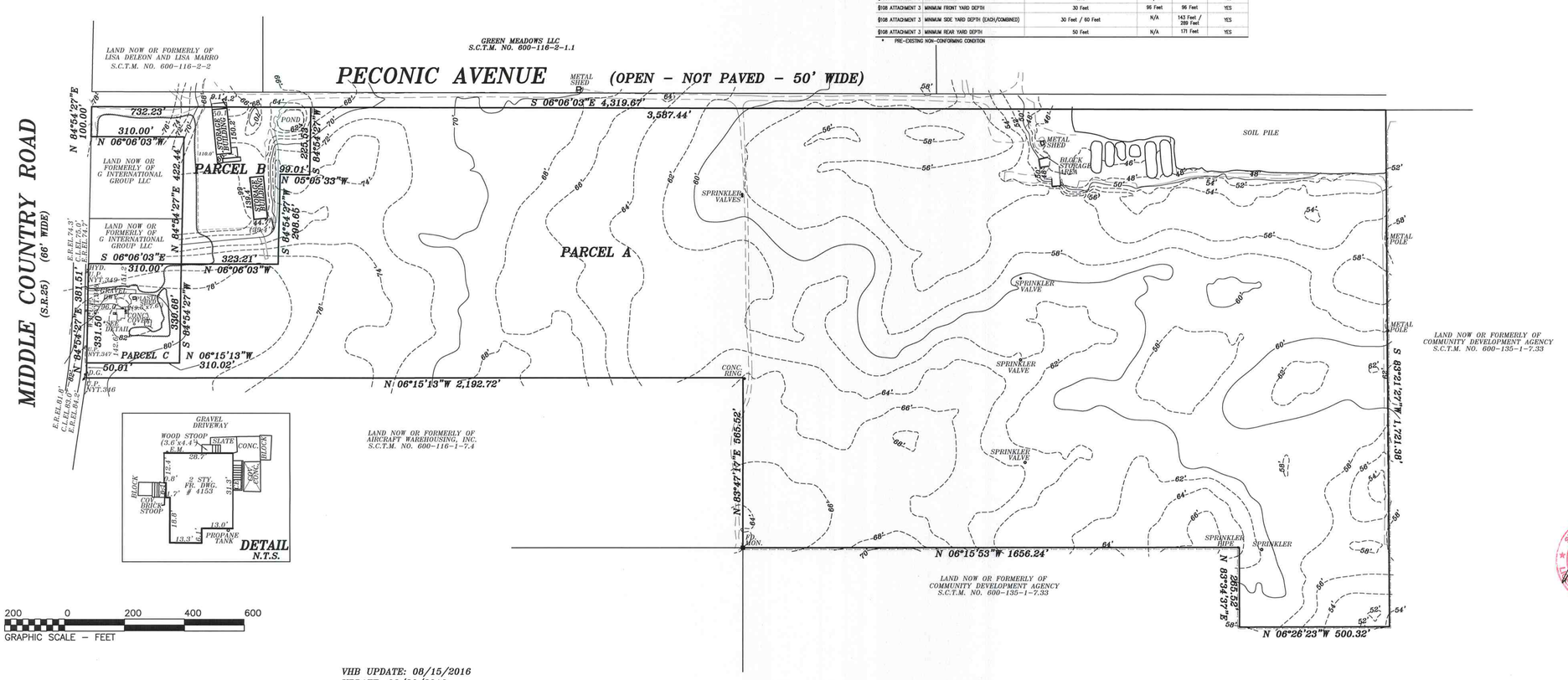
PROPOSED PARCEL "C"

Existing Zoning District:	Industrial C
Existing Use:	Single Family Residential *
Proposed Use:	Single Family Residential *

Industrial C Dimensional Criteria

Section	Zoning Regulation	Requirement	Existing	Proposed	Conforms
§108 ATTACHMENT 3	MINIMUM LOT AREA	80,000 SF	N/A	102,621 SF (2.3 Acres)	YES
§108 ATTACHMENT 3	MINIMUM LOT WIDTH AT FRONT STREET	300 Feet	381.51 Feet	331.51 Feet	YES
§108 ATTACHMENT 3	BUILDING LOT COVERAGE	40 %	N/A	2%	YES
§108 ATTACHMENT 3	MAXIMUM IMPERVIOUS SURFACE	60 %	N/A	13%	YES
§108 ATTACHMENT 3	MAXIMUM HEIGHT OF BUILDINGS	30 Feet	< 30 Feet	< 30 Feet	YES
§108 ATTACHMENT 3	MAXIMUM F.A.R.	0.40	N/A	0.02	YES
§108 ATTACHMENT 3	MINIMUM FRONT YARD DEPTH	30 Feet	96 Feet	96 Feet	YES
§108 ATTACHMENT 3	MINIMUM SIDE YARD DEPTH (EACH/COMBINED)	30 Feet / 60 Feet	N/A	143 Feet / 289 Feet	YES
§108 ATTACHMENT 3	MINIMUM REAR YARD DEPTH	50 Feet	N/A	171 Feet	YES

* PRE-DISTING NON-CONFORMING CONDITION



VHB UPDATE: 08/15/2016
UPDATE: 03/30/2016

FILE NO. T61147-SUB. SCALE: 1" = 200' DATE: 07/02/2015

ADDRESS:
GREEN MEADOWS LLC
444 ELWOOD ROAD
EAST NORTHPORT, NY 11731

LAND DIVISION OF GREEN MEADOWS LLC PROPERTY LOT 5 AND PART OF LOTS 3 AND 4 MAP OF EDWIN H. BROWN SITUATED AT CALVERTON, TOWN OF RIVERHEAD SUFFOLK COUNTY, NEW YORK

S.C.T.M. NO. 600-116-1-7.2 AND 600-98-1-21.1
ELEVATIONS N.G.V.D. 1988 DATUM
BEARING SYSTEM IS BASED ON N.Y.S. PLANE COORDINATE SYSTEM

SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES

HAUPPAUGE N.Y.

DATE:_____

THIS IS TO CERTIFY THAT THE PROPOSED REALTY SUBDIVISION OR DEVELOPMENT FOR GREEN MEADOWS LLC IN THE TOWN OF RIVERHEAD WITH A TOTAL OF ___3___ LOTS WERE APPROVED ON THE ABOVE DATE. WATER SUPPLIES AND SEWAGE DISPOSAL FACILITIES MUST CONFORM TO CONSTRUCTION STANDARDS IN EFFECT AT THE TIME OF CONSTRUCTION AND ARE SUBJECT TO SEPERATE PERMITS PURSUANT TO THOSE STANDARDS. THE APPROVAL SHALL BE VALID ONLY IF THE REALTY SUBDIVISION/ DEVELOPMENT MAP IS DULY FILED WITH THE COUNTY CLERK WITHIN 1 YEAR OF THIS DATE. CONSENT IS HEREBY GIVEN FOR THE FILING OF THE MAP ON WHICH THIS ENDORSEMENT APPEARS IN THE OFFICE OF THE COUNTY CLERK IN ACCORDANCE WITH PROVISIONS OF THE PUBLIC HEALTH LAW AND THE SUFFOLK COUNTY SANITARY CODE.

_____
WALTER J. HILBERT, P.E.
DIRECTOR, DIVISION OF ENVIRONMENTAL QUALITY
SUBJECT TO COVENANTS & RESTRICTIONS LIBER_____-PAGE_____

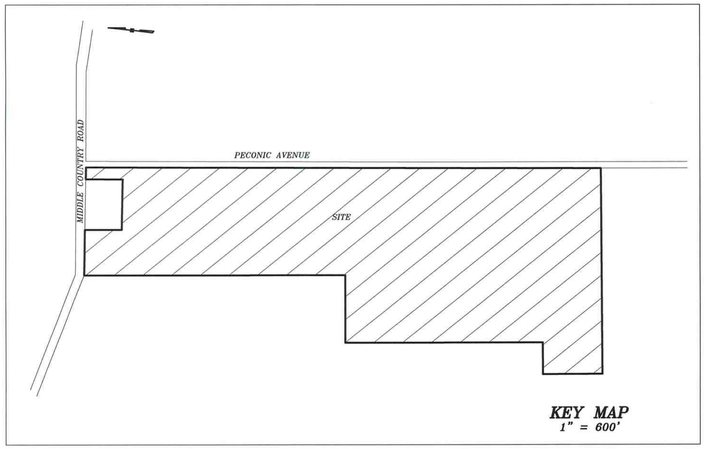
GUARANTEES OR CERTIFICATIONS ARE NOT TRANSFERABLE. UNDERGROUND UTILITIES EASEMENTS NOT SHOWN AND UTILITY POLE LOCATIONS ARE NOT GUARANTEED.
THE OFFSET DIMENSION SHOWN HEREON FROM THE STRUCTURES TO THE PROPERTY LINES ARE FOR SPECIFIC PURPOSE AND USE, THEREFORE ARE NOT INTENDED TO GUIDE THE ERECTION OF FENCES, RETAINING WALLS, POOLS, PATIOS, PLANTING AREAS, ADDITION TO BUILDINGS AND OTHER CONSTRUCTION. THE EXISTENCE OF RIGHT OF WAYS, WETLANDS AND/OR EASEMENTS OF RECORD, IF ANY, NOT SHOWN ARE NOT GUARANTEED
UNAUTHORIZED ALTERATION OR ADDITION TO THIS SURVEY IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW. COPIES OF THIS SURVEY MAP NOT BEARING THE LAND SURVEYORS SIGNATURE AND RED INK OR EMBOSSED SEAL SHALL NOT BE CONSIDERED A TRUE VALID COPY.
ALL LOCATIONS OF AND DISTANCES TO WELLS AND CESSPOOLS ARE BY LOCATIONS FROM HOMEOWNERS, FIELD OBSERVATIONS AND/OR INFORMATION OBTAINED FROM OTHERS. SINCE MOST ARE NOT VISIBLE THESE LOCATIONS AND DIMENSIONS CANNOT BE CERTIFIED.

STATE OF NEW YORK
PAT T. SECCAFICO
049287
LICENSED LAND SURVEYOR

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vhb

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Hauppauge, NY 11788
631.787.3400
PAT T. SECCAFICO
PROFESSIONAL LAND SURVEYOR
N.Y.S. LIC. NO. 049287



KEY MAP
1" = 600'

LEGEND OF SYMBOLS AND ABBREVIATIONS:

⊙	TREE
———	WATER LINE
○	DRAIN (DI.)
⌀	UTILITY POLE (U.P.)
———	PROPERTY LINE
————	FENCE (FE.)
■	MONUMENT
A, B, A1, B1	SEPTIC REFERENCE POINTS
EL.42.4'	ELEVATIONS
□	HOT BOX
T.C.EL.	TOP CURB ELEVATION
B.C.EL.	BOTTOM CURB ELEVATION
E.R.EL.	EDGE ROAD ELEVATION
S.T.	SEPTIC TANK
C.I.C.	CAST IRON COVER
D.G.	DOWN GUY
U.P. N.Y.T.	UTILITY POLE NEW YORK TELEPHONE
C.L.EL.	CENTERLINE ELEVATION
W.M.	WATER METER

AREA SUMARY:
PARCEL A = 4,784,110 SQ. FT./109.9 ACRES
PARCEL B = 222,066.5 SQ. FT./5.1 ACRES
PARCEL C = 102,621 SQ. FT./2.3 ACRES
TOTAL AREA = 5,108,797 SQ. FT./117.3 ACRES

ADDRESS:
GREEN MEADOWS LLC
444 ELWOOD ROAD
EAST NORTHPORT, NY 11731

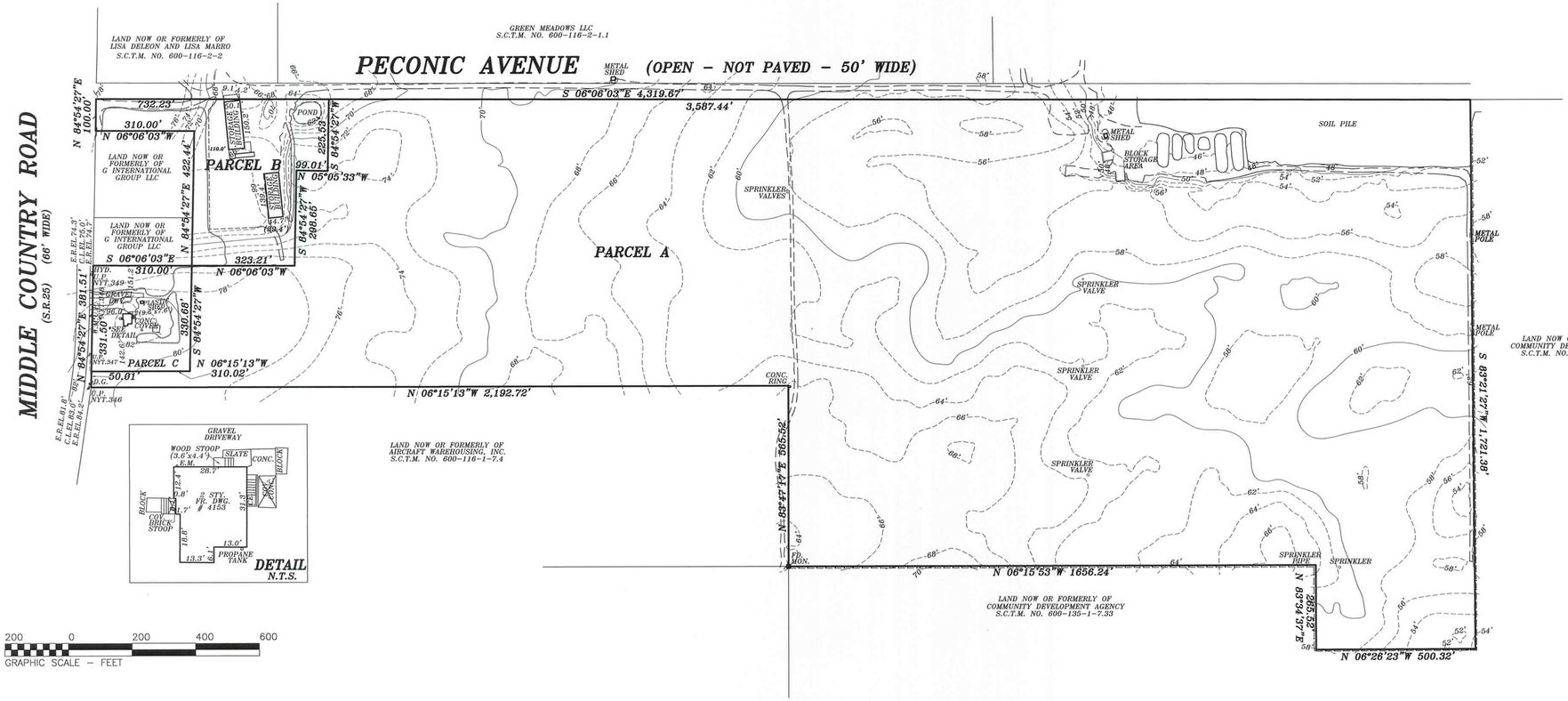
LAND DIVISION OF GREEN MEADOWS LLC PROPERTY LOT 5 AND PART OF LOTS 3 AND 4 MAP OF EDWIN H. BROWN SITUATED AT CALVERTON, TOWN OF RIVERHEAD SUFFOLK COUNTY, NEW YORK

S.C.T.M. NO. 600-116-1-7.2 AND 600-98-1-21.1
ELEVATIONS N.G.V.D. 1988 DATUM
BEARING SYSTEM IS BASED ON N.Y.S. PLANE COORDINATE SYSTEM

SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES
HAUPPAUGE N.Y.
DATE:_____

THIS IS TO CERTIFY THAT THE PROPOSED REALTY SUBDIVISION OR DEVELOPMENT FOR GREEN MEADOWS LLC
IN THE TOWN OF RIVERHEAD
WITH A TOTAL OF 9 LOTS WERE APPROVED ON THE ABOVE DATE.
WATER SUPPLIES AND SEWAGE DISPOSAL FACILITIES MUST CONFORM TO CONSTRUCTION STANDARDS IN EFFECT AT THE TIME OF CONSTRUCTION AND ARE SUBJECT TO SEPERATE PERMITS PURSUANT TO THOSE STANDARDS. THE APPROVAL SHALL BE VALID ONLY IF THE REALTY SUBDIVISION/ DEVELOPMENT MAP IS DULY FILED WITH THE COUNTY CLERK WITHIN 1 YEAR OF THIS DATE. CONSENT IS HEREBY GIVEN FOR THE FILING OF THE MAP ON WHICH THIS ENDORSEMENT APPEARS IN THE OFFICE OF THE COUNTY CLERK IN ACCORDANCE WITH PROVISIONS OF THE PUBLIC HEALTH LAW AND THE SUFFOLK COUNTY SANITARY CODE.

WALTER J. HILBERT, P.E.
DIRECTOR, DIVISION OF ENVIRONMENTAL QUALITY
SUBJECT TO COVENANTS & RESTRICTIONS LIBER_____-PAGE_____



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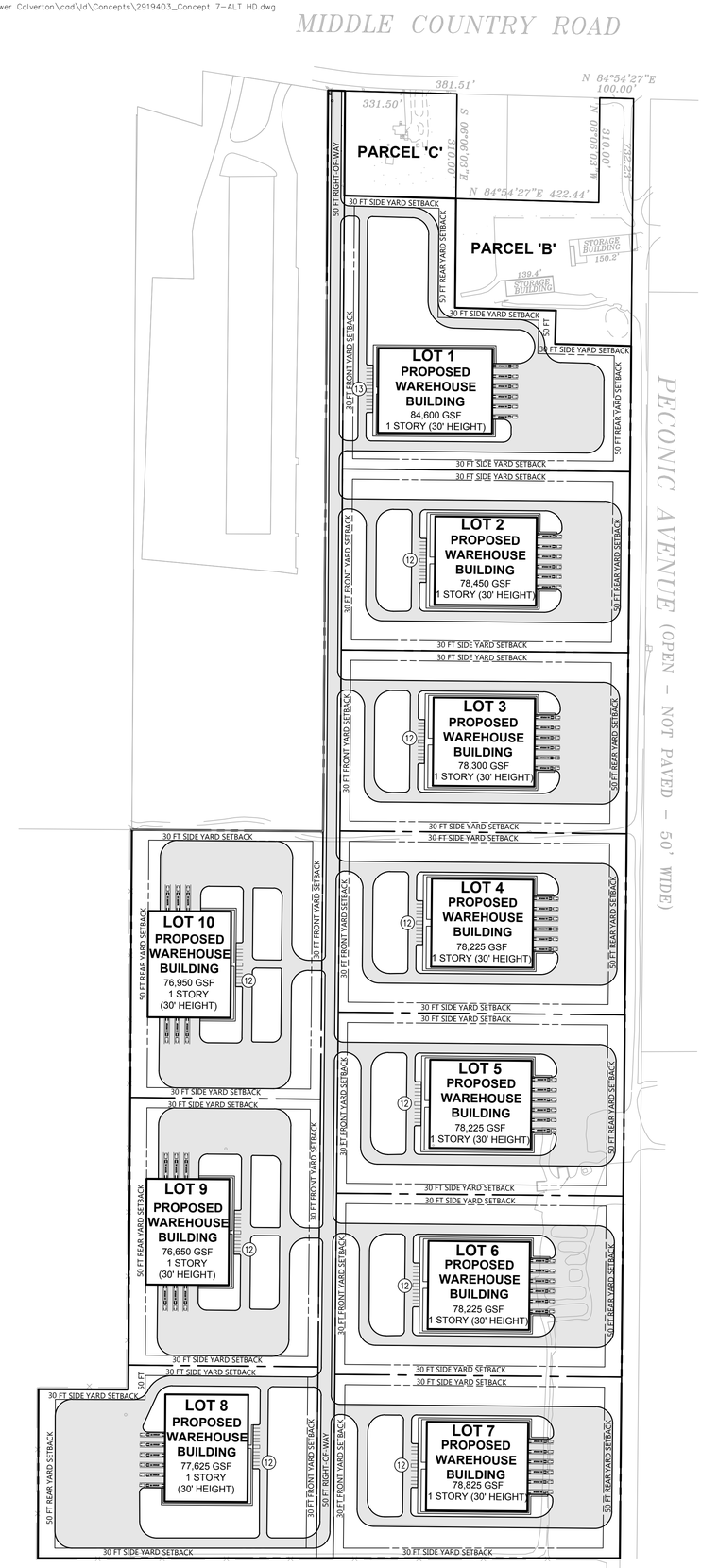
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100 Motor Parkway
Suite 135
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PROFESSIONAL LAND SURVEYOR
N.Y.S. LIC. NO. 049287

STATE OF NEW YORK PAT T. SECCAFICO 049287 LICENSED LAND SURVEYOR

FILE NO. T61147-SUB. SCALE: 1" = 200' UPDATE: 03/30/2016 DATE: 07/02/2015

\\vhb\proj\Longisland\29194.03 sPower Calverton\cad\ld\Concepts\2919403_Concept 7-ALT HD.dwg



Zoning Summary Chart

Existing Zoning District:	Industrial C
Existing Use:	Sod Operations
Proposed Use:	Warehouse
Overall Parcel 'A' Area:*	4,784,110 SF (109.8 Acres)*

Industrial C Dimensional Criteria

Section	Zoning Regulation	Requirement	Existing	Proposed Lot 1	Proposed Lot 2	Proposed Lot 3	Proposed Lot 4	Proposed Lot 5	Proposed Lot 6	Proposed Lot 7	Proposed Lot 8	Proposed Lot 9	Proposed Lot 10	Conforms
§108 ATTACHMENT 3	MINIMUM LOT AREA	80,000 SF	4,784,110 SF (109.8 Acres)	491,441 SF (11.28 Acres)	455,659 SF (10.46 Acres)	454,893 SF (10.44 Acres)	454,508 SF (10.43 Acres)	454,508 SF (10.43 Acres)	454,508 SF (10.43 Acres)	457,907 SF (10.51 Acres)	451,011 SF (10.35 Acres)	445,200 SF (10.22 Acres)	447,303 SF (10.26 Acres)	YES
§108 ATTACHMENT 3	MINIMUM LOT WIDTH AT FRONT STREET	300 Feet	N/A	809 Feet	536 Feet	536 Feet	536 Feet	536 Feet	536 Feet	544 Feet	566 Feet	792 Feet	793 Feet	YES
§108 ATTACHMENT 3	BUILDING LOT COVERAGE	40 %	0%	17.2%**	17.2%**	17.2%**	17.2%**	17.2%**	17.2%**	17.2%**	17.2%**	17.2%**	17.2%**	YES
§108 ATTACHMENT 3	MAXIMUM IMPERVIOUS SURFACE	60%	0%	47.8%	48.1%	48.1%	48.2%	48.2%	48.2%	47.8%	55.3%	53.3%	53.1%	YES
§108 ATTACHMENT 3	MAXIMUM HEIGHT OF BUILDINGS	30 Feet	N/A	30 Feet	30 Feet	30 Feet	30 Feet	30 Feet	30 Feet	30 Feet	30 Feet	30 Feet	30 Feet	YES
§108 ATTACHMENT 3	MAXIMUM F.A.R.	0.40	0.00	.172	.172	.172	.172	.172	.172	.172	.172	.172	.172	YES
§108 ATTACHMENT 3	MINIMUM FRONT YARD DEPTH	30 Feet	> 30 Feet	104 Feet	274 Feet	274 Feet	274 Feet	274 Feet	274 Feet	274 Feet	374 Feet	267 Feet	269 Feet	YES
§108 ATTACHMENT 3	MINIMUM SIDE YARD DEPTH (EACH/COMBINED)	30 Feet / 60 Feet	> 30 Feet / > 60 Feet	108 Feet / 227 Feet	137 Feet / 274 Feet	137 Feet / 274 Feet	137 Feet / 274 Feet	137 Feet / 274 Feet	137 Feet / 274 Feet	137 Feet / 274 Feet	85 Feet / 251 Feet	239 Feet / 468 Feet	239 Feet / 468 Feet	YES
§108 ATTACHMENT 3	MINIMUM REAR YARD DEPTH	50 Feet	> 50 Feet	184 Feet	275 Feet	275 Feet	275 Feet	275 Feet	275 Feet	275 Feet	110 Feet	50 Feet	50 Feet	YES

* Includes 217,172 SF (4.99 Acres) for 50' ROW

** Maximum building size based on SCDHS standards: (300 gallons per day per acre in Groundwater Management Zone III). Density Load for General Industrial (0.04 gpd/sf).

Parking Requirements / Summary Charts

Lot 1

Description	Size Required	Size Provided	Spaces Required	Spaces Provided
STANDARD SPACES***	10 x 20	10 x 20	12	12
STANDARD ACCESSIBLE SPACES *	10 x 20	10 x 20	1	1
TOTAL SPACES			13	13
LOADING BAYS**			3	6

* 1 to 25 TOTAL PARKING SPACES REQUIRED = 1 ACCESSIBLE PARKING SPACE
** LOADING BAYS: 3 for 40,001 SF to 100,000
*** 1 PER 1,000 SF OF FLOOR AREA UP TO 5,000 SF, AND 1 ADDITIONAL SPACE FOR EACH ADDITIONAL 10,000 SF OF FLOOR AREA

Parking Requirements:

WAREHOUSE ****	5,000 SF	x	1 SPACES	/	1,000	= 5 SPACES
WAREHOUSE ****	79,600 SF	x	1 SPACES	/	10,000	= 8 SPACES
			TOTAL PARKING REQUIRED			= 13 SPACES

**** TOTAL WAREHOUSE AREA = 84,600 SF

Lot 2

Description	Size Required	Size Provided	Spaces Required	Spaces Provided
STANDARD SPACES***	10 x 20	10 x 20	11	11
STANDARD ACCESSIBLE SPACES *	10 x 20	10 x 20	1	1
TOTAL SPACES			12	12
LOADING BAYS**			3	6

* 1 to 25 TOTAL PARKING SPACES REQUIRED = 1 ACCESSIBLE PARKING SPACE
** LOADING BAYS: 3 for 40,001 SF to 100,000
*** 1 PER 1,000 SF OF FLOOR AREA UP TO 5,000 SF, AND 1 ADDITIONAL SPACE FOR EACH ADDITIONAL 10,000 SF OF FLOOR AREA

Parking Requirements:

WAREHOUSE ****	5,000 SF	x	1 SPACES	/	1,000	= 5 SPACES
WAREHOUSE ****	73,450 SF	x	1 SPACES	/	10,000	= 7 SPACES
			TOTAL PARKING REQUIRED			= 12 SPACES

**** TOTAL WAREHOUSE AREA = 78,450 SF

Lot 3

Description	Size Required	Size Provided	Spaces Required	Spaces Provided
STANDARD SPACES***	10 x 20	10 x 20	11	11
STANDARD ACCESSIBLE SPACES *	10 x 20	10 x 20	1	1
TOTAL SPACES			12	12
LOADING BAYS**			3	6

* 1 to 25 TOTAL PARKING SPACES REQUIRED = 1 ACCESSIBLE PARKING SPACE
** LOADING BAYS: 3 for 40,001 SF to 100,000
*** 1 PER 1,000 SF OF FLOOR AREA UP TO 5,000 SF, AND 1 ADDITIONAL SPACE FOR EACH ADDITIONAL 10,000 SF OF FLOOR AREA

Parking Requirements:

WAREHOUSE ****	5,000 SF	x	1 SPACES	/	1,000	= 5 SPACES
WAREHOUSE ****	73,300 SF	x	1 SPACES	/	10,000	= 7 SPACES
			TOTAL PARKING REQUIRED			= 12 SPACES

**** TOTAL WAREHOUSE AREA = 78,300 SF

Lot 4

Description	Size Required	Size Provided	Spaces Required	Spaces Provided
STANDARD SPACES***	10 x 20	10 x 20	11	11
STANDARD ACCESSIBLE SPACES *	10 x 20	10 x 20	1	1
TOTAL SPACES			12	12
LOADING BAYS**			3	6

* 1 to 25 TOTAL PARKING SPACES REQUIRED = 1 ACCESSIBLE PARKING SPACE
** LOADING BAYS: 3 for 40,001 SF to 100,000
*** 1 PER 1,000 SF OF FLOOR AREA UP TO 5,000 SF, AND 1 ADDITIONAL SPACE FOR EACH ADDITIONAL 10,000 SF OF FLOOR AREA

Parking Requirements:

WAREHOUSE ****	5,000 SF	x	1 SPACES	/	1,000	= 5 SPACES
WAREHOUSE ****	73,225 SF	x	1 SPACES	/	10,000	= 7 SPACES
			TOTAL PARKING REQUIRED			= 12 SPACES

**** TOTAL WAREHOUSE AREA = 78,225 SF

Lot 5

Description	Size Required	Size Provided	Spaces Required	Spaces Provided
STANDARD SPACES***	10 x 20	10 x 20	11	11
STANDARD ACCESSIBLE SPACES *	10 x 20	10 x 20	1	1
TOTAL SPACES			12	12
LOADING BAYS**			3	6

* 1 to 25 TOTAL PARKING SPACES REQUIRED = 1 ACCESSIBLE PARKING SPACE
** LOADING BAYS: 3 for 40,001 SF to 100,000
*** 1 PER 1,000 SF OF FLOOR AREA UP TO 5,000 SF, AND 1 ADDITIONAL SPACE FOR EACH ADDITIONAL 10,000 SF OF FLOOR AREA

Parking Requirements:

WAREHOUSE ****	5,000 SF	x	1 SPACES	/	1,000	= 5 SPACES
WAREHOUSE ****	73,725 SF	x	1 SPACES	/	10,000	= 7 SPACES
			TOTAL PARKING REQUIRED			= 12 SPACES

**** TOTAL WAREHOUSE AREA = 78,225 SF

Lot 6

Description	Size Required	Size Provided	Spaces Required	Spaces Provided
STANDARD SPACES***	10 x 20	10 x 20	11	11
STANDARD ACCESSIBLE SPACES *	10 x 20	10 x 20	1	1
TOTAL SPACES			12	12
LOADING BAYS**			3	6

* 1 to 25 TOTAL PARKING SPACES REQUIRED = 1 ACCESSIBLE PARKING SPACE
** LOADING BAYS: 3 for 40,001 SF to 100,000
*** 1 PER 1,000 SF OF FLOOR AREA UP TO 5,000 SF, AND 1 ADDITIONAL SPACE FOR EACH ADDITIONAL 10,000 SF OF FLOOR AREA

Parking Requirements:

WAREHOUSE ****	5,000 SF	x	1 SPACES	/	1,000	= 5 SPACES
WAREHOUSE ****	73,225 SF	x	1 SPACES	/	10,000	= 7 SPACES
			TOTAL PARKING REQUIRED			= 12 SPACES

**** TOTAL WAREHOUSE AREA = 78,225 SF

Lot 7

Description	Size Required	Size Provided	Spaces Required	Spaces Provided
STANDARD SPACES***	10 x 20	10 x 20	11	11
STANDARD ACCESSIBLE SPACES *	10 x 20	10 x 20	1	1
TOTAL SPACES			12	12
LOADING BAYS**			3	6

* 1 to 25 TOTAL PARKING SPACES REQUIRED = 1 ACCESSIBLE PARKING SPACE
** LOADING BAYS: 3 for 40,001 SF to 100,000
*** 1 PER 1,000 SF OF FLOOR AREA UP TO 5,000 SF, AND 1 ADDITIONAL SPACE FOR EACH ADDITIONAL 10,000 SF OF FLOOR AREA

Parking Requirements:

WAREHOUSE ****	5,000 SF	x	1 SPACES	/	1,000	= 5 SPACES
WAREHOUSE ****	73,825 SF	x	1 SPACES	/	10,000	= 7 SPACES
			TOTAL PARKING REQUIRED			= 12 SPACES

**** TOTAL WAREHOUSE AREA = 78,825 SF

Lot 8

Description	Size Required	Size Provided	Spaces Required	Spaces Provided
STANDARD SPACES***	10 x 20	10 x 20	11	11
STANDARD ACCESSIBLE SPACES *	10 x 20	10 x 20	1	1
TOTAL SPACES			12	12
LOADING BAYS**			3	6

* 1 to 25 TOTAL PARKING SPACES REQUIRED = 1 ACCESSIBLE PARKING SPACE
** LOADING BAYS: 3 for 40,001 SF to 100,000
*** 1 PER 1,000 SF OF FLOOR AREA UP TO 5,000 SF, AND 1 ADDITIONAL SPACE FOR EACH ADDITIONAL 10,000 SF OF FLOOR AREA

Parking Requirements:

WAREHOUSE ****	5,000 SF	x	1 SPACES	/	1,000	= 5 SPACES
WAREHOUSE ****	72,625 SF	x	1 SPACES	/	10,000	= 7 SPACES
			TOTAL PARKING REQUIRED			= 12 SPACES

**** TOTAL WAREHOUSE AREA = 77,625 SF

Lot 9

Description	Size Required	Size Provided	Spaces Required	Spaces Provided
STANDARD SPACES***	10 x 20	10 x 20	11	11
STANDARD ACCESSIBLE SPACES *	10 x 20	10 x 20	1	1
TOTAL SPACES			12	12
LOADING BAYS**			3	6

* 1 to 25 TOTAL PARKING SPACES REQUIRED = 1 ACCESSIBLE PARKING SPACE
** LOADING BAYS: 3 for 40,001 SF to 100,000
*** 1 PER 1,000 SF OF FLOOR AREA UP TO 5,000 SF, AND 1 ADDITIONAL SPACE FOR EACH ADDITIONAL 10,000 SF OF FLOOR AREA

Parking Requirements:

WAREHOUSE ****	5,000 SF	x	1 SPACES	/	1,000	= 5 SPACES
WAREHOUSE ****	71,650 SF	x	1 SPACES	/	10,000	= 7 SPACES
			TOTAL PARKING REQUIRED			= 12 SPACES

**** TOTAL WAREHOUSE AREA = 76,650 SF

Lot 10

Description	Size Required	Size Provided	Spaces Required	Spaces Provided
STANDARD SPACES***	10 x 20	10 x 20	11	11
STANDARD ACCESSIBLE SPACES *	10 x 20	10 x 20	1	1
TOTAL SPACES			12	12
LOADING BAYS**			3	6

* 1 to 25 TOTAL PARKING SPACES REQUIRED = 1 ACCESSIBLE PARKING SPACE
** LOADING BAYS: 3 for 40,001 SF to 100,000
*** 1 PER 1,000 SF OF FLOOR AREA UP TO 5,000 SF, AND 1 ADDITIONAL SPACE FOR EACH ADDITIONAL 10,000 SF OF FLOOR AREA

Parking Requirements:

WAREHOUSE ****	5,000 SF	x	1 SPACES	/	1,000	= 5 SPACES
WAREHOUSE ****	71,950 SF	x	1 SPACES	/	10,000	= 7 SPACES
			TOTAL PARKING REQUIRED			= 12 SPACES

**** TOTAL WAREHOUSE AREA = 76,950 SF

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Engineering, Surveying & Landscape Architecture, PC
100 Motor Parkway
Suite 135
Hauppauge, NY 11788
631.787.3400

N

Scale: 1" = 200'

0 100 200 400 Feet

Calverton

Middle Country Road & Peconic Avenue
Town of Riverhead, Calverton, NY

No.	Revision	Date	Appvd.

Designed by CS Checked by CR

Issued for

Date May 18, 2017

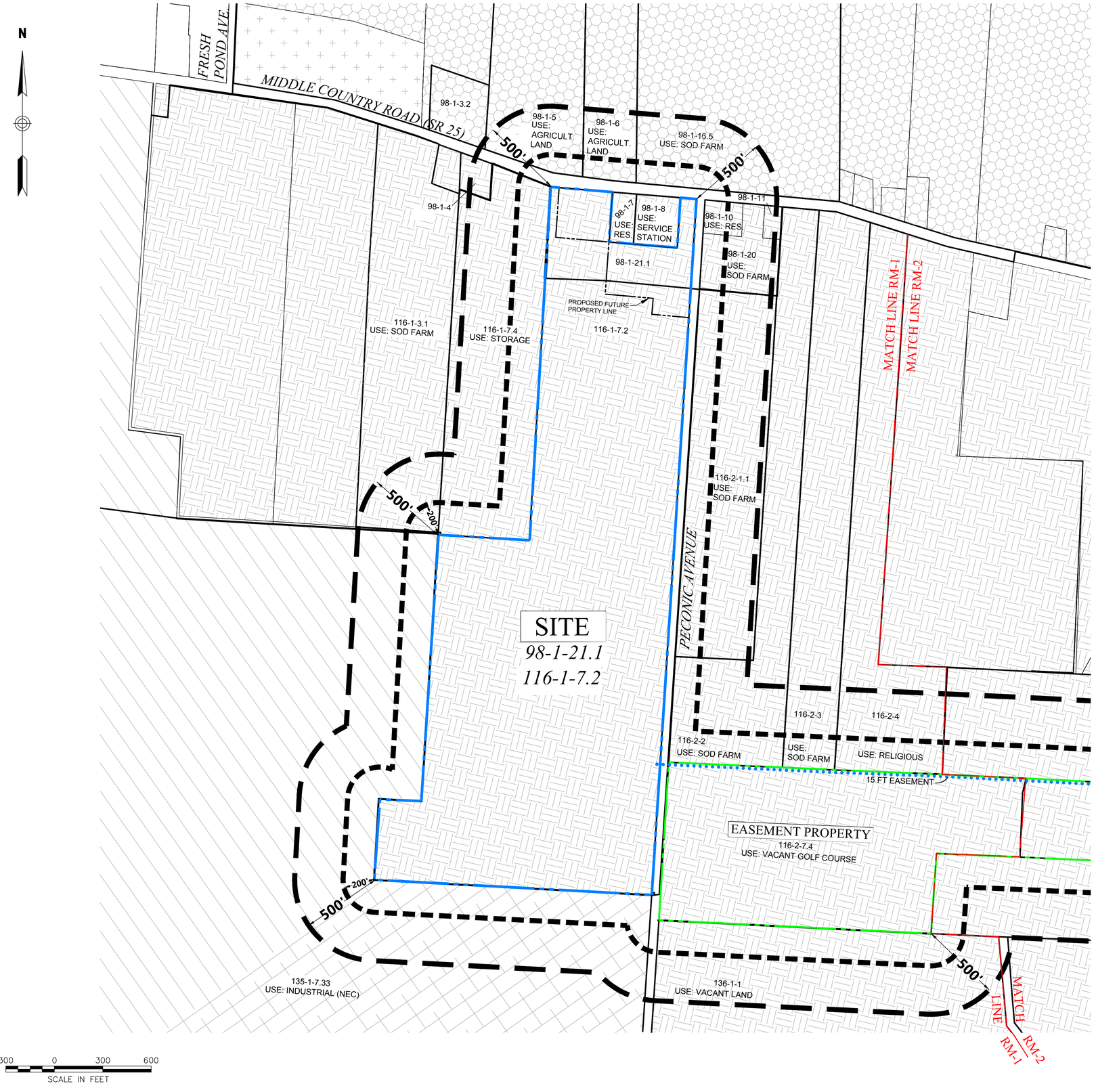
Not Approved for Construction

Drawing Title
Alternative Industrial 'C' Concept Plan

Drawing Number
ACP-1

Sheet 1 of 1

Project Number
29194.03



Subject Site

SECTION: 98.; BLOCK: 1; LOT 21.1
GREEN MEADOWS LLC
444 ELWOOD RD
E NORTHPORT, NY 11731

SECTION: 116.; BLOCK: 1; LOT 7.2
GREEN MEADOWS LLC
444 ELWOOD RD
E NORTHPORT, NY 11731

Easement Property

SECTION: 116.; BLOCK: 2; LOT 7.4
BASHI CALVERTON LINKS LLC
750 ROUTE 25A
SETAUKET, NY 11733

Owner List

SECTION: 98.; BLOCK: 1

98.–1–3.2
RICHARD DELEA
SASSO VINCENT
444 ELWOOD RD
E NORTHPORT, NY 11731

98.–1–4
HELEN TYSKA
4213 MIDDLE COUNTRY RD
CALVERTON, NY 11933

98.–1–5
PETER J MEYER III
MEYER SANDRA J
131 PIQUETS LN
WOODBURY, NY 11797

98.–1–6
FROEHLICH FARM CORP
4152 MIDDLE COUNTRY RD
CALVERTON, NY 11933

98.–1–7
G INTL GROUP LLC
935 ROUTE 24 STE 3A
MATAWAN, NJ 07747

98.–1–8
G INTL GROUP LLC
935 ROUTE 24 STE 3A
MATAWAN, NJ 07747

98.–1–10
GREEN MEADOWS LLC
444 ELWOOD RD
E NORTHPORT, NY 11731

98.–1–11
STEPHEN HACKAL JR
HACKAL PATRICIA
4031 MIDDLE COUNTRY RD
CALVERTON, NY 11933

98.–1–16.5
EDWARD PARTRIDGE
3968 MIDDLE COUNTRY RD
CALVERTON, NY 11933

98.–1–20
GREEN MEADOWS LLC
444 ELWOOD RD
E NORTHPORT, NY 11731

SECTION: 116.; BLOCK: 1

116.–1–3.1
EDWARD L KORUS, ET AL
2 BAY CLUB DR APT 15J
BAYSIDE, NY 11360

116.–1–7.4
AIRCRAFT WAREHOUSING INC
1637 BROAD HOLLOW RD
FARMINGDALE, NY 11735

SECTION: 116.; BLOCK: 2

116.–2–1.1
GREEN MEADOWS LLC
444 ELWOOD RD
E NORTHPORT, NY 11731

116.–2–2
NINA MARIE DELEON
MARRO LISA MARIE
6 STILLWATER RD
ST JAMES, NY 11780

116.–2–3
EIGHTOFUS FAMILY LP
250 MANOR RD
HUNTINGTON, NY 11743

116.–2–4
UNITED SYNAGOGUE HEVRA
155 5TH AVE #4TH
NEW YORK, NY 10010–6858
C006 C/O GARY SEBOLD

SECTION: 135.; BLOCK: 1

135–1–7.33
COMMUNITY DEV AGENCY
200 HOWELL AVE
RIVERHEAD, NY 11901

SECTION: 136.; BLOCK: 1

136.–1–1
WESTBURY PROPERTIES
346 MAPLE AVE STE 12
WESTBURY, NY 11590

vhb.com
vhb
Engineering, Surveying & Landscape Architecture, PC
100 Motor Parkway
Suite 135
Hauppauge, NY 11788
631.787.3400

Legend

- 116-2-1.1 — SECTION–BLOCK–LOT NUMBERS
- 200' RADIUS BOUNDARY
- 500' RADIUS BOUNDARY
- SUBJECT PARCEL PROPERTY
- EASEMENT PROPERTY
- 15 FT EASEMENT
- 116-2-1.1 — PROPERTIES INCLUDED
- PROPERTIES NOT INCLUDED
- MATCH LINE
- INDUSTRIAL C (IND C)
- AGRICULTURAL PROTECTION (APZ)
- LIGHT INDUSTRIAL (LI)
- PLANNED RECREATIONAL PARK (PRP)
- RESIDENCE RC (RLC)
- RESIDENCE A–40 (RA40)
- RES. — RESIDENTIAL

sPower Calverton

Middle Country Road & Peconic Avenue
Town of Riverhead, Calverton, NY

No.	Revision	Date	Appvd.

Designed by: CS
Checked by: CR
Issued for:
Date: September 23, 2016

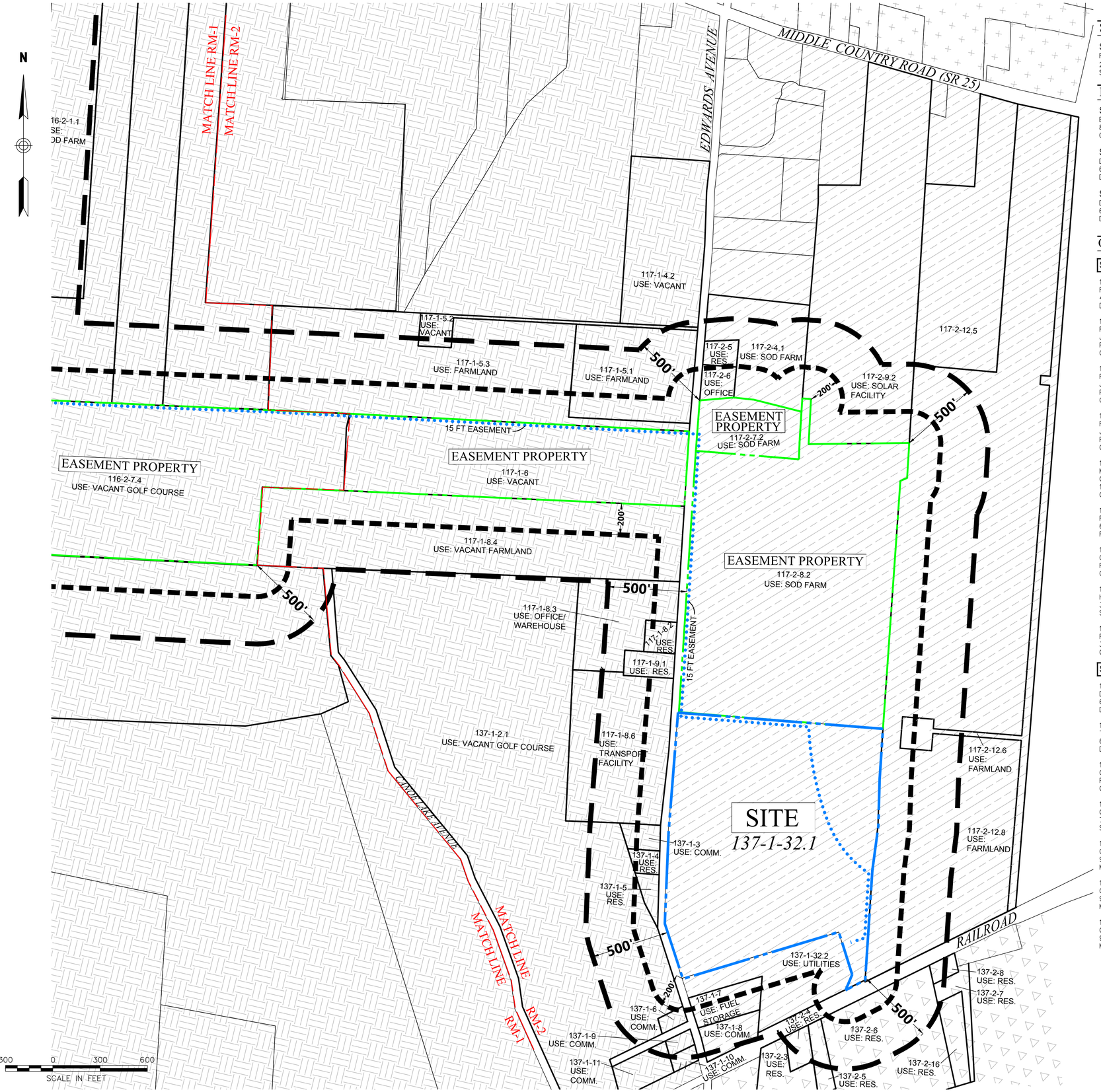
Not Approved for Construction

Drawing Title: 500' Radius Map

Drawing Number: RM-1

Sheet 1 of 2

Project Number: 29194.03



Subject Site

SECTION: 137.; BLOCK: 1; LOT 32.1
FTS PROPERTY HOLDINGS LLC
2749 E PARLEY'S WAY SUITE 310
SALT LAKE CITY, UT 84109

Easement Properties

SECTION: 117.; BLOCK: 1; LOT 6
BOLLA EDWARDS REALTY LLC
809 STEWART AVE
GARDEN CITY, NY 11530

SECTION: 117.; BLOCK: 2; LOT 7.2
DELALIO SOD FARMS INC
652 DEER PARK AVE
DIX HILLS, NY 11746

SECTION: 117.; BLOCK: 2; LOT 8.2
DELALIO SOD FARMS INC
652 DEER PARK AVE
DIX HILLS, NY 11746

Owner List

SECTION: 117.; BLOCK: 1

117-1-4.2
F1 LI REAL ESTATE LLC
4 INDIAN HILL CT
DIX HILLS, NY 11746

117-1-5.1
ROBIN GIBBS
JEFFREY J MILOSKI
PO BOX 809
CALVERTON, NY 11933

117-1-5.2
ROBIN GIBBS
JEFFREY J MILOSKI
PO BOX 809
CALVERTON, NY 11933

117-1-5.3
ROBIN GIBBS
JEFFREY J MILOSKI
PO BOX 809
CALVERTON, NY 11933

117-1-8.2
MICHAEL OWEN
CHARLES M THOMAS
101 EDWARDS AVE
CALVERTON, NY 11933

117-1-8.3
RIVERHEAD CENTRAL SCH DISTRICT
600 HARRISON AVE
RIVERHEAD,, NY 11901

117-1-8.4
CALVERTON GROUP
PO BOX 455
ORIENT, NY 11957

117-1-8.6
HAMPTON JITNEY INC
395 OLD COUNTRY ROAD 39A
SOUTHAMPTON, NY 11968

117-1-9.1
RATTO ENTERPRISES LLC
305 EDWARDS AVE
CALVERTON, NY 11933

SECTION: 117.; BLOCK: 2

117-2-4.1
DELALIO SOD FARMS INC
652 DEER PARK AVE
DIX HILLS, NY 11746

117-2-5
TALLGRASS LAND HLDG LLC
652 DEER PARK AVE
DIX HILLS, NY 11746

117-2-6
GOLFO DEVELOPMENT CORP
PO BOX 578
CALVERTON, NY 11933

117-2-9.2
CALVERTON IND PARK LLC
750 RTE 25A
SETAUKET, NY 11733

117-2-12.5
QUEST VENTURES LTD
98 SILAS CARTER RD
MANORVILLE, NY 11949

117-2-12.6
QUEST VENTURES LTD
98 SILAS CARTER RD
MANORVILLE, NY 11949

117-2-12.8
QUEST VENTURES LTD
98 SILAS CARTER RD
MANORVILLE, NY 11949

SECTION: 137.; BLOCK: 1

137-1-2.1
BASHI CALVERTON LINKS LLC
750 ROUTE 25A
SETAUKET, NY 11733

137-1-3
PALATIAL REAL ESTATE LLC
215 EDWARDS AVE
CALVERTON, NY 11933

137-1-4
ERICK OJEDA
199 EDWARDS AVE
CALVERTON, NY 11933

137-1-5
CLIFFORD MACAULAY
VALERIE MACAULAY
7745 CAPRIO DR
BOYNTON BEACH, FL 33472

137-1-6
PAZERA CAPITAL #1 LLC
121 EDWARDS AVE
CALVERTON, NY 11933

137-1-7
DO-WELL PROP LLC
999-32 MONTAUK HWY #127
SHIRLEY, NY 11967

137-1-8
MELO CALVERTON LLC
418 ROUTE 25A
MILLER PLACE, NY 11764

137-1-9
OLD MILL REALTY LLC
101 EDWARDS AVE
BAITING HOLLOW, NY 11933

137-1-10
OLD MILL REALTY LLC
101 EDWARDS AVE
BAITING HOLLOW, NY 11933

137-1-11
PAZERA CAPITAL #11 LLC
121 EDWARDS AVE
CALVERTON, NY 11933

137-1-32.2
LONG ISLAND LIGHTING CO
333 EARLE OVINGTON BLVD #403
UNIONDALE, NY 11553

SECTION: 137.; BLOCK: 2

137-2-3
AUGUST GROSSMAN
KATHLEEN GROSSMAN
2472 RIVER RD
CALVERTON, NY 11933

137-2-4
ZBIGNIEW OZOG
KRYSTYNA OZOG
2468 RIVER RD
CALVERTON, NY 11933

137-2-5
ADELE CHESHIRE
PO BOX 243
CALVERTON, NY 11933

137-2-6
MARRY PARRY KROMHOUT
36 MILL RD
CALVERTON, NY 11933

137-2-7
CHRISTINE M KEENEY
73 KAY RD
CALVERTON, NY 11933

137-2-8
SUSAN KEENEY
2396 RIVER RD
CALVERTON, NY 11933

137-2-16
PETER N KROMHOUT
MARY A KROMHOUT
36 MILL RD
CALVERTON, NY 11933

vhb.com
vhb
Engineering, Surveying & Landscape Architecture, PC
100 Motor Parkway
Suite 135
Hauppauge, NY 11788
631.787.3400

Legend

116-2-1.1	SECTION–BLOCK–LOT NUMBERS
	200' RADIUS BOUNDARY
	500' RADIUS BOUNDARY
	SUBJECT PARCEL PROPERTY
	EASEMENT PROPERTY
	15 FT EASEMENT
116-2-1.1	PROPERTIES INCLUDED
	PROPERTIES NOT INCLUDED
	MATCH LINE
	INDUSTRIAL A (IND A)
	INDUSTRIAL C (IND C)
	RESIDENCE B–40 (RB40)
	RESIDENCE RC (RLC)
RES.	RESIDENTIAL
COMM.	COMMERCIAL

sPower Calverton

Middle Country Road & Peconic Avenue
Town of Riverhead, Calverton, NY

No.	Revision	Date	Appvd.

Designed by CS | Checked by CR
Issued for | Date
September 23, 2016

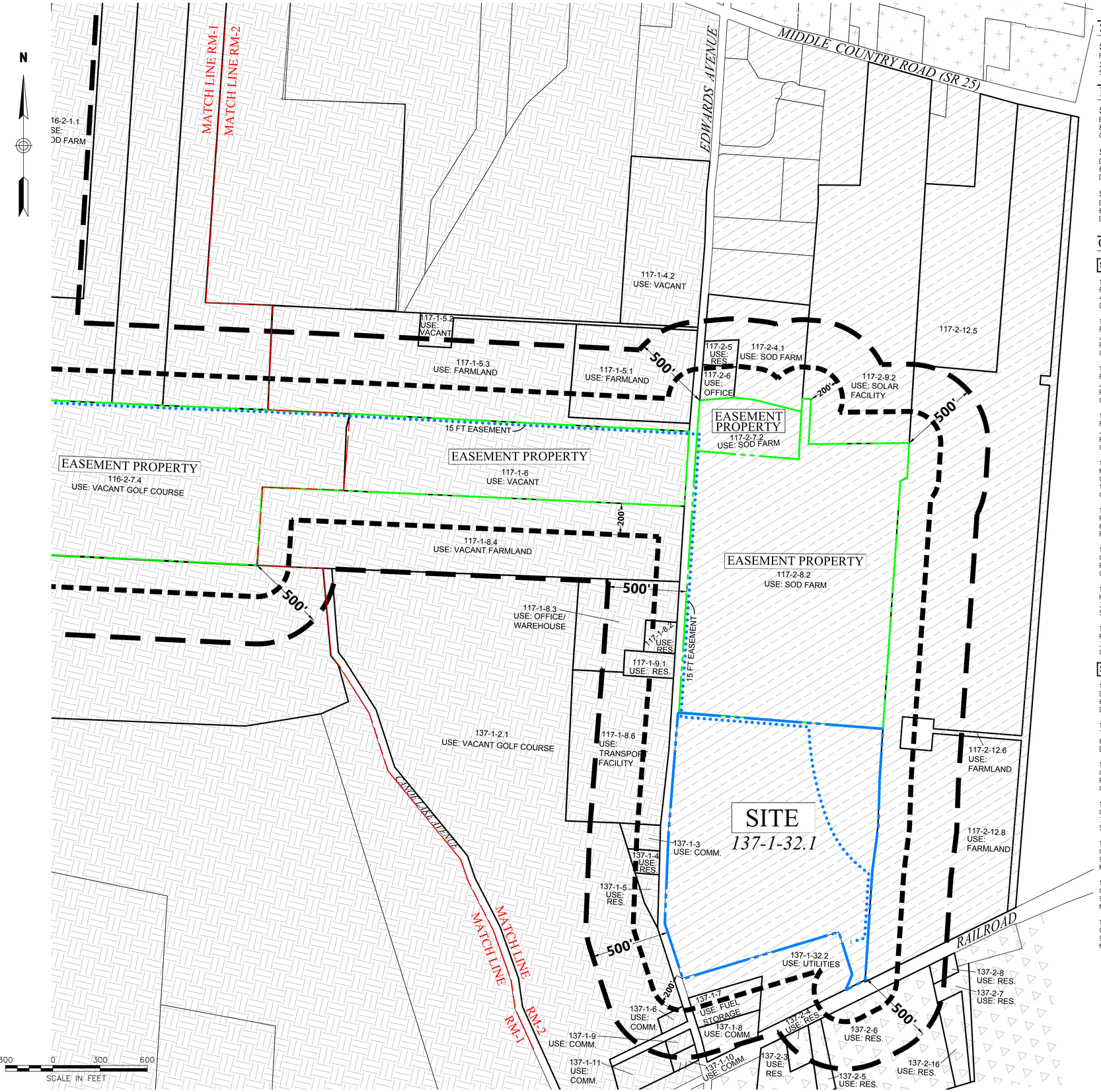
Not Approved for Construction

Drawing Title
500' Radius Map

Drawing Number
RM-2

Sheet 2 of 2

Project Number
29194.03



Subject Site

SECTION: 137.; BLOCK: 1; LOT 32.1
FTS PROPERTY HOLDINGS LLC
2749 E PARLEY'S WAY SUITE 310
SALT LAKE CITY, UT 84109

Easement Properties

SECTION: 117.; BLOCK: 1; LOT 6
BOLLA EDWARDS REALTY LLC
809 STEWART AVE
GARDEN CITY, NY 11530

SECTION: 117.; BLOCK: 2; LOT 7.2
DELALIO SOD FARMS INC
652 DEER PARK AVE
DIX HILLS, NY 11746

SECTION: 117.; BLOCK: 2; LOT 8.2
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KATHLEEN GROSSMAN
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2468 RIVER RD
CALVERTON, NY 11933

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MARRY PARRY KROMHOUT
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CHRISTINE M KEENEY
73 KAY RD
CALVERTON, NY 11933

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SUSAN KEENEY
2396 RIVER RD
CALVERTON, NY 11933

137-2-16
PETER N KROMHOUT
MARY A KROMHOUT
36 MILL RD
CALVERTON, NY 11933

vhb.com
vhb
Engineering, Surveying & Landscape Architecture, PC
100 Motor Parkway
Suite 135
Hauppauge, NY 11788
631.787.3400

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	EASEMENT PROPERTY
	15 FT EASEMENT
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	PROPERTIES NOT INCLUDED
	MATCH LINE
	INDUSTRIAL A (IND A)
	INDUSTRIAL C (IND C)
	RESIDENCE B–40 (RB40)
	RESIDENCE RC (RLC)
RES.	RESIDENTIAL
COMM.	COMMERCIAL

sPower Calverton

Middle Country Road & Peconic Avenue
Town of Riverhead, Calverton, NY

No.	Revision	Date	Appvd.

Designed by CS | Checked by CR
Issued for | Date
September 23, 2016

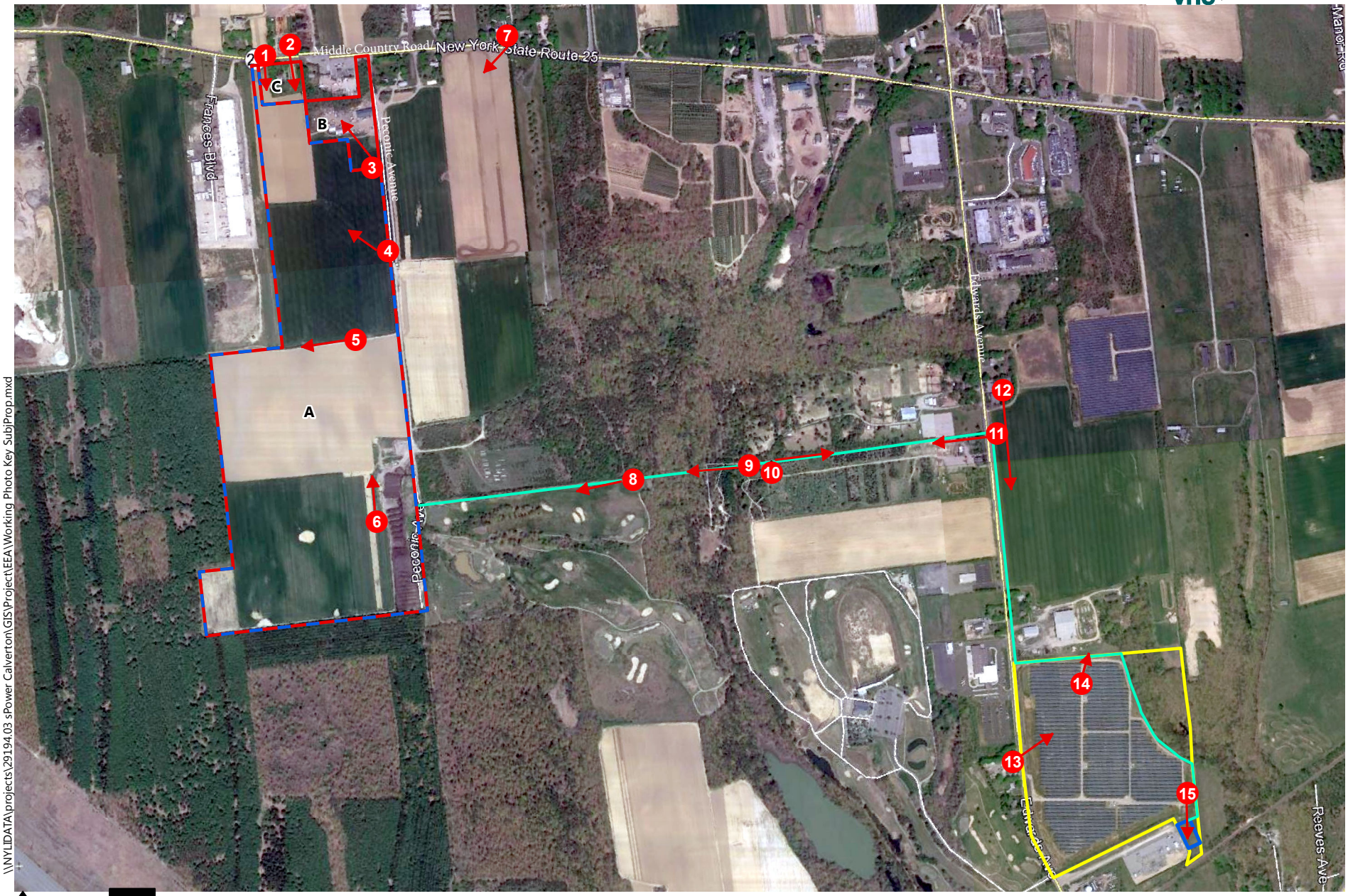
Not Approved for Construction

Drawing Title
500' Radius Map

Drawing Number
RM-2

Sheet 2 of 2

Project Number
29194.03



\\NYLIDATA\projects\29194.03 sPower Calverton\GIS\Project\EEA\Working Photo Key SubjProp.mxd

0 350 700 1400 Feet

Proposed Solar Array Field

Proposed Subdivision

Proposed Solar Collection Facility

Existing Solar Facility and Proposed Collection Facility

Photograph Locations

Proposed sPower Solar Energy Facility | Calverton, NY

Subject Property Photograph Key and Photographic Inventory

Source: Google Earth, May 2016 aerial imagery. VHB Field Inspections in August and September 2016.



Photograph No. 1: View of the existing sod farm operation on the subdivision property, facing south from Middle Country Road/NYS Route 25.



Photograph No. 2: View of the existing single-family residence on the subdivision property, facing south from Middle Country Road/NYS Route 25.



Photograph No. 3: View of structures and equipment associated with the existing sod farm operation, facing northwest from within the subdivision property.



Photograph No. 4: View of the existing sod farm operation, facing northwest from within the subdivision property. The existing adjacent industrial use and the existing farm structures are visible beyond (picture left and picture right, respectively).



Photograph No. 5: View of the existing sod farm operation, facing west from within the subdivision property. Undeveloped wooded area on the Calverton Enterprise Park property are visible, beyond.



Photograph No. 6: View of the existing sod farm operation, facing north from within the subdivision property. Existing soil piles associated with the sod farm are visible in picture right.



Photograph No. 7: View of a sod farm adjacent to the subdivision property, facing southwest from Middle Country Road/NYS Route 25. The existing sod farm that is currently in operation on Lot A, is visible, beyond.



Photograph No. 8: View of a dirt path and grass areas associated with the former golf course, facing west from within the easement property.



Photograph No. 9: View of the undeveloped wooded area between the former golf course and the tree farm property, facing west from within the easement property.



Photograph No. 10: View of the evergreen trees associated with the existing tree farm (picture left) and existing vegetation (picture right), facing east from within the easement property.



Photograph No. 11: View of the easement property and the location on Edwards Avenue beneath which the gen-tie line would be installed (via directional drilling), facing west from the west side of Edwards Avenue.



Photograph No. 12: View of the portion of the easement property that contains a sod farm operation, facing south along the east side of Edwards Avenue. The gen-tie line would be trenched underground on this property proximate to Edwards Avenue.



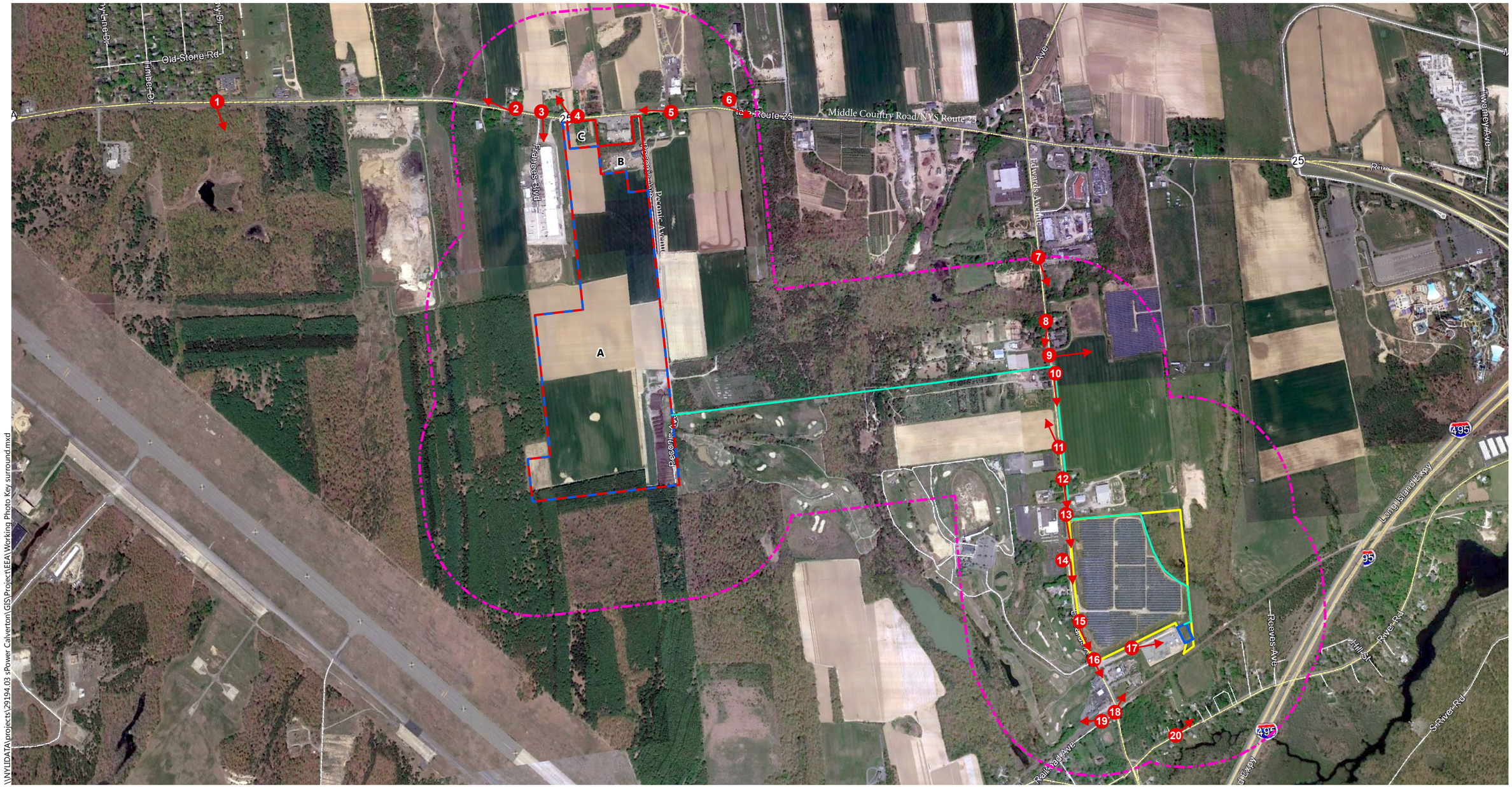
Photograph No. 13: View of the existing sPower solar facility, facing northeast from Edwards Avenue.



Photograph No. 14: View of a solar panel array field, facing north from within the existing sPower solar facility property. Note that the ground beneath the solar panels is mainly pervious grass cover.



Photograph No. 15: View of the existing mowed grass area with existing vegetation along the LIRR tracks, beyond, facing south from within the location of the proposed solar collection facility. The existing Edwards Avenue LIPA substation is visible at picture right.



\\NYLIDATA\projects\29194.03 sPower Calverton\GIS\Project\EEA\Working Photo Key surround.mxd

0 375 750 1500 Feet

- Proposed Solar Array Field
- Proposed Subdivision
- Proposed Gen-Tie
- Proposed Solar Collection Facility
- Existing Solar Facility and Proposed Collection Facility
- Study Area (1/4 mile radius)
- # Photograph Locations

Proposed sPower Solar Energy Facility | Calverton, NY

Surrounding Area Photograph Key and Photographic Inventory

Source: Google Earth, May 2016 aerial imagery. VHB Field Inspections in August and September 2016.



Photograph No. 1: Representative view of a portion of the undeveloped wooded areas on the Calverton Enterprise Park (EPCAL) property, as visible from Middle Country Road/NYS Route 25 (west of the study area), facing south-southeast.



Photograph No. 2: Representative view of the Middle Country Road/NYS Route 25 corridor west of the subdivision property, including a sod farm on the north side of the roadway, facing west.



Photograph No. 3: View of the industrial property located adjacent to the west of the subdivision property, facing south, from Middle Country Road/NYS Route 25.



Photograph No. 4: View of an agricultural operation and associated farmhouse, located north of the subdivision property, facing northwest, from Middle Country Road/NYS Route 25.



Photograph No. 5: View facing west, of the Middle Country Road/NYS Route 25 corridor east of the subdivision property, including the gas station located north of the subdivision property on the south side of the roadway and an agricultural field on the north side of the roadway. Note the poles and overhead utility wires located along the south side of Middle Country Road/NYS Route 25.



Photograph No. 6: View facing east, of the Middle Country Road/NYS Route 25 corridor east of the subdivision property, including poles and overhead utility wires and a cemetery on the south side of the roadway and front yards of residential properties on the north side of the roadway.



Photograph No. 7: View of vacant land in the northern portion of the study area along Edwards Avenue, facing south-southwest.



Photograph No. 8: View south along the Edwards Avenue corridor, including agricultural land (i.e., an equestrian operation on Town PDR property). Note the poles and overhead utility wires located along the west side of Edwards Avenue.



Photograph No. 9: View of a sod farm and an existing solar facility, beyond, facing east from Edwards Avenue.



Photograph No. 10: View south along the Edwards Avenue corridor, including a sod farm on the east side of the road and poles and overhead utility wires in the right-of-way (ROW) on the west side of the road. The proposed gen-tie line would be trenched underground at the existing sod operation proximate to the roadway in picture left.



Photograph No. 11: View of overhead utility wires, existing agricultural uses, and the tree farm (and location of the proposed Bolla Industrial Subdivision), facing northwest from Edwards Avenue.



Photograph No. 12: View facing south along Edwards Avenue, of the farmhouse and barn associated with a sod operation north of the existing solar facility on the east side of the road and poles and overhead utility wires in the ROW on the west side of the road.



Photograph No. 13: View south on Edwards Avenue of the Hampton Jitney terminal and poles and overhead utility wires in the ROW (picture right) and the existing solar facility (picture left).



Photograph No. 14: View facing south, of the Edwards Avenue corridor, of poles and overhead utility wires and single-family residential properties located across the street from the existing sPower solar facility.



Photograph No. 15: View facing south from Edwards Avenue, of the entrance to the recreational facility located on the former golf course property, and of the commercial and industrial properties, located further south along the roadway.



Photograph No. 16: View facing southeast, of an existing industrial use located along Edwards Avenue adjacent to, and west of, the Edwards Avenue LIPA substation.



Photograph No. 17: View facing east, from the driveway within the property, of the Edwards Avenue LIPA substation.



Photograph No. 18: View of the LIRR at-grade crossing at Edwards Avenue and a commercial use, beyond, facing northeast. The LIRR crossing is located south of the existing sPower solar facility



Photograph No. 19: View facing west, from Railroad Avenue, of the LIRR tracks, residential properties on the south side of the road and a commercial use on the north side of the road.



Photograph No. 20: Representative view facing east-northeast along River Road, of the residential area located in the southeast portion of the study area, south of the LIRR tracks.

SCTM#: 600- 116 . 00 - 01.00 - 007 .002 (part of)
600- 98.00- 01.00 - 021 .001 (part of)
600-116-2-7.4
600-117-1-6
600-117-2-7.2,8.2 600-137-1-32.1

TOWN OF RIVERHEAD
PLANNING BOARD

200 HOWELL AVENUE, RIVERHEAD, NEW YORK 11901-2596
(631) 727-3200, EXT. 240, FAX (631) 727-9101

Richard M. O'Dea, Chairman *Lou Boschetti, Member* *Ed Densieski, Member*
Joseph H. Baier, Vice-Chair/Secretary *Lyle Wells, Member*

NOTE: ***ALL SITE PLAN SUBMISSIONS MUST BE FOLDED***
Site Plan fees are NOT refundable

SITE PLAN CHECKLIST (INCLUDING ARCHITECTURAL REVIEW)

PROJECT NAME: sPower Calverton

This application is for:

☑ New construction (vacant land) ☐ Re-construction ☐ Building addition(s)

☐ Façade alteration ☐ Other

Please identify submission phase (*Pursuant to Chapter 108, Section 108-131 of the Riverhead Town Code*):

☑ Preliminary ☐ Final

Please check the items submitted:

☑ Completed application for Site Plan Approval (1 original, 13 photocopies);

☑ Non-Refundable Fee- $500 plus $0.10 sq. ft. per sq. ft. of area altered/improved/project area up to a maximum of $30,000. 75% required at preliminary review phase, remainder 25% required at final review. ($500 paid at time of submission for an amendment of an approved site plan prior to issuance of a Certificate of Occupancy.)

☐ Completed (Short form, Part 1 only) EAF (1 original, 13 photocopies); Expanded Environmental Assessment under separate cover

☑ Current Title Report for the subject property, *dated not more than three months prior to the date of submission of the application*, prepared by a title company licensed in the State of New York containing a chain of title and any/all recorded covenants, declarations, restrictions and/or easements on the subject property;

☑ Current Title Surveys, (14 originals, must be stamped/sealed by a registered Land Surveyor);

☑ Fourteen (14) prints of a professionally executed site plan which contains the information required by §108-132 of the Zoning Code. (***Please note that the proposed site plan drawings, including landscape and lighting plans, cannot exceed the standard D size (24" x 36") and the following scales are to be used: Sites less than 2 acres: one inch equals 20 ft.; two acres or more: one inch equals 40 ft.; detailed portions of a site: one inch equals 10 ft. (Match lines can be used for particularly large sites.)*** At a minimum, the site plan must include, but is not limited to, the following:

☐ Property lines, showing directional bearings and distance, adjacent land ownerships,

land uses, streets, directional arrow, scale, Tax Map Number, and zoning district;

- ☐ Key map at 1"=600'
- ☐ Existing and proposed buildings, structures and uses including first floor and ground floor elevation(s) and setbacks to the property lines;
- ☐ The area, expressed in square feet, of each existing and proposed building, structure or uses;
- ☐ The location of any existing easements on, over or adjacent to the site including the location of all existing or proposed utility lines and fire hydrants. If easements exist on site, a copy of the language associated with said easement must be provided;
- ☐ Layout of existing and proposed parking and loading areas, including dimensions of spaces, aisles and street approaches, the general circulation pattern with directional movement shown, existing and proposed curb cuts, traffic safety devices, sidewalks, curbing, paving, drainage structures and their respective specifications. Methods used for computing parking and drainage requirements shall be included;
- ☐ Any existing woodlands, stands of trees, or instances of unique or indigenous vegetation, and any other natural features, such as, but not limited to, water bodies, drainage courses, fresh and saltwater marshes, coastal dunes, bluffs, beaches, escarpments, overlook areas and wildlife habitats;
- ☐ Existing and proposed sewage disposal and water supply systems. The sanitary calculations must also be included;
- ☐ Existing topography of the site and immediately adjacent property, as revealed by contours or key elevations, and any proposed regrading of the site. (Areas of greater than 15% slope should be designated and the square footage provided.)
- ☐ Cultural features, such as paleontological and archeological remains, old trails, agricultural fields, historic buildings and sites or those that contribute to the rural character of the community or possess a unique and/or identifiable feature;
- ☐ A table which demonstrates compliance, or the extent of non-compliance, with the Dimensional Regulations for the Zoning District. *The applicant should note that although this item is not listed in the Town Code, it is the Board's policy to require it.*

☐ <u>Fourteen (14) prints</u> of a lighting plan **including all existing and proposed lighting (parking lot, building-mounted, sign lighting, etc.)**, which demonstrates compliance with the Town's Lighting Ordinance (§108-246 to §108-255.1 of the Zoning Code). The lighting plan must include, but is not limited to, the following:

- ☐ The full ***manufacturer's*** catalogue number for each fixture proposed.
- ☐ The locations, mounting height(s), hours of operation, wattage, lumen output, and lamp type for each type of fixture including whether such fixtures are full cutoff;
- ☐ Photometric data for each fixture type and illuminance levels in 10 ft. grids.

☑ Fourteen (14) prints of a landscape plan which contains the data required by of the Zoning Code. The landscape plan must include, but is not limited to, the following:

- ☐ A planting schedule which provides the common and scientific names of each plant species proposed.
- ☐ Depictions and labeling of required buffer areas, screening plantings, street trees, fencing, etc. as per 108-64.1.

The applicant should be aware of the existing and proposed plant species banned for sale in Suffolk County and their effective date. A list of banned species can be found at Suffolk County's Department of Environment and Energy's Division of Water Quality Improvement's website.

☐ Fourteen (14) prints of elevation drawings of all faces of buildings and structures at an appropriate scale *prepared and sealed by a licensed processional.* **When scheduling an appearance for the Architectural Review Board, the following must be provided in advance:**

- ☐ Cornice, trim, window, door and column details
- ☐ Building colors and materials
- ☐ Heights of buildings and structures
- ☐ Photographs of the site showing neighboring structures
- ☐ Any proposed signage (if applicable)

☐ Fourteen (14) prints of floor plan drawings prepared and sealed by a licensed professional. The floor plans must be provide *only if* the applicant is proposing exclude those exemptions allowed, under §108-60, from the parking calculations;

☑ An Agricultural Data Statement, if applicable. (See the data form on page 8 for information.)

I am aware that all of the items on this checklist must be submitted for acceptance as a complete application, and that if any of the items are missing, the application will be deemed incomplete, and will be returned to me.

Signature: _____ Date: _____

Printed Name: Courtney Riley

Date Submitted: _____ (For Planning Dept. use only)

Complete: _____ (For Planning Dept. use only)

Incomplete: _____ (For Planning Dept. use only)

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NOTICE TO APPLICANT
REQUIREMENTS FOR SITE PLAN APPROVAL
SUBMISSION OF A STORMWATER POLLUTION PREVENTION PLAN

Please be advised that submission of a Stormwater Pollution Prevention Plan (SWPPP) consistent with the provisions of Riverhead Town Code chapter 110 shall be required for construction activity including clearing, grading, excavating, soil disturbance or placement of fill that results in land disturbance of equal to or greater than one acre, or activities disturbing less than one acre of total land area that is part of a larger common plan of development or sale, even though multiple, separate and distinct land development or re-development activities may take place at different times on different schedules unless the activity is exempt as delineated in Riverhead Town Code section 110-5.

The applicant must submit three (3) copies of a SWPPP, in conformance with Riverhead Town Code sections 110-6 and 110-7, to the attention of Drew Dillingham, Engineering Department-Stormwater Management Officer, 1295 Pulaski Road, Riverhead, New York 11901, at either the time the applicant receives written notice that the Planning Department has approved the *generalized layout* of the site or at the time the applicant receives a resolution conditionally approving the site plan application, at the applicant's preference.

Fees: Upon the submission of three (3) copies of a SWPPP, the Town shall require an initial stormwater pollution prevention plan review fee deposit in the amount of $3500.00, pursuant to Riverhead Town Code Section 110-12. Such deposit shall be submitted to Drew Dillingham, as the Stormwater Management Officer.

In addition, the Planning Board Chairman (or Town Supervisor, if applicable) will not affirm site plan approval by signing the mylar (which is required for issuance of a building permit or to begin site improvements) until such time that the Stormwater Management Officer has reviewed and approved a submitted SWPPP.

Design of the SWPPP should be considered during preparation of the site plan so that major changes are not needed once the SWPPP is reviewed.

If you have any questions as to whether a SWPPP is required regarding your land use application you may contact either Drew Dillingham, Stormwater Management Officer, at 631-727-3200 x 604, or Daniel P. McCormick, Counsel to the Stormwater Management Office, at 631-727-3200 x 605, or the Planning Department at 631-727-3200 x 267.

SCTM#: 600-116 .00 - 01.00 - 007. 002 (part of)
600-116 .00 - 02.00- 001. 001 (part of)
600-116-2-7.4
600-117-1-6
600-117-2-7.2,8.2 600-137-1-32.1

TOWN OF RIVERHEAD
PLANNING BOARD

200 HOWELL AVENUE, RIVERHEAD, NEW YORK 11901-2596
(631) 727-3200, EXT. 240, FAX (631) 727-9101

Richard M. O'Dea, Chairman — *Lou Boschetti, Member* — *Ed Densieski, Member*
Joseph H. Baier, Vice-Chair/Secretary — *Lyle Wells, Member*

DO NOT WRITE IN THIS BOX: This box will be completed by the Planning Department
Fee: $500 + (_____ sq. ft. altered/project area x $0.10) = _____

Submission Phase: (75%) Preliminary _____ (25%)Final _____

Date Fee Submitted: _____

Accounting Receipt Number: _____

APPLICATION FOR SITE PLAN APPROVAL

Identify submission phase: (*Pursuant to Section 108-131 of the Riverhead Town Code, revised December 6, 2011*):

☑ Preliminary ☐ Final

Designated Name of Proposed Development or Project. *(If none exists, supply the applicant's name)*:

sPower Calverton

If there is more than one party in any category below, please provide information for each on a separate sheet of paper.

Applicant*:

Name: sPower
Address: 2180 South 1300 East, Suite 600
Salt Lake City, UT 84106-2749
Phone: 801-679-3500

Licensed Design Professional*:

Name: VHB Engineering
Address: 100 Motor Parkway, Suite 135
Hauppauge, NY 11788
Phone: 631-787-3400

Owner*:

Name: sPower
Address: 2180 South 1300 East, Suite 600
Salt Lake City, UT 84106-2749
Phone: 801-679-3500

Attorney*:

Name: Garrett Gray
Address: 290 Broadhollow Road, Suite 200E
Melville, New York 11747
Phone: 631-549-2000

- Suffolk County Tax Map Number: 0600- 116 . 00 - 01.00 - 7 . 2 (part of)
0600- 98.00 - 01.00 - 021 .001 (part of)
600-116-2-7.4 600-117-1-6
600-117-2-7.2,8.2 600-137-1-32.1

- Location of site: Southwest corner of Middle Country Road and Peconic Avenue, Calverton
- Current zoning classification (zoning district): Industrial C / Industrial A (includes proposed solar facility, generation -tie connection and proposed collection substation)
- Description of work to be done: Construction of a ± 20 megawatt solar photovolaic energy facility, generation-tie in route to existing solar facility which will contain a proposed collection substation.
- Proposed use(s) of site: Solar generating facility / generation-tie route / collection substation
- Total site area: 4,784,110 (proposed solar facility) square feet 109.9 (proposed solar facility) acres
- Square feet of building area: Existing: None To be added: None
- Square feet of ***total altered area*** (buildings, clearing, grading, disturbance, hard surfaces, landscaping, etc.: ± 4,784,110 SF (proposed solar facility), ± 260,100 SF (generation-tie easement), 17,145 SF (collection substation)
- Amount of fee submitted-*$500 plus 10 cents per square foot of total altered area up to a maximum of $30,000.* ***75% at preliminary review and 25% remainder at final.*** *($500 paid at time of submission for an amendment of an approved site plan prior to issuance of a Certificate Occupancy.)*: $3,000
- Anticipated construction time/completion date: 12-18 months / December 2018
- Will development be staged/phased? No If yes, how? _____
- Current land use of site (retail, manufacturing, etc.): Agricultural
- Current condition of site (vacant, wooded, developed, #of buildings, etc.): Sod Farm
- Use/Character of surrounding sites (agricultural, residential, retail, etc.): Agricultural / Residential
- Is the site within a New York State Agricultural District or within 500 ft. of a New York State Agricultural District? Yes *(If so, see the following page.)*
- Was a Presubmission Conference held?: Yes If so, provide the date: 7/28/15

_____ _____

Applicant signature Date

_____ _____

Print applicant name Title, if applicable

This application is:
(For Planning Department use only)

☐ Complete (date) _____

☐ Incomplete because: _____

Received by: _____

Date: _____

Please note: If ownership is held jointly or in partnership, each owner and/or partner must sign a separate owner's endorsement. If the owner or owners are making the application, this endorsement is not required.

OWNER'S ENDORSEMENT

STATE OF NEW YORK)
COUNTY OF SUFFOLK) ss:

Application/Project Name: sPower Calverton

Project Address: Middle Country Road and Peconic Avenue, Calverton, NY

Richard W. DeLea, being duly sworn, deposes and says:

I am: (check one)
___ a part owner in fee
___ the sole owner in fee
☑ an officer of the corporation which is the owner in fee of the premises described in the foregoing application.

I reside at 444 Elwood Road
Mailing Address

East Northport, NY 11731
Hamlet/Post Office/Village State Zip Code

I have authorized sPower to make the foregoing application (described above) to the Riverhead Town Board and/or Planning Board for site plan/subdivision approval as described herein.

Signature

Green Meadows, LLC
(If owner is a corporation, please indicate name of corporation and the title of the corporate officer whose signature appears above)

Sworn before me this

_____day of _____, 20___

Notary Public

Town of Riverhead Agricultural Data Statement

When to use this form: *This form must be completed by the applicant for any use variance, Special Use Permit, site plan approval, or subdivision approval on property within an Agricultural District containing a farm operation* ***OR*** *on property with boundaries within 500 ft. of a farm operation located in an Agricultural District. Applications requiring an Agricultural Data Statement require referral to the Suffolk County Planning Commission unless exempt in accordance with the inter-municipal agreement regarding zoning referrals.*

1) Name of Applicant: sPower
2) Address of Applicant: 2180 South 1300 East, Suite 600 Salt Lake City, UT 84106-2749
3) Name of Land Owner (if other than the applicant): _____
4) Address of Land Owner: _____
5) Description of Proposed Project: The proposed project is the construction of a ±20 megawatt (MW) solar photovolaic (PV) energy facility and generation-tie in to a proposed collection substation. The project will include a field of solar panel arrays, access roadways, site fencing, and vegetated buffer areas.
6) Location of property (street address): Middle Country Road and Peconic Avenue, Calverton, NY
7) Project site tax map number: 600-116-1-7.2 (part of), 600-98-1-21.1 (part of), 600-137-1-32.1, 600-117-2-7.2, 8.2, 600-117-1--6, 600-116-2-7.4
8) Is the project located on property within an Agricultural District containing a farm operation? Yes (yes or no)
9) Is the project located on property outside an Agricultural District, but with a boundary or boundaries within 500 ft. of a farm operation located in an Agricultural District? Yes (yes or no).
10) Tax map # and name and address of any owner(s) of parcels of land within the Agricultural District containing farm operation(s) located within 500 ft. of the boundaries of the parcel subject to the pending application.

	Tax Map #	Name & Address
1.		(SEE ATTACHED SHEET)
2.		
3.		
4.		
5.		
6.		
7.		

(Use the back side of the page if more than seven properties are identified.)

Tax map numbers within 500 ft. may be obtained when requested in advance from the Planning Department at 631-727-3200 x267. Information regarding property addresses and whether a property is an active farm operation is available by contacting the Assessor's office in advance at 631-727-3200 x255.

11) **Submit a copy of the current tax map page(s) labeling the site of the proposed project and highlighting the farm operation parcels identified in item 10 above.**
12) **Submit pre-addressed legal size envelopes, pre-addressed to each of the landowners identified in item 10 above with pre-paid certified mail postage, together with pre-addressed green, return receipt cards for each mailing. The return address on the return receipt card must read "Riverhead Town Planning Department, 200 Howell Ave., Riverhead, NY 11901."**

Signature of Applicant _____ Date_____

Notes: 1. The Planning Department will solicit comments via mail from the owners of land identified above in order for the applicable Board to consider the effect of the proposed action on their farm operation. This will include a copy of this statement. 2. Comments returned will be taken into consideration by the applicable Board as part of the overall review of an application. 3. Failure to provide a complete Agricultural Data Statement means the application cannot be acted upon by the applicable Board.

TOWN OF RIVERHEAD
PLANNING BOARD

200 HOWELL AVENUE, RIVERHEAD, NEW YORK 11901-2596
(631) 727-3200, EXT. 240, FAX (631) 727-9101

Richard M. O'Dea, Chairman *Lou Boschetti, Member* *Ed Densieski, Member*
Joseph H. Baier, Vice-Chair/Secretary *Lyle Wells, Member*

Construction Activity Agreement

Job Title: sPower Calverton

SCTM No: 600-116-01-7.2 (part of)
600-98-1-21.1 (part of)

Site Address: Middle Country Road and Peconic Ave
Calverton, NY

I agree to comply with the following:

- I will have available on-site this agreement and related plans during the entire construction process. I will explain the requirements to all construction personnel and subcontractors. I take responsibility for full compliance with this agreement and Chapter 110 of the Town of Riverhead Code (Stormwater Management and Erosion and Sentiment Control).

- No vegetation and/or trees may be cleared without first receiving a mark-out or authorization from Planning, Building and/or Engineering Inspectors. Only vegetation, topsoil, and trees sphecifically in the path of construction activity may be removed.

- No earth, fill or construction material shall be allowed to migrate off site from this project on the Town of Riverhead roadway and/or storm drain system or an adjacent property.

- No fill shall be brought into site without the express approval of a Building Department. Fill piles will only be allowed in a location designated on plan, or authorized by Building Inspector(s). Piles of fill shall be stabilized and/or contained with grass seed, sit fences, hay bales, or other approved methods.

- At the end of each workday the adjacent roadway and/or storm drain system shall be inspected by owner or his/her designee for soil or other matter. All construction site and adjacent roadways shall be cleared of soil and other material at the end of each day.

- All construction and demolition debris and materials, including wet concrete, shall be disposed of at an appropriate facility in accordance with Town of Riverhead and NYSDEC waste management regulations. Dumping any liquid, semi-liquid, or other materials from a construction site into storm drains, roadways, vacant property is grounds for a violation.

- Litter shall be picked up on a daily basis from site, adjacent properties and/or the road system.

- Toilet facilities shall be available to all workers on site during the construction period.

- A temporary stable construction entrance shall be constructed utilizing recycled concrete aggregate (RCA) or a similar material, unless a suitable constructed entrance already exists on the site.

- All municipal or private drainage inlets adjacent to area or construction shall be protected from dirt/matter/pollutants through the use of products/sponges designed for this purpose.

- On areas of steep slopes and areas cleared of vegetation, suitable stabilization methods, as shown on approved site plans and the stormwater pollution prevention plan (SWPPP) shall be employed to prevent soil migration and stormwater runoff.

- All exposed expanses of soil shall be stabilized with annual grass seed as soon as areas will no longer be needed for construction staging, or if areas will remain undisturbed for six weeks or longer.

- Prior to tree, shrub or other plantings, soil shall be suitably tilled and prepared.

In WITNESS WHEREOF, the parties hereto have caused this Declaration to be duly executed as of the date and year described below.

_____	_____	_____
Date	Owner Name (Printed)	Contractor Name (Printed)
	_____	_____
	Owner Signature	Contractor Signature

STATE OF NEW YORK)
:ss:
COUNTY OF SUFFOLK)

On the _____ day of _____ in the year _____, before me, the undersigned, a Notary Public in and for said State, _____, personally appeared, is personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her capacity, and that by his/her signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed this instrument.

_____	_____
Dated	Notary Signature

STATE OF NEW YORK)
:ss:
COUNTY OF SUFFOLK)

On the _____ day of _____ in the year _____, before me, the undersigned, a Notary Public in and for said State, _____, personally appeared, is personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her capacity, and that by his/her signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed this instrument.

_____	_____
Dated	Notary Signature

READ THIS DOCUMENT CAREFULLY, YOU MAY CONSULT YOUR ATTORNEY BEFORE COMPLETING.

Disclosure Affidavit

STATE OF NEW YORK)

SS:

COUNTY OF SUFFOLK)

I, _____ an applicant for the

following relief:_____ and being duly sworn,
(Type of Permit)

deposes and says:

That I make and complete this affidavit under the penalty of perjury and swear to the truth thereof. That I understand that this affidavit is required by Section 809 of the General Municipal Law and that a knowing failure to provide true information is punishable as a misdemeanor. Being so warned, I state:

☑ ***Check here if not applicable (i.e., you have no relative working for the Town of Riverhead) and please sign below before a notary public.***

OR:

That_____ is a State officer, is an officer or employee of
(Name of Relative)

Riverhead Town, and:

That this person has an interest in the person, partnership or association with this site plan application.

That for the purpose of this section, an officer or employee shall be deemed to have an interest in the applicant where he, his spouse, or their brothers, sisters, parents, children, grandchildren or the spouse of any of them.

a. Is an applicant,
b. Is an office, director, partner or employee of the applicant,
c. Legally or beneficially owns or controls stock of a corporate applicant or is a member of a partnership or association, applicant, or
d. Is a party to an agreement with such an application, express or implied whereby he may receive any payment of other benefit, whether or not for services rendered, dependant or contingent upon the favorable approval of such application, petition or request.
e. That ownership of less than five (5) percent of the stock of a corporation whose stock is listed on the New York or American Stock Exchange shall not constitute an interest for the purpose of this section.

_____
(Signature)

Sworn to before me this _____ day

of_____, 20_____.

_____

Notary Public

Plant Species List

The following list provides an inventory of vegetation observed during field surveys of the project area conducted on April 9-11, 2014, June 27-28, 2015 and September 14-15, 2016. This observed plant species list is not intended to be an all-inclusive inventory of the vegetative species present within the project area.

Trees

Abies sp.	fir
Acer plantanoides	Norway maple
Acer rubrum	red maple
Ailanthus altissima	tree-of-heaven
Betula populifolia	grey birch
Carya glabra	pignut hickory
Carya tomentosa	mockernut hickory
Catalpa bignonioides	southern catalpa
Elaeagnus angustifolia	Russian olive
Elaeagnus umbellata	autumn olive
Fagus grandifolia	American beech
Ilex opaca	American holly
Juniperus virginiana	eastern redcedar
Malus sp.	crabapple
Morus alba	white mulberry
Paulownia tomentosa	empress tree
Picea abies	Norway spruce
Picea pungens	Colorado blue spruce
Picea rubens	red spruce
Pinus rigida	pitch pine
Pinus strobus	eastern white pine
Populus deltoides	eastern cottonwood
Populus tremuloides	quaking aspen
Prunus serotina	black cherry
Quercus alba	white oak
Quercus coccinea	scarlet oak
Quercus ilicifolia	scrub oak
Quercus palustris	pin oak
Quercus velutina	black oak
Robinia pseudoacacia	black locust
Salix sp.	willow
Sassafras albidum	sassafras
Thuja occidentalis	northern white cedar (arborvitae)

Shrubs and Woody Vines

Arctostaphylos uva-ursi	bearberry
Berberis thunbergii	Japanese barberry
Celastrus orbiculatus	Asiatic bittersweet
Comptonia peregrina	sweet fern
Forsythia sp.	forsythia
Gaylussacia baccata	black huckleberry
Kalmia angustifolia	sheep laurel
Ligustrum sp.	privet
Lonicera canadensis	American fly honeysuckle
Lonicera japonica	Japanese honeysuckle
Lonicera tatarica	Tatarian honeysuckle
Lyonia ligustrina	staggerbush
Lyonia mariana	maleberry
Myrica pensylvanicum	northern bayberry
Parthenocissus quinquefolia	Virginia creeper
Prunus virginianica	chokecherry
Rhus glabra	smooth sumac
Rosa multiflora	multiflora rose
Rubus idaeus	raspberry
Rubus occidentalis	black raspberry
Rubus phoenicolasius	wineberry
Rubus sp.	brambles
Smilax rotundifolia	roundleaf greenbrier
Taxus sp.	yew
Toxicodendron radicans	poison ivy
Vaccinium angustifolium	late lowbush blueberry
Vaccinium pallidum	early lowbush blueberry
Viburnum recognitum	northern arrowwood
Vitis aestivalis	summer grape

Achillea millefolium	yarrow
Allaria petiolata	garlic mustard
Ambrosia artemisiifolia	common ragweed
Anaphalis margaritacea	pearly everlasting
Andropogon virginicus	broomsedge
Apocynum cannabinum	hemp dogbane
Artemisia vulgaris	common mugwort
Asclepias syriaca	common milkweed
Bidens frondosa	devil's beggarticks
Bidens vulgata	tall beggarticks
Calystegia sepium	hedge bindweed
Capsella bursa-pastoris	shepherd's purse
Carex pensylvanica	Pennsylvania sedge
Centaurea maculosa	spotted knapweed
Chenopodium album	lambsquarters
Chicorium intybus	chicory
Chimaphila maculata	striped wintergreen
Chimaphila umbellata	pipsissewa
Cirsium arvense	Canada thistle
Convallaria majalis	lily-of-the-valley
Conzya canadensis	horseweed
Cyperus esculentus	yellow flatsedge
Cyperus strigosus	umbrella sedge
Dactylis glomerata	orchard grass
Danthonia spicata	poverty grass
Datura stramonium	jimsonweed
Daucus carota	Queen Anne's lace
Deschampsia flexuosa	hairgrass
Dichanthelium clandestinum	deertongue grass
Digitaria sanguinalis	large crabgrass
Digitaria sp.	crabgrass
Echinochloa muricata	rough barnyard grass
Erigeron annuus	daisy fleabane
Euphorbia maculata	spotted spurge
Festuca arundinacea	red fescue
Festuca sp.	fescue
Fragaria virginiana	wild strawberry
Galinsoga parviflora	quickweed
Galium sp.	bedstraw
Gallium mollugo	smooth bedstraw
Gaultheria procumbens	wintergreen
Gnaphalium obtusifolium	sweet everlasting
Helenium autumnale	sneezeweed
Hieracium caespitosum	yellow hawkweed
Hypericum perforatum	common St. John's wort
Hypochaeris radicata	cat's ear
Juncus tenuis	path rush
Kalmia angustifolia	sheep laurel
Kalmia latifolia	mountain laurel

Lactuca canadensis	Canada lettuce
Lechea intermedia	intermediate pinweed
Linaria vulgaris	butter-and-eggs (toadflax)
Lolium sp.	ryegrass
Lotus corniculatus	birdsfoot trefoil
Miscanthus sp.	ornamental grass
Onoclea sensibilis	sensitive fern
Osmunda cinnamomea	cinnamon fern
Oxalis acetosella	wood sorrel
Oxalis stricta	yellow wood sorrel
Panicum virgatum	switch grass
Phalaris arundinacea	reed canary grass
Phleum pratense	timothy grass
Phragmites australis	common reed
Phytolacca americana	pokeweed
Plantago lanceolata	narrowleaf plantain
Plantago major	broadleaf plantain
Poa sp.	bluegrass
Polygonum cuspidatum	Japanese knotweed
Polygonum lapathifolium	pale smartweed
Polygonum pensylvanicum	Pennsylvania smartweed
Polygonum perfoliatum	mile-a-minute vine
Polygonum persicaria	lady's thumb
Polystichum acrostichoides	Christmas fern
Portulaca oleracea	purslane
Potentilla canadensis	dwarf cinquefoil
Potentilla simplex	common cinquefoil
Pteridium aquilinum	bracken fern
Rumex crispus	curly dock
Rumex obtusifolius	broadleaf dock
Schizachyrium scoparium	little bluestem
Setaria faberi	giant foxtail
Setaria pumila	yellow foxtail
Setaria viridis	green foxtail
Solidago altissima	tall goldenrod
Solidago arguta	sharp-leaved goldenrod
Solidago graminifolia	grass-leaved goldenrod
Solidago juncea	early goldenrod
Solidago odora	sweet goldenrod
Solidago rugosa	rough-stemmed goldenrod
Solidago tenuifolia	slender-leaved goldenrod
Sonchus arvensis	perennial sowthistle
Sonchus oleraceus	annual sowthistle
Sorghastrum nutans	Indian grass
Stellaria media	common chickweed
Symphyotrichum dumosum	bushy aster
Taraxacum officinale	common dandelion
Tridens flavus	purpletop grass
Trifolium arvense	rabbit's foot clover
Trifolium campestre	hop clover
Trifolium pratense	red clover
Trifolium repens	white clover

Verbascum blattaria	moth mullein
Verbascum thapsus	mullein
Vicia villosa	hairy vetch
Viola sororia	common violet

Birds

The 54 avian species listed below were observed at or over the project area during the 2014-2016 field surveys. This observed bird species list is not intended to be an all-inclusive inventory of the avian species present within the project area.

Agelaius phoeniceus	red-winged blackbird
Baeolophus bicolor	tufted titmouse
Bombycilla cedrorum	cedar waxwing
Branta canadensis	Canada goose
Buteo jamaicensis	red-tailed hawk
Cardinalis cardinalis	northern cardinal
Cathartes aura	turkey vulture
Certhia americana	brown creeper
Charadrius vociferus	killdeer
Colaptes auratus	northern flicker
Contopus virens	eastern wood-peewee
Corvus brachyrhynchos	American crow
Corvus ossifragus	fish crow
Cyanocitta cristata	blue jay
Dumetella carolinensis	gray catbird
Geothlypis trichas	common yellowthroat
Haemorhous mexicanus	house finch
Hirundo rustica	barn swallow
Icterus galbula	northern oriole
Junco hyemalis	dark-eyed junco
Larus argentatus	herring gull
Melanerpes carolinus	red-bellied woodpecker
Meleagris gallopavo	turkey
Melospiza melodia	song sparrow
Mimus polyglottos	northern mockingbird
Mniotilta varia	black-and-white warbler
Molothrus ater	brown-headed cowbird
Myiarchus crinitus	great-crested flycatcher
Passer domesticus	house sparrow
Passerina cyanea	indigo bunting
Picoides pubescens	downy woodpecker
Picoides villosus	hairy woodpecker
Pipilo erythrophthalmus	eastern towhee
Poecile atricapillus	black-capped chickadee
Quiscalus quiscula	common grackle
Sayornis phoebe	eastern phoebe
Seiurus aurocapilla	ovenbird
Setophaga coronata	yellow-rumped warbler
Setophaga petechia	yellow warbler

Setophaga pinus	pine warbler
Sialia sialis	eastern bluebird
Sitta carolinensis	white-breasted nuthatch
Spinus tristis	American goldfinch
Spizella passerine	chipping sparrow
Spizella pusilla	field sparrow
Sturnus vulgaris	European starling
Tachycineta bicolor	tree swallow
Thryothorus ludovicianus	Carolina wren
Troglodytes aedon	house wren
Turdus migratorius	American robin
Vireo gilvus	warbling vireo
Vireo olivaceus	red-eyed vireo
Zenaida macroura	mourning dove
Zonotrichia albicollis	white-throated sparrow

Mammals

The following mammal species list includes those species observed within the project area or identified as potentially utilizing the project area, based upon habitat observations and known species ranges. The list is not intended to be an all-inclusive inventory of on-site mammals.

Blarina brevicauda	short-tailed shrew
Chiroptera spp.	bats
Condylura cristata	star-nosed mole
Didelphis virginialis	Virginia opossum
Glaucomys volans	southern flying squirrel
Marmota monax	woodchuck*
Mephitis mephitis	striped skunk
Microtus pennsylvanicus	meadow vole
Mus musculus	house mouse
Mustela frenata	long-tailed weasel
Odocoileus virginianus	whitetail deer*
Peromyscus leucopus	white-footed mouse
Pitymys pinetorum	pine mouse
Procyon lotor	raccoon
Ratus norvegicus	Norway rat
Scalopus aquaticus	eastern mole
Sciurus carolinensis	eastern gray squirrel*
Sorex cinerus	masked shrew
Sylvilagus floridanus	eastern cottontail*
Tamias striatus	eastern chipmunk*
Vulpes vulpes	red fox*

* Indicates species observed within the project area.

Herpetofauna

List of Species Reported for the Riverhead and Wading River, New York Quadrangle Topographic Maps during the New York Amphibian and Reptile Atlas Project Survey (1990-1999).

Ambystoma maculatum	spotted salamander
Ambystoma opacum	marbled salamander
Ambystoma tigrinum	eastern tiger salamander
Bufo fowleri	Fowler's toad*
Carphophis amoenus	eastern worm snake
Chelydra serpentina	common snapping turtle
Chrysemys picta	eastern painted turtle
Clemmys guttata	spotted turtle
Coluber c. constrictor	northern black racer
Diadophis punctatus	northern ringneck snake
Hemidactylium scutatum	four-toed salamander
Hyla versicolor	gray treefrog
Lampropeltis triangulum	eastern milk snake
Malaclemys terrapin	northern diamondback terrapin
Nerodia sipedon	northern water snake
Notophthalmus viridescens	red-spotted newt
Opheodrys vernalis	smooth green snake
Plethodon cinereus	northern redback salamander
Pseudacris crucifer	northern spring peeper
Rana catesbeiana	American bullfrog
Rana clamitans	green frog*
Rana sylvatica	wood frog
Rana palustris	pickerel frog
Rana sphenocephala	southern leopard frog
Scaphiopus holbrookii	eastern spadefoot
Sternotherus oderatus	common musk turtle
Terrapene carolina	eastern box turtle*
Thamnophis sauritus	eastern ribbon snake
Thamnophis sirtalis	eastern garter snake*
Trachemys scripta	red-eared slider

* Indicates species observed within the project area.

NYS Breeding Bird Atlas

Block 6853C

2000-2005

Navigation Tools
Perform Another Search
Show All Records
Sort by Field Card Order
Sort by Taxonomic Order
View 1985 Data

Block 6853C Summary	
Total Species:	87
Possible:	12
Probable:	34
Confirmed:	41

Click on column heading to sort by that category.

List of Species Breeding in Atlas Block 6853C

Common Name	Scientific Name	Behavior Code	Date	NY Legal Status
Cooper's Hawk	*Accipiter cooperii*	X1	5/7/2002	Protected-Special Concern
Red-winged Blackbird	*Agelaius phoeniceus*	FY	6/29/2001	Protected
Wood Duck	*Aix sponsa*	UN	3/1/2002	Game Species
Grasshopper Sparrow	*Ammodramus savannarum*	FY	7/15/2001	Protected-Special Concern
Mallard	*Anas platyrhynchos*	FL	7/23/2001	Game Species
Ruby-throated Hummingbird	*Archilochus colubris*	P2	7/7/2001	Protected
Tufted Titmouse	*Baeolophus bicolor*	FY	6/21/2001	Protected
Cedar Waxwing	*Bombycilla cedrorum*	P2	6/16/2001	Protected
Canada Goose	*Branta canadensis*	FL	5/7/2002	Game Species
Great Horned Owl	*Bubo virginianus*	T2	1/6/2002	Protected
Red-tailed Hawk	*Buteo jamaicensis*	FL	7/20/2002	Protected
Green Heron	*Butorides virescens*	X1	5/16/2002	Protected
Whip-poor-will	*Caprimulgus vociferus*	T2	5/25/2002	Protected-Special Concern
Northern Cardinal	*Cardinalis cardinalis*	FL	6/29/2001	Protected
	Carpodacus			

House Finch	*mexicanus*	P2	7/7/2001	Protected
Turkey Vulture	*Cathartes aura*	X1	7/1/2004	Protected
Veery	*Catharus fuscescens*	T2	7/15/2001	Protected
Hermit Thrush	*Catharus guttatus*	T2	5/15/2003	Protected
Chimney Swift	*Chaetura pelagica*	P2	7/15/2001	Protected
Killdeer	*Charadrius vociferus*	FL	6/9/2002	Protected
Common Nighthawk	*Chordeiles minor*	X1	6/15/2002	Protected-Special Concern
Northern Harrier	*Circus cyaneus*	X1	6/29/2002	Threatened
Yellow-billed Cuckoo	*Coccyzus americanus*	FY	6/22/2004	Protected
Black-billed Cuckoo	*Coccyzus erythropthalmus*	S2	5/15/2003	Protected
Northern Flicker	*Colaptes auratus*	FL	7/7/2001	Protected
Northern Bobwhite	*Colinus virginianus*	T2	6/29/2001	Game Species
Rock Pigeon	*Columba livia*	P2	6/29/2002	Unprotected
Eastern Wood-Pewee	*Contopus virens*	T2	6/29/2001	Protected
American Crow	*Corvus brachyrhynchos*	FL	6/29/2001	Game Species
Fish Crow	*Corvus ossifragus*	T2	7/25/2001	Protected
Blue Jay	*Cyanocitta cristata*	T2	7/7/2001	Protected
Mute Swan	*Cygnus olor*	FL	6/21/2001	Protected
Prairie Warbler	*Dendroica discolor*	FY	6/16/2001	Protected
Yellow Warbler	*Dendroica petechia*	T2	6/29/2001	Protected
Pine Warbler	*Dendroica pinus*	T2	7/7/2001	Protected
Gray Catbird	*Dumetella carolinensis*	FL	7/15/2001	Protected
Horned Lark	*Eremophila alpestris*	X1	2/29/2001	Protected-Special Concern
American Kestrel	*Falco sparverius*	P2	7/15/2001	Protected
Common Yellowthroat	*Geothlypis trichas*	FY	7/23/2001	Protected
Barn Swallow	*Hirundo rustica*	FL	6/29/2001	Protected
Baltimore Oriole	*Icterus galbula*	FL	7/7/2001	Protected
Orchard Oriole	*Icterus spurius*	ON	6/21/2001	Protected
Belted Kingfisher	*Megaceryle alcyon*	X1	7/23/2001	Protected
Eastern Screech-Owl	*Megascops asio*	T2	6/1/2002	Protected
Red-bellied Woodpecker	*Melanerpes carolinus*	T2	6/29/2001	Protected
Wild Turkey	*Meleagris gallopavo*	FL	7/15/2001	Game Species

Swamp Sparrow	*Melospiza georgiana*	T2	7/23/2001	Protected
Song Sparrow	*Melospiza melodia*	FY	6/29/2001	Protected
Northern Mockingbird	*Mimus polyglottos*	FY	6/29/2001	Protected
Black-and-white Warbler	*Mniotilta varia*	T2	5/25/2002	Protected
Brown-headed Cowbird	*Molothrus ater*	P2	6/16/2001	Protected
Great Crested Flycatcher	*Myiarchus crinitus*	T2	6/29/2001	Protected
House Sparrow	*Passer domesticus*	ON	7/7/2001	Unprotected
Savannah Sparrow	*Passerculus sandwichensis*	S2	6/16/2001	Protected
Blue Grosbeak	*Passerina caerulea*	FY	6/30/2002	Protected
Indigo Bunting	*Passerina cyanea*	T2	7/7/2001	Protected
Ring-necked Pheasant	*Phasianus colchicus*	X1	5/7/2002	Game Species
Downy Woodpecker	*Picoides pubescens*	FL	6/29/2002	Protected
Eastern Towhee	*Pipilo erythrophthalmus*	FL	6/29/2001	Protected
Scarlet Tanager	*Piranga olivacea*	P2	6/29/2001	Protected
Black-capped Chickadee	*Poecile atricapillus*	FL	7/7/2001	Protected
Blue-gray Gnatcatcher	*Polioptila caerulea*	P2	6/29/2001	Protected
Vesper Sparrow	*Pooecetes gramineus*	NE	6/16/2001	Protected-Special Concern
Purple Martin	*Progne subis*	FY	7/23/2001	Protected
Common Grackle	*Quiscalus quiscula*	FL	6/16/2001	Protected
Bank Swallow	*Riparia riparia*	X1	7/15/2001	Protected
Eastern Phoebe	*Sayornis phoebe*	T2	5/25/2002	Protected
Ovenbird	*Seiurus aurocapilla*	T2	6/29/2001	Protected
Eastern Bluebird	*Sialia sialis*	NE	5/16/2002	Protected
American Goldfinch	*Spinus tristis*	P2	6/16/2001	Protected
Chipping Sparrow	*Spizella passerina*	FY	6/29/2001	Protected
Field Sparrow	*Spizella pusilla*	FY	6/29/2001	Protected
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	X1	6/29/2001	Protected
Eastern Meadowlark	*Sturnella magna*	FY	7/15/2001	Protected
European Starling	*Sturnus vulgaris*	FY	5/16/2002	Unprotected
Tree Swallow	*Tachycineta bicolor*	NY	7/20/2002	Protected
Carolina Wren	*Thryothorus ludovicianus*	T2	7/7/2001	Protected
Brown Thrasher	*Toxostoma rufum*	T2	7/15/2001	Protected

House Wren	*Troglodytes aedon*	FL	6/29/2001	Protected
American Robin	*Turdus migratorius*	FL	7/7/2001	Protected
Eastern Kingbird	*Tyrannus tyrannus*	FY	7/15/2001	Protected
Blue-winged Warbler	*Vermivora pinus*	FL	6/30/2002	Protected
Yellow-throated Vireo	*Vireo flavifrons*	X1	5/15/2003	Protected
Warbling Vireo	*Vireo gilvus*	T2	7/7/2001	Protected
White-eyed Vireo	*Vireo griseus*	X1	6/7/2004	Protected
Red-eyed Vireo	*Vireo olivaceus*	T2	6/29/2001	Protected
Mourning Dove	*Zenaida macroura*	FL	7/7/2001	Protected

Current Date: 9/22/2016

NEW YORK STATE

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NYS Breeding Bird Atlas

Block 6853D

2000-2005

Navigation Tools
Perform Another Search
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Sort by Field Card Order
Sort by Taxonomic Order
View 1985 Data

Block 6853D Summary	
Total Species:	79
Possible:	11
Probable:	26
Confirmed:	42

Click on column heading to sort by that category.

List of Species Breeding in Atlas Block 6853D

Common Name	Scientific Name	Behavior Code	Date	NY Legal Status
Spotted Sandpiper	*Actitis macularius*	X1	7/16/2001	Protected
Red-winged Blackbird	*Agelaius phoeniceus*	FY	7/12/2000	Protected
Wood Duck	*Aix sponsa*	NE	7/17/2002	Game Species
Grasshopper Sparrow	*Ammodramus savannarum*	T2	7/4/2001	Protected-Special Concern
Mallard	*Anas platyrhynchos*	FL	7/16/2001	Game Species
American Black Duck	*Anas rubripes*	P2	7/16/2001	Game Species
Ruby-throated Hummingbird	*Archilochus colubris*	X1	7/12/2000	Protected
Tufted Titmouse	*Baeolophus bicolor*	FL	6/25/2003	Protected
Cedar Waxwing	*Bombycilla cedrorum*	NY	7/16/2001	Protected
Canada Goose	*Branta canadensis*	FL	7/12/2000	Game Species
Great Horned Owl	*Bubo virginianus*	T2	1/6/2002	Protected
Red-tailed Hawk	*Buteo jamaicensis*	FL	7/4/2001	Protected
Green Heron	*Butorides virescens*	FY	7/21/2002	Protected
Whip-poor-will	*Caprimulgus vociferus*	T2	5/15/2003	Protected-Special Concern
Northern Cardinal	*Cardinalis cardinalis*	FY	7/16/2001	Protected

House Finch	*Carpodacus mexicanus*	T2	7/4/2001	Protected
Veery	*Catharus fuscescens*	T2	7/4/2001	Protected
Hermit Thrush	*Catharus guttatus*	T2	5/5/2003	Protected
Chimney Swift	*Chaetura pelagica*	P2	6/29/2002	Protected
Killdeer	*Charadrius vociferus*	T2	6/29/2002	Protected
Common Nighthawk	*Chordeiles minor*	X1	6/19/2003	Protected-Special Concern
Yellow-billed Cuckoo	*Coccyzus americanus*	T2	7/4/2001	Protected
Northern Flicker	*Colaptes auratus*	FY	6/25/2003	Protected
Northern Bobwhite	*Colinus virginianus*	T2	7/4/2001	Game Species
Rock Pigeon	*Columba livia*	ON	7/4/2001	Unprotected
Eastern Wood-Pewee	*Contopus virens*	T2	7/4/2001	Protected
American Crow	*Corvus brachyrhynchos*	FL	7/4/2001	Game Species
Fish Crow	*Corvus ossifragus*	FL	6/25/2003	Protected
Blue Jay	*Cyanocitta cristata*	FY	7/16/2001	Protected
Mute Swan	*Cygnus olor*	FL	7/12/2000	Protected
Prairie Warbler	*Dendroica discolor*	T2	7/4/2001	Protected
Yellow Warbler	*Dendroica petechia*	FY	6/25/2003	Protected
Pine Warbler	*Dendroica pinus*	FY	7/4/2001	Protected
Gray Catbird	*Dumetella carolinensis*	FY	7/16/2001	Protected
Willow Flycatcher	*Empidonax traillii*	T2	6/14/2003	Protected
American Kestrel	*Falco sparverius*	T2	6/25/2003	Protected
Common Yellowthroat	*Geothlypis trichas*	DD	7/4/2001	Protected
Barn Swallow	*Hirundo rustica*	FL	7/4/2001	Protected
Wood Thrush	*Hylocichla mustelina*	T2	7/14/2001	Protected
Baltimore Oriole	*Icterus galbula*	UN	7/16/2001	Protected
Belted Kingfisher	*Megaceryle alcyon*	P2	7/16/2001	Protected
Eastern Screech-Owl	*Megascops asio*	X1	1/6/2002	Protected
Red-bellied Woodpecker	*Melanerpes carolinus*	FL	7/17/2002	Protected
Wild Turkey	*Meleagris gallopavo*	FL	7/4/2001	Game Species
Song Sparrow	*Melospiza melodia*	FY	7/4/2001	Protected
Northern Mockingbird	*Mimus polyglottos*	FY	7/4/2001	Protected
Black-and-white Warbler	*Mniotilta varia*	FY	7/12/2000	Protected

Brown-headed Cowbird	*Molothrus ater*	FL	6/25/2003	Protected
Great Crested Flycatcher	*Myiarchus crinitus*	T2	6/29/2001	Protected
Osprey	*Pandion haliaetus*	P2	7/12/2000	Protected-Special Concern
House Sparrow	*Passer domesticus*	ON	7/4/2001	Unprotected
Savannah Sparrow	*Passerculus sandwichensis*	X1	7/16/2001	Protected
Blue Grosbeak	*Passerina caerulea*	X1	6/29/2002	Protected
Indigo Bunting	*Passerina cyanea*	X1	5/7/2002	Protected
Ring-necked Pheasant	*Phasianus colchicus*	T2	6/14/2003	Game Species
Downy Woodpecker	*Picoides pubescens*	FL	7/4/2001	Protected
Eastern Towhee	*Pipilo erythrophthalmus*	FL	7/4/2001	Protected
Scarlet Tanager	*Piranga olivacea*	X1	7/17/2002	Protected
Black-capped Chickadee	*Poecile atricapillus*	FL	7/4/2001	Protected
Blue-gray Gnatcatcher	*Polioptila caerulea*	X1	7/12/2000	Protected
Purple Martin	*Progne subis*	ON	7/12/2000	Protected
Common Grackle	*Quiscalus quiscula*	FY	7/12/2000	Protected
Eastern Phoebe	*Sayornis phoebe*	FY	6/25/2003	Protected
Ovenbird	*Seiurus aurocapilla*	T2	7/4/2001	Protected
White-breasted Nuthatch	*Sitta carolinensis*	X1	6/25/2003	Protected
American Goldfinch	*Spinus tristis*	P2	7/12/2000	Protected
Chipping Sparrow	*Spizella passerina*	FL	7/4/2001	Protected
Field Sparrow	*Spizella pusilla*	T2	7/4/2001	Protected
European Starling	*Sturnus vulgaris*	FY	7/12/2000	Unprotected
Tree Swallow	*Tachycineta bicolor*	FL	7/16/2001	Protected
Carolina Wren	*Thryothorus ludovicianus*	T2	7/4/2001	Protected
Brown Thrasher	*Toxostoma rufum*	FY	7/4/2001	Protected
House Wren	*Troglodytes aedon*	T2	7/4/2001	Protected
American Robin	*Turdus migratorius*	FY	7/12/2000	Protected
Eastern Kingbird	*Tyrannus tyrannus*	FY	7/12/2000	Protected
Yellow-throated Vireo	*Vireo flavifrons*	T2	7/16/2001	Protected
Warbling Vireo	*Vireo gilvus*	X1	6/29/2002	Protected
Red-eyed Vireo	*Vireo olivaceus*	FY	7/16/2001	Protected

Mourning Dove	*Zenaida macroura*	FL	6/29/2002	Protected

Current Date: 9/22/2016

NEW YORK STATE

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WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: sPower Calverton-DeLea Property City/County: Suffolk Sampling Date: 9/15/16

Applicant/Owner: State: NY Sampling Point: R-1

Investigator(s): D. Kennedy Section, Township, Range: Town of Riverhead

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <2

Subregion (LRR or MLRA): N. Atlantic LRR Lat: 40.926603 Long: -72.764894 Datum: WGS84

Soil Map Unit Name: Cut and Fill land, sloping (CuC) NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes ____	No X	

Remarks: (Explain alternative procedures here or in a separate report.)

Seasonal drought conditions
wooded topographic low, possibly excavated historically
Similar non-wetland hydrology, soils and vegetation were observed at the sample site in June 2015

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sample site is lowest elevation point within the depression

SOIL

Sampling Point: R-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 5/3	100					fine sandy silt, trace gravel	
4-11	10YR 6/4	100					fine sandy silt	
11-19	10YR 4/4	100					fine sandy silt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: R-1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus alba	40	Yes	FACU
2. Acer plantanoides	35	Yes	UPL
3. Pinus rigida	10	NO	FACU
4.			
5.			
6.			
7.			
	85	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Viburnum recognitum	5	Yes	FAC
2. Berberis thunbergi	2	No	FACU
3. Ailanthus altissima	5	Yes	UPL
4.			
5.			
6.			
7.			
	12	= Total Cover	

Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0	= Total Cover	

Woody Vine Stratum (Plot size: 15')			
1. Vitis aestivalis	15	Yes	FACU
2. Celastrus orbiculatus	10	Yes	UPL
3. Toxicodendron radicans	5	NO	FAC
4.			
	30	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: SPower Calverton - DeLea Property City/County: Suffolk Sampling Date: 9/18/16

Applicant/Owner: _____ State: NY Sampling Point: R-3

Investigator(s): David Kennedy Section, Township, Range: Town of Riverhead

Landform (hillslope, terrace, etc.): toe of stockpile slope Local relief (concave, convex, none): flat/convex Slope (%): <2

Subregion (LRR or MLRA): N. Atlantic LRR Lat: 40.918032 Long: -72.762648 Datum: WGS84

Soil Map Unit Name: Haven loam, thick surface layer (He) NWI classification: — PUBHx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No X	

Remarks: (Explain alternative procedures here or in a separate report.)

Soil/wood chip/debris stockpile - sample site at toe of slope

Seasonal drought conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Stockpiling has occurred at and adjacent to sample site

SOIL

Sampling Point: R-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 4/4	100					med sand/gravel	fill material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Soil appears to be fill material

VEGETATION – Use scientific names of plants.

Sampling Point: R-3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Juniperus virginiana	5	Yes	FACU
2. Prunus serotina	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	10	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Setaria faberi	40	Yes	FACU
2. Artemesia vulgaris	30	Yes	UPL
3. Polygonum cuspidatum	30	Yes	FACU
4. Polygonum lapathifolium	10	No	FACW
5. Setaria pumilla	10	No	FAC
6. Datura stramonium	5	No	UPL
7.			
8.			
9.			
10.			
11.			
12.			
	125	= Total Cover	

Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Typical herbaceous pioneering vegetation of disturbed areas

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: sPower Calverton GenTie route City/County: Suffolk Sampling Date: 9/18/16

Applicant/Owner: _____ State: NY Sampling Point: R-4

Investigator(s): D. Kennedy Section, Township, Range: Town of Riverhead

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR or MLRA): N. Atlantic LRR Lat: 40.918971 Long: -72.752544 Datum: WGS84

Soil Map Unit Name: Plymouth loamy sand 8 to 15 percent slopes (PlA) NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Topographic depression, possibly excavated, filled with logs, tree debris & upland thicket vegetation
Seasonal drought conditions

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

1) Drought conditions
The depression may have been excavated historically

SOIL

Sampling Point: R-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	10YR 5/6	100					silt w/ pebbles/gravel	
6-18"	10YR 6/6	100					fine silt, trace gravel	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: R-4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Prunus serotina	30	Yes	FACU
2. Quercus velutina	15	Yes	UPL
3.			
4.			
5.			
6.			
7.			
	45	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Rosa multiflora	30	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	30	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Phytolacca americana	5	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	5	= Total Cover	

Woody Vine Stratum (Plot size: 15')			
1. Lonicera japonica	20	Yes	FACU
2. Celastrus orbiculatus	30	Yes	UPL
3. Toxicodendron radicans	5	No	FAC
4.			
	55	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: SPower Calverton-Gen Tie route City/County: Suffolk Sampling Date: 9/18/16

Applicant/Owner: State: NY Sampling Point: R-5

Investigator(s): David Kennedy Section, Township, Range: Town of Riverhead

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): N. Atlantic LRR Lat: 40.919094 Long: -72.751019 Datum: WGS84

Soil Map Unit Name: Riverhead sandy loam, 3 to 8 Percent Slopes (RdB) NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Topographic depression

Seasonal drought conditions

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Seasonal drought conditions

SOIL

Sampling Point: R-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16"	10YR 5/4						fine sandy silt, trace gravel	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: R-5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Prunus serotina	5	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	5 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. Setaria faberi	75	Yes	FACU
2. Rumex obtusifolius	10	NO	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 = Total Cover		

Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: SPower Calverton-Facility Collection City/County: Suffolk Sampling Date: 9/18/16

Applicant/Owner: _____ State: NY Sampling Point: R-G

Investigator(s): David Kennedy Section, Township, Range: Town of Riverhead

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR or MLRA): N. Atlantic LRR Lat: 40.914097 Long: -72.743992 Datum: WGS84

Soil Map Unit Name: Haven loam, 0 to 2 percent slopes (HaA) NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Shallow topographic depression within existing solar farm
Seasonal drought conditions

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

SOIL

Sampling Point: R-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5"	10YR 5/4	100					silty med. sand, trace gravel	
5-12"	10YR 5/3	100					med. sand	
12-18"	10YR 6/3	100					silty sand, trace gravel	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

former agricultural use (sod farm) soils

VEGETATION – Use scientific names of plants.

Sampling Point: R-6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. Digitaria sanguinalis	80	Yes	FACU
2. Trifolium campestre	10	NO	UPL
3. Euphorbia maculata	5	NO	FACU
4. Portulaca oleracea	5	NO	FACU
5. Taraxacum officinale	5	NO	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	105 = Total Cover		

Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation is subject to periodic mowing

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: SPower Calverton City/County: Suffolk Sampling Date: 9/18/16

Applicant/Owner: State: NY Sampling Point: R-9

Investigator(s): David Kennedy Section, Township, Range: Town of Riverhead

Landform (hillslope, terrace, etc.): topographic depression Local relief (concave, convex, none): Concave Slope (%): ~10 (side walls)

Subregion (LRR or MLRA): N. Atlantic LRR Lat: 40.909774 Long: -72.741578 Datum:

Soil Map Unit Name: Riverhead Sandy loam, 3 to 8 percent slopes (RdB) NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.) (Hydrology)*

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

Seasonal drought conditions.

Topographic depression located between the LIRR tracks and the LIPA substation

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

*Sub-grade drainage structure with at-grade cover located within lowest point of the depression

SOIL

Sampling Point: R-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 5/3	100					sandy silt, with gravel	
6-11	10YR 6/4	100					med sand	
11-18	10YR 6/6	100					med sandy silt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
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- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: R-9

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Juglans nigra	30	Yes	FACU
2. Prunus serotina	15	Yes	FACU
3. Juniperus virginiana	10	No	FACU
4.			
5.			
6.			
7.			
	55	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Juglans nigra	20	Yes	FACU
2. Prunus serotina	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	30	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Artemesia vulgaris	60	Yes	UPL
2. Phytolacca americana	30	Yes	FACU
3. Solidago odora	30	Yes	UPL
4. Phragmites australis	10	No	FACW
5. Solidago altissima	10	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	140	= Total Cover	

Woody Vine Stratum (Plot size: 15')			
1. Lonicera japonica	10	Yes	FACU
2. Toxicodendron radicans	10	Yes	FAC
3. Parthenocissus quinquefolia	10	Yes	FACU
4. Celastrus orbiculatus	5	No	UPL
	35	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 10 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

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Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

New York State Department of Environmental Conservation
Division of Environmental Permits, Region 1
SUNY @ Stony Brook
50 Circle Road, Stony Brook, NY 11790-3409
Phone: (631) 444-0365 • **Fax:** (631) 444-0360
Website: www.dec.ny.gov

Joe Martens
Commissioner

LETTER OF NO JURISDICTION
FRESHWATER WETLANDS ACT

September 4, 2014

Sustainable Power Group, LLC
c/o Matthew McCaffery
sPower
2 Embarcadero Center, Suite 410
San Francisco, CA 94111

Re: Application #1-4730-01720/00001
sPower Energy Facility at Calverton, 194 Edwards Ave. Calverton
SCTM# 600-137-1-32.1

Dear Mr. McCaffery:

Based on the information you submitted, the Department of Environmental Conservation (DEC) has determined that:

Your proposal to construct a 6.3 MW solar energy facility consisting of 30,460 ground-mounted modules with associated infrastructure on 38.1 acres of the 45.1-acre site as shown on sheet C-2 of the site plans prepared by VHB Engineering, Surveying & Landscaping Architecture, P.C. dated 7/29/14, is more than 100 feet from regulated freshwater wetlands. Therefore, no permit is required pursuant to the Freshwater Wetlands Act (Article 24) and it's implementing regulations (6NYCRR Part 663).

Be advised, all construction, clearing, and/or ground disturbance must remain more than 100 feet from the freshwater wetland boundary. In addition, any changes, modifications or additional work to the project as described, may require DEC authorization. Please contact this office if such activities are contemplated.

Please note that this letter does not relieve you of the responsibility of obtaining any necessary permits or approvals from other agencies or local municipalities.

Sincerely,

Roger Evans
Regional Permit Administrator

cc: BOH
D. Kennedy, VHB
File

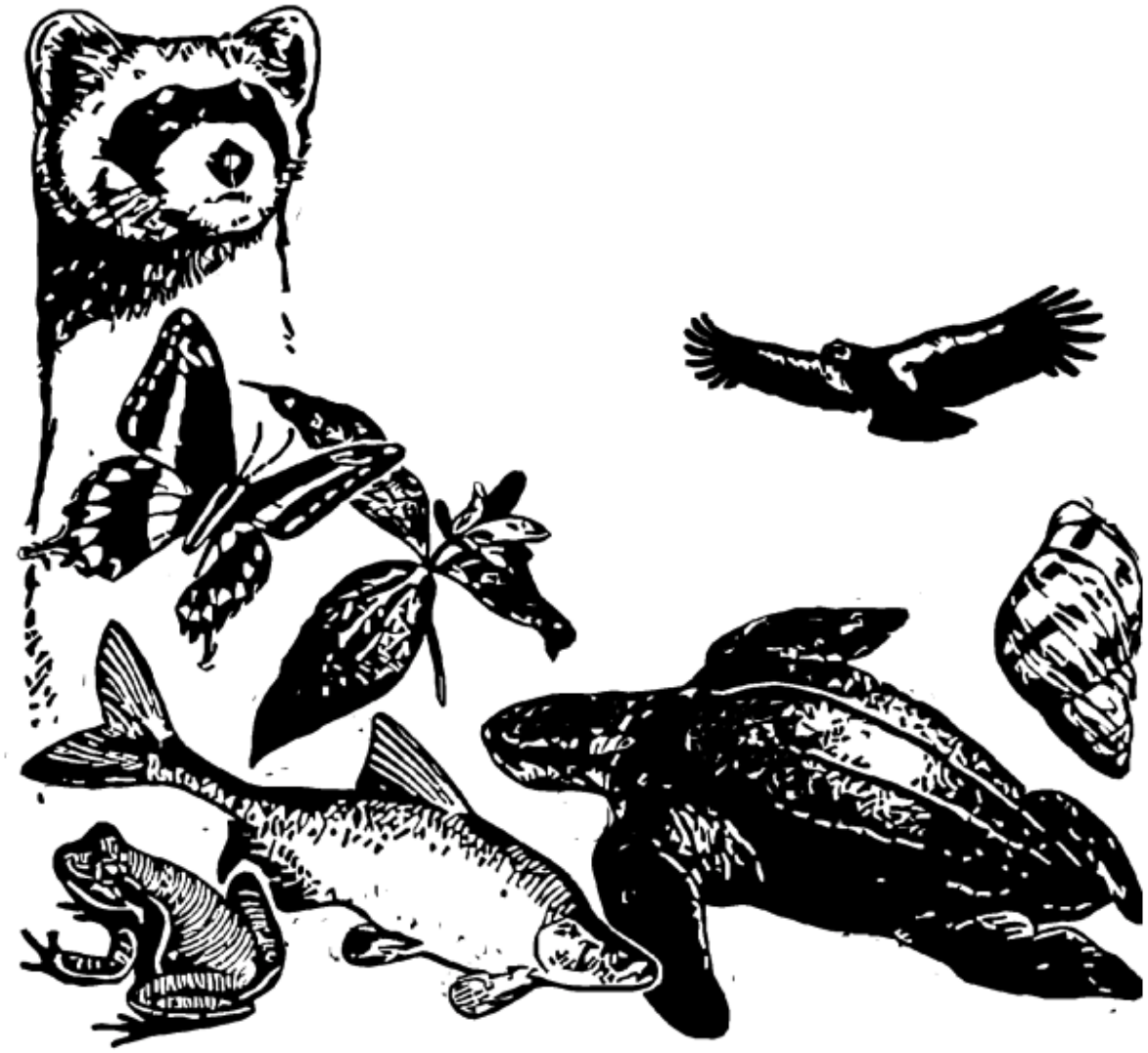
U.S. Fish & Wildlife Service

Calverton

IPaC Trust Resources Report

Generated September 12, 2016 03:29 PM MDT, IPaC v3.0.8

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.



IPaC - Information for Planning and Conservation (https://ecos.fws.gov/ipac/): A project planning tool to help streamline the U.S. Fish & Wildlife Service environmental review process.

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Refuges & Hatcheries 7
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U.S. Fish & Wildlife Service

IPaC Trust Resources Report

NAME

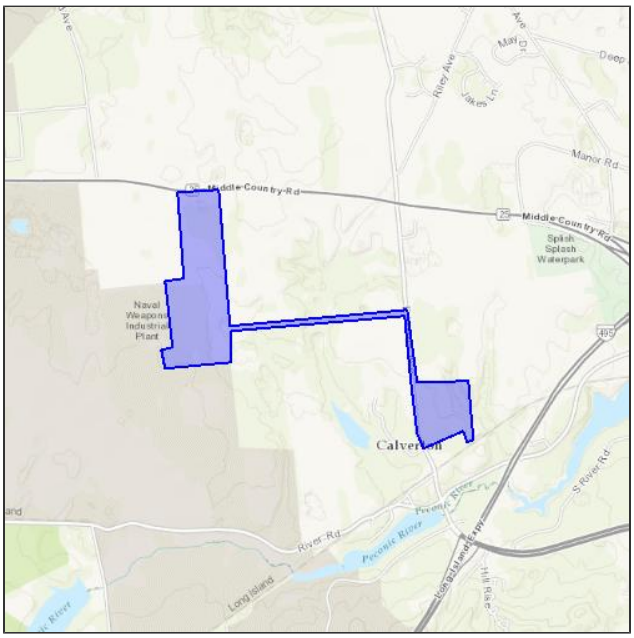
Calverton

LOCATION

Suffolk County, New York

IPAC LINK

https://ecos.fws.gov/ipac/project/VRH4Y-M667Z-HCPJ5-BXFXU-2G6JSQ



U.S. Fish & Wildlife Service Contact Information

Trust resources in this location are managed by:

Long Island Ecological Services Field Office
340 Smith Road
Shirley, NY 11967
(631) 286-0485

Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the Endangered Species Program of the U.S. Fish & Wildlife Service.

This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list either from the Regulatory Documents section in IPaC or from the local field office directly.

The list of species below are those that may occur or could potentially be affected by activities in this location:

Birds

Piping Plover Charadrius melodus — Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B079

Red Knot Calidris canutus rufa — Threatened

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0DM

Roseate Tern Sterna dougallii dougallii — Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B07O

Flowering Plants

Sandplain Gerardia Agalinis acuta — Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q24K

Seabeach Amaranth Amaranthus pumilus — Threatened

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q2MZ

Mammals

Northern Long-eared Bat Myotis septentrionalis — Threatened

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A0JE

Critical Habitats

There are no critical habitats in this location

Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish & Wildlife Service.[1] There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

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1. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern
  http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data
  http://www.birdscanada.org/birdmon/default/datasummaries.jsp

The following species of migratory birds could potentially be affected by activities in this location:

American Oystercatcher Haematopus palliatus — Bird of conservation concern
On Land Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0G8

American Bittern Botaurus lentiginosus — Bird of conservation concern
On Land Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F3

Bald Eagle Haliaeetus leucocephalus — Bird of conservation concern
On Land Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008

Black Skimmer Rynchops niger — Bird of conservation concern
On Land Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0EO

Black-billed Cuckoo Coccyzus erythropthalmus — Bird of conservation concern
On Land Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HI

Blue-winged Warbler Vermivora pinus — Bird of conservation concern
On Land Season: Breeding

Canada Warbler Wilsonia canadensis — Bird of conservation concern
On Land Season: Breeding

Fox Sparrow Passerella iliaca — Bird of conservation concern
On Land Season: Wintering

Gull-billed Tern Gelochelidon nilotica — Bird of conservation concern
On Land Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0JV

Hudsonian Godwit Limosa haemastica — Bird of conservation concern
At Sea Season: Migrating

Least Bittern Ixobrychus exilis
On Land Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B092

Least Tern Sterna antillarum — Bird of conservation concern
On Land Season: Breeding

Peregrine Falcon Falco peregrinus — Bird of conservation concern
On Land Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FU

Pied-billed Grebe Podilymbus podiceps — Bird of conservation concern
On Land Season: Year-round

Prairie Warbler Dendroica discolor — Bird of conservation concern
On Land Season: Breeding

Purple Sandpiper Calidris maritima — Bird of conservation concern
On Land Season: Wintering

Red Knot Calidris canutus rufa — Bird of conservation concern
On Land Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0DM

Rusty Blackbird Euphagus carolinus — Bird of conservation concern
On Land Season: Wintering

Saltmarsh Sparrow Ammodramus caudacutus — Bird of conservation concern
On Land Season: Breeding

Seaside Sparrow Ammodramus maritimus — Bird of conservation concern
On Land Season: Year-round

Short-eared Owl Asio flammeus — Bird of conservation concern
On Land Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HD

Snowy Egret Egretta thula — Bird of conservation concern
On Land Season: Breeding

Upland Sandpiper Bartramia longicauda — Bird of conservation concern
On Land Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HC

Willow Flycatcher Empidonax traillii — Bird of conservation concern
On Land Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F6

Wood Thrush Hylocichla mustelina — Bird of conservation concern
On Land Season: Breeding

Worm Eating Warbler Helmitheros vermivorum — Bird of conservation concern
On Land Season: Breeding

Wildlife refuges and fish hatcheries

There are no refuges or fish hatcheries in this location

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

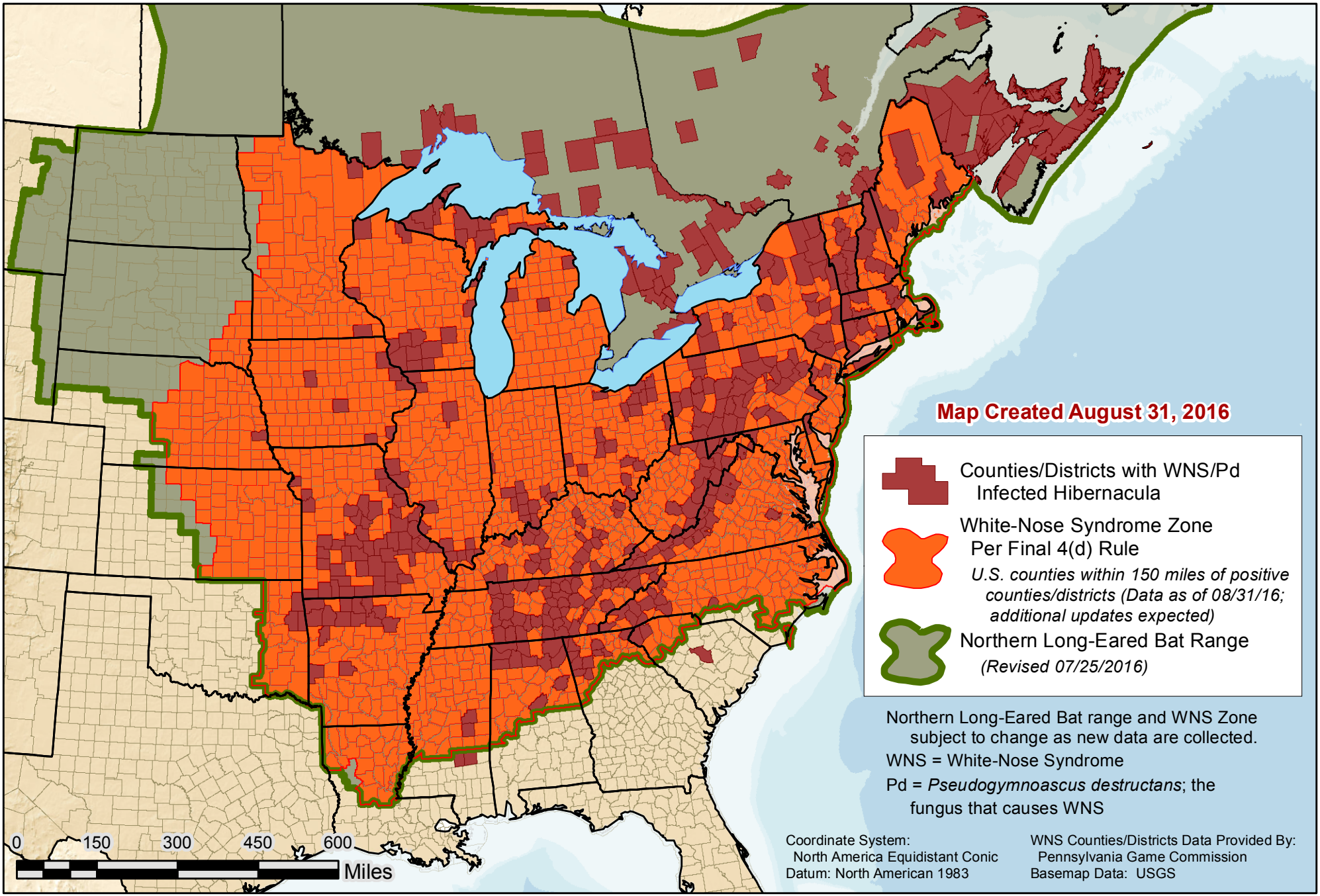
Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Wetland data is unavailable at this time.

U.S. Fish & Wildlife Service

Northern Long-Eared Bat Final 4(d) Rule

White-Nose Syndrome Zone Around WNS/Pd Positive Counties/Districts



www.vhb.com

September 6, 2016

VIA ELECTRONIC MAIL

Ref: 29194.03

Ms. Andrea Chaloux
Information Services
New York Natural Heritage Program
New York State Department of Environmental Conservation
625 Broadway, 5th Floor
Albany, NY 12233-4757

Re: NYNHP Records Request
Proposed sPower Solar Energy Facility
Middle Country Road and Peconic Avenue
Hamlet of Calverton, Town of Riverhead
Suffolk County, New York

Dear Ms. Chaloux:

VHB Engineering, Surveying and Landscape Architecture, P.C. (VHB) has been retained by sPower to prepare an Expanded Environmental Assessment (EEA) for a proposed solar energy facility project within a 165.4-acre project area comprised of multiple tax parcels located at and in the vicinity of Middle Country Road and Peconic Avenue, in the Hamlet of Calverton, Town of Riverhead, Suffolk County, New Yok. The proposed project includes installation of a field of solar panel arrays to be located on the west side of Peconic Avenue and south of Middle Country Road (New York State [NYS] Route 25), a proposed ±8,670-linear foot underground transmission generation tie-in ("gen-tie") line within a ±15-foot-wide easement from the solar panel array facility to a proposed solar collection facility to be located on the east side of Edwards Avenue and north of the Long Island Railroad (LIRR) tracks. The project area is as depicted on the enclosed United States Geological Survey (USGS) Topographic Map excerpts (Calverton and Riverhead, New York Quadrangle) and aerial photograph.

The property on which the solar panel arrays would be installed is currently developed with a sod farm, warehouse with associated industrial equipment and a single-family residence. The property under which the gen-tie line would run is currently comprised of undeveloped wooded land, a former golf course, a sports facility and an existing solar facility.

The Town of Riverhead Planning Board is serving as the lead agency for the EEA. In order to ensure that the EEA will identify and evaluate all potentially significant issues, we are requesting copies of any New York Natural Heritage Program records for rare plants, animals (including records of known, occupied northern long-eared bat [*Myotis septentrionalis*] roosts or hibernacula), natural communities or significant wildlife habitats at or in the vicinity of the project area.

Engineers | Scientists | Planners | Designers

100 Motor Parkway
Suite 135
Hauppauge, New York 11788
P 631.787.3400
F 631.813.2545

Thank you for your cooperation in this matter. If additional information is required, or if you have any questions, please do not hesitate to contact me at (631) 787-3400 or dkennedy@vhb.com.

Sincerely,

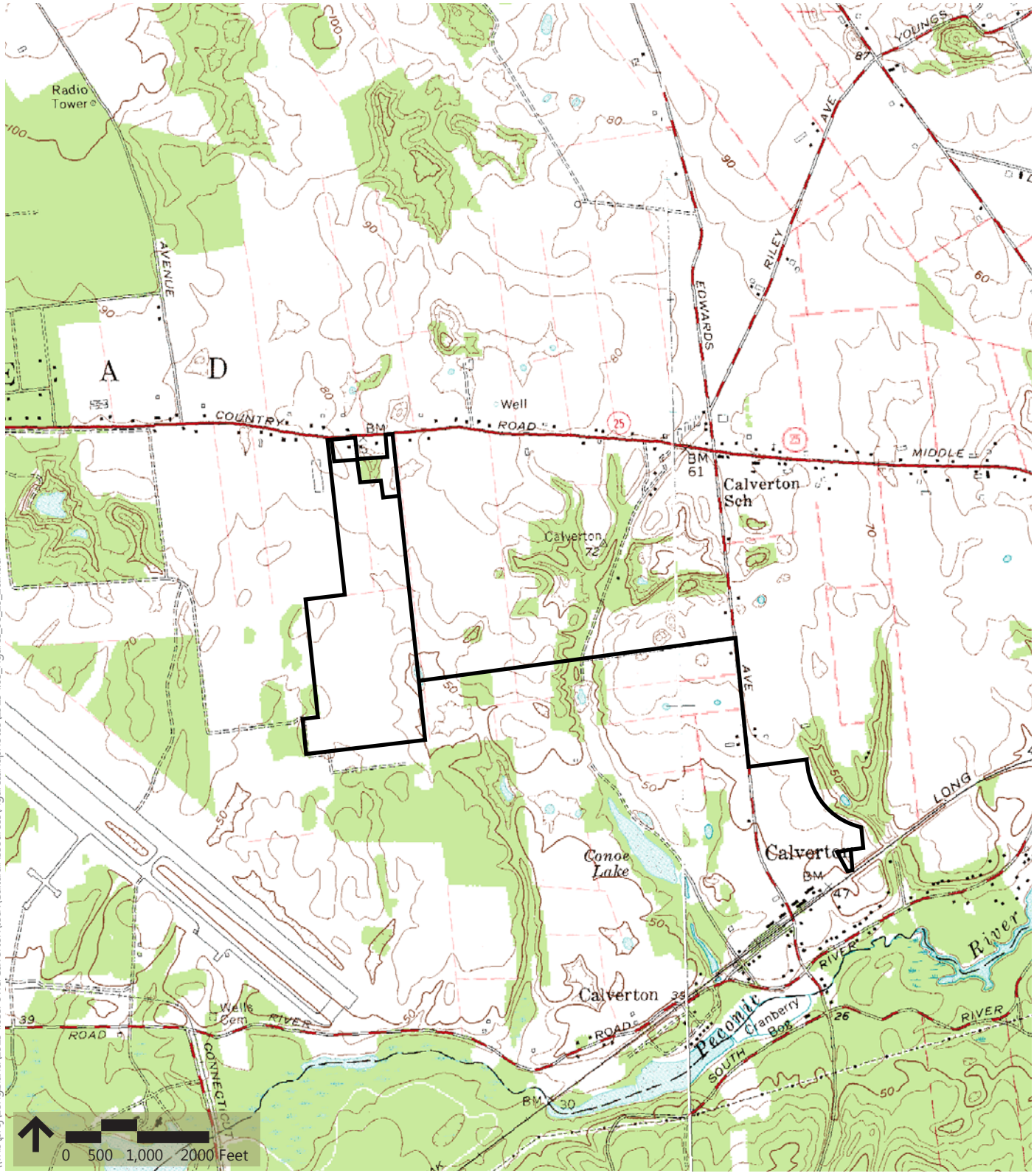
VHB Engineering, Surveying and Landscape Architecture, P.C.



David Kennedy
Project Scientist

DK/ba
enc.

\\NYLIDATA\projects\29194.03 sPower Calverton\ProjRecords\FinalDocs\NYNHP Request Letter 9-6-16.docx



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sPower Solar Energy Facility
Middle Country Road & Peconic Avenue, Calverton | Town of Riverhead, Suffolk County

Project Location

Project Location

Source: USGS 7.5-minute Wading River and Riverhead Quadrangles



0 500 1,000 2000 Feet

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sPower Solar Energy Facility
Middle Country Road & Peconic Avenue, Calverton | Town of Riverhead, Suffolk County

- Proposed Subdivision
- Proposed Step-up Facility
- Generation-tie Connection

Project Components

Source: Bing Maps, ESRI

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th Floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **Fax:** (518) 402-8925
Website: www.dec.ny.gov

October 13, 2016

David Kennedy
VHB Engineering, Surveying and Landscape Architecture, P.C.
100 Motor Parkway, Suite 135
Hauppauge, NY 10121

Re: Proposed sPower Solar Energy Facility, Calverton
Town/City: Riverhead. County: Suffolk.

Dear David Kennedy:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities that our database indicates occur, or may occur, on your site or in the immediate vicinity of your site.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our database. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

Our database is continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 1 Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Sincerely,

Nicholas Conrad
Information Resources Coordinator
New York Natural Heritage Program

1239

The following state-listed animals have been documented in the vicinity of the project site.

The following list includes animals that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed or are candidates for federal listing.

For information about any permit considerations for your project, contact the Permits staff at the NYSDEC Region 1 Office. For information about potential impacts of your project on these species, and how to avoid, minimize, or mitigate any impacts, contact the Wildlife Manager.

A listing of Regional Offices is at http://www.dec.ny.gov/about/558.html.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
The following species have been documented about 1/4 mile from the proposed solar panel array location.				
Birds				
Short-eared Owl *Wintering*	*Asio flammeus*	Endangered		13216
Amphibians				
Tiger Salamander	*Ambystoma tigrinum*	Endangered		9720
The following species have been documented about .4 mile from the proposed solar collection facility location.				
Amphibians				
Tiger Salamander	*Ambystoma tigrinum*	Endangered		14078
Fish				
Swamp Darter	*Etheostoma fusiforme*	Threatened		9158

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NYSDEC at www.dec.ny.gov/animals/7494.html.

The following rare plants have been documented in the vicinity of the project site.

We recommend that potential onsite and offsite impacts of the proposed project on these species be addressed as part of any environmental assessment or review conducted as part of the planning, permitting and approval process, such as reviews conducted under SEQR. Field surveys of the project site may be necessary to determine the status of a species at the site, particularly for sites that are currently undeveloped and may still contain suitable habitat. Final requirements of the project to avoid, minimize, or mitigate potential impacts are determined by the lead permitting agency or the government body approving the project.

The following plants are listed as Endangered or Threatened by New York State, and/or are considered rare by the New York Natural Heritage Program, and so are a vulnerable natural resource of conservation concern.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*
Vascular Plants			
Trinerved White Boneset	*Eupatorium album* var. *subvenosum*	Threatened	Imperiled in NYS

Field 1/3 mile southwest of proposed solar collection faciity location, 1985-07-15: An open field near an abandoned farm. The plants were growing along a sand road. 7913

Tooth-cup	*Rotala ramosior*	Threatened	Imperiled in NYS

Conoe Pond, 1984-09: Shore of elongate pond set in woods surrounded by farm fields with sand pits along east side. 9029

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, from NatureServe Explorer at www.natureserve.org/explorer, and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).

The following rare plants and rare animals have historical records at the project site, or in its vicinity.

The following rare plants and animals were documented in the vicinity of the project site at one time, but have not been documented there since 1979 or earlier, and/or there is uncertainty regarding their continued presence. There is no recent information on these plants and animals in the vicinity of the project site and their current status there is unknown. In most cases the precise location of the plant or animal in this vicinity at the time it was last documented is also unknown.

If suitable habitat for these plants or animals is present in the vicinity of the project site, it is possible that they may still occur there. We recommend that any field surveys to the site include a search for these species, particularly at sites that are currently undeveloped and may still contain suitable habitat.

COMMON NAME	*SCIENTIFIC NAME*	*NYS LISTING*	*HERITAGE CONSERVATION STATUS*
Beetles			
New Jersey Pine Barrens Tiger Beetle	*Cicindela patruela consentanea*	Unlisted	Historical Records Only in NYS and Globally Rare
1946-05-07: Calverton.			1539
Vascular Plants			
Drowned Beakrush	*Rhynchospora inundata*	Threatened	Imperiled in NYS
1929-08-04: Conoe Pond. In water.			9850
Autumnal Water-starwort	*Callitriche hermaphroditica*	Endangered	Critically Imperiled in NYS
1927-08-12: Calverton. In water, river.			9337
Flax-leaf Whitetop	*Sericocarpus linifolius*	Threatened	Imperiled in NYS
1927-08-14: Calverton.			5471
Primrose-leaf Violet	*Viola primulifolia*	Threatened	Imperiled in NYS
1927-05-29: Calverton. Moist, open ground.			3039
Atlantic White Cedar	*Chamaecyparis thyoides*	Threatened	Imperiled in NYS
1923-11-17: Calverton.			4540
Stargrass	*Aletris farinosa*	Threatened	Imperiled in NYS
1927-08-12: Calverton. Specimen label: Low, wet gravelly soil.			6474

COMMON NAME	*SCIENTIFIC NAME*	*NYS LISTING*	*HERITAGE CONSERVATION STATUS*	
Marsh Straw Sedge	*Carex hormathodes*	Threatened	Imperiled in NYS	
1927-07-02: Calverton. Moist woods.				164
Great Plains Flatsedge	*Cyperus lupulinus ssp. lupulinus*	Threatened	Imperiled in NYS	
1955-09-09: Calverton. Dry sandy soil.				5807
Silvery Aster	*Symphyotrichum concolor var. concolor*	Endangered	Critically Imperiled in NYS	
1873-09-11: Calverton.				4450

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the rare animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, from NatureServe Explorer at www.natureserve.org/explorer, and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).

HMMH
77 South Bedford Street
Burlington, Massachusetts 01803
781.229.0707
www.hmmh.com

MEMORANDUM

To:	John Moran, Sustainable Power Group
From:	Philip DeVita, HMMH
Date:	December 7, 2016
Subject:	Riverhead Solar Project
Reference:	HMMH Job No.3077900

Introduction

HMMH has conducted a revised glare analysis for a proposed solar facility known as the Riverhead Solar Project. The location of the Riverhead array is east of Calverton Executive Airpark in Calverton, NY. **Figure 1** shows the project location relative to the airport, its runways and the ATCT location.



Figure 1. Locus Map of Riverhead Solar Project Relative to Calverton Executive Airpark

HMMH used the latest version of the GlareGauge solar glare tool, formerly known as the Solar Glare Hazard Analysis Tool (SGHAT) developed by Sandia National Laboratories to analyze potential glare at sensitive airport receptor locations and reviewed the model results relative to the Federal Aviation Administration's (FAA) Interim Policy of Solar Projects at Airports.

In deploying the model, we selected the footprint of the solar project area of the Riverhead array on the GlareGauge google map interface and input the preferred project design parameters provided by the Sustainable Power Group as shown in **Table 1**.

Table 1. Riverhead Solar Project Design Parameters

Solar System	*Orientation*	*Maximum Tracking Angle*	*Tilt Angle*	*Panel Height (AGL)*
Single Axis Tracking	***180°/0°***	***45°***	***0°***	***8 feet***

Sustainable Power Group is proposing a 20 MW ground mounted single axis tracking system oriented towards the south at 180°/0°. The base design for the tracking system is a rotation of the panels along a north-south axis with a maximum morning tracking angle at 45°due in the morning, flat at solar noon, and at 45° west (i.e. worst case) in the afternoon. We also inserted a panel height of 8 feet above ground level to approximate the highest point of the top of the panels. For reference, **Figure 2** shows an example of how such a tracking system operates as it is positioned to the east in the morning, flat at solar noon, and to the west in the afternoon assuming a 60° maximum tracking angle.

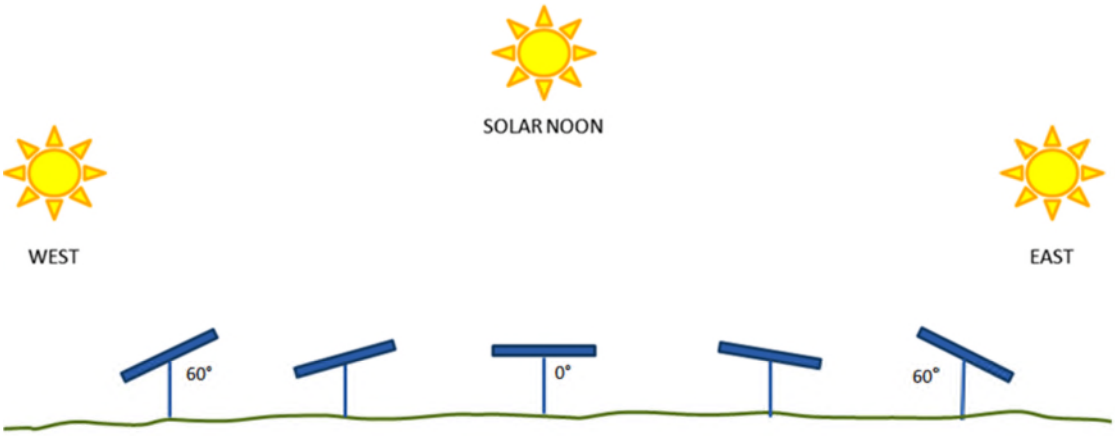


Figure 2. Single Axis Tracking System Panels

To assess airport sensitive receptors, the FAA requires an evaluation of potential glare for pilots on final approach and at the air traffic control tower (ATCT). For the pilot analysis, we selected the runway threshold and a second point away from the runway to represent the direction of the flight path. The previous version of GlareGauge (e.g.SGHAT) automatically identified the location and height above ground of eight additional observation points (spaced at quarter mile intervals based on a 3 degree glide slope) to determine if the pilot at those locations would be exposed to glare. However, the new version of GlareGauge automatically evaluates glare along the entire distance of the flight path at a 3 degree glide slope out to two miles. There is an ATCT at Calverton Executive Airpark; therefore the analysis included evaluating impacts to the ATCT as well as aircraft on approach to each runway end.

FAA Jurisdiction and Standards for Measuring Ocular Impact

The FAA published an Interim Policy for Solar Projects at Airports on October 23, 2013. The policy clarifies the FAA's jurisdiction in reviewing solar projects and the standards it uses to determine if a project will result in a negative glare impact to airspace safety.

Relative to its jurisdiction, the FAA affirmed that it has jurisdiction to regulate potential glare impacts as part of its responsibilities under Federal Aviation Regulations (FAR) Part 77 to any solar project proposed on the property of a Federally-obligated airport, which includes most airports in the U.S. The FAA also clarified that it does not have jurisdiction to regulate potential glare from projects located on non-airport land. However, as stated in the Policy, "the FAA urges proponents of off-airport solar-installations to voluntarily implement the provisions in this policy."

The Policy also describes the standards for measuring ocular impact:

To obtain FAA approval and a "no objection" to a Notice of Proposed Construction Form 7460-1, the airport sponsor will be required to demonstrate that the proposed solar energy system meets the following standards: (1) no potential for glint or glare in the existing or planned Air Traffic Control Tower cab, and (2) no potential for glare or "low potential for after-image" (shown in green) along the final approach path.

Table 2 presents the airport sensitive receptors that must be evaluated, the potential results presented by the model and whether the result complies with the FAA ocular hazard standard presented in the Policy.

Table 2. Levels of Glare and Compliance with FAA Policy

Airport Sensitive Receptor	Level of Glare	Color Result	Compliance with FAA Policy
ATCT Cab	No glare	None	Yes
	Low Potential for After-Image	Green	No
	Potential for After-Image	Yellow	No
	Potential for Permanent Eye Damage	Red	No
Aircraft along final approach path	No glare	None	Yes
	Low Potential for After-Image	Green	Yes
	Potential for After-Image	Yellow	No
	Potential for Permanent Eye Damage	Red	No

Any glare recorded on the ATCT is not compliant with FAA policy and will not receive a "no objection" determination from the FAA. Measurement of *low potential for after-image* or "Green" is acceptable for aircraft on final approach but greater levels (indicated in yellow and red) are not allowed.

Summary of Results

HMMH analyzed the potential for the Riverhead Solar Project site to produce glare at the ATCT and for pilots on final approach to the Calverton Executive Airpark. Based on the preferred design and layout, GlareGauge modeling showed:

- Runway End 14 and 32: No glare detected at any observation points along the flight path, proposed design meets the FAA Standard for aircraft on final approach.
- Runway End 5 and 23: No glare detected at any observation points along the flight path, proposed design meets the FAA Standard for aircraft on final approach.
- ATCT: No Glare detected, proposed design meets the FAA Standard for the ATCT.

Results in Detail

To accurately model the proposed project, HMMH outlined the project array on the model's interactive google map, and the GlareGauge tool analyzed the potential glare impact from the project site. **Figure 3** shows the layout of the project area as input into the model. The figure also shows the relatively close proximity of the flight path to Runway 14/32 to the west as well as the ATCT location denoted as '1".



Figure 3. Riverhead Solar Project Array as Input into the GlareGauge Model

We input the specifications of the preferred array including single axis tracking system, orientation of 180°/0°, tilt angle of 0°, maximum tracking angle of 45°and panel height of 8 feet above ground level. We also assumed a smooth panel surface without any anti-reflective coating to provide maximum flexibility in module selection. Modeling was then undertaken for the applicable sensitive receptors required by FAA: the pilots in aircraft along final descent to each runway end and at the ATCT. All of the modeling result output sheets are provided as **Attachment A**.

ATCT

Modeling was conducted for the ATCT location which were identified on the Google Maps aerial tool and input into the model. The top controller roof height of the ATCT is 89 feet agl and was input based on data provided by VHB. The SGHAT results show that no glare was detected at the ATCT location; therefore, the proposed solar project design is consistent with the FAA Standards for ATCT.

Arriving Aircraft

To analyze arriving aircraft, HMMH selected locational information associated with each runway individually and generated associated results to evaluate the potential impacts of the proposed project on that runway. Given that there are two runways and four runway ends at Calverton Executive Airpark; modeling was conducted separately for each runway end.

To model a runway approach, we selected a point at the centerline on the runway threshold which is located near the runway end. We then selected a second point away from the runway to represent the orientation of the aircraft descent (or glide) path. The model automatically plots the glide path out two miles from the runway end and evaluates potential for glare along the entire glide path. Given that Calverton Executive Airpark has four runway ends; the model assessed the potential for glare along each of the four aircraft flight paths landing at the airport. The model automatically plots the location and height above ground of each observation point along the glide path assuming a 3 degree glide slope for the approach. In the model's flight path window, we checked the "consider pilot visibility from cockpit" box and changed the default azimuth viewing angle of 180° to 90° so that the model would not register glare that the pilot would not see from behind the aircraft. We also kept the default downward viewing angle of 30° to eliminate false glare results from below the aircraft. **Figure 4** shows the flight path analyzed by the model for each runway.



Figure 4. Flight Path Analyzed by GlareGauge

The latest version of the model now shows component results in time for the aircraft along a continuous route. **Table 3** presents the GlareGauge modeling results for the ATCT and each runway in terms of predicted minutes of green, yellow, or red glare.

As shown in **Table 3**, no glare was detected by the model for the ATCT and any of the runway approach paths. The no glare result on the ATCT and aircraft on approach to each runway comply with the FAA's ocular impact standard as published in the Federal Register on October 23, 2013 and shown in Table 2.

Table 3 – GlareGauge Results for the Riverhead Solar Project at Calverton Executive Airpark

Site	Single Axis Tracking	Observer Location	Green Glare (min)	Yellow Glare (min)	Red Glare (min)	Comply with FAA Thresholds
Near Calverton Executive Airpark	180°/0°	RWY 5	0	0	0	Yes
		RWY 32[1]	0	0	0	Yes
		RWY 14	0	0	0	Yes
		RWY 23	0	0	0	Yes
		ATCT	0	0	0	Yes

Notes:

G (Green) = Low Potential for Temporary After-Image
Y (Yellow) = Potential for Temporary After-Image
R (Red) = Potential for Permanent Eye-Damage

Conclusions

HMMH utilized the GlareGauge model developed by the Department of Energy's Sandia National Laboratories to evaluate potential glare from a ground-mounted single axis tracking solar PV project at the Riverhead site located east of the Calverton Executive Airpark. The analysis focused on potential glare effects on aircraft arriving on final approach to runway ends 5, 23, 14 and 32 as well as at the ATCT.

While the project is not located on airport property and therefore not subject to FAA jurisdiction under Federal Aviation Regulations Part 77 to protect airspace safety, the proponents have sought to voluntarily comply with FAA ocular hazard standards published in the FAA's Interim Solar Policy in the Federal Register on of October 23, 2013.

GlareGauge model results were compared to the FAA's ocular hazard standard. The model results provided in **Attachment A** show that for aircraft on final approach to Runway 5, 23, 14 and 32, GlareGauge model results for the preferred design result in no glare detected along the approach to each runway end. In addition, no glare was predicted at the ATCT location. These results *comply* with the FAA standards described in the Interim Solar Policy.

Attachment A

GlareGauge Modeling Results - Preferred Design

Site config: Untitled

No site config description provided.

Created **Nov. 18, 2016 10:59 a.m.**
DNI **varies** and peaks at **1,000.0 W/m^2**
Analyze every **1** minute(s)
0.5 ocular transmission coefficient
0.002 ft pupil diameter
0.017 ft eye focal length
9.3 mrad sun subtended angle



Summary of Results No glare predicted!

PV name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	"Red" Glare	Energy Produced
	deg	deg	min	min	min	kWh
Riverhead Array	0.0	180.0	0	0	0	59,120,000.0

Component Data

Flight Paths

Name: RWY 14
Description:
Threshold height: 50 ft
Direction: 311.8 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 90.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	40.922002	-72.791333	67	50	117
2-mile point	40.941274	-72.819892	76	595	671

Name: RWY 23
Description:
Threshold height: 50 ft
Direction: 35.97 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 90.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	40.921166	-72.803049	72	50	122
2-mile point	40.944566	-72.780548	107	568	675

Name: RWY 32
Description:
Threshold height: 50 ft
Direction: 131.9 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 90.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	40.907603	-72.769532	48	50	98
2-mile point	40.888295	-72.741024	208	442	651

Name: RWY 5
Description:
Threshold height: 50 ft
Direction: 216.07 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 90.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	40.909913	-72.813606	68	50	118
2-mile point	40.886543	-72.836158	59	612	671

Observation Points

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
1	40.919332	-72.795791	54	89	143

Riverhead Array

Single Axis Tracking

Predicted energy output (assuming sunny, clear skies all year): 59,120,000.0 kWh

Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Limit tracking rotation? Yes
Maximum tracking angle: 45.0 deg
Rated power: 20000.0 kW
Panel material: Smooth glass without AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? No
Slope error: 10.0 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.915275	-72.768631	68	3	71
2	40.916766	-72.768717	59	3	62
3	40.916896	-72.767773	64	3	68
4	40.921371	-72.768288	63	3	66
5	40.921566	-72.766485	65	3	68
6	40.925846	-72.767172	75	3	78
7	40.926105	-72.763481	65	3	68
8	40.915664	-72.762451	42	3	45

No glare predicted!

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BARRETT ENERGY RESOURCES GROUP
PO BOX 1004 | CONCORD, MA 01742 | 339-234-2696
WWW.BARRETTENERGYGROUP.COM

January 19, 2017

Nancy Hsu
Permitting Manager
Sustainable Power Corporation
5000 East Spring Street, Suite 130
Long Beach, CA 90815

RE: Solar Project near EPCAL

Dear Ms. Hsu:

I have reviewed material that you have provided to me on Sustainable Power Corporation's (SPower) proposed solar photovoltaic (PV) project (the Project) near the Enterprise Park at Calverton (EPCAL). As requested, I have also conducted an independent study of potential glint/glare on aviation activities. I offer this letter as expert opinion as to the compatibility of the project with aviation related activities particularly those conducted by Luminati Aerospace, LLC (Luminati).

Qualifications

I was co-author with the Federal Aviation Administration's (FAA) Dr. Jake Plante of "Technical Guidance for Evaluating Selected Solar Technologies at Airports" (November 2010) also referred to as the FAA's Solar Guide.

I was also the Principal Investigator of four research projects funded by the FAA and administered by the National Academies Airport Cooperative Research Program (ACRP) on energy and airports:

- Synthesis 28, Investigating Safety Impacts of Energy Technologies on Airports and Aviation
- Report 108, Guidebook on Energy Technologies Compatibility with Airports and Airspace
- Report 141, Renewable Energy as an Airport Revenue Source
- Report 151, Developing a Business Case for Renewable Energy at Airports

I am presently under contract with the United Nation's (UN) International Civil Aviation Organization (ICAO) to prepare guidance to Member States on renewable energy and carbon emission reduction projects at airports. I am also serving as a Technical Advisor for three ICAO demonstration projects in Jamaica, Kenya, and Cameroon where solar PV is being deployed to offset jet fuel emissions from aircraft consistent with the UN's Clean Development Mechanism small-scale methodology "Solar Power for Domestic Aircraft At-Gate Operations."

Context

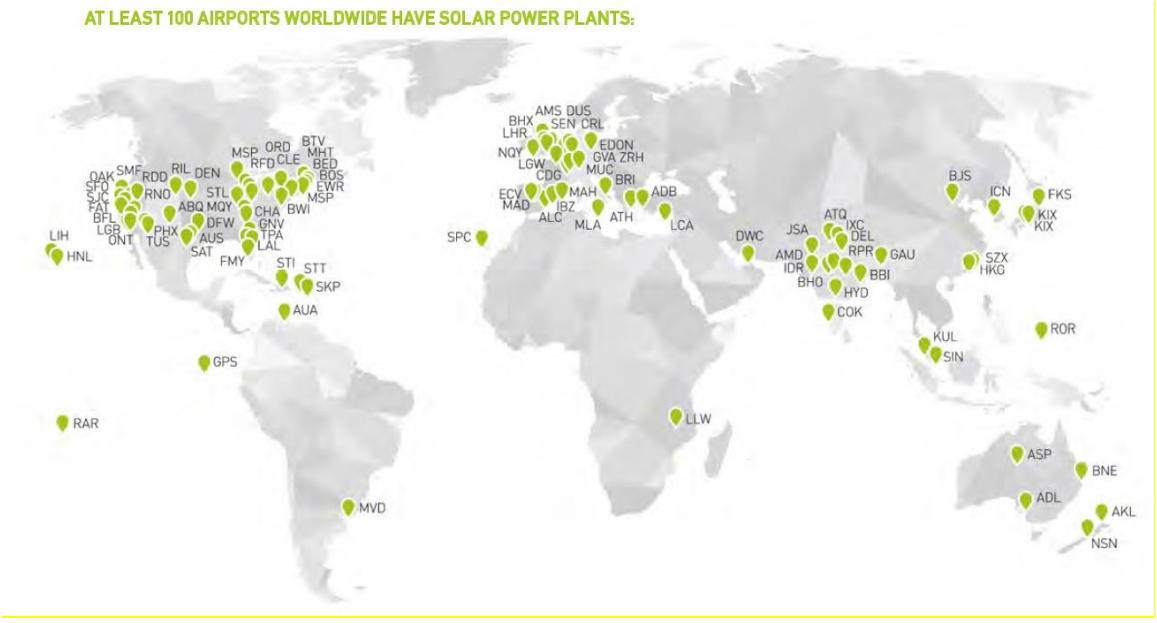
The FAA's most critical responsibility is to ensure the safety of air travel in the US. Thus, when the first proposals were made to locate solar PV on airport property, the FAA needed to look closely at the impacts of such projects on aviation activities. The potential for glint/glare was identified as the most critical issue of concern.

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Glint/glare can produce a temporary after-image, a result many have experienced when looking briefly at the sun. To ensure that solar PV projects are sited appropriately so as to reduce the exposure of glint/glare on pilots and controllers, the FAA worked with the Department of Energy's Sandia National Laboratories to develop the Solar Glare Hazard Analysis Tool (SGHAT) and required the use of SGHAT in its Interim Policy, Solar Energy System Projects on Federally Obligated Airports (October 23, 2013).[1] SGHAT is used by airports and solar practitioners around the world to ensure that solar PV projects as located and designed will not cause a glint/glare impact on controllers in the air traffic control tower and pilots on final descent to the runway.

The renewable energy industry has expanded in recent years to meet energy and environmental needs. Solar PV is being deployed as a supplemental power use for the electrical grid and in other innovative ways as illustrated by Luminati's aircraft technology. Much research has been applied to this area by the FAA in recognition of the economic and environmental benefits of such projects to airports as businesses and as government entities. Work associated with the UN is in response to goals set by Member States to mitigate carbon emissions, and renewable energy is the most effective opportunity available.

Solar when sited appropriately to avoid impacts of glint/glare has been clearly demonstrated to be compatible with aviation activities as evidenced by the number of projects that have been developed at airports in the US and around the world.



Source: http://aviationbenefits.org/environmental-efficiency/aviation-climate-solutions/

Proposed 20 MW Solar Project

I have reviewed the report prepared by HMMH Inc. assessing potential glint/glare from SPower's proposed 20 MW solar project in Riverhead, NY. HMMH utilized appropriate guidance for evaluating solar PV projects on airports included in the FAA's Solar Policy. The project design is a single axis tracking system. HMMH evaluated aircraft on approach to each of the four runway ends as required by

[1] https://www.federalregister.gov/documents/2013/10/23/2013-24729/interim-policy-faa-review-of-solar-energy-system-projects-on-federally-obligated-airports

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the FAA for projects proposed on airport property. EPCAL does not have an operational air traffic control tower (ATCT); therefore, this receptor was not analyzed. The results show that there will no glint/glare impacts on aircraft approaching the EPCAL airfield on ascent or descent.

The solar PV project proposed near EPCAL is not unusual. I have worked on two solar projects located on airport property that are of comparable size. There is a 25 MW solar project at Indianapolis International Airport and a 9.15 MW solar project at Lakeland Linder Field (Florida). I also worked on an 18.9 MW project directly adjacent to Decatur County Airport in Bainbridge, Georgia. The following graphic shows the location of the 25 MW solar project at Indianapolis.



In my experience, single axis tracking systems are the most effective design to mitigate potential glint/glare impacts. This is primarily because glint/glare occurs when the sun is low on the horizon (after sunrise or near sunset) and tracking systems are not tracking at this time, but rather hold a fixed position which directs the reflection upward. At Indianapolis, as an example, the Phase II project initially did not meet the FAA's ocular hazard standard using a fixed tilt system and a single axis tracking system was employed to mitigate impacts. The projects at Lakeland and Bainbridge are also single axis tracking systems.

Supplemental Analysis

I used the SGHAT model to assess additional observation points including the ATCT and at Luminati Aerospace. As described above, the existing ATCT is not manned and operational and therefore would

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not require analysis from the FAA. However, I assumed conservatively that the ATCT could be utilized in the future and selected it for analysis.

I also selected two points at the front of Luminati's facility at the former Sky Dive Long Island building. One point is for an observer on the ground (i.e. 6 feet above ground level) and a second point is for an observer approximately at the height of the building (estimated to be 30 feet above ground level). The points are shown on the attached graphic.



As I was running the model any way, I inserted the flight paths as directed by the FAA and similar to that presented by HMMH. The only difference is that I did not limit the pilot's view to provide a full 360 view of potential glint/glare. This could represent the view for pilot ascent or descent though the FAA does not require an analysis of ascent because the pilot is facing upward and not directly looking at glint/glare source on the ground. The following graphic shows the points analyzed and the outline of the solar project as depicted in HMMH's modeling report including points #1 and #2 at Luminati and point #3 which is the ATCT.



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The modeling results are attached. It shows that no glint/glare was recorded for any of the observation points. This consistent with results we have obtained for other projects particularly those applying a single axis tracking design.

Comment Letter Dated November 25, 2016

I was also provided a copy of a comment letter from Chief Pilot Robert Lutz regarding SPower's proposed solar project. The letter discusses the potential encroachment of the solar project in the Runway Safety Area (RSA) and the potential need to construct an Engineered Material Arresting System (EMAS) at a cost of $2m. The RSA is an area at the end of the runway which is meant to be kept clear of structures for the protection of property on the ground and people in a plane when an aircraft overshoots the runway. The FAA in its review of airport projects proposed on Federally-Obligated Airports must approve projects proposed in the RSA. Solar projects are not permitted in the RSA. EMAS was developed for use in areas where pre-existing land uses, particularly roadways, cannot be removed from the RSA. The SPower solar project is proposed in a location outside of the RSA and will not encroach into the RSA. Therefore, the discussion of RSA encroachment and EMAS is not relevant to the proposed project.

The comment letter also discusses the pilot's experience with solar glare. All pilots experience solar glare. Sources of glare include the rising and setting sun, reflections off natural surfaces like snow and water, and reflections off manmade surfaces such as buildings facades and rooftops. Pilots are experienced in managing sources of glare either by adjusting the shade visor, pulling a cap bill down, and putting on sun glasses. Most people have had similar experiences when driving a car. Despite the common occurrence of glare in the environment, the FAA seeks to minimize potential glare from solar projects through the use of SGHAT in compliance with its Interim Solar Policy. Projects that utilize SGHAT can predict if a project location and design will produce glint/glare on sensitive airport receptors.

Conclusion

As described in this letter, I have reviewed the study prepared by HMMH Inc. and have conducted my own independent analysis. In each case, the FAA guidance, methodology and standard of impact has been used because it is most protective of aviation interests. The results do not indicate any glint/glare from the proposed project impacting aircraft ascending or descending to the airfield at EPCAL or at the ATCT. Observation points at Luminati's facility were also examined and showed no effect from glint/glare. These results are consistent with my experience with solar projects at airports around the world. Specifically, projects designed with a single axis tracking system typically do not produce glint/glare on aviation receptors. If this project were subject FAA review, it would comply with policies and standards and receive an approval.

Best regards,

Stephen B. Barrett
Principal

Encl.

Site config: Untitled

No site config description provided.

Created **Jan. 17, 2017 3:22 p.m.**
DNI **varies** and peaks at **1,000.0 W/m^2**
Analyze every **1** minute(s)
0.5 ocular transmission coefficient
0.002 ft pupil diameter
0.017 ft eye focal length
9.3 mrad sun subtended angle



Summary of Results No glare predicted!

PV name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	"Red" Glare	Energy Produced
	deg	deg	min	min	min	kWh
PV array 1	0.0	180.0	0	0	0	-

Component Data

Flight Paths

Name: FP 14
Description:
Threshold height: 50 ft
Direction: 310.91 deg
Glide slope: 3.0 deg
Pilot view restricted? No

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	40.924003	-72.794251	72	50	122
2-mile point	40.942937	-72.823204	96	579	675

Name: FP 23
Description:
Threshold height: 50 ft
Direction: 34.0 deg
Glide slope: 3.0 deg
Pilot view restricted? No

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	40.923414	-72.801161	72	50	122
2-mile point	40.947384	-72.779738	116	559	675

Name: FP 32
Description:
Threshold height: 50 ft
Direction: 130.0 deg
Glide slope: 3.0 deg
Pilot view restricted? No

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	40.905658	-72.766593	49	50	100
2-mile point	40.887074	-72.737253	227	425	653

Name: FP 5
Description:
Threshold height: 50 ft
Direction: 214.0 deg
Glide slope: 3.0 deg
Pilot view restricted? No

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	40.907740	-72.815709	65	50	115
2-mile point	40.883770	-72.837127	50	619	669

Observation Points

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
1	40.916253	-72.790003	53	30	83
2	40.916329	-72.790174	52	6	58
3	40.919336	-72.795802	54	70	124

PV array 1

Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Limit tracking rotation? Yes
Maximum tracking angle: 45.0 deg
Rated power: -
Panel material: Smooth glass without AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? No
Slope error: 10.0 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.915415	-72.768631	53	8	61
2	40.916712	-72.768803	57	8	65
3	40.916777	-72.767773	64	8	72
4	40.923479	-72.768545	62	8	70
5	40.923479	-72.767000	67	8	75
6	40.925814	-72.767000	75	8	83
7	40.926073	-72.763567	65	8	73
8	40.915956	-72.762194	36	8	44

No glare predicted!

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Grid-Connected System: Simulation parameters

Project : **Riverhead Solar**

Geographical Site	**Calverton TGY**			Country	**United States**
Situation		Latitude	40.95° N	Longitude	72.75° W
Time defined as		Legal Time	Time zone UT-5	Altitude	23 m

Monthly albedo values

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Albedo	0.70	0.60	0.40	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.30	0.50

Meteo data: **Calverton TGY** Solar Anywhere Satellite, SUNY model - TMY

Simulation variant : **Riverhead 340**

Simulation date 01/02/17 13h44

Simulation parameters

Tracking plane, tilted Axis	Axis Tilt	0°	Axis Azimuth	-6°	
Rotation Limitations	Minimum Phi	-45°	Maximum Phi	45°	
Backtracking strategy	Tracker Spacing	4.57 m	Collector width	1.96 m	
Inactive band	Left	0.00 m	Right	0.00 m	
Models used	Transposition	Perez	Diffuse	Imported	
Horizon	Free Horizon				
Near Shadings	Linear shadings				

PV Arrays Characteristics (2 kinds of array defined)

PV module	Si-mono	Model	**JKM 340M-72-V-PR-2016**		
Custom parameters definition		Manufacturer	Jinkosolar		
Sub-array "Sub-array #1"					
Number of PV modules		In series	19 modules	In parallel	3411 strings
Total number of PV modules		Nb. modules	64809	Unit Nom. Power	340 Wp
Array global power		Nominal (STC)	**22035 kWp**	At operating cond.	19886 kWp (50°C)
Array operating characteristics (50°C)		U mpp	655 V	I mpp	30379 A
Sub-array "Sub-array #2"					
Number of PV modules		In series	19 modules	In parallel	379 strings
Total number of PV modules		Nb. modules	7201	Unit Nom. Power	340 Wp
Array global power		Nominal (STC)	**2448 kWp**	At operating cond.	2210 kWp (50°C)
Array operating characteristics (50°C)		U mpp	655 V	I mpp	3375 A
Total	Arrays global power	Nominal (STC)	**24483 kWp**	Total	72010 modules
		Module area	**139725 m²**	Cell area	123085 m²

Sub-array "Sub-array #1" : Inverter		Model	**FS1690CU_420V_20160121**		
Custom parameters definition		Manufacturer	Power Electronics		
Characteristics		Operating Voltage	594-900 V	Unit Nom. Power	1690 kWac
Inverter pack		Nb. of inverters	12 units	Total Power	20280 kWac

Grid-Connected System: Simulation parameters (continued)

Sub-array "Sub-array #2" : Inverter	Model	**FS2110CU_420V_20160121**		
Custom parameters definition	Manufacturer	Power Electronics		
Characteristics	Operating Voltage	594-900 V	Unit Nom. Power	2000 kWac
Inverter pack	Nb. of inverters	1 units	Total Power	2000 kWac
Total	Nb. of inverters	13	Total Power	22280 kWac

PV Array loss factors

Array Soiling Losses

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
4.9%	4.0%	2.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.4%	0.4%	0.3%	2.8%

Thermal Loss factor	Uc (const)	25.0 W/m²K	Uv (wind)	1.2 W/m²K / m/s
Wiring Ohmic Loss	Array#1	0.36 mOhm	Loss Fraction	1.5 % at STC
	Array#2	3.3 mOhm	Loss Fraction	1.5 % at STC
	Global		Loss Fraction	1.5 % at STC
LID - Light Induced Degradation			Loss Fraction	1.5 %
Module Quality Loss			Loss Fraction	0.3 %
Module Mismatch Losses			Loss Fraction	1.0 % at MPP

Incidence effect, user defined profile

0°	20°	30°	40°	50°	60°	70°	80°	90°
1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.77	0.00

System loss factors

AC loss, transfo to injection	Grid Voltage	35 kV		
	Wires: 3x500.0 mm²	13198 m	Loss Fraction	1.0 % at STC
External transformer	Iron loss (Night disconnect)	71951 W	Loss Fraction	0.3 % at STC
	Resistive/Inductive losses	595.5 mOhm	Loss Fraction	1.2 % at STC

User's needs : Unlimited load (grid)

Grid power limitation Active Power 20.0 MW Pnom ratio 1.224

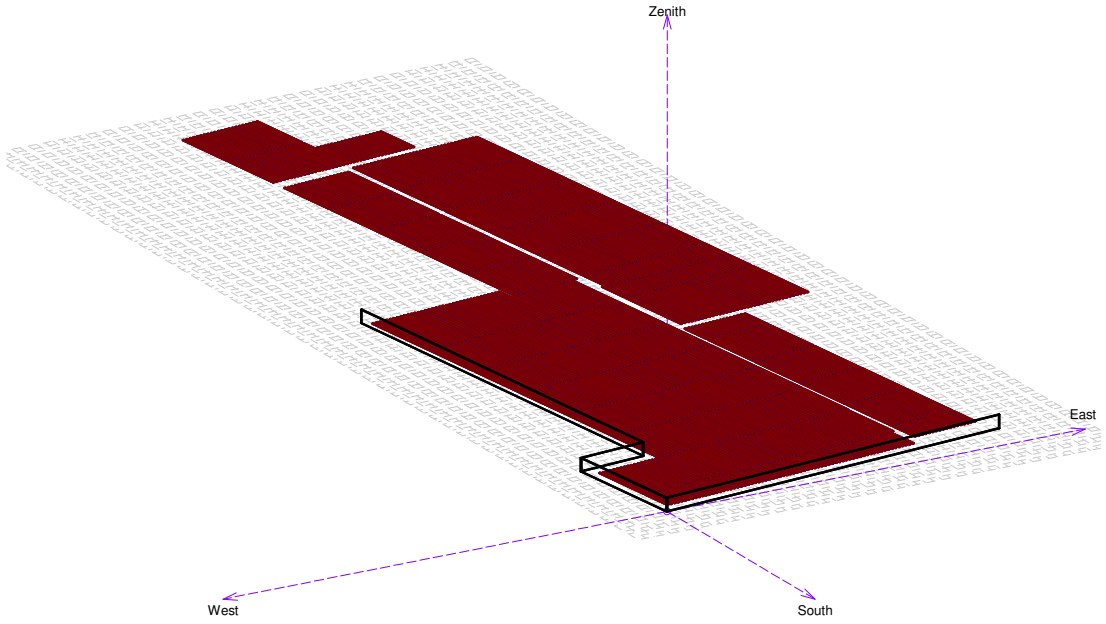
Grid-Connected System: Near shading definition

Project : **Riverhead Solar**

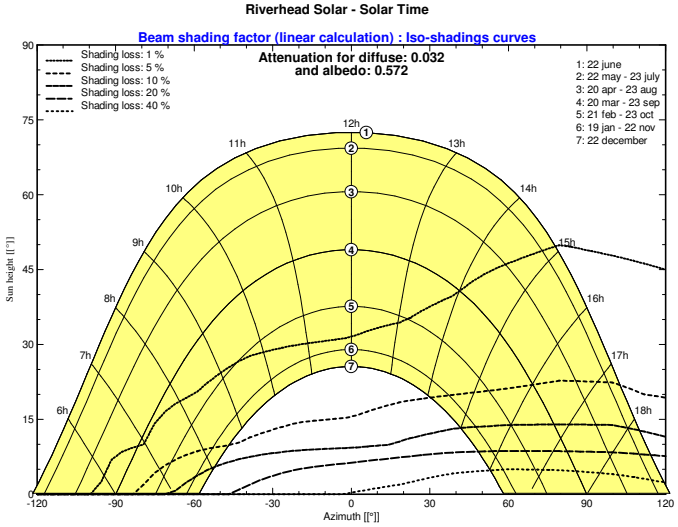
Simulation variant : **Riverhead 340**

Main system parameters	System type	**Grid-Connected**		
Near Shadings	Linear shadings			
PV Field Orientation	tracking, tilted axis, Axis Tilt	0°	Axis Azimuth	0°
PV modules	Model	JKM 340M-72-V-PR-2016	Pnom	340 Wp
PV Array	Nb. of modules	72010	Pnom total	**24483 kWp**
Inverter	Model	FS1690CU_420V_20160121	Pnom	1690 kW ac
Inverter	Model	FS2110CU_420V_20160121	Pnom	2000 kW ac
Inverter pack	Nb. of units	13.0	Pnom total	**22280 kW ac**
User's needs	Unlimited load (grid)			

Perspective of the PV-field and surrounding shading scene



Iso-shadings diagram



Grid-Connected System: Main results

Project : **Riverhead Solar**

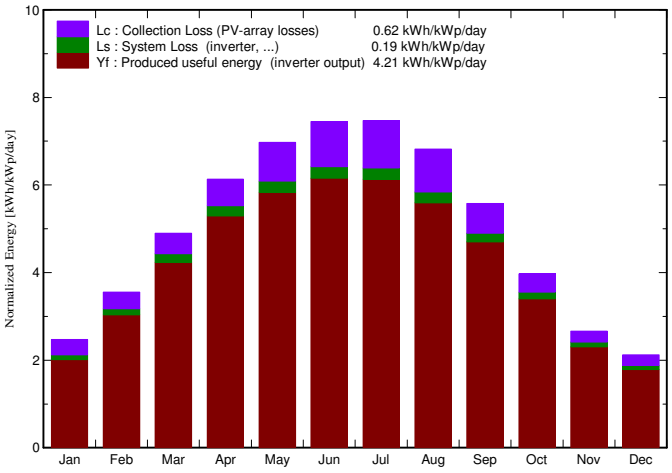
Simulation variant : **Riverhead 340**

Main system parameters	System type	**Grid-Connected**		
Near Shadings	Linear shadings			
PV Field Orientation	tracking, tilted axis, Axis Tilt	0°	Axis Azimuth	0°
PV modules	Model	JKM 340M-72-V-PR-2016	Pnom	340 Wp
PV Array	Nb. of modules	72010	Pnom total	**24483 kWp**
Inverter	Model	FS1690CU_420V_20160121	Pnom	1690 kW ac
Inverter	Model	FS2110CU_420V_20160121	Pnom	2000 kW ac
Inverter pack	Nb. of units	13.0	Pnom total	**22280 kW ac**
User's needs	Unlimited load (grid)			

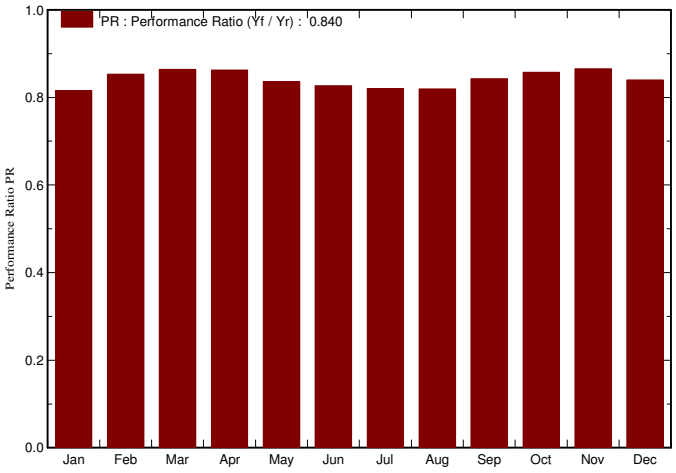
Main simulation results

System Production	**Produced Energy**	**37648 MWh/year**	Specific prod.	1538 kWh/kWp/year
	Performance Ratio PR	83.97 %		

Normalized productions (per installed kWp): Nominal power 24483 kWp



Performance Ratio PR



Riverhead 340

Balances and main results

	GlobHor kWh/m²	T Amb °C	GlobInc kWh/m²	GlobEff kWh/m²	EArray MWh	E_Grid MWh	EffArrR %	EffSysR %
January	57.0	2.35	76.6	66.6	1612	1530	15.06	14.30
February	75.3	0.80	99.6	89.0	2175	2080	15.62	14.95
March	117.3	3.85	152.0	140.4	3362	3216	15.84	15.15
April	147.3	9.56	184.1	175.9	4059	3887	15.78	15.11
May	176.3	15.16	216.3	206.7	4624	4428	15.30	14.66
June	183.7	18.59	223.4	213.7	4715	4522	15.10	14.49
July	188.5	21.78	231.7	221.8	4851	4654	14.98	14.37
August	167.4	22.53	211.6	202.9	4432	4246	14.99	14.36
September	131.1	17.49	167.3	159.7	3599	3452	15.40	14.77
October	94.4	11.79	123.1	116.6	2699	2584	15.69	15.03
November	62.4	8.69	80.0	74.6	1772	1694	15.86	15.16
December	49.7	2.13	65.8	58.6	1426	1354	15.51	14.72
Year	1450.4	11.29	1831.3	1726.6	39326	37648	15.37	14.71

Legends:

GlobHor	Horizontal global irradiation	EArray	Effective energy at the output of the array
T Amb	Ambient Temperature	E_Grid	Energy injected into grid
GlobInc	Global incident in coll. plane	EffArrR	Effic. Eout array / rough area
GlobEff	Effective Global, corr. for IAM and shadings	EffSysR	Effic. Eout system / rough area

Grid-Connected System: Loss diagram

Project : **Riverhead Solar**

Simulation variant : **Riverhead 340**

Main system parameters	System type	**Grid-Connected**			
Near Shadings	Linear shadings				
PV Field Orientation	tracking, tilted axis, Axis Tilt	0°	Axis Azimuth	0°	
PV modules	Model	JKM 340M-72-V-PR-2016	Pnom	340 Wp	
PV Array	Nb. of modules	72010	Pnom total	**24483 kWp**	
Inverter	Model	FS1690CU_420V_20160121	Pnom	1690 kW ac	
Inverter	Model	FS2110CU_420V_20160121	Pnom	2000 kW ac	
Inverter pack	Nb. of units	13.0	Pnom total	**22280 kW ac**	
User's needs	Unlimited load (grid)				

Loss diagram over the whole year

