PETITION OF WINDHAM SOLAR LLC

PLAINFIELD PIKE SOLAR FACLITY

FOR A DECLARATORY RULING FOR THE CONSTRUCTION AND OPERATION OF THREE 1.0 MEGAWATT SOLAR PHOTOVOLTAIC RENEWABLE ENERGY GENERATING FACILITIES LOCATED AT PLAINFIELD PIKE ROAD, PLAINFIELD, CONNECTICUT

AUGUST 22, 2017

TABLE OF CONTENTS

Section **Page**

LIST OF EXHIBITS

Exhibit A	Facilities Site Plan
Exhibit B	GIS Maps
Exhibit C	Cross Section and Key Observation Point Plan
Exhibit D	Notice Service List
Exhibit E	Phase I Environmental Site Assessment
Exhibit F	Wetlands & Vernal Pool Report and submitted ACOE self-verification form
Exhibit G	DEEP NDDB Species Review Response Letter
Exhibit H	SHPO Historic Review Response Letter
Exhibit I	E3 Endangered Species Review and Analysis
Exhibit J	Stormwater Management & Hydrology Report
Exhibit K	Decommissioning Memo
Exhibit L	Access Easement between Lighthouse Church of God and PLH, LLC
Exhibit M	Access and Utility Easement between Leo Properties, LLC and PLH, LLC
Exhibit N	Petition No. 1221 Interrogatories Set One and Two Revised

I. INTRODUCTION

Pursuant to Section 16-50k(a) and Section 4-176(a) of the Connecticut General Statutes ("CGS") and Section 16-50j-38 *et seq.* of the Regulations of Connecticut State Agencies ("RCSA"), Windham Solar LLC (the "Petitioner") requests that the Connecticut Siting Council (the "Council") issue a declaratory ruling approving the construction and operation of the Petitioner's three (3) 1.0 megawatt solar electric generating facilities (the "Facilities"), located on industrial and residential-zoned land at 33 Plainfield Pike Road (one 1MW facility) and 49-91 Plainfield Pike Road (two 1MW facilities) in the Town of Plainfield, Connecticut (the "Site").

CGS § 16-50k(a) provides:

> "Notwithstanding the provisions of this chapter or title 16a, the council shall, in the exercise of its jurisdiction over the siting of generating facilities, approve by declaratory ruling . . . (B) the construction or location of . . . any customer-side distributed resources project or facility . . . with a capacity of not more than sixty-five megawatts, as long as such project meets the air and water quality standards of the Department of Energy and Environmental Protection . . ."

Pursuant to CGS § 16-50k(a), the Council should approve the Facilities by declaratory ruling since they are customer-side distributed resources facilities under 65 MW in capacity that comply with the air and water quality standards of the Connecticut Department of Energy and Environmental Protection ("DEEP"). Further, CGS § 16a-35k establishes the State's energy policies, including the goal to "develop and utilize renewable energy resources, such as solar and wind energy, to the maximum extent possible." As demonstrated from the information included in this petition, the Facilities will result in no air emissions, have minimal impacts that comply with DEEP's air and water quality standards, and will have no substantial adverse environmental effects. The Facilities will further the State of Connecticut's energy policy by developing renewable energy resources. The Facilities also further the State of Connecticut's goals announced in the 2013 Comprehensive Energy Strategy (the "CES"). "Connecticut has suffered

from some of the country's worst air pollution, in part due to its geographic location downwind of out-of-state coal- and oil-burning power plants. A cleaner energy future requires support for electricity generation from low- or no-emission sources."[1] The Facilities will be an important part of that cleaner energy future. The CES also emphasizes the necessity for the "development of more distributed generation", which the Facilities are.[2]

II. PETITIONER

Windham Solar LLC was organized in 2014 by New-York based Allco Renewable Energy Limited for the purposes of developing, constructing, and operating the Facilities in the State of Connecticut. Project development activities are supported by Ecos Energy LLC ("Ecos"). Ecos, based in Minneapolis, MN, has developed and managed the construction/operation of 36 MW of solar PV generation spread over 17 project sites nationwide. Both the Petitioner and Ecos have the knowledge and experience to develop and implement the Facilities in a way that maximizes benefits to the citizens of Connecticut, with no significant adverse impacts.

Correspondence and/or communications regarding this petition should be addressed to:

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[1] *See*, 2013 Comprehensive Energy Strategy for Connecticut, p. 70, available at http://www.ct.gov/deep/lib/deep/energy/cep/2013_ces_final.pdf
[2] Id. at p. 71.

III. DESCRIPTION OF PROPOSED PROJECT

The State of Connecticut has recognized the benefits of local renewable energy development and implemented renewable portfolio standard ("RPS") to encourage the development of renewable energy resources not only to lessen the country's dependence on foreign oil but also to reduce the environmental impacts associated with fossil fuel sources. The RPS requires that by 2020, twenty percent of electricity generation must be derived from Class I renewable energy sources such as solar PV.

The Facilities will play an important role in the State's renewable energy goals. The Facilities will provide a significant source of clean, renewable energy produced locally. The Facilities will produce 100 percent clean, renewable electricity with zero emissions will result in significant environmental benefits. Further, the Facilities will act as a peak reducer by producing energy during the electric distribution companies' peak load hours. The project will therefore help moderate peak load requirements and reduce the demand on transmission lines.

A. Site Selection

The Site was selected based upon several factors including:

1. Size Zoning: The easterly 22.2 acres is zoned I-1 (industrial zoning). The Facilities are a permitted use on the Property in the industrial (I-1) district per the zoning code of the Town of Plainfield, CT. The westerly 45.0 acres is zoned RA-19 (residential zoning). Solar facilities are not addressed in the RA-19 zoning district; however, the use is consistent with the character of the area and abutting industrial zoning districts. Furthermore, the Facilities will be screened by existing vegetation making the Facilities 100% screened from adjacent properties and roadways.

2. Site Suitability (solar resource, soil, and topographic characteristics that allow for efficient facility design and construction), and
3. Site Resources (lack of sensitive natural resources onsite—the Site contains no rare, protected, or sensitive natural resources that would be adversely impacted by the Facilities' footprint.), and
4. Proximity to electrical infrastructure and roadways—the Site has direct public road access and is directly adjacent to an Eversource electric distribution line.
5. Available for Sale – The site was listed for sale through a licensed Connecticut real estate broker.

The Site was initially submitted to the Connecticut Siting Council on March 21, 2016. (Petition No. 1221). On July 25th, 2016, The Council denied the petition that was submitted for a ruling. The Council deemed it as incomplete and that the project appeared to have substantial adverse effect on water quality. Since the time of the decision the developer has revised the application to address the Siting Council's concerns. The overall project size has been reduced from 3.5MW to 3.0MW, and the project can interconnect to the utility at full capacity. Easements have been obtained from adjacent landowners to avoid a brook crossing and minimize construction impacts. Permit applications have been made to the U.S. Army Corps of Engineers for the impacts of 4760 sf. A wetland report has been updated with provisions for a Vernal Pool Habitat Management Plan and DEEP has provided a response for the Natural Diversity Database inquiry. The following narrative has been updated, to address several elements of the projects design.

B. Site Description

The Site is located on Plainfield Pike Road, Plainfield, CT. The Site is a 67.2-acre parcel that is zoned 'I-1 Industrial and RA-19 Residential' and is currently vacant with no structures. The entire site is completely wooded. Adjacent parcels are currently being used as un-cleared vacant land, light agriculture, commercial and there are a small number of residences to the north of the site across Plainfield Pike Road (Route 14A). Topography undulates on the site, with two upland areas central to the site, and one upland area on the east property line. Each 1 MW solar facility will be located on these three upland areas, and the facility footprint has been adjusted to minimize impacts to wetland buffers, and distanced from vernal pools. Each 1 MW facility averages a project envelope of 5.3 acres and a total project footprint of 16.0 acres as delineated by the projects fence limits. Exhibit A (Facilities Site Plan) illustrates the revised project layout on the parcel.

Access to each facility has been granted through negotiated and executed ingress easements with the adjacent landowners. The North 1MW project, will be accessed from the Lighthouse Church of God Parking lot. This access route was decided upon due to a large stream crossing that would require a brook crossing with significant infrastructure and wetland impacts. The recorded access agreement can be found in Exhibit L (Access Easement between Lighthouse Church of God and PLH, LLC).

The East and South 1MW projects will be accessed from the existing driveway in the Northeast corner of the parcel. The current driveway provides access to the rear of the Industrial building to the east of the project parcel on the LEO Properties, LLC land. This access method was chosen to minimize additional grading and driveway construction which would have resulted in additional wetland and buffer impacts. The easement also outlines provisions for the

utility interconnection infrastructure be installed outside of wetlands. This easement allows for all three projects to interconnect in the Northeast corner of the parcel at the existing driveway and Plainfield Pike Road. The recorded easement can be found in Exhibit M. (Access and Utility Easement between Leo Properties, LLC and PLH, LLC).

Approximately 18.5 acres of the Site have been delineated as wetlands. The East and South solar facility will be connected by a 14-foot gravel access roadway between the two projects. Two minor wetland crossings totaling 0.10 acres (4670 sf) of impact will need to occur for site access to the South Project. These locations were viewed in the field with the initial site walk, and the roadway alignment closely follows previously driven paths on the site for logging and brush clearing. Both impacts will be designed as low water crossings, as illustrated in sheet 17 of 17 in Exhibit A. The impacts are below 5,000sf and are Self-Verification Eligible per the State of Connecticut General Permit. The associated self-verification form has been completed and submitted to the permit & enforcement branch of the U.S. Army Corps of Engineers, and CT DEEP.

A vernal pool assessment was performed on the site on March 30th and April 13th of 2016. The proposed site plan was revised to avoid development within the 100-foot existing terrestrial habitat associated with the three vernal pools found on site. Impacts associated with the 750-foot critical terrestrial habitat area for the entire project have been calculated to 17.2%, which is less than the recommended 25% to 30% maximum development area within the critical terrestrial habitat associated with vernal pool best development practices.

The corresponding wetland and vernal pool report as well as the submitted ACOE self-verification form can be found in Exhibit F. (Wetland & Vernal Pool Report). If the projects are approved, a management plan will be implemented and an environmental monitor will be

retained to outline a construction timeline and monitoring program to protect amphibian populations.

Exhibit C (Cross Sections and Key Observation Point Plan) contains photographs of the Site taken from ground level, as well as a cross section of the sight lines from Connecticut Turnpike 395 illustrating minimal visual impacts to the surrounding parcels.

C. Project Description

The three facilities are renewable energy generation projects that will use PV solar modules to convert solar radiation to electricity. They will be located on the customer side of the Eversource meter. Each 1MW facility will consist of approximately 3,600 solar modules (based on a module rating of 345 watts). The solar modules will be supported above the ground by a steel and aluminum fixed-tilt racking system. The modules will be oriented directly due south at a tilt angle of approximately 15 degrees. Solar modules will be mounted to the racking system in landscape orientation, with four rows of modules per rack. The racking system will support the modules to maintain a ground clearance of approximately 36 inches. The racking system will be supported above the ground by a series of steel piles that are driven or screwed into the ground, requiring no concrete foundations. The length of pile embedment will be determined following a geotechnical and structural analysis; 6 to 8 feet embedment is typical. The solar modules will be wired in series strings of 18 modules per string. Strings will be connected to 1,000 kilowatt (kW) centralized solar inverters. The inverters alter the DC output of the solar modules to 390V three-phase alternating current ("AC") output.

Output from each project inverter will feed into a step-up transformer to increase the collected 390V three-phase AC output to 23kV (or other, as required) for interconnection to Eversource' s distribution system. The north project's interconnection will be directionally

bored to the east underneath the existing brook and associated wetlands. The bore will be approximately 420' in length and 6' below the bottom of the brook. This method of construction, will eliminate any wetland or stream impacts associated with the north projects interconnection. Each project output will be connected to a pad-mounted automated recloser, which will provide automated overcurrent protection for each Project and to Eversource's distribution/transmission system. Output from the recloser will run through a set of Eversource metering equipment before being connected to the Eversource distribution circuit on Plainfield Pike Road (Route 14A).

Each facility will contain a centralized equipment skid that will contain the inverters, transformer, disconnect switches, a suite of monitoring and communications equipment, as well as controls for the Facilities' video security system. In addition to the solar energy generating equipment described above, the Facilities will include a 14-foot wide gravel driveway for operations, maintenance, and emergency access. Also, the entirety of the Site footprint will be surrounded by a 7.0-foot-tall chain-link security fence. Access to the Site will be via a padlocked gate in the perimeter fence. A series of infrared, motion-sensitive video security cameras will be installed around and within the perimeter fence. No night-time lighting of any kind is proposed for the Facilities. After construction, the ground area within the Facilities' footprint will be hydro-seeded with a fescue and clover seed mix that offers low/slow growing groundcover vegetation that is drought-tolerant and native. Existing trees and natural vegetation will be maintained outside the projects clearing limits to shield it from view along the roadways and from neighboring properties. All elements of Facilities' design, construction, operation, and maintenance will be performed in accordance with all applicable local, state, and national rules,

guidelines, and regulations. Each Facility's footprint design and equipment locations can be seen in detail in all the plan sheets provided in Exhibit A.

D. Interconnection

Each Facility is proposed to be interconnected to the Eversource electric distribution grid at an existing 23 kV overhead electric line located along Plainfield Pike Road. The interconnection would be in accordance with Eversource technical standards and State of Connecticut, ISO-New England ("ISO-NE"), and the Federal Energy Regulatory Commission ("FERC") requirements. The interconnection will consist of Eversource-specified metering and protection (breakers/switches/relays) to be installed for each Facility. The interconnection will be made pursuant to Eversource's Guidelines for Generator Interconnection. As part of the interconnection process, the Petitioner has successfully completed an interconnection application request and a System Impact Study ("SIS") for the projects. Eversource and has confirmed that up to 4MW can be interconnected from the site.

E. Service Life and Capacity Factor

Each Facility's equipment has an expected useful life of approximately 45 years, and the Petitioner would plan to operate each Facility until the equipment has exhausted its useful life. Per the 2012 Integrated Resources Plan for Connecticut, PV solar has an expected capacity factor of approximately 13 percent.

IV. PROJECT BENEFITS

Projects that are "necessary for the reliability of the electric power supply of the state or for a competitive [electric market]" present a clear public benefit. Conn. Gen. Stat. § 16-50p(c)(1). Each Facility provides exactly the benefit contemplated in the statute and more, as it

will generate much of its power at peak times. By providing electricity when there is high demand, each Facility will help stabilize the electrical grid.

Additionally, there exists a clear public need for renewable projects and undertaking them supports the State's energy policies as codified in Conn. Gen. Stat. § 16a-35k, expressing the legislature's goal to "develop and utilize renewable energy resources, such as solar and wind energy, to the maximum practicable extent." Solar facilities are considered Class I renewable energy sources under General Statutes § 16-1(a)(26). Over the life of each Facility, each Facility will contribute to a significant reduction in NOx, SOx, PM, CO and VOC emissions as compared to combustion-based generation. These figures are further outlined *infra*. Additionally, each Facility will deliver its generated power 'locally' by injecting that power into a distribution-level electric circuit for use by nearby homes and business. This decreases the amount of power that will need to be brought into the area from further away, lightening the load on utility transmission infrastructure and increasing local grid reliability.

Each Facility will also help the State move closer to meeting its renewable portfolio standards. Further, providing increased renewable capacity helps further distance Connecticut from foreign energy supply and helps support energy independence, a local and national goal. Concerning Project labor, the Company fully intends to employ local labor in completing the Project wherever practical. As part of larger state, national, and global strategies, reductions in greenhouse gas emissions from this Project will have long-term secondary biological, social, and economic benefits. Similarly, the advancement of renewable resources at a distributed level contribute to our Nation's desire for energy independence and reduces our dependency upon foreign countries where geo-political issues may introduce issues with the reliability of their fuel

supply. The project will also hire local labor, as practical, and be a source of increased revenue for local businesses during construction.

V. LOCAL INPUT & NOTICE

The Petitioner has contacted and walked the site with the Town of Plainfield Planning and Engineering Department Supervisor with the initial submission. The revised design removing the stream crossing was coordinated with the Town Engineer and the latest design revisions have been presented to the town. The facilities have been sited and designed to local setback requirements and zoning codes and shall be a positive addition to the community by complying with local siting requirements.

In addition to contacting the Town directly, the Petitioner provided notice of this petition to all persons and appropriate municipal officials and government agencies to whom notice is required pursuant to CGS § 16-50j-40(a). For details, reference Exhibit D (Notice Service List).

VI. POTENTIAL ENVIRONMENTAL EFFECTS

The Petitioner has evaluated the Site and taken inventory of the resources available onsite. The Facilities' have been designed to be compatible with the existing environment while avoiding, reducing, and mitigating potential environmental impacts. A response letter has been received from DEEP for the parcel associated with Natural Diversity Database Review. Provisions for the wood turtle have been implemented on the project plans, and training for construction staff will occur prior to project construction

A. Natural Environment and Ecological Balance.

The areas selected for the three projects have not been identified to contain sensitive, rare, or protected natural resources. The area needed to construct the Facilities will be cleared of any tree/timber vegetation. These removals and provisions associated with site clearing are

detailed on Sheets 5 through 8 of Exhibit A. Minimal grading will be required for each Facility, as the solar racking structure is designed to follow the existing topography and can be installed up to 15% slopes. The grading disturbance envelope for the project will be less than 6.0 acres for construction of all three facilities, including off site construction. Grading will be performed to create the access roadways to the projects, smooth localized topography within the array field where slopes are greater than 15% and to construct sediment traps for stormwater provisions.

A Phase I Environmental Site Assessment ("ESA") has also been performed on the parcel. The ESA did not recognize any environmental conditions that warranted additional investigation or action in the areas encompassed by the Facilities' footprint. For details, see Exhibit E (Phase I Environmental Site Assessment). No hazardous substances or materials will be used or stored onsite during construction or operation.

B. Public Health and Safety

Overall, each Facility will meet or exceed all health and safety requirements applicable for electric power generation. During construction, each employee working onsite will:

1) Receive required general and site specific health and safety training.
2) Comply with all health and safety controls as directed by local and state requirements.

i) Understand and employ the site health and safety plan while on the job site.

3) Know the location of local emergency care facilities, travel times, ingress and egress routes.
4) Report all unsafe conditions to the construction managers.

During construction, heavy equipment, delivery trucks, and water trucks for dust suppression will be required to access the Site during normal weekday working hours. It is

anticipated that approximately 16 to 20 construction vehicles would make daily trips onto the Site during the approximately 4-month construction period. During operation, construction noise may be audible offsite. Therefore, all work will be conducted during normal weekday working hours, and it is not anticipated that any levels of construction noise will exceed state or local noise limit standards. During operation, the Facilities will not present a health or safety hazard to anyone located offsite. The Facilities will generate no offsite noise, harmful glare, vibrations, or damaging emissions of any kind. PV solar is a long-proven safe and benign generation technology. Authorized personnel visiting the Facilities during operation will be fully licensed and properly trained on how to navigate a solar project safely and how to quickly respond in the event of an emergency. Once operational, the Petitioner will work with local fire and law enforcement officials to ensure they have the appropriate knowledge and access to provide their services to the Facilities if necessary.

C. Air Quality

Overall, the Facilities will have minor air emissions of regulated air pollutants and greenhouse gases during construction and no air permit will be required. During construction, any air emission effects will be temporary and will be controlled by enacting appropriate mitigation measures (e.g. water for dust control, avoiding mass early morning vehicle startups, etc.). Accordingly, any potential air effects because of the Facilities' construction activities will be negligible. During operation, the Facilities will not produce air emissions of regulated air pollutants or greenhouse gases (e.., PM10, PM2.5, VOCs, GHG, or Ozone). Thus, no air permit will be required. Moreover, over 45 years, the Facilities will result in the offset/elimination of approximately 109,000 tons of CO_2 equivalent, which is equal to 17,200 vehicles off the road,

32,900 tons of avoided landfill waste, 20 tons of NO_X emissions avoided, or 52 tons of SO_2 emissions avoided. The Facilities will have a net benefit effect on air quality.

D. Scenic Values and Visual Renderings

Once installed, the Facilities will be not be visible to neighboring property owners nor visible to drivers and passengers traveling on Plainfield Pike Road. The solar equipment being installed has a low profile; less than 9 feet in height, except for a few taller poles for video cameras and meteorological equipment. The Facilities would be set far enough back from Plainfield Pike Road and adjacent property boundaries so that a robust buffer of trees and natural vegetation can be maintained so that the Facilities will be completely screened from neighboring properties in the area. No other perimeter screening will be necessary to screen the Facilities from neighboring properties since the existing trees and vegetation are thick enough to provide adequate screening. There are no protected or designated scenic areas, roadways, or trails within visual range of the Site. Given these details, the Facilities would not have a significant adverse effect on the scenic values of the area. Current photographs of the Site, along with a key observation point plan of the Facilities, can be found in Exhibit C.

E. Historic Values

The Petitioner has requested review of the Facilities and Site by the Connecticut State Historic Preservation Office ("SHPO"), and received a response letter on June 23rd, 2016 (Exhibit H). The response letter requests a professional cultural resources assessment and reconnaissance survey be completed prior to construction. Following approval of the projects, the petitioner will engage a cultural resource management firm to perform a Phase 1A survey, and any other subsequent required surveys associated with the Phase 1A findings prior project construction.

F. Wildlife & Habitat

The Facilities have been designed to avoid any impacts to sensitive plant or wildlife species or the associated habitats. Three analysis were performed to identify the potential for any sensitive species or habitat:

1) Wetlands and Vernal Pool Delineation and Report (Exhibit F)

   The footprints for all three facilities were designed to minimize impacts delineated wetlands. No project racking will be installed within the 100-foot buffer around the wetlands, with minimal clearing occurring in the buffer areas. The projects also avoid impacts to the identified vernal pools on site and the associated 100-foot existing terrestrial habitat around them.

2) Natural Diversity Database ("NDDB") State Listed Species Review by Connecticut Department of Energy & Environmental Protection ("DEEP") (Exhibit F.)

   The NDDB Preliminary Assessment has identified the potential of the Blue-spotted salamander and the Eastern Spadefoot Toad. Both of which are endangered, will require a habitat assessment and field survey report. The report will be submitted to DEEP for further review and a final assessment determination. Box, Wood and Spotted Turtles as well as the Eastern Hognose snake have been identified as species with special concern. The applicant will implement the suggested strategies for project construction of the facilities.

3) IPaC ESA Listed Species review and analysis (Exhibit I)

   The northern long eared bat was identified in the fish and wildlife service database and thus, tree clearing actives for the projects if approved will not occur between June 1 through July 31 northern long eared bat pup season.

G. Water Resources and Storm Water Management.

The Facilities are not anticipated to have an adverse impact to the water resources of the state. The Facilities fixed panel solar arrays can be considered pervious groundcover. The racking provides adequate height above the ground to promote vegetative growth underneath the solar array and allow for infiltration to continue to occur. Natural drainage patterns will remain, runoff will be directed to sediment traps during construction. The sediment traps also provide permeant Stormwater management, for post construction runoff. Hydraulic modeling calculations illustrate no net increase in downstream flow rates from the Facilities and can be reviewed in the Facilities Stormwater Management and Hydrology Report (Exhibit J).

Construction of the Facilities will result in a grading disturbance of approximately 5.0 acres of land for gravel access roads, the East solar facility, sediment traps and equipment pads. Specific Graded areas can be found on sheets 8 through 12 in Exhibit A The Petitioner will also register under the DEEP's General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities at least sixty (60) days prior to commencing any construction activities. The petitioner intends to request coverage under the existing Connecticut General Permit, DEP-PED-GP-015, by submitting a complete and accurate General Permit Registration Form and Transmittal prior to construction activities and in accordance with applicable rules at the time of filing. The petitioner has implemented temporary sediment traps throughout the project footprint associated with the Connecticut General Permit. The petitioner will also phase the project to ensure that earth disturbances will be 5 acres of soil or less at any given time during construction.

VII. ADDITIONAL INFORMATION

When the project was initially reviewed under Petition No 1221, the Connecticut Siting Council had sent out two sets of interrogatory requests with multiple questions about the proposed facility. The petitioner has attached revised responses to these questions where applicable Petition No. 1221 Interrogatories Set One and Two Responses Revised (Exhibit N).

VIII. CONCLUSION

The Facilities will provide numerous and significant benefits to the Town of Plainfield, the State of Connecticut and its citizens, while producing significant environmental benefits with minimal environmental impact. The revisions made to the project plan, have addressed the previous concerns of the Connecticut Siting Council which resulted in a denial of PE 1221. Pursuant to CGS § 16-50k(a), the Siting Council shall approve by declaratory ruling the construction or location of customer side distributed resources project or facility with a capacity of not more than sixty-five (65) MW, as long as such project meets DEEP air and water quality standards. The Facilities meet these criteria. Each Facility is a customer-side distributed resources facility "grid-side distributed resources" facility, as defined in CGS § 16-1(a)(40), because the Project involves "the generation of electricity from a unit with a rating of not more than sixty-five megawatts on the premises of a retail end user within the transmission and distribution system including, but not limited to . . .photovoltaic systems and, as demonstrated herein, each Facility will meet DEEP air and water quality standards. The Facilities will not produce air emissions, will not utilize water to produce electricity, were designed to minimize wetland impacts, will employ a stormwater management plan that will result in no net increase in runoff to any surrounding properties, and furthers the State's energy policy by developing and

utilizing renewable energy resources and distributed energy resources. In addition, as demonstrated above, the Facilities will not have a substantial adverse environmental effect in the State of Connecticut.

Accordingly, Petitioner respectfully requests that the Siting Council approve the location, construction and operation of the Facilities by declaratory ruling.

Respectfully Submitted,
Windham Solar LLC

By:_____

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Exhibit A
Facilities Site Plan

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PLAINFIELD PIKE SOLAR
CONNECTICUT SITING BOARD DOCUMENTS

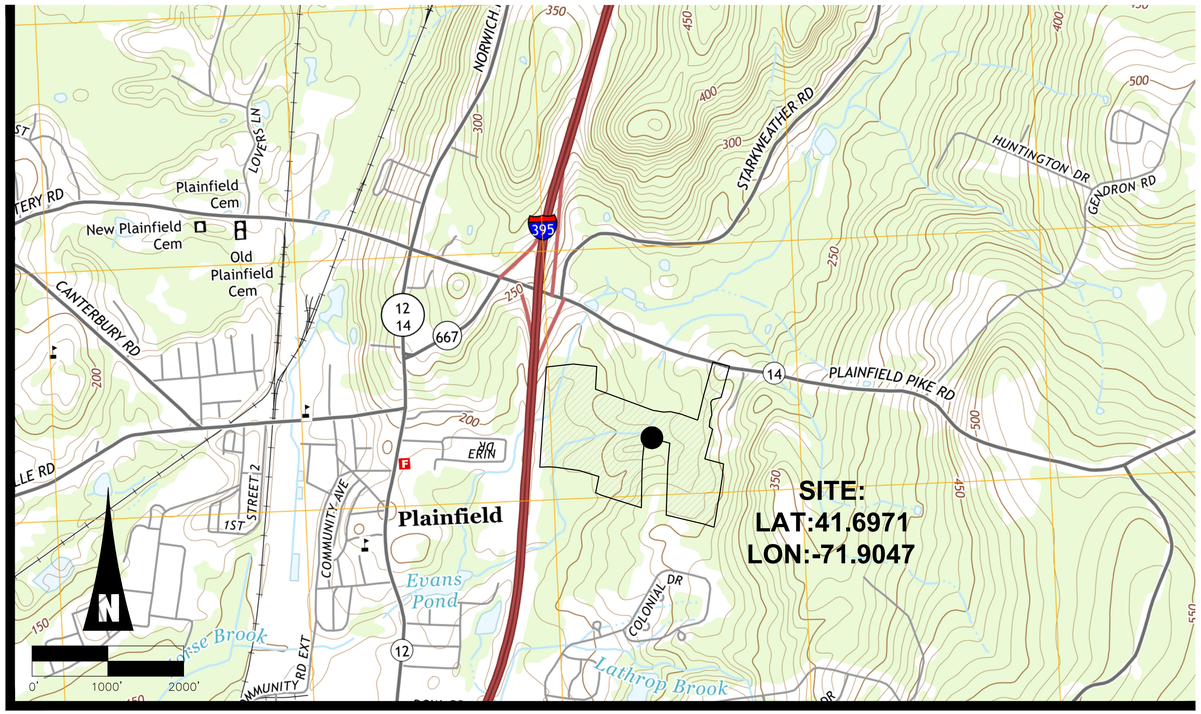
FOR

Site/Electrical Layout, Grading/Drainage/Erosion Control/Landscaping

IN

PLAINFIELD, CONNECTICUT

LOCATION MAP



SHEET INDEX

●		08/16/2017	1	COVER SHEET
●		11/2015	2	PERIMETER SURVEY (BY ARCHER SURVEY, LLC)
●		08/16/2017	3	OVERALL SITE PLAN
●		08/16/2017	4	NORTHWEST REMOVAL & EROSION CONTROL PLAN - 1"=50'
●		08/16/2017	5	SOUTHWEST REMOVAL & EROSION CONTROL PLAN - 1"=50'
●		08/16/2017	6	NORTHEAST REMOVAL & EROSION CONTROL PLAN - 1"=50'
●		08/16/2017	7	SOUTHEAST REMOVAL & EROSION CONTROL PLAN - 1"=50'
●		08/16/2017	8	NORTHWEST SITE & GRADING PLAN - 1"=50'
●		08/16/2017	9	SOUTHWEST SITE & GRADING PLAN - 1"=50'
●		08/16/2017	10	NORTHEAST SITE & GRADING PLAN - 1"=50'
●		08/16/2017	11	EAST SITE & GRADING PLAN - 1"=50'
●		08/16/2017	12	SOUTHEAST SITE & GRADING PLAN - 1"=50'
●		08/16/2017	13	OVERALL LANDSCAPE PLAN
●		08/16/2017	14	SITE CROSS SECTION
●		08/16/2017	15	KEY OBSERVATION POINT PLAN
●		08/16/2017	16	CIVIL NOTES
●		08/16/2017	17	CIVIL DETAILS

DRAWING INDEX LEGEND

FILLED CIRCLE INDICATES DRAWING INCLUDED WITHIN THIS ISSUE
MOST RECENT REVISION NUMBER
MOST RECENT ISSUE OR REVISION DATE

○	-	X/XX/201X	X	SHEET TITLE

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LICENSED
PROFESSIONAL ENGINEER

Designed: ADC
Checked: SAW
Drawn: SJB
Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION
-	3/15/2016	CT SITING BOARD SUBMISSION
-	4/26/2016	CT SITING BOARD COMMENTS
-	6/21/2016	CT SITING BOARD IR3 REVISIONS
-	8/16/2017	CT SITING BOARD REVISED SUBMISSION

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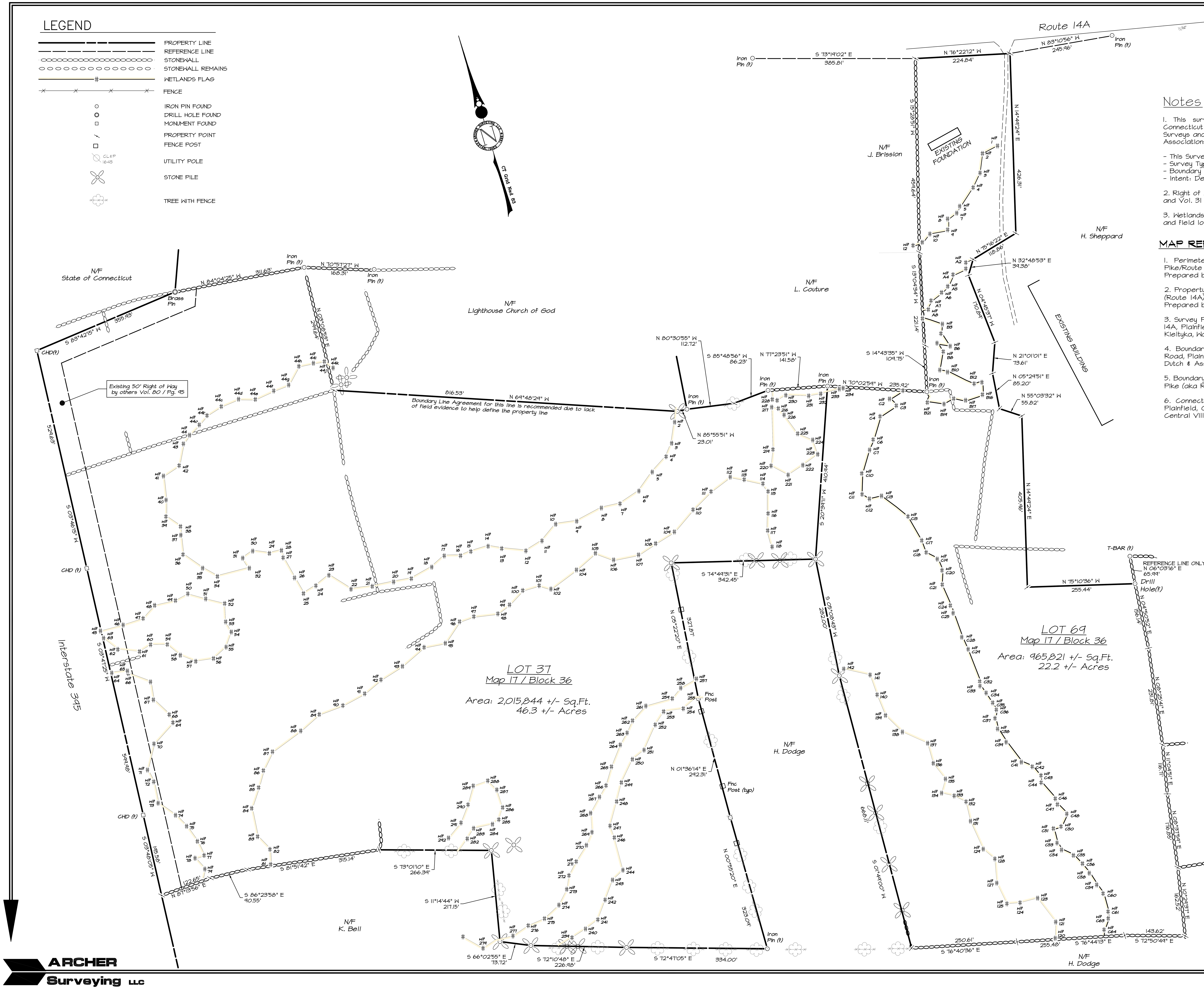
COVER SHEET

SITING BOARD REVIEW

DATE: 08/16/2017
SHEET: 1 of 17



Notes

1. This survey has been prepared pursuant to the Regulations of Connecticut State Agencies Section 20-300b-20 and the "Standards for Surveys and Maps in State of Connecticut" as adopted by the Connecticut Associations of Land Surveyors, Inc. on September 26, 1996

- This Survey conforms to a Class "A-2" Horizontal Accuracy
- Survey Type: Perimeter Survey
- Boundary Determination: Resurvey
- Intent: Depict Existing Conditions with Respect to Property Lines

2. Right of Ways exist of Parcels as stated in deeds Vol. 80 / Pg. 95 and Vol. 31 / Pg 245

3. Wetlands were delineated in the field by Joseph Theroux & John Iani and field located by Archer Surveying LLC.

MAP REFERENCE:

1. Perimeter Survey Prepared for Sheppard/Steuer Trust. Plainfield Pike/Route 14A, Plainfield, Connecticut, Scale: 1"=100', Dated: May 2015, Prepared by Archer Surveying LLC

2. Property Survey Prepared for Leon and Sally Couture, Plainfield Pike (Route 14A), Plainfield, Connecticut, Scale: 1"=40', Date: December 2002, Prepared by: Eric Seitz L.S.

3. Survey Plan, Prepared for Gertrude Sheppard & Colman Steur, Route 14A, Plainfield, Connecticut, Scale: 1"=50' Date: June 1982, Prepared by: Kleltyka, Woodls & Pike

4. Boundary Survey Prepared for Fleet National Bank, Plainfield Pike Road, Plainfield, Connecticut, Scale: 1"=40', Date: Feb. 1997. Prepared by: Dutch & Associates

5. Boundary Survey, Prepared for Rex Project Management, Inc. Plainfield Pike (aka Rte 14A) Plainfield, Connecticut, Prepared by Fuss & O'Neill Inc

6. Connecticut State Highway Department, Right of Way Map, Town of Plainfield, Connecticut Turnpike, From Lathrop Road Northeasterly to the Central Village-Moosup, Project # 108-19

To My Knowledge and Belief this Map is substantially Correct as noted hereon.

Paul M. Archer LLS #70013 Date

No Certification is expressed or implied unless this map bears the embossed seal of the land surveyor whose signature appears hereon.

Perimeter Survey

Prepared For:
ECOS Renewable Energy
Plainfield Pike / Route 14A
Plainfield, Connecticut

DRAWING SCALE: 1"=100' 0 100 200

ARCHER Surveying LLC
18 Providence Road, Brooklyn, CT
(860) 779-2240

Sheet No.	1 OF 1	Project No.	1306	Date:	November 2015

ARCHER Surveying LLC

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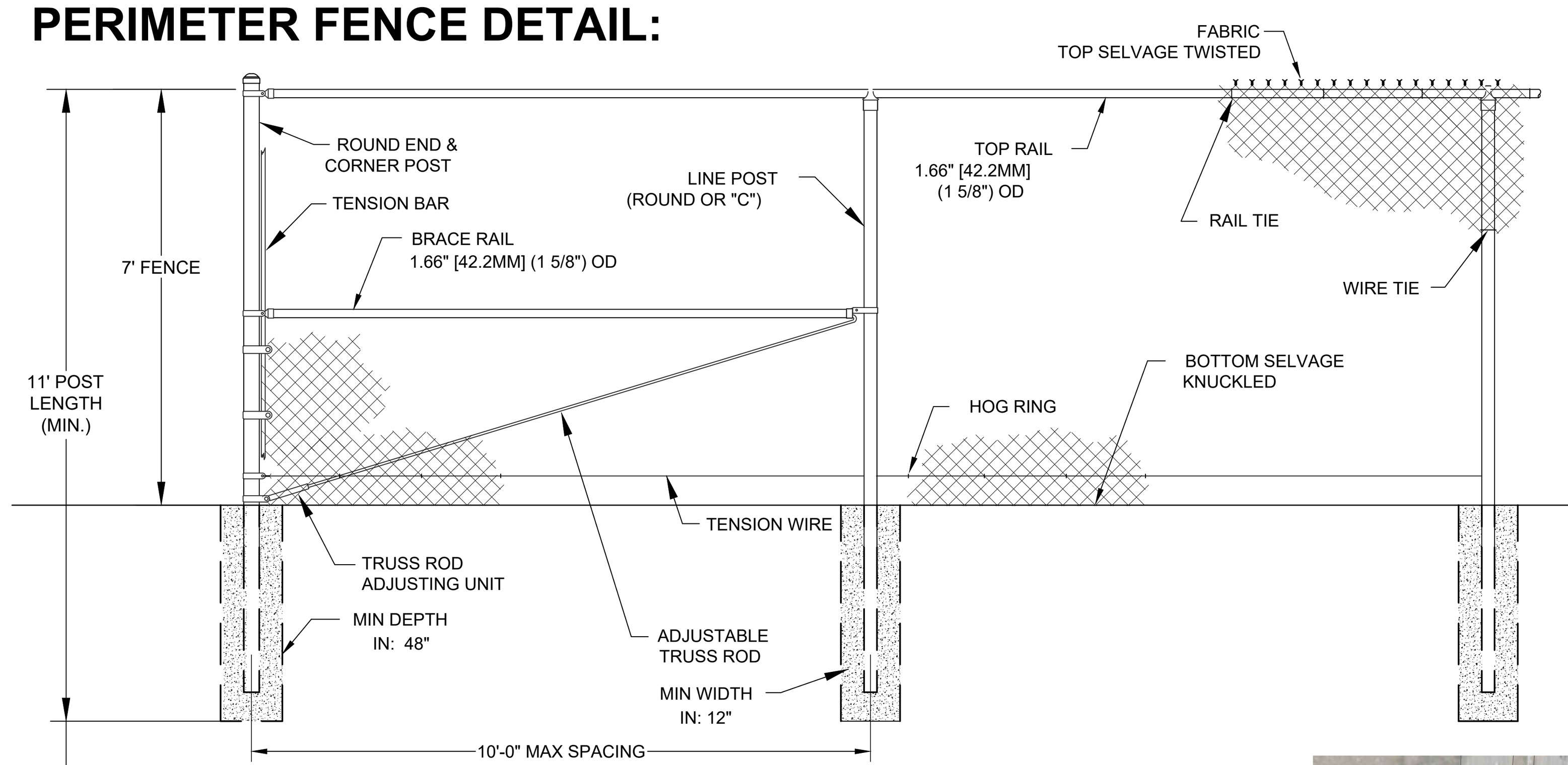
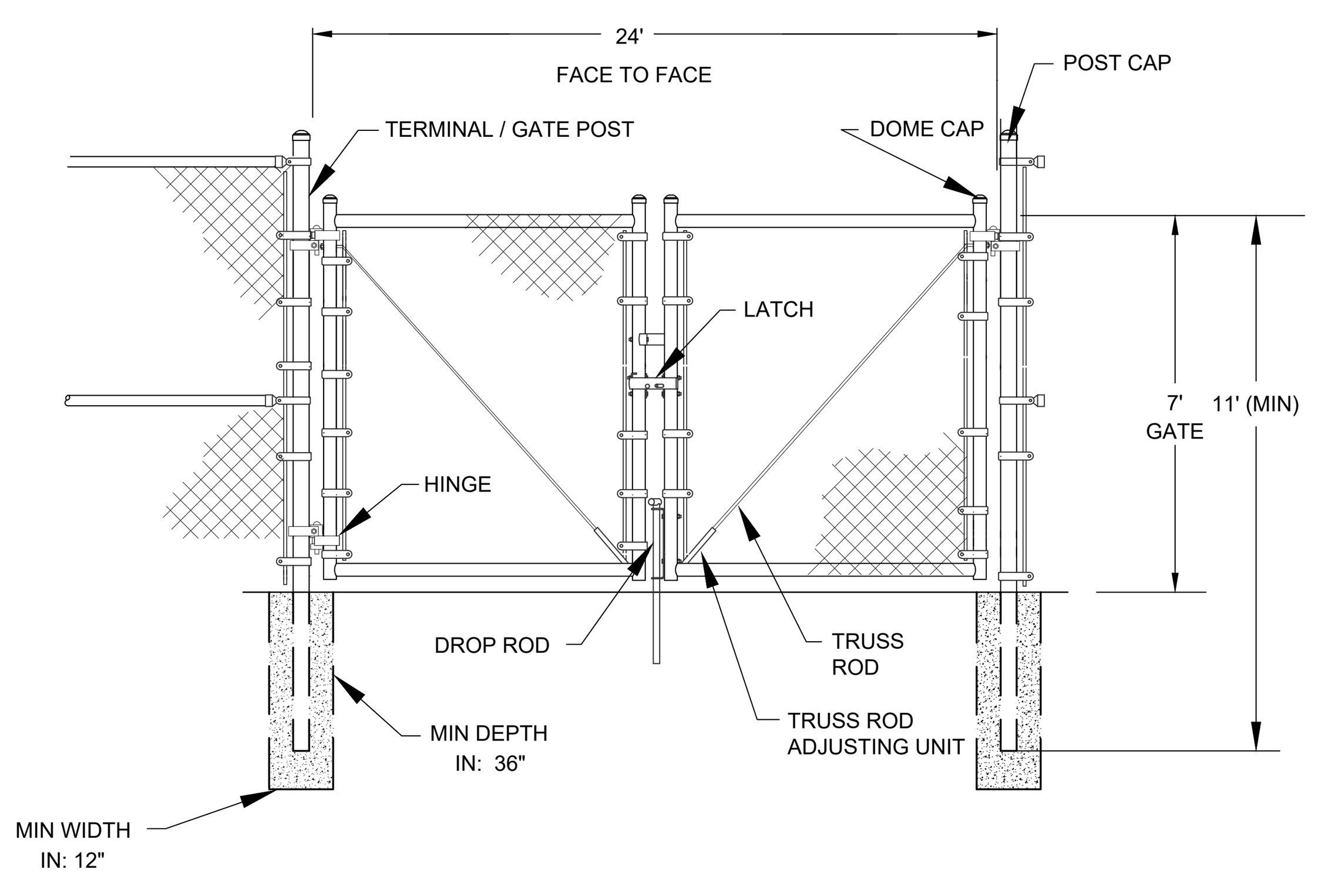
PERIMETER FENCE DETAIL:





PROJECT AREAS & IMPACTS:

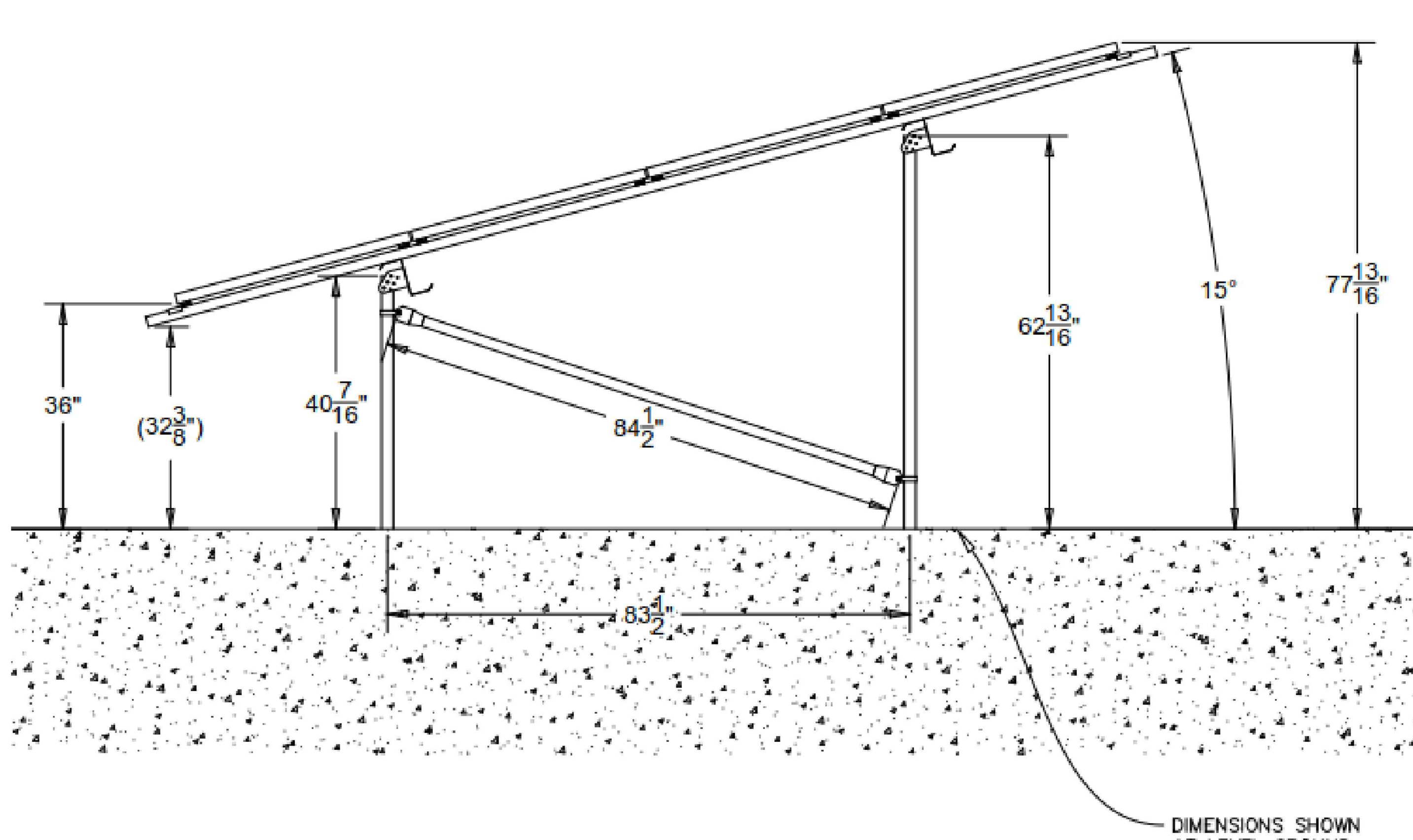
TOTAL SITE AREA = 67.2 ACRES

ARRAY FOOTPRINT (PROJECT FENCE LIMITS)
SOUTH PROJECT = 5.3 ACRES
EAST PROJECT = 5.3 ACRES
NORTH PROJECT = 5.3 ACRES
TOTAL = 16.0 ACRES

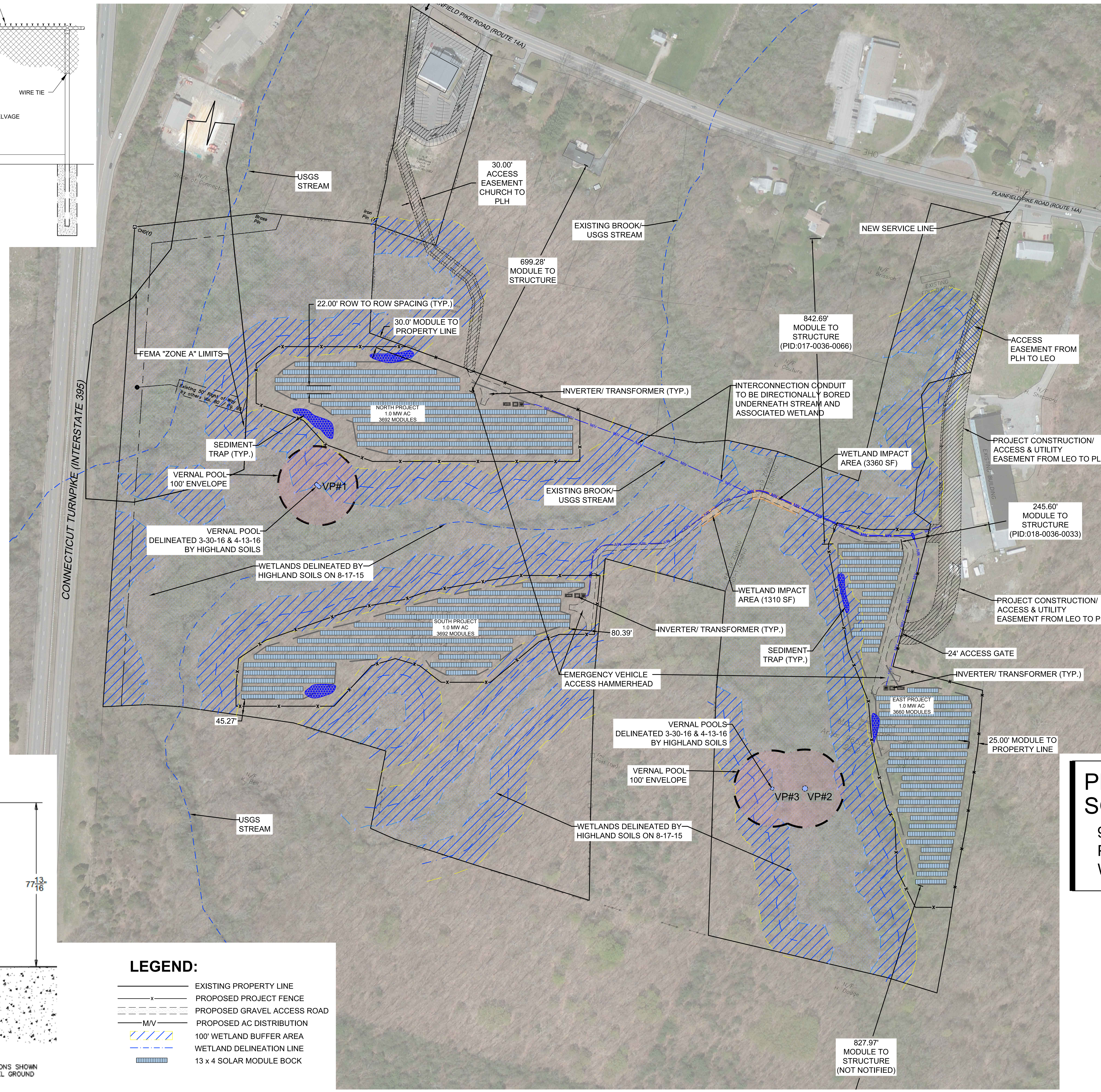
PROPOSED IMPERVIOUS(GRAVEL ACCESS ROAD, STRUCTURAL POSTS & EQUIPMENT PADS)
SOUTH & EAST PROJECT (OFF SITE ACCESS ROAD INCLUDED) = 0.73 ACRES
NOORTH PROJECT (OFF SITE ACCESS ROAD INCLUDED) = 0.40 ACRES

PROPOSED WETLAND IMPACTS: 4670 SF (0.1 ACRES SOUTH PROJECT SITE ACCESS)

RACKING PROFILE DETAIL:



AERIAL SITE PLAN:



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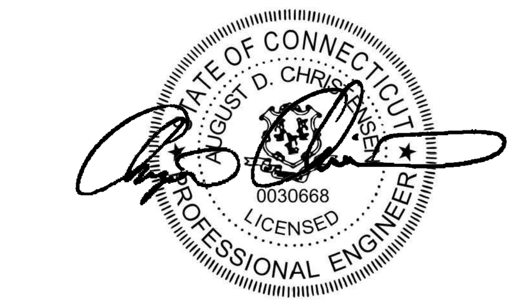

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-	8/16/2017	CT SITING BOARD REVISED SUBMISSION

Prepared for:

ecos ENERGY
222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402

PLAINFIELD PIKE SOLAR

91 PLAINFIELD PIKE RD
PLAINFIELD, CT 06374
WINDHAM COUNTY

OVERALL SITE PLAN

SITING BOARD REVIEW

DATE: 08/16/2017
SHEET: 3 of 17

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LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED PROJECT FENCE
- PROPOSED GRAVEL ACCESS ROAD
- 14 x 2 SOLAR MODULE BOCK
- 100' WETLAND BUFFER AREA
- WETLAND DELINEATION LINE/AREA
- PROPOSED SILT FENCE
- 100' WETLAND BUFFER CLEARING AREA
- SITE CLEARING AREA

CONSTRUCTION SEQUENCING NOTES:

1. THE CONTRACTOR SHALL PERFORM ALL TREE REMOVAL ACTIVITIES ON SITE TO ALLOW FOR BMP INSTALLATION, NO GRUBBING IS TO OCCUR DURING TREE REMOVAL, PRIOR TO BMP INSTALLATION.
2. ALL BMP'S IDENTIFIED ON THE PLAN SHALL BE STAKED BY A REGISTERED SURVEYOR AND INSTALLED PER PLANS PRIOR TO ANY CONSTRUCTION ACTIVITY.
3. AS-BUILT DRAWINGS SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION OF THE PROJECT.

PROJECT FOOTPRINT REMOVAL NOTES

AREAS WITHIN THE PROJECT FENCELINE LIMITS SHALL BE CLEARED BY THE FOLLOWING METHODS:

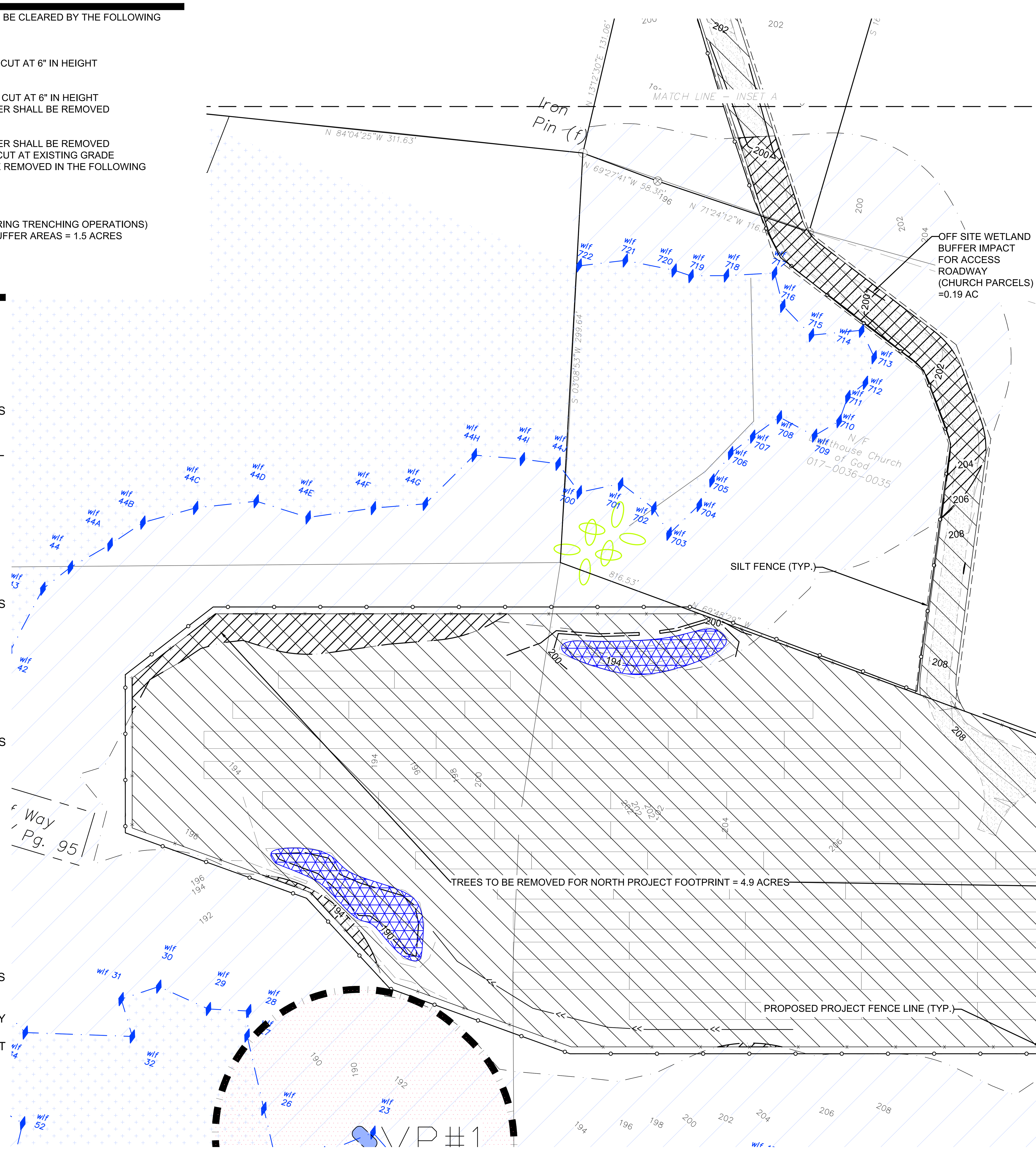
OPEN FIELD AREAS (0.0 ACRES):
1. PRIOR TO CONSTRUCTION VEGETATION SHALL BE CUT AT 6" IN HEIGHT

BRUSH FIELD (0.0 ACRES):
1. BRUSH AND LOW GROWTH VEGETATION SHALL BE CUT AT 6" IN HEIGHT
2. TREES AND VEGETATION LESS THAN 4" IN DIAMETER SHALL BE REMOVED

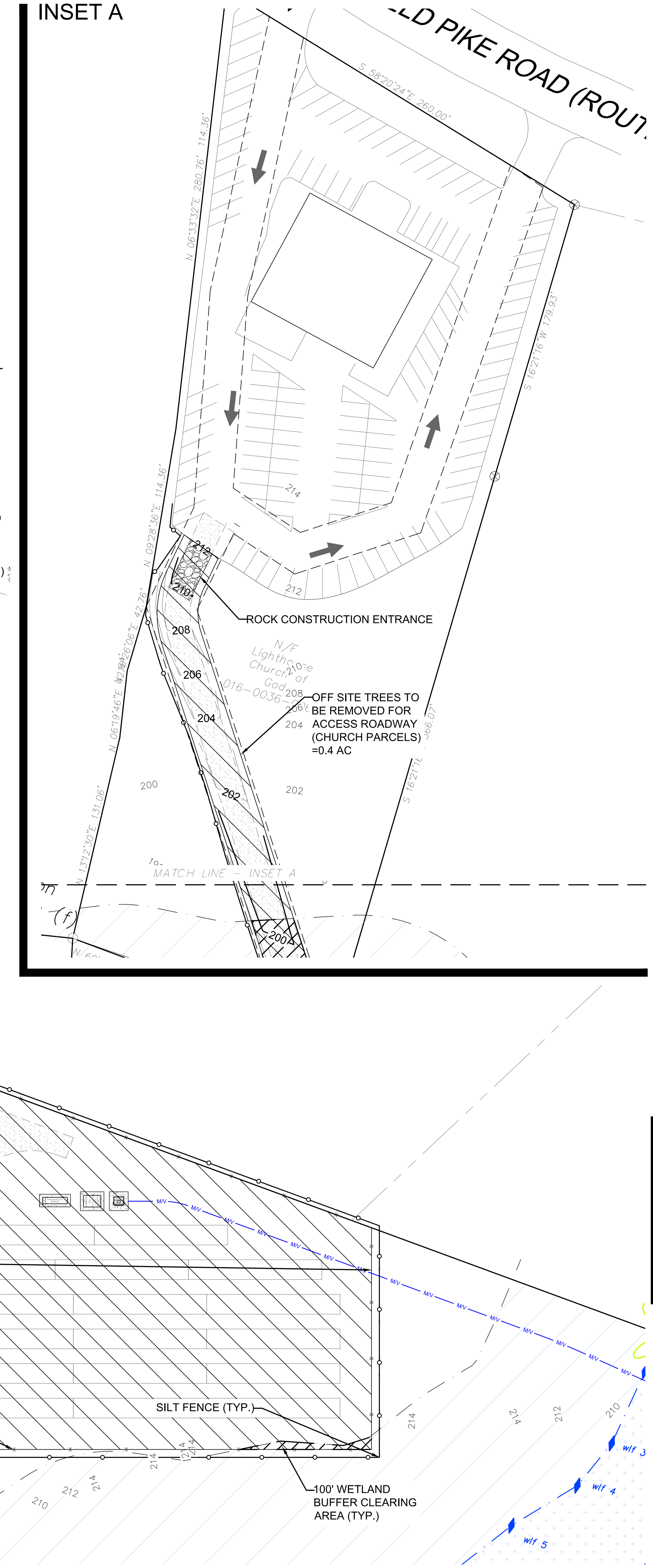
TREE CANOPY AREAS (16.0 ACRES):
1. TREES AND VEGETATION LESS THAN 4" IN DIAMETER SHALL BE REMOVED
2. TREES GREATER THAN 4" IN DIAMETER SHALL BE CUT AT EXISTING GRADE
3. STUMPS GREATER THAN 4" IN DIAMETER SHALL BE REMOVED IN THE FOLLOWING LOCATIONS:
   - 3.1. AREAS ILLUSTRATED IN GRADING LIMITS
   - 3.2. INVERTER / EQUIPMENT SKID
   - 3.3. 3' DIAMETER EACH ARRAY PIER
   - 3.4. ALL TRENCHING LOCATIONS (MAY OCCUR DURING TRENCHING OPERATIONS)
   - 3.5. TOTAL PROJECT CLEARING IN IN WETLAND BUFFER AREAS = 1.5 ACRES

EROSION CONTROL NOTES:

1. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED BEFORE ANY SOIL DISTURBANCE.
2. THE AREA OF DISTURBANCE SHALL BE KEPT TO A MINIMUM. DISTURBED AREAS REMAINING IDLE FOR MORE THAN 14 DAYS SHALL BE STABILIZED.
3. MEASURES SHALL BE TAKEN TO CONTROL EROSION WITHIN THE PROJECT AREA. SEDIMENT IN RUNOFF WATER SHALL BE TRAPPED AND RETAINED WITHIN THE PROJECT AREA USING APPROVED MEASURES.
4. WETLAND AREAS AND SURFACE AREAS SHALL BE PROTECTED FROM SEDIMENT. OFF-SITE SURFACE WATER AND RUNOFF FROM UNDISTURBED AREAS SHALL BE DIVERTED AWAY FROM DISTURBED AREAS WHERE FEASIBLE OR CARRIED THROUGH THE PROJECT AREA WITHOUT CAUSING EROSION. INTEGRITY OF DOWNSTREAM DRAINAGE SYSTEMS SHALL BE MAINTAINED.
5. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SITE STABILIZATION. STABILIZATION MEASURES SUCH AS HYDROSEEDING OR APPLICATION OF HAY/MULCH OR SOIL NETTING SHALL BE APPLIED PRIOR TO REMOVAL OF TEMPORARY EROSION MEASURES AND INSPECTED WEEKLY UNTIL STABILIZATION IS COMPLETE. TEMPORARY EROSION CONTROL MEASURES MAY BE REMOVED ONCE STABILIZATION OF ALL SITE SOILS HAS BEEN ACHIEVED AND WRITTEN AUTHORIZATION TO DO SO HAS BEEN PROVIDED BY THE STORMWATER AUTHORITY. TRAPPED SEDIMENT SHALL BE REMOVED IMMEDIATELY WITH TEMPORARY EROSION CONTROL METHODS AND LAWFULLY DISPOSED OF OFF-SITE. OTHER DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED WITHIN THIRTY DAYS.
6. DEVELOPER TO OBTAIN AN NPDES PERMIT PRIOR TO CONSTRUCTION.



INSET A



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Prepared for:

ecos ENERGY
222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402

0' 50' 100' 150'

PLAINFIELD PIKE SOLAR

91 PLAINFIELD PIKE RD
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NORTHWEST REMOVAL & EROSION CONTROL PLAN

SITING BOARD REVIEW

DATE: 08/16/2017

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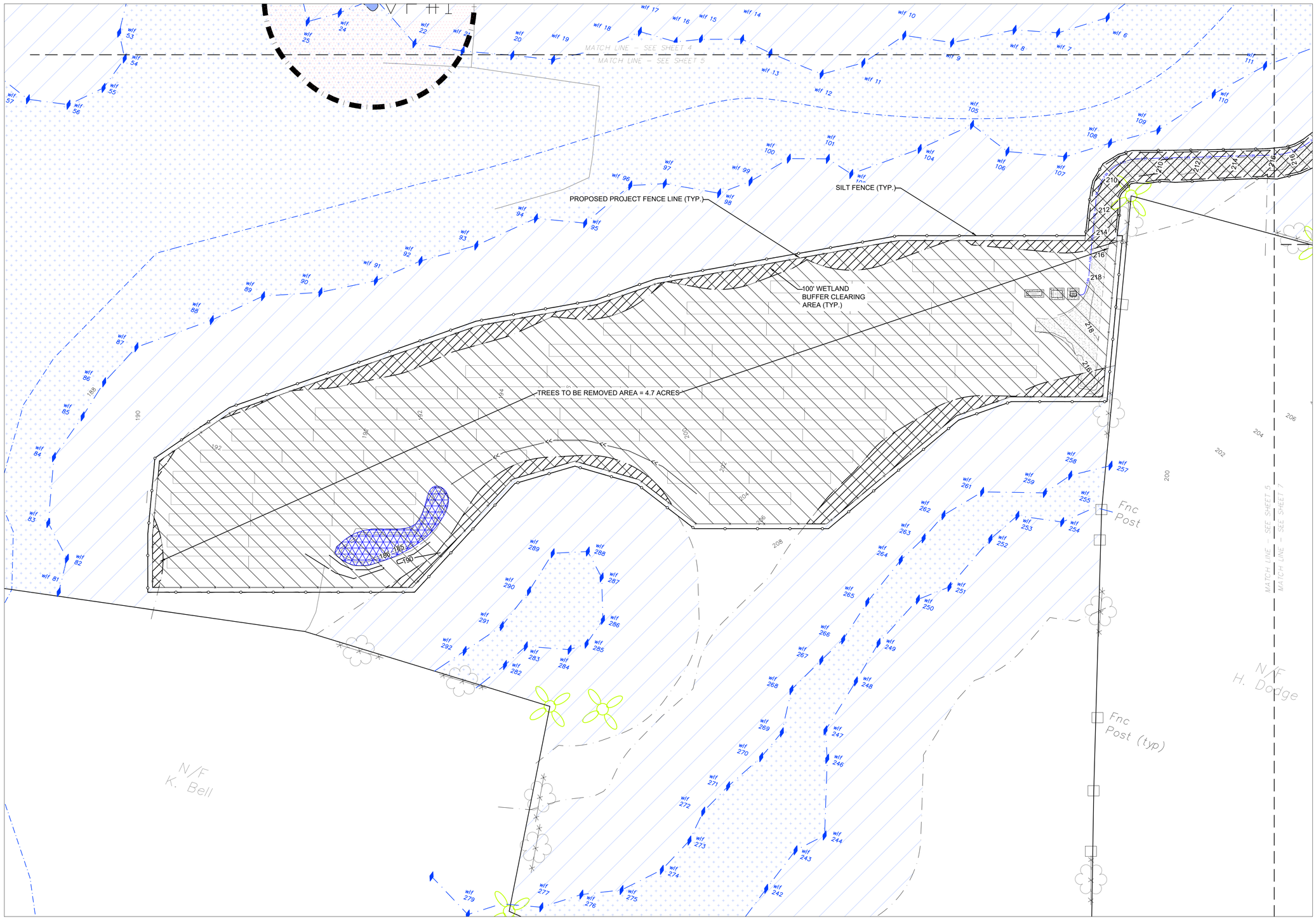
NOTES & LEGEND:

SEE SHEET 4



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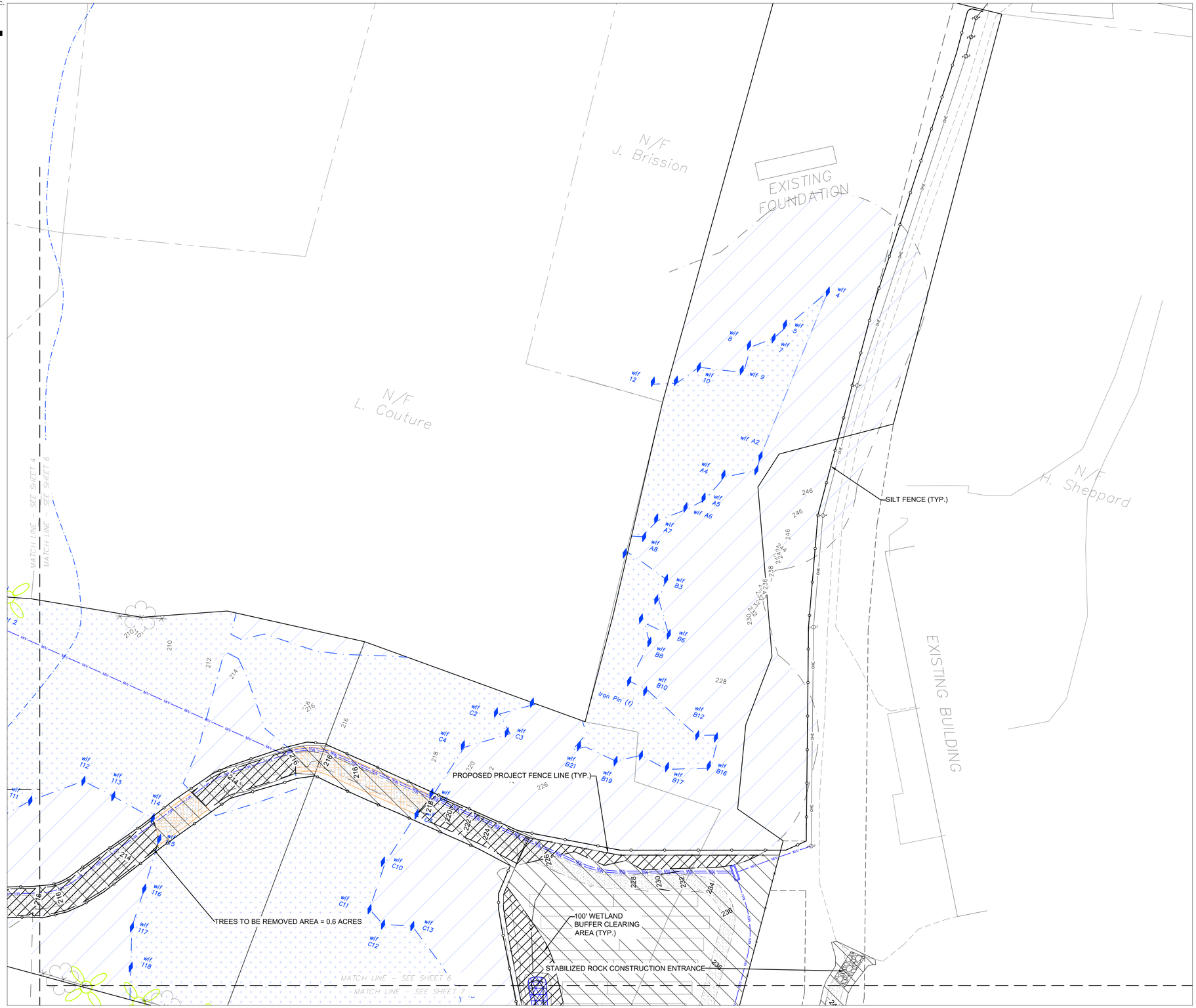

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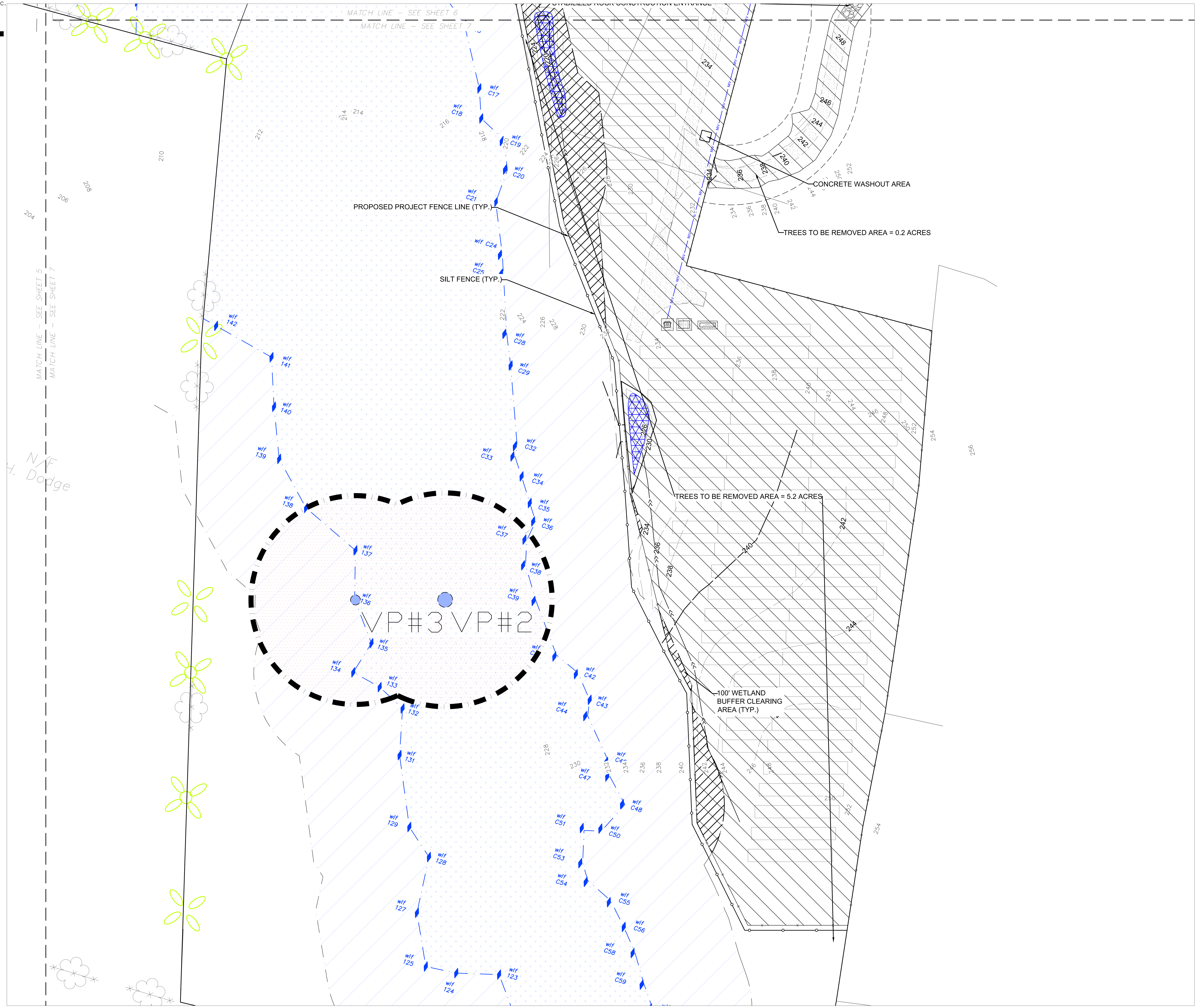

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SOUTHEAST REMOVAL & EROSION CONTROL PLAN

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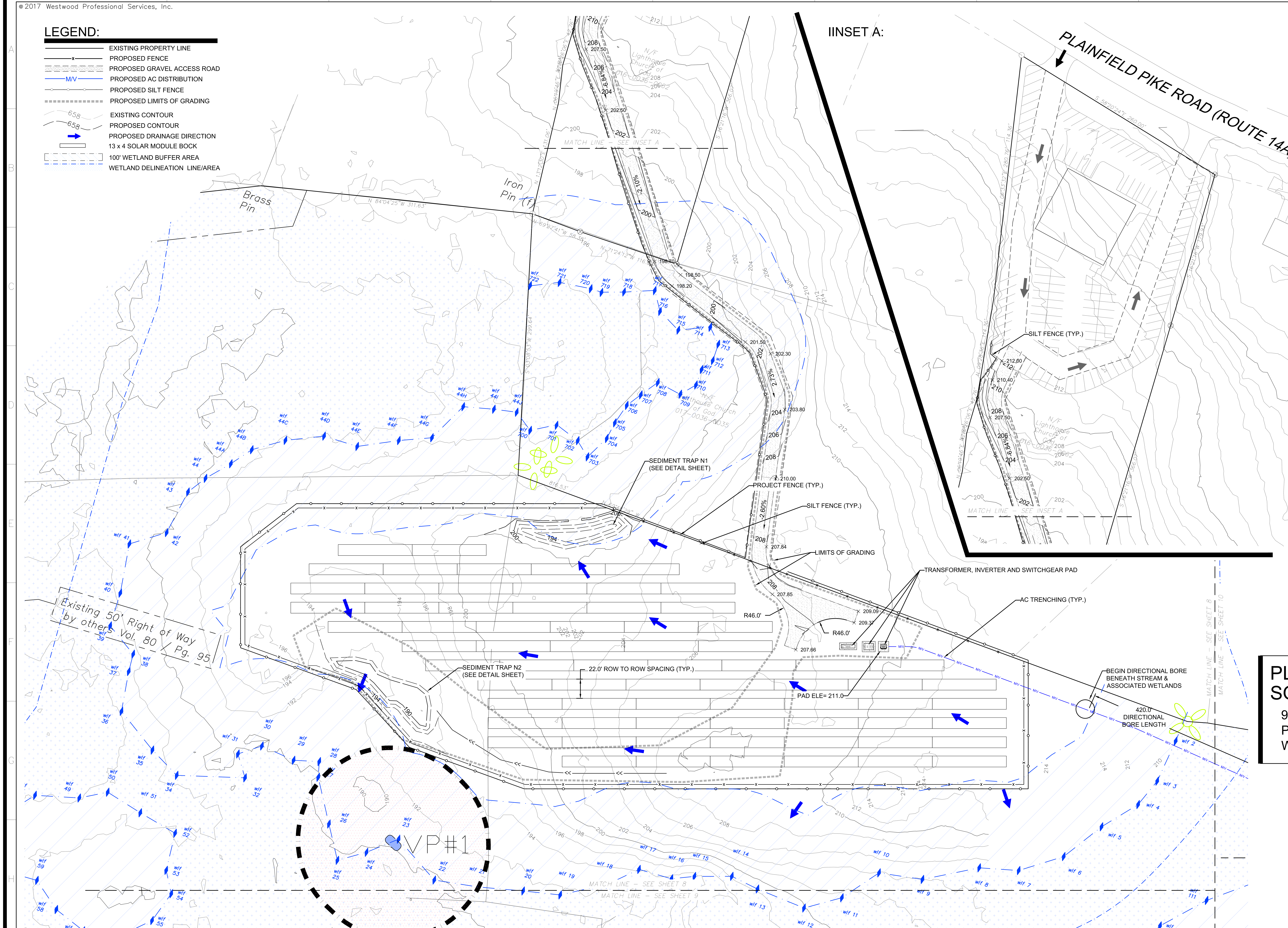

LEGEND:
EXISTING PROPERTY LINE
PROPOSED FENCE
PROPOSED GRAVEL ACCESS ROAD
PROPOSED AC DISTRIBUTION
PROPOSED SILT FENCE
PROPOSED LIMITS OF GRADING
EXISTING CONTOUR
PROPOSED CONTOUR
PROPOSED DRAINAGE DIRECTION
13 x 4 SOLAR MODULE BOCK
100' WETLAND BUFFER AREA
WETLAND DELINEATION LINE/AREA
IINSET A:
PLAINFIELD PIKE ROAD (ROUTE 14A)
SILT FENCE (TYP.)
MATCH LINE - SEE INSET A
Brass Pin
Iron Pin (f)
Existing 50' Right of Way by others Vol. 80 / Pg. 95
SEDIMENT TRAP N1 (SEE DETAIL SHEET)
PROJECT FENCE (TYP.)
SILT FENCE (TYP.)
LIMITS OF GRADING
TRANSFORMER, INVERTER AND SWITCHGEAR PAD
AC TRENCHING (TYP.)
SEDIMENT TRAP N2 (SEE DETAIL SHEET)
22.0' ROW TO ROW SPACING (TYP.)
PAD ELE= 211.0
BEGIN DIRECTIONAL BORE BENEATH STREAM & ASSOCIATED WETLANDS
420.0' DIRECTIONAL BORE LENGTH
VP#1
MATCH LINE - SEE SHEET 8
MATCH LINE - SEE SHEET 9
0' 50' 100' 150'

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NORTHWEST SITE & GRADING PLAN

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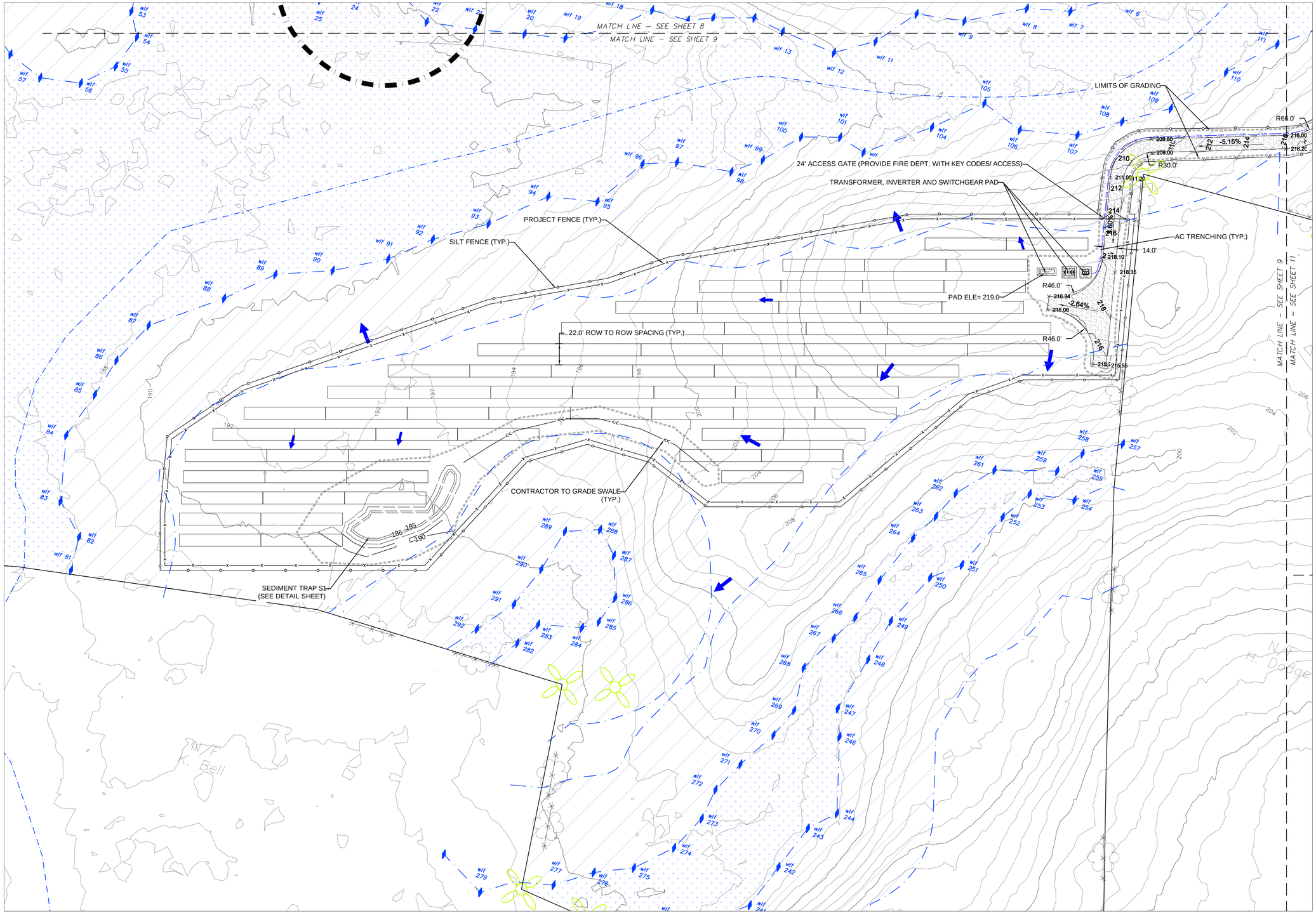

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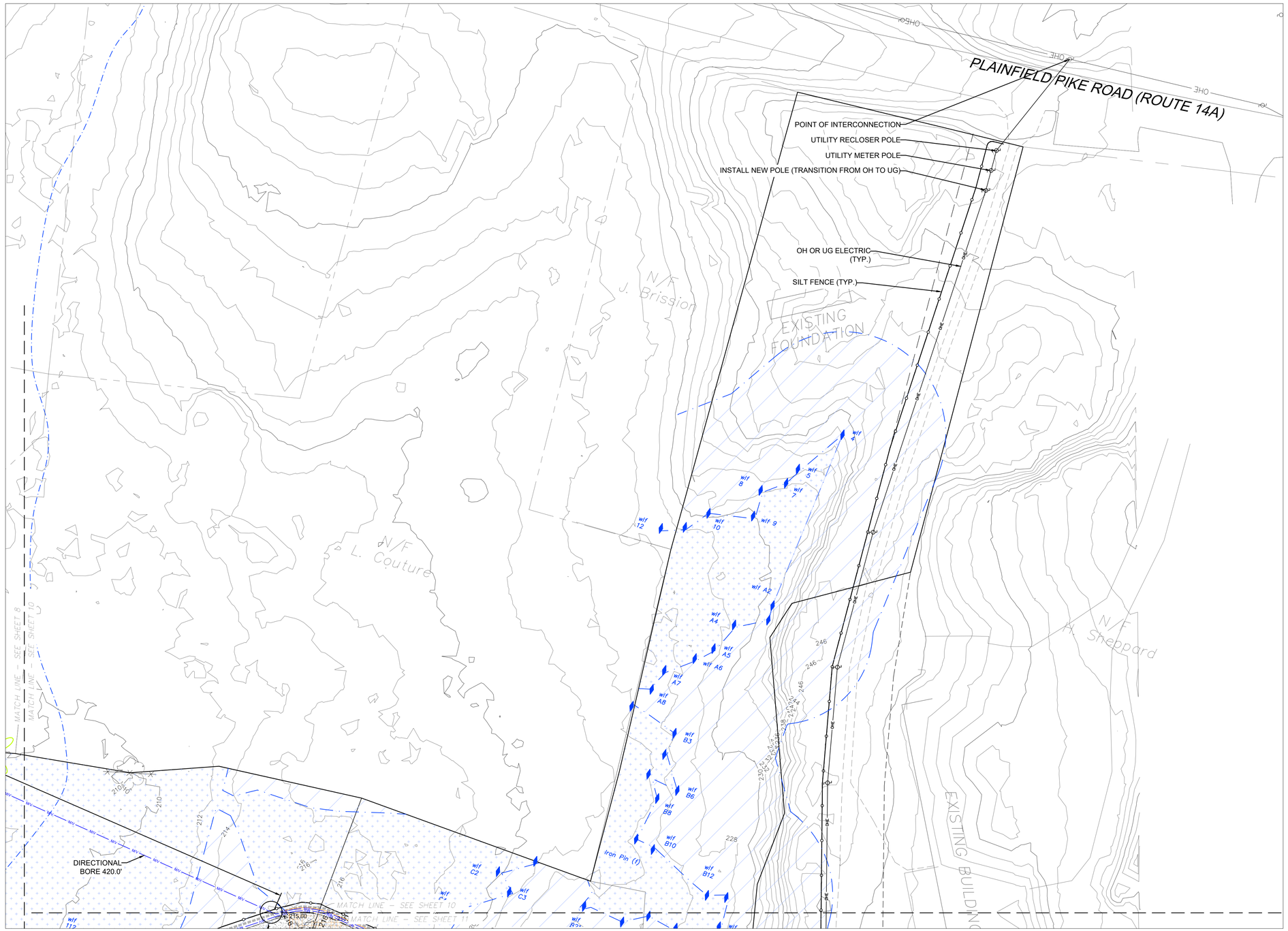

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NORTHEAST SITE/GRADING/ EROSION CONTROL PLAN

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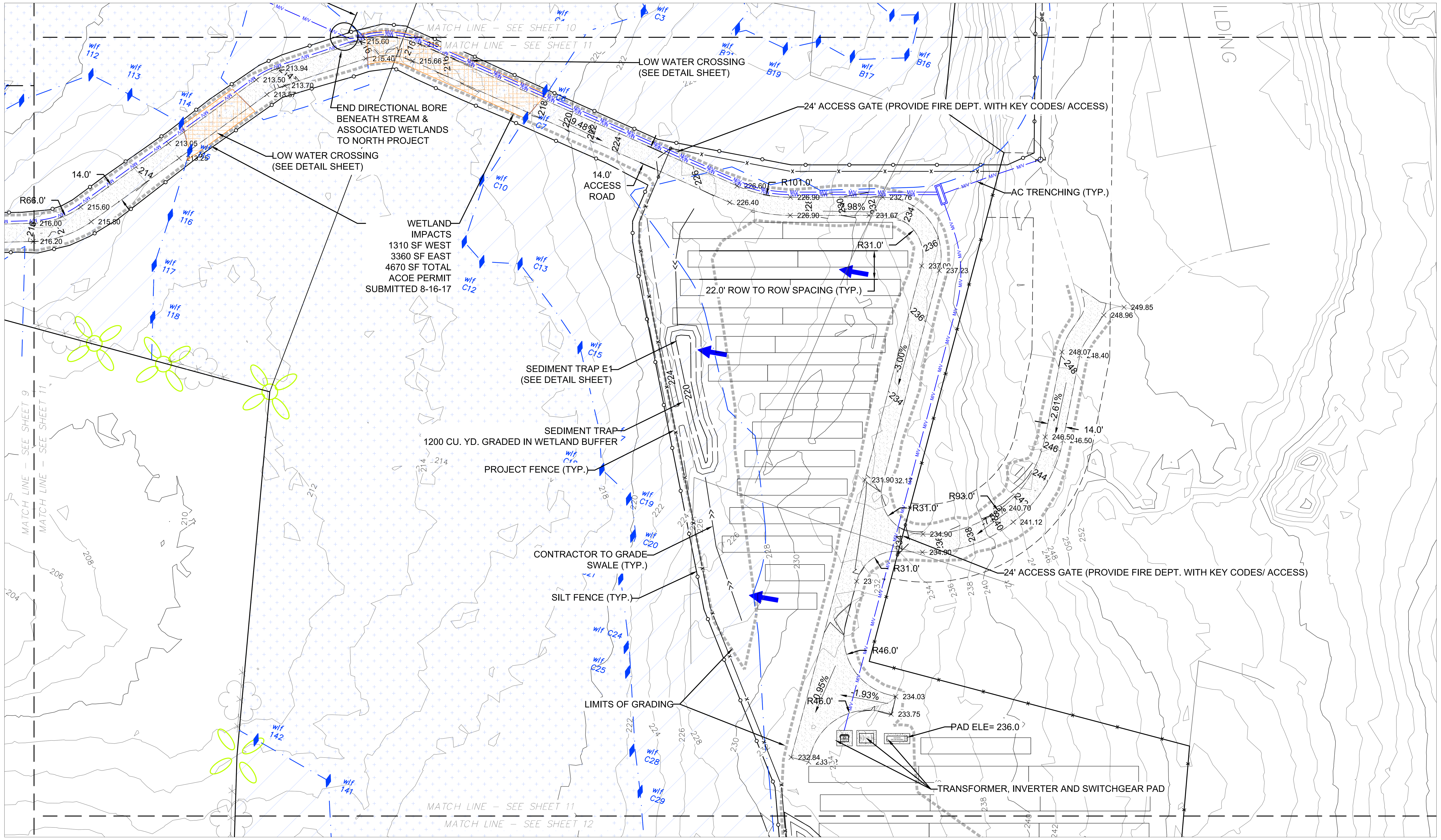

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EAST SITE/GRADING/ EROSION CONTROL PLAN

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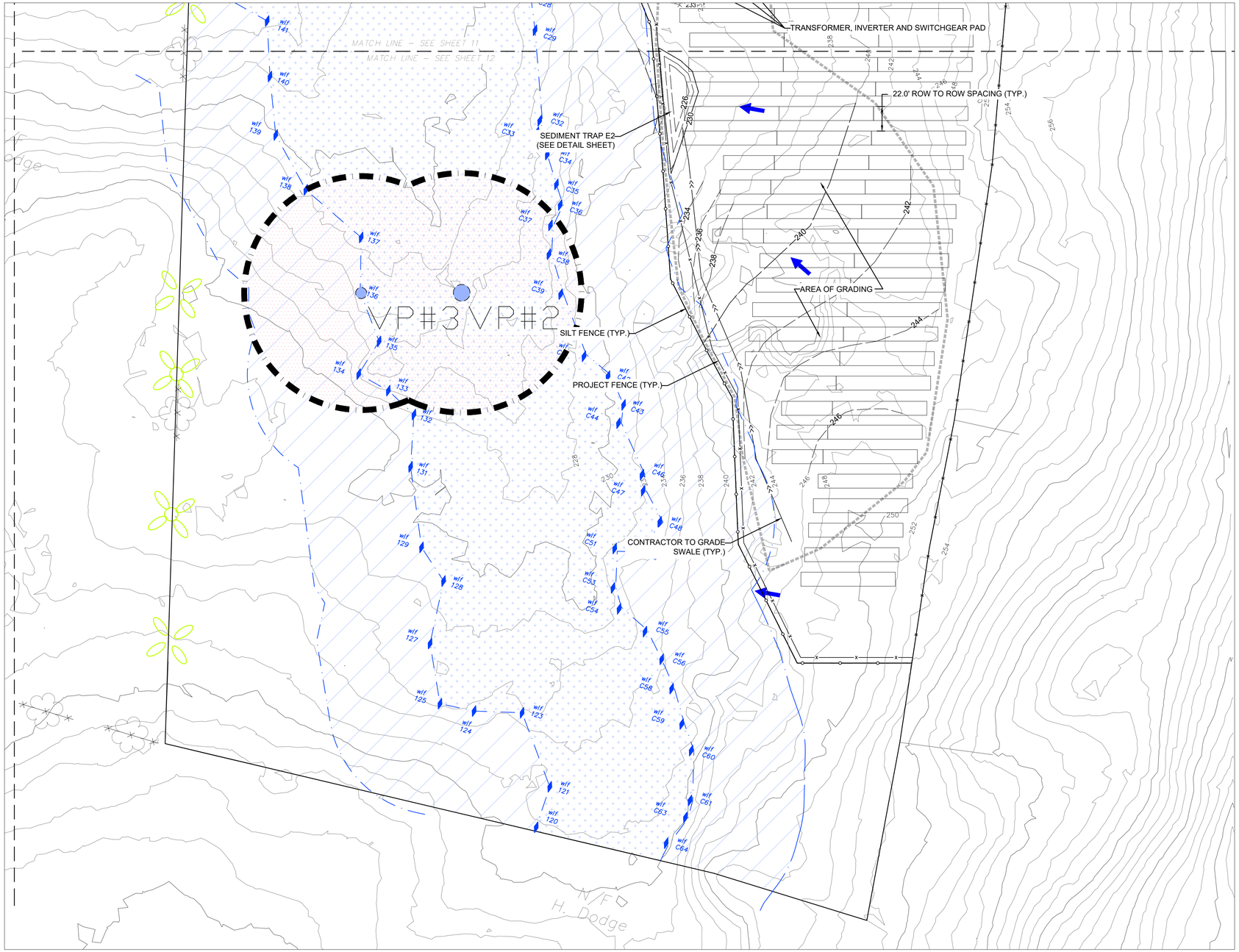

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0' 50' 100' 150'

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WINDHAM COUNTY

SOUTHEAST SITE/GRADING/ EROSION CONTROL PLAN

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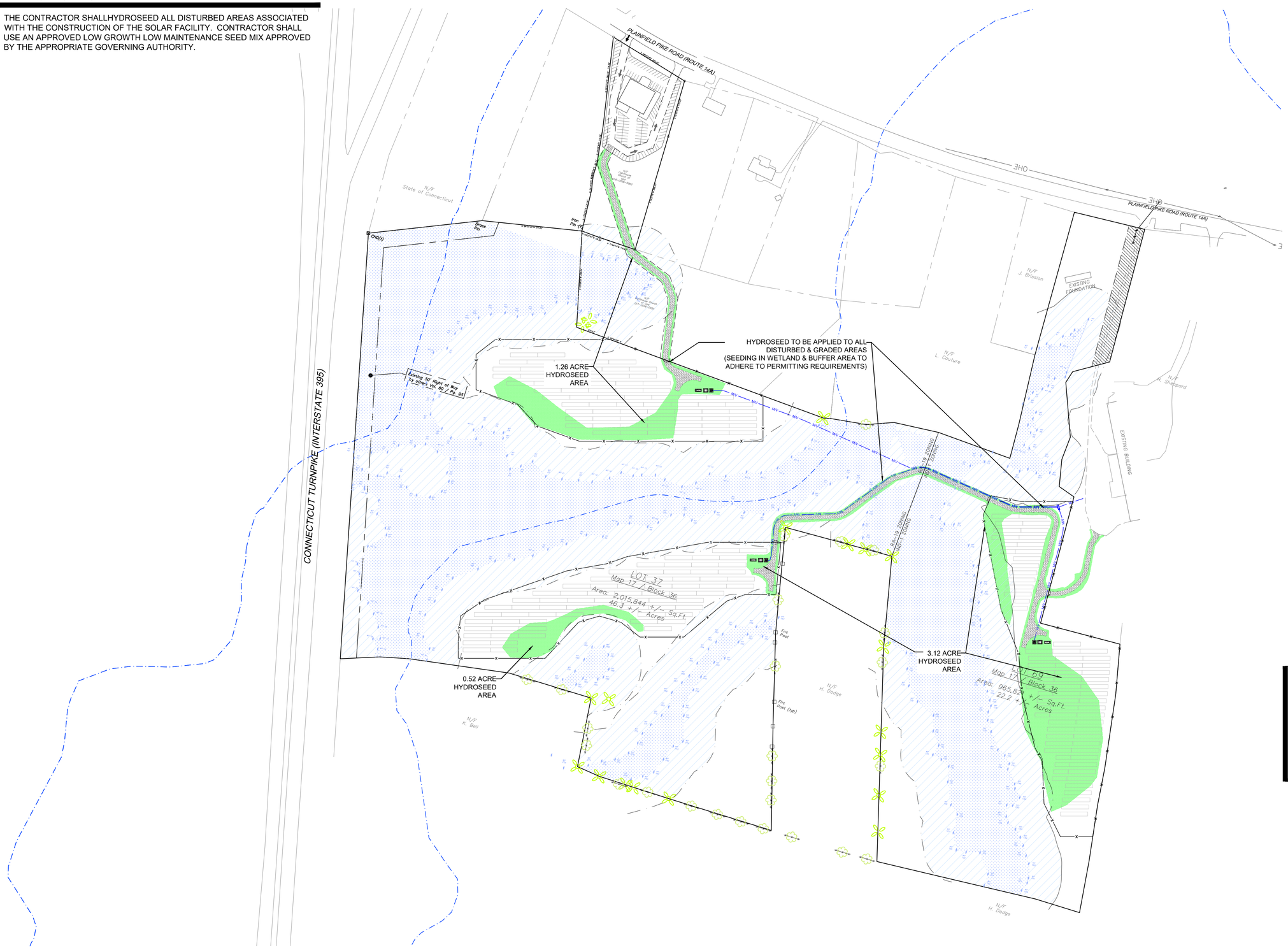
SEEDING NOTES:

1. THE CONTRACTOR SHALLHYDROSEED ALL DISTURBED AREAS ASSOCIATED WITH THE CONSTRUCTION OF THE SOLAR FACILITY. CONTRACTOR SHALL USE AN APPROVED LOW GROWTH LOW MAINTENANCE SEED MIX APPROVED BY THE APPROPRIATE GOVERNING AUTHORITY.



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Record Drawing by/date:	

Revisions:

#	DATE	DESCRIPTION
-	3/15/2016	CT SITING BOARD SUBMISSION
-	4/26/2016	CT SITING BOARD COMMENTS
-	6/21/2016	CT SITING BOARD IR3 REVISIONS
-	8/16/2017	CT SITING BOARD REVISED SUBMISSION

Prepared for:

ecos ENERGY
222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402

PLAINFIELD PIKE SOLAR

91 PLAINFIELD PIKE RD
PLAINFIELD, CT 06374
WINDHAM COUNTY

LANDSCAPE PLAN

SITING BOARD REVIEW

DATE: 08/16/2017
SHEET: 13 of 17

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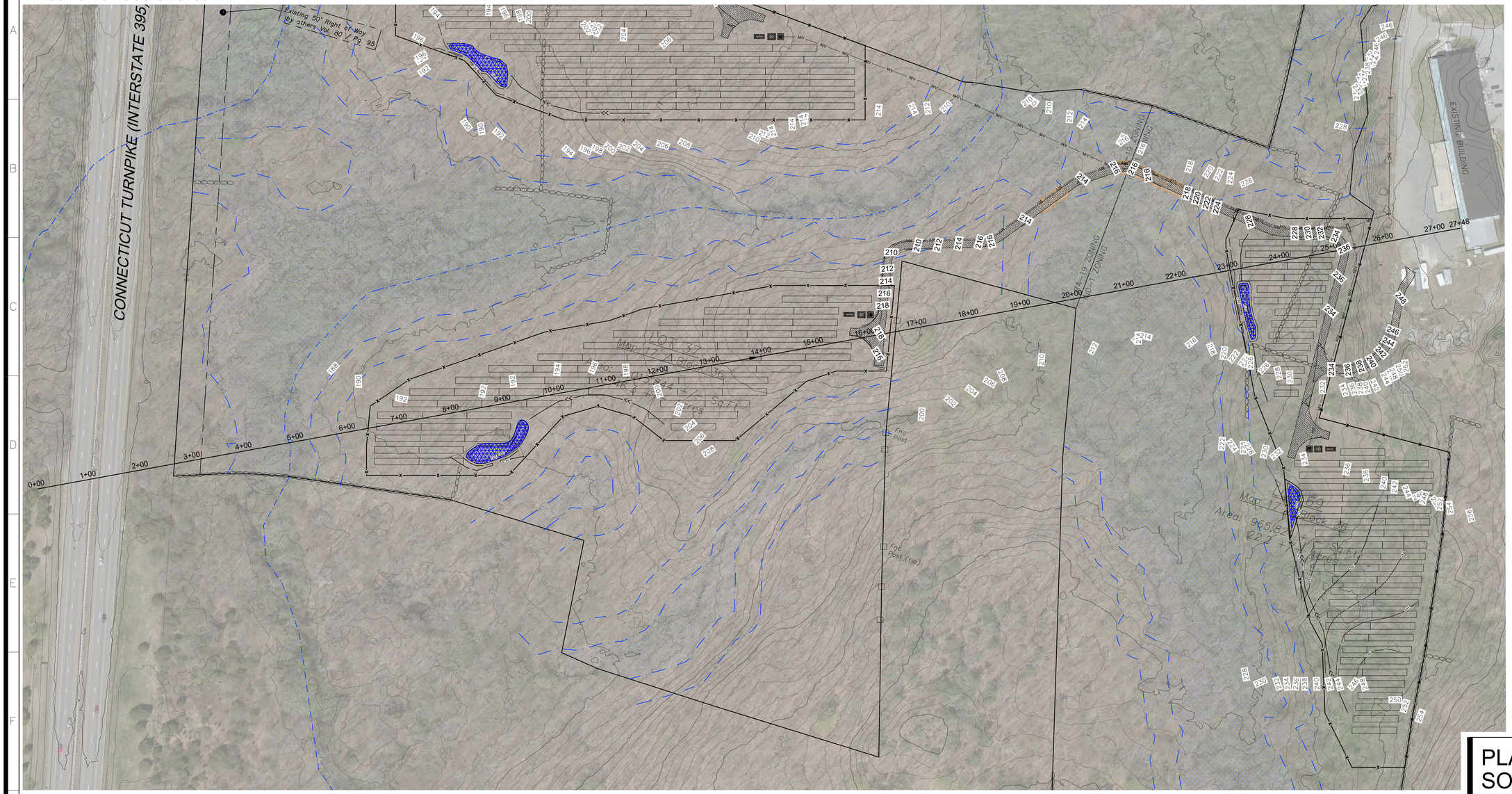
PROJECT CROSS SECTION:



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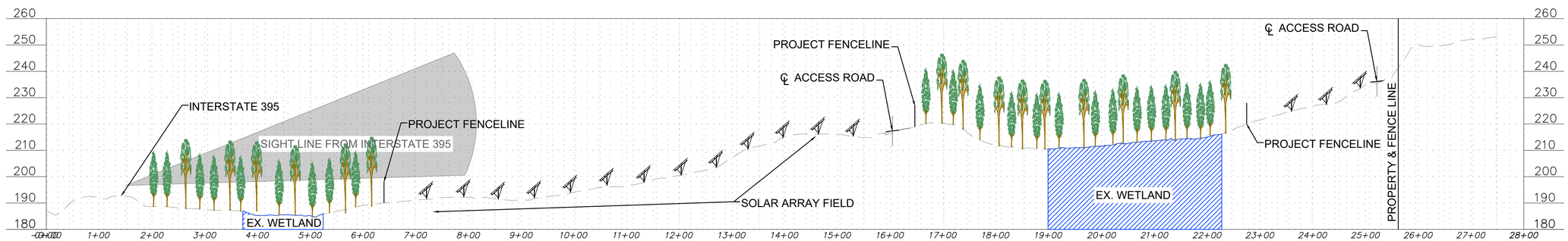

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Westwood Professional Services, Inc.

STATE OF CONNECTICUT
ROBERT D. CHRISTIE
0030668
LICENSED
PROFESSIONAL ENGINEER

Designed:	ADC
Checked:	SAW
Drawn:	SJB
Record Drawing by/date:	

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Prepared for:

ecos ENERGY
222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402

0' 100' 200' 300'

PLAINFIELD PIKE SOLAR

91 PLAINFIELD PIKE RD
PLAINFIELD, CT 06374
WINDHAM COUNTY

PROJECT CROSS SECTION

SITING BOARD REVIEW

DATE: 08/16/2017
SHEET: 14 of 17

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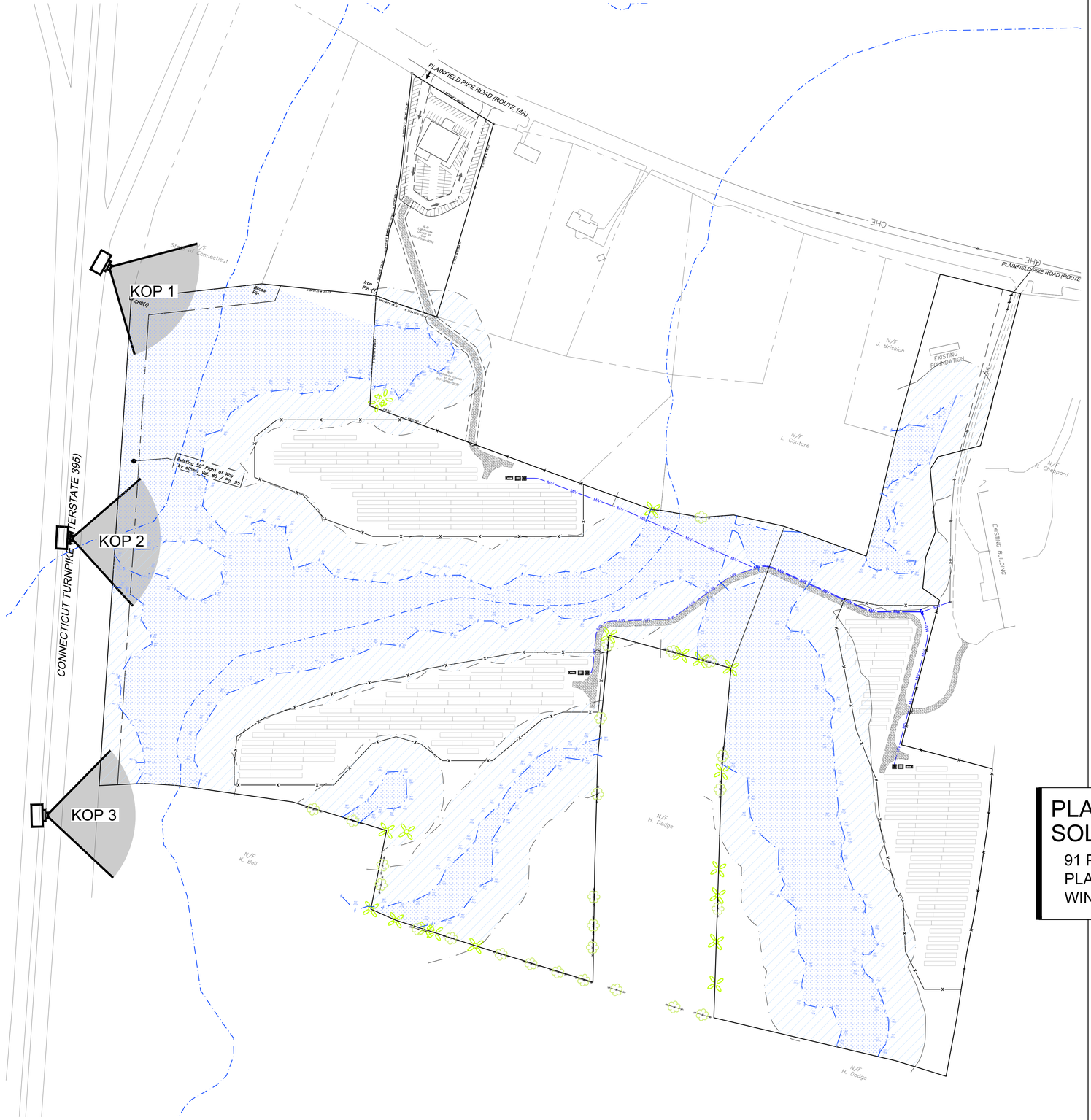
KOP 1 - 395 LOOKING EAST TOWARDS THE SITE

KOP 2 - 395 LOOKING EAST TOWARDS THE SITE

KOP 3 - 395 LOOKING EAST TOWARDS THE SITE



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Prepared for:

ecos ENERGY
222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402

N

0' 150' 300' 450'

PLAINFIELD PIKE SOLAR

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PLAINFIELD, CT 06374
WINDHAM COUNTY

KEY OBSERVATION POINT PLAN

SITING BOARD REVIEW

DATE: 08/16/2017
SHEET: 15 of 17

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ROAD DESIGN PARAMETERS

1. ROAD MAINTENANCE CAN BE EXPECTED OVER THE LIFE OF THE PERMANENT FACILITY.

SPECIAL PROVISIONS FOR GRADING AND EROSION CONTROL

THE CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES AS PLANNED AND SPECIFIED FOLLOWING BEST MANAGEMENT PRACTICES AS OUTLINED BY THE STATE OF CONNECTICUT AND BEING IN CONFORMANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL STORMWATER PERMIT. SEE THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR EROSION CONTROL AND RESTORATION SPECIFICATIONS. UNLESS OTHERWISE NOTED OR MODIFIED HEREIN, ALL SECTIONS OF THE GENERAL CONDITIONS SHALL APPLY.

EXECUTION

1. CLEARING AND GRUBBING
   A. THE CONTRACTOR SHALL BE REQUIRED TO REMOVE ALL TREES, STUMPS, BRUSH, AND DEBRIS WITHIN THE GRADING LIMITS SHOWN ON THE PLANS. THE CONTRACTOR IS TO REMOVE ONLY THOSE TREES WHICH ARE DESIGNATED BY THE OWNER'S REPRESENTATIVE FOR REMOVAL, AND SHALL EXERCISE EXTREME CARE AROUND EXISTING TREES TO BE SAVED.
2. TOPSOIL STRIPPING
   A. TOPSOIL SHALL BE STRIPPED FROM ALL ROADWAY AREAS THROUGH THE ROOT ZONE. TOPSOIL SHALL NOT BE STRIPPED OUTSIDE OF THE DESIGNATED DISTURBANCE AREAS.
   B. ANY TOPSOIL, THAT HAS BEEN STRIPPED, SHALL BE RE-SPREAD OR STOCKPILED WITHIN GRADING AREAS AND/OR USED AS FILL OUTSIDE OF THE DISTURBANCE AREAS, AS DIRECTED BY THE ENGINEER.
3. EMBANKMENT CONSTRUCTION.
   A. EMBANKMENT CONSTRUCTION SHALL CONSIST OF THE PLACING OF SUITABLE FILL MATERIAL, AFTER TOPSOIL STRIPPING, ABOVE THE EXISTING GRADE. GENERALLY, EMBANKMENTS SHALL HAVE COMPACTED SUPPORT SLOPES OF TWO AND A HALF FEET HORIZONTAL TO ONE FOOT VERTICAL. THE MATERIAL FOR EMBANKMENT CONSTRUCTION SHALL BE OBTAINED FROM THE ACCESS ROAD EXCAVATION (SEE GEOTECHNICAL REPORT FOR RESTRICTIONS), OR ANY SUITABLE, APPROVED SOIL OBTAINED OFFSITE BY CONTRACTOR, AS DIRECTED OR APPROVED BY THE ENGINEER. THIS MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 9".
   B. SIDE SLOPES GREATER THAN 2.5:1 WILL NOT BE PERMITTED, UNLESS OTHERWISE NOTED ON THE PLAN.

TESTING REQUIREMENTS:

1. TESTING SHALL BE PERFORMED BY A DESIGNATED INDEPENDENT TESTING AGENCY.
2. SUBMIT TESTING AND INSPECTION RECORDS SPECIFIED TO THE CIVIL ENGINEER OF RECORD FOR REVIEW.
   A. THE ENGINEER WILL REVIEW THE TESTING AND INSPECTION RECORDS TO CHECK CONFORMANCE WITH THE DRAWINGS AND SPECIFICATIONS. THE ENGINEER'S REVIEW DOES NOT RELIEVE THE CONSTRUCTION CONTRACTOR FROM THE RESPONSIBILITY FOR CORRECTING DEFECTIVE WORK.
3. PROOF ROLLING:
   A. PROOF-ROLLING SHALL BE PERFORMED IN THE PRESENCE OF THE GEOTECHNICAL ENGINEER OR QUALIFIED GEOTECHNICAL REPRESENTATIVE USING A FULLY LOADED TANDEM AXLE DUMP TRUCK WITH A MINIMUM GROSS WEIGHT OF 25 TONS OR A FULLY LOADED WATER TRUCK WITH AN EQUIVALENT AXLE LOADING. PROOF-ROLLING ACCEPTANCE STANDARDS INCLUDE NO RUTTING GREATER THAN 1.5 INCHES, AND NO "PUMPING" OF THE SOIL BEHIND THE LOADED TRUCK.
4. SIEVE ANALYSIS:
   A. SIEVE ANALYSIS SHALL BE CONDUCTED IN ACCORDANCE WITH AASHTO T27
5. PROCTOR:
   A. PROCTORS SHALL BE DETERMINED IN ACCORDANCE WITH ASTM D-1557
6. ATTERBERG LIMITS:
   A. ATTERBERG LIMITS SHALL BE DETERMINED IN ACCORDANCE WITH AASHTO T89 AND T90
7. MOISTURE DENSITY (NUCLEAR DENSITY):
   A. MOISTURE DENSITY TESTING SHALL BE DONE IN ACCORDANCE WITH AASHTO T310

SUBGRADE COMPACTION, TEST ROLLING AND AGGREGATE BASE COMPACTION:

1. FILL MATERIAL:
   A. SOILS USED AS FILL MATERIAL SHALL BE TESTED FOR GRAIN SIZE ANALYSIS, MOISTURE CONTENT, ATTERBERG LIMITS ON FINES CONTENT, AND PROCTOR TESTS (MODIFIED DRY MAXIMUM DENSITY).
      a. FOR PLACED & COMPACTED FILLS, PROVIDE ONE COMPACTION TEST PER LIFT FOR EVERY 1000 FT OF ROAD LENGTH. INCLUDE THE LOCATION, DRY DENSITY, MOISTURE CONTENT, AND COMPACTION PERCENT BASED ON MODIFIED PROCTOR MAXIMUM DRY DENSITY.
   B. IN ROADWAY CUT AREAS, OR WHERE EMBANKMENT CONSTRUCTION REQUIRES LESS THAN 12 INCHES OF FILL PLACEMENT, COMPACT TO A MINIMUM OF 95 PERCENT OF THE MATERIAL'S MODIFIED PROCTOR MAXIMUM DRY DENSITY.
2. COMPACTED SUBGRADE:
   A. THE ENTIRE SUBGRADE SHALL BE PROOF-ROLLED PRIOR TO THE PLACEMENT OF THE AGGREGATE BASE TO IDENTIFY AREAS OF UNSTABLE SUBGRADE.
   B. IF PROOF ROLLING DETERMINES THAT THE SUBGRADE STABILIZATION CANNOT BE ACHIEVED, THE FOLLOWING ALTERNATIVES WILL BE IMPLEMENTED:
      a. REMOVE UNSUITABLE MATERIAL AND REPLACE WITH SUITABLE EMBANKMENT.
      b. SCARIFY, DRY, AND RECOMPACT SUBGRADE AND PERFORM ADDITIONAL PROOF ROLL.
      c. INCREASE ROAD BASE THICKNESS.
   C. PROVIDE 1 MOISTURE DENSITY COMPACTION TESTS FOR EVERY 1000 L.F. OF ROAD LENGTH. COMPACTED SUBGRADE MUST BE COMPACTED TO A MINIMUM OF 95% MODIFIED PROCTOR MAXIMUM DRY DENSITY AT ±3% OF OPTIMUM MOISTURE CONTENT FOR GRANULAR SOILS AND AT -1 TO +3% OF OPTIMUM MOISTURE CONTENT FOR COHESIVE SOILS.
3. AGGREGATE BASE:
   A. AGGREGATE BASE SHALL BE PROOF-ROLLED OVER THE ENTIRE LENGTH. PROVIDE 1 SIEVE ANALYSIS PER 2500 CY OF ROAD BASE PLACED.
      a. IF PROOF ROLLING DETERMINES THAT THE ROAD IS UNSTABLE, ADDITIONAL AGGREGATE SHALL BE ADDED UNTIL THE UNSTABLE SECTION IS ABLE TO PASS A PROOF ROLL.

TABLE 1: TESTING SCHEDULE SUMMARY

LOCATION	TEST	FREQUENCY
STRUCTURAL FILL	GRAIN SIZE ANALYSIS, MOISTURE CONTENT, ATTERBERG LIMITS ON FINES CONTENT, AND PROCTOR	1 PER MAJOR SOIL TYPE
	MOISTURE DENSITY	1 PER 2,000 CY OR MIN. 1 PER LIFT
COMPACTED SUBGRADE	PROOF-ROLL	ENTIRE LENGTH
	MOISTURE DENSITY TEST (NUCLEAR DENSITY)	1 PER 1,000 FT OR MIN. 5 FOR THE SITE
AGGREGATE BASE	PROOF-ROLL	ENTIRE LENGTH
	SIEVE ANALYSIS	1 PER 2,500 CY

GENERAL NOTES:

1. THE PLANIMETRIC FEATURES, GROUND SURFACE CONTOURS ON A LIDAR SURFACE PROVIDED NOAA.
2. NO GRADING OR SOIL DISTURBANCE IS PERMITTED OUTSIDE OF THE GRADING LIMITS IDENTIFIED ON THE PLANS.
3. GRADE ALL PROPOSED ROADS TO THE SLOPES PROPOSED ON THE PLANS.
4. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING DRAINAGE THROUGHOUT THE CONSTRUCTION OF THIS PROJECT. CONSTRUCTION ACTIVITIES SHALL NOT BLOCK THE NATURAL OR MANMADE CREEKS OR DRAINAGE SWALES CAUSING RAINWATER TO POND. ADDITIONAL CULVERTS IN EXCESS OF THOSE ON THE PLANS MAY BE REQUIRED AS APPROVED BY THE ENGINEER.
5. THE CONTRACTOR SHALL NOTIFY DIGSAFE AT LEAST 48 HOURS BEFORE EXCAVATION ACTIVITIES COMMENCE.
6. WETLAND INFORMATION SHOWN ON THE PLAN WAS PROVIDED BY ROB HELLSTROM LAND SURVEYING AND FLAGGED BY HIGHLANDS SOILS. THE GENERAL CONTRACTOR SHALL VERIFY THAT ALL WETLAND PERMITS HAVE BEEN SUBMITTED AND APPROVED PRIOR TO CONSTRUCTION COMMENCING.
7. ELECTRICAL COLLECTION SYSTEM SHOWN ON THE PLAN SHALL BE CONSIDERED PRELIMINARY. CONTRACTOR SHALL REFER TO FINAL ELECTRICAL DESIGN PLANS FOR ACTUAL DESIGN LOCATIONS.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

1. REFER TO THE SWPPP BOOKLET FOR SEDIMENT AND EROSION CONTROL PROCEDURES, LOCATIONS OF BMPs, DETAILS, AND INSPECTION INFORMATION.
2. ALL AREAS DISTURBED DURING CONSTRUCTION ACTIVITIES AND NOT COVERED BY ROAD SURFACING MATERIALS, SHALL BE SEEDED IN ACCORDANCE WITH THE SWPPP PLAN.
3. TEMPORARY EROSION CONTROL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE TEMPORARY EROSION CONTROL PLAN SHALL BE IN ACCORDANCE WITH STATE OF CONNETICUT, THE EPA, AND THE SWPPP ON FILE.

SLOPE STABILIZATION:

ALL AREAS DESIGNATED ON THE PLAN FOR SLOPE STABILIZATION SHALL BE GRADED AND COMPACTED, SMOOTH AND CLEAN TO THE FINISH CONTOURS SHOWN ON THE PLAN, WITH A MINIMUM OF 4 INCHES OF TOPSOIL PLACED ON THE AREA. STABILIZATION SHALL BE ACHIEVED IN ONE OF TWO MANNERS:

EITHER: 1) HAND-PLACED RIPRAP
OR:
2) SEED WITH EROSION CONTROL AND REVEGITATION MAT (ECRM)

1. PLACEMENT OF RIP-RAP

RIPRAP HAND PLACED. HAND-PLACED RIPRAP SHALL CONSIST OF ROUGH UNHEWN QUARRY STONES, APPROXIMATELY RECTANGULAR, PLACED DIRECTLY ON THE SPECIFIED SLOPES OR SURFACES. IT SHALL BE SO LAID THAT THE WEIGHT OF THE LARGE STONES IS CARRIED BY THE SOIL RATHER THAN BY ADJACENT STONES. STONES SHALL WEIGH BETWEEN 50 AND 150 LB. EACH AND AT LEAST 60 % OF THEM SHALL WEIGH MORE THAN 100 LB. EACH WHEN USED ON EMBANKMENT CONSTRUCTION. RIP RAP FOR BMPS SHALL BE 6"-8" DIA. PREPARATION FOR HAND-PLACED RIP RAP. BEFORE ANY RIP RAP IS PLACED, THE SURFACE TO BE COVERED SHALL BE FULLY COMPACTED AND GRADED TO THE REQUIRED SLOPE. PLACE MIRAFITM8 OR APPROVED EQUAL GEOTEXTILE ON SLOPE. RIP RAP ON SLOPES SHALL COMMENCE COMMENCE IN A TRENCH BELOW THE TOW OF THE SLOPE AND SHALL PROGRESS UPWARD, EACH STONE BEING LAID BY HAND PERPENDICULAR TO THE SLOPE WITH THE LONG DIMENSION VERTICAL, FIRMLY BEDDED AGAINST THE SLOPE AND AGAINST THE ADJOINING STONE, WITH ENDS IN CONTACT, AND WITH WELL-BROKEN JOINTS. SIMILAR METHODS SHALL BE USED WHEN LAYING RIPRAP ON STREAM BEDS, IN DITCHES, AND ON LEVEL SURFACES.

THE FINISHED SURFACE OF THE RIPRAP SHALL PRESENT AN EVEN, TIGHT SURFACE, NOT LESS THAN 12 INCHES THICK, MEASURED PERPENDICULAR TO THE SLOPE.

THE STONES WEIGHING MORE THAN 100 LB. SHALL BE WELL DISPERSED THROUGHOUT THE AREA WITH THE 50-100 LB. STONES LAID BETWEEN THEM IN SUCH A MANNER THAT ALL STONES WILL BE IN CLOSE CONTACT. THE REMAINING VOIDS SHALL BE FILLED WITH SPALLS OF SUITABLE SIZE AND WELL TAMPED TO PRODUCE A FIRM AND COMPACT REVETMENT.

2. STABILIZATION WITH EROSION CONTROL AND REVEGITATION MAT (ECRM)
   1) AREA MUST BE GRADED SMOOTH AND CLEAN TO FINISH GRADES, AND COMPACTED.

   2) SEED AND MULCH AREA. USE SEED MIX APPROVED BY THE ENGINEER.

   3) INSTALL ECRM PER MANUFACTURER'S INSTRUCTIONS, HOWEVER THESE MUST INCLUDE THE FOLLOWING MINIMUM REQUIREMENTS:

      A) GRADE GROUND TO FINISH CONTOURS. REMOVE ALL ROCKS, DIRT CLODS, STUMPS, ROOTS, TRASH, AND OTHER OBSTRUCTIONS LYING IN DIRECT CONTACT WITH THE SOIL SURFACE.

      B) DIG MAT ANCHOR TRENCHES (MINIMUM 12"DEEP, 6" WIDE) AT TERMINAL ENDS AND PERIMETER SIDES WHERE MAT IS TO BE INSTALLED.

      C) INSTALL MAT BY ROLLING UPHILL PARALLEL TO WATER FLOW, STARTING AT TRENCH. OVERLAP ROLLS BY MINIMUM OF 3". FASTEN TO GROUND WITH 18" PINS AND 1 1/2" WASHERS, OR EQUIVALENT. PIN MAT AT ENDS, AND EVERY 3' TO 5' ALONG OVERLAPS. DO NO STRETCH MAT. SPLICING ROLLS SHOULD BE DONE IN A CHECK SLOT. BACKFILL TO COVER ENDS AND FASTENERS, ROLLING MAT ACROSS BACKFILL AND PIN AGAIN.

   FOR MAT USE MIRAFI MIRAMAT TM8 OR EQUIVALENT.

SEEDING:

1. COMPOSITION OF SEED MIX CHANGES YEARLY. SEED SPECIFICATIONS MUST BE SUBMITTED TO ENGINEER 2 WEEKS PRIOR TO INSTALLATION. ALL SPECIES MUST BE NATIVE TO WORCESTER COUNTY.
2. RESTORED AREAS TO BE SEEDED WITH ABOVE MIX OR EQUAL (SUBJECT TO ENGINEERS APPROVAL). SEED TO BE LIGHTLY RAKED TO ALLOW FOR PROPER SEED/SOIL CONTACT.
3. CONTRACTOR SHALL OVERSEED AND/OR RE-MULCH AS NECESSARY TO ESTABLISH A GOOD COVER OF VEGETATION, WHETHER DUE TO POOR INITIAL COVER, INCLEMENT WEATHER BEFORE/DURING/AFTER SEEDING, OR THE ONSET OF WINTER.
4. RILLING, GULLIES, OR OTHER EROSION DUE TO POOR COVER SHALL BE RAKED AND/OR REFILLED AND REMULCH/RESEEDED.
5. CONTRACTOR SHALL WARRANTEE SEEDING, MULCHING AND EROSION CONTROL FABRIC FOR ONE YEAR FROM THE SUBSTANTIAL COMPLETION OF THE RELEVANT AREA OF WORK.

INVASIVE SPECIES:

1. ALL EQUIPMENT SHALL BE INSPECTED UPON ARRIVAL. EQUIPMENT ARRIVING WITH OBSERVABLE SOIL OR PLANT FRAGMENTS WILL BE REMOVED AND CLEANED.
2. HAY BALES ARE NOT BE USED ON SITE; ONLY WEED-FREE STRAW BALES ARE APPROVED.
3. OFF-SITE TOPSOIL MUST BE FREE OF INVASIVE SPECIES. THE ENGINEER SHALL BE NOTIFIED OF THE TOPSOIL SOURCE 6 WEEKS BEFORE DELIVERY.

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CIVIL AND EROSION CONTROL NOTES

SITING BOARD REVIEW

DATE: 08/16/2017
SHEET: 16 of 17

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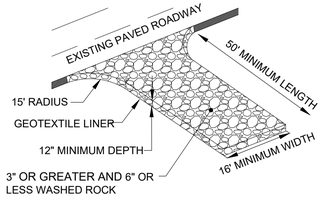
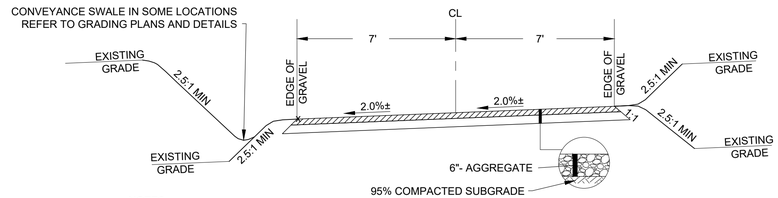


NOTE:

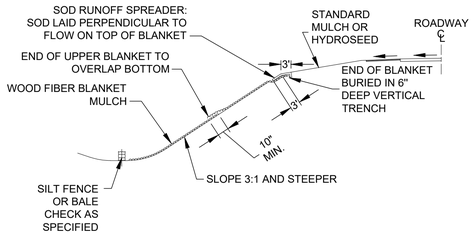
ROCK CONSTRUCTION ENTRANCE SHOULD BE A MINIMUM THICKNESS OF 1.0' AND CONTAIN MAXIMUM SIDE SLOPES OF 4:1. ROCK ENTRANCE SHOULD BE INSPECTED AND MAINTAINED REGULARLY. ROCK ENTRANCE LENGTH MAY NEED TO BE EXTENDED IN CLAY SOILS.

ROCK CONSTRUCTION ENTRANCE



NOTES:
1. CONTRACTOR TO SUBCUT ROADWAY TO EXISTING GRADE ELEVATION TO MAINTAIN EXISTING SITE DRAINAGE PATTERNS WHEREVER POSSIBLE.
2. IN FILL LOCATIONS CONTRACTOR TO GRADE TOE OF SLOPE TO EXISTING GRADE, AND MAINTAIN NATURAL DRAINAGE PATTERNS.
3. IN CUT LOCATIONS CONTRACTOR TO CREATE SWALE ON DOWNSTREAM SIDE, REFER TO GRADING PLANS FOR DETAILS.
4. CONTRACTOR TO COMPACT AGGREGATE TO 95% MAXIMUM DRY DENSITY.
5. REFER TO GEOTECHNICAL RECOMMENDATIONS FOR ADDITIONAL ROADWAY SECTION DESIGN INFORMATION.

ACCESS ROAD DETAIL



EROSION CONTROL BLANKET INSTALLATION ON AN INSLOPE
(WHEN REQUIRED)

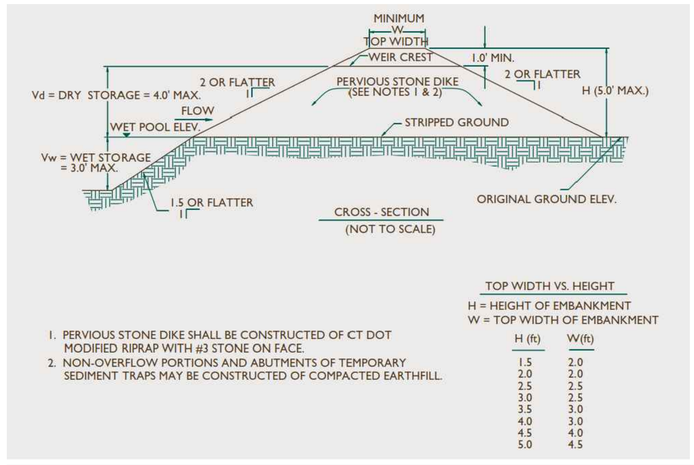
CATEGORY	SLOPE	VELOCITY
1	FLAT	-
2	3:1	< 5.0 fps
3	3:1	< 6.5 fps
4	2:1	< 7.0 fps

CATEGORY	ACCEPTABLE TYPES
1	STRAW RD 1S, WOOD FIBER RD 1S
2	STRAW 1S, WOOD FIBER 1S
3	STRAW 2S, WOOD FIBER 2S
4	STRAW/COCONUT 2S, WOOD FIBER HV 2S

THE LETTERING DESIGNATION SHALL BE DEFINED AS FOLLOWS:

1S - NETTING ON ONE SIDE
RD - RAPIDLY DEGRADABLE
2S - NETTING ON TWO SIDES
HV - HIGH VELOCITY

EROSION CONTROL BLANKET



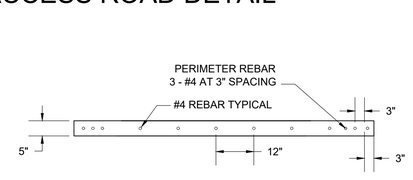
TOP WIDTH VS. HEIGHT

H = HEIGHT OF EMBANKMENT
W = TOP WIDTH OF EMBANKMENT

H (ft)	W(ft)
1.5	2.0
2.0	2.0
2.5	2.5
3.0	2.5
3.5	3.0
4.0	3.0
4.5	4.0
5.0	4.5

1. PERVIOUS STONE DIKE SHALL BE CONSTRUCTED OF CT DOT MODIFIED RIPRAP WITH #3 STONE ON FACE.
2. NON-OVERFLOW PORTIONS AND ABUTMENTS OF TEMPORARY SEDIMENT TRAPS MAY BE CONSTRUCTED OF COMPACTED EARTHFILL.

TEMPORARY SEDIMENT TRAP

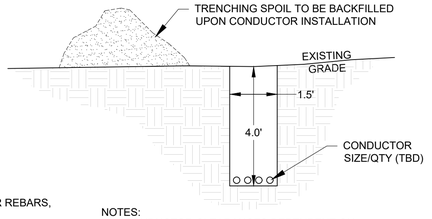


NOTES:
REBAR 3" FROM ALL EDGES & CUTOUTS. 3" SPACING ON FIRST THREE PERIMETER REBARS, 12" ON ALL OTHER INTERIOR.

3,000 PSI CONCRETE. TOP TO BE SMOOTH AND LEVEL. TOP EDGES TO HAVE 1" BEVEL.

FINAL PAD DESIGN DEPENDENT ON FINAL EQUIPMENT WEIGHT AND STRUCTURAL ENGINEERS DETERMINATION

UTILITY PADS CONCRETE SECTION

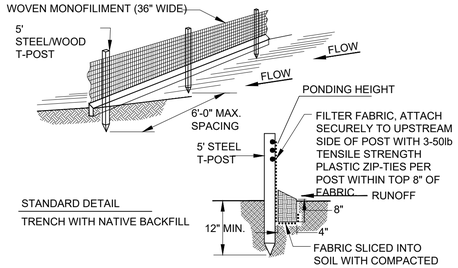


NOTES:
1. CONDUCTOR CLEARANCES DEPENDENT ON GEOTECHNICAL PARAMETERS AND ELECTRICAL DESIGN
2. CONDUCTOR SIZING AND QUANTITIES PER TRENCH DEPENDENT ON FINAL ELECTRICAL DESIGN TRENCH DIMENSIONS.

TRENCHING DETAIL

BMP (ID#)	DRAINAGE AREA AC	REQUIRED TRAP CAPACITY CU.YD.	BOTTOM AREA SF	BOTTOM ELEVATION FT	OVERFLOW AREA SF	OVERFLOW ELEVATION FT	WET STORAGE CU.YD.	WIER LENGTH FT	TOP AREA SF	TOP BASIN FT	DRY STORAGE CU.YD.	PROPOSED TRAP CAPACITY CU.YD.	EXCESS TRAP CAPACITY CU.YD.
N1	2.9	394	625	194	2560	199	295	20	3700	200	116	411	17
N2	1.8	245	2100	190	3300	193	300	20	4600	194	146	446	201
S1	3.0	402	2100	185	4270	189	472	20	4960	190	171	643	241
E1	2.2	301	600	220	2500	223	172	20	3300	225	215	387	86
E2	3.2	431	900	226	2900	229	211	20	3500	231	237	448	17

TEMPORARY SEDIMENT TRAP BASIN DETAILS



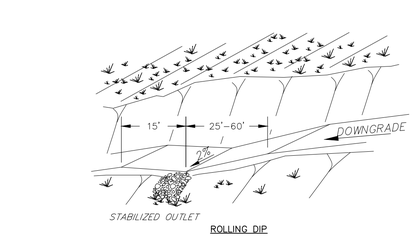
STANDARD DETAIL

TRENCH WITH NATIVE BACKFILL

NOTE:

1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN ACCUMULATED TO 1/3 THE HEIGHT OF THE FABRIC OR MORE.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
4. ALL ENDS OF THE SILT FENCE SHALL BE WRAPPED UPSLOPE SO THE ELEVATION OF THE BOTTOM OF FABRIC IS HIGHER THAN "PONDING HEIGHT".

SILT FENCE

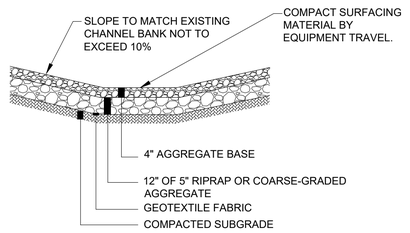


NOTE:

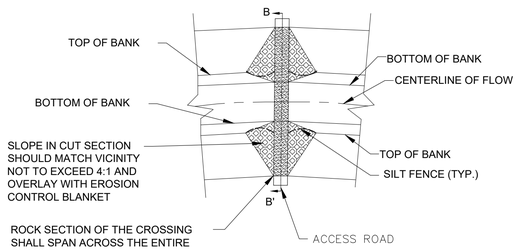
1. CONTRACTOR HAS THE ABILITY DEPENDING ON FIELD LOCATED GRADE AND GRADE TRANSITIONS TO INSTALL ROLLING DIPS OR WATERBARS AT THE RECOMMENDED SPACING IN TABLE 1.
2. ROLLING DIPS AND WATERBARS WILL REQUIRE MAINTENANCE FOLLOWING RAINFALL EVENTS TO ENSURE FUNCTIONALITY.
3. THE ROLLING DIPS AND WATERBARS SHOULD BE BUILT AT AN ANGLE OF 45° TO 60° FROM THE CENTERLINE.
4. THE DIVERSION SHOULD HAVE A POSITIVE GRADE OF 2% MINIMUM.
5. FOR ROLLING DIPS, THE HEIGHT FROM CHANNEL BOTTOM TO THE TOP OF THE SETTLED RIDGE SHALL BE 18 INCHES AND THE SIDE SLOPES OF THE RIDGE SHALL BE 2:1 OR FLATTER.
6. STABLE OUTLETS SHALL EITHER BE AN EXTENSION OF AN ADJACENT SWALE, OR 2 CU. YD. 6" RIP RAP AT OTHER LOCATIONS.
7. SEDIMENT SHALL BE REMOVED FROM THE FLOW AREA THROUGHOUT THE DURATION OF THE PROJECT. REFER TO THE PROJECTS STORMWATER O&M MANUAL.

TABLE 1: ROLLING DIP AND WATERBAR SPACING RECOMMENDATIONS	
SLOPE (%)	SPACING (FT)
<5	125
5–10	100
10–20	75

ROLLING DIP AND WATERBAR



SECTION B' - B'
PROFILE ALONG CENTERLINE OF LOW WATER CROSSING
NOT TO SCALE



PLAN VIEW OF LOW WATER CROSSING
NOT TO SCALE

NOTE:

1. CROSSINGS SHALL HAVE THE TOP-MOST SURFACE LAYER EVEN OR BELOW THE ELEVATION OF THE EXISTING WETLAND.
3. THE ACCESS ROAD SHALL CROSS THE CONVEYANCE AT 90° ANGLE.
4. THE TOP BED OF THE ROCK CHANNEL CROSSING SHALL CONFORM TO THE EXISTING DITCH CROSS SECTIONAL SLOPES.
5. MATERIAL THICKNESSES MAY BE FIELD ADJUSTED TO ACHIEVE SUFFICIENT BEARING CAPACITIES AS ARE NECESSARY FOR ANTICIPATED ROAD USE.

LOW WATER CROSSING

Westwood

Phone (480) 747-6558
Fax (480) 376-8025
6909 East Greenway Parkway, Suite 250
Scottsdale, AZ 85254
westwoodps.com

Westwood Professional Services, Inc.

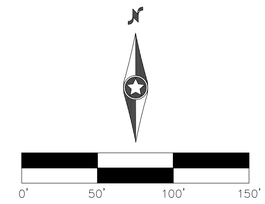
Designed: ADC
Checked: SAW
Drawn: SJB
Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION
-	3/15/2016	CT SITING BOARD SUBMISSION
-	4/26/2016	CT SITING BOARD COMMENTS
-	6/21/2016	CT SITING BOARD IR3 REVISIONS
-	8/16/2017	CT SITING BOARD REVISED SUBMISSION

Prepared for:

ecos ENERGY
222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402



PLAINFIELD PIKE SOLAR

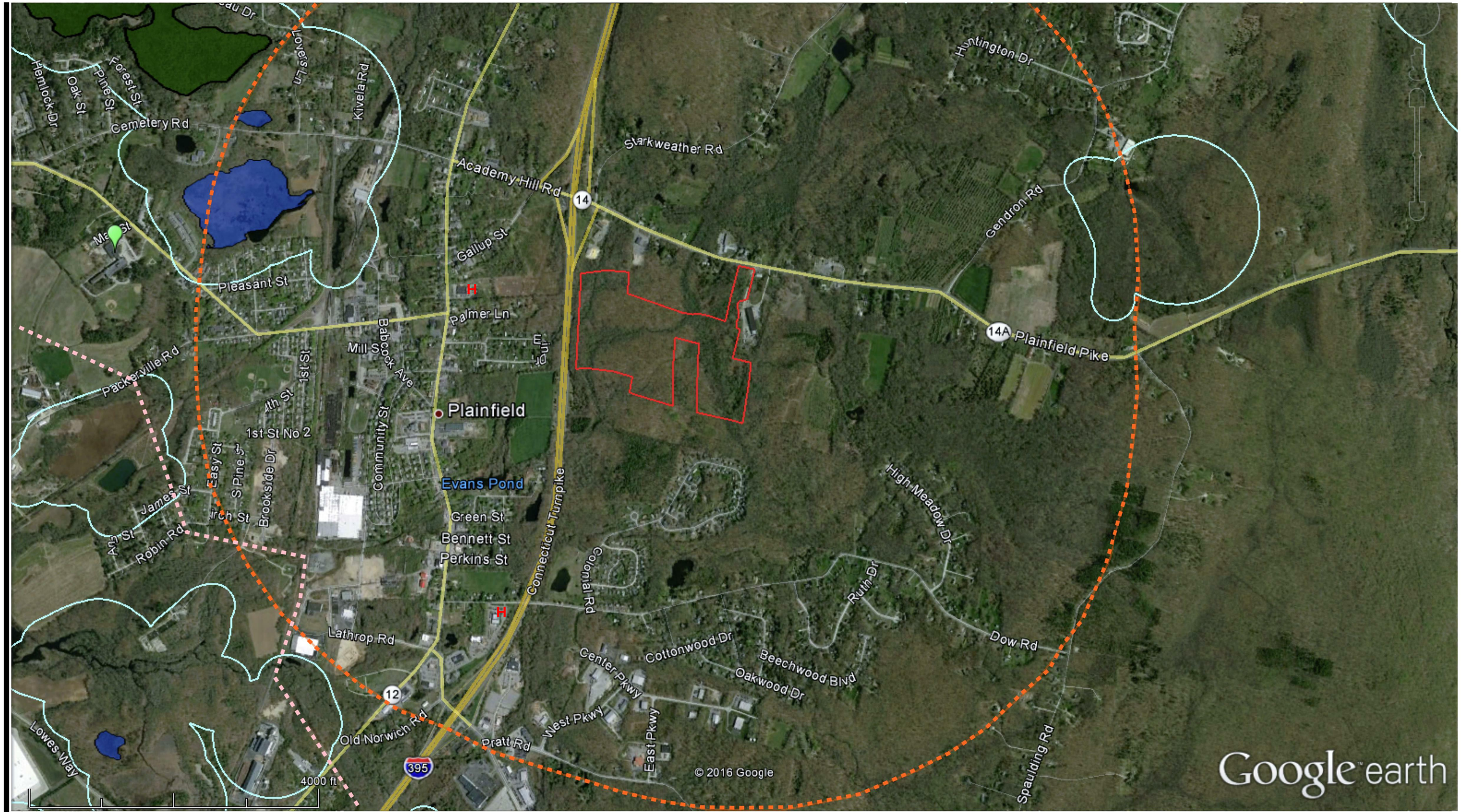
91 PLAINFIELD PIKE RD
PLAINFIELD, CT 06374
WINDHAM COUNTY

CIVIL AND EROSION CONTROL DETAILS

SITING BOARD REVIEW

DATE: 08/16/2017
SHEET: 17 of 17

Exhibit B
GIS Maps



Data Source(s): DEEP (2016);
Google Imagery (Accessed 2016).

Notes:
1. No group homes within map extent
2. No historic areas within map extent
3. No areas of geologic or archaeological interest within map extent.

Legend

- Project Area
- 1 Mile Project Buffer
- County Border
- School
- H Hospital
- Natural Diversity Area
- WMA
- Transmission Line
- Road

Critical Habitat

- Palustrine Forested
- Palustrine Non-Forested

Plainfield Solar

Windham County, Connecticut

Vicinity Map

February 4, 2016

Litchfield County

Hartford County

Tolland County

Windham County

Project

New Haven County

Middlesex County

New London County

Fairfield County

Data Source(s): World Oceans Map via Esri WMS (Accessed 2015);

Legend

- Project Area
- County Boundary
- State Boundary

U.S. Seismic Hazard 2% in 50 years PGA

Hazard (%g)

- 0-2
- 2-4
- 4-8
- 8-10
- 10-14
- 14-20
- 20-30
- 30-40
- 40-80
- > 80

N

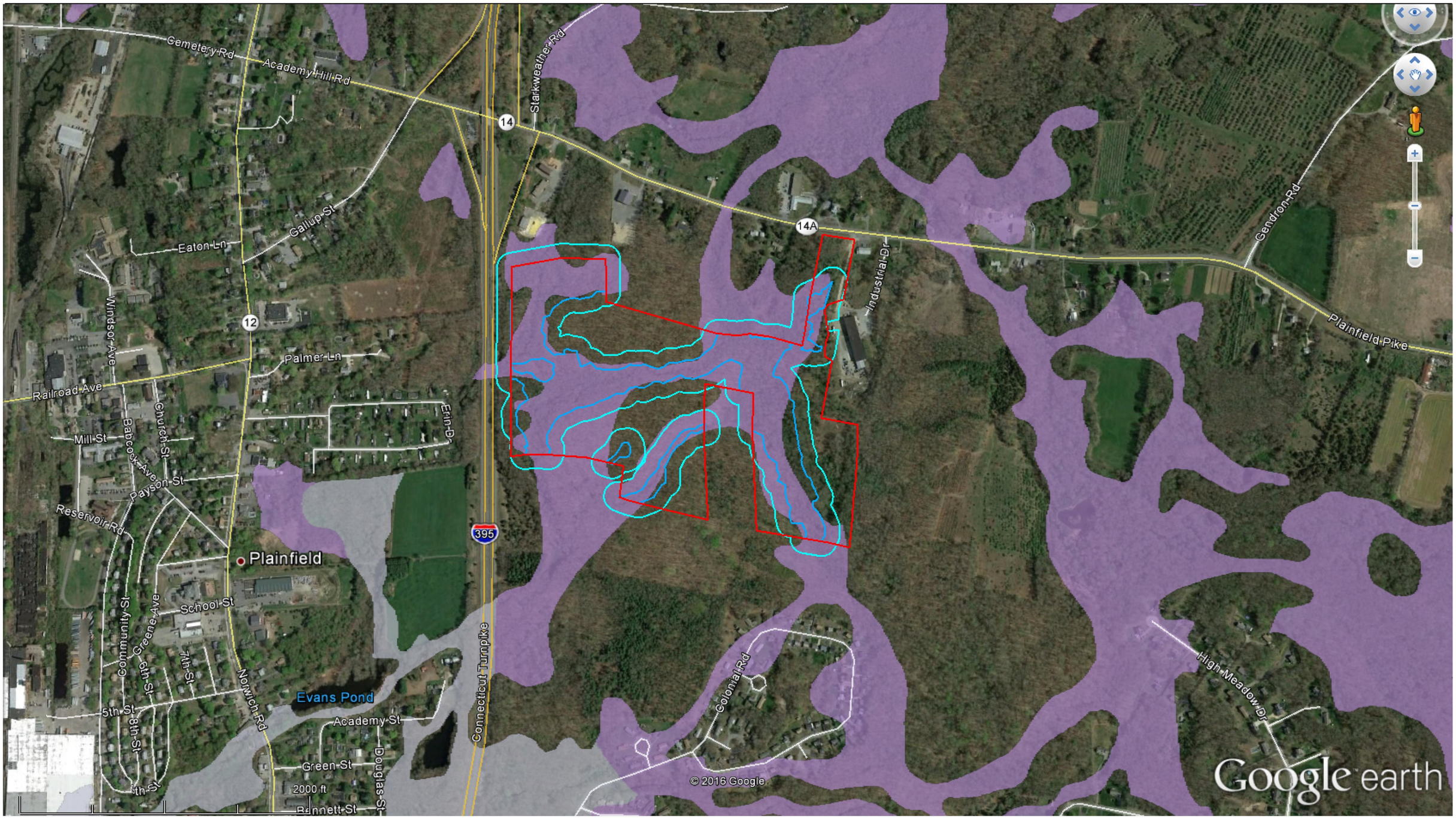
0 Miles 9

Plainfield Pike Solar

Windham County, Connecticut

2014 Connecticut Hazard Map

February 4, 2016



Data Source(s): DEEP (2015)

Notes:
1.Project site is not located within one mile of areas regulated under the Tidal Wetlands Act and Coastal Zone Management Act.

Legend

- Project Area

Inland Wetland Soils

- Poorly Drained and Very Poorly Drained Soils
- Alluvial and Floodplain Soils
- Wetland Delineated
- Wetland Buffer Delineated

Plainfield Pike Solar

Windham County, Connecticut

Soils and Delineated Wetlands

February 4, 2016

Exhibit C

Cross Section and Key Observation Point Plan

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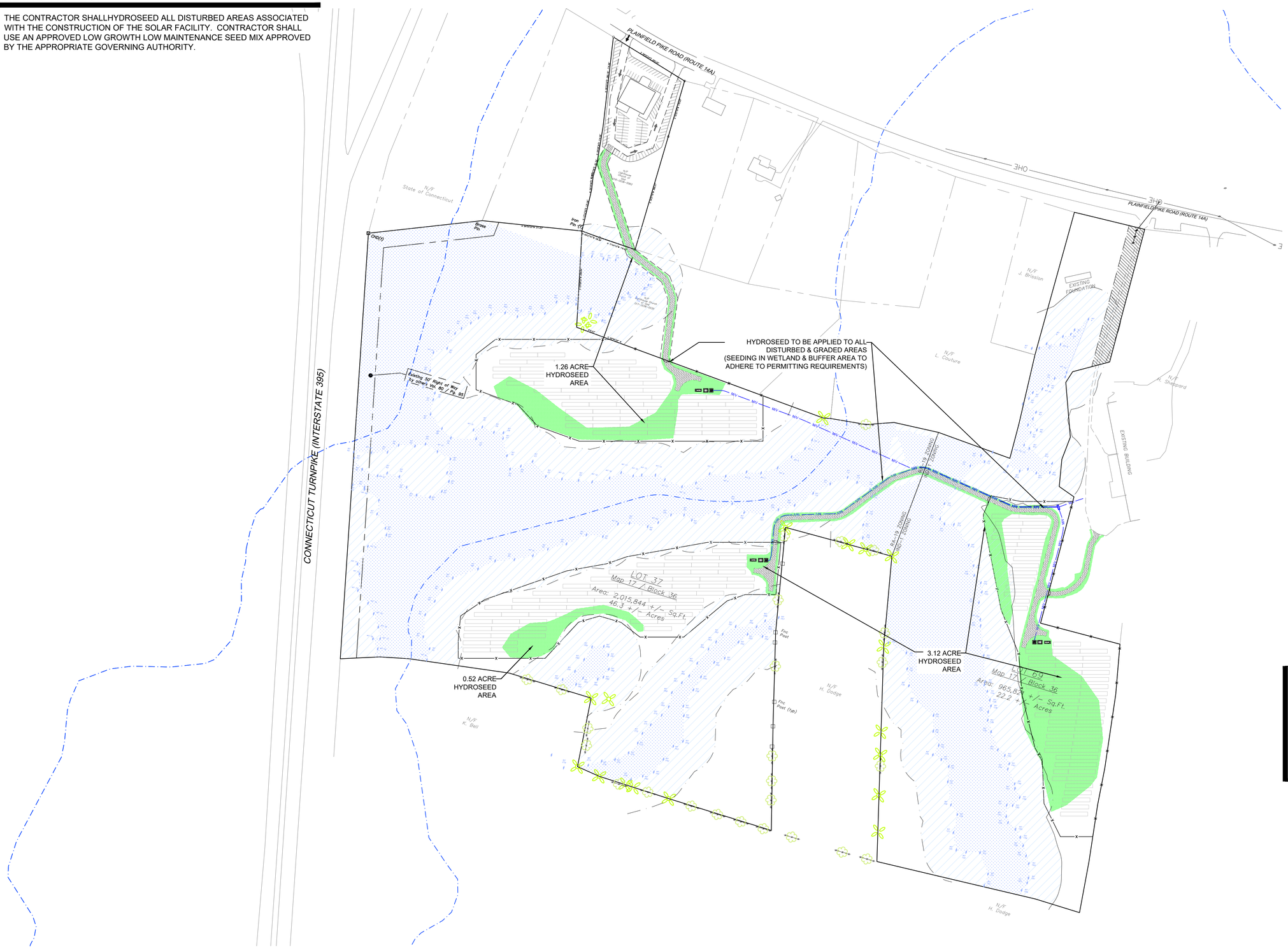
SEEDING NOTES:

1. THE CONTRACTOR SHALLHYDROSEED ALL DISTURBED AREAS ASSOCIATED WITH THE CONSTRUCTION OF THE SOLAR FACILITY. CONTRACTOR SHALL USE AN APPROVED LOW GROWTH LOW MAINTENANCE SEED MIX APPROVED BY THE APPROPRIATE GOVERNING AUTHORITY.



Westwood

Phone (480) 747-6558
Fax (480) 376-8025
6909 East Greenway Parkway, Suite 250
Scottsdale, AZ 85254
westwoodps.com

Westwood Professional Services, Inc.

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-	6/21/2016	CT SITING BOARD IR3 REVISIONS
-	8/16/2017	CT SITING BOARD REVISED SUBMISSION

Prepared for:

ecos ENERGY
222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402

PLAINFIELD PIKE SOLAR

91 PLAINFIELD PIKE RD
PLAINFIELD, CT 06374
WINDHAM COUNTY

LANDSCAPE PLAN

SITING BOARD REVIEW

DATE: 08/16/2017
SHEET: 13 of 17

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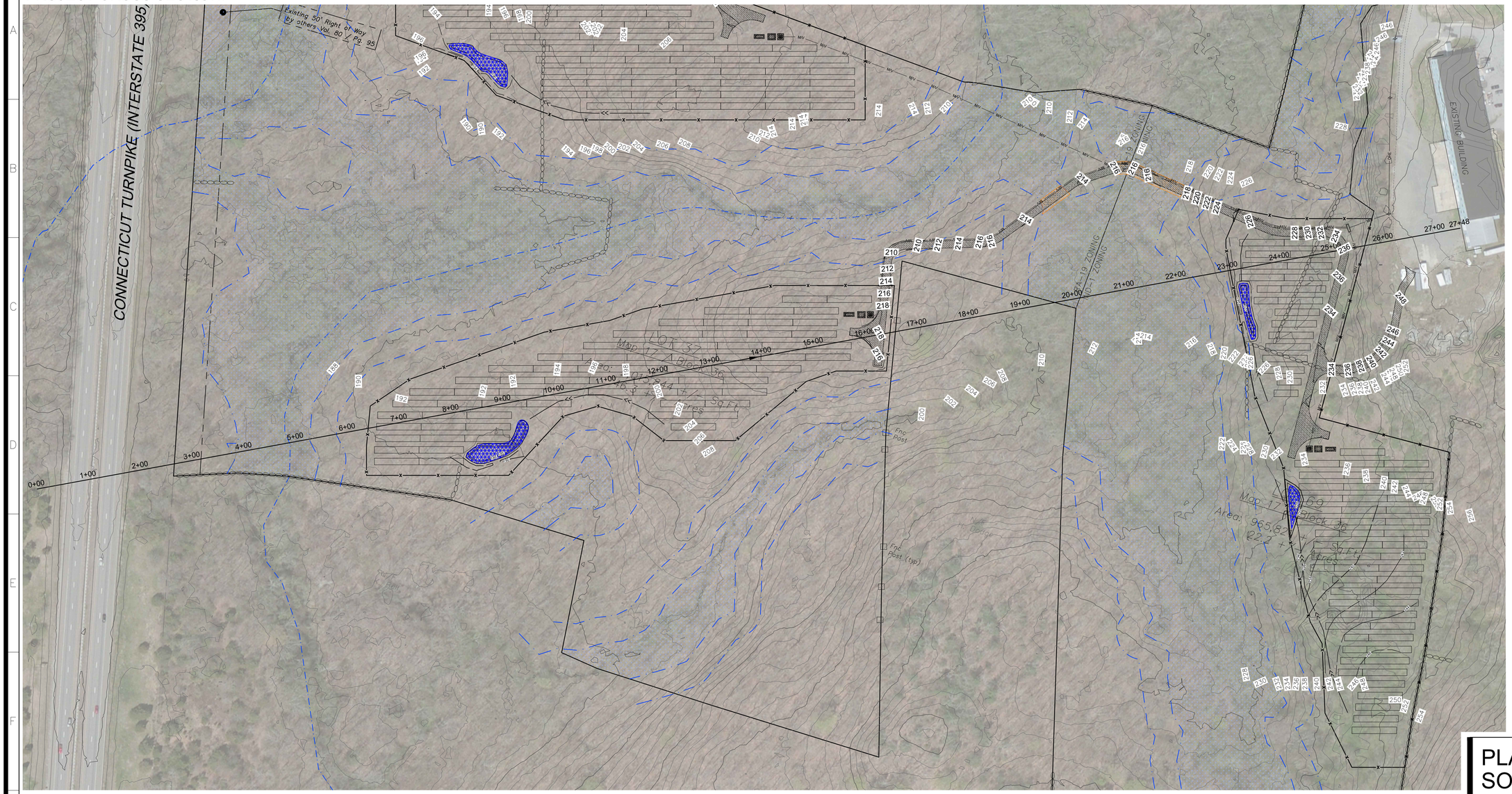
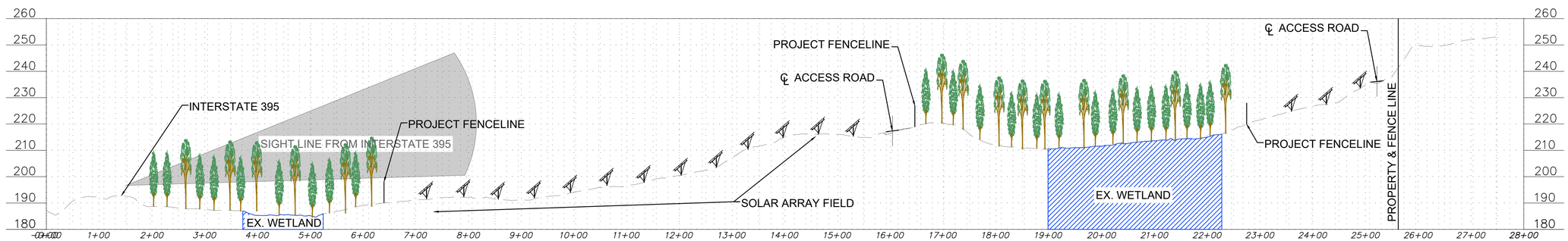
PROJECT CROSS SECTION:



PROJECT PROFILE:



Westwood

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Fax (480) 376-8025
6909 East Greenway Parkway, Suite 250
Scottsdale, AZ 85254
westwoodps.com

Westwood Professional Services, Inc.

STATE OF CONNECTICUT
ROBERT D. CHRISTIE
0030668
LICENSED
PROFESSIONAL ENGINEER

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Checked:	SAW
Drawn:	SJB
Record Drawing by/date:	

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-	8/16/2017	CT SITING BOARD REVISED SUBMISSION

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222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402

0' 100' 200' 300'

PLAINFIELD PIKE SOLAR

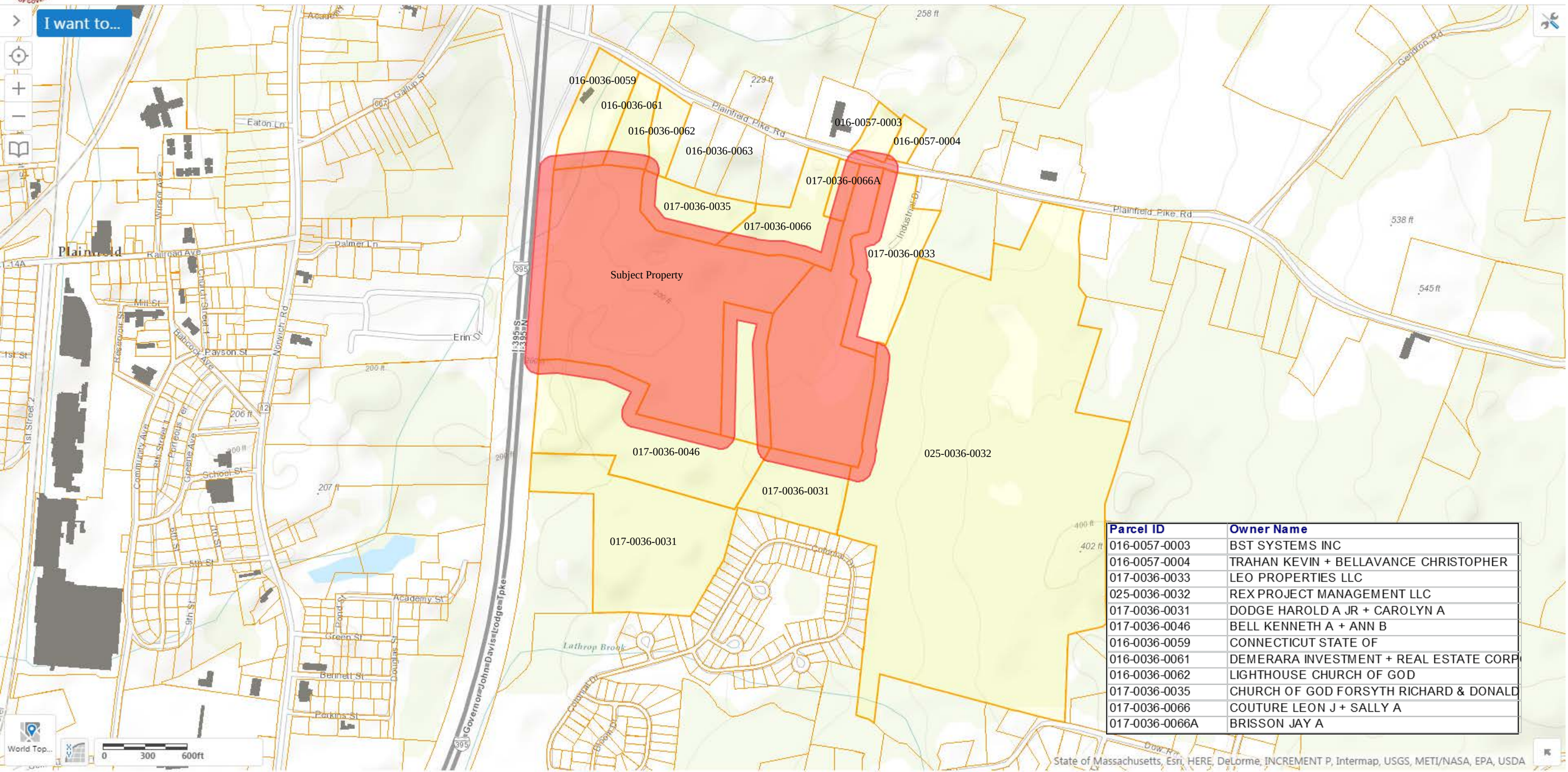
91 PLAINFIELD PIKE RD
PLAINFIELD, CT 06374
WINDHAM COUNTY

PROJECT CROSS SECTION

SITING BOARD REVIEW

DATE: 08/16/2017
SHEET: 14 of 17

Exhibit D
Notice of Service List



Parcel ID	Owner Name
016-0057-0003	BST SYSTEMS INC
016-0057-0004	TRAHAN KEVIN + BELLAVANCE CHRISTOPHER
017-0036-0033	LEO PROPERTIES LLC
025-0036-0032	REX PROJECT MANAGEMENT LLC
017-0036-0031	DODGE HAROLD A JR + CAROLYN A
017-0036-0046	BELL KENNETH A + ANN B
016-0036-0059	CONNECTICUT STATE OF
016-0036-0061	DEMERARA INVESTMENT + REAL ESTATE CORP
016-0036-0062	LIGHTHOUSE CHURCH OF GOD
017-0036-0035	CHURCH OF GOD FORSYTH RICHARD & DONALD
017-0036-0066	COUTURE LEON J + SALLY A
017-0036-0066A	BRISSON JAY A

Subject Properties

017-0036-0037
017-0036-0069

Abutters

ID	Site Address	Owner Name	Owner Address	Owner City	Owner State	Owner Zip
016-0057-0003	90 PLAINFIELD PIKE RD	BST SYSTEMS INC	78 PLAINFIELD PIKE RD	PLAINFIELD	CT	06374
016-0057-0004	96 PLAINFIELD PIKE RD	TRAHAN KEVIN + BELLAVANCE CHRISTOPHER	318 BETHEL ROAD	GRISWOLD	CT	06360
017-0036-0033	91-105 PLAINFIELD PIKE RD	LEO PROPERTIES LLC	93 HIGH ST	MOOSUP	CT	06354
025-0036-0032	143-151 PLAINFIELD PIKE RD	REX PROJECT MANAGEMENT LLC	15 PINE GROVE RD	HINGHAM	MA	02043
017-0036-0031	0 NORWICH RD	DODGE HAROLD A JR + CAROLYN A	668 NORWICH ROAD	PLAINFIELD	CT	06374
017-0036-0046	0 PLAINFIELD PIKE RD	BELL VONNIE L JR	159 TARBOX RD	PLAINFIELD	CT	06374
016-0036-0059	9 PLAINFIELD PIKE RD	CONNECTICUT STATE OF	PO BOX 317546	NEWINGTON	CT	06131
016-0036-0061	0 PLAINFIELD PIKE RD	DEMERARA INVESTMENT + REAL ESTATE CORP	34 TRIPP HOLLOW RD	BROOKLYN	CT	06234
016-0036-0062	33 PLAINFIELD PIKE RD	LIGHTHOUSE CHURCH OF GOD	33 PLAINFIELD PIKE RD	PLAINFIELD	CT	06374
017-0036-0035	0 PLAINFIELD PIKE RD	CHURCH OF GOD FORSYTH RICHARD & DONALD	33 PLAINFIELD PIKE RD	PLAINFIELD	CT	06374
017-0036-0066	73 PLAINFIELD PIKE RD	BURDICK JASON C & BARBARA A	73 PLAINFIELD PIKE RD	PLAINFIELD	CT	06374
017-0036-0066A	0 PLAINFIELD PIKE RD	BRISSON JAY A	198 LAKE ST	MOOSUP	CT	06453
017-0036-0063	39 PLAINFIELD PIKE RD	FORSYTH RICHARD & ETALS TRUSTEES FOR	33 PLAINFIELD PIKE RD	PLAINFIELD	CT	06374

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PLAINFIELD CT 06374-1744

Plainfield Pike Solar

To Company Name	To Name	Salutation	Last Name	To Address Line 1	To Address Line2	To City	To State	To ZIP	To ZIP4
Office of the Attorney General	George C. Jepsen, Attorney General	Mr.	Attorney General	55 Elm Street		Hartford	CT	06106	
Department of Public Health	Dr. Raul Pino, Commissioner	Dr.	Pino	410 Capitol Avenue	PO Box 340308	Hartford	CT	06134	
Department of Agriculture	Steven K. Reviczky, Commissioner	Mr.	Reviczky	165 Capitol Avenue		Hartford	CT	06106	
Office of Policy and Management	Benjamin Barnes, Secretary	Mr.	Barnes	450 Capitol Avenue		Hartford	CT	06106	1379
Department of Transportation	James P. Redeker, Commissioner	Mr.	Redeker	2800 Berlin Turnpike		Newington	CT	06131	7546
Department of Consumer Protection	Michelle H Seagull, Commissioner	Ms.	Seagull	State Office Building	165 Capitol Avenue, Room 103	Hartford	CT	06106	
Department of Labor	Scott D. Jackson, Commissioner	Mr.	Jackson	200 Folly Brook Blvd		Wethersfield	CT	06106	1114
Dept of Energy and Environmental Protection	Rob Klee, Commissioner	Mr.	Klee	79 Elm Street		Hartford	CT	06106	5127
Council on Environmental Quality	Susan D. Merrow, Chair	Ms.	Merrow	79 Elm Street		Hartford	CT	06106	
Public Utilities Regulatory Authority	Katie Dykes, Chairman	Ms.	Dykes	Ten Franklin Square		New Britain	CT	06051	
Dept of Economic and Comm Development	Catherine H. Smith, Commissioner	Ms.	Smith	505 Hudson Street		Hartford	CT	06106	7106
Dept of Emerg Services and Public Protection	Dora B. Schriro, Commissioner	Ms.	Schriro	1111 Country Club Road		Middletown	CT	06457	2389
Department of Administrative Services	Melody A. Currey, Commissioner	Ms.	Currey	State Office Building	165 Capitol Avenue, Room 427	Hartford	CT	06106	
CT State Representative District 044	Anne Dauphinais, State Representative	Representative	Dauphinais	Legislative Office Building	Room 4014	Hartford	CT	06106	1591
CT State Senate District S18	Heather Somers, State Senator	Senator	Somers	Legislative Office Building	Room 2300	Hartford	CT	06106	
Town of Plainfield	Paul E. Sweet, First Selectman	Mr.	Sweet	8 Community Ave		Plainfield	CT	06374	
Town of Plainfield Zoning Board of Appeals	William Knight, Chairman	Mr.	Knight	8 Community Ave		Plainfield	CT	06374	
Town of Plainfield Plan and Zoning Commission	Karla Desjardins, Chairman	Ms.	Desjardins	8 Community Ave		Plainfield	CT	06374	
Town of Plainfield	Ryan Brais, Zoning Officer	Mr.	Brais	8 Community Ave		Plainfield	CT	06374	
Town of Plainfield Conservation Commission	Walter Cwynar, Chairman	Mr.	Cwynar	8 Community Ave		Plainfield	CT	06374	
Town of Plainfield Inland Wetlands Commission	Ronald Desjardins, Chairman	Mr.	Desjardins	8 Community Ave		Plainfield	CT	06374	
Town of Plainfield Town Clerk	Louisa Trakas, Town Clerk	Ms.	Trakas	8 Community Ave		Plainfield	CT	06374	
Northeastern Connecticut Council of Governments	John Filchak, Executive Director	Mr.	Filchak	PO Box 759		Dayville	CT	06241	

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George C. Jepsen, Attorney General
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HARTFORD CT 06106-1752

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Dr. Raul Pino, Commissioner
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PO BOX 340308
HARTFORD CT 06106-1373

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Steven K. Reviczky, Commissioner
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Office of Policy and Management
Benjamin Barnes, Secretary
450 CAPITOL AVE
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Department of Transportation
James P. Redeker, Commissioner
2800 BERLIN TPKE
NEWINGTON CT 06111-4123

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Department of Consumer Protection
Michelle H Seagull, Commissioner
165 CAPITOL AVE STE 3
165 CAPITOL AVENUE, ROOM 103
HARTFORD CT 06106-1630

Petition for Declaratory Ruling for Plainfield Pike Solar Project

Ecos Energy
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MINNEAPOLIS MN 55402-3382

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Department of Labor
Scott D. Jackson, Commissioner
200 FOLLY BROOK BLVD
WETHERSFIELD CT 06109-1153

Petition for Declaratory Ruling for Plainfield Pike Solar Project

Ecos Energy
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MINNEAPOLIS MN 55402-3382

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Dept of Energy and Environmental Protection
Rob Klee, Commissioner
79 ELM ST
HARTFORD CT 06106-5127

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MINNEAPOLIS MN 55402-3382

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Council on Environmental Quality
Susan D. Merrow, Chair
79 ELM ST
HARTFORD CT 06106-1650

Petition for Declaratory Ruling for Plainfield Pike Solar Project

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Public Utilities Regulatory Authority
Katie Dykes, Chairman
10 FRANKLIN SQ
NEW BRITAIN CT 06051-2655

Petition for Declaratory Ruling for Plainfield Pike Solar Project

Ecos Energy
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MINNEAPOLIS MN 55402-3382

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Dept of Economic and Comm Development
Catherine H. Smith, Commissioner
505 HUDSON ST
HARTFORD CT 06106-7106

Petition for Declaratory Ruling for Plainfield Pike Solar Project

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222 S 9TH ST STE 1600
MINNEAPOLIS MN 55402-3382

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Dept of Emerg Services and Public Protection
Dora B. Schriro, Commissioner
1111 COUNTRY CLUB RD
MIDDLETOWN CT 06457-2389

Petition for Declaratory Ruling for Plainfield Pike Solar Project

Ecos Energy
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MINNEAPOLIS MN 55402-3382

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Department of Administrative Services
Melody A. Currey, Commissioner
165 CAPITOL AVE RM 427
STATE OFFICE BUILDING
HARTFORD CT 06106-1629

Petition for Declaratory Ruling for Plainfield Pike Solar Project

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222 S 9TH ST STE 1600
MINNEAPOLIS MN 55402-3382

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CT State Representative District 044
Anne Dauphinais, State Representative
Legislative Office Building
Room 4014
HARTFORD CT 06106-1591

Petition for Declaratory Ruling for Plainfield Pike Solar Project

Ecos Energy
222 S 9TH ST STE 1600
MINNEAPOLIS MN 55402-3382

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CT State Senate District S18
Heather Somers, State Senator
Legislative Office Building
Room 2300
HARTFORD CT 06106

Petition for Declaratory Ruling for Plainfield Pike Solar Project

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Town of Plainfield
Paul E. Sweet, First Selectman
8 COMMUNITY AVE
PLAINFIELD CT 06374-1299

Petition for Declaratory Ruling for Plainfield Pike Solar Project

Ecos Energy
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Town of Plainfield Zoning Board of Appeals
William Knight, Chairman
8 COMMUNITY AVE
PLAINFIELD CT 06374-1238

Petition for Declaratory Ruling for Plainfield Pike Solar Project

Ecos Energy
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Town of Plainfield Plan and Zoning Commission
Karla Desjardins, Chairman
8 COMMUNITY AVE
PLAINFIELD CT 06374-1238

Petition for Declaratory Ruling for Plainfield Pike Solar Project

Ecos Energy
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Town of Plainfield
Ryan Brais, Zoning Officer
8 COMMUNITY AVE
PLAINFIELD CT 06374-1299

Petition for Declaratory Ruling for Plainfield Pike Solar Project

Ecos Energy
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MINNEAPOLIS MN 55402-3382

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Town of Plainfield Conservation Commission
Walter Cwynar, Chairman
8 COMMUNITY AVE
PLAINFIELD CT 06374-1238

Petition for Declaratory Ruling for Plainfield Pike Solar Project

Ecos Energy
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Town of Plainfield Inland Wetlands Commission
Ronald Desjardins, Chairman
8 COMMUNITY AVE
PLAINFIELD CT 06374-1238

Petition for Declaratory Ruling for Plainfield Pike Solar Project

Ecos Energy
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MINNEAPOLIS MN 55402-3382

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Town of Plainfield Town Clerk
Louisa Trakas, Town Clerk
8 COMMUNITY AVE
PLAINFIELD CT 06374-1238

Petition for Declaratory Ruling for Plainfield Pike Solar Project

Ecos Energy
222 S 9TH ST STE 1600
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Northeastern Connecticut Council of Government
John Filchak, Executive Director
PO BOX 759
DAYVILLE CT 06241-0759

Petition for Declaratory Ruling for Plainfield Pike Solar Project

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Times Ord: 1 — Times Run: ***
LEG 2.00 X 2.34 Words: 110
Total LEG 4.68
Rate: LEG — Cost: 116.77
Class: 0005 LEGAL NOTICES

Contact:
Phone: (860)423-8466
Fax#: (000)000-0000
Email:
Agency:

Descript: LEGAL NOTICE WINDHAM SOL
Given by: *
Created: cldre 08/21/17 13:41
Last Changed: cldre 08/23/17 11:33

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AUTHORIZATION

Under this agreement rates are subject to change with 30 days notice. In the event of a cancellation before schedule completion, I understand that the rate charged will be based upon the rate for the number of insertions used.

Name (print or type) _____ Name (signature) _____

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Legal Notice

Windham Solar LLC is providing notice to the general public regarding its intent to file a Petition of Declaratory Ruling (Petition) to the Connecticut Siting Council for the proposed development of three (3) 1.0 megawatt solar photovoltaic renewable energy generating facilities to be located at 91 Plainfield Pike Road in the Town of Plainfield. This notice is being given pursuant to Section 16-50(l) of the Connecticut General Statues. The Petition will be submitted on or after August 22st, 2017. Copies of the Petition will be available at the Connecticut Siting Council: Ten Franklin Square, New Britain, CT 06501 or at the Town Hall of the Town of Plainfield.

Exhibit E

Phase I Environmental Site Assessment

Phase I Environmental Site Assessment

Plainfield Pike
Plainfield, Connecticut

Prepared for:

Ecos Energy, LLC

Prepared by:

Rincon Consultants, Inc.

Environmental Scientists Planners Engineers

Rincon Consultants, Inc.
5135 Avenida Encinas, Suite A
Carlsbad, California 92008

760 918 9444
FAX 918 9449

info@rinconconsultants.com
www.rinconconsultants.com

November 18, 2015
Project 15-02082

Brad Wilson
Project Manager, Ecos Energy LLC
222 South 9th Street, #1600
Minneapolis, Minnesota 55402

Phase I Environmental Site Assessment
Plainfield Pike, Plainfield, Connecticut

Dear Mr. Wilson:

This report presents the findings of a Phase I Environmental Site Assessment (ESA) completed by Rincon Consultants, Inc. for the site located near Plainfield Pike in Plainfield, Connecticut. The Phase I ESA was performed in accordance with our proposal and contract dated October 8, 2015.

The accompanying report presents our findings and provides an opinion regarding the presence of recognized environmental conditions. Our work program for this project, as referenced in our contract, is intended to meet the guidelines outlined in the American Society for Testing and Materials (ASTM), Standard Practice for Environmental Site Assessments: *Phase I Environmental Site Assessment Process* (ASTM Standard E-1527-13). Our scope of services, pursuant to ASTM practice, did not include any inquiries with respect to asbestos, lead-based paint, lead in drinking water, wetlands, regulatory compliance, cultural and historic resources, industrial hygiene, health and safety, ecological resources, endangered species, vapor intrusion or other indoor air quality, mold, or high voltage power lines.

Thank you for selecting Rincon for this project. If you have any questions, or if we can be of any future assistance, please contact us.

Sincerely,
RINCON CONSULTANTS, INC.

Sarah A. Larese
Senior Environmental Scientist

Walt Hamann, PG, CEG, CHG
Vice President

Table of Contents

Phase I Environmental Site Assessment

Plainfield Pike

Plainfield, Connecticut

EXECUTIVE SUMMARY

This report presents the findings of a Phase I Environmental Site Assessment (ESA) for the 68.6-acre property located near Plainfield Pike, Plainfield, Connecticut (Figure 1, Vicinity Map). The subject property is currently dense undeveloped woodlands.

Rincon Consultants performed a reconnaissance of the subject property on October 21, 2015. The purpose of the reconnaissance was to observe existing subject property conditions and to obtain information indicating the presence of recognized environmental conditions in connection with the subject property. Because the subject property is covered with undeveloped woodlands, the subject property was inaccessible. However, the subject property was observed from vantage points along Highway 395 and Plainfield Pike. The use, storage or disposal of hazardous materials on the subject property was not observed during the site reconnaissance.

The subject property is located in an area that is primarily comprised of residential, light industrial and agricultural land uses. Properties in the vicinity of the subject property include single-family residences, a church, light industrial facilities, and vacant land.

Environmental Data Resources, Inc. (EDR) was contracted to provide a database search of public lists of sites that generate, store, treat or dispose of hazardous materials or sites for which a release or incident has occurred. The EDR search was conducted for the subject property and included data from surrounding sites within a specified radius of the property. The subject property was not listed in any of the databases searched by EDR. One adjacent property was listed in databases searched by EDR: State of Connecticut Department of Transportation (DOT) was listed as a CT LWDS, CT MANIFEST, CT NPDES, CT LUST, CT SPILLS, and a CT CPCS site.

- ***State of Connecticut Department of Transportation (DOT) Plainfield / CT DOT Maintenance Garage at 9 Plainfield Pike Road:*** This property is located adjacent to the north of the northwestern portion of the subject property. According to the EDR report, hazardous waste generated by the onsite facility is transported offsite, and the facility holds wastewater and stormwater permits for vehicle maintenance activities.

  The CT SPILLS database listing for this property indicates that a release of gasoline affected the soil onsite in 1998, a 3,000-gallon UST was removed and "routine changed due to age," contaminated soils were noted, contamination was to be removed, and a "sheen on groundwater" was noted as well.

  The Connecticut Leaking Underground Storage Tank (CT LUST) database for this property indicates that a release of motor fuel from a UST occurred onsite in 1998, the tank was removed and soil was excavated, soil and groundwater samples were collected, and the case status was "cleanup initiated" as of July 2013. According to Ms. Joanna Burnham of the Connecticut Department of Energy and Environmental Protection's (DEEP) UST and Petroleum Division during a telephone conversation with Rincon Consultants on November 10, 2015, a 1,000-gallon UST was removed from the site in 1991 and the report was written in 1998; case closure was requested but additional information was required at the time of the request. Another CT LUST database listing for this property indicates that the status for a 1989 release of commercial heating fuel greater than 2,100 gallons is "completed."

The Connecticut Contaminated or Potentially Contaminated Sites (CT CPCS) database includes "hazardous waste facilities" in Connecticut. The listing for this property indicates that the property is a LUST site, cleanup was initiated, and remediation was started. Another CT CPCS database listing for this property indicates that the onsite LUST status is "completed" per the DEEP's significant hazard definition. Rincon contacted Mr. Paul Clark and Mr. Kevin Neary of the DEEP Remediation Division on November 10, 2015 and left voicemails for both contacts requesting additional information on this site; a response has not been received as of the date of this report.

Based on the nature of the listings and the proximity of the site to the subject property, the adjacent Connecticut DOT maintenance garage is considered a *potential REC*.

In addition, two nearby properties were listed in databases searched by EDR: BST Systems was listed as a CT ENF, RCRA-LQG, FINDS, and a MANIFEST site with several states, and Cournoyer Residence was listed as a CT LUST, CT SPILLS, and CT CPCS site.

- ***BST Systems at 78 Plainfield Pike Road***: This property is located approximately 100 feet to the northwest of the subject property across Plainfield Pike Road. According to their website, BST Systems, Inc. is "*a successful, engineering oriented, high-technology business, dedicated to the design, development and manufacture of high-energy alkaline electrochemical cells, batteries and support electronic equipment. Established in January 1983, BST has specialized in the manufacture of rechargeable silver-zinc cells and batteries. Currently BST is expanding the Company's focus to include other battery chemistries, including lithium ion, as well as various associated products. BST is continuing to expand its Research & Development department and is conducting R&D in a number of electro-chemistries, including silver zinc improvement.*" According to the EDR report, hazardous waste relating to the onsite manufacture of batteries and other electrochemical products is generated onsite and transported offsite at least once yearly from at least 1984 to 2014. None of the listings are indicative of a hazardous materials release on the site.

- ***Cournoyer Residence at 85 Academy Hill Road***: This property, located approximately 0.25 mile to the northwest of the subject property, was listed on the CT LUST, CT SPILLS, and CT CPCS databases. The CT LUST database listing indicates that a release of heating fuel occurred onsite in December 1998, "micro" wells were installed, groundwater and soil samples were collected, a "survey" was conducted, and the case is ongoing as of 2010. In addition, the release was noted to be due to heating fuel line failure, and 200 to 300 gallons were released to the subsurface; contractor cleanup was overseen and closure samples were obtained.

  The CT SPILLS database listing indicates that 300 gallons of fuel oil were released onsite in December 1998 due to a transfer line leak from the UST system, the release indicator was oil observed on the ground surface, the homeowner repaired the leak, and from the end of October through mid-December approximately 300 gallons were lost.

  The CT CPCS database listing indicates that the property is a pending LUST site. No additional information regarding this release was provided in the EDR report or on the US EPA online RCRAInfo database. Rincon contacted Mr. Paul Clark and Mr. Kevin Neary of the DEEP Remediation Division on November 10, 2015 and left voicemails for both contacts requesting additional information on this site; a response has not been received as of the date of this report.

Based on the distance of the site from the subject property and the potential direction of groundwater flow (to the west, downgradient of the subject property), this site does not represent an environmental concern to the subject property.

Historical sources reviewed as part of the Phase I ESA include aerial photographs and topographic maps. The photos and maps reviewed indicate that the subject property was mainly undeveloped woodland with a cleared area in the southeastern portion of the subject property from approximately 1934 to 1970. A building is present in the northeastern portion of the subject property from approximately 1951 to 1974; by 1986, the building is no longer present and the previously cleared area appears to be fallow. The subject property resembles its present-day configuration from 2005 to 2012. The historic topographic maps reviewed depict the subject property as undeveloped woodland with two streams traversing the property in 1893, 1915, 1943, and 1953; with a structure depicted in the northeastern portion of the subject property in 1970 and 1983.

Based on the findings of this Phase I ESA, it is our opinion that there is one potential Recognized Environmental Condition (REC) in connection with the property as follows:

Potential Recognized Environmental Condition

1. Adjacent Connecticut Department of Transportation maintenance garage

To evaluate the potential subject property impact associated with the adjacent Connecticut DOT maintenance garage, Rincon recommends reviewing any records available at the DEEP's Remediation Division to determine whether remediation for the site was completed and to determine the status of the two known release cases (LUST #31140/SPILLS #9800659 and LUST #29422).

Based on our review of historical sources, it appears that a structure was present in the northeastern portion of the subject property from approximately 1934 to 1970. Although not considered a REC, former building foundations and used building materials may be present in this area.

INTRODUCTION

This report presents the findings of a Phase I ESA conducted for the 68.6-acre property located near Plainfield Pike, Plainfield, Connecticut (Figure 1, Vicinity Map). The Phase I ESA was performed by Rincon Consultants, Inc. for Ecos Energy, LLC in general conformance with ASTM E 1527-13 and our proposal and contract dated October 8, 2015. The following sections present our findings and provide our opinion as to the presence of recognized environmental conditions.

PURPOSE

The purpose of this Phase I ESA was to assess the environmental conditions of a property, taking into account commonly and reasonably ascertainable information and to qualify for Landowner Liability Protections under the Brownfields Amendments to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

A recognized environmental condition (REC) is defined pursuant to ASTM E 1527-13 as,

> *"the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: 1) due to any release to the environment; 2) under conditions indicative of a release to the environment; 3) under conditions that pose a material threat of a future release to the environment".*

A Controlled REC is defined pursuant to ASTM E 1527-13 as,

> *"a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). A condition considered by the environmental professional to be a controlled recognized environmental condition shall be listed in the findings section of the Phase I Environmental Site Assessment report, and as a recognized environmental condition in the conclusions section of the Phase I Environmental Site Assessment report".*

A Historical REC is defined pursuant to ASTM E 1527-13 as,

> *"a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by regulatory authority, without subjecting the property to any required controls (for example, use restrictions, activity and use limitations, institutional controls, or engineering controls). Before calling the past release a historical recognized environmental condition, the environmental professional must determine whether the past release is a recognized environmental condition at the time the Phase I Environmental Site Assessment is conducted (for example, if there has been a change in the regulatory criteria). If the EP [Environmental Professional] considers the past release to be a recognized environmental condition at the time the Phase I ESA is conducted, the condition shall be included in the conclusions section of the report as a recognized environmental condition".*

A de minimis condition is defined pursuant to ASTM E 1527-13 as,

> "*a condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis conditions are not recognized environmental conditions nor controlled recognized environmental conditions*".

SCOPE OF SERVICES

The scope of services conducted for this study is outlined below:

- Perform a reconnaissance of the site to identify obvious indicators of the existence of hazardous materials.
- Observe adjacent or nearby properties from public thoroughfares in an attempt to see if such properties are likely to use, store, generate, or dispose of hazardous materials.

- Obtain and review an environmental records database search from Environmental Data Resources, Inc. (EDR) to obtain information about the potential for hazardous materials to exist at the subject property or at properties located in the vicinity of the subject property.
- Review files for the subject property and immediately adjacent properties as identified in the EDR report, as applicable.
- Review the current U.S. Geological Survey (USGS) topographic map to obtain information about the subject property's topography and uses of the subject property and properties in the vicinity of the subject property.
- Review additional pertinent record sources (e.g., online databases of hazardous substance release sites), as necessary, to identify the presence of RECs at the subject property.
- Review reasonably ascertainable historical resources (e.g., aerial photographs, topographic maps, fire insurance maps, city directories) to assess the historical land use of the subject property and adjacent properties.
- Provide a property owner interview questionnaire to the property owner or a designated subject property representative identified to Rincon by the client.
- Provide a user interview questionnaire to a representative of the client, the user of the Phase I ESA.
- Conduct interviews with other property representatives (e.g., key site manager, occupants), as applicable.
- Review Client-provided information (e.g., previous environmental reports, title documentation), as applicable.

SIGNIFICANT ASSUMPTIONS, LIMITATIONS, DEVIATIONS, EXCEPTIONS, SPECIAL TERMS, AND CONDITIONS

This work is intended to adhere to good commercial, customary, and generally accepted environmental investigation practices for similar investigations conducted at this time and in this geographic area. No guarantee or warranties, expressed or implied are provided. The findings and opinions conveyed in this report are based on findings derived from a site reconnaissance, review of an environmental database report, specified regulatory records and historical sources, and comments made by interviewees. This report is not intended as a comprehensive site characterization and should not be construed as such. Standard data sources relied upon during the completion of Phase I ESAs may vary with regard to accuracy and completeness. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary analysis.

Rincon has not found evidence that hazardous materials or petroleum products exist at the subject property at levels likely to warrant mitigation. Rincon does not under any circumstances warrant or guarantee that not finding evidence of hazardous materials or petroleum products means that hazardous materials or petroleum products do not exist on the subject property. Additional research, including surface or subsurface sampling and analysis, can reduce the client's risks, but no techniques commonly employed can eliminate these risks altogether.

In addition, pursuant to ASTM E 1527-13 practice, our scope of services did not include any inquiries with respect to asbestos containing building materials, biological agents, cultural and historic resources, ecological resources, endangered species, health and safety, indoor air quality unrelated to release of hazardous substances or petroleum products into the environment, industrial hygiene, lead-based paint, lead in drinking water, mold, radon, regulatory compliance, wetlands, or high voltage power lines.

USER RELIANCE

Ecos Energy, LLC has requested this assessment and will use the assessment to provide information for the purposes of purchasing or acquiring said property. This Phase I ESA was prepared for use solely and exclusively by Ecos Energy, LLC. No other use or disclosure is intended or authorized by Rincon. Also, this report is issued with the understanding that it is to be used only in its entirety. It is intended for use only by the client, and no other person or entity may rely upon the report without the express written consent of Rincon.

SITE DESCRIPTION

Location

The subject property is a 68.6-acre property located east of Interstate 395 and south of Plainfield Pike in Plainfield, Connecticut (Figure 2, Site Map). The property is identified as Assessor Parcel Numbers (APNs) 017-0036-0037 and 017-0036-0069.

Subject Property and Vicinity General Characteristics

The subject property is currently dense undeveloped woodlands.

The subject property is located in an area that is primarily comprised of residential, light industrial, and agricultural land uses. Properties in the vicinity of the subject property include single-family residences, a church, light industrial facilities, and vacant land. The current adjacent land uses are described in Table 1 and depicted on Figure 3, Adjacent Land Use Map.

Table 1 - Current Uses of Adjacent Properties

Area	Use
Northern Properties	Vacant land, the Connecticut Department of Transportation Maintenance Garage, Lighthouse Church of God and Plainfield Pike, followed by single-family residences and BST Systems.
Eastern Properties	Apartments and a vacant building (former flea market), and vacant land.
Southern Properties	Vacant land, followed by single-family residences.
Western Properties	Interstate 395, followed by vacant land, single-family residences, and agricultural fields.

Descriptions of Structures, Roads, Other Improvements on the Site

During the site reconnaissance, no structures, roads or other improvements were observed on the subject property.

Access to the subject property is available from the driveway on the eastern adjacent residential apartment property, 91 Plainfield Pike.

There are no installed utilities on the subject property; however, in the site vicinity Connecticut Water Company provides water and sewer service, Northeast Utilities Company provides electrical service and the Yankee Gas Services Company provides natural gas service. Solid waste collection and disposal services in the area are provided by private vendors.

USER PROVIDED INFORMATION

As described in ASTM E 1527-13 Section 6, Ecos Energy, LLC was interviewed for actual knowledge pertaining to the subject property to help identify recognized environmental conditions in connection with the property. Brad Wilson, Project Developer for Ecos Energy, LLC completed the User Questionnaire as provided by ASTM Appendix X3 on November 16, 2015. A copy of the completed questionnaire is included as Appendix 1.

Based on our review of the completed questionnaire, Mr. Wilson did not review the following sources of information and is unaware of information regarding the following:

- recorded land title records (or judicial records, where appropriate) that identify any environmental liens filed or recorded against the property
- recorded land title records (or judicial records, where appropriate) that identify any activity and land use limitations (AULs), such as engineering controls, land use restrictions or institutional controls that are in place at the property and/or have been filed or recorded against the property under federal, tribal, state or local law
- Title Report that identifies information pertaining to environmental cleanup liens or activity and use limitations (AULs) for the subject property

Based on our review of the completed questionnaire, Mr. Wilson is unaware of information regarding the following:

- specialized knowledge or experience related to the property or nearby properties
- reduction in value for the subject property relative to any known environmental issues
- commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases
- obvious indicators that point to the presence or likely presence of releases at the property
- pending, threatened, or past litigation relevant to hazardous substances or petroleum products, in, on, or from the site
- pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the site
- notice from any government entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products

Additionally, Mr. Wilson indicated that the Phase I ESA is required by the Connecticut solar permitting process, and purchase of the subject property is planned; the purchase price being paid for the subject property reasonably reflects the fair market value of the property.

RECORDS REVIEW

PHYSICAL SETTING SOURCES

Topography

The current USGS topographic map (Plainfield Quadrangle, 1983) indicates that the subject property is situated at elevations ranging from approximately 175 to 225 feet above mean sea level with topography sloping to the west. The adjacent topography consists of western-sloping hills, streams, ponds, and marshes.

Geology and Hydrogeology

According to *The Face of Connecticut: People, Geology, and the Land, State Geological and Natural History Survey of Connecticut, Bulletin 110*, Connecticut is fundamentally divided into a Collision terrane and a Great Crack terrane. The Collision terrane corresponds to the Eastern and Western Uplands, and the Great Crack corresponds to the Central Valley. The terranes may be further divided into four terranes from west to east of the state: the Proto-North American, Iapetos, Newark, Iapetos again, and Avalonian terranes. The Newark Terrane corresponds with the Central Valley Great Crack, and the others are subdivisions of the Uplands Collision terrane. Connecticut's present-day Uplands consist of moderate-sized plateaus and rolling hills.

Site Geology

According to the Connecticut Geological and Natural History Survey, Bedrock Geology of Connecticut, 2000, the western half of the subject property is underlain by mylonite along Paleozoic faults, which is described as fault-related rocks and as *"a compact, chert-like rock without cleavage, but with a streaky or banded structure, producted by the extreme granulation and shearing of rocks that have been pulverized and rolled during overthrusting or intense dynamic metamorphism."* The eastern half of the subject property is underlain by Hope Valley alaskite gneiss, which is described as light pink to grey and medium- to coarse-grained granitic gneiss.

According to the US Department of Agriculture's Natural Resources Conservation Service online Web Soil Survey database, the subject property is mainly comprised of extremely stony Ridgebury, Leicester, and Whitman soils, very stony Canton and Charlton soils, Hinckley loamy sand, and Scarboro muck in approximately zero to 15 percent slopes.

Regional Groundwater Occurrence and Quality

According to the USGS Mineral Resources Online Spatial Data database, the subject property is located within the USGS Quinebaug hydrologic unit and the USGS Connecticut Coastal hydrologic subregion.

During the preparation of this Phase I ESA, we reviewed the USGS's online Groundwater Watch database to determine groundwater elevation in the vicinity of the subject property:

- According to the field groundwater level measurement data for the USGS groundwater well (CT-PL 1) located near the intersection of North Pleasant Street and Pleasant Street in Plainfield, on October 26, 2015 groundwater was reported to be 31.18 feet below ground surface. This well is located approximately 0.72 mile to the west of the subject property.

In addition, according to the Connecticut Leaking Underground Storage Tank database listing for a property located approximately 0.34 mile to the northwest of the subject property, groundwater at the nearby site occurs at 8.54 to 15.36 feet below ground surface and flows to the southwest.

Based on the site topography sloping to the west, groundwater in the vicinity of the subject property is anticipated to flow to the west in accordance with the topographic gradient.

STANDARD ENVIRONMENTAL RECORD SOURCES

Environmental Data Resources, Inc. (EDR) was contracted to provide a database search of public lists of sites that generate, store, treat or dispose of hazardous materials or sites for which a release or incident has occurred. The EDR search was conducted for the subject property and included data from surrounding sites within specified radii of the property. A copy of the EDR report, which specifies the ASTM search distance for each public list, is included as Appendix 2. As shown on the attached EDR report, federal, state and county lists were reviewed as part of the research effort. Please refer to Appendix 2 for a complete listing of sites reported by EDR and a description of the databases reviewed.

The Map Findings Summary, included in the EDR report, provides a summary of the databases searched, the number of reported facilities within the search radii, and whether the facility is located onsite or adjacent to the subject property. The following information is based on our review of the Map Findings Summary and the information contained in the EDR report.

Subject Property

The subject property was not listed on any of the regulatory databases reviewed.

Offsite Properties

Offsite properties listed by EDR fall under two general categories of databases: those reporting unauthorized releases of hazardous substances (e.g., LUST, National Priority List [a.k.a. Superfund sites], and corrective action facilities), and databases of businesses permitted to use hazardous materials or generate hazardous wastes, for which an unauthorized release has not been reported to a regulatory agency.

Rincon reviewed the EDR Radius Map and select detailed listings to evaluate their potential to impact the subject property, based on the following factors:

- Reported distance of the facility from the subject property
- The nature of the database on which the facility is listed, and/or whether the facility was listed on a database reporting unauthorized releases of hazardous materials, petroleum products, or hazardous wastes
- Reported case type (e.g., soil only, failed UST test only)
- Reported substance released (e.g., chlorinated solvents, gasoline, metals)
- Reported regulatory agency status (e.g., case closed, "no further action")
- Location of the facility with respect to the reported groundwater flow direction (discussed in the Geology and Hydrogeology section of this report)

Facilities/properties that were interpreted by Rincon to be of potential environmental concern to the subject property, based on one or more of the factors listed above, are summarized in Table 2. In accordance with ASTM, contamination migration pathways in soil, groundwater, and soil vapor were considered in our analysis of offsite properties of potential environmental concern.

Table 2 - EDR Listing Summary of Select Sites within One-Quarter Mile of the Subject Site

Site Name	EDR Site ID	Site Address	Distance from Subject Property (miles)	Database Reference
Adjacent Properties				
State of Connecticut Department of Transportation Plainfield / CT DOT Maintenance Garage	B6, B7, C8, C9	9 Plainfield Pike Road / Exit 88 Off I-395/ Route 14A & 395	Adjacent Property – North	CT LWDS, CT MANIFEST, CT NPDES, **CT LUST**, **CT SPILLS**, CT CPCS
Nearby Release Sites				
BST Systems	A1, A2, A3, A4, A5	78 Plainfield Pike Road	<1/8 Mile - Northwest	CT ENF, CT MANIFEST, NY MANIFEST, RCRA-LQG, FINDS, NJ MANIFEST, RI MANIFEST, PA MANIFEST
Cournoyer Residence	13	85 Academy Hill Road	1/4-1/2 Mile – Northwest	**CT LUST**, **CT SPILLS**, CT CPCS

Note: EDR databases listed in bold are release databases.

Regulatory agency information reviewed for the listings in the table above are summarized in the Additional Environmental Record Sources section of this report.

Orphan Listings

EDR reported 13 orphan or unmapped site listings, which EDR is unable to plot due to insufficient address information. Based on Rincon's review of the limited address information or site descriptions for the orphan listings, none of the listings are expected to impact the subject property.

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

Review of Agency Files

As a follow-up to the database search, Rincon reviewed regulatory information for facilities within the specified search radii that were interpreted to have the potential to impact the subject property, based on one or more factors previously discussed (e.g., distance, open case status, up-gradient location, soil vapor migration).

The following is a summary of our review of regulatory information obtained from review of online sources (e.g., US EPA online RCRAInfo database) and/or files requested from the applicable regulatory agency, as described below. Copies of selected documents reviewed are included in Appendix 2.

Subject Property
The subject property was not listed in any of the databases searched by EDR.

Adjacent Properties
One adjacent property was listed in databases searched by EDR: State of Connecticut Department of Transportation (DOT) was listed as a CT LWDS, CT MANIFEST, CT NPDES, CT LUST, CT SPILLS, and a CT CPCS site.

- ***State of Connecticut Department of Transportation (DOT) Plainfield / CT DOT Maintenance Garage at 9 Plainfield Pike Road:*** This property is located adjacent to the north of the northwestern portion of the subject property.

  The Connecticut Leachate and Wastewater Discharge Sites (CT LWDS) database listing for this property indicates that the onsite facility has active and inactive ground discharge activity statuses for leachate and waste flow.

  The CT MANIFEST database listing for this property indicates that 68 pounds of solid hazardous waste was generated by the onsite facility and transported offsite.

  The National Pollutant Discharge Elimination System (NPDES) database listing lists wastewater permits issued by the Connecticut Department of Energy and Environmental Protection (DEEP). This listing indicates that the onsite facility holds an active permit through 2021 for "vehicle maintenance wastewater - GP," and holds an active permit through 2016 for "stormwater industrial activities – GP."

  The CT SPILLS database listing for this property indicates that a release of gasoline affected the soil onsite in 1998, a 3,000-gallon UST was removed and "routine changed due to age," contaminated soils were noted, contamination was to be removed, and a "sheen on groundwater" was noted as well.

  The Connecticut Leaking Underground Storage Tank (CT LUST) database for this property indicates that a release of motor fuel from a UST occurred onsite in 1998, the tank was removed and soil was excavated, soil and groundwater samples were collected, and the case status was "cleanup initiated" as of July 2013. According to Ms. Joanna Burnham of the DEEP's UST and Petroleum Division during a telephone conversation with Rincon Consultants on November 10, 2015, a 1,000-gallon UST was

removed from the site in 1991 and the report was written in 1998; case closure was requested but additional information was required at the time of the request.

Another CT LUST database listing for this property indicates that the status for a 1989 release of commercial heating fuel greater than 2,100 gallons is "completed."

The Connecticut Contaminated or Potentially Contaminated Sites (CT CPCS) database includes "hazardous waste facilities" in Connecticut. The listing for this property indicates that the property is a LUST site, cleanup was initiated, and remediation was started. Rincon contacted Mr. Paul Clark and Mr. Kevin Neary of the DEEP Remediation Division on November 10, 2015 and left voicemails for both contacts requesting additional information on this site; a response has not been received as of the date of this report.

Another CT CPCS database listing for this property indicates that the onsite LUST status is "completed" per the DEEP's significant hazard definition.

Nearby Release Sites

One nearby property was listed in databases searched by EDR: BST Systems was listed as a CT ENF, RCRA-LQG, FINDS, and a MANIFEST site with several states, and Cournoyer Residence was listed as a CT LUST, CT SPILLS, and CT CPCS site.

- ***BST Systems at 78 Plainfield Pike Road***: This property is located approximately 100 feet to the northwest of the subject property across Plainfield Pike Road. According to their website, BST Systems, Inc. is "*a successful, engineering oriented, high-technology business, dedicated to the design, development and manufacture of high-energy alkaline electrochemical cells, batteries and support electronic equipment. Established in January 1983, BST has specialized in the manufacture of rechargeable silver-zinc cells and batteries. Currently BST is expanding the Company's focus to include other battery chemistries, including lithium ion, as well as various associated products. BST is continuing to expand its Research & Development department and is conducting R&D in a number of electro-chemistries, including silver zinc improvement.*"

  The Connecticut Enforcement (CT ENF) database listing for this property indicates that the Bureau of Waste Management implemented unspecified hazardous waste enforcement actions in 2001, 2002, and 2007.

  The CT MANIFEST database listing for this property indicates that hazardous waste was transported offsite at least once yearly from 1985 to 2008. The transported hazardous waste included 55 to 5,086 gallons of inorganic, corrosive liquids, potassium hydroxide, and not otherwise specified environmentally hazardous liquids. In addition, the transported hazardous waste included 88 to 4,340 pounds of inorganic, corrosive liquids, paint, caustic alkali liquid, potassium hydroxide solution, silver sludge, filters, scrap cells, negative electrodes, and not otherwise specified liquid and solid hazardous waste.

  The NY MANIFEST database listing for this property indicates that 2,056 pounds of non-listed corrosive wastes generated by the onsite facility were transported in 2005 to a landfill.

  The Resource Conservation and Recovery Act – Large Quantity Generator (RCRA-LQG) database listing for this property indicates that the onsite facility began operations in 1983, and that the onsite facility "generates at least 1,000 kilograms of hazardous waste during any calendar month." In addition, the onsite facility generated ignitable, corrosive, and various other hazardous wastes reported biennially from 1984 through 2014. The listing also indicated that the onsite electroplating operations produce wastewater treatment

sludge, and that various regulation violations were issued for the facility in association with compliance evaluation inspections conducted from 2000 to 2008.

The NJ MANIFEST database listing for this property indicates that hazardous waste generated by the onsite facility was transported in 2004 and 2005.

The RI MANIFEST database listing for this property indicates that 110 gallons of zinc hydroxide sludge were transported in 2003, 3,328 gallons of hazardous waste were transported in 2006, 3,022 gallons of hazardous waste were transported in 2007, and 424 pounds of hazardous waste were transported in 2014.

- ***Cournoyer Residence at 85 Academy Hill Road***: The CT LUST database listing for this property, located approximately 0.25 mile to the northwest of the subject property, indicates that a release of heating fuel occurred onsite in December 1998, "micro" wells were installed, groundwater and soil samples were collected, a "survey" was conducted, and the case is ongoing as of 2010. In addition, the release was noted to be due to heating fuel line failure, and 200 to 300 gallons were released to the subsurface; contractor cleanup was overseen and closure samples were obtained.

  The CT SPILLS database listing indicates that 300 gallons of fuel oil were released onsite in December 1998 due to a transfer line leak from the UST system, the release indicator was oil observed on the ground surface, the homeowner repaired the leak, and from the end of October through mid-December approximately 300 gallons were lost.

  The CT CPCS database listing indicates that the property is a pending LUST site. No additional information regarding this release was provided in the EDR report or on the US EPA online RCRAInfo database. Rincon contacted Mr. Paul Clark and Mr. Kevin Neary of the DEEP Remediation Division on November 10, 2015 and left voicemails for both contacts requesting additional information on this site; a response has not been received as of the date of this report.

  Based on the distance of the site from the subject property and the potential direction of groundwater flow (to the west, downgradient of the subject property), this site does not represent an environmental concern to the subject property.

KNOWN OR SUSPECT CONTAMINATED RELEASE SITES WITH POTENTIAL VAPOR MIGRATION

The EDR report was reviewed to identify nearby known or suspect contaminated sites that have the potential for contaminated vapor originating from the nearby site to be migrating beneath the subject property. Based on the ASTM E 2600-10, *Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*, the following minimum search distances were initially used to determine if contaminated soil vapors from a nearby known or suspect contaminated site have the potential to be migrating beneath the subject property:

- 1/10 mile (528 feet) for petroleum hydrocarbons
- 1/3 mile (1,760 feet) for other contaminants of concern (COCs)

If up-gradient known or suspect contaminated sites are located within the above referenced distances from the subject property, online resources are reviewed to determine the extent of

the contaminated plume at those sites. The following describes search distances for contaminated plumes of petroleum hydrocarbons and other COCs.

Petroleum Hydrocarbons

Based on our review of the EDR report information as indicated above, there are no adjacent or up-gradient known or suspect petroleum hydrocarbon impacted soil or groundwater plumes located within 30 feet of the subject property.

Other COCs

Based on our review of the EDR report, there are no adjacent or up-gradient known or suspect contaminated soil or groundwater plumes located within 100 feet of the subject property.

Review of State of Connecticut Oil and Gas Sites

EDR indicated that there are no oil wells in the state of Connecticut. In addition, a review of Connecticut oil and gas fracking sites[1] indicates that no natural gas drilling sites are located within ¼ mile of the subject property.

HISTORICAL USE INFORMATION ON THE PROPERTY AND THE ADJOINING PROPERTIES

The historic records review completed for this Phase I ESA includes aerial photographs, topographic maps, fire insurance maps, and city directories as detailed in the following sections. Copies of the historical resources reviewed are included in Appendix 3. Table 3 provides a summary of the historical use information available for the subject property.

Review of Historic Aerial Photographs

Aerial photographs from EDR's aerial photograph collection were obtained and reviewed.

Review of City Directory Listings

EDR was contracted to provide copies of city directory listings for the subject property. As indicated in the attached report, no records were available for the subject property, western or southern adjacent properties.

Review of Fire Insurance Maps

EDR was contracted to provide copies of fire insurance maps for the subject property. As indicated in the attached report, fire insurance maps were not available for the subject property or adjacent properties.

[1] Drilling Maps: Map of Connecticut Oil & Gas Fracking Health & Safety Issues, http://www.drillingmaps.com/connecticut.html#.VilePvlVhBc

Review of Historic Topographic Maps

Historic topographic maps from EDR's map collection were reviewed.

Review of Town of Plainfield Building Permit Records

Based on information obtained from other historic sources, no building permit records for the subject property were reviewed.

Other Historic Sources

Based on information obtained during the completion of this Phase I ESA, no other historic sources were reviewed.

Summary of Historic Uses

Subject Property

Based on our review of the documents listed above and summarized in Table 3 below, it appears that the subject property was mainly undeveloped woodland with a cleared area in the southeastern portion of the subject property from approximately 1934 to 1970. A building is present in the northeastern portion of the subject property from approximately 1934 to 1970; the building is no longer present by 1974. By 1986, the previously cleared area appears to be fallow; the subject property resembles its present-day configuration from 1990 to 2012. The historic topographic maps reviewed depict the subject property as undeveloped woodland with two streams traversing the property in 1893, 1915, 1943, and 1953; a structure is depicted in the northeastern portion of the subject property in 1970 and 1983. City directories and fire insurance maps were not available for the subject property.

Table 3 - Historical Use of the Subject Property

Year	Use	Source
Plainfield Pike, Plainfield, Connecticut		
1893	The subject property is depicted as vacant; a stream appears to traverse the western portion of the subject property.	Topographic Map (TM) – Moosup Quadrangle
1915	The subject property is depicted as undeveloped woodland.	TM – Moosup Quadrangle
1934	The subject property appears to be mainly undeveloped woodland, and an area in the southeastern portion of the subject property appears to be cleared.	Aerial Photograph (AP) - USGS
1941	Similar to the 1934 AP.	AP – EDR
1943	The subject property is depicted as vacant, and two streams traverse the subject property.	TM – Plainfield Quadrangle
1943	The subject property is depicted mainly as woodland, and a stream traverses the subject property.	TM – Putnam Quadrangle
1951	A building is located in the northeastern portion of the subject property, and an area in the southeastern portion of the subject property is cleared.	AP – USGS

Year	Use	Source
1953	The subject property is depicted as vacant, and two streams traverse the subject property.	TM – Plainfield Quadrangle
1969	Similar to the 1953 AP.	AP – USGS
1970 (photorevised 1953)	The subject property is depicted mainly as woodland; two streams traverse the subject property, and one structure is located in the northeastern portion of the subject property.	TM – Plainfield Quadrangle
1970	Similar to the 1969 AP.	AP – EDR
1974	Similar to the 1970 AP.	AP – USGS
1983	The subject property is depicted mainly as vacant; two streams traverse the subject property, and one structure is located in the northeastern portion of the subject property.	TM – Plainfield Quadrangle
1986	The subject property appears to be undeveloped woodland, with the previously cleared area in the southeastern portion that appears to be fallow.	AP – USGS
1990	Similar to the 1986 AP.	AP – EDR
1991	Similar to the 1990 AP.	AP – USGS/DOQQ
1996	Similar to the 1991 AP.	AP – EDR
2005	The subject property resembles its present-day configuration.	AP – USDA/NAIP
2006	Similar to the 2005 AP.	AP – USDA/NAIP
2008	Similar to the 2006 AP.	AP – USDA/NAIP
2010	Similar to the 2008 AP.	AP – USDA/NAIP
2012	Similar to the 2010 AP.	AP – USDA/NAIP

Northern Adjacent Properties (9-97 Plainfield Pike)

Based on our review of the documents listed above, it appears that the northern adjacent properties were mainly vacant, cleared woodland from approximately 1934 to 1941; by 1951 one structure appears to be located south of Plainfield Pike, and by 1969 two structures are present; by 1970 five structures are present, and from 1974 to 1990 six structures are present. From 1991 to 1996, seven structures appear to be located south of Plainfield Pike, and from 2006 to 2012, eight structures are present. In addition, from 1951 to 1969, at least two buildings appear to be located adjacent to the north of Plainfield Pike. From 1970 to 1986, four buildings appear to be located adjacent to the north of Plainfield Pike, and from 1990 to 2012, three buildings are present. The historic topographic maps reviewed depict the northern adjacent properties as mainly undeveloped woodland and marsh, with two structures located south of Plainfield Pike in 1915, and five structures present in 1970 and 1983. In addition, two structures were located north of Plainfield Pike in 1893, 1915, and 1943; four structures were present in 1953 and 1983; three structures were present in 1970. City directories available for the northern adjacent properties indicate that 33 through 97 Plainfield Pike were occupied by residents and a church from approximately 1992 to 2013. In addition, 9 Plainfield Pike was occupied by the Connecticut Department of Transportation in 1995, 2003, and 2008; 78 Plainfield Pike was occupied by BST Systems in 2003 and 2008.

Eastern Adjacent Properties (91 and 107 Plainfield Pike)
Based on our review of the documents listed above, it appears that the eastern adjacent properties were developed with two buildings and eight smaller structures from approximately 1934 to 1941; from 1951 to 1974, four buildings and one smaller structure appear to be present. From 1986 to 2012, three buildings appear to be located on the eastern adjacent properties. The historic topographic maps reviewed depict the eastern adjacent properties as undeveloped woodland in 1893, 1915, and 1943; four structures were located on the eastern adjacent properties in 1953, five structures were present in 1970, and four structures were present in 1983. City directories available for the eastern adjacent properties indicate that 91 and 107 Plainfield Pike were occupied by residents from 1995 to 2013.

Southern Adjacent Properties
Based on our review of the documents listed above, it appears that the southern adjacent properties were undeveloped woodland from approximately 1934 to 2012. The historic topographic maps reviewed southern adjacent properties as mainly undeveloped woodland in 1893, 1915, 1943, 1953, 1970, and 1983. City directories were not available for the southern adjacent properties.

Western Adjacent Properties
Based on our review of the documents listed above, it appears that the western adjacent properties were undeveloped woodland from approximately 1934 to 1951; by 1969, Interstate 395 was developed along with a trailer park and agricultural fields to the west of the Interstate through 2012. The historic topographic maps reviewed depict the western adjacent properties as undeveloped woodland in 1893, 1915, and 1943; Interstate 395 was depicted adjacent to the west of the subject property in 1953, 1970, and 1983, followed by a trailer park. Fire insurance maps were not available for the western adjacent properties. City directories were not provided by EDR for the western adjacent properties.

Gaps in Historical Sources

Several gaps of greater than 5 years were identified in the historical records reviewed, from 1893 to 1915, from 1915 to 1934, from 1934 to 1941, from 1943 to 1951, from 1953 to 1969, from 1974 to 1983, and from 1996 to 2005. These gaps are considered insignificant because the subject property use appears to be similar prior to and following the gaps.

INTERVIEWS

Rincon Consultants performed interviews regarding the subject property and surrounding areas. The purpose of the interview was to discuss current and historical subject property conditions and to obtain information indicating the presence of recognized environmental conditions in connection with the property.

INTERVIEW WITH OWNER

An interview questionnaire was provided to the subject property owner prior to the site reconnaissance. Ms. Rachel Rubin, co-trustee of the Sheppard-Stener Trust, completed the questionnaire on October 30, 2015. A copy of the completed questionnaire is included in Appendix 1. The following information is based on information obtained during our review of the completed questionnaire.

Ms. Rubin indicated the following:

- The subject property and/or adjacent properties were previously used as a farm.
- The subject property is currently vacant land.
- The northern adjacent property is Plainfield Pike.
- The eastern adjacent property is currently occupied by a warehouse building.
- The current owner of the subject property is the Sheppard-Stener Trust, with Rachel Rubin and Sherry Wiener as co-trustees.
- They obtained ownership of the subject property on January 31, 1983.
- The former owner of the subject property was Herman Sheppard and Stener.
- The subject property is not serviced by any utility providers.
- There is no Title Report available for the subject property.

Ms. Rubin indicated she is unaware of the following:

- The current uses of the southern and western adjacent properties
- The previous uses of the subject property and adjacent properties

The property owner indicated she is unaware of the presence of industrial drums, storage tanks (above or below ground), fill dirt, pits, ponds, lagoons, sumps, clarifiers, solvent degreasers, stained soil, hazardous materials or hazardous wastes on the site.

The property owner indicated that she is not aware of any pending, threatened, or past litigation or administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the property. In addition, she is not aware of any notice from any government entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products.

INTERVIEW WITH SITE MANAGER

A site manager for the subject property was not identified during the completion of this Phase I ESA.

INTERVIEWS WITH OCCUPANTS

Because the subject property is undeveloped woodland, no occupants were interviewed as part of this research effort.

INTERVIEWS WITH LOCAL GOVERNMENT OFFICIALS

During a telephone conversation with Ms. Joanna Burnham of the DEEP's UST and Petroleum Division on November 10, 2015, Rincon Consultants obtained information regarding an adjacent LUST site discussed in the Additional Environmental Sources section above.

In addition, Rincon contacted Mr. Paul Clark and Mr. Kevin Neary of the DEEP Remediation Division on November 10, 2015 and left voicemails for both contacts requesting additional information on an adjacent and a nearby LUST site; a response has not been received as of the date of this report.

INTERVIEWS WITH OTHERS

Rincon did not attempt to interview neighboring property owners or others as part of this research effort.

SITE RECONNAISSANCE

Rincon Consultants performed a reconnaissance of the subject property on October 21, 2015. The purpose of the reconnaissance was to observe existing subject property conditions and to obtain information indicating the presence of recognized environmental conditions in connection with the property.

METHODOLOGY AND LIMITING CONDITIONS

The site reconnaissance was conducted by 1) observing the subject property from public thoroughfares, 2) observing the adjacent properties from public thoroughfares, and 3) observing the subject property from adjacent roads and walking paths.

Because the subject property is covered with undeveloped woodlands, the subject property was inaccessible. However, the subject property was observed from vantage points along Highway 395 and Plainfield Pike.

CURRENT USE OF THE PROPERTY AND ADJACENT PROPERTIES

The subject property is currently dense undeveloped woodlands. Adjacent properties include BST Systems, Inc., Department of Transportation Maintenance Center, a church, apartments, Highway 395 and vacant, undeveloped woodlands.

PAST USE OF THE PROPERTY AND ADJACENT PROPERTIES

Based on our site reconnaissance, past uses at the subject property and adjacent properties are not readily apparent, with the exception of an eastern adjacent property. A sign on the building located on the eastern adjacent property indicated that it was formerly "Michalski's Mill Flea Market." The building is now vacant.

CURRENT OR PAST USES IN THE SURROUNDING AREAS

The subject property is surrounded by residential, commercial, and industrial land uses and vacant land as detailed in the Site Description section of this report. Past uses of the surrounding area are not readily apparent based on the site reconnaissance, with the exception of the former flea market to the east of the subject property.

GEOLOGIC, HYDROGEOLOGIC, HYDROLOGIC AND TOPOGRAPHIC CONDITIONS

Geologic, hydrogeologic, hydrologic and topographic information are as previously stated in the Physical Settings Section of this report.

GENERAL DESCRIPTION OF STRUCTURES

The subject property is vacant, undeveloped land. There are no onsite structures.

INTERIOR AND EXTERIOR OBSERVATIONS

Storage Tanks

During the site reconnaissance, above-ground storage tanks or evidence of underground storage tanks were not observed.

Drums

During the site reconnaissance, no drums were observed on the subject property.

Hazardous Substances and Petroleum Products

No hazardous substances or petroleum products were identified at the subject property.

Unidentified Substance Containers

Unidentified substance containers or unidentified containers that might contain hazardous substances were not observed during the site reconnaissance.

Odors

During the site reconnaissance, Rincon did not identify any strong, pungent, or noxious odors.

Pools of Liquid

During the site reconnaissance, Rincon did not identify any pools of liquid including standing surface water. In addition, sumps containing liquids likely to be hazardous substances or petroleum products were not observed.

Indications of Polychlorinated Biphenyls (PCBs)

Indications of PCBs were not identified on the subject property during the site reconnaissance.

Other Conditions of Concern

During the site reconnaissance Rincon did not note any of the following:

- stains or corrosion
- clarifiers and sumps
- degreasers/parts washers
- pits, ponds, and lagoons
- stained soil or stained pavement
- stressed vegetation
- solid waste/debris
- waste water
- wells
- septic systems/effluent disposal system

EVALUATION

FINDINGS

Known or suspect environmental conditions associated with the property include the following:

- Nearby battery manufacturing facility
- Adjacent Connecticut Department of Transportation maintenance garage

OPINIONS

A. ***Nearby battery manufacturing facility -*** This property, occupied by BST Systems, Inc. is located approximately 100 feet to the northwest of the subject property across Plainfield Pike Road. According to their website, BST Systems, Inc. is "*a successful, engineering oriented, high-technology business, dedicated to the design, development and manufacture of high-energy alkaline electrochemical cells, batteries and support electronic equipment. Established in January 1983, BST has specialized in the manufacture of rechargeable silver-zinc cells and batteries. Currently BST is expanding the Company's focus to include other battery chemistries, including lithium ion, as well as various associated products. BST is continuing to expand its Research & Development department and is conducting R&D in a number of electro-chemistries, including silver zinc improvement.*" According to the EDR report, hazardous waste relating to the onsite manufacture of batteries and other electrochemical products is generated onsite and transported offsite at least once yearly from at least 1984 to 2014. None of the listings are indicative of a hazardous materials release on the site. Therefore, the nearby battery manufacturing facility is considered a *de minimis condition.*

B. ***Adjacent Connecticut Department of Transportation maintenance garage –*** This property, occupied by the Connecticut DOT Maintenance Garage, is located adjacent to the north of the northwestern portion of the subject property. According to the EDR report, hazardous

waste generated by the onsite facility is transported offsite, and the facility holds wastewater and stormwater permits for vehicle maintenance activities.

The CT SPILLS database listing for this property indicates that a release of gasoline affected the soil onsite in 1998, a 3,000-gallon UST was removed and "routine changed due to age," contaminated soils were noted, contamination was to be removed, and a "sheen on groundwater" was noted as well.

The Connecticut Leaking Underground Storage Tank (CT LUST) database for this property indicates that a release of motor fuel from a UST occurred onsite in 1998, the tank was removed and soil was excavated, soil and groundwater samples were collected, and the case status was "cleanup initiated" as of July 2013. According to Ms. Joanna Burnham of the DEEP's UST and Petroleum Division during a telephone conversation with Rincon Consultants on November 10, 2015, a 1,000-gallon UST was removed from the site in 1991 and the report was written in 1998; case closure was requested but additional information was required at the time of the request. Another CT LUST database listing for this property indicates that the status for a 1989 release of commercial heating fuel greater than 2,100 gallons is "completed."

The Connecticut Contaminated or Potentially Contaminated Sites (CT CPCS) database includes "hazardous waste facilities" in Connecticut. The listing for this property indicates that the property is a LUST site, cleanup was initiated, and remediation was started. Another CT CPCS database listing for this property indicates that the onsite LUST status is "completed" per the DEEP's significant hazard definition. Rincon contacted Mr. Paul Clark and Mr. Kevin Neary of the DEEP Remediation Division on November 10, 2015 and left voicemails for both contacts requesting additional information on this site; a response has not been received as of the date of this report.

Based on the nature of the listings and the proximity of the site to the subject property, the adjacent Connecticut DOT maintenance garage is considered a *potential Recognized Environmental Condition (REC)*.

CONCLUSIONS

Rincon has performed a Phase I ESA in general conformance with the scope and limitations of ASTM E 1527-13 for the property located at Plainfield Pike, Plainfield, Connecticut. This assessment has revealed evidence of one potential Recognized Environmental Condition in connection with the subject property as follows:

Potential Recognized Environmental Condition

1. Adjacent Connecticut Department of Transportation maintenance garage

RECOMMENDATIONS

To evaluate the potential subject property impact associated with the adjacent Connecticut DOT maintenance garage, Rincon recommends reviewing any records available at the DEEP's Remediation Division to determine whether remediation for the site was completed and to determine the status of the two known release cases (LUST #31140/SPILLS #9800659 and LUST #29422).

Based on our review of historical sources, it appears that a structure was present in the northeastern portion of the subject property from approximately 1934 to 1970. Although not considered a REC, former building foundations and used building materials may be present in this area.

DEVIATIONS

A lien search and chain of title review were not completed as part of this assessment. Other deviations from ASTM Practice were not encountered during the completion of this Phase I ESA.

REFERENCES

The following published reference materials were used in preparation of this Phase I ESA:

Environmental database: Environmental Data Resources (EDR) report dated October 9, 2015.

Geology: Connecticut Department of Environmental Protection, State Geological and Natural History Survey of Connecticut, and Michael Bell, *Bulletin 110, The Face of Connecticut: People, Geology, and the Land*, 1985: http://www.tmsc.org/face_of_ct/index.html; USGS Mineral Resources Online Spatial Data database, https://mrdata.usgs.gov/geology/state/state.php?state=CT; United States Department of Agriculture (USDA), National Resources Conservation Service (NRCS), *Web Soil Survey (WSS)*: http://websoilsurvey.nrcs.usda.gov/app/.

Groundwater: USGS Mineral Resources Online Spatial Data database, https://mrdata.usgs.gov/geology/state/state.php?state=CT; USGS Groundwater Watch Long-Term Groundwater Data Network, http://groundwaterwatch.usgs.gov/Net/OGWNetworkLTN.asp?ncd=ltn&a=1&d=1.

Topography: USGS topographic map (1983, Plainfield Quadrangle).

Oil and gas records: Drilling Maps: Map of Connecticut Oil & Gas Fracking Health & Safety Issues, http://www.drillingmaps.com/connecticut.html#.VilePvlVhBc; EDR Report dated October 9, 2015.

Aerial photographs: Photos provided by EDR.

Fire insurance maps: Maps provided by EDR.

City directory listings: Listings provided by EDR.

Historic topographic maps: Maps provided by EDR.

Parcel data: Northeastern Connecticut Council of Governments online GIS Map Viewer, http://www.http://neccog.org/gis/.

SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

The qualified environmental professionals that are responsible for preparing the report include Walt Hamann and Sarah A. Larese. Their qualifications are summarized in the following section.

"We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in 312.10 of 40 CFR 312. We have the specific qualifications based on education, training and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312."

Signature	November 18 2015 Date
Walt Hamann, PG, CEG, CHG Name	Vice President Title
Signature	November 18, 2015 Date
Sarah A. Larese Name	Senior Environmental Scientist Title

QUALIFICATIONS OF ENVIRONMENTAL CONSULTANTS

The environmental consultants responsible for conducting this Phase I ESA and preparing the report include Walt Hamann, Sarah A. Larese, Lauren Kodama Roenicke, and Savanna Vrevich. Their qualifications are summarized below.

Environmental Professional Qualifications	X2.1.1 (2) (i) - Professional Engineer or Professional Geologist License or Registration, and 3 years of full-time relevant experience	X2.1.1 (2) (ii) - Licensed or certified by the Federal Government, State, Tribe, or U.S. Territory to perform environmental inquiries	X2.1.1 (2) (iii) – Baccalaureate or Higher Degree from and accredited institution of higher education in a discipline of engineering or science and the equivalent of 5 years of full-time relevant experience	X2.1.1 (2) (iii) – Equivalent of 10 years of full-time relevant experience
Walt Hamann	PG, CHG, CEG		MS Geology	30 years
Sarah A. Larese			BA Environmental Studies	16 years
Lauren Kodama Roenicke			BS Environmental Studies	3 years
Savanna Vrevich			BS Environmental Studies	1 year

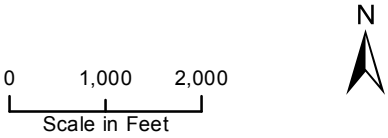
Walt Hamann, PG, CEG, CHG, is a Principal and Senior Geologist with Rincon Consultants. He holds a Bachelor of Arts degree in geology from the University of California, Santa Barbara and a Master of Science degree in geology from the University of California, Los Angeles. He has over 30 years of experience conducting assessment and remediation projects and has prepared or overseen the preparation of hundreds of Phase I and Phase II Environmental Site Assessments throughout California. Mr. Hamann is a Professional Geologist (#4742), Certified Engineering Geologist (#1635), and Certified Hydrogeologist (#208) with the State of California.

Sarah A. Larese is a Senior Environmental Scientist with Rincon Consultants. She holds a Bachelor of Science degree in environmental studies from the University of California, Santa Barbara, California. Ms. Larese has experience in development, implementation and project management of environmental assessment and remediation projects, especially relating to underground storage tanks. Ms. Larese's responsibilities at Rincon include implementation of Phase I and II Environmental Site Assessments as well as conducting site remediation field activities and preparation of environmental reports. She has 16 years of experience conducting research, assessment and remediation projects.

Lauren G. Kodama Roenicke is an Environmental Scientist with Rincon Consultants. She holds a Bachelor of Science degree in Environmental Studies with an outside concentration of Ecology, Evolution, and Marine Biology from the University of California, Santa Barbara. Ms. Kodama has experience working on Phase I Environmental Site Assessments for a variety of commercial, rural, and industrial properties. In addition, Ms. Kodama has been involved in working on large scale, multi-site projects. Ms. Kodama's responsibilities at Rincon include implementation of Phase I and Phase II Environmental Site Assessment Reports.

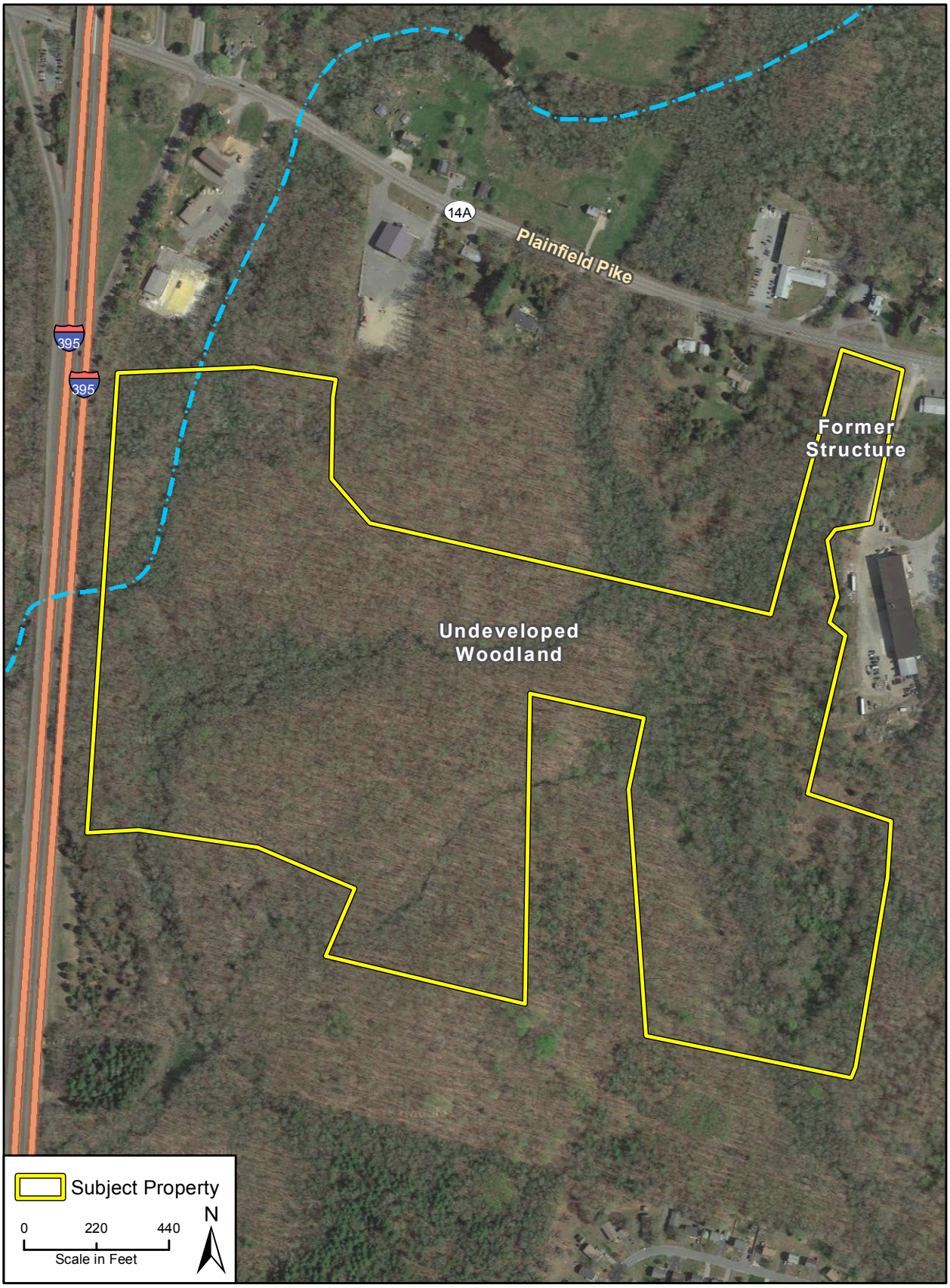
Savanna Vrevich is an Environmental Scientist with Rincon Consultants. She holds a Bachelor of Science degree in Environmental Studies with an outside concentration of Ecology, Evolution, and Marine Biology from the University of California, Santa Barbara. Ms. Vrevich's responsibilities at Rincon include implementation of Phase I Environmental Site Assessment Reports.

Imagery provided by National Geographic Society, ESRI and its licensors © 2015. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.



Vicinity Map

Figure 1



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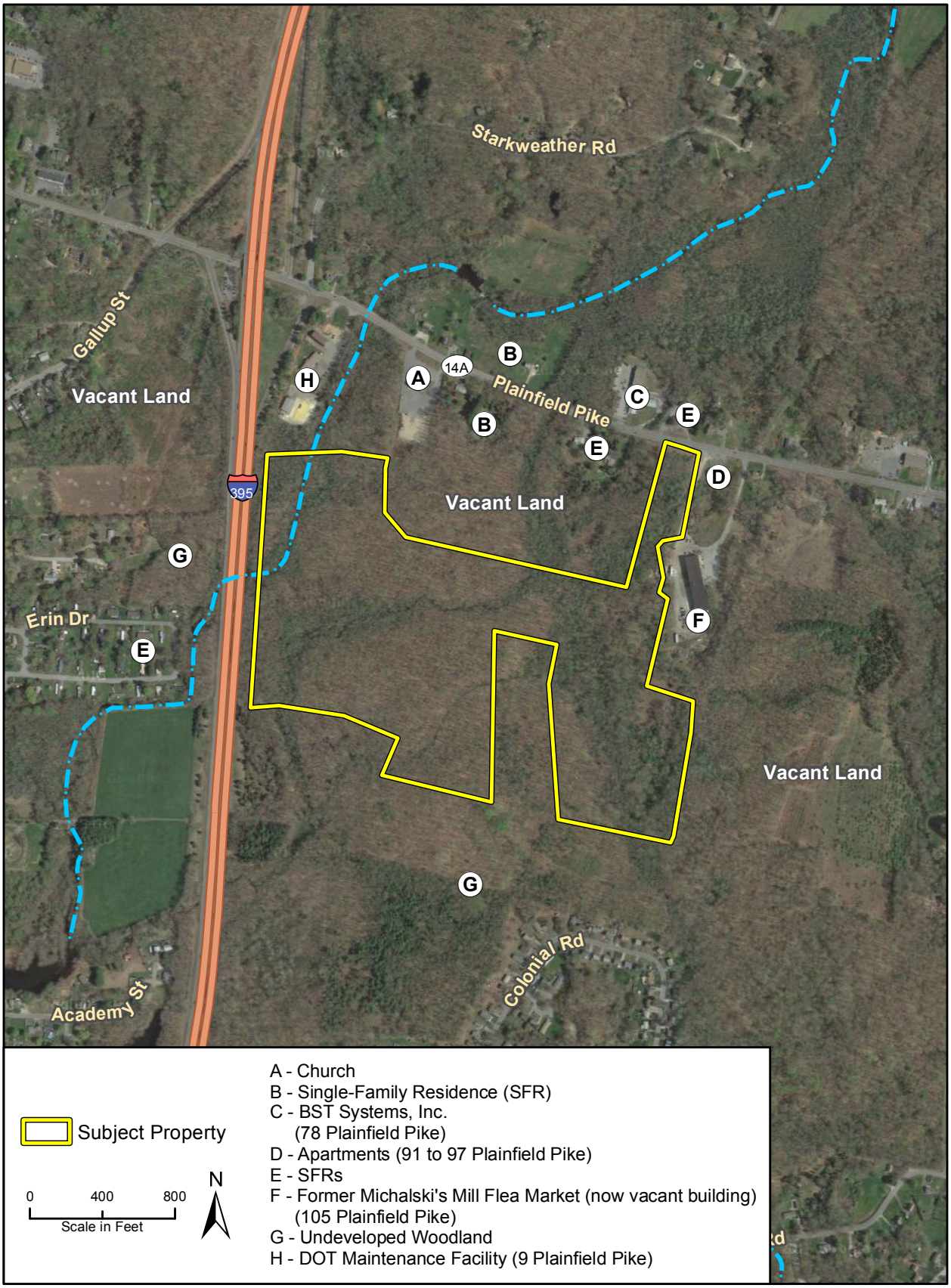
Site Map

Figure 2



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Adjacent Land Use Map

Figure 3

Photograph 1: View of woodlands on the northern portion of the subject property, facing south.

Photograph 2: View of Plainfield Pike along the northern portion of the subject property, facing west.

Photograph 3: View of woodlands on the subject property.

Photograph 4: View of BST Systems, Inc., adjacent to the north of the subject property (across Plainfield Pike), facing northwest.

Photograph 5: View of apartments adjacent to the east of the subject property, facing southeast.

Photograph 6: View of the former flea market building adjacent to the east of the subject property, facing southwest.

Figure 4

Exhibit F

Wetlands Report and submitted self-verification form

HIGHLAND SOILS LLC

WETLAND REPORT

PLAINFIELD PIKE SOLAR FACILITY
91 PLAINFIELD PIKE
PLAINFIELD, CONNECTICUT

PREPARED FOR
ECOS ENERGY

BY
JOHN P. IANNI
PROFESSIONAL SOIL SCIENTIST

APRIL 27, 2016
REVISED AUGUST 17, 2017

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INTRODUCTION

The project site contains just over 69 acres and is located on the south side of Plainfield Pike Road and westerly of Interstate 396 in Plainfield, CT. The site is currently wooded and slopes in a general east to west direction. In the fall of 2015 the inland wetland boundaries were field delineated and in March and April of 2016 additional site walks were conducted to collect information on the natural resources of the site.

The inland wetland delineation on the subject property was completed on August 30, 2015. The wetlands were field delineated in accordance with the standards of the National Cooperative Soil Survey and the definition of wetlands as found in the Connecticut General Statutes, Chapter 440, Section 22A-38. I have reviewed the prepared plans have found the representation of the field delineated wetlands to be substantially correct.

The eastern-most wetland line was flagged as part of the 2015 wetland survey, however, a previous wetland survey was conducted on the property and the eastern-most line is from the previous survey. Most of the previous flags were visible and the more recent line is in general agreement with the older line.

Additionally, the wetland boundaries also conform to the jurisdictional wetlands definition (Federal or Army Corps wetlands) as based on:

> Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, US Army Engineer Waterways Experiment Station, Vicksburg, Miss.

EXISTING CONDITIONS

The subject property is currently wooded with mixed hardwood species. A small logging operation has been ongoing on the property since the summer of 2015 and a selective harvest of hardwoods for firewood has removed most of the Ash trees and some Oaks. The operation was mainly concentrated in the eastern third of the site where the trees were cut and then skidded to a processing area on the adjacent property to the east. Small skid roads traverse the site, including wetland areas. However, minimal disturbance to the soils was observed in the spring of 2016.

As stated earlier, the site slopes from east to west and two watercourse systems traverse the site. The site contains a small area of sand and gravel dominated soils in the northeastern limits of the site, but glacial till dominates the soil resources.

The site consists of two parcels of land that are very distinguishable based on historic land uses, which have impacted the current vegetative communities. The eastern third of the site contains an understory dominated by Japanese barberry with Multiflora rose thickets. Older field areas also contain Multiflora rose and Honeysuckle, the species are indicative of a transition from agriculture to the present woodlands. The western third of the property contains a more mature Oak/Hickory growth with less of the invasive species. The understory is more open in the western portion of the property and the forest is more typical of areas that have not been used for agriculture in the recent past.

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WETLAND RESOURCES

The mapped wetlands comprise approximately a quarter of the site. Two perennial watercourses enter and exit the site, and although they combine offsite, they originate from different drainage areas. The main wetland feature on the site is a large system that is found in the eastern third of the site. Along the southeastern property line a small intermittent or seasonal watercourse enters the site and flows northerly toward the main body of the wetland. The watercourse hugs the western edge of the wetland before it exits and reenters from the abutting Dodge property. The eventual discharge is off the property along the southern property line. The watercourse channel is well defined through the upper portion of the wetlands where it is buffered by wide areas of poorly drained or wetland soils. After the watercourse renters the property it is in a well-defined but small channel with just a narrow strip of wetland soils along its edges. No evidence of overbank flow was noted along the lower channel, and surface flows appear diminished by the capacity of the main body of wetlands to store surface water after precipitation events.

The main body of the wetland is along the northern property line where a perennial watercourse also enters the property. The perennial watercourse enters the wetland system along the northern border near the northeastern corner of the abutting church property. Ground water seepage wetlands were noted to the east of the watercourses. The water course channel is well defined and recent overbank flows were noted. The ground surface is very stony and flat and the watercourse channel tends to flow along the western edge of the mapped wetlands. The vegetation begins to transition at this point and along with Red maple, Winterberry begins to appear in the understory. The ground cover includes Sphagnum moss, Skunk cabbage, False hellsbore, Sensitive fern and Blue flag iris. Japanese barberry is still present in this area. Surface water flow outside of the defined channel is diffuse and evidence of ponding after precipitation events is apparent in the main wetland body. A small upland island was mapped adjacent to the perennial watercourse.

The ground water seepage wetlands are wooded with Red maple as the dominant tree species. The understory reflects the agricultural history of the property and Multiflora rose is prevalent, but Japanese barberry dominates the wetland boundaries and drier portions of the wetland. Spicebush is also present but the barberry forms the majority of the understory. In the interior of the wetland where openings in the canopy allow for more light penetration, Soft rush and Woolgrass are found. Oaks, Hickory and Ash are also present in the wetland and are a reflection of the seasonally fluctuating water table within the wetlands.

The wetland system narrows as the topographic gradient increases. The next few hundred feet of wetlands are characterized by the perennial watercourse and a small buffer of wetland soils. The vegetation also transitions to a more mature mixed hardwood system. The channel size decreases as the topographic gradient increases and overbank flows are not as apparent.

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The wetland system flows westerly to a large flat area where flows are dissipated and the channel size decreases and turns to the south before discharging off the property in the southwestern portion of the property. At the property line, an existing stone wall acts as a small constriction in the system and overbank flows are apparent.

A separate wetland system was observed along the northwestern corner of the property. It should be noted that although the hydrology of this wetland system is separate from the main body of wetlands, there is a connection between the two wetlands that results in a continuous wetland mapping between the two areas. The two systems do not have a surface flow connection, and a distinct drainage divide was noted between the systems. This wetland is associated with a perennial watercourse that enters the subject property from the State Department of Transportation property located in the northwestern corner of the site. The wetland associated with the watercourse is a Red maple/Highbush blueberry, Sweet pepperbush plant community with very poorly drained soils that are saturated to the surface for most of the year.

The final wetland is an isolated area of poorly drained soils located along the southern property line. This wetland system has a seasonally high water table but is not associated with any surface water or surface flows. The vegetation consists of mixed hardwoods that include Red maple, White oak and Shagbark hickory. American beech is in the understory and the wetland is supported by shallow ground water flows.

VERNAL POOL HABITAT

On March 30, 2016 a survey for breeding amphibians was conducted on the property. Skies were mostly cloudy in the morning with clearing skies in the afternoon. Temperatures ranged from the upper 40's F to the upper 50's by late afternoon. Three areas of breeding amphibians were found within the mapped wetlands.

A second survey was conducted on April 13, 2016. Temperatures were around 55 degrees F and skies were sunny.

It should be noted that Vernal Pool Assessments (Assessment Sheets attached) were conducted in accordance with the methodology contained in the following publication, hereafter referred to as the BDP (Best Development Practices):

> *Calhoun, A. J. K. and M. W. Klemens. 2002. Best development practices: Conserving pool-breeding amphibians in residential and commercial developments in the northeastern United States. MCA Technical Paper No. 5, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York.*

Area #1 is located in a small area of standing surface water adjacent to wetland flag #23. The area of surface water was approximately 10 feet by 20 feet and up to a foot in depth. The area is adjacent to diffuse surface flows within the mapped wetlands but the hydrology appears to be supported by shallow ground water flows. Eleven Wood frog egg masses were noted in a

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cluster along the edge of the pool. A single Spotted salamander egg mass was also seen in the second survey. A small area of shallow standing water was noted just north of the breeding area; this area does not contain wetland soils and no breeding activity was noted.

The second area of breeding amphibians was found in the center of the southeastern wetland finger and is located equidistant from wetland flags #136 and #C39. The breeding pool is an older man-made excavation adjacent to the seasonal watercourse. The pool is approximately 15 feet in diameter and up to two feet deep. It is clearly man-made and the spoils are located along all the edges. The spoils separate the surface flow of the intermittent watercourse from the ground water-fed breeding pool. In this breeding area 18 Spotted salamander egg masses and eleven Wood frog egg masses were noted.

The third breeding area is located approximately 100 feet to the south along the western edge of the mapped wetlands. A small depression with shallow ponding of less than one foot was noted and two Spotted salamander egg masses and four Wood frog egg masses were noted.

All three of the pools are rated as Tier I based on the Vernal Pool Assessment.

Individual Wood frog and Spotted salamander egg masses were scattered throughout the upper or eastern portion of the wetland and are associated with small micro-pools and shallow ponded areas created by previous logging activities.

VERNAL POOL IMPACTS

VERNAL POOL DEPRESSION #1

As designed no activity is proposed with the Vernal Pool depression.

The existing terrestrial habitat for Vernal Pool 1:

Vernal Pool Envelope:	0.8 acres	
Wetland	0.36 ac.,	45% of VPE
Upland	0.43 ac.,	55% of VPE
Developed	0.0 ac.,	0.0% of VPE

Proposed development impacts for Vernal Pool 1:

Vernal Pool Envelope:	0.8 acres	
Wetland	0.36 ac.,	45% of VPE
Upland	0.43 ac.,	55% of VPE
Developed	0.0 ac.,	0.0% of VPE

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VERNAL POOL DEPRESSION #2&3

The 100 foot Vernal Pool Envelopes for the two pools overlap and the two pools are treated as one for purposes of the calculations.

As designed no activity is proposed with the Vernal Pool depressions.

The existing terrestrial habitat for Vernal Pool 2&3:

Vernal Pool Envelope:	1.2 acres	
Wetland	0.78 ac.,	65% of VPE
Upland	0.42 ac.,	35% of VPE
Developed	0.0 ac.,	0.0% of VPE

Proposed development impacts for Vernal Pool 2&3:

Vernal Pool Envelope:	1.2 acres	
Wetland	0.78 ac.,	65% of VPE
Upland Wetland	0.42 ac.,	35% of VPE
Developed	0.0 ac.,	0.0% of VPE

CRITICAL TERRESTRIAL HABITAT VERNAL POOL DEPRESSION #1, 2 & 3

Existing Critical Terrestrial Habitat:	102.7 acres	
Wooded/Wetland:	100.3ac.,	97.6% of CTH
Impervious (CT Turnpike/Parking Lot):	2.4 ac.,	2.4% of CTH
Developed area:	2.4 ac.,	2.4% of CTH

Proposed Critical Terrestrial Habitat (Post Development):	102.7 acres	
Wooded/Wetland:	85.0 ac.,	82.8% of CTH
Impervious:	3.4 ac.,	3.4% of CTH
(CT Turnpike/Parking Lot/Roads/Equipment Pads)		
Developed area:	14.4 ac.,	14.0% of CTH
(Project Fence limits minus impervious in fence line):		
Total Developed Area	17.7ac.,	17.2%ofCTH*

* As cited in the literature, less than 25 to 30% development within the CTH is desired to avoid diminution of amphibian populations. Alterations to surface and near surface hydrology are not anticipated due to the lack of grading or other soil disturbances that may impact the direction or quantities or runoff.

Best Management Practices and Recommendations

As proposed, no solar panels are within 100 feet of the Vernal Pools.

The CTH for both complexes is being reduced by the placement of the solar panels. However, the CTH for both Vernal Pool complexes are within thresholds of less than 25% of the CTH being developed, per the Calhoun and Klemens (2002) assessment methodology. Therefore based on the application of the BDP both vernal pool complexes would be conserved.

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It should be noted that the reductions of CTH are based on considering solar panel array areas as "developed" land, which is unsuitable for amphibians. However, these areas will not be maintained as a typical lawn, which is excluded by the BDP as suitable habitat. They will be seeded to low or no-mow grasses and only mowed on an as needed basis to exclude woody species and avoid shading of the solar modules. Therefore, these areas will not prohibit movement of vernal pool amphibians as they move between habitats or disperse, as would a manicured lawn.

Management Plan

Seasonal restrictions will be required on the project to protect and accommodate migrating amphibians. It is recommended that an Environmental Monitor be used to implement and monitor the project with specific goals of protection of amphibian populations. It is recommended that the Environmental Monitor write and implement a management plan specific to the timing of construction activities as they relate to amphibian activities. Since amphibian activities are seasonal, it is critical to know the timing of construction. Once the timing of construction is set, the Environmental Monitor would be able to tailor the plan along with the appropriate seasonal detail needed for successful implementation. Zones of exclusion may have to be implemented and construction activities must be timed in a manner that avoids unintended impacts to amphibians. Recommendations for the management plan include:

WETLAND FUNCTIONS

The functions and values of the wetlands will be described in a qualitative manner modeled after the method used by the US Army Corps of Engineers. The information is from *The Highway Methodology Workbook Supplement*. This publication uses a descriptive approach to assessing functional values, versus the CT D.E.P. approach, which uses a quantitative or numerical approach to ranking wetland functions and values.

Ground Water Recharge/Discharge - This function considers the potential for a wetland to serve as a ground water recharge and/or discharge area. It refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

> Ground water seepage into the wetlands through shallow ground water flows occurs in the upper part of the wetland. Surface inputs in the form of watercourses are found in three locations and there are two discharge points at the property boundaries. The wetlands are underlain by a sandy and friable glacial till and there are signs of decreased surface flows in the wetlands. The wetlands are ground water discharge wetlands with a component of shallow ground water recharge in places. Ground water recharge and discharge are a primary function of the on-site wetlands.

Floodflow Alteration - This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of flood waters. It adds to the stability of the wetland ecological system or its buffering

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characteristics and provides social or economic value relative to erosion and/or flood prone areas.

Areas of the wetlands are flat and signs of overbank flows are present. Signs of variable water levels are also present and there is a constricted outlet to the main wetland on the property. Channel sizes vary within the wetlands with larger areas suitable for storage of excess storm flows. Poorly drained soils are located adjacent to the watercourses and are capable of storing water during precipitation events. This function occurs to a high degree in the upper and lower portion of the wetlands.

Fish and Shellfish Habitat - This function considers the effectiveness of seasonal or permanent watercourses associated with wetland in question for fish and shellfish habitat.

The watercourses associated with the wetlands are small and although they are persistent, perennial flows are limited to the wetland in the northwestern corner. This system has culverts at the inlet to the property and outlet. Significant barriers to fish movement are present. The main wetland system is associated with more seasonal flows and is not suitable for fish habitat. Stone walls and off-site culverts form significant barriers for fish movements. No evidence of fish was present but an extensive survey was not conducted. This is not a primary function of the on-site wetlands.

Sediment/Toxicant/Pathogen Retention - This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants or pathogens in runoff water from surrounding uplands, or upstream eroding wetland areas.

The potential for sediment sources exist in the watershed above this wetland. Although associated with watercourses, there are many indications of overbank flows during small storm events. The surface flows outside of the defined channels are diffuse and the micro-topography allows for sediment capture. Velocity decreases are apparent in the wetlands and the opportunity for sediment capture at constriction points is apparent. The wetlands lack a high degree of open water vegetation interspersion but sediment capture was apparent. This is a main function of the wetlands.

Nutrient Removal/Retention/Transformation - This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands, and the ability of the wetlands to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers or estuaries.

The ability for the wetlands to perform this function is limited by the watercourses that flow through the wetland. During normal flows the watercourse conveys flows through the wetland and there is little opportunity for nutrient capture and uptake. During storm flows, overbank flows saturate the surrounding wetlands and nutrient capture can occur. However, the lack of sufficient areas of open water and the lack of diversity and abundance of aquatic plants limits the function. The wetland system in the northwestern

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corner of the site has the ability to perform this function while the main wetland system does not. This is a primary function for small portions of the on-site wetlands.

Production Export - This function relates to the effectiveness of the wetland to produce food or usable products for human, or other living organisms.

Only the wetland system in the northwestern part of the property has enough qualifiers for this to be a consideration. This wetland has a dense shrub layer of berry-producing shrubs and the production of organic matter is high. The remaining wetland system has little potential for organic matter production and export due to its thin canopy of trees and sparse shrub layer other than Barberry. The potential for flushing of the wetlands is limited other than the northwestern system. This is not a principle function.

Sediment/Shoreline Stabilization - This function evaluates the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

The on-site wetlands are not associated with a pond, lake or other water body. The watercourse channels are stable and no unusual erosion was noted. The wetlands generally have very stony surfaces and topographic gradients are generally low. This is not a primary function.

Wildlife Habitat - This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and wetland edges. Both resident and/or migrating species are considered.

The wetlands are a single cover class and lack interspersion of other wetland types. Open water areas and marsh habitat are lacking. Density of vegetation is high in some areas but the wetlands generally have open understories. Aquatic vegetation and multiple cover classes are generally lacking. Interstate 395 is along the western border of the site and connectivity to other wetland areas is fragmented by the highway and other roads. Wildlife utilization of the site occurs but it is not a primary function of the wetlands.

Recreation – (Consumptive and Non-Consumptive) This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting and other active or passive recreational activities.

The wetlands are not associated with a river, stream, pond or other feature that would accommodate water-based recreation such as fishing, canoeing or boating. The water courses are not of sufficient size for swimming or other active recreation. The wetlands are not wildlife habitat wetlands and this function is not present on the site.

Educational/Scientific Value - This function considers the suitability of the wetland as an "outdoor classroom" or for scientific research.

The wetlands have low potential for this function. The site is not part of an educational site and lacks the diversity in wetland classes. The site is not readily accessible and has a

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high degree of invasive plants. No significant open water areas exist and the recent logging has resulted in a disturbed appearance. The site lacks significant cultural features and access to the site is not available. This is not a primary value.

Uniqueness/Heritage - This value considers the effectiveness of the wetland for special values such as archeological sites, rare and endangered species habitat or uniqueness for its location.

This value is not represented on the site. The wetlands are generally a single cover class and lack a pond site or other site features that enhance the potential for this value. There are no known archeological features, rare and endangered habitat or existing study sites within the wetlands. The wetlands have a high degree of invasive plants and views into the wetlands are limited. Of the 31 qualifiers for this value only a few are represented and they include a well vegetated stream corridor, and potential viewing locations and stone walls. This is not a primary value.

Visual Qualities/Aesthetics - This value relates to the visual qualities of the wetlands.

The wetlands lack the diversity in wetland types including shallow marshes and other low growing open type wetland systems. The site has extensive disturbances due to recent logging and the presence of large areas of invasive species detracts from this value. This is not a primary value.

Endangered Species Habitat – This value considers the suitability of the wetland to support threatened or endangered species.

A review of the Natural Diversity Data Base maintained by the State of Connecticut indicates no rare endangered or threatened species on or near the site. An inquiry has been made to the State for additional information and guidance.

WETLAND IMPACTS

Direct Wetland Impacts

Three areas of solar arrays are proposed for the site. Access to the southerly array requires a wetland crossing for an access drive. The drive will cross a relatively narrow area in the wetland and will utilize a small upland island in the middle of the wetland to minimize the footprint of the access drive. A low water crossing is proposed (as detailed on the plans). The crossing minimizes grading and reduces the footprint of the crossing to the maximum extent possible. The total direct wetland impact is 4,660 square feet and should be eligible for a Category 1 permit from the Army Corps of Engineers.

The area of the proposed crossing has been recently disturbed and has been used as a logging road for a harvest operation from the fall of 2015. The wetland in the area of the crossing has a seasonally high water table but is very dry in the summer months. An intermittent watercourse is associated with the wetland but only flows during the wet periods in the spring and fall.

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The original proposal was to have an access road along the northerly property line with a spur to access the southerly array. After a more detailed investigation of the crossing an alternative access has been acquired from a property on Plainfield Pike and no direct impacts to wetlands will be required for access to the southern array.

Indirect Wetland Impacts

The project has been designed so that all of the solar arrays are outside of wetlands. Minor clearing along the one hundred foot upland review area is proposed and the perimeter fence is within the upland review area. All disturbed areas will be seeded and stabilized with vegetation and long-term impacts have been minimized.

It is recommended that the wetland crossing be conducted during the dry season when ground water levels are low and surface flows are minimal

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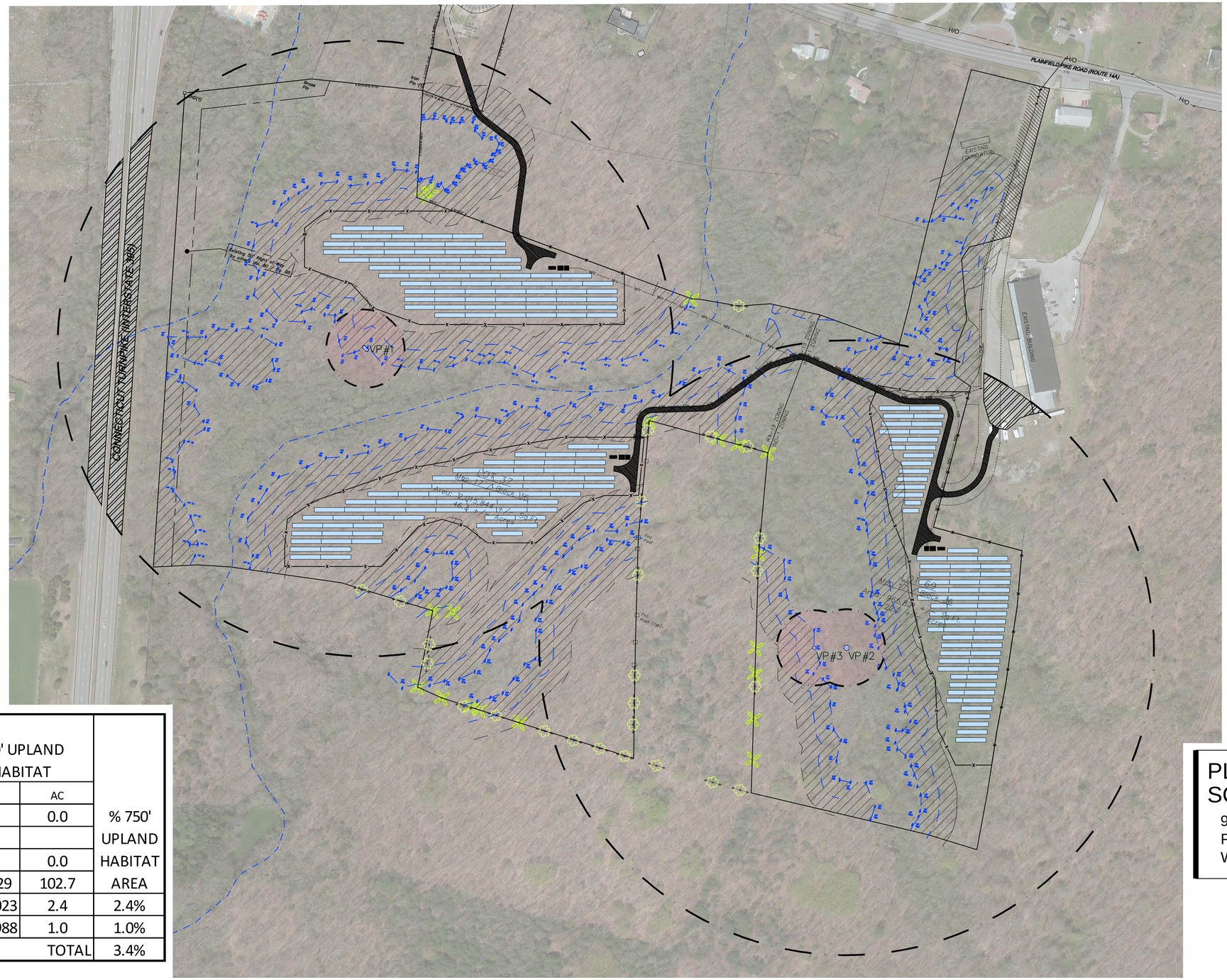
SOLAR MODULE FOUNDATIONS:

ABOVE IS A PHOTO REPRESENTING THE THE PROPOSED METHOD OF PILE DRIVING FOR THE SOLAR FACILITY. IMPACTS TO THE SUBSURFACE SOIL IS MINIMAL, AND NOT INCLUDED IN THE PROPOSED IMPERVIOUS AREAS FOR THE AREA WITHIN THE UPLAND HABITAT.

AERIAL SITE PLAN:



PROJECT AREAS & IMPACTS:

	VERNAL POOL	100' CRITICAL HABITAT	750' UPLAND HABITAT		
AREA	SF	SF	SF	AC	
VP #1	190	36725		0.0	% 750'
VP #2	180				UPLAND
VP #3	80	53795		0.0	HABITAT
TOTAL	450	90520	4472429	102.7	AREA
UPLAND HABITAT EX. IMP.			106023	2.4	2.4%
UPLAND HABITAT PROP. IMP.			43988	1.0	1.0%
				TOTAL	3.4%

VERNAL POOL

100' VERNAL POOL ENVELOPE

750' UPLAND HABITAT

EXISTING IMPERVIOUS IN UPLAND HABITAT (EXPOSED ROCK)

PROPOSED IMPERVIOUS IN UPLAND HABITAT

LEGEND:

EXISTING PROPERTY LINE
PROPOSED PROJECT FENCE
PROPOSED GRAVEL ACCESS ROAD
M/V PROPOSED AC DISTRIBUTION
150' WETLAND BUFFER AREA
WETLAND DELINEATION LINE
18 x 2 SOLAR MODULE BOCK

Prepared for:

ecos ENERGY

222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402

PLAINFIELD PIKE SOLAR

91 PLAINFIELD PIKE RD
PLAINFIELD, CT 06374
WINDHAM COUNTY

VERNAL POOL AREA EXHIBIT

DATE: 08/16/17
SHEET: 1 of 1

Plainfield Pike Pool #1 - Wetland Flag #23

VERNAL POOL ASSESSMENT SHEET

A. Biological Value of the Vernal Pool

(1) Are there *any* state-listed species (Endangered, Threatened, or Special Concern) present or breeding in the pool?
Yes_____ No__X__

(2) Are there two or more vernal pool indicator species breeding (i.e., evidence of egg masses, spermatophores [sperm packets], mating, larvae) in the pool?
Yes__X__ No_____

(3) Are there 25 or more egg masses (regardless of species) present in the pool by the conclusion of the breeding season?
Yes_____ No__X__

B. Condition of the Critical Terrestrial Habitat

(1) Is at least 75% of the vernal pool envelope (100 feet from pool) undeveloped?
Yes__X__ No_____

(2) Is at least 50% of the critical terrestrial habitat (100-750 feet) undeveloped?
Yes__X__ No_____

NOTE: For these purposes, "undeveloped" means open land largely free of roads, structures, and other infrastructure. It can be forested, partially forested, or open agricultural land.

Cumulative Assessment

Number of questions answered YES in category A	Number of questions answered YES in category B	Tier Rating
(1-3)	(2)	(Tier I)
1-3	1	Tier II
0	1-2	Tier III
1-3	0	Tier III

CAUTION *This rating system is designed strictly as a planning tool, not as an official assessment tool.* It will enable you to determine the relative ecological value of pools within your community. A Tier I rating—which will most likely apply to only a minority of sites—denotes exemplary pools; Management Recommendations should be applied at these sites. For pools rated as Tier II; proceed with care; you need more information! Tier II pools will probably constitute the majority of your vernal pool resources; Management Recommendations should be applied at these sites to the maximum extent practicable. Tier II pools might also be likely candidates for restoration efforts (e.g., reforestation of the critical terrestrial habitat).

Plainfield Pike Pool #2 East of Wetland Flag #134

VERNAL POOL ASSESSMENT SHEET

A. Biological Value of the Vernal Pool

(1) Are there *any* state-listed species (Endangered, Threatened, or Special Concern) present or breeding in the pool?
Yes_____ No X

(2) Are there two or more vernal pool indicator species breeding (i.e., evidence of egg masses, spermatophores [sperm packets], mating, larvae) in the pool?
Yes X No_____

(3) Are there 25 or more egg masses (regardless of species) present in the pool by the conclusion of the breeding season?
Yes X No_____

B. Condition of the Critical Terrestrial Habitat

(1) Is at least 75% of the vernal pool envelope (100 feet from pool) undeveloped?
Yes X No_____

(2) Is at least 50% of the critical terrestrial habitat (100-750 feet) undeveloped?
Yes X No_____

NOTE: For these purposes, "undeveloped" means open land largely free of roads, structures, and other infrastructure. It can be forested, partially forested, or open agricultural land.

Cumulative Assessment

Number of questions answered YES in category A	Number of questions answered YES in category B	Tier Rating
(1-3)	(2)	(Tier I)
1-3	1	Tier II
0	1-2	Tier III
1-3	0	Tier III

CAUTION *This rating system is designed strictly as a planning tool, not as an official assessment tool.* It will enable you to determine the relative ecological value of pools within your community. A Tier I rating—which will most likely apply to only a minority of sites—denotes exemplary pools; Management Recommendations should be applied at these sites. For pools rated as Tier II, proceed with care; you need more information! Tier II pools will probably constitute the majority of your vernal pool resources; Management Recommendations should be applied at these sites to the maximum extent practicable. Tier II pools might also be likely candidates for restoration efforts (e.g., reforestation of the critical terrestrial habitat).

Plainfield Pike Pool #3 Wetland Flag # 136

VERNAL POOL ASSESSMENT SHEET

A. Biological Value of the Vernal Pool

(1) Are there *any* state-listed species (Endangered, Threatened, or Special Concern) present or breeding in the pool?
Yes_____ No__X__

(2) Are there two or more vernal pool indicator species breeding (i.e., evidence of egg masses, spermatophores [sperm packets], mating, larvae) in the pool?
Yes__X__ No_____

(3) Are there 25 or more egg masses (regardless of species) present in the pool by the conclusion of the breeding season?
Yes_____ No__X__

B. Condition of the Critical Terrestrial Habitat

(1) Is at least 75% of the vernal pool envelope (100 feet from pool) undeveloped?
Yes__X__ No_____

(2) Is at least 50% of the critical terrestrial habitat (100-750 feet) undeveloped?
Yes__X__ No_____

NOTE: For these purposes, "undeveloped" means open land largely free of roads, structures, and other infrastructure. It can be forested, partially forested, or open agricultural land.

Cumulative Assessment

Number of questions answered YES in category A	Number of questions answered YES in category B	Tier Rating
(1-3)	(2)	(Tier I)
1-3	1	Tier II
0	1-2	Tier III
1-3	0	Tier III

CAUTION *This rating system is designed strictly as a planning tool, not as an official assessment tool.* It will enable you to determine the relative ecological value of pools within your community. A Tier I rating—which will most likely apply to only a minority of sites—denotes exemplary pools; Management Recommendations should be applied at these sites. For pools rated as Tier II, proceed with care; you need more information! Tier II pools will probably constitute the majority of your vernal pool resources; Management Recommendations should be applied at these sites to the maximum extent practicable. Tier II pools might also be likely candidates for restoration efforts (e.g., reforestation of the critical terrestrial habitat).

GP 17. NEW/EXPANDED DEVELOPMENTS & RECREATIONAL FACILITIES (Section 404; non-tidal waters of the U.S.) Discharges of dredged or fill material for the construction or expansion of developments and/or recreational facilities. This GP authorizes attendant features that are necessary for the use such as parking lots, garages, and yards. Fill area includes all temporary and permanent fill, and regulated discharges associated with excavation.

Not authorized under GP 17 are: (a) Permanent impacts that are >1 acre* in non-tidal waters and wetlands; (b) Stormwater treatment or detention systems, or subsurface sewerage disposal systems in waters of the U.S.; and (c) New roadway and driveway crossings in non-tidal waters and/or wetlands. (See **GPs 18 & 19**)

Self-Verification (SV) Eligible	**Pre-Construction Notification (PCN) Required**
Permanent and temporary impacts ≤5,000 SF of non-tidal waters and/or wetlands provided no impacts to Special Aquatic Sites other than wetlands (e.g. riffle and pool stream habitat, shellfish beds). **NOTE**: Construction mats of any area necessary to conduct activities do not count towards the 5,000 SF threshold and should be removed as soon as work is completed.	Work not eligible for SV. ***See Table 1 CT WQC in Section 1 for additional details on thresholds.*** **NOTE**: Construction mats of any area necessary to conduct activities do not count towards the 1 acre threshold and should be removed as soon as work is completed.

US Army Corps of Engineers®
New England District

Appendix E: Self-Verification Notification Form

This form is required for all **non-tidal projects in Connecticut**, but **not** required if work is done within boundaries of Mashantucket Pequot or Mohegan Tribal Lands. **Before** work commences, complete **all** fields (write "none" if applicable); attach project plans (not required for projects involving the installation of construction mats only); and any state or local approval(s); and send to:

Permits & Enforcement Branch B
U.S. Army Corps of Engineers
696 Virginia Road
Concord, MA 01742-2751
or cenae-r@usace.army.mil

and

CT DEEP
Inland Water Resources Division
79 Elm Street
Hartford, CT 06106-5127

****

State or local Permit Number: _____
Date of State or local Permit: _____
State/local Project Manager: _____

Permittee: PLH, LLC Contact: Steve Broyer
Address, City, State & Zip: 222 South 9th Street Suite #1600 Minneapolis, MN 55403
Phone(s) and Email: 612-326-1500 steve.broyer@ecosrenewable.com

Contractor: TBD
Address, City, State & Zip: _____
Phone(s) and Email: _____

Consultant/Engineer/Designer: Westwood Professional Services Inc. Contact: August Christensen
Address, City, State & Zip: 7699 Anagram Drive, Eden Prairie, MN 55436
Phone(s) and Email: 952-906-7430 - August.Christensen@westwoodps.com

Wetland/Soil Scientist Consultant: Highland Soils, LLC Contact: John P. Ianni
Address, City, State & Zip: P.O. Box 337, Storrs CT 06268
Phone(s) and Email: 860-742-5868 - Highlandsoils@aol.com

Project Location (provide detailed description & locus map): See Attached Documents
0.5 Miles East of CT 395 and Plainfield Pike Roadway (Route 14A) on the south side of the roadway.
Address, City, State & Zip: 91 Plainfield Pike Road, Plainfield CT 06374
Latitude/Longitude Coordinates: Lat: 41.679 / Lon:-71.904
Waterway Name: Unnamed Wetland
Project Purpose (include all aspects of the project including those not within Corps jurisdiction):

_____

_____

Work Description: Wetland impacts to construct a site access roadway to an upland area of the parcel which is otherwise inaccessible, the roadway has been designed for the least amount of impacts to delineated wetland resources.

_____

Work will be done under the following GP(s) (check all that have associated impacts):

_____**GP. 2 - Repair or maintenance of authorized or grandfathered structures/fills**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 5 - Boat ramps/marine railways**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 6 - Utility line activities (include calculations for each single & complete crossing – attach additional sheet if necessary)**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 9 - Shoreline and bank stabilization projects**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 10 - Aquatic habitat restoration, establishment and enhancement activities**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 11 - Fish & wildlife harvesting, enhancement and attraction devices and activities**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 12 - Oil Spill and Hazardous material cleanup**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 13 - Cleanup of hazardous and toxic waste**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 14 - Scientific measurements devices**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 15 - Survey activities**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

X **GP. 17 - New/expanded developments & recreational facilities**
Area of total wetland impacts: temporary _____SF permanent 4670 SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 18 - Linear transportation projects- wetland crossings only (include calculations for each single & complete crossing - attach additional sheet if necessary)**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

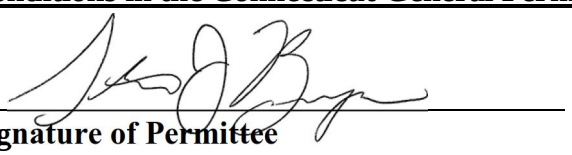
_____**GP. 19 - Stream, river & brook crossings – not including wetland crossings (include calculations for each single & complete crossing – attach additional sheet if necessary)**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 21 - Temporary fill not associated with any other GP activities**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

Does your project include any secondary effects? Yes _____ No X
(Secondary effects include, but are not limited to non-tidal waters or wetlands drained, flooded, fragmented, or mechanically cleared resulting from a single and complete project. See Appendix F - Definitions.) If YES, describe here: _____

Proposed Work Dates: Start: Spring 2018 Finish: Fall 2018

Your name/signature below, as permittee, confirms that your project meets the self-verification criteria and that you accept and agree to comply with the applicable terms and conditions in the Connecticut General Permits.



Signature of Permittee 8/18/17 **Date**

Exhibit G

DEEP NDDB Species Review Response Letter

Connecticut Department of

ENERGY &
ENVIRONMENTAL
PROTECTION

August 21, 2017

Mr. Blake Nicholson
Windham Solar, LLC
222 South 9th Street, Suite 1600
Minneapolis, MN 55402
blake.nicholson@ecosrenewable.com

Project: Installation of Solar Energy Facility "Plainfield Pike Solar" in Plainfield, Connecticut
NDDB Preliminary Assessment No.: 201509304

Dear Blake,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map provided for the Installation of Solar Energy Facility "Plainfield Pike Solar" in Plainfield, Connecticut. According to our information, there are current extant records for State Endangered *Ambystoma laterale* (pure diploid blue-spotted salamander), *Scaphiopus holbrookii* (eastern spadefoot) and State Special Concern *Terrapene carolina carolina* (eastern box turtle), *Glyptemys insculpta* (wood turtle), *Clemmys guttata* (spotted turtle) and *Heterodon platirhinos* (eastern hognose snake) in the vicinity of this project.

State Endangered Species:

Blue-spotted salamander: The pure diploid populations of this salamander are considered state endangered. This small to medium mole salamander is generally associated with lowland swamps, marshes, wet meadows and the surrounding uplands (upland forest) with sandy or loamy soils. The adults spend much time underground. These salamanders lay eggs in early spring (March through April). The larvae metamorphosis in late June through August but sometimes may overwinter as larvae. Adults may migrate up to several hundred meters between their breeding pools and summer foraging area. These salamanders have high site fidelity to their breeding pools. Populations of this salamander are threatened by habitat loss and fragmentation as well as increased urbanization. Conservation strategies and best management practices to protect this salamander includes the protection of lowland forested wetlands and surrounding uplands.

Eastern Spadefoot: Limited information is known about the state endangered eastern spadefoot toad. It is a very secretive species and has irregular breeding periods. It is most active from June through August. It is an expert burrower, reaching depths of 6-feet in sandy well-drained soil. They are very rarely observed outside of the breeding period. Its habitat is described as arid to semi-arid areas, such as fields, farmland, dunes and woodlands with sandy or loose soils. This toad breeds in temporary bodies of water, flooded fields and forested wetlands. The conservation strategies for this toad is to protect and conserve their habitat.

I have determined that this project (as described in the NDDB Request Application you submitted) may have a direct negative impact on the populations of the endangered pure diploid blue-spotted salamander and eastern spadefoot.

To prevent impacts to State-listed species, habitat assessments and field surveys of the site should be performed by a qualified biologist when these target species are identifiable. A report summarizing the results of such surveys should include:

1. Survey date(s) and duration
2. Site descriptions and photographs of the project site
3. List of species within the survey area (including scientific binomials)
4. Data regarding population numbers and/or area occupied by State-listed species
5. Detailed maps of the area surveyed including the survey route and locations of State-listed species
6. Detailed evaluation of habitat type within the project area with respect to the state endangered blue-spotted salamander and eastern spadefoot and potential mitigation measures to prevent impacts.
7. Statement/résumé indicating the biologist's qualifications. Please be sure your consulting biologist has the appropriate state collectors permit to work with state-listed species at this project site.
8. Conservation strategies or protection plans that indicate how impacts may be avoided for all state-listed species present on the site.

The site surveys report should be sent to our CT DEEP-NDDB Program (deep.nddbrequest@ct.gov) for further review by our program biologists along with an updated request for another NDDB review. Further comments and a final determination letter will be developed and sent to you after our program biologists have reviewed the results of the habitat assessment, field surveys and/or protection plans you submit.

This letter is a preliminary assessment and not a final determination. This letter cannot be submitted with any CT DEEP permit or registration. A final determination cannot be provided without discussing mitigation or other conservation strategies that will prevent negative impacts to the endangered salamander. This preliminary assessment is valid for one year from the date on this letter.

State Special Concern Species:

Eastern Box Turtle: Eastern box turtles inhabit old fields and deciduous forests, which can include power lines and logged woodlands. They are often found near small streams and ponds. The adults are completely terrestrial but the young may be semiaquatic, and hibernate on land by digging down in the soil from October to April. They have an extremely small home range and can usually be found in the same area year after year. Eastern box turtles have been negatively impacted by the loss of suitable habitat. Some turtles may be killed directly by construction activities, but many more are lost when important habitat areas for shelter, feeding, hibernation, or nesting are destroyed. As remaining habitat is fragmented into smaller pieces, turtle populations can become small and isolated. Reducing the frequency that motorized vehicles enter box turtle habit**a**t would be beneficial in minimizing direct mortality of adults.

Wood turtle: Wood turtles require riparian habitats bordered by floodplain, woodland or meadows. They hibernate in the banks of the river in submerged tree roots. Their summer habitat includes pastures, old fields, woodlands, powerline cuts and railroad beds bordering or adjacent to streams and rivers. This species has been negatively impacted by the loss of suitable habitat.

Spotted Turtle:
Spotted Turtles are semi-aquatic in nature, which means they live both on terrestrial land and water. This species lives in several types of habitats including bogs, swamps, fens, woodland streams, wet pastures and marshes. They sometimes also inhabit brackish streams influenced by tides. These reptiles always live in areas with slow moving water and soft soil. Spotted turtles are active hunters and they mainly hunt underwater they sometimes move onto terrestrial lands for hunting. Habitat destruction, degradation or

alteration and fragmentation all threaten spotted turtle populations. Turtles are also particularly vulnerable to any activity that consistently reduces adult survivorship. The greatest concern during projects occurring in spotted turtle habitat are turtles being run over and crushed by mechanized equipment. Reducing the frequency that motorized vehicles enter spotted turtle habitat would be beneficial in minimizing direct mortality of adults.

Recommended Protection Strategies for Box, Wood and Spotted Turtles:

I recommend these strategies in order to protect these turtles:

- Hiring a qualified herpetologist to be on site to ensure these protection guidelines remain in effect and prevent turtles from being run over when moving heavy equipment. This is especially important in the months of May, June and July when turtles are selecting nesting sites.
- Exclusionary practices will be required to prevent any turtle access into construction areas. These measures will need to be installed at the limits of disturbance.
- Exclusionary fencing must be at least 20 in tall and must be secured to and remain in contact with the ground and be regularly maintained (at least bi-weekly and after major weather events) to secure any gaps or openings at ground level that may let animal pass through. Do not use plastic or netted silt-fence.
- All staging and storage areas, outside of previously paved locations, regardless of the duration of time they will be utilized, must be reviewed to remove individuals and exclude them from re-entry.
- All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species, and instructed to relocate turtles found inside work areas or notify the appropriate authorities to relocate individuals.
- Any turtles encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and fencing should be inspected to identify and remove access point.
- In areas where silt fence is used for exclusion, it shall be removed as soon as the area is stable to allow for reptile and amphibian passage to resume.
- No heavy machinery or vehicles may be parked in any turtle habitat.
- Special precautions must be taken to avoid degradation of wetland habitats including any wet meadows and seasonal pools.
- The Contractor and consulting herpetologist must search the work area each morning prior to any work being done.
- When felling trees adjacent to brooks and streams please cut them to fall away from the waterway and do not drag trees across the waterway or remove stumps from banks.
- Avoid and limit any equipment use within 50 feet of streams and brooks.
- Any confirmed sightings of box, wood or spotted turtles should be reported and documented with the NDDB (nddbrequestdep@ct.gov) on the appropriate special animal form found at (http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323460&depNav_GID=1641)

Eastern hognose snakes: Eastern hognose snakes are a species that has been declining due to loss of suitable habitat. They favor sandy areas with well drained gravelly soils. The active period for these snakes is April through November.

Recommended Protection Strategies for Eastern Hognose Snake:

- Any snakes observed shall be moved, unharmed, to an area immediately outside of the work area, and positioned in the same direction that it was traveling;

- These animals are protected by law and should never be removed entirely from the site;
- Vehicles and heavy machinery should operate at slower speeds to allow animals the time to move out of harm's way on their own;
- Work conducted during early morning, evening hours or shortly after rain events shall occur with special care not to harm basking or foraging individuals;
- Vehicles shall be parked on graveled surfaces only;
- Material used for this project should only be placed on existing graveled surfaces.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits.

Please contact me at your earliest convenience (860) 424-3592, or dawn.mckay@ct.gov . Thank you for consulting the Natural Diversity Data Base.

Sincerely,

Dawn M. McKay

Dawn M. McKay
Environmental Analyst 3

Wildlife

Learn About CT's Wildlife
Wildlife & Habitat Management
Nuisance/Distressed Wildlife
Hunting & Trapping
Maps & Access Information
Wildlife Main Page
Main Menu

Report an ENVIRONMENTAL Concern/Problem
Calendar of Events
Laws and Regulations
Maps and GIS Data
No Child Left Inside
THE OFFICIAL CT STATE PARKS & FORESTS OUTDOORS GUIDE Pocket Ranger® DOWNLOAD OUR FREE GPS MOBILE APP
energize CT CONNECTICUT
DEEP Store
Sign Up To Receive Updates / Newsletters by E-Mail
Connecticut still revolutionary
REGISTER Online to VOTE
Regulations of CT State Agencies
access health CT
VETERANS ct.gov
Connecticut Recovers

BLUE-SPOTTED SALAMANDER

Ambystoma laterale

State Listed Species

Background: The blue-spotted salamander is a striking member of the "mole" salamander family (Ambystomatidae). Connecticut is home to the pure diploid and hybridized complex blue-spotted salamander. The pure, naturally diploid blue-spotted salamander is an endangered species in Connecticut. It occurs in isolated areas where individuals do not have the chance to mate with the Jefferson salamander – a similar-looking member of the mole salamander family.

The "complex" blue-spotted salamander is hybridized with the Jefferson salamander, resulting in an array of genetically variable individuals. It is a Connecticut species of special concern. Strict habitat management is needed to sustain both pure and complex blue-spotted salamander populations.

Range: Blue-spotted salamanders occur in the Canadian Maritime Provinces to northern New Jersey and from southeastern Quebec to northern Illinois and Indiana. Disjunct populations have been found on Long Island, New York.

In Connecticut, hybrids typically occur west of the Connecticut River due to overlapping populations with the Jefferson salamander. Pure diploid populations are isolated to a few locations near the Quinebaug Valley.

Description: This small to medium-sized salamander has a narrow head and dark black body with bright blue flecks. The long, laterally compressed tail makes up nearly half of the total body length, which ranges between to 5 inches. Hybrids, however, may reach longer lengths.

The blue-spotted salamander can be distinguished from the similar-looking young Jefferson salamander by its more narrow head and larger spots. At the larval stage, blue-spotteds appear nearly identical to Jeffersons. Complex hybrids can have a wider range of marks, including more gray coloration, paler blue flecks, and a wider snout, which is associated more with the Jefferson salamander.

Habitat and Diet: Typical habitat consists of red maple swamps with nearby woodlands. The soil types hosting these amphibians vary from water-saturated loam to damp sand. Breeding areas include swamps and marshes with weak water flow that are often connected to other waterbodies. Temporary pools (also known as vernal pools) and floodplains with plentiful organic debris also comprise the breeding grounds for blue-spotted salamanders.

This salamander feeds on insects, slugs, worms, and other small invertebrates.

Life History: Breeding occurs in early spring. When the first warm rains arrive on a spring night, blue-spotted salamanders migrate in large numbers to temporary woodland breeding pools. Eggs are deposited singly or sometimes in clusters underneath leaves or at the base of tussocks, usually in a scattered pattern. After the eggs hatch, the larvae remain in the pool until metamorphosis occurs. Newly transformed salamanders will emerge from the wetland and disperse into the surrounding forest.

Pure diploid populations occur in an even male-female ratio. However, complex populations are female dominated.

Interesting Facts: Blue-spotted salamanders spend most of the year underground, usually beneath leaf litter.

Courtship behaviors included rubbing, nudging, and an impressive "tail-fanning" procedure.

In predatory defense, adults will curl and "lash out" with their tail, which is covered in granular glands that secrete a noxious substance.

Conservation Concerns: Blue-spotted salamanders are protected by the Connecticut Endangered Species Act, and may not be collected or removed from the wild.

Populations are threatened by habitat loss and fragmentation, and increased urbanization. Certain populations of this salamander are being impacted by a high number of roadkills during the spring breeding season when these animals migrate in large numbers to their temporary breeding pools. Where appropriate, measures to minimize roadkills should be taken, especially where new development is planned near breeding pools. Such measures may include enlarging buffer zones around breeding pools, providing tunnels or culverts for salamanders to cross under roads, and locating new roads away from salamander migration routes.

Change in the salinity content of breeding pools, through acid rain or runoff from road salts, can affect larvae and newly transformed salamanders.

What You Can Do

Aquatic breeding pools are crucial to many amphibians, including salamanders. Managing temporary pools, as well as buffer zones in the surrounding forest, is extremely important for conserving the amphibians dependent on these habitats.

Avoid the use of fertilizers, herbicides, and insecticides in your yard. If you need to use these products, purchase ones that are natural and organic.

Salamanders should never be collected from the wild. Awareness and education of the blue-spotted salamander's life history and habitats are invaluable tools for conserving this animal. If you locate a blue-spotted salamander population or temporary breeding pool, please contact the DEEP Wildlife Division at 860-424-3011 or deep.ctwildlife@ct.gov.

Additional information about salamanders is available on the Salamanders in Connecticut webpage.

Content last updated on October 11, 2016.

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Laws & Regulations
Public Participation
Education
Maps and GIS Data
DEEP Home

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Laws and Regulations
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EASTERN SPADEFOOT TOAD

Scaphiopus holbrookii

ENDANGERED

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Habitat: Found in arid to semi-arid areas, such as fields, farmland, dunes and woodlands with sandy or loose soils. Breed in temporary bodies of water (e.g., vernal pools), flooded fields and forested wetlands.
Weight: Unknown.
Length: 1.75-3.25 inches.
Life Expectancy: At least 5 years of age.

Food: Flies, crickets, caterpillars, moths, spiders, centipedes, millipedes, earthworms and snails. Tadpoles initially feed on plankton (microscopic plants) for a few days. The tadpoles then become carnivorous and sometimes even cannibalistic.
Status: State endangered.

Identification: Eastern spadefoot toads are plump, with smooth skin and scattered, tiny warts. They range in color from olive to brown to black. Two irregular yellow stripes on the back may form a vase-shaped pattern or resemble the outline of a misshapen hourglass. Unlike most frogs and toads in North America, which have round or horizontal pupils, spadefoot toads have almost vertical pupils. They can be distinguished from other toads by a black, sharp-edged, spade-like projection on the underside of each foot.

Range: The eastern spadefoot toad occurs from southern New England to south Florida, west to southeastern Missouri, northeastern Arkansas and eastern Louisiana.

Reproduction: Spadefoot toads are "explosive breeders," appearing suddenly, sometimes in great numbers, after heavy rains that occur during the warm months of the year. This is usually a one-night phenomenon, although the toads can breed several times at the same site from April to July. There is no regular, annual migration to the breeding pools. Instead, the event is triggered by a quick drop in barometric pressure, more than 2 inches of rainfall and darkness.

Spadefoot eggs are laid underwater and deposited in strings, which are easily broken. Eggs are typically attached to a twig, grass blade, fern leaf or some other type of vegetation. The male fertilizes the small, dark eggs as the female lays them. A female may lay up to 2,500 eggs, which hatch in 1 to 7 days. The tadpoles grow quickly, transforming into toads in 16 to 20 days for late-season broods and 48 to 63 days for early-season broods.

History in Connecticut: Eastern spadefoot toads are considered rare in Connecticut. Only 16 sightings of spadefoots were reported from 1811 to 1936 in southern New England. The species was only seen 8 times at various locations throughout the state from 1970 to 1989.

Reason for Decline: The population of spadefoot toads in Connecticut is threatened by the loss of habitat due to development and urbanization. The toads are also susceptible to high mortality when breeding pools dry up before the tadpoles can grow into toads (metamorphose).

Interesting Facts: The eastern spadefoot toad is probably the rarest and most secretive amphibian found in Connecticut. It has been the subject of myths claiming that it remains buried for years underground in shallow burrows before surfacing to breed. Spadefoots do remain underground in shallow burrows for weeks during dry periods. Being nocturnal and usually subterranean (underground), this creature is very difficult to find. On damp summer nights, spadefoots often emerge from their burrows. When rainfall is extensive, their call, a short explosive "wank," like the call of a crow, may be heard.

The spade-like projections on the hind feet of the spadefoot enable it to dig easily into the soil. By rocking back and forth and rapidly digging with its hind legs, the toad can vanish quickly below the surface of loose soil.

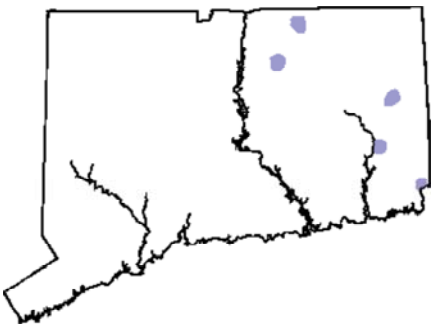
During periods of extended drought, eastern spadefoot toads can lie dormant. They curl into a tight ball and excrete a fluid that hardens the soil around them, forming a compact chamber to retain any available moisture. When heavy rains soak the soil, the toads uncurl and resume their normal activities.

When handling spadefoot toads, many people experience strong allergic reactions to secretions from the toads' skin glands. Reactions may include violent sneezing, a runny nose and watery eyes. To prevent an allergic reaction, anyone who handles a spadefoot toad should wash their hands thoroughly with soap and water, keeping their hands away from their face and eyes until they do so.

Protective Legislation: *State* - Connecticut General Statutes Sec. 26-311.

What You Can Do: The protection of vernal pools (pools of water that are present during the spring, but may dry up during the summer) and other temporary water bodies will help many of Connecticut's amphibian species. Pools located near sandy soils or dry, open areas are of particular importance to spadefoot toads. Learn to identify these special habitats so they can be noted and protected.

Connecticut Range



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WILDLIFE IN CONNECTICUT

STATE SPECIES OF SPECIAL CONCERN

Wood Turtle

Glyptemys insculpta

Background

Wood turtles may be found throughout Connecticut, but they have become increasingly rare due to their complex habitat needs. Wood turtles also have become more scarce in Fairfield County due to the fragmentation of suitable habitat by urban development.

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Range

Wood turtles can be found across the northeastern United States into parts of Canada. They range from Nova Scotia through New England, south into northern Virginia, and west through the Great Lakes region into Minnesota.

Description

The scientific name of the wood turtle, *Glyptemys insculpta*, refers to the deeply sculptured or chiseled pattern found on the carapace (top shell). This part of the shell is dark brown or black and may have an array of faint yellow lines radiating from the center of each chiseled, pyramid-like segment due to tannins and minerals accumulating between ridges. These segments of the carapace, as well as those of the plastron (bottom shell), are called scutes. The carapace also is keeled, with a noticeable ridge running from front to back. The plastron is yellow with large dark blotches in the outer corners of each scute. The black or dark brown head and upper limbs are contrasted by brighter pigments ranging from red and orange to a pale yellow on the throat and limb undersides. Orange hues are most typical for New England's wood turtles. The hind feet are only slightly webbed, and the tail is long and thick at the base. Adults weigh approximately 1.5 to 2.5 pounds and reach a length of 5 to 9 inches.

Habitat and Diet

Wood turtles use aquatic and terrestrial habitats at different times of the year. Their habitats include rivers and large streams, riparian forests (adjacent to rivers), wetlands, hayfields, and other early successional habitats. Terrestrial habitat that is usually within 1,000 feet of a suitable stream or river is most likely used. Preferred stream conditions include moderate flow, sandy or gravelly bottoms, and muddy banks.

Wood turtles are omnivorous and opportunistic. They are not picky eaters and will readily consume slugs, worms, tadpoles, insects, algae, wild fruits, leaves, grass, moss, and carrion.

Life History

From late spring to early fall, wood turtles can be found roaming their aquatic or terrestrial habitats. However, once temperatures drop in autumn, the turtles retreat to rivers and large streams for hibernation. The winter

is spent underwater, often tucked away below undercut riverbanks within exposed tree roots. Dissolved oxygen is extracted from the water, allowing the turtle to remain submerged entirely until the arrival of spring. Once warmer weather sets in, the turtles will become increasingly more active, eventually leaving the water to begin foraging for food and searching for mates. Travel up or down stream is most likely, as turtles seldom stray very far from their riparian habitats.

Females nest in spring to early summer, depositing anywhere from 4 to 12 eggs into a nest dug out of soft soil, typically in sandy deposits along stream banks or other areas of loose soil. The eggs hatch in late summer or fall and the young turtles may either emerge or remain in the nest for winter hibernation. As soon as the young turtles hatch, they are on their own and receive no care from the adults.

Turtle eggs and hatchlings are heavily preyed upon by a wide variety of predators, ranging from raccoons to birds and snakes. High rates of nest predation and hatchling mortality, paired with the lengthy amount of time it takes for wood turtles to reach sexual maturity, present a challenge to maintaining sustainable populations. Wood turtles live upwards of 40 to 60 years, possibly more.

Conservation Concerns

Loss and fragmentation of habitat are the greatest threats to wood turtles. Many remaining populations in Connecticut are low in numbers and isolated from one another by human-dominated landscapes. Turtles forced to venture farther and farther from appropriate habitat to find mates and nesting sites are more likely to be run over by cars, attacked by predators, or collected by people as pets.

Other sources of mortality include entanglements in litter and debris left behind by people, as well as strikes from mowing equipment used to maintain hayfields and other early successional habitats.

The wood turtle is imperiled throughout a large portion of its range and was placed under international trade regulatory protection through the Convention on International Trade in Endangered Species (CITES) in 1992. Wood turtles also have been included on the International Union for Conservation of Nature's (IUCN) Red List as a vulnerable species since 1996. They are listed as a species of special concern in Connecticut and protected by the Connecticut Endangered Species Act.

How You Can Help

- *Conserve riparian habitat. Maintaining a buffer strip of natural vegetation (minimum of 100 feet) along the banks of streams and rivers will protect wood turtle habitat and also help improve the water quality of the stream system. Stream banks that are manicured (cleared of natural shrubby and herbaceous vegetation) or armored by rip rap or stone walls will not be used by wood turtles or most other wildlife species.*
- *Do not litter. Wood turtles and other wildlife may accidentally ingest or become entangled in garbage and die.*
- *Leave turtles in the wild. They should never be kept as pets. Whether collected singly or for the pet trade, turtles that are removed from the wild are no longer able to be a reproducing member of a population. Every turtle removed reduces the ability of the population to maintain itself.*
- *Never release a captive turtle into the wild. It probably would not survive, may not be native to the area, and could introduce diseases to wild populations.*
- *As you drive, watch out for turtles crossing the road. Turtles found crossing roads in June and July are often pregnant females. They should* ***not*** *be collected but can be helped on their way. Without creating a traffic hazard or compromising safety, drivers are encouraged to avoid running over turtles that are crossing roads. Also, still keeping safety precautions in mind, you may elect to pick up turtles from the road and move them onto the side in the direction they are headed. Never relocate a turtle to another area that is far from where you found it.*
- *Learn more about turtles and their conservation concerns, and educate others.*
- *If you see a wood turtle, leave it in the wild, take a photograph, record the location where it was seen, and contact the Connecticut Department of Environmental Protection (DEP) Wildlife Division at dep.wildlife@ct.gov, or call 860-424-3011 to report your observation.*

State of Connecticut
Department of Environmental Protection
Bureau of Natural Resources
Wildlife Division
www.ct.gov/dep

4/2011

WILDLIFE IN CONNECTICUT

STATE SPECIES OF SPECIAL CONCERN

Eastern Box Turtle

Terrapene carolina carolina

Description

The eastern box turtle is probably the most familiar of the 8 species of turtles found in Connecticut's landscape. It is known for its high-domed carapace (top shell). The carapace has irregular yellow or orange blotches on a brown to black background that mimic sunlight dappling on the forest floor. The plastron (under shell) may be brown or black and may have an irregular pattern of cream or yellow. The length of the carapace usually ranges from 4.5 to 6.5 inches, but can measure up to 8 inches long. The shell is made up of a combination of scales and bones, and it includes the ribs and much of the backbone.

Each individual turtle has distinctive head markings. Males usually have red eyes and a concave plastron, while females have brown eyes and a flat plastron. Box turtles also have a horny beak, stout limbs, and feet that are webbed at the base. This turtle gets its name from its ability to completely withdraw into its shell, closing itself in with a hinged plastron. Box turtles are the only Connecticut turtle with this ability.

Range

Eastern box turtles are found throughout Connecticut, except at the highest elevations. They range from southeastern Maine to southeastern New York, west to central Illinois, and south to northern Florida.

Habitat and Diet

In Connecticut, this terrestrial turtle inhabits a variety of habitats, including woodlands, field edges, thickets, marshes, bogs, and stream banks. Typically, however, box turtles are found in well-drained forest bottomlands and open deciduous forests. They will use wetland areas at various times during the season. During the hottest part of a summer day, they will wander to find springs and seepages where they can burrow into the moist soil. Activity is restricted to mornings and evenings during summer, with little to no nighttime activity, except for egg-laying females. Box turtles have a limited home range where they spend their entire life, ranging from 0.5 to 10 acres (usually less than 2 acres).

Box turtles are omnivorous and will feed on a variety of food items, including earthworms, slugs, snails, insects, frogs, toads, small snakes, carrion, leaves, grass, berries, fruits, and fungi.

Life History

From October to April, box turtles hibernate by burrowing into loose soil, decaying vegetation, and mud. They tend to hibernate in woodlands, on the edge of woodlands, and sometimes near closed canopy wetlands in the forest. Box turtles may return to the same place to hibernate year after year. As soon as they come out of hibernation, box turtles begin feeding and searching for mates.

The breeding season begins in April and may continue through fall. Box turtles usually do not breed until they are about 10 years old. This late maturity is a result of their long lifespan, which can range up to 50 to even over 100 years of age. The females do not have to mate every year to lay eggs as they can store sperm for up

to 4 years. In mid-May to late June, the females will travel from a few feet to more than a mile within their home range to find a location to dig a nest and lay their eggs. The 3 to 8 eggs are covered with dirt and left to be warmed by the sun. During this vulnerable time, skunks, foxes, snakes, crows, and raccoons often raid nests. Sometimes, entire nests are destroyed. If the eggs survive, they will hatch in late summer to early fall (about 2 months after being laid). If they hatch in the fall, the young turtles may spend the winter in the nest and come out the following spring.

As soon as the young turtles hatch, they are on their own and receive no care from the adults. This is a dangerous time for young box turtles because they do not develop the hinge for closing into their shell until they are about 4 to 5 years old. Until then, they cannot entirely retreat into their shells. Raccoons, skunks, foxes, dogs, and some birds will prey on young turtles.

Conservation Concerns

The eastern box turtle was once common throughout the state, mostly in the central Connecticut lowlands. However, its distribution is now spotty, although where found, turtles may be locally abundant. Because of the population decline in Connecticut, the box turtle was added to the state's List of Endangered, Threatened, and Special Concern Species when it was revised in 1998. It is currently listed as a species of special concern. The box turtle also is protected from international trade by the 1994 CITES treaty. It is of conservation concern in all the states where it occurs at its northeastern range limit, which includes southern New England and southeastern New York.

Many states have laws that protect box turtles and prohibit their collection. In Connecticut, eastern box turtles **cannot** be collected from the wild (DEP regulations 26-66-14A). Another regulation (DEP regulations 26-55-3D) "grandfathers" those who have a **box turtle collected before 1998**. This regulation limits possession to a single turtle collected before 1998. These regulations provide some protection for the turtles, but not enough to combat some of the even bigger threats these animals face. The main threats in Connecticut (and other states) are loss and fragmentation of habitat due to deforestation and spreading suburban development; vehicle strikes on the busy roads that bisect the landscape; and indiscriminate (and now illegal) collection of individuals for pets.

Loss of habitat is probably the greatest threat to turtles. Some turtles may be killed directly by construction activities, but many more are lost when important habitat areas for shelter, feeding, hibernation, or nesting are destroyed. As remaining habitat is fragmented into smaller pieces, turtle populations can become small and isolated.

Adult box turtles are relatively free from predators due to their unique shells. The shell of a box turtle is extremely hard. However, the shell is not hard enough to survive being run over by a vehicle. Roads bisecting turtle habitat can seriously deplete the local population. Most vehicle fatalities are pregnant females searching for a nest site.

How You Can Help

- *Leave turtles in the wild. They should never be kept as pets. Whether collected singly or for the pet trade, turtles that are removed from the wild are no longer able to be a reproducing member of a population. Every turtle removed reduces the ability of the population to maintain itself.*
- *Never release a captive turtle into the wild. It probably would not survive, may not be native to the area, and could introduce diseases to wild populations.*
- *Do not disturb turtles nesting in yards or gardens.*
- *As you drive, watch out for turtles crossing the road. Turtles found crossing roads in June and July are often pregnant females and they should be helped on their way and not collected. Without creating a traffic hazard or compromising safety, drivers are encouraged to avoid running over turtles that are crossing roads. Also, still keeping safety precautions in mind, you may elect to pick up turtles from the road and move them onto the side they are headed. Never relocate a turtle to another area that is far from where you found it.*
- *Learn more about turtles and their conservation concerns. Spread the word to others on how they can help Connecticut's box turtle population.*

State of Connecticut
Department of Environmental Protection
Bureau of Natural Resources
Wildlife Division
www.ct.gov/dep

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5/2008

Spotted Turtle

Scientific Name*: Clemmys gutata*
Size: 3 – 5 inches (8-12 cm) in length
CT NDDB Status: Species of Special Concern

Habitat Type: Spotted Turtles are semi-aquatic in nature, which means they live both on terrestrial land and water. This species lives in several types of habitats including bogs, swamps, fens, woodland streams, wet pastures and marshes. They sometimes also inhabit brackish streams influenced by tides. These reptiles always live in areas with slow moving water and soft soil.

Colorations:

- Their carapace is black in color and is spotted with bright yellow marks
- Their plastron, bottom shells, are yellow to orange-yellow in color with a black spot on each scute
- They have smooth upper shells or carapaces. The upper shells are not marked with a central ridge or "keel". There is one yellow spot on each section of the hatchling's carapace

Characteristics:

- Small semi-aquatic species.
- Each adult spotted turtle can have up to 100 spots
- The lifespan of this species ranges between 25 to 50 years
- The Turtles of this species are active hunters and they mainly hunt underwater. But, some researches show that they sometimes move onto terrestrial lands for hunting
- Spotted Turtles hibernate on land or in water during the extremely hot and cold months

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Eastern Hognose Snake

(Heterodon platirhinos)

IDENTIFICATION: A medium-size stoutly built snake with a distinctive upturned rostral scale, given the appearance of an upturned "nose." The dorsum is highly variable in pattern, some animals are uniformly brown or olive green, others have vivid banding of black alternating with brick red or yellow. The dorsal scales are keeled, the venter yellow with black pigment, the tail quite short. Adult total length 530-820 mm.

The hognose snake's center of distribution in Connecticut is the extensive glacial sand and gravel deposits that span the central portions of the eastern and western hills. It has been found up to 1,200 feet. In the Central Connecticut Lowland and coastal zone, there are far more historical records than recent sightings, indicating that this species has declined in this more intensely developed part of the state. Hognose snakes appear to occur at very low population levels when compared with other snakes. Declines of hognose snakes have been reported along the entire northern limit of their range, from New England westward to Michigan. The hognose is a "Special Concern" species in Connecticut, and under the Connecticut Code (Sec. 26-55-3-E) possession is limited to a single specimen.

Snakes | Amphibians and Reptiles in Connecticut

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Exhibit H

SHPO Historic Review Response Letter

June 23, 2016

Mr. Christopher Little
Ecos Energy
222 South Ninth Street, Suite 1600
Minneapolis, MN 55402

Subject: Solar Farm Development
91 Plainfield Pike Road
Plainfield, Connecticut

Dear Mr. Little:

The State Historic Preservation Office (SHPO) has reviewed your request for information concerning the potential effects to historic properties associated with the referenced project. SHPO understands that the proposed solar voltaic facility will entail the construction of ground mounted solar arrays and ancillary facilities (e.g. access road) within an area encompassing approximately 10 acres. The proposed activities are under the jurisdiction of the Connecticut Siting Council and are subject to review by this office pursuant to the Connecticut Environmental Policy Act (CEPA).

Although no properties listed on the National Register of Historic Places have been documented within the project parcels, several historic properties have been recorded in its immediate vicinity. The project area is situated on well-drained soils adjacent to unnamed wetlands. This type of environmental setting tends to be associated with pre-contact Native American settlement. We are therefore requesting that a professional cultural resources assessment and reconnaissance survey be completed prior to construction. SHPO acknowledges that portions of the property have been subjected to substantial prior ground disturbances. Not all areas of the proposed solar field are archeologically sensitive, but it is SHPO's opinion that intact and relatively well-drained soils within portions of the Area of Potential Effect have an elevated potential to contain significant archeological resources. Subsurface testing should assess all areas of anticipated ground disturbance that are considered to have a moderate/high sensitivity for containing significant archeological deposits, unless sufficient research or fieldwork documents that this level of effort is unwarranted. All work should be in compliance with our *Environmental Review Primer for Connecticut's Archaeological Resources* and no construction or other project-related ground disturbance should be initiated until SHPO has had an opportunity to review and comment upon the requested survey. A list of qualified consultants is attached for your convenience.

This office appreciates the opportunity to review and comment upon this project. These comments are provided in accordance with the Connecticut Environmental Policy Act. For additional information, please contact me at (860) 256-2764 or catherine.labadia@ct.gov.

Sincerely,

Catherine Labadia
Deputy State Historic Preservation Officer

Exhibit I

E3 Endangered Species Review and Analysis

E3 ENVIRONMENTAL™
871 Jefferson Avenue
St. Paul, MN 55102

Endangered Species Review and Analysis

ECOS Energy, LLC
Plainfield Pike Solar Garden
Windham County, Connecticut

ECOS Energy, LLC (ECOS) has proposed the development of a renewable energy facility designed to gather solar energy to be located at 2-90 Plainfield Pike, Windham County, Connecticut. The proposed facility would install photovoltaic panels to collect solar energy for distribution. ECOS has contracted E3 Environmental, LLC (E3) to conduct a review of the project and assess the potential impacts to species that are afforded protection under the Endangered Species Act of 1973 (ESA; 16 U.S.C. § 1531 et seq.) which is administered by the US Fish and Wildlife Service (FWS).

The FWS maintains various databases with entries for every species listed under the ESA. This information is accessible to the general public and provides detailed species information such as species specific life cycles, habitat requirements, current and historical recorded occurrences. This information is provided by the FWS as a service to the general public for informational purposes and to professionals for project planning. The Environmental Conservation Online System provided by the FWS offers the Information for Planning and Conservation (IPaC) web based service which is a project planning tool designed to streamline the FWS environmental review process. On June 23, 2016, E3 accessed the IPaC system to evaluate potential occurrences of ESA listed species within the proposed project area; the results were analyzed with respect to potential impacts to ESA listed species with the potential to occur within the project area.

IPaC Results – ESA Listed Species:

- Northern long-eared bat (*Myotis septentrionalis*)
  - ESA Status: Threatened

The northern long-eared bat (NLEB) was the only species identified by the IPaC consultation conducted for this project. This species has an expansive range which encompasses all of New England. Scientist have observed a measurable decline in this species' population throughout its range and have attributed the loss in population primarily due to the white-nose syndrome. The FWS has determined that the most effective conservation measure to protect this species throughout its range will be through restrictions of tree clearing activities. As of February 16, 2016 the Final 4(d) Rule for the northern long-Eared bat went into effect which states the following management measures:

- Tree clearing at any time of the year within a 0.25 mile radius of known NLEB is prohibited; and
- Tree clearing within 150-foot radius of known occupied maternity roost trees during the pup season (June 1 through July 31) is prohibited.

E3 ENVIRONMENTAL™
871 Jefferson Avenue
St. Paul, MN 55102

E3 has reviewed FWS published data with respect to the locations of known NLEB hibernacula in Connecticut and confirmed that there is no known NLEB hibernacula recorded in Windham or surrounding counties. Provided tree clearing is suspended during the pup rearing season (June 1 through July 31) the proposed project would not result in adverse impacts to this species.

Other ESA Species Reported to Occur in Windham County:

- Sandplain gerardia (*Agalinis acuta*)
  - ESA Status: Endangered

The sandplain gerardia is a plant species that is known to favor the coastal plains. The project, due to its distance from the coast, will not result in a negative impact to this species. ESA protection is not granted to plants for activities on private land that are not federally funded.

- Small whorled pogonia (*Isotria medeoloides*)
  - ESA Status: Threatened

The small whorled pogonia is an extremely rare forest orchid. This plant species favors acidic soils under the canopy of deciduous or mixed deciduous – coniferous forests. Due to the lack of preferred habitat and based upon previous consultation with state agency, the proposed project will not have adverse impacts on this species. ESA protection is not granted to plants for activities on private land that are not federally funded.

Exhibit J

Stormwater Management & Hydrology Report

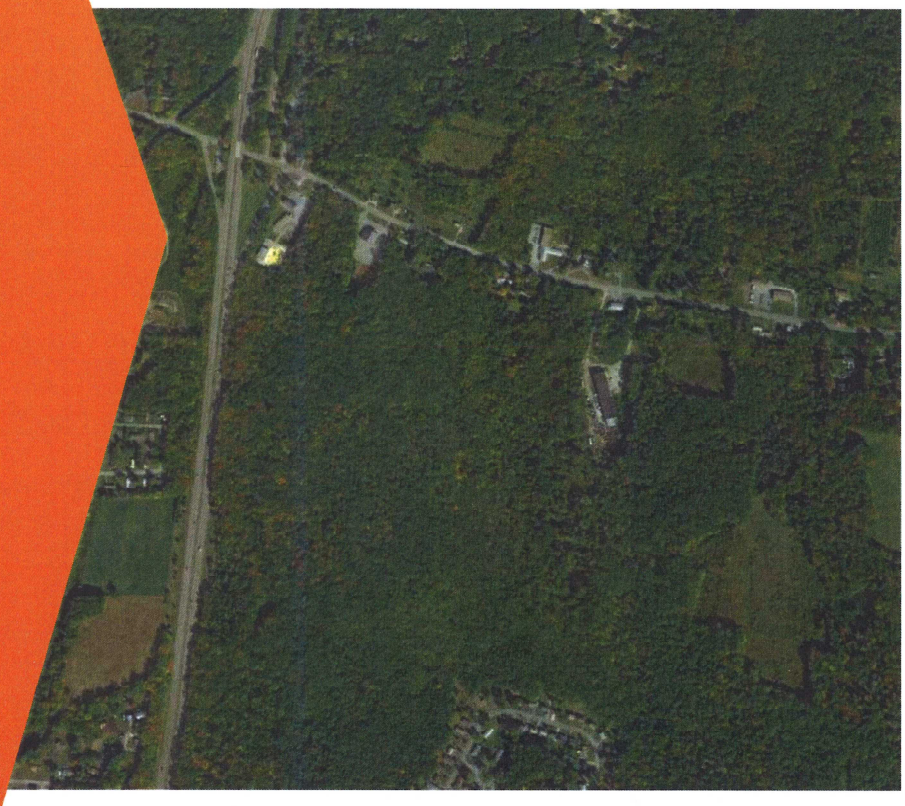
Westwood

HYDROLOGY REPORT

PLAINFIELD SOLAR PROJECT

Plainfield, CT

August, 2017



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PROFESSIONAL ENGINEER

8-22-17

Prepared For:

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Westwood

7699 Anagram Drive
Eden Prairie, MN 55344

Main (952) 937-5150
Fax (952) 937-5822

westwoodps.com
(888) 937-5150

HYDROLOGY REPORT

Date: August 22, 2017

Re: **Plainfield Solar Project – Hydrology Report**
File 0013149

To: Steve Broyer, Ecos Energy

From: Joe Fox, PE, Water Resources Engineer

The memo summarizes stormwater modeling completed for the Plainfield Solar Project. The site is located on the southeast intersection of the Connecticut Turnpike and Plainfield Pike just east of the City of Plainfield, CT. HydroCAD modeling software was used to establish existing and proposed discharge rates from the site. Attachment 1 shows a drainage area map. Topographic data was furnished by the client.

Existing Conditions

The site is not within a FEMA flood zone. A flood zone exists on the western boundary (fence line) of the western-most array on this site. But it does not affect the project. In existing conditions there is no impervious surface. The site is forested. Site soils are predominantly classified as A and B with smaller areas of D soils. Attachment 2 shows soils data. The analysis uses Atlas 14 precipitation data (Attachment 3).

Proposed Conditions

The proposed design has solar panels installed in three sections for a total of 5.15 acres of panels. Gravel access roads (1.04 acres) are proposed to service the arrays. Inverters and other associated electrical components are proposed for each solar array (electrical components total = 0.033 acres). The proposed ground cover beneath and around the panels is native grass. Stormwater generally runs off to the east and south from all three array sections. Five basins are proposed. The basins will act as sedimentation basins during construction and as permanent water quality treatment basins after construction.

Modeling Results

The site was modeled in HydroCAD as three areas, using the proposed fence line as the watershed boundaries. Site conditions are shown in Table 1. Curve Numbers were calculated based on land cover and soil type.

Table 1. Site Conditions

Project Area [ac]	14.83	Area within fence
Solar Array [ac]	5.15	
Proposed Impervious Improvements [ac]	1.07	Gravel access roads and equipment pads

Without installation of any basins, the discharge rates in proposed conditions are higher than existing conditions rates in the 2-year, 10-year, and 100-year storm storms (Table 2). This is due to the ground cover change from forest to meadow as well as the creation of impervious, i.e. the access roads and inverter pads.

Table 2. Comparison of Discharge Rates **without** Pond

Event	**Rainfall depth [in]**	**Existing [cfs]**	**Proposed [cfs]**
2-year	3.36	1.8	6.0
10-year	5.04	7.7	15.5
100-year	7.69	23.2	33.8

The planting of meadow grasses under and around the solar array helps mitigate discharge rates but not to the extent required. Therefore five stormwater basins are proposed.

According to the HydroCAD model (Attachment 4), constructing these five ponds reduces the peak discharge rates (Table 3). In the 10-year and 100-year events the proposed conditions discharge rate is lower than in existing conditions. In the 2-year event, the proposed rate is lower than the rate with no ponds. However, the rate in this event exceeds the existing conditions discharge rate.

Table 3. Comparison of Discharge Rates **with** Ponds

Event	**Rainfall depth [in]**	**Existing [cfs]**	**Proposed [cfs]**
2-year	3.36	2.1	3.9
10-year	5.04	8.9	8.2
100-year	7.69	26.3	19.6

The ponds provide water quality treatment as well as reduce peak dishcharge rates. A spreadsheet with pond sizing calculations is in Attachment 5.

Attachments

1. Drainage Map
2. Soil Information
3. Atlas 14 Precipitation Report
4. HydroCAD Report
5. Pond Sizing Spreadsheet

Map Document: N:\0013149.00\GIS\0008567_Plainfield_170811.mxd 8/11/2017 9:15:19 AM

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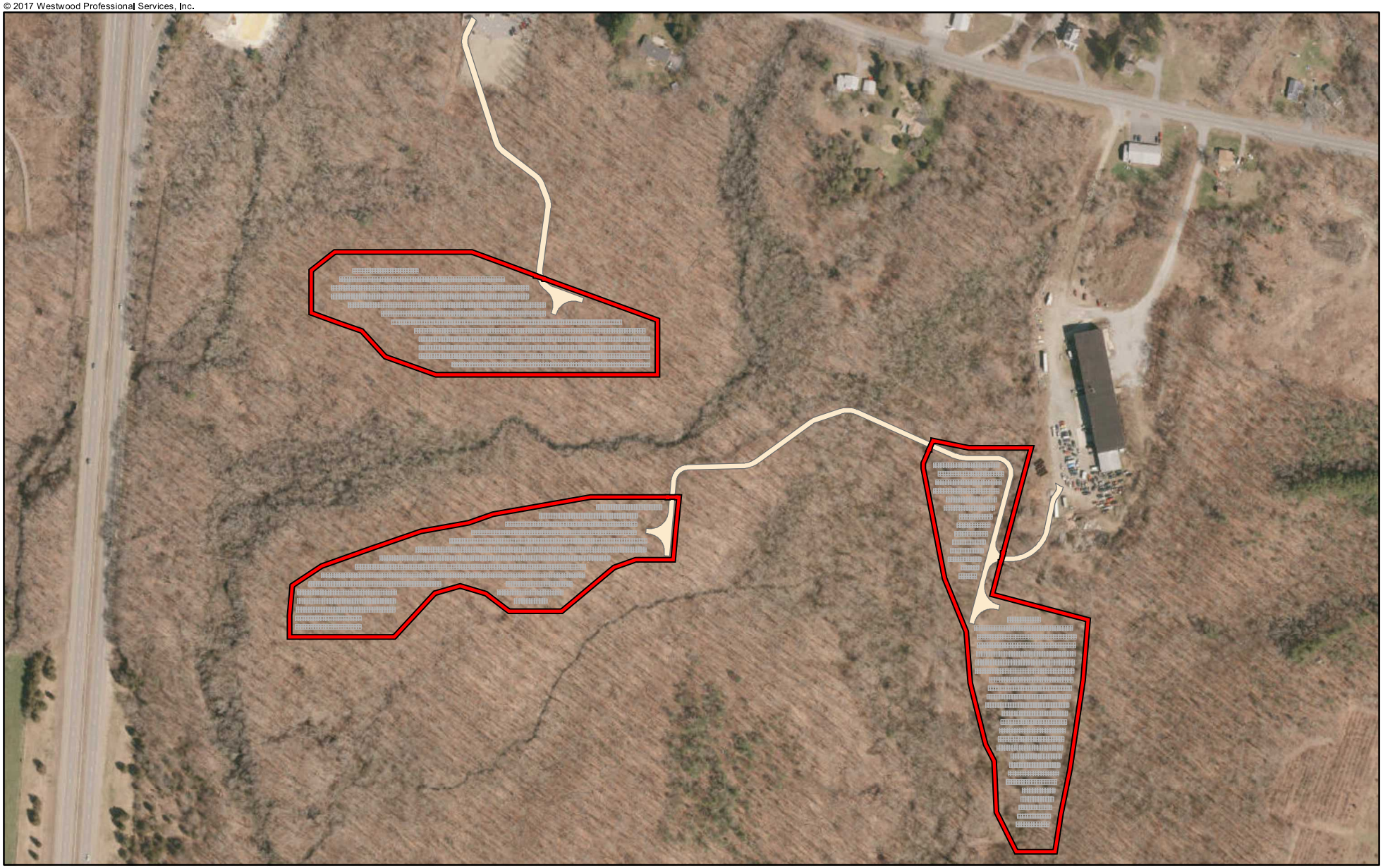

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Solar Panels

Fence

Gravel Access Road

Plainfield Solar Project - ECOS Energy

Plainfield, Connecticut

Drainage Map

N

0 200 Feet

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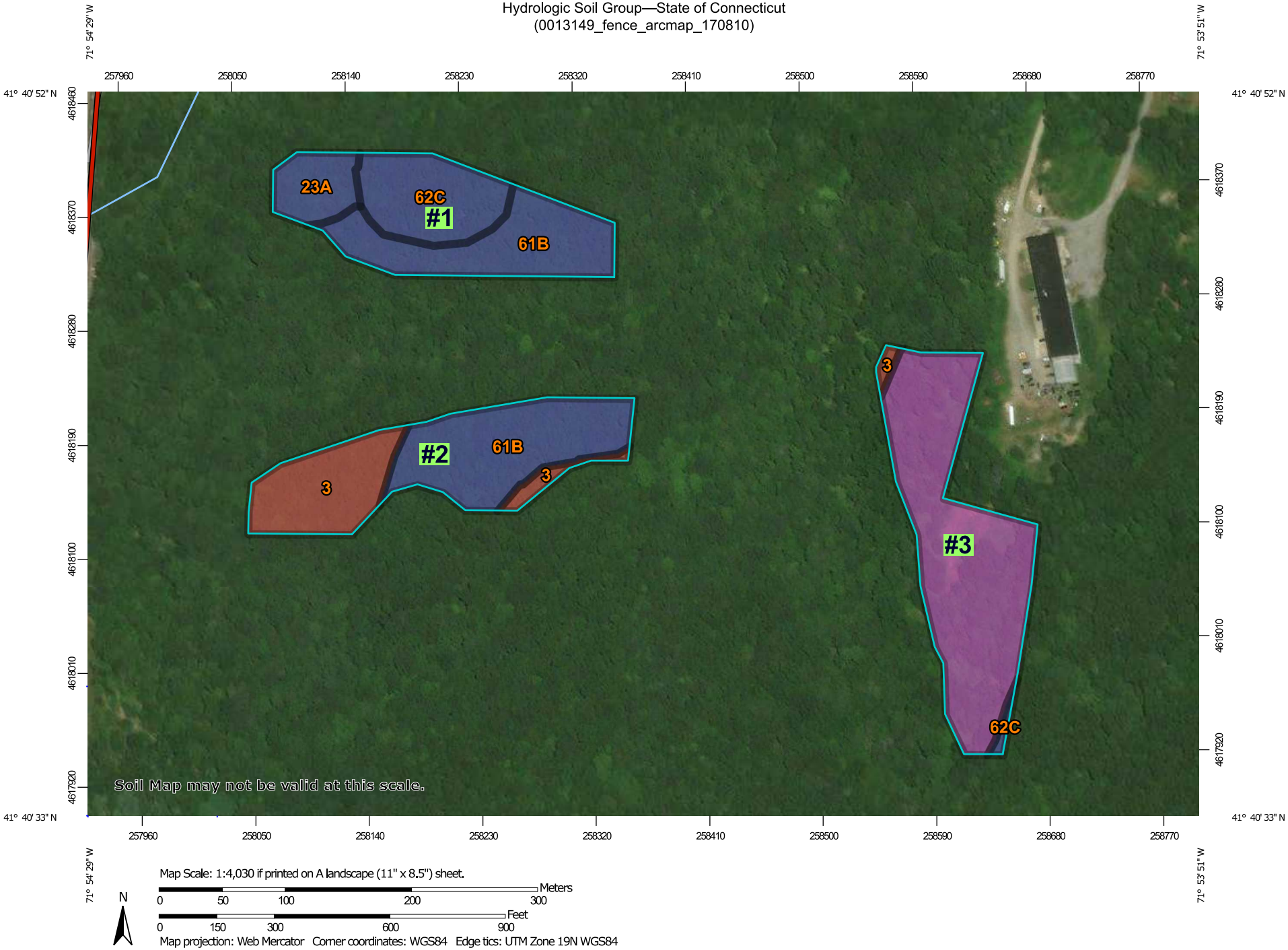
Hydrologic Soil Group—State of Connecticut
(0013149_fence_arcmap_170810)



Map Scale: 1:4,030 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Lines

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Points

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut
Survey Area Data: Version 15, Sep 28, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 14, 2011—Aug 27, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — #1, State of Connecticut (CT600)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
23A	Sudbury sandy loam, 0 to 5 percent slopes	B	0.8	5.6%
61B	Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony	B	2.3	15.7%
62C	Canton and Charlton fine sandy loams, 3 to 15 percent slopes, extremely stony	B	1.7	11.7%
Subtotals for #1			**4.9**	**33.0%**
Totals for Area of Interest			**14.8**	**100.0%**

Hydrologic Soil Group— Summary by Map Unit — #2, State of Connecticut (CT600)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	D	2.0	13.3%
61B	Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony	B	2.7	18.5%
Subtotals for #2			**4.7**	**31.7%**
Totals for Area of Interest			**14.8**	**100.0%**

Hydrologic Soil Group— Summary by Map Unit — #3, State of Connecticut (CT600)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	D	0.1	0.6%
38C	Hinckley loamy sand, 3 to 15 percent slopes	A	5.0	34.0%
62C	Canton and Charlton fine sandy loams, 3 to 15 percent slopes, extremely stony	B	0.1	0.6%
Subtotals for #3			**5.2**	**35.3%**
Totals for Area of Interest			**14.8**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

NOAA Atlas 14, Volume 10, Version 2
Location name: Plainfield, Connecticut, US*
Latitude: 41.6813°, Longitude: -71.9050°
Elevation: 208 ft*
* source: Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

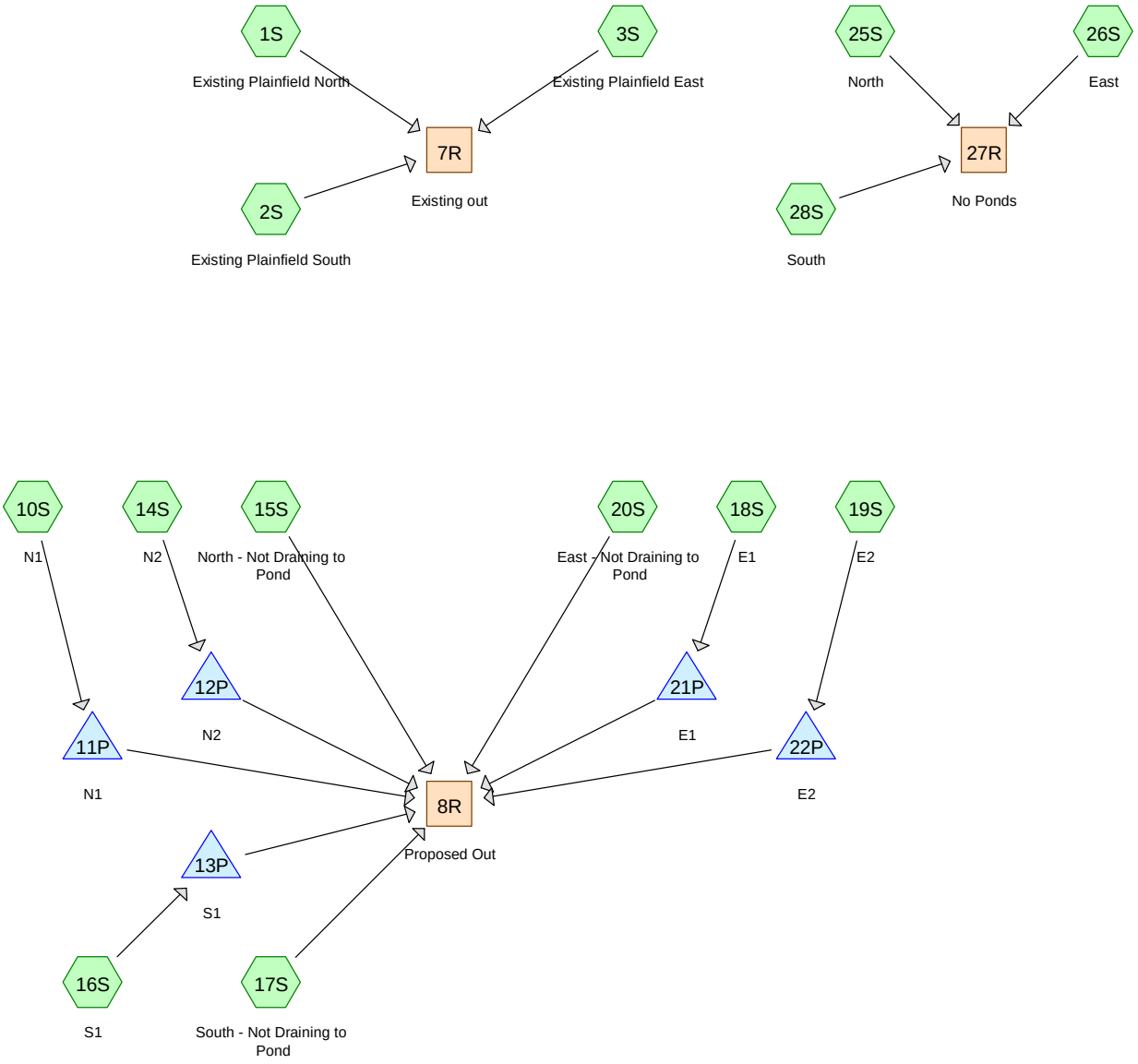
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.329** (0.253-0.424)	**0.395** (0.304-0.510)	**0.504** (0.386-0.652)	**0.593** (0.453-0.771)	**0.717** (0.531-0.965)	**0.812** (0.589-1.11)	**0.908** (0.640-1.28)	**1.02** (0.687-1.47)	**1.18** (0.761-1.73)	**1.29** (0.817-1.93)
10-min	**0.466** (0.359-0.601)	**0.560** (0.431-0.723)	**0.713** (0.547-0.923)	**0.841** (0.641-1.09)	**1.02** (0.752-1.37)	**1.15** (0.835-1.57)	**1.29** (0.907-1.81)	**1.45** (0.973-2.08)	**1.67** (1.08-2.45)	**1.83** (1.16-2.74)
15-min	**0.548** (0.422-0.707)	**0.659** (0.507-0.850)	**0.839** (0.644-1.09)	**0.989** (0.754-1.28)	**1.20** (0.884-1.61)	**1.35** (0.982-1.85)	**1.51** (1.07-2.13)	**1.71** (1.15-2.44)	**1.96** (1.27-2.88)	**2.15** (1.36-3.22)
30-min	**0.757** (0.583-0.977)	**0.911** (0.701-1.18)	**1.16** (0.892-1.50)	**1.37** (1.05-1.78)	**1.66** (1.23-2.23)	**1.88** (1.36-2.57)	**2.10** (1.48-2.96)	**2.37** (1.59-3.40)	**2.73** (1.77-4.02)	**3.00** (1.90-4.49)
60-min	**0.966** (0.744-1.25)	**1.16** (0.895-1.50)	**1.49** (1.14-1.92)	**1.75** (1.34-2.28)	**2.12** (1.57-2.86)	**2.40** (1.75-3.29)	**2.69** (1.90-3.79)	**3.04** (2.04-4.35)	**3.50** (2.26-5.15)	**3.84** (2.43-5.75)
2-hr	**1.25** (0.967-1.60)	**1.50** (1.16-1.93)	**1.92** (1.48-2.47)	**2.26** (1.74-2.93)	**2.74** (2.04-3.67)	**3.11** (2.27-4.24)	**3.47** (2.47-4.89)	**3.96** (2.67-5.63)	**4.60** (2.98-6.73)	**5.08** (3.23-7.55)
3-hr	**1.45** (1.12-1.85)	**1.74** (1.35-2.23)	**2.22** (1.72-2.85)	**2.62** (2.01-3.37)	**3.17** (2.37-4.23)	**3.59** (2.63-4.88)	**4.01** (2.87-5.64)	**4.58** (3.09-6.50)	**5.34** (3.47-7.78)	**5.91** (3.76-8.75)
6-hr	**1.86** (1.45-2.36)	**2.23** (1.74-2.83)	**2.83** (2.20-3.61)	**3.33** (2.58-4.27)	**4.02** (3.02-5.35)	**4.55** (3.36-6.16)	**5.09** (3.65-7.11)	**5.81** (3.94-8.19)	**6.77** (4.42-9.80)	**7.49** (4.78-11.0)
12-hr	**2.35** (1.84-2.97)	**2.81** (2.20-3.55)	**3.56** (2.78-4.51)	**4.18** (3.25-5.32)	**5.04** (3.80-6.65)	**5.70** (4.22-7.65)	**6.36** (4.58-8.81)	**7.23** (4.92-10.1)	**8.39** (5.49-12.1)	**9.26** (5.93-13.5)
24-hr	**2.80** (2.21-3.52)	**3.36** (2.65-4.22)	**4.27** (3.36-5.39)	**5.03** (3.94-6.37)	**6.08** (4.61-7.97)	**6.88** (5.12-9.18)	**7.68** (5.56-10.6)	**8.75** (5.97-12.2)	**10.2** (6.67-14.5)	**11.2** (7.20-16.3)
2-day	**3.16** (2.51-3.95)	**3.82** (3.03-4.78)	**4.90** (3.88-6.14)	**5.80** (4.56-7.30)	**7.04** (5.37-9.19)	**7.99** (5.98-10.6)	**8.94** (6.51-12.3)	**10.3** (7.03-14.2)	**12.0** (7.91-17.0)	**13.3** (8.57-19.2)
3-day	**3.42** (2.73-4.26)	**4.14** (3.30-5.16)	**5.32** (4.22-6.64)	**6.29** (4.96-7.89)	**7.63** (5.84-9.94)	**8.66** (6.50-11.5)	**9.69** (7.09-13.3)	**11.2** (7.66-15.4)	**13.1** (8.64-18.5)	**14.5** (9.38-20.9)
4-day	**3.67** (2.93-4.55)	**4.42** (3.53-5.50)	**5.67** (4.50-7.06)	**6.69** (5.29-8.38)	**8.11** (6.22-10.5)	**9.20** (6.93-12.2)	**10.3** (7.55-14.1)	**11.9** (8.15-16.3)	**13.9** (9.21-19.6)	**15.5** (10.0-22.2)
7-day	**4.33** (3.48-5.36)	**5.18** (4.16-6.41)	**6.57** (5.25-8.15)	**7.72** (6.13-9.61)	**9.30** (7.17-12.0)	**10.5** (7.95-13.9)	**11.7** (8.64-16.0)	**13.5** (9.31-18.4)	**15.8** (10.5-22.2)	**17.6** (11.4-25.0)
10-day	**5.01** (4.03-6.17)	**5.91** (4.75-7.29)	**7.38** (5.91-9.12)	**8.59** (6.84-10.7)	**10.3** (7.93-13.2)	**11.6** (8.75-15.1)	**12.9** (9.46-17.4)	**14.7** (10.1-19.9)	**17.0** (11.3-23.8)	**18.8** (12.2-26.7)
20-day	**7.14** (5.78-8.75)	**8.10** (6.55-9.93)	**9.66** (7.79-11.9)	**11.0** (8.78-13.5)	**12.7** (9.86-16.2)	**14.1** (10.7-18.2)	**15.5** (11.3-20.5)	**17.1** (11.9-23.1)	**19.2** (12.8-26.6)	**20.8** (13.5-29.2)
30-day	**8.94** (7.26-10.9)	**9.92** (8.05-12.1)	**11.5** (9.32-14.1)	**12.9** (10.3-15.8)	**14.7** (11.4-18.5)	**16.1** (12.2-20.6)	**17.5** (12.8-22.9)	**18.9** (13.2-25.4)	**20.7** (13.9-28.6)	**22.1** (14.4-31.0)
45-day	**11.2** (9.11-13.6)	**12.2** (9.93-14.8)	**13.9** (11.2-16.9)	**15.2** (12.3-18.7)	**17.1** (13.3-21.5)	**18.6** (14.1-23.6)	**20.1** (14.6-26.0)	**21.3** (14.9-28.4)	**22.8** (15.3-31.3)	**24.0** (15.7-33.5)
60-day	**13.0** (10.6-15.8)	**14.1** (11.5-17.1)	**15.8** (12.9-19.3)	**17.3** (13.9-21.1)	**19.2** (15.0-24.0)	**20.8** (15.7-26.2)	**22.3** (16.2-28.7)	**23.4** (16.4-31.2)	**24.8** (16.7-34.0)	**25.9** (16.9-36.1)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top



Subcat Reach Pond Link

Routing Diagram for 0013149_Plainfield_Ecos_170817
Prepared by Westwood Professional Services, Inc., Printed 8/17/2017
HydroCAD® 10.00-19 s/n 03363 © 2016 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: Existing Plainfield North

Runoff = 0.39 cfs @ 12.56 hrs, Volume= 0.135 af, Depth= 0.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 2-yr Rainfall=3.36"

	Area (ac)	CN	Description
*	4.890	55	Weighted CN
*	0.236	55	Additional area - road in proposed conditions
*	0.271	55	Additional area - drainage area in proposed conditions
	5.397	55	Weighted Average
	5.397		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.4	600	0.0267	0.39		**Lag/CN Method,**

Summary for Subcatchment 2S: Existing Plainfield South

Runoff = 1.86 cfs @ 12.31 hrs, Volume= 0.299 af, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 2-yr Rainfall=3.36"

	Area (ac)	CN	Description
*	4.709	64	Weighted CN
*	0.339	64	Additional area - road in proposed conditions
*	0.598	64	Additional area
	5.646	64	Weighted Average
	5.646		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.0	845	0.0355	0.61		**Lag/CN Method,**

Summary for Subcatchment 3S: Existing Plainfield East

Runoff = 0.03 cfs @ 22.69 hrs, Volume= 0.022 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 2-yr Rainfall=3.36"

	Area (ac)	CN	Description
*	5.226	44	Weighted CN
*	0.042	44	Additional area - road in proposed conditions
*	0.029	44	Woods, Good, HSG A
	5.297	44	Weighted Average
	5.297		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	312	0.0640	0.40		**Lag/CN Method,**

Summary for Subcatchment 10S: N1

Runoff = 0.63 cfs @ 12.27 hrs, Volume= 0.116 af, Depth= 0.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 2-yr Rainfall=3.36"

	Area (ac)	CN	Description
*	2.810	58	Meadow, non-grazed, HSG B
*	0.011	98	Inverter skids
*	0.119	98	Road
	2.940	60	Weighted Average
	2.810		95.58% Pervious Area
	0.130		4.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5	540	0.0330	0.49		**Lag/CN Method,**

Summary for Subcatchment 14S: N2

Runoff = 0.34 cfs @ 12.15 hrs, Volume= 0.061 af, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 2-yr Rainfall=3.36"

Area (ac)	CN	Description
1.827	58	Meadow, non-grazed, HSG B
1.827		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	320	0.0531	0.53		**Lag/CN Method,**

Summary for Subcatchment 15S: North - Not Draining to Pond

Runoff = 0.86 cfs @ 12.04 hrs, Volume= 0.058 af, Depth= 1.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 2-yr Rainfall=3.36"

	Area (ac)	CN	Description
*	0.236	98	Off-site Road
	0.410	58	Meadow, non-grazed, HSG B
	0.646	73	Weighted Average
	0.410		63.47% Pervious Area
	0.236		36.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 16S: S1

Runoff = 2.82 cfs @ 12.09 hrs, Volume= 0.244 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 2-yr Rainfall=3.36"

Area (ac)	CN	Description
3.001	71	Meadow, non-grazed, HSG C
3.001		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	480	0.0542	0.81		**Lag/CN Method,**

Summary for Subcatchment 17S: South - Not Draining to Pond

Runoff = 3.03 cfs @ 12.06 hrs, Volume= 0.216 af, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 2-yr Rainfall=3.36"

	Area (ac)	CN	Description
	1.696	71	Meadow, non-grazed, HSG C
*	0.338	98	Roads internal and external
*	0.011	98	Inverter skids
	2.045	76	Weighted Average
	1.696		82.93% Pervious Area
	0.349		17.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	420	0.0595	0.95		**Lag/CN Method,**

Summary for Subcatchment 18S: E1

Runoff = 0.00 cfs @ 24.03 hrs, Volume= 0.001 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 2-yr Rainfall=3.36"

	Area (ac)	CN	Description
*	0.286	98	Road
	1.548	30	Meadow, non-grazed, HSG A
	0.409	30	Woods, Good, HSG A
	2.243	39	Weighted Average
	1.957		87.25% Pervious Area
	0.286		12.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.2	350	0.0829	0.41		**Lag/CN Method,**

Summary for Subcatchment 19S: E2

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 2-yr Rainfall=3.36"

	Area (ac)	CN	Description
*	0.021	98	Road
*	0.011	98	Inverter Skids
	3.185	30	Meadow, non-grazed, HSG A
	3.217	31	Weighted Average
	3.185		99.01% Pervious Area
	0.032		0.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2	425	0.0400	0.23		**Lag/CN Method,**

Summary for Subcatchment 20S: East - Not Draining to Pond

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 2-yr Rainfall=3.36"

	Area (ac)	CN	Description
	0.379	30	Meadow, non-grazed, HSG A
*	0.042	98	Road
	0.421	37	Weighted Average
	0.379		90.02% Pervious Area
	0.042		9.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2					**Direct Entry,**

Summary for Subcatchment 25S: North

Runoff = 1.35 cfs @ 12.26 hrs, Volume= 0.231 af, Depth= 0.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 2-yr Rainfall=3.36"

	Area (ac)	CN	Description
*	0.355	98	road
*	0.011	98	inverter skids
*	5.047	58	Meadow
	5.413	61	Weighted Average
	5.047		93.24% Pervious Area
	0.366		6.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5					**Direct Entry,**

Summary for Subcatchment 26S: East

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 2-yr Rainfall=3.36"

	Area (ac)	CN	Description
*	0.349	98	Road
*	0.011	98	Inverter skids
*	5.521	30	Meadow
	5.881	34	Weighted Average
	5.521		93.88% Pervious Area
	0.360		6.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2					**Direct Entry,**

Summary for Subcatchment 28S: South

Runoff = 5.44 cfs @ 12.09 hrs, Volume= 0.457 af, Depth= 1.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 2-yr Rainfall=3.36"

	Area (ac)	CN	Description
*	0.011	98	Inverter skids
*	0.338	98	Roads
*	4.697	71	Meadow
	5.046	73	Weighted Average
	4.697		93.08% Pervious Area
	0.349		6.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9					**Direct Entry,**

Summary for Reach 7R: Existing out

Inflow Area = 16.340 ac, 0.00% Impervious, Inflow Depth = 0.33" for 2-yr event
Inflow = 2.14 cfs @ 12.34 hrs, Volume= 0.456 af
Outflow = 2.14 cfs @ 12.34 hrs, Volume= 0.456 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 8R: Proposed Out

Inflow Area = 16.340 ac, 6.58% Impervious, Inflow Depth = 0.20" for 2-yr event
Inflow = 3.88 cfs @ 12.05 hrs, Volume= 0.274 af
Outflow = 3.88 cfs @ 12.05 hrs, Volume= 0.274 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 27R: No Ponds

Inflow Area = 16.340 ac, 6.58% Impervious, Inflow Depth = 0.50" for 2-yr event
Inflow = 6.04 cfs @ 12.10 hrs, Volume= 0.687 af
Outflow = 6.04 cfs @ 12.10 hrs, Volume= 0.687 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Pond 11P: N1

Inflow Area = 2.940 ac, 4.42% Impervious, Inflow Depth = 0.47" for 2-yr event
Inflow = 0.63 cfs @ 12.27 hrs, Volume= 0.116 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 197.74' @ 25.05 hrs Surf.Area= 2,072 sf Storage= 5,042 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	11,093 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	625	0	0
199.00	2,560	7,963	7,963
200.00	3,700	3,130	11,093

Device	Routing	Invert	Outlet Devices
#1	Primary	199.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=194.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 12P: N2

Inflow Area = 1.827 ac, 0.00% Impervious, Inflow Depth = 0.40" for 2-yr event
Inflow = 0.34 cfs @ 12.15 hrs, Volume= 0.061 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 191.14' @ 24.59 hrs Surf.Area= 2,555 sf Storage= 2,648 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	190.00'	12,050 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
190.00	2,100	0	0
193.00	3,300	8,100	8,100
194.00	4,600	3,950	12,050

Device	Routing	Invert	Outlet Devices
#1	Primary	193.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65
2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=190.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 13P: S1

Inflow Area = 3.001 ac, 0.00% Impervious, Inflow Depth = 0.98" for 2-yr event
Inflow = 2.82 cfs @ 12.09 hrs, Volume= 0.244 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 188.49' @ 24.56 hrs Surf.Area= 3,993 sf Storage= 10,630 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	185.00'	17,355 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
185.00	2,100	0	0
189.00	4,270	12,740	12,740
190.00	4,960	4,615	17,355

Device	Routing	Invert	Outlet Devices
#1	Primary	189.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=185.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 21P: E1

Inflow Area = 2.243 ac, 12.75% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 24.03 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 220.04' @ 24.81 hrs Surf.Area= 0.014 ac Storage= 0.001 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	220.00'	0.240 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
220.00	0.014	0.000	0.000
223.00	0.057	0.107	0.107
225.00	0.076	0.133	0.240

Device	Routing	Invert	Outlet Devices
#1	Primary	223.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=220.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 22P: E2

Inflow Area = 3.217 ac, 0.99% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 226.00' @ 0.00 hrs Surf.Area= 0.021 ac Storage= 0.000 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	226.00'	0.279 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
226.00	0.021	0.000	0.000
229.00	0.067	0.132	0.132
231.00	0.080	0.147	0.279

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=226.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Subcatchment 1S: Existing Plainfield North

Runoff = 2.71 cfs @ 12.34 hrs, Volume= 0.447 af, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 10-yr Rainfall=5.03"

	Area (ac)	CN	Description
*	4.890	55	Weighted CN
*	0.236	55	Additional area - road in proposed conditions
*	0.271	55	Additional area - drainage area in proposed conditions
	5.397	55	Weighted Average
	5.397		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.4	600	0.0267	0.39		**Lag/CN Method,**

Summary for Subcatchment 2S: Existing Plainfield South

Runoff = 5.81 cfs @ 12.29 hrs, Volume= 0.753 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 10-yr Rainfall=5.03"

	Area (ac)	CN	Description
*	4.709	64	Weighted CN
*	0.339	64	Additional area - road in proposed conditions
*	0.598	64	Additional area
	5.646	64	Weighted Average
	5.646		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.0	845	0.0355	0.61		**Lag/CN Method,**

Summary for Subcatchment 3S: Existing Plainfield East

Runoff = 0.53 cfs @ 12.37 hrs, Volume= 0.179 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 10-yr Rainfall=5.03"

	Area (ac)	CN	Description
*	5.226	44	Weighted CN
*	0.042	44	Additional area - road in proposed conditions
*	0.029	44	Woods, Good, HSG A
	5.297	44	Weighted Average
	5.297		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	312	0.0640	0.40		**Lag/CN Method,**

Summary for Subcatchment 10S: N1

Runoff = 2.63 cfs @ 12.23 hrs, Volume= 0.323 af, Depth= 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 10-yr Rainfall=5.03"

	Area (ac)	CN	Description
*	2.810	58	Meadow, non-grazed, HSG B
*	0.011	98	Inverter skids
*	0.119	98	Road
	2.940	60	Weighted Average
	2.810		95.58% Pervious Area
	0.130		4.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5	540	0.0330	0.49		**Lag/CN Method,**

Summary for Subcatchment 14S: N2

Runoff = 1.88 cfs @ 12.10 hrs, Volume= 0.180 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 10-yr Rainfall=5.03"

Area (ac)	CN	Description
1.827	58	Meadow, non-grazed, HSG B
1.827		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	320	0.0531	0.53		**Lag/CN Method,**

Summary for Subcatchment 15S: North - Not Draining to Pond

Runoff = 1.91 cfs @ 12.04 hrs, Volume= 0.124 af, Depth= 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 10-yr Rainfall=5.03"

	Area (ac)	CN	Description
*	0.236	98	Off-site Road
	0.410	58	Meadow, non-grazed, HSG B
	0.646	73	Weighted Average
	0.410		63.47% Pervious Area
	0.236		36.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 16S: S1

Runoff = 6.66 cfs @ 12.09 hrs, Volume= 0.535 af, Depth= 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 10-yr Rainfall=5.03"

Area (ac)	CN	Description
3.001	71	Meadow, non-grazed, HSG C
3.001		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	480	0.0542	0.81		**Lag/CN Method,**

Summary for Subcatchment 17S: South - Not Draining to Pond

Runoff = 6.30 cfs @ 12.05 hrs, Volume= 0.436 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 10-yr Rainfall=5.03"

	Area (ac)	CN	Description
	1.696	71	Meadow, non-grazed, HSG C
*	0.338	98	Roads internal and external
*	0.011	98	Inverter skids
	2.045	76	Weighted Average
	1.696		82.93% Pervious Area
	0.349		17.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	420	0.0595	0.95		**Lag/CN Method,**

Summary for Subcatchment 18S: E1

Runoff = 0.05 cfs @ 13.43 hrs, Volume= 0.039 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 10-yr Rainfall=5.03"

	Area (ac)	CN	Description
*	0.286	98	Road
	1.548	30	Meadow, non-grazed, HSG A
	0.409	30	Woods, Good, HSG A
	2.243	39	Weighted Average
	1.957		87.25% Pervious Area
	0.286		12.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.2	350	0.0829	0.41		**Lag/CN Method,**

Summary for Subcatchment 19S: E2

Runoff = 0.01 cfs @ 24.06 hrs, Volume= 0.004 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 10-yr Rainfall=5.03"

	Area (ac)	CN	Description
*	0.021	98	Road
*	0.011	98	Inverter Skids
	3.185	30	Meadow, non-grazed, HSG A
	3.217	31	Weighted Average
	3.185		99.01% Pervious Area
	0.032		0.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2	425	0.0400	0.23		**Lag/CN Method,**

Summary for Subcatchment 20S: East - Not Draining to Pond

Runoff = 0.01 cfs @ 15.94 hrs, Volume= 0.005 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 10-yr Rainfall=5.03"

	Area (ac)	CN	Description
	0.379	30	Meadow, non-grazed, HSG A
*	0.042	98	Road
	0.421	37	Weighted Average
	0.379		90.02% Pervious Area
	0.042		9.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2					**Direct Entry,**

Summary for Subcatchment 25S: North

Runoff = 5.18 cfs @ 12.23 hrs, Volume= 0.626 af, Depth= 1.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 10-yr Rainfall=5.03"

	Area (ac)	CN	Description
*	0.355	98	road
*	0.011	98	inverter skids
*	5.047	58	Meadow
	5.413	61	Weighted Average
	5.047		93.24% Pervious Area
	0.366		6.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5					**Direct Entry,**

Summary for Subcatchment 26S: East

Runoff = 0.04 cfs @ 23.99 hrs, Volume= 0.031 af, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 10-yr Rainfall=5.03"

	Area (ac)	CN	Description
*	0.349	98	Road
*	0.011	98	Inverter skids
*	5.521	30	Meadow
	5.881	34	Weighted Average
	5.521		93.88% Pervious Area
	0.360		6.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2					**Direct Entry,**

Summary for Subcatchment 28S: South

Runoff = 12.17 cfs @ 12.09 hrs, Volume= 0.969 af, Depth= 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 10-yr Rainfall=5.03"

	Area (ac)	CN	Description
*	0.011	98	Inverter skids
*	0.338	98	Roads
*	4.697	71	Meadow
	5.046	73	Weighted Average
	4.697		93.08% Pervious Area
	0.349		6.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9					**Direct Entry,**

Summary for Reach 7R: Existing out

Inflow Area = 16.340 ac, 0.00% Impervious, Inflow Depth = 1.01" for 10-yr event
Inflow = 8.94 cfs @ 12.30 hrs, Volume= 1.379 af
Outflow = 8.94 cfs @ 12.30 hrs, Volume= 1.379 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 8R: Proposed Out

Inflow Area = 16.340 ac, 6.58% Impervious, Inflow Depth = 0.70" for 10-yr event
Inflow = 8.17 cfs @ 12.05 hrs, Volume= 0.948 af
Outflow = 8.17 cfs @ 12.05 hrs, Volume= 0.948 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 27R: No Ponds

Inflow Area = 16.340 ac, 6.58% Impervious, Inflow Depth = 1.19" for 10-yr event
Inflow = 15.52 cfs @ 12.11 hrs, Volume= 1.626 af
Outflow = 15.52 cfs @ 12.11 hrs, Volume= 1.626 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Pond 11P: N1

Inflow Area = 2.940 ac, 4.42% Impervious, Inflow Depth = 1.32" for 10-yr event
Inflow = 2.63 cfs @ 12.23 hrs, Volume= 0.323 af
Outflow = 0.28 cfs @ 14.90 hrs, Volume= 0.140 af, Atten= 89%, Lag= 160.3 min
Primary = 0.28 cfs @ 14.90 hrs, Volume= 0.140 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 199.03' @ 14.90 hrs Surf.Area= 2,594 sf Storage= 8,040 cf

Plug-Flow detention time= 383.9 min calculated for 0.140 af (43% of inflow)
Center-of-Mass det. time= 208.0 min (1,128.6 - 920.6)

Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	11,093 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	625	0	0
199.00	2,560	7,963	7,963
200.00	3,700	3,130	11,093

Device	Routing	Invert	Outlet Devices
#1	Primary	199.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.24 cfs @ 14.90 hrs HW=199.03' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 0.24 cfs @ 0.41 fps)

Summary for Pond 12P: N2

Inflow Area = 1.827 ac, 0.00% Impervious, Inflow Depth = 1.19" for 10-yr event
Inflow = 1.88 cfs @ 12.10 hrs, Volume= 0.180 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 192.93' @ 24.59 hrs Surf.Area= 3,271 sf Storage= 7,861 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	190.00'	12,050 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
190.00	2,100	0	0
193.00	3,300	8,100	8,100
194.00	4,600	3,950	12,050

Device	Routing	Invert	Outlet Devices
#1	Primary	193.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65
2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=190.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 13P: S1

Inflow Area = 3.001 ac, 0.00% Impervious, Inflow Depth = 2.14" for 10-yr event
Inflow = 6.66 cfs @ 12.09 hrs, Volume= 0.535 af
Outflow = 0.57 cfs @ 13.60 hrs, Volume= 0.243 af, Atten= 91%, Lag= 90.6 min
Primary = 0.57 cfs @ 13.60 hrs, Volume= 0.243 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 189.05' @ 13.60 hrs Surf.Area= 4,306 sf Storage= 12,965 cf

Plug-Flow detention time= 341.8 min calculated for 0.242 af (45% of inflow)
Center-of-Mass det. time= 184.8 min (1,059.8 - 875.0)

Volume	Invert	Avail.Storage	Storage Description
#1	185.00'	17,355 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
185.00	2,100	0	0
189.00	4,270	12,740	12,740
190.00	4,960	4,615	17,355

Device	Routing	Invert	Outlet Devices
#1	Primary	189.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.56 cfs @ 13.60 hrs HW=189.05' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 0.56 cfs @ 0.54 fps)

Summary for Pond 21P: E1

Inflow Area = 2.243 ac, 12.75% Impervious, Inflow Depth = 0.21" for 10-yr event
Inflow = 0.05 cfs @ 13.43 hrs, Volume= 0.039 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 221.54' @ 24.81 hrs Surf.Area= 0.036 ac Storage= 0.039 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	220.00'	0.240 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
220.00	0.014	0.000	0.000
223.00	0.057	0.107	0.107
225.00	0.076	0.133	0.240

Device	Routing	Invert	Outlet Devices
#1	Primary	223.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=220.00' (Free Discharge)
↑—1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 22P: E2

Inflow Area = 3.217 ac, 0.99% Impervious, Inflow Depth = 0.01" for 10-yr event
Inflow = 0.01 cfs @ 24.06 hrs, Volume= 0.004 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 226.18' @ 25.71 hrs Surf.Area= 0.024 ac Storage= 0.004 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	226.00'	0.279 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
226.00	0.021	0.000	0.000
229.00	0.067	0.132	0.132
231.00	0.080	0.147	0.279

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=226.00' (Free Discharge)
↑—1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Subcatchment 1S: Existing Plainfield North

Runoff = 8.61 cfs @ 12.33 hrs, Volume= 1.155 af, Depth= 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 100-yr Rainfall=7.68"

	Area (ac)	CN	Description
*	4.890	55	Weighted CN
*	0.236	55	Additional area - road in proposed conditions
*	0.271	55	Additional area - drainage area in proposed conditions
	5.397	55	Weighted Average
	5.397		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.4	600	0.0267	0.39		**Lag/CN Method,**

Summary for Subcatchment 2S: Existing Plainfield South

Runoff = 13.77 cfs @ 12.27 hrs, Volume= 1.660 af, Depth= 3.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 100-yr Rainfall=7.68"

	Area (ac)	CN	Description
*	4.709	64	Weighted CN
*	0.339	64	Additional area - road in proposed conditions
*	0.598	64	Additional area
	5.646	64	Weighted Average
	5.646		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.0	845	0.0355	0.61		**Lag/CN Method,**

Summary for Subcatchment 3S: Existing Plainfield East

Runoff = 5.46 cfs @ 12.15 hrs, Volume= 0.652 af, Depth= 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 100-yr Rainfall=7.68"

	Area (ac)	CN	Description
*	5.226	44	Weighted CN
*	0.042	44	Additional area - road in proposed conditions
*	0.029	44	Woods, Good, HSG A
	5.297	44	Weighted Average
	5.297		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	312	0.0640	0.40		**Lag/CN Method,**

Summary for Subcatchment 10S: N1

Runoff = 6.93 cfs @ 12.21 hrs, Volume= 0.758 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 100-yr Rainfall=7.68"

	Area (ac)	CN	Description
*	2.810	58	Meadow, non-grazed, HSG B
*	0.011	98	Inverter skids
*	0.119	98	Road
	2.940	60	Weighted Average
	2.810		95.58% Pervious Area
	0.130		4.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5	540	0.0330	0.49		**Lag/CN Method,**

Summary for Subcatchment 14S: N2

Runoff = 5.35 cfs @ 12.09 hrs, Volume= 0.439 af, Depth= 2.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 100-yr Rainfall=7.68"

Area (ac)	CN	Description
1.827	58	Meadow, non-grazed, HSG B
1.827		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	320	0.0531	0.53		**Lag/CN Method,**

Summary for Subcatchment 15S: North - Not Draining to Pond

Runoff = 3.85 cfs @ 12.04 hrs, Volume= 0.244 af, Depth= 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 100-yr Rainfall=7.68"

	Area (ac)	CN	Description
*	0.236	98	Off-site Road
	0.410	58	Meadow, non-grazed, HSG B
	0.646	73	Weighted Average
	0.410		63.47% Pervious Area
	0.236		36.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 16S: S1

Runoff = 13.85 cfs @ 12.09 hrs, Volume= 1.076 af, Depth= 4.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 100-yr Rainfall=7.68"

Area (ac)	CN	Description
3.001	71	Meadow, non-grazed, HSG C
3.001		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	480	0.0542	0.81		**Lag/CN Method,**

Summary for Subcatchment 17S: South - Not Draining to Pond

Runoff = 12.14 cfs @ 12.05 hrs, Volume= 0.830 af, Depth= 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 100-yr Rainfall=7.68"

	Area (ac)	CN	Description
	1.696	71	Meadow, non-grazed, HSG C
*	0.338	98	Roads internal and external
*	0.011	98	Inverter skids
	2.045	76	Weighted Average
	1.696		82.93% Pervious Area
	0.349		17.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	420	0.0595	0.95		**Lag/CN Method,**

Summary for Subcatchment 18S: E1

Runoff = 1.11 cfs @ 12.20 hrs, Volume= 0.192 af, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 100-yr Rainfall=7.68"

	Area (ac)	CN	Description
*	0.286	98	Road
	1.548	30	Meadow, non-grazed, HSG A
	0.409	30	Woods, Good, HSG A
	2.243	39	Weighted Average
	1.957		87.25% Pervious Area
	0.286		12.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.2	350	0.0829	0.41		**Lag/CN Method,**

Summary for Subcatchment 19S: E2

Runoff = 0.18 cfs @ 12.92 hrs, Volume= 0.110 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 100-yr Rainfall=7.68"

	Area (ac)	CN	Description
*	0.021	98	Road
*	0.011	98	Inverter Skids
	3.185	30	Meadow, non-grazed, HSG A
	3.217	31	Weighted Average
	3.185		99.01% Pervious Area
	0.032		0.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2	425	0.0400	0.23		**Lag/CN Method,**

Summary for Subcatchment 20S: East - Not Draining to Pond

Runoff = 0.11 cfs @ 12.52 hrs, Volume= 0.030 af, Depth= 0.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 100-yr Rainfall=7.68"

	Area (ac)	CN	Description
	0.379	30	Meadow, non-grazed, HSG A
*	0.042	98	Road
	0.421	37	Weighted Average
	0.379		90.02% Pervious Area
	0.042		9.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2					**Direct Entry,**

Summary for Subcatchment 25S: North

Runoff = 13.27 cfs @ 12.21 hrs, Volume= 1.445 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 100-yr Rainfall=7.68"

	Area (ac)	CN	Description
*	0.355	98	road
*	0.011	98	inverter skids
*	5.047	58	Meadow
	5.413	61	Weighted Average
	5.047		93.24% Pervious Area
	0.366		6.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5					**Direct Entry,**

Summary for Subcatchment 26S: East

Runoff = 0.79 cfs @ 12.71 hrs, Volume= 0.305 af, Depth= 0.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 100-yr Rainfall=7.68"

	Area (ac)	CN	Description
*	0.349	98	Road
*	0.011	98	Inverter skids
*	5.521	30	Meadow
	5.881	34	Weighted Average
	5.521		93.88% Pervious Area
	0.360		6.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2					**Direct Entry,**

Summary for Subcatchment 28S: South

Runoff = 24.53 cfs @ 12.09 hrs, Volume= 1.904 af, Depth= 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
CT-Plainfield 24-hr S1 100-yr Rainfall=7.68"

	Area (ac)	CN	Description
*	0.011	98	Inverter skids
*	0.338	98	Roads
*	4.697	71	Meadow
	5.046	73	Weighted Average
	4.697		93.08% Pervious Area
	0.349		6.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9					**Direct Entry,**

Summary for Reach 7R: Existing out

Inflow Area = 16.340 ac, 0.00% Impervious, Inflow Depth = 2.55" for 100-yr event
Inflow = 26.34 cfs @ 12.27 hrs, Volume= 3.466 af
Outflow = 26.34 cfs @ 12.27 hrs, Volume= 3.466 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 8R: Proposed Out

Inflow Area = 16.340 ac, 6.58% Impervious, Inflow Depth = 2.06" for 100-yr event
Inflow = 19.62 cfs @ 12.14 hrs, Volume= 2.800 af
Outflow = 19.62 cfs @ 12.14 hrs, Volume= 2.800 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 27R: No Ponds

Inflow Area = 16.340 ac, 6.58% Impervious, Inflow Depth = 2.68" for 100-yr event
Inflow = 33.83 cfs @ 12.11 hrs, Volume= 3.653 af
Outflow = 33.83 cfs @ 12.11 hrs, Volume= 3.653 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Pond 11P: N1

Inflow Area = 2.940 ac, 4.42% Impervious, Inflow Depth = 3.10" for 100-yr event
Inflow = 6.93 cfs @ 12.21 hrs, Volume= 0.758 af
Outflow = 5.51 cfs @ 12.33 hrs, Volume= 0.576 af, Atten= 20%, Lag= 7.3 min
Primary = 5.51 cfs @ 12.33 hrs, Volume= 0.576 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 199.24' @ 12.33 hrs Surf.Area= 2,830 sf Storage= 8,602 cf

Plug-Flow detention time= 163.0 min calculated for 0.575 af (76% of inflow)
Center-of-Mass det. time= 59.2 min (946.0 - 886.8)

Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	11,093 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	625	0	0
199.00	2,560	7,963	7,963
200.00	3,700	3,130	11,093

Device	Routing	Invert	Outlet Devices
#1	Primary	199.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=5.47 cfs @ 12.33 hrs HW=199.24' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 5.47 cfs @ 1.15 fps)

Summary for Pond 12P: N2

Inflow Area = 1.827 ac, 0.00% Impervious, Inflow Depth = 2.88" for 100-yr event
Inflow = 5.35 cfs @ 12.09 hrs, Volume= 0.439 af
Outflow = 0.90 cfs @ 12.72 hrs, Volume= 0.253 af, Atten= 83%, Lag= 37.4 min
Primary = 0.90 cfs @ 12.72 hrs, Volume= 0.253 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 193.07' @ 12.72 hrs Surf.Area= 3,392 sf Storage= 8,337 cf

Plug-Flow detention time= 271.2 min calculated for 0.253 af (58% of inflow)
Center-of-Mass det. time= 125.3 min (1,010.1 - 884.7)

Volume	Invert	Avail.Storage	Storage Description
#1	190.00'	12,050 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
190.00	2,100	0	0
193.00	3,300	8,100	8,100
194.00	4,600	3,950	12,050

Device	Routing	Invert	Outlet Devices
#1	Primary	193.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65
2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.88 cfs @ 12.72 hrs HW=193.07' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 0.88 cfs @ 0.62 fps)

Summary for Pond 13P: S1

Inflow Area = 3.001 ac, 0.00% Impervious, Inflow Depth = 4.30" for 100-yr event
Inflow = 13.85 cfs @ 12.09 hrs, Volume= 1.076 af
Outflow = 10.72 cfs @ 12.16 hrs, Volume= 0.784 af, Atten= 23%, Lag= 4.5 min
Primary = 10.72 cfs @ 12.16 hrs, Volume= 0.784 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 189.36' @ 12.16 hrs Surf.Area= 4,519 sf Storage= 14,326 cf

Plug-Flow detention time= 179.2 min calculated for 0.783 af (73% of inflow)
Center-of-Mass det. time= 69.0 min (917.5 - 848.5)

Volume	Invert	Avail.Storage	Storage Description
#1	185.00'	17,355 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
185.00	2,100	0	0
189.00	4,270	12,740	12,740
190.00	4,960	4,615	17,355

Device	Routing	Invert	Outlet Devices
#1	Primary	189.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=10.68 cfs @ 12.16 hrs HW=189.36' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 10.68 cfs @ 1.48 fps)

Summary for Pond 21P: E1

Inflow Area = 2.243 ac, 12.75% Impervious, Inflow Depth = 1.03" for 100-yr event
Inflow = 1.11 cfs @ 12.20 hrs, Volume= 0.192 af
Outflow = 0.16 cfs @ 16.12 hrs, Volume= 0.085 af, Atten= 85%, Lag= 234.7 min
Primary = 0.16 cfs @ 16.12 hrs, Volume= 0.085 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 223.02' @ 16.12 hrs Surf.Area= 0.058 ac Storage= 0.108 af

Plug-Flow detention time= 408.1 min calculated for 0.085 af (44% of inflow)
Center-of-Mass det. time= 214.1 min (1,180.8 - 966.8)

Volume	Invert	Avail.Storage	Storage Description
#1	220.00'	0.240 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
220.00	0.014	0.000	0.000
223.00	0.057	0.107	0.107
225.00	0.076	0.133	0.240

Device	Routing	Invert	Outlet Devices
#1	Primary	223.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.09 cfs @ 16.12 hrs HW=223.02' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 0.09 cfs @ 0.29 fps)

Summary for Pond 22P: E2

Inflow Area = 3.217 ac, 0.99% Impervious, Inflow Depth = 0.41" for 100-yr event
Inflow = 0.18 cfs @ 12.92 hrs, Volume= 0.110 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 228.65' @ 25.71 hrs Surf.Area= 0.062 ac Storage= 0.110 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	226.00'	0.279 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
226.00	0.021	0.000	0.000
229.00	0.067	0.132	0.132
231.00	0.080	0.147	0.279

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=226.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

BMP	DRAINAGE AREA	REQUIRED TRAP CAPACITY	BOTTOM AREA	BOTTOM ELEVATION	OVERFLOW AREA	OVERFLOW ELEVATION	WET STORAGE	WIER LENGTH	TOP AREA	TOP BASIN	DRY STORAGE	TOTAL TRAP STORAGE	EXCESS TRAP STORAGE
(ID#)	AC	CU.YD.	SF	FT	SF	FT	CU.YD.	FT	SF	FT	CU.YD.	CU.YD.	CU.YD.
N1	2.9	394	625	194	2560	199	295	20	3700	200	116	411	17
N2	1.8	245	2100	190	3300	193	300	20	4600	194	146	446	201
S1	3.0	402	2100	185	4270	189	472	20	4960	190	171	643	241
E1	2.2	301	600	220	2500	223	172	20	3300	225	215	387	86
E2	3.2	431	900	226	2900	229	211	20	3500	231	237	448	17
	13.2												

Exhibit K
Decommissioning Memo

Plainfield Pike Solar Project - Decommissioning Memo

This memo describes a Decommissioning Plan that establishes the approach to conduct decommissioning activities for the permanent closure of the Facilities at the end of the Facilities' useful life or the permanent cessation of the Facilities' operation, whichever comes first. The Plan describes the approach for removal and/or abandonment of facilities and equipment associated with the Facilities and describes anticipated land-restoration activities.

DECOMMISSIONING ACTIVITIES

Decommissioning will involve removal and disposal or recycling of all above-surface Project components. All recyclable materials will be transported to the appropriate nearby recycling facilities. Any non-recyclable materials will be properly disposed of at a nearby landfill. 95% or greater of the Facilities' components will be recyclable.

Decommissioning Preparation

The first step in the decommissioning process will be to assess existing site conditions and prepare the site for demolition. Site decommissioning and equipment removal can take up to six months to complete for a project of this size. Therefore, access roads, fencing, and electrical power will temporarily remain in place for use by the decommissioning and site restoration workers until no longer needed. Demolition debris will be placed in temporary on-site storage areas pending final transportation and disposal/recycling according to the procedures listed below.

PV Equipment Removal and Recycling

During decommissioning, all Facilities components will be either removed from the site and recycled or abandoned in place 12 inches below grade (for underground conduit and conductors). Equipment removal will include all pad-mounted cabinets, above ground wiring, solar modules, solar module racking, string inverters, and panel boards. Steel h-beams that supported the module racking and inverters/panelboards will be mechanically pulled out of the ground; any resulting holes will be backfilled with locally imported soil to match existing site soil conditions. The concrete transformer and interconnection equipment pads will be broken up and removed.

The demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried with the on-site equipment being used. The majority of glass and steel and aluminum will be processed for transportation and delivery to an off-site recycling center. The solar modules will be transported to and recycled at the nearest facility that will accept them. Minimal non-recyclable materials are anticipated; these will be properly disposed of at the nearest qualified disposal facility.

Internal Power Collection System

The DC and AC power collection system will be dismantled and removed. All underground cables and conduit will remain in place at a depth of 12 inches below ground surface. All conduit and cabling that is removed will be recycled.

Access Roads

The onsite 20-foot wide access driveway will remain in place to accomplish decommissioning at the end of the facility's life. At the time of decommissioning, if the landowner determines that this road will be beneficial for the future use of the site, the access road may remain after decommissioning. The future use of the site is undetermined at this time. Roads that will not be used will be restored to pre-construction conditions by removal of the aggregate base material, fill of the compacted base section with locally imported soil to match existing onsite soils, and a hydroseeding of a seed mix to match existing onsite groundcover.

Security Fence

The 7.5 foot high chain link perimeter security fence will remain in place during decommissioning activities for site safety and security purposes. At the time of decommissioning, if the landowner determines that this fence will be beneficial for the future use of the site, the fence may remain after decommissioning. The future use of the site is undetermined at this time. If the fencing is not used, it will be removed and transported to the nearest steel recycling facility. Holes left behind by the fence support posts will be backfilled with locally imported soil to match existing onsite soils, and a hydroseeding of a seed mix to match existing onsite groundcover.

Landscaping

The double row of screening vegetation along certain areas of the northern and western perimeter of the Site will remain in place during decommissioning activities for site safety and security purposes. At the time of decommissioning, if the landowner determines that this landscaping will be beneficial for the future use of the site, the landscaping may remain after decommissioning. The future use of the site is undetermined at this time. If the landscaping is not used, it will be removed and transported to the nearest plant material disposal facility for composting or mulching. Shrubs, bushes, and trees would be stump cut to just below ground level.

23 kV Interconnection Line

The overhead interconnection cabling that runs north from the project and across Williams Crossing Road to connect the Facilities to the CL&P distribution circuit will remain in place during decommissioning activities to provide electric service onsite during decommissioning. At the time of decommissioning, if the landowner determines that this electric service line will be beneficial for the future use of the site, the line may remain after

decommissioning. If the line is not used, it will be removed per CL&P guidelines and transported offsite to the nearest recycling facility. Underground cabling and conduit on private property will remain in place at a depth of 12 inches below ground level. Underground cabling and conduit within a public right-of-way will be removed completely, and the resulting trenches will be backfilled with locally imported soil to match existing onsite soils, and a hydroseeding of a seed mix to match existing onsite groundcover.

SITE RECLAMATION

After the Facilities are completely decommissioned, and all Facilities equipment has been removed from the Site, additional activities will be performed to return the resultantly vacant property back to pre-construction conditions.

Restoration Process

The decommissioning process will remove Project-related structures and infrastructure as described in the previous sections. Following decommissioning, site reclamation activities will occur. Reclamation will restore landform features, vegetative cover, and hydrologic function after the closure of the facility. The process will involve (where needed) the replacement of topsoil and vegetation, as well as modification of site topography where necessary to bring the Site back to pre-construction conditions. Restoration will bring the Site back to a natural pre-construction condition that is compatible with the adjacent surroundings.

If any excavated areas remain after removal of equipment pads or access road base material, these areas will be backfilled and compacted with locally imported soil to match existing onsite soils, and a hydroseeding of a seed mix to match existing onsite groundcover. Any other areas of lower than average ground surface level will receive the same treatment.

If any soils are determined to be compacted at levels that would affect successful revegetation, decompaction will occur. The method of decompaction will depend on how compacted the soil has become over the life of the Project. Following decompaction, re-contouring of the site will be conducted, if necessary, to return the Site to approximately match the pre-construction surface conditions and the surrounding area conditions. Original site drainage characteristics will be restored if they have not been maintained. It is unlikely that any or a significant amount of earthwork will be required, as the Project construction plan calls for minimal or no disturbance of the Site during Project construction. Grading activities will be limited to previously disturbed areas that require re-contouring. Efforts will be made to disturb as little of the natural drainages and existing natural vegetation that remain post-decommissioning as possible.

Any areas identified as remaining in bare earth will be hydroseeded with a seed mix to match existing onsite groundcover.

Site Restoration activities are anticipated to be very minimal, as the pre-construction conditions of the site are not planned to be significantly altered during Project construction. However, these activities as described, as well as any others that become necessary, will be performed to return the Site to a pre-construction condition.

Monitoring Activities

The Site will be monitored after Site Restoration activities are complete to confirm that any earthwork and revegetation were performed correctly and last permanently. The Site will be periodically inspected (at least twice annually) to check for any eroded earthwork or failed revegetation. Any deficiencies will be immediately corrected. This monitoring will continue for a period of five years, or until the Site is re-developed for another future purpose, whichever comes first.

Exhibit L

Access Easement between Lighthouse Church of God and PLH, LLC

Recording Requested By
PLH, LLC

AND WHEN RECORDED MAIL DOCUMENT TO:
PLH, LLC
222 S 9th St, Suite 1600
Minneapolis, MN 55402

(Space above this line for Recorder's use only)

GRANT OF EASEMENT AGREEMENT

This Grant of Easement Agreement ("Agreement") is made and entered into on _____, 2017 by and between Lighthouse Church of God, a religious organization with a place of business at 33 Plainfield Pike, Plainfield, CT 06374 ("Grantor") and PLH LLC, an Indiana limited liability company ("Grantee").

WITNESSETH:

WHEREAS, Grantor is the owner of certain real property located in the Town of Plainfield, State of Connecticut, more particularly described on the attached Exhibit "A" ("Grantor Lands"); and

WHEREAS, Grantee is the owner of certain real property located in the Town of Plainfield, State of Connecticut, more particularly described on the attached Exhibit "B" ("Grantee's Lands"); and

WHEREAS, Grantor desires to grant Grantee an access easement over a portion of Grantor Lands, more particularly depicted on the attached Exhibit "C" ("Easement Area"). The final definitive location of the Easement Area shall become established by survey after installation of the Access Road, however, the final location shall not materially differ from what is shown on the Exhibit "C". Upon surveying the final location of the Access Road, Grantor and Grantee agree to execute an amendment to this Agreement replacing the Exhibit C with the legal description and map of the surveyed location of the Access Road and the amendment shall be recorded with the Town of Plainfield Town Clerk.

NOW, THEREFORE, for $1.00 and consideration of the terms, covenants and conditions herein contained and for good and valuable consideration Grantor and Grantee covenant and agree as follows:

1. **Grant of Easement:** Grantor hereby Grants Grantee a perpetual and non-exclusive access easement over, upon and across the Easement Area for the purpose of installing, maintaining, replacing and repairing an access road, no wider than twenty-five (25) feet, which may be constructed out of bituminous, crushed gravel or aggregate or such other reasonable materials necessary to create a road suitable for two-way vehicular travel ("Access Road"). Grantee shall have the right to perform any reasonable grading and earthwork that may be necessary to construct or maintain the Access Road.

2. **Exclusivity:** Grantee's rights to the Easement Area are non-exclusive to Grantee and Grantor reserves the right to utilize the Easement for access purposes or for such other reasonable purposes that do not interfere with Grantee's use of the Easement Area or the Access Road. Grantee's rights are limited to the Easement Area and shall have no such rights outside said Easement Area.

3. **Grantee Access:** Grantee or its agents shall have uninterrupted access and rights to enter the Easement Area for the purpose of exercising the easement rights granted herein.

4. **Exercise of Rights:** It is agreed that the complete exercise of the rights herein conveyed may be gradual and not fully exercised until sometime in the future, and that none of the rights herein granted shall be lost by non-use.

5. **Buildings or Other Structures:** The Grantor agrees that no buildings, structures, trees or other vegetation will be erected by Grantor within the Access Easement.

6. **Grantor's Right to Relocate the Easement Area:** Grantor reserves the right and option to relocate the Easement Area and Access Road to a different location on Grantor Lands, for any reason in Grantor's sole discretion, by providing Grantee with ninety (90) days' written notice in advance of commencing any activities associated with relocating the Easement Area and Access Road, subject to the following terms and conditions:

    a. **Uninterrupted Access:** If Grantor elects to relocate the Easement Area and Access Road to a different location on Grantor Lands, Grantor shall first complete construction of the new replacement access road ("Replacement Road") prior to removing the original Access Road so that Grantee's access rights from Plainfield Pike (a/k/a CT-14A) to Grantee Lands are uninterrupted. Grantee's access to Grantee Lands shall remain uninterrupted at all times.
    b. **Construction of Replacement Road:** Any Replacement Road constructed by Grantor shall be constructed out of the same materials as the original Access Road and shall also have the same width as the original Access Road throughout the entire length of the Replacement Road. The new Replacement Road shall not have a grade in excess of ten percent (10%) at any location throughout the length of the Replacement Road.
    c. **Grantee Approval:** Prior to starting construction on any Replacement Road, Grantor shall be required to submit a set of civil engineering drawings, stamped by a licensed Connecticut Civil Engineer, for review and approval by Grantee. Grantee's review and approval shall not be unreasonably withheld, delayed or denied.
    d. **Cost of Replacement Road:** Grantor agrees that if it exercises its rights to relocate the Easement Area and Access Road, it shall be responsible for one hundred percent (100%) of all costs associated with the Replacement Road, including but not limited to labor, materials, equipment, engineering, tree removal, grading, legal fees and any local, state or federal permitting fees. If Grantor desires to remove the original Access Road after completing construction of the Replacement Road, Grantor shall be responsible for any costs associated with the removal of the original Access Road, including but not limited to labor, materials, equipment, engineering, grading and legal fees.
    e. **Local, State and Federal Approvals:** Prior to commencing any construction activities on a Replacement Road, Grantor shall be responsible for obtaining all local, state and/or federal permits that may be required to construct the Replacement Road and/or remove the Access Road. In the event Grantor is denied any required local, state or federal permit necessary to construct the Replacement Road, then Grantor shall have no right to remove the original Access Road or relocate the Easement Area.
    f. **Amendment and Recording:** If Grantor's rights are exercised in this Section 6 and Grantor successfully satisfies all terms of this Section 6, then Grantor and Grantee agree to amend the Exhibit "C" of this Agreement to include the legal description of the new easement area where the Replacement Road is constructed and the amendment shall be recorded with the Town of Plainfield, Connecticut.

7. **Use of Easement Area:** Grantee's use of the Easement Area and Access Road shall be limited to accessing Grantee Lands for the purpose of (i) the construction and maintenance of a solar generating facility or (ii) a single-family residential property. If Grantee desires to use the Access Road and Easement Area for accessing Grantee Lands for any purpose or uses on the Grantee Lands other than the uses stated in this Section, Grantee shall be required to obtain Grantor's prior

written approval, which shall not be unreasonably withheld, delayed or denied. The restriction in this Section does not constitute a use restriction on Grantee Lands but rather only limits the purposes for which the Access Road and Easement Area can be used for.

8. **Restoration:** Grantee agrees to restore or cause to have restored Grantor Lands, including Grantor's parking lot, as nearly as is reasonably possible, to the condition existing prior to such entry by the Grantee or its agents, to the extent any such damage is caused by Grantee.

9. **Assignment:** Grantee shall be permitted and allowed to assign all or part of its right, title and interest in this grant of easement and the Easement Area to a third party without written consent of Grantor.

10. **Restrictions:** Grantee agrees that it shall not access the Easement Area for construction purposes on Sundays or after 5:00pm on Wednesdays.

11. **Notices.** Any notice to be given or to be served upon any party hereto in connection with this Agreement must be in writing, and may be given by either (i) certified mail, (ii) overnight delivery service or (iii) via facsimile and shall be deemed to have been given and received when such notice is received by the addressee, properly addressed, with postage or courier fee prepaid. Such notices shall be given to the parties hereto at the following addresses:

FOR GRANTEE:

PLH LLC
c/o Allco Renewable Energy Limited
77 Water St, 8th Floor
New York, NY 10005
Facsimile: (801) 858-8818

FOR GRANTOR:

Lighthouse Church of God
33 Plainfield Pike
Plainfield, CT 06374

And

Southern New England Church of God
Administration Offices
1449 John Fitch Boulevard
S Windsor, CT 06074

12. This grant of easement shall be binding upon and inure to the benefit of the heirs, successors and assigns of all parties hereto.

IN WITNESS WHEREOF, Grantor has executed this grant of easement as of the date set forth above.

Grantor: Lighthouse Church of God

Name: JOHN B. LATHROP
Title: Trustee

Name: DONALD FORSYTH
Title: Trustee

Name: NATHAN CARPENTER
Title: Trustee

ACKNOWLEDGEMENT

STATE OF CT)
) ss. Plainfield
COUNTY OF WINDHAM)

The foregoing instrument was acknowledged before me this 14th day of July, 2017, by JOHN B. Lathrop, trustee of Lighthouse Church of God, who executed the foregoing instrument, and acknowledged the same.

(Stamp)

B. Paul Kaplan
(signature of notarial officer)
Name: B. PAUL KAPLAN
Title: Commissioner of the Superior Court

My ~~commission expires~~: _____
(month/day/year)

State of CT)
) ss. Plainfield
County of Windham)

The foregoing instrument was acknowledged before me this 14th day of JULY, 2017, by Nathan Carpenter trustee of Lighthouse Church of God, who executed the foregoing instrument, and acknowledged the same.

B. Paul Kaplan
B. PAUL KAPLAN
Commissioner of the Superior Court

State of CT)
) ss. Plainfield
County of Windham)

The foregoing instrument was acknowledged before me this 17th day of JULY, 2017, by Donald Forsyth trustee of Lighthouse Church of God, who executed the foregoing instrument, and acknowledged the same.

B. Paul Kaplan
B. PAUL KAPLAN
COMMISSIONER of the Superior Court

EXHIBIT A
DESCRIPTION OF GRANTOR LANDS

33 Plainfield Pike

Beginning at an iron bound at a corner of wall on the Southwesterly side of said road, said corner of wall marking the northwesterly corner of the within described tract of land and the northeasterly corner of land now or formerly of Millard R. York; thence S. 18 degrees 54' W. 198 feet, along wall adjoining said York land, to an angle; thence S. 21 degrees 33' W. 255 feet, along wall adjoining said York land, to an angle; thence S. 8 degrees 56' W. 71 feet, along wall adjoining said York land; to an angle; thence S. 33 degrees 56' W. 143.5 feet, along wall adjoining said York land, to a corner of wall; thence S. 57 degrees 36' E. 175 feet, along wall adjoining land now or formerly of Veikko Laakso, to a point in the middle of said wall marked by an iron bound to be set on the northeasterly side of said wall; thence N. 29 degrees 47' E. 590 feet, more or less, adjoining other land now or formerly of Raymond A. Vance and Noella M. Vance, to an iron bound on the southwesterly side of Bradford Hill Road; thence N. 52 degrees 05' W. 29.4 feet, along wall on the southwesterly side of said road, to an iron bound; thence N. 43 degrees 12' W. 245.6 feet, along wall on the southwesterly side of said road, to the place of beginning.

Back 5 Acres

Lot #35 on the southerly side of Plainfield Pike Road (Route 14) as shown on Map 17, Block #36, 5.0 acres land and recorded in the Plainfield Land Records in Volume 68, at page 558 as Truct Three or Mrs. F. M. Bliven wood lot so-called, is bounded on the north by land now or formerly of William Hall; on the east by land of said Hall and land now or formerly of Walter Palmer; on the south by said Palmer; and on the west by land now or formerly of Mrs. F.M. Bliven.

EXHIBIT B
DESCRIPTION OF GRANTEE LANDS

Those certain parcels of land situated on the southerly side of Connecticut Route 14A and the easterly side of Connecticut Interstate 395 in the Town of Plainfield, County of Windham, and State of Connecticut and bounded and described as follows:

Commencing at a point on the southerly side of Connecticut Route 14A at a stone wall at the northeasterly corner of land now or formerly of J. Brission the line runs S-15°-28'-51"-W a distance of 459.64 feet to a point;

thence the line turns and runs S-13°-04'-34"-W a distance of 221.14 feet to a point;

thence the line turns and runs S-14°-43'-35"-W a distance of 109.75 feet to a point;

thence the line turns and runs N-70°-02'-59"-W a distance of 235.92 feet to a point;

thence the line turns and runs N-77°-23'-51"-W a distance of 141.58 feet to a point;

thence the line turns and runs S-85°-48'-56"-W a distance of 86.23 feet to a point;

thence the line turns and runs N-80°-30'-55"-W a distance of 112.72 feet to a point;

thence the line turns and runs N-85°-55'-51"-W a distance of 23.01 feet to a point;

thence the line turns and runs N-69°-48'-29"-W a distance of 816.53 feet to a point;

thence the line turns and runs N-03°-08'-53"-E a distance of 299.64 feet to a point;

thence the line turns and runs N-84°-04'-25"-W a distance of 311.63 feet to a point;

thence the line turns and runs S-83°-42'-15"-W a distance of 355.93 feet to a point;

thence the line turns and runs S-03°-46'-15"-W a distance of 529.63 feet to a point;

thence the line turns and runs S-03°-47'-25"-W a distance of 599.98 feet to a point;

thence the line turns and runs S-03°-48'-05"-W a distance of 195.58 feet to a point;

thence the line turns and runs N-87°-13'-56"-E a distance of 122.65 feet to a point;

thence the line turns and runs S-86°-23'-58"-E a distance of 90.55 feet to a point;

thence the line turns and runs S-81°-51'-42"-E a distance of 315.14 feet to a point;

thence the line turns and runs S-73°-01'-10"-E a distance of 266.39 feet to a point;

thence the line turns and runs S-11°-14'-44"-W a distance of 217.15 feet to a point;

thence the line turns and runs S-66°-02'-55"-E a distance of 73.72 feet to a point;

thence the line turns and runs S-72°-10'-48"-E a distance of 226.98 feet to a point;

thence the line turns and runs S-72°-47'-05"-E a distance of 334.00 feet to a point;

thence the line turns and runs N-00°-55'-20"-E a distance of 323.09 feet to a point;

thence the line turns and runs N-01°-36'-14"-E a distance of 292.31 feet to a point;

thence the line turns and runs N-05°-22'-20"-E a distance of 327.87 feet to a point;

thence the line turns and runs S-74°-49'-31"-E a distance of 342.45 feet to a point;

thence the line turns and runs S-05°-08'-43"-W a distance of 282.00 feet to a point;

thence the line turns and runs S-01°-49'-00"-W a distance of 668.11 feet to a point;

thence the line turns and runs S-76°-40'-36"-E a distance of 250.61 feet to a point;

thence the line turns and runs S-76°-44'-13"-E a distance of 255.48 feet to a point;

thence the line turns and runs S-72°-50'-49"-E a distance of 143.62 feet to a point;

thence the line turns and runs N-01°-29'-37"-E a distance of 162.52 feet to a point;

thence the line turns and runs N-08°-37'-59"-E a distance of 176.85 feet to a point;

thence the line turns and runs N-11°-04'-51"-E a distance of 116.71 feet to a point;

thence the line turns and runs N-08°-25'-41"-E a distance of 231.81 feet to a point;

thence the line turns and runs N-04°-50'-52"-E a distance of 156.14 feet to a point;

thence the line turns and runs N-75°-10'-36"-W a distance of 255.44 feet to a point;

thence the line turns and runs N-14°-49'-24"-E a distance of 405.96 feet to a point;

thence the line turns and runs N-55°-03'-32"-W a distance of 55.82 feet to a point;

thence the line turns and runs N-05°-29'-51"-E a distance of 85.20 feet to a point;

thence the line turns and runs N-21°-01'-01"-E a distance of 73.61 feet to a point;

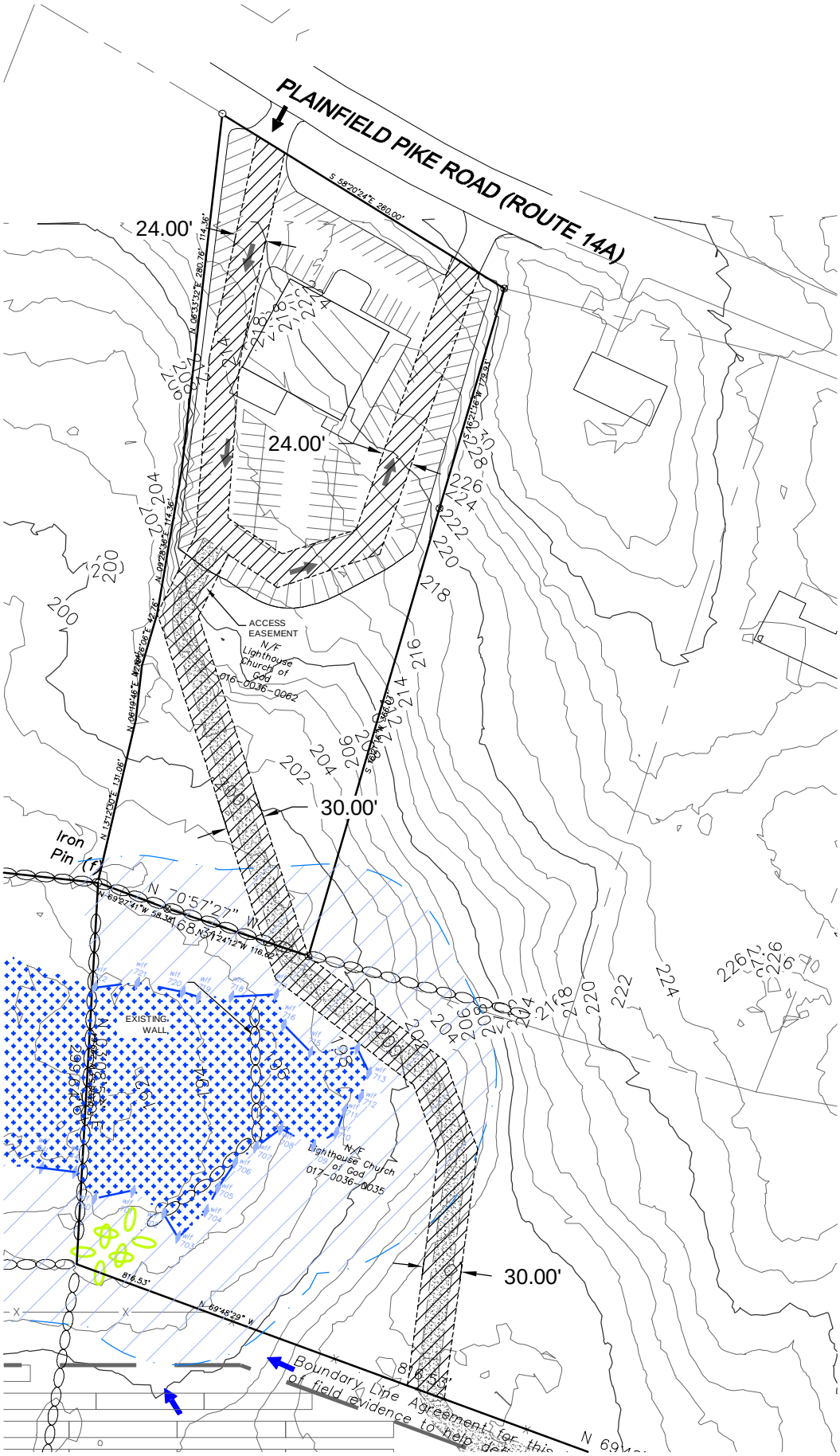
thence the line turns and runs N-04°-45'-37"-W a distance of 170.89 feet to a point;

thence the line turns and runs N-32°-48'-53"-E a distance of 39.38 feet to a point;

thence the line turns and runs N-75°-16'-22"-E a distance of 118.86 feet to a point;

EXHIBIT C - EASEMENT AREA

containing 38,416 square feet or 0.88 acres.



EASEMENT AREA

BETWEEN LIGHTOUSE CHURCH OF GOD AND PLH, LLC

Scale:

0' 60' 120'

Sheet:

1 of 1

ecos ENERGY

222 SOUTH 9TH STREET
SUITE 1600

Exhibit M

Access and Utility Easement between Leo Properties, LLC and PLH, LLC

Recording Requested By
PLH, LLC

AND WHEN RECORDED MAIL DOCUMENT TO:
PLH, LLC
222 S 9th St, Suite 1600
Minneapolis, MN 55402

(Space above this line for Recorder's use only)

GRANT OF EASEMENT AGREEMENT

This Grant of Easement Agreement ("Agreement") is made and entered into on May 25, 2017 by and between Leo Properties, LLC, a Connecticut limited liability company ("Grantor") and PLH LLC, an Indiana limited liability company ("Grantee").

WHEREAS, Grantor is the owner of certain real property located in the Town of Plainfield, State of Connecticut ("Grantor Lands"); and

WHEREAS, Grantee is the owner of certain real property located in the Town of Plainfield, State of Connecticut ("Grantee's Lands"); and

WHEREAS, Grantor desires to grant Grantee an access easement and distribution easement over a portion of Grantor Lands, more particularly described and depicted on the attached Exhibit "A" ("Easement Area"); and

NOW, THEREFORE, for $1.00 and consideration of the terms, covenants and conditions herein contained and for good and valuable consideration Grantor and Grantee covenant and agree as follows:

1. **Grant of Access Easement:** Grantor hereby grants Grantee a perpetual and non-exclusive access easement over, upon and across the Easement Area for the purpose of installing, maintaining, replacing and repairing an access road, which may be constructed out of bituminous, crushed gravel or aggregate or such other reasonable materials necessary to create a road suitable for two-way vehicular travel ("Access Road"). Grantee shall have the right to perform any reasonable grading and earthwork that may be necessary to construct or maintain the Access Road.

2. **Grant of Utility Easement:** Grantor hereby grants Grantee a perpetual and non-exclusive easement for the purpose of installing, operating, maintaining and replacing overhead and underground distribution utility facilities, conduit and cables, conductors, utility poles, riser equipment, together with all necessary and appurtenant equipment under and above ground, as deemed necessary by Grantee, all to transmit electric energy and signals (collectively the "Electrical Facilities"), over, upon, across and beneath the Easement Area. Trees, bushes, branches and roots may be trimmed or removed so as not to interfere with Grantee's use of the Easement Area.

3. **Exclusivity:** Grantee's rights to the Easement Area is non-exclusive to Grantee and Grantor reserves the right to utilize the Easement Area for access purposes or for such other reasonable purposes that do not interfere with Grantee's use of the Access Road, Electrical Facilities and its ability to access Grantee Lands.

4. **Requirements:** Grantee agrees to install any underground Electric Facilities at a depth of no less than three (3) feet below the current grade level.

5. **Restrictions:** Grantor, its successors and assigns, shall keep the Easement Area free and clear of any buildings, structures, tanks, antennas or flammable materials. Grantor further agrees not to plant any trees or alter the elevation of the existing ground surface within the Easement Area by more than six (6) inches, unless permitted in writing by Grantee. The Grantor agrees that no structures or other utilities will be erected in the Easement Area or in such close proximity to the Electric Facilities as to create a violation of the National Electric Code or the Connecticut State Electrical Code or any amendments to it.

6. **Restoration:** Grantee agrees to restore or cause to have restored the Grantor Lands, as nearly as is reasonably possible, to the condition existing prior to such entry by the Grantee or its agents.

7. **Grantee Access:** Grantee or its agents shall have uninterrupted access and rights to enter the Easement for the purpose of exercising its rights in the Easement Area.

8. **Grantor Access:** Grantor reserves the right to use the Access Road that may be constructed by Grantee within the Easement Area, as depicted on the Exhibit "A".

9. **Exercise of Rights:** It is agreed that the complete exercise of the rights herein conveyed may be gradual and not fully exercised until sometime in the future, and that none of the rights herein granted shall be lost by non-use.

10. **Buildings or Other Structures:** The Grantor agrees that no structures will be erected by Grantor within the Easement Area to the Electrical Facilities as to create a violation of the Connecticut State Electrical Code or any amendments to it.

11. **Assignment:** Grantee shall be permitted and allowed to assign all or part of its right, title and interest in the Easement Area to a third party without written consent of Grantor.

12. This grant of easement shall be binding upon and inure to the benefit of the heirs, successors and assigns of all parties hereto.

[Signature page(s) to follow]

IN WITNESS WHEREOF, Grantor has executed this grant of easement as of the date set forth above.

Grantor: Leo Properties, LLC, a Connecticut limited liability company

Joseph F. Leo
Name: Joseph F Leo
Title: Manager/Member

(Witness)
Jamie L Ashmore
Jamie L Ashmore

ACKNOWLEDGEMENT

STATE OF Connecticut)
) ss. Killingly
COUNTY OF Windham)

The foregoing instrument was acknowledged before me this 25th day of May, 2017, by Joseph F Leo, Manager/Member of Leo Properties, LLC, a Connecticut limited liability company, who executed the foregoing instrument, and acknowledged the same.

(Stamp)

(signature of notarial officer)

Name: PAUL M. SMITH
Commissioner of the Superior Court

My commission expires: _____
(month/day/year)

Grantor: Leo Properties, LLC, a Connecticut limited liability company

Julie A. Leo

Name: Julie A Leo
Title: Manager/Member

Paul M. Smith (witness)

Jamie L Ashmore

Jamie L Ashmore

ACKNOWLEDGEMENT

STATE OF Connecticut)
) ss. Killingly
COUNTY OF Windham)

The foregoing instrument was acknowledged before me this 25th day of May, 2017, by Julie A Leo, Manager/Member of Leo Properties, LLC, a Connecticut limited liability company, who executed the foregoing instrument, and acknowledged the same.

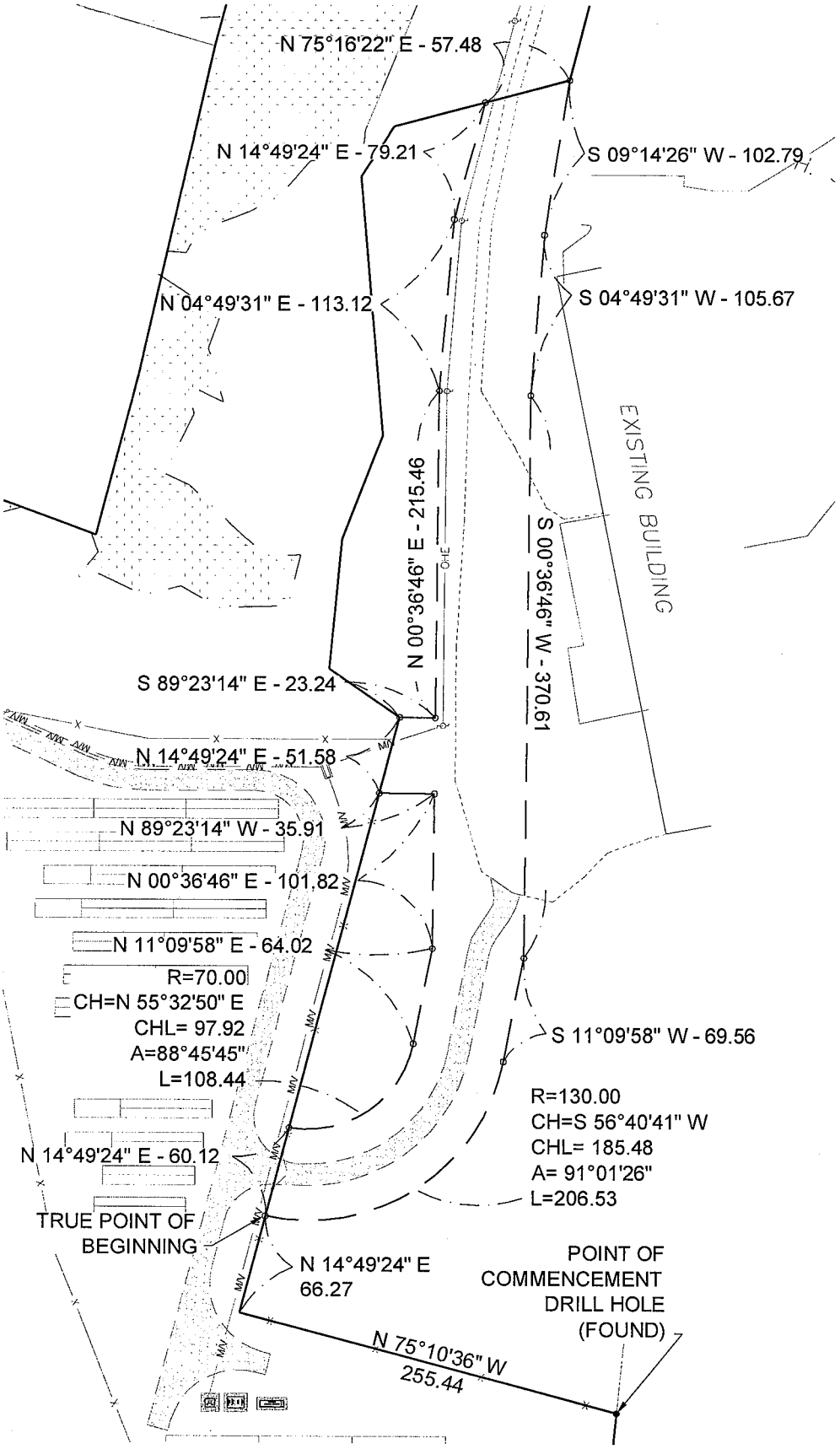
(Stamp)

(signature of notarial officer)

Name: PAUL M. SMITH
~~Commissioner of the Superior Court~~

My commission expires: _____
(month/day/year)

EXHIBIT A
DESCRIPTION EASEMENT AREA



COMMENCING AT A DRILL HOLE FOUND AT THE EAST PROPERTY LINE OF LOT 69 MAP 17 BLOCK 36; thence with a bearing of N 75°10'36" W a distance of 255.44 feet; thence with a bearing N 14°49'24" E a distance of 66.27 feet, TO THE TRUE POINT OF BEGINNING; thence with a bearing of N 14°49'24" E a distance of 60.12 feet to a point; thence in a northeasterly direction with a non-tangent curve turning to the left with a radius of 70.00 feet, having a chord bearing of N 55°32'50" E and a chord distance of 97.92, having a central angle of 88°45'45" and an arc length of 108.44 to a point; thence with a bearing of N 11°09'58" E a distance of 64.02 a distance of N 00°36'46" E a distance of 101.82 a distance of N 89°23'14" W a distance of 35.91 a distance of N 14°49'24" E a distance of 51.58 a distance of S 89°23'14" E a distance of 23.24 a distance of N 00°36'46" E a distance of 215.46 a distance of N 04°49'31" E a distance of 113.12 a distance of N 14°49'24" E a distance of 79.21 a distance of N 75°16'22" E a distance of 57.48 feet; thence with a bearing of S 09°14'26" W a distance of 102.79 a distance of S 04°49'31" W a distance of 105.67 a distance of S 00°36'46" W a distance of 370.61 a distance of S 11°09'58" W a distance of 69.56 feet to a point; thence in a southwesterly direction with a tangent curve turning to the right with a radius of 130.00 feet, having a chord bearing of S 56°40'41" W and a chord distance of 185.48, having a central angle of 91°01'26" and an arc length of 206.53 to THE TRUE POINT OF BEGINNING; containing 48711.14 square feet or 1.118 acres.

GRADING, UTILITY AND ACCESS EASEMENT

xx

xx

xx

Scale:

0' 50' 100'

Sheet:

1 of 1

ecos ENERGY
222 SOUTH 9TH STREET
SUITE 1600

Exhibit N

Petition No. 1221 Interrogatories Set One and Two Revised

Petition No. 1221
Interrogatories
Set One
April 14, 2016
Windham Solar LLC (WS) Responses April 28, 2016
Windham Solar LLC (WS) Revised Application Responses, August 22nd, 2017

General Questions

1. Windham Solar LLC (WS) included an abutters map under Exhibit D of its Petition (Petition) dated March 15, 2016 for the proposed project in Plainfield. Please submit a properly-labeled abutters map identifying each parcel owner, including but not limited to, the abutters listed in Exhibit D of the petition.
   One additional landowner (016-0036-0063) was noticed, given the proposed access roadway from the church parking lot to the solar facility. The additional parcel, is also owned by the church, the abutters map in the application is current.

2. Where is the nearest off-site residence from the center of the eastern portion of the project? Provide the distance, direction, and address of such off-site residence. Where is the nearest-off-site residence from the center of the western portion of the project? Provide the distance, direction, and address of such off-site residence.
   The overall site plan has been revised to show dimensions from the homes to the closest modules to the facility and parcels are identified.

Electrical / Energy Questions

3. The proposed project consists of two 1.0 megawatt (MW) and one 1.5 MW solar arrays totaling 3.5 MW. Is that 3.5 MW power output for the proposed solar project based on alternating current (AC)? If no, explain.
   Output to the grid is calculated in AC. The AC:DC ratio of the project is 1:1.17.

4. Indicate which solar arrays on the Overall Site Plan (Sheet 3 of 17) are the 1 MW arrays and which array is the 1.5 MW array.
   Boundaries have been added to the overall site plan, illustrating each array area and the revised module count for each project.

5. Page five of the Petition indicates that, "Each Facility will consist of approximately 3,395 solar modules (based on a module rating of 345 watts)." How many "Facilities" is the Petitioner referring to? In other words, how many multiples of 3,395 solar modules are proposed? Please provide the number of solar modules for the two 1.0 MW and one 1.5 MW arrays and for the entire proposed project.
   Boundaries have been added to the overall site plan, illustrating each array area and the revised module count for each project.

6. Provide the total direct current (DC) power output in MW for the project based on the total number of modules and wattage of such modules.
   The Maximum DC power output for each project on the site is based on the use of a 345w module throughout the site:
   North Project = 3692 Modules x 345W Module = 1,273,740 Watts DC
   East Project = 3660 Modules x 345W Module = 1,262,700 Watts DC
   South Project = 3692 Modules x 345W Module = 1,273,740 Watts DC

7. In general, in the case of fixed solar panels, does orienting your solar panels to the south provide a sort of balance (in terms of sun exposure) between the sun rising in the east and setting in the west and ultimately result in optimizing (or attempting to maximize) your total annual energy production (in kilowatt-hours) and your capacity factor?
   This statement is correct for the WS project. There are situations in some parts of the country where a more westerly orientation is preferred in order to maximize energy production during peak demand periods, but this is usually only considered in situations where the power purchaser pays a time-of-use rate that is higher during peak demand periods than what is paid during shoulder or off-peak periods.

8. On page 7 of the Petition, WS notes that, according to the 2012 Integrated Resources Plan (IRP), the capacity factor for PV solar (and thus the proposed project) is approximately 13 percent. Is that based on the DC or AC side of the proposed solar facility?
   The 13% capacity factor stated in the 2012 Integrated Resources Plan for Connecticut is based on the DC nameplate of a solar facility.

9. How many 1,000-kilowatt inverters would be installed?
   (3) 1,000 kW inverters, however, WS may elect to utilize a 60 kW string inverter design. In the case of a string inverter design, approximately 50 – 60 kW inverters would be installed throughout the projects.

10. Provide the specifications sheet for the inverters.
    Attached are two specifications of the PV inverters that are currently being considered for the project.

11. Provide the specification sheet for the proposed solar photovoltaic modules/panels.
    Attached are two specification of the PV modules that are currently being considered for the project.

12. What are the estimated heights of the transformers and inverters?
    The transformer is approximately 7' high. The 1,000 kW centralized inverter is approximately 7' high. The 60 kW string inverters would be mounted at a height of approximately 5' – 6' high and be located throughout the array field. A cut sheet of a typical inverter/transformer pad has been added (2-1000-kilowatt inverters and 1 2000KvA transformer).

13. Does Eversource currently have three-phase overhead electrical distribution on Plainfield Pike Road (Route 14A)?
    Yes.

Construction Questions

14. Would the tree clearing be performed in stages (e.g. five acres at a time), or would the clearing all be performed together as one stage of construction? (Note: Connecticut Department of Energy and Environmental Protection "DEEP" General Permit for the Discharge of Stormwater and Dewatering Wastewasters Associated with Construction Activities states that, "Whenever possible, the site shall be phased to avoid the disturbance of over five acres at a time…")
    Tree clearing will be phased per the DEEP requirements and, and the federal NPDES requirements. The phasing of the project, will maximize at 5 acre disturbance areas.

15. Estimate the amounts of cut and fill in cubic yards.
    2300 yards cut and 1100 yards fill are estimated with 1200 yards of export estimated. The applicant would prefer to blend excess soil on site, if structurally suitable. This operation will be determined as the quality of soil and fill material is determined by the earthwork contractor.

16. Approximately how tall would the poles be for the video cameras and meteorological equipment noted on page 12 of the Petition?
    Video and meteorological poles at the central skid will be 12' to 15' high. Approximately 6-10 perimeter fence posts per project limits will be installed at 12' high and will have motion detecting video mounted to atop the higher fence posts. These locations will be based on the final footprint, and camera sight lines. The cameras are battery powered, and run on an internal wireless project network.

17. How would the H-beams (that support the racking system) be driven into the ground?
    The intent is that most the structural racking will be driven pile. However, an alternative grouted foundation is also designed if subsurface boulders or ledge is encountered. All structural pile designs will be signed by a CT licensed Professional Engineer.

18. What are the estimated constructed hours (e.g. Monday through Friday 8 AM to 5 PM)?
    Local zoning code working hours will be adhered to which are as follows:

    Plainfield Zoning Code Section 12.32.7.d.:
    Hours of operation. Operating hours shall be between the hours of 7:00 AM and 7:00 PM in all but the Industrial District. The Commission may stipulate reasonable operating hours which may be more or less restrictive depending upon the nature of surrounding land uses.
    .

19. Approximately what size mesh does WS anticipate utilizing for the chain link fence? While 2-inch mesh is a common size, would WS consider utilizing a mesh size less than two inches as an anti-climbing measure? Would the fence have barbed wire?
    7' chain link would be preferred. The sites security system will identify intruders or a breach in the perimeter on the site. WS would consider a smaller mesh, if costs are similar. The majority of our sites do not have barb wire given our planned security measures, and barb wire is not intended for this project.

20. Did WS consider an overhead electrical connection as a way to minimize disturbance in the vicinity of wetlands? Provide the pros and cons of overhead versus underground electrical connections.
The easement obtained for the project access and utilities from Leo Properties, LLC provides an upland area for keeping the interconnection away from the wetlands, regardless of overhead or underground installation. The applicant is exploring the two options of design, and will implement a cost effective solution for the interconnection route with the projects final electrical design.

Environmental Questions

21. Did the Petitioner attempt to minimize wetland crossings when designing the access drives to each of the three solar arrays? For example, for the center (or southwestern) solar array, could the access to that solar array be shifted to the northwest to reduce the 1,455 square feet of wetland impacts? (See Overall Site Plan – Sheet 3 of 17).
The revised design impacts only 4670 sf of wetland, with an alignment designed to access the south project with the least amount of impacts.

22. Has the Petitioner received a response from the Connecticut Department of Energy and Environmental Protection regarding the Natural Diversity Database to date? If yes, provide a copy of such correspondence. While DEEP reviews state-listed species, are any federally-listed species known in the vicinity of the proposed project? If yes, describe possible impacts to such species and mitigation measures.
WS received a response from DEEP which is included in the application.

23. Is the total tree clearing area for the proposed project about 18.4 acres? If no, provide the total tree clearing area. Does this total also include the tree removal in wetland areas? Approximately how many acres of tree clearing in wetland areas are expected?

The revised site plan has the following values:
Total site clearing = 16.0 AC
Clearing in wetland = 0.10 AC
Clearing in wetland buffers = 1.6 AC

24. Provide the carbon debt payback period. Specifically, as an estimate, you may utilize the U.S. Environmental Protection Agency (EPA) number of 1.22 metric tons of carbon dioxide sequestered by one acre of average U.S. forest in one year. That number can be multiplied by the number of acres of trees to be cleared to estimate the annual loss of carbon dioxide sequestration in metric tons per year for the project. Then the total projected annual electrical production in kilowatt-hours for the solar facility can be multiplied by the EPA estimate of 6.89551×10^{-4} metric tons of carbon dioxide displaced per kilowatt-hour in order to provide the annual carbon dioxide emissions avoided by the operation of solar plant. Based on this or a different analysis, compute the number of months or years it would take to "break even" with carbon dioxide or when the carbon dioxide emissions reductions would equal the sequestration loss. (Data source: http://www.epa.gov/energy/ghg-equivalencies-calculator-calculations-and-references)
WS is proposing to clear 16.0 acres as part of the construction of the facility. Based on the formula provided above, the loss of carbon dioxide sequestration would be 19.52

tons per year. The WS facility is expected to generate 4,657,770 kWh during its first year of operation, degrading by 0.5% per year thereafter. Based on the EPA estimates provided above, the WS facility would off-set 3,221 metric tons of carbon dioxide during its first year of operation or approximately 8.79 tons per day. Therefore, the sequestration loss from clearing the trees would be off-set by the solar facility in 2.22 days of operation in the first year.

25. On page 11 of the Petition, WS estimates 115,000 tons of CO_2 equivalent offset or eliminated during the 45-year life of the facility. How was the 115,000 tons computed?
    The carbon off-set estimates provided in the Petition for Declaratory Ruling were based off of an estimated carbon off-set rate of 1.645 lbs per kWh of generation. This figure was based on a generation mix of 50% coal (2.07 lbs per kWh) and 50% natural gas (1.22 lbs per kWh) (source: https://www.eia.gov/tools/faqs/faq.cfm?id=74&t=11). Windham Solar is willing to accept the calculations provided by the EPA above.

26. Has the Petitioner received a response from the State Historic Preservation Office to date? If yes, provide a copy of such correspondence.
    Yes the response is attached in the revised submission.

27. Is the proposed project located within an aquifer protection area?
    No, an acquifer protection map has been attached. - Exhibit F

28. Is any of the proposed project located within a 100-year or 500-year flood zone? If yes, indicate which portion(s) of the project area are located within flood zones, and provide a Federal Emergency Management Agency flood zone map that includes the subject property.
    Yes, a portion of the western site is Zone A, no modules are proposed in the area, and the mapping is not following existing topography. An Elevation of the Zone will be requested from FEMA to determine the flood elevation in the area. A freeboard separation of 1 foot from that elevation will be incorporated to the design of all electrical generating equipment.

29. In Exhibit H of the Petition, it is stated that a stormwater pond would be necessary to control stormwater runoff. On the Overall Site Plan, indicate the location of the stormwater pond. Would construction of the stormwater pond be within wetlands? Is so, identify the square feet of disturbance and permits necessary for this action.
    The revised application includes the required ponding to adhere to CT-DEEP Stormwater requirements and rate control requirements for permeant Stormwater treatment.

30. In Exhibit F of the Petition, by letter dated February 2, 2016, Highland Soils, LLC indicated that a more detailed wetland report would be prepared following another site visit. Does the Petitioner have an updated Wetlands Report at this time? If yes, provide a copy of such full report. Were any vernal pools located as a result of such site visit? Are any additional wetland and/or vernal pool protective measures proposed at this time? If no visit has been made, provide an estimated timeframe for the visit and updated report.
    Updated Wetland report with vernal pool analysis has been included in the latest application.

31. If vernal pools are identified as result of a site visit, include the following. Describe the methodologies used to evaluate the vernal pools and include the date(s) of his studies. Specifically detail how the egg masses were counted, how many visits over what period of time were made, and indicate if any other techniques such as minnow trapping were used, if applicable.
    Updated Wetland report with vernal pool analysis has been included in the latest application.

32. If vernal pools are identified as a result of a site visit, include the following. Analyze the vernal pools using the Calhoun and Klemens methodology. While forested habitat is preferable, open habitat may be used and also can serve as areas that animals move through. Open habitat also over time can improve by regrowth. It cannot be merely discounted as developed habitat as one can have areas that have houses and roads. An excellent example of how to correctly analyze a habitat that has various components is that for Council Docket 455 (Tab 14 of that application) which clearly shows the correct treatment of wooded, open and grassed areas, versus developed areas. Only the developed areas are considered to be lost habitat. This document, as a sample wetlands and vernal pool analysis, has been attached for your convenience. The map at the end of the document is a useful template or reference.
    Updated Wetland report with vernal pool analysis has been included in the latest application.

33. Would WS comply with the recommendations on page 22 of the Phase I Environmental Site Assessment?
    WS doesn't intend on any additional investigation given the location of the foundation and that there is no proposed disturbance in the area.

34. Would the solar panels "heat" rainwater and potentially thermally pollute wetlands?
    No. There is no evidence that this occurs given the short duration that rainwater is on the panels, furthermore, the panels would be clouded during the time of rainfall, so surface temperatures of the panels would be less than on a sunny day.

35. Would the proposed project meet the applicable DEEP noise standards at the boundaries of the subject properties? (Sources of noise might include but not be limited to inverters, transformers, etc.)
    Yes.

Maintenance Questions

36. How would WS handle potential snow accumulation on the panels and its effects of blocking the sunlight?
    Snow soiling has been accounted for in our solar modeling, no cleaning of panels is contemplated.

37. Has WS done any analysis to determine structural limits of snow accumulation on the solar panels and steel support structures, assuming heavy, wet snow? What accumulation of snow could the structures handle? Would WS clear snow from the panels when it approached the limit?

The project racking will be designed for the regions wind and snow loading, and will be stamped by a licensed structural engineer. No clearing of snow is contemplated.

38. Would any mowing be required under or around the proposed solar panels/modules, and if so, approximately how often would mowing occur?

Below is a typical operations and maintenance schedule, an operations and maintenance manual will be included in the projects final design.

Monthly:
Inspect the site vegetation growth, and establish a mowing schedule keeping vegetation between 6" and 18". Any growth above 18" begins shading lower elevation panels.
Inspect the gravel roadways for washout locations or potential erosion issues, schedule maintenance as necessary
Inspect the array field for any locations where excessive growth is identified, schedule maintenance as necessary

Bi-Annually (April and October):
Inspect vegetation during both the growing and non-growing seasons to ensure proper groundcover density.
Identify stumps and areas within the array or at the perimeter, that have grown to create shading, schedule maintenance as necessary.
Replant bare areas or areas with sparse growth with the project specific seed mix.
Inspect perimeter landscaping screening, to ensure ongoing establishment of new plantings.

Petition No. 1221
Interrogatories
Set Two
May 26, 2016
Windham Solar LLC (WS) Responses June 21, 2016
Windham Solar LLC (WS) Revised Application Responses, August 22nd, 2017

39. Did Windham Solar, LLC (WS) secure an access easement to the east from the auto body property in order to avoid constructing new access from Route 14A?
Easements have been secured and recorded and are included with the latest application.

40. Was WS able to secure access to the north for the North Project? Would the access drive be gravel? Please provide the most up to date Overall Site Plan Drawing taking into account any revisions that have been made to the number and locations of solar panels proposed, megawatts proposed, access proposed including but not limited to the North Project if applicable, etc. If the project is approved, would WS file the North Project, the South Project, and the East Project (and associated access and equipment) as one Development and Management Plan filing for Council review and approval and seek to go forward with the entire project? Explain.
Easements have been secured and recorded and are included with the latest application.

41. Indicate on the most up to date Overall Site Plan approximately where the brook is located that currently isolates the North Project from access to the east.
The revised site plan identifies the brook locations and the mapped USGS streams.

42. Does the Wetland Report dated April 27, 2016 take into account the most up to date Overall Site Plan and North Project access road? Provide any associated wetland protective measures, if recommended.
The report has been updated to address the re-submitted site plan.

43. If WS secured access to the North Project, provide a wetland report for the north property if wetlands exist on that site. Include a Klemens and Calhoun 2002 Vernal Pool analysis if vernal pools exist. Provide a diagram to scale with the vernal pool analysis showing the shape and locations of the vernal pools on the subject property and the property to the north for the North Project (if applicable) and include the 100-foot vernal pool envelopes (VPE) and the 100-foot to 750-foot critical terrestrial habitat (CTH) along with the proposed project. Compare the existing percent development areas of the VPEs and CTHs to the post-construction percent development areas of the VPEs and CTHs. Attached please find the Docket No. 455 sample diagram.
Vernal pool diagrams have been provided with the latest wetland and vernal pool report.

44. If WS secured access to the North Project, include the tree clearing areas on the revised site plan. Update the carbon debt analysis with the additional tree clearing areas that may be associated with new access to the North Project.
The carbon debt analysis has been calculated for the full site clearing of 16.0 acres.

45. Provide a response from the Connecticut Department of Energy and Environmental Protection (DEEP) regarding Natural Diversity Database species in the vicinity of the project. How would WS implement DEEP's recommendations to protect such species, if applicable?
The applicant has received a response from DEEP, and the narrative addresses an action plan for the species of concern.

46. Referencing the response to questions 22 of the first set of interrogatories, provide the status of the wildlife biologist review of the site with respect to federally-listed species, including but not limited to the northern long-eared bat, piping plover, sandplain gerardia, and small whorled pogonia. Provide a copy of the biologist's report including the presence and/or suitable habitat at the site for federally-listed species, and any recommended protective measures for such species.
The biologist report has been included with the latest application.

47. Provide a final stormwater management report for the most up to date Overall Site Plan, consistent with the *2004 Connecticut Stormwater Quality Manual* and stamped by a Professional Engineer duly licensed in the State of Connecticut.
The latest hydrology report addresses Stormwater management and is stamped by a CT Professional Engineer.

48. Provide the determination letter from the State Historic Preservation Office (SHPO) and indicate how SHPO's recommendations, if applicable, could be implemented.
SHPO Letter is attached with the latest submission.

49. Provide the final erosion and sedimentation control (E&S controls) plan for the most up to date Overall Site Plan consistent with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*.
The project site plans include the final erosion and sediment control Plans.

50. Provide the U.S. Army Corps of Engineers Category I Form and also note the total area of direct wetland impacts associated with the project.
The applicant has submitted a Self Verification form, per the August 19, 2016 General Permit requirements, GP 17. New/Expanded Developments. The form, and supporting documents were submitted to the CT ACOE and DEEP.

51. What is the status of the Eversource System Impact Study? To WS' knowledge, can the local electrical distribution system support the 3.5 MW AC solar output of the project, assuming that the North, South and East Projects are going forward?
The system impact study is complete, and the site can export up to 4MW AC.

52. Clarify whether utilities would be run underground or overhead from the inverter/transformer area until close to Route 14A and then run overhead on three new poles to connect to existing distribution on Route 14A? Would an all overhead utility plan be advantageous to reduce

wetland impacts and prevent an underground conduit from being exposed to excessive water? Could the poles be strategically placed to minimize wetland impacts? Indicate the final utility route and underground versus overhead on the most up to date Overall Site Plan.
The final alignment is represented on the latest site plan, the final electrical design will determine if it is overhead or underground. The alignment is upland from wetland impacts given the easement that was obtained from Leo Properties, LLC.

53. Has WS evaluated the cost differential between 2-inch chain link mesh and a smaller size (e.g. less than two-inch mesh)? What size mesh would be used for the 7-foot tall chain link fence? Would WS still have individual fencing around the North Project, South Project, and East Project, respectively?
WS would prefer to install a 2-inch chain link mesh fence. A 1" mesh nearly doubles the cost of material fencing and there is little added value given our other on-site security measures.

54. Please provide the revised total amounts of cut and fill for the project (as previously requested in an interrogatory) if it would materially change.
2300 yards cut and 1100 yards fill are estimated with 1200 yards of export estimated.

55. Does the proposed host property contain any Connecticut Prime and Important Farmland Soils? If so, what acreage of Prime and Important Farmland Soils would the solar panels and associated equipment be located on?
Attached is an exhibit illustrating the soil types and their associated farmland designations, and % impacts. – Exhibit G

56. Has the State of Connecticut Department of Agriculture purchased any development rights for the proposed site as part of the State Program for the Preservation of Agricultural Land?
WS owns all development rights on the parcel.