



ENVIRONMENTAL ASSESSMENT

NORFOLK SOLAR PROJECT

599 GREENWOODS ROAD EAST

NORFOLK, CONNECTICUT

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1 Introduction

All-Points Technology Corporation, P.C. (“APT”) prepared this Environmental Assessment (“EA”) on behalf of LSE Pyxis LLC (the “Petitioner”) for the proposed installation and utility interconnection of a solar-based electric generating facility (collectively the “Project”), with output of approximately 4.0 megawatts¹ (“MW”) located primarily in the Town of Norfolk, Connecticut (“Town”), with a small portion in the Town of Colebrook, Connecticut. This EA has been completed to support the Petitioner’s submission to the Connecticut Siting Council (“Council”) of a petition for declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the construction, maintenance, and operation of the electric generating facility.

The results of this assessment demonstrate that the proposed development will comply with the Connecticut Department of Energy and Environmental Protection’s (“DEEP”) air and water quality standards and will not have an adverse effect on the existing environment and ecology of the Site or the surrounding area. Neither the Town of Norfolk nor the Town of Colebrook is an “environmental justice community”² and the proposed Project is not defined as an “affecting facility”³ under Connecticut General Statutes § 22a-20a. Therefore, the Project is not subject to the requirements of that section.

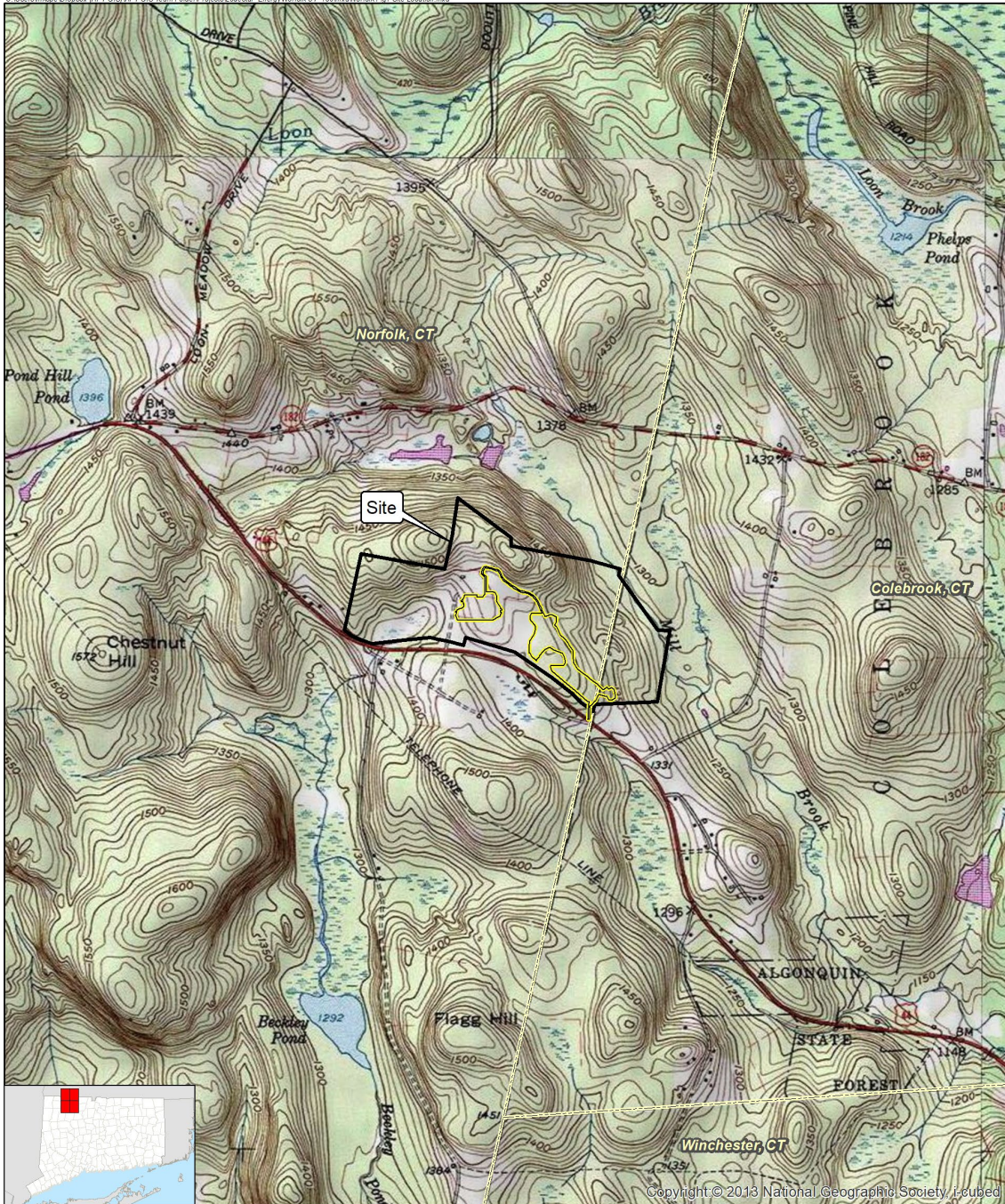
The Project will be located at 599 Greenwoods Road East (U.S. Route 44) in Norfolk, Connecticut (referred to herein as the “Site”). The Site consists of two parcels owned by the Town of Norfolk: an approximately 149-acre property north of Greenwoods Road East and an adjacent approximately 31.5-acre parcel north of Winsted-Norfolk Road in Colebrook. The easternmost portion of the Site is wooded; the Norfolk Transfer Station and former landfill is centrally located. The western portion of the Site includes a cleared area used for public works storage and a telecommunications tower and compound.

Figure 1, *Site Location Map*, depicts the location of the Site and the immediate surrounding area.

¹ The output referenced is Alternating Current (AC).

² “Environmental justice community” means (A) a United States census block group, as determined in accordance with the most recent United States census, for which thirty per cent or more of the population consists of low income persons who are not institutionalized and have an income below two hundred per cent of the federal poverty level, or (B) a distressed municipality, as defined in subsection (b) of § 32-9p.

³ “Affecting facility” is defined, in part, as any electric generating facility with a capacity of more than ten megawatts.



- Legend**
- Project Area
 - Site
 - Municipal Boundary

Map Notes
 Base Map Source: USGS 7.5 Minute Topographic
 Quadrangle Maps, Norfolk, CT (1969), South Sandfield, MA-CT
 (1969), Tolland Center, MA-CT (1969), and Winstead, CT (1984)
 Map Scale: 1 inch = 2,000 feet
 Map Date: October 2022

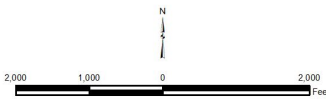


Figure 1
Site Location Map

Proposed Solar Energy Facility
 599 Greenwoods Road East
 Norfolk, Connecticut



2 Proposed Project

2.1 Project Setting

The Project will occupy ±18.6 acres in the south-central portion of the Site (the "Project Area"), and will include two solar arrays. The electrical service interconnection line will extend to Greenwoods Road East at the southeastern corner of the Site. Two separate, existing access drives that extend north from Greenwoods Road East will provide access to the arrays.

The Site's existing topography ranges from approximately 1265 feet above mean sea level ("AMSL") to 1515 feet AMSL. Grades within the eastern portion of the Project Area generally slope downward from the center of the array to the west and east, with ground elevations ranging from approximately 1426 feet AMSL to 1380 feet AMSL. Grades within the western portion of the Project Area generally slope downward from the north central part of the array to the west and east, with ground elevations ranging from approximately 1444 feet AMSL to 1430 feet AMSL.

Figure 2, *Existing Conditions*, depicts current conditions on the Site.

The surrounding area includes sparse residential and commercial development along Route 44. Most of the surrounding area is wooded.

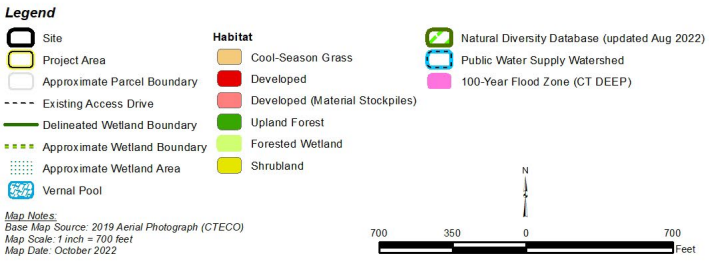
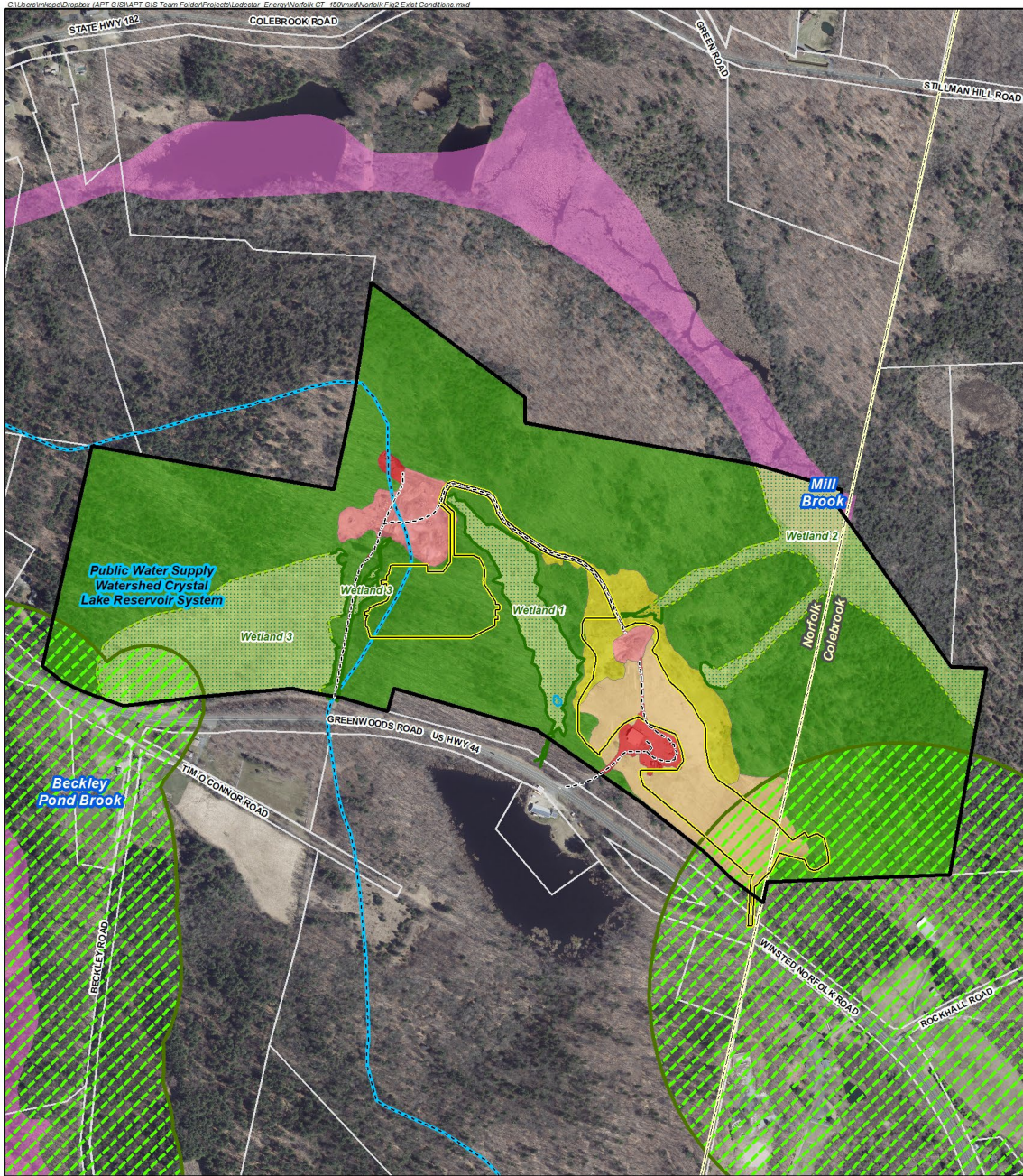


Figure 2
Existing Conditions
 Proposed Solar Energy Facility
 599 Greenwood's Road East
 Norfolk, Connecticut



2.2 Project Development and Operation.

Upon its completion, the solar electric energy generating facility (the "Facility") will consist of two (2) arrays with a total of 10,735 photovoltaic modules ("panels") and associated equipment. The eastern array will be located primarily on the former landfill, and consist of two (2) fenced areas divided by the access drive. The panels and fence will all be ballast-mounted to avoid disruption to the landfill cap. The western array will be located south of an existing cleared area used by the Town for material storage. A ground-mounted racking system will be used to secure the panels and the fence posts will be driven in-ground. Each of the three (3) Facility sections will be surrounded by a seven (7)-foot tall chain link fence.

The Project will also require one (1) electrical service interconnection that will extend from the existing Eversource distribution system along the north side of Greenwood Road East near the Norfolk-Colebrook town boundary. The interconnection route will extend into the southeast corner of the Facility and incorporate a series of both overhead and underground electrical connections. Once complete, the entire fenced Facility will occupy approximately 13.52 acres of the Site with an additional ± 5.08 acres of improvements beyond the fenced limits, for a total Project Area of ± 18.60 acres.

Proposed development drawings are provided in Appendix A, *Project Plans*.

The leading edge of the panels will be at least 36" above the existing ground surface, which will provide adequate room for any accumulating snow to "sheet" off. Any production degradation due to snow build-up has already been modeled into the annual system output and performance calculations. The Petitioner does not envision requiring any "snow removal" operations; rather, the snow will be allowed to melt or slide off.

Construction activities within the Project Area will require the following:

- installing erosion and sedimentation control measures;
- creating four (4) water quality volume basins and associated grading;
- creating swales, ditches and stormwater overflow features;
- installing racking and modules;
- trenching for electrical service and interconnection; and
- installing four utility poles for interconnection to the existing electrical distribution system along Greenwood Road East.

Earthwork is required to allow the Project development to comply with DEEP's *Appendix I, Stormwater Management at Solar Array Construction Projects*. ("Appendix I") to the *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities* ("General Permit"), including creation or improvement of the access drive, grading associated with the required drainage and erosion and sedimentation control features (cuts/fills), and construction of the water quality features.

The Facility is unstaffed; after construction is complete and the Facility is operable, traffic at the Site will be minimal. It is anticipated that the Facility will require routine maintenance of the electrical equipment one (1) time per year. Annual maintenance will typically involve two (2) technicians for a day. Repairs will be made on an as-needed basis. It is expected that mowing would occur, at a minimum, one (1) time per year to suppress woody growth. Depending on site-specific conditions, additional mowings (e.g., 2 to 3 times annually) may be required.

2.2.1 Access

The Facility will be accessed via two existing drives that extend from Greenwoods Road East. The western drive will be improved and extended to the east across the material stockpile area for access to the western array.

2.2.2 Public Health and Safety

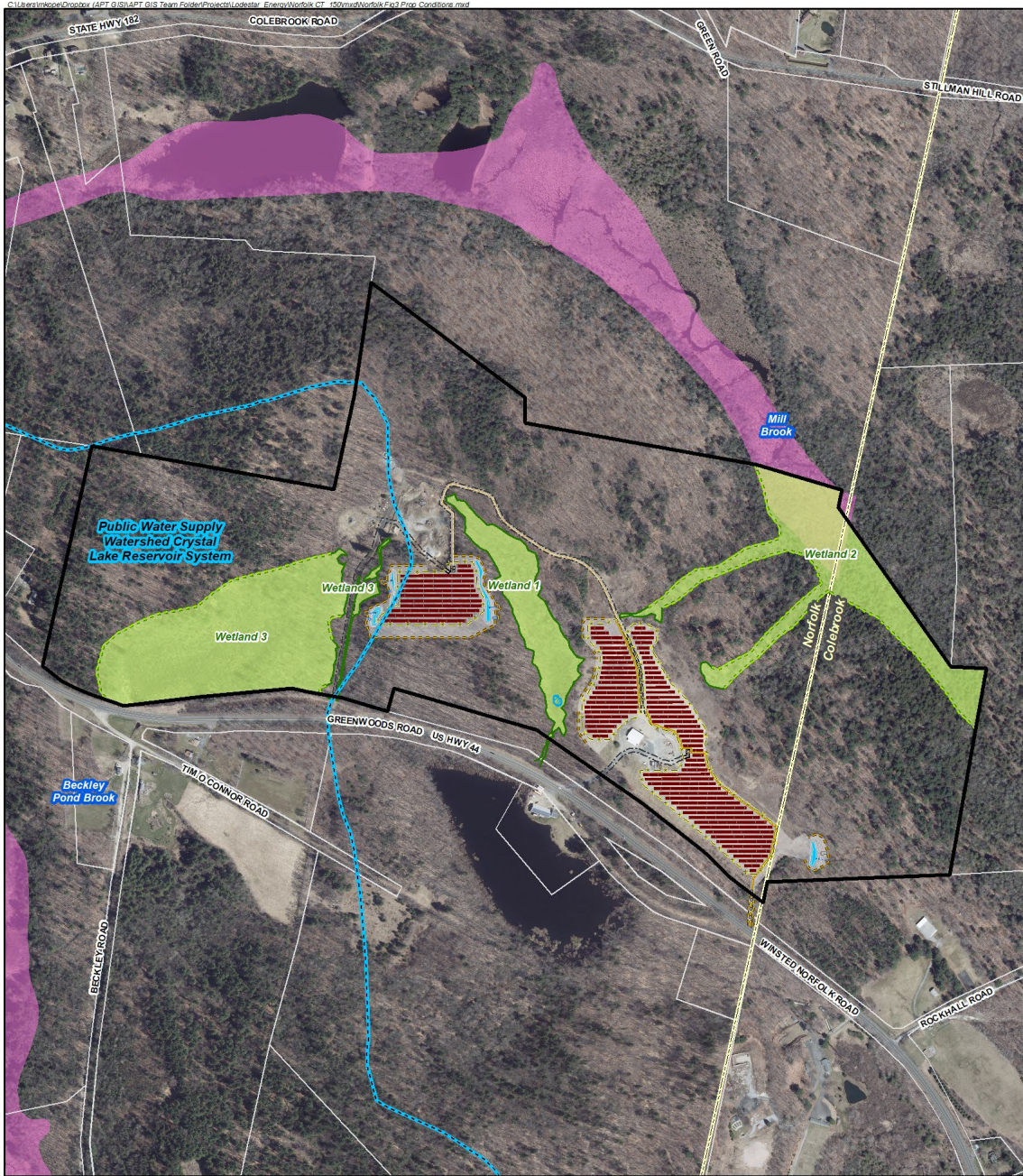
The Project will meet applicable local, state, national and industry health and safety standards and requirements related to electric power generation. The Facility will not consume any raw materials, will not produce any by-products and will be unstaffed during normal operating conditions.

The Facility will be enclosed by a seven (7)-foot tall chain link fence for each of three (3) array sections. The entrances to the Facility will be gated, limiting access to authorized personnel only. All Town emergency response personnel will be provided access via a Knox padlock. The Facility will be remotely monitored and will have the ability to remotely de-energize in the case of an emergency.

3 Environmental Conditions

This section provides an overview of the current conditions at the Site and an evaluation of the Project's potential impacts on the environment. The results of this assessment demonstrate that the Project will comply with the DEEP air and water quality standards and will not have an undue adverse effect on the existing environment and ecology.

Please refer to Figure 3, *Proposed Conditions* for a depiction of the Project and its relationship with the resources discussed herein.



- Legend**
- Site
 - Access and Utility Easement
 - Contour
 - Access Drive
 - Drain Pipe
 - Drainage Basin
 - Drainage Structure
 - Concrete Equipment Pad
 - Riprap Slope Protection
 - Limit of Disturbance
 - Fence
 - Proposed Treeline
 - Electrical Utility (Overhead and Above Ground Conduit)
 - Underground Electrical Utility
 - Delineated Wetland Boundary
 - Approximate Wetland Boundary
 - Wetland Area
 - Vernal Pool
 - Approximate Parcel Boundary
 - Municipal Boundary
 - Public Water Supply Watershed
 - 100-Year Flood Zone (CT DEEP)

Map Notes:
 Base Map Source: 2019 Aerial Photograph (CTECO)
 Map Scale: 1 inch = 700 feet
 Map Date: October 2022

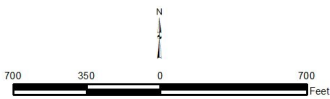


Figure 3
Proposed Conditions

Proposed Solar Energy Facility
 599 Greenwood Road East
 Norfolk, Connecticut



3.1 Air Quality

Due to the nature of a solar energy generating facility, no air emissions will be generated during operations and, therefore, the operation of the Facility will have no adverse effects on air quality and no permit is required.

Temporary, potential, construction-related mobile source emissions will include those associated with construction vehicles and equipment. Any potential air quality impacts related to construction activities can be considered *de minimis*. Such emissions will be mitigated using available measures, including limiting idling times of equipment; proper maintenance of all vehicles and equipment; and watering/spraying to minimize dust and particulate releases. In addition, all on-site and off-road equipment will meet the latest standards for diesel emissions, as prescribed by the United States Environmental Protection Agency.

3.2 Water Resources

3.2.1 Wetlands and Watercourses

Site wetlands were delineated by professional soil scientists, registered with the Society of Soil Scientists of Southern New England, in December 2021. The results of the field delineation are summarized below. The locations of these resources are depicted on Figure 2, *Existing Conditions*.

Three wetlands are located on the Site in proximity to the Project area. There are no perennial watercourses present in the vicinity of the Project, but Mill Brook crosses the extreme northeast corner of the Site. Additionally, all three wetlands contain intermittent watercourses, predominantly within the lower reaches of the wetlands well beyond the Project limits. The locations of these resources are depicted on Figure 2, *Existing Conditions*.

The northeast wetland (Wetland 2) includes two wetland “fingers” extending south towards the Project area. The central wetland (Wetland 1) occupies the forested area west of the transfer station, between the two proposed array fields. It flows south across Route 44. The western wetland (Wetland 3) lies west of the western array field.

Both Wetland 1 and Wetland 2 flow westerly, into Mill Brook, a tributary of the Mad River. Wetland 3 drains south across Route 44. It is tributary to Beckley Bog via Beckley Pond Brook. Beckley Bog is a State designated Critical Habitat.

All three wetlands are palustrine forested wetlands, a.k.a. wooded swamps, and characterized as Hillside Groundwater Slope Wetlands with a saturated hydrology. Wetlands with this hydrology have a substrate that is saturated for extended periods during the growing season, but standing water is rarely present. Site wetlands occur on slopes, where groundwater discharges to the surface via springs and seeps. The topography is such that standing water does not develop for long periods of time.

Wetland vegetative characteristics are largely identical for all three wetlands. The tree canopy is dominated by red maple (*Acer rubrum*), with more open areas including alder (*Alnus rugosa*) and willow (*Salix sp*). The shrub layer is dominated by highbush blueberry (*Vaccinium corumbosum*), winterberry (*Ilex verticillata*), and spicebush (*Lindera benzoin*). The groundcover is dominated by skunk cabbage (*Symplocarpus foetidus*), false hellebore (*Veratrum viride*), sensitive fern (*Onoclea sensibilis*) and cinnamon fern (*Osmunda cinnamomea*).

3.2.2 Vernal Pool

The Department of the Army, Regional General Permits for the State of Connecticut define vernal pools as depressional wetland basins that typically go dry in most years and may contain inlets or outlets, typically of intermittent flow. Vernal pools range in both size and depth depending upon landscape position and parent material(s). Several species of amphibians depend on vernal pools for reproduction and development. These species are referred to as indicator vernal pool species and their presence in a wetland during the breeding season helps to identify that area as a vernal pool. In most years, vernal pools support one or more of the following obligate species: wood frog (*Lithobates sylvaticus*), spotted salamander (*Ambystoma maculatum*), blue-spotted salamander (*Ambystoma laterale*), marbled salamander (*Ambystoma opacum*), Jefferson's salamander (*Ambystoma jeffersonianum*) and fairy shrimp (*Eubranchipus spp.*). However, they should preclude sustainable populations of predatory fish.

Vernal pool physical characteristics can vary widely while still providing habitat for obligate species. "Classic" vernal pools are natural depressions in a wooded upland with no hydrologic connection to other wetland systems. Often, vernal pools are depressions or impoundments within larger wetland systems. These vernal pool habitats are commonly referred to as "cryptic" vernal pools. "Anthropogenic" vernal pools are intentionally or unintentionally man-made depressions that support successful breeding by obligate species.

A flooded depression embedded within an interior area of Wetland 1 was identified and surveyed for indicator species egg masses on May 3, 2022. At that time, evidence of breeding by indicator vernal pool species, the spotted salamander and the wood frog, was observed in a small area that appears to have been historically created by the installation of an earthen dam and embankment, possibly for the purpose of providing water for livestock. This created a pool of standing water within a wetland that otherwise does not have the hydrology suitable to support vernal pool species due to the sloping topography.

The boundary (extent of standing water) of this anthropogenic vernal pool was field delineated using a Trimble GPS unit capable of submeter accuracy. Survey methods included visual surveys to search for adults, egg masses and larvae, and dip-netting within accessible areas to identify species within the water column and benthic material. Egg mass searches were conducted by slowly and methodically wading along the shallow open water using polarized sunglasses for enhanced visual scanning. A total of 13 spotted salamander and approximately⁴ 30 wood frog egg masses were observed.

The pool area totals 0.4 acre in size and is roughly concentric in shape. The maximum observed water depth was approximately 17 inches closest to the impoundment, and quickly dropped in depth upstream. Additional amphibians observed include spring peeper (*Pseudacris crucifer*) and green frog (*Lithobates clamitans*). Adults of both species were observed, with spring peeper potentially breeding in the pool. No suitable green frog breeding habitat was noted near the Project area.

Vernal Pool Analysis

In order to evaluate potential impacts to the vernal pool and its surrounding upland habitat, the resource was assessed using the BDPs methodology developed by Calhoun and Klemens (2002) in combination with the US Army Corps of Engineers New England District's *Vernal Pool Best Management Practices* ("BMPs") (Calhoun, 2015)⁵. Collectively, these methodologies assess vernal pool ecological significance based on two (2) parameters: 1) biological value of the vernal pool (e.g., presence of state-listed species and the abundance and diversity of vernal pool indicator species); and 2) conditions of the critical terrestrial habitat.

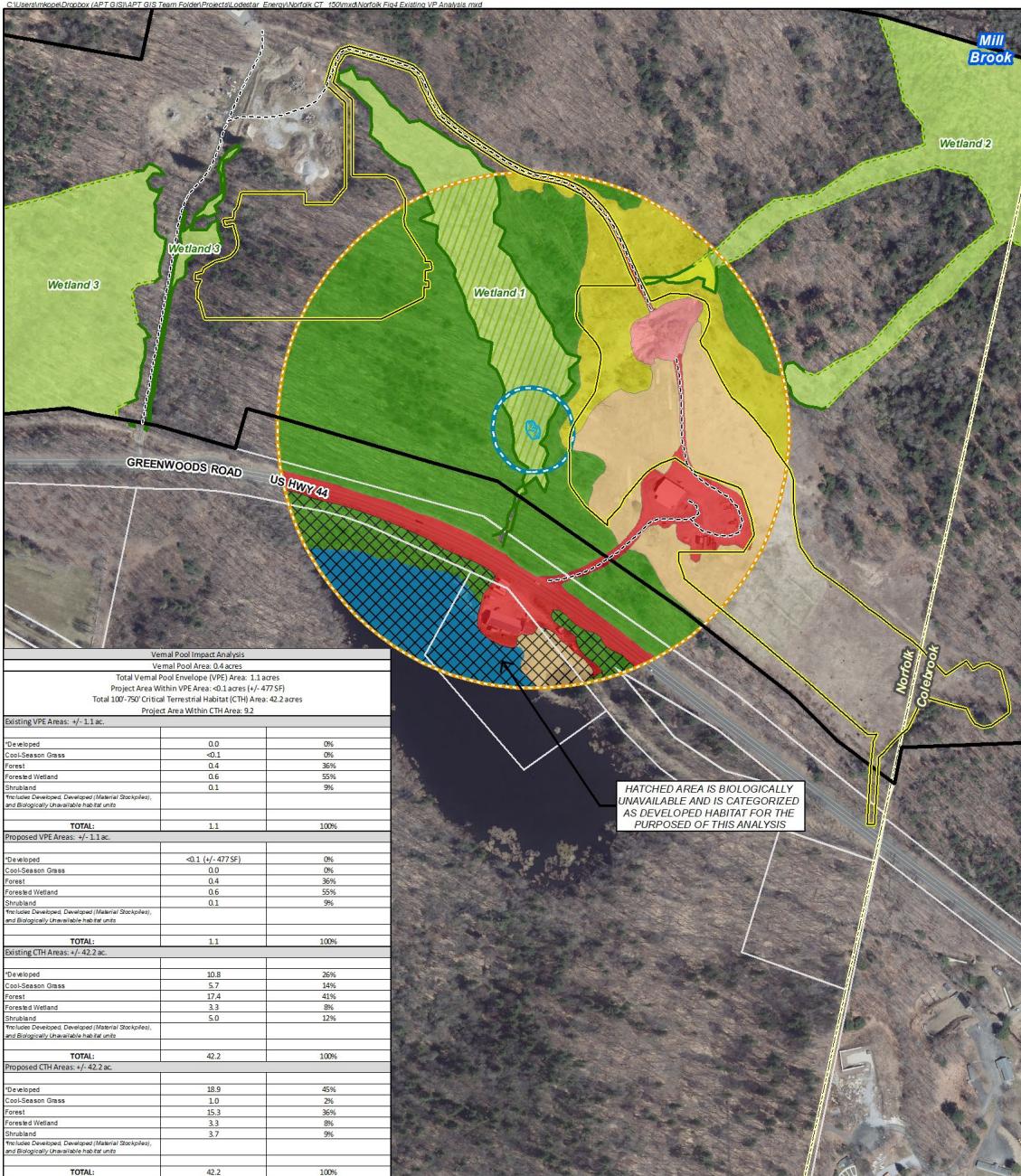
⁴ Wood frog egg masses were in a communal raft that had partially hatched at the time of observation and therefore counting of individual egg masses was not conclusive and was estimated at 30 total.

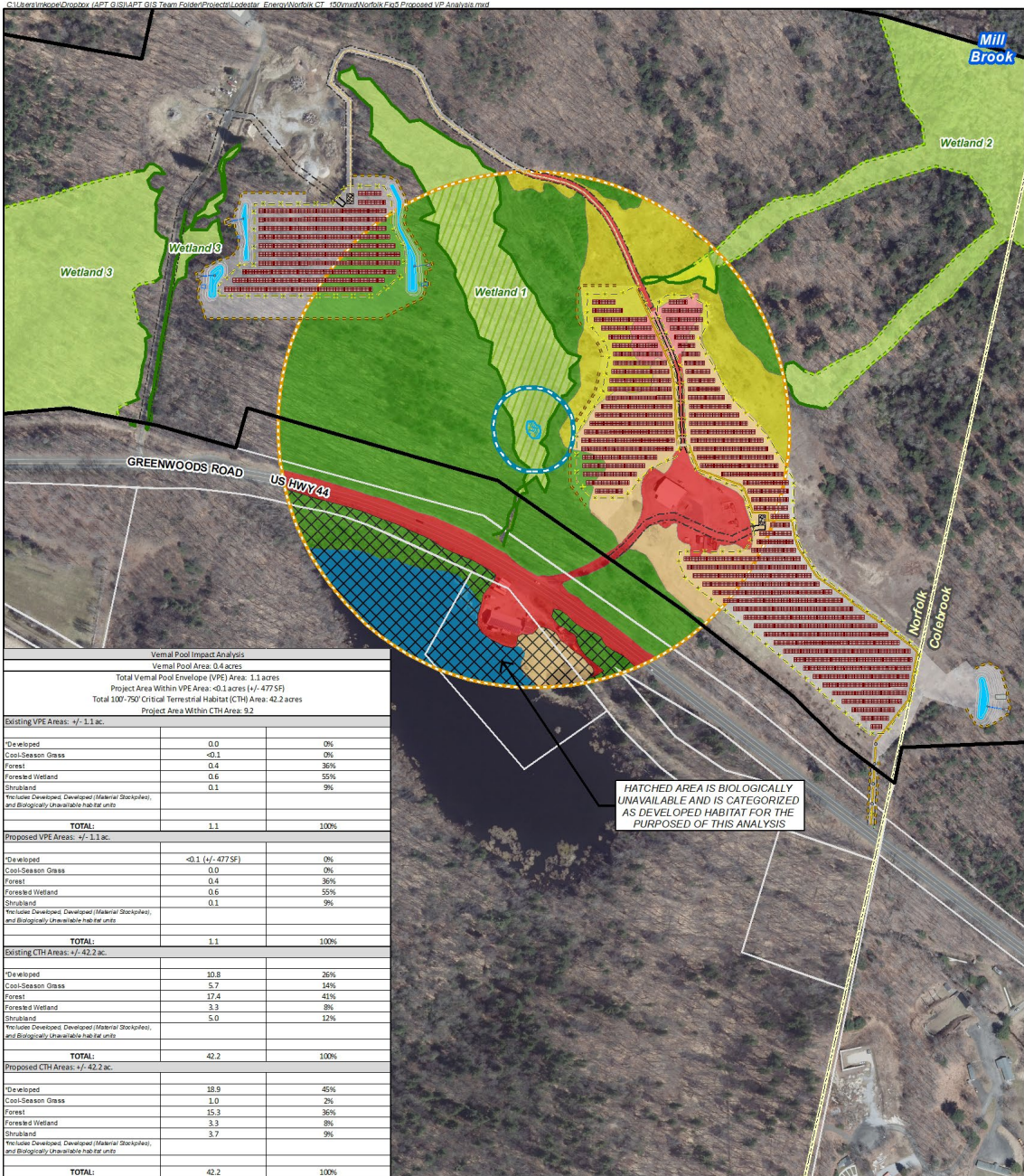
⁵ <https://www.nae.usace.army.mil/Portals/74/docs/regulatory/VernalPools/VPBMPsJan2015.pdf>

The terrestrial habitat is assessed based on the integrity of the vernal pool's two conservation zones: vernal pool envelope ("VPE" - within 100 feet of the pool's edge) and the critical terrestrial habitat ("CTH" - within 100 to 750 feet of the pool's edge). The higher the species diversity and abundance coupled with an undeveloped and intact, forested landscape surrounding the pool (obligate vernal pool amphibians require forested habitats), the higher the tier rating. Tier 1 pools are considered the highest quality pools, while Tier 3 are the lowest. Based solely on indicator species observations, this vernal pool meets the biological criteria for a Tier 1 pool due to the presence of two indicator species.

The landscape condition surrounding the vernal pool was evaluated to determine the existing and proposed qualities of the terrestrial (non-breeding) habitat. When assessing potential impacts on a vernal pool's CTH, a key conservation goal of the BDPs is to maintain a percentage of 25% or less development (including site clearing, grading and construction). More recent BMPs guidance relies on preserving principal migratory vectors that link the vernal pool, forested aquatic habitats and forested terrestrial uplands that cover vernal pool indicator species' breeding, foraging, cover, and hibernation habitats.

Figures 4 and 5, *Vernal Pool Analysis – Existing and Proposed*, respectively, depict the Project's development relative to the vernal pool.





The results of the landscape analysis show that at present, the VPE is intact (contains no developed areas) and the CTH contains 26% development. In addition to the transfer station and material storage areas on the Site, development within the CTH also consists of lands south of Route 44, which collectively were classified as developed due to that area being considered biologically inaccessible because of road fragmentation.

With respect to proposed conditions, a very small portion of the Project area associated with the easterly solar array, totaling ± 477 square feet, encroaches into the VPE. No permanent structures (i.e., portions of the solar array or fencing) will be located within the VPE; the nearest portion of the fenced Facility would be ± 10 feet from the edge of the VPE. This activity will not impact forest habitat bordering the pool. Rather, this area lies at the transition from the grass meadow to forest and consists largely of herbaceous cover, predominantly goldenrod. The area is disturbed, with historic farm dumping (scrap metal, old equipment) along with more recently dumped gravel. Due to the presence of disturbed soils and lack of tree cover, this area represents low value habitat for amphibians. Although it could serve as movement corridor habitat due to the presence of tall herbaceous vegetation, the areas east of the pool are occupied by the transfer station complex and landfill, with no forest located in this easterly trajectory.

Proposed development within the CTH will convert ± 8.1 acres of forest, shrubland and grass field to solar arrays. This increase would result in approximately 45% of the CTH being developed in the proposed condition. CTH development will largely be located within the grass field/former landfill and adjacent shrubland, totaling ± 6 acres of conversion to solar arrays to accommodate the eastern array field. The proposed western array field would account for 2.1 acres of habitat loss within an area of high-quality mature second growth forest, considered optimal habitat for vernal pool indicator species. A significant amount of similar, intact habitat separates the western array field from the vernal pool and extends farther west and north.

Mitigation Recommendations

Under optimal conditions, tree removal within the CTH should be conducted August 1st through mid-October to prevent mortality of amphibians. From early late October through late February amphibians are hibernating; from late February through late April adult amphibians are moving to and from breeding pools; and from late May through July metamorphs (i.e., young of the year) are emerging from the breeding pools.

Recognizing the relatively short window noted above, and the potential for conflicts with protective measures for other species (see Section 3.4 regarding listed species), it may not be feasible to restrict tree removal to 2.5 months. Should tree clearing occur during the amphibians' active season, geotextile silt fencing proposed for erosion and sedimentation control should double as an exclusionary barrier. Once installed, sweeps of the silt fencing by a qualified biologist should be conducted to remove amphibians trapped against the silt fencing. Installation of small cover objects (boards, woody debris, haybales) along the face of the silt fencing can facilitate capture and provide a refuge for animals trapped inside the fencing until they are transferred to suitable habitat on the other side of the silt fencing.

The proposed detention basins have the potential to create decoy vernal pools, where development and metamorphosis of larvae are unsuccessful. These areas often suffer recurring disturbance and generally contain little or no emergent or shoreline vegetation for shading or egg mass attachment sites. Vernal pool indicator species (particularly wood frog and spotted salamander) breed in decoy pools, particularly if they are located within migratory pathways between an animal's natal vernal pool and their terrestrial (non-breeding) habitat. Decoy pools generally have little or no larval survivorship and therefore often function as population sinks. Over time, these sites can cause population declines or local extirpation. Decoy pools can also negatively affect metapopulation dynamics, by attracting breeding animals that would otherwise disperse to colonize other nearby pools. If the proposed detention basins are designed to maintain standing water during the late winter and early spring for a period of more than a day or two (i.e., wet bottomed basins), an exclusionary barrier should be installed around the basins to prevent amphibian access. This can consist of a low block wall (minimum 2.5 feet in height) or Animex brand fencing.⁶

3.2.3 Wetland Impacts

No portion of the Project will result in direct impacts to the wetlands. Construction activities would not be expected to result in an adverse impact to the Site's wetland resources based on sufficient buffers being afforded and the use of erosion and sedimentation controls.

⁶ <https://animexfencing.com/>

3.2.4 Floodplain Areas

The Facility will not be located within a 100- or 500-year flood zone. APT reviewed the United States Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Map ("FIRM") covering the Site. A FIRM is the official map of a community on which FEMA has delineated both the special hazard areas and risk premium zones applicable to the community. The Subject Property is mapped on FIRM PANEL #090181 0010 A, dated December 3, 1987. Based upon the reviewed FIRM Map, the Site is located in an area designated as Zone X, which is defined as an area of minimal flooding, typically above the 500-year flood level.

No special design considerations or precautions relative to flooding are required for the Facility. As no portion of the Facility is proposed to be located in or impact either 100- or 500-year flood zones, no impacts are anticipated to floodplain or downstream areas.

3.3 Water Quality

As discussed in this section, the Project will comply with DEEP's water quality standards. Once operative, the Facility will be unstaffed, and no potable water uses or sanitary discharges are planned. No liquid fuels are associated with the operation of the Facility. Stormwater generated by the proposed development will be properly handled and treated in accordance with the 2004 *Connecticut Stormwater Quality Manual* and Appendix I.

3.3.1 Groundwater

Groundwater underlying the eastern portion of the Site (including Array No. 1 and the eastern portion of the Array No. 2) is classified by publicly available DEEP mapping as "GA, GAA may not meet current standards".⁷ This classification indicates groundwater within the area may be degraded and may not meet GA or GAA standards. The western portion of the Site (including the western portion of Array No. 2) is classified as GAA. This classification indicates groundwater within the area is presumed to be suitable for human consumption without treatment. Designated uses in GAA-classified areas include existing or potential public supplies of drinking water and base flow for hydraulically-connected surface water bodies.

⁷ Class GA designated uses are existing private and potential public or private supplies of water suitable for drinking without treatment and baseflow for hydraulically-connected surface water bodies. Class GAA designated uses are existing or potential public supply of water suitable for drinking without treatment and baseflow for hydraulically-connected surface water bodies.

The northern portion of the Site is classified as GA. This classification indicates groundwater within the area is presumed to be suitable for human consumption without treatment. Designated uses in GA-classified areas include existing private and potential public or private supplies of drinking water and base flow for hydraulically-connected surface water bodies.

Based upon a review of available DEEP mapping, the Site is not located within a mapped (preliminary or final) DEEP Aquifer Protection Area. The Project will have no adverse environmental effect on ground water quality.

3.3.2 Surface Water

The Project will have no adverse environmental effect on surface water quality. Based upon DEEP mapping, the Subject Property is located in Major Drainage Basin 4 (Connecticut River), Regional Drainage Basin 43 (Farmington River), and Subregional Drainage Basin 4302 (Mad River). The western portion of the Site, including the western portion of Array No. 2, is located in Local Drainage Basin 4302-02 (Beckley Pond Brook at mouth above Mad River). The central portion of the Site, including the eastern portion of Array No. 2 and the western portion of Array No. 1, is located in Local Drainage Basin 4302-07 (unnamed brook at mouth above Mill Brook). Eastern and northeastern portions of the Subject Property, including the majority of Array No. 1, are located in Local Drainage Basin 4302-05 (Mill Brook above unnamed brook 4302-06-1).

Based upon DEEP mapping, the nearest mapped waterbody to the Subject Property is Mill Brook. A portion of Mill Brook borders the northeast corner of the Site. The closest portion of Mill Brook is located downgradient and approximately 1,200 feet northeast of the limits of disturbance associated with the Project. DEEP classifies Mill Brook as a Class A surface waterbody.⁸ The Project will have no effect on this surface waterbody.

The western portion of the Subject Property is located in the Crystal Lake Reservoir Public Water Supply Watershed. A portion of the western array is located within the watershed of Beckley Bog, which is a State designated Critical Habitat.

Provided that erosion and sediment ("E&S") controls are installed and maintained in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control and stormwater is managed in accordance with the 2004 Connecticut Stormwater Quality Manual, no adverse effect

⁸ Designated uses for A classified waterbodies include potential drinking water supply, fish and wildlife habitat, recreational use, agricultural and industrial supply and other legitimate uses including navigation.

on surface water quality is anticipated from development and operation of the Project. Due to the Project's location within the Beckley Bog watershed, design in accordance with the *Primary Treatment Practice* per the 2004 Connecticut Stormwater Quality Manual is recommended.

3.4 Habitat

Five (5) distinct habitat types are located on the Site, four (4) of which are found within the Project Area. These habitats were assessed using remote sensing and publicly available datasets and physically inspected during field evaluations in December 2021 and May 2022.

The habitats occupying the Site are as follows:

- Developed;
- Cool Season Grass Field;
- Shrubland;
- Upland Forest; and
- Forested Wetland.

3.4.1 Habitat Types

Developed

The Project Area includes the transfer station complex, existing access drives and portions of the material storage area north of the western array. This habitat type represents 1.57 acres of the Project Area.

Cool Season Grass Field

Two areas of maintained field are present within the Project Area. These fields surround the existing transfer station complex, and include the capped landfill located east of the buildings. The fields consist of cool season grasses, which are maintained throughout the growing season. According to transfer station personnel, mowing occurs approximately 3-4 times per year. Dominant species include introduced fescues (*Fescuta sp.*), timothy grass (*Phleum pratense*) and clover (*Trifolium sp.*), with scattered wildflowers such as queen anne's lace (*Daucus carota*).

The Project will encompass ±9.50 acres of the Cool Season Grass Field habitat. The Project's occupation of this habitat is not viewed as significant from an ecological impact perspective due

to the high level of human activity/maintenance and disturbed nature of this area from historic landfill practices.

Shrubland

Areas of shrubland border the grass fields, largely where these fields transition to upland forest. These areas consist of “late old field” habitat that are transitioning to young forest. These habitats include scattered tree saplings and shrubs, interspersed with herbaceous vegetation. Invasive non-native species are common in this habitat type. Dominant species include cottonwood (*Populus deltoides*), sumacs (*Rhus sp.*), black locust (*Robinia psuedoacacia*), willows, mutliflora rose (*Rosa multiflora*), scattered Japanese knotweed (*Fallopia japonica*), goldenrods (*Solidago sp.*) and mugwort (*Artemisia vulgaris*). The Project would occupy approximately 1.4 acres of shrubland habitat.

Upland Forest

Upland Forest habitat occupies the majority of the Site and is the dominant habitat surrounding the Project Area. It consists of mixed hardwood forest that ranges from mature second growth to young regenerating forest at the transition to the actively used lands around the transfer station. Dominant tree species include red oak (*Quercus rubra*), black oak (*Quercus velutina*), American beech (*Fagus grandifolia*), red maple, gray birch (*Betula populifolia*), white pine (*Pinus strobus*), sugar maple (*Acer saccharum*), black cherry (*Prunus serotina*) and musclewood (*Carpinus caroliniana*). The understory is generally open, particularly in areas under a white pine tree canopy. Shrub species include mountain laurel (*Kalmia latifolia*), along with invasive non-native species including bush honeysuckle (*Lonicera morrowii*), and burningbush (*Euonymus alatus*). Groundcover is generally sparse, and includes trout lily (*Erythronium Americanum*), Canada mayflower (*Maianthemum canadense*) and cinnamon fern in the mesic transitions near wetlands.

Project development within the Upland Forest would occupy primarily ‘edge’ portions of this habitat. Potential short-term impacts to this habitat will be minimized through the proper stabilization of soils during construction through strict adherence to the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*. While the Project necessitates removal of approximately 6 acres of forest, substantial areas of similar forested habitat remain within the Site and beyond.

Forested Wetland

Forested Wetland habitat occurs within the Site, as described in Section 3.2.1. No portion of the Project Area will be within this habitat type. Robust erosion and sediment control measures will be installed and maintained as part of the Project to avoid potential secondary impacts to the adjacent forested wetland and vernal pool.

Table 1, *Habitat Areas* provides the total acreages of each habitat type located on the Site and within the Project Area.

Table 1: Habitat Areas

Habitat Areas		
Habitat Type	Total Area On-Site (± ac.)	Area Occupied by Project (± ac.)
Developed	7.78	1.57
Cool Season Grass Field	12.79	9.50
Shrubland	6.70	1.40
Upland Forest	121.40	6.10
Forested Wetland	32.34	0.00

3.4.2 Core Forest Determination

APT evaluated the size and extent of the contiguous interior forest block present adjacent to the Site using two (2) publicly available GIS-based datasets designed to assess impacts to core forest habitat. The first dataset, the DEEP's *Forestland Habitat Impact Mapping*⁹, depicts the wooded areas on the Site as core forest.

The second dataset, UConn's Center for Land Use Education and Research's ("CLEAR") Forest Fragmentation Analysis ("FFA")¹⁰ study, designates "core forest" as greater than 300 feet from non-forested habitat. This 300-foot zone is referred to as the "edge width" and represents sub-optimal breeding habitat for forest-interior birds due to decreased forest quality, increased levels of disturbance, and increased rates of nest predation and brood parasitism within this transitional

⁹ Source: <http://ctdeep.maps.arcgis.com/apps/webappviewer/index.html?id=7b81844bab634281b544c20bf2d7bfb8>: This spatial screening layer identifies prime contiguous and connected core forestland blocks. If the project intersects with the Forestland Habitat Impact Map there is a potential for material effects to core forest.

¹⁰ CLEAR's FFA: http://clear.uconn.edu/projects/landscape/forestfrag/forestfrag_public%20summary.pdf

forest edge. The FFA study identifies three categories of core forest: small (< 250 acres); medium (250-500 acres); and large (>500 acres). Based on the FFA criteria and using APT's independent analysis, there is an approximately 4.92-acre small core forest block that includes a portion of the western array (approximately 0.77 acre).

In accordance with Connecticut General Statutes §16-50k(a), and based on the size of the proposed Facility (>2.0 MW), the Petitioner sent email correspondence to the DEEP Bureau of Natural Resources on July 28, 2022 documenting that the Project will not materially affect core forest. The Petitioner received a letter from DEEP dated August 9, 2022 concurring that the Project will not materially affect the status of the Site as core forest. See Appendix C, DEEP and DOA correspondence.

As such, no significant impact is expected to result to core forested habitat associated with the Project.

3.5 Rare Species

APT reviewed publicly available information to determine the potential presence of state/federally listed species and critical habitat on or proximate to the Site. A discussion is provided in the following sections.

3.5.1 Natural Diversity Data Base

The DEEP Natural Diversity Data Base ("NDDB") program performs hundreds of environmental reviews each year to determine the impact of proposed development projects on state-listed species and to help landowners conserve the state's biodiversity. In furtherance of this endeavor, the DEEP also developed maps to serve as a pre-screening tool to help Petitioners determine if there is the potential for project-related impact to state-listed species.

The NDDB maps represent approximate locations of (i) endangered, threatened and special concern species and, (ii) significant natural communities in Connecticut. The locations of species and natural communities depicted on the maps are based on data collected over the years by DEEP staff, scientists, conservation groups, and landowners. In some cases, an occurrence represents a location derived from literature, museum records and/or specimens. These data are compiled and maintained in the NDDB. The general locations of species and communities are symbolized as shaded (or cross-hatched) polygons on the maps. Exact locations have been

masked to protect sensitive species from collection and disturbance and to protect landowner's rights whenever species occur on private property.

NDDB mapping depicts two polygons encroaching the Site. As a result, the Petitioner filed a request for review with the NDDB. The agency's response (Determination Number 202110495) was received on October 18, 2021. (See Appendix B). As indicated in the NDDB letter, species and natural communities potentially present on or near the Site include:

- Invertebrates

- Lace-winged horse fly (*Haematopota rara*) - State Endangered
- Yellow-banded bumble bee (*Bombus terricola*) - State Threatened

- Bats

- Hoary bat (*Lasiurus cinereus*)- State Special Concern
- Red bat (*Lasiurus borealis*) - State Special Concern

- Reptiles

- Smooth green snake (*Opheodrys vernalis*) - State Special Concern

- Natural communities

- Poor fen

Invertebrates

The lace-winged horse fly is found in Beckley Bog, which is located roughly 4,000 feet south of the Site on the south side of Route 44. No suitable habitat exists on the Site for the lace-winged horsefly, but because a portion of the western array field is located within the watershed of Beckley Bog, the proposed stormwater treatment system should be designed in accordance with the standards of a *Primary Treatment Practice* per the 2004 Connecticut Stormwater Quality Manual ("the Manual"). Primary treatment practices are designed to treat polluted stormwater runoff by several mechanisms, including sedimentation, adsorption, biological uptake, photodegradation, and microbial breakdown. This is the highest standard of stormwater treatment recognized in the Manual. As noted in the Manual: "*Primary stormwater treatment practices are capable of providing high levels of water quality treatment.*"

The yellow-banded bumble bee is a generalist forager that gathers pollen and nectar from many different flowering plants. This bumble bee requires early successional habitats such as

agricultural fields, grasslands, meadows and shrublands. Ample habitat for the yellow-banded bumble bee is present in the Project area. Areas of suitable field and shrubland/early successional bee habitat will be lost due to the conversion to solar array field. To mitigate habitat loss, planting of native early successional grasses, forbs and wildflowers to support pollinator species is recommended within the array field perimeter as well as under the arrays themselves.

Bats

Hoary and red bats are found in Connecticut during the spring and summer seasons and migrate south to overwinter. During the spring/summer, they roost in large diameter coniferous and deciduous trees and forage in forest openings or non-forested habitats bordering roosting trees, as well as around areas of open water. Suitable summer roosting and feeding habitat exists throughout the forested areas of the Site and beyond. To prevent incidental mortality of roosting bats, in compliance with the recommendations provided by CTDEEP in the NDDB Determination, no trees would be removed between May 1st and July 31st.

Smooth Green Snake

The smooth green snake is found across the State at widely scattered locations.¹¹ Smooth green snakes inhabit a variety of early successional habitats, including old fields, grasslands, mountaintop glades, utility rights-of-way, ecotones (between different habitats), and salt marshes, as well as open edges of lakes, ponds and other wetlands. The smooth green snake is an insectivore.

The habitat value for green snake is considered suboptimal at the Site. Favored herbaceous-dominated habitats are present but only on a relatively small scale (<10 acres). Moreover, grass dominated habitats favored by this species is made up nearly entirely of the anthropogenically created habitat over the capped landfill. This habitat consists of engineered compacted earthen fill material over a buried liner. The frequency of mowing coupled with the unnatural condition of the soils, limits the available food source (insects) and creates conditions not conducive to inhabitation by snakes. The remaining early successional habitat is shrubland covering just a few acres and located in close proximity to the transfer station operations (i.e., an area of high human

¹¹ Klemens, M.W. Gruner, H.J. Quinn, D.P. and Davison, E.R. 2021. Conservation of Amphibians and Reptiles in Connecticut. Department of Energy and Environmental Protection. Revision to State Geological and Natural History Bulletin 112.

activity and disturbance). Additionally, these habitats are in the late stages of succession, transitioning to forest.

Despite the sub-optimal habitat, protection measures aimed at reducing potential mortality of green snakes (as well as other herpetofauna) are recommended, including pre-construction sweeps and searches if the work will occur within the snake's active period. In addition, the Petitioner will comply with DEEP's request to raise the fence 6" above ground to allow unrestricted movement for wildlife.

Poor Fen

Poor fens are early successional plant communities consisting of natural peatlands (bogs) that occupy topographically defined basins and influenced by acidic groundwater. They occur on deep, poorly decomposed peats dominated primarily by ericaceous¹² shrubs. No such habitat exists on the Site. On-Site wetlands consist of Hillside Groundwater Slope Wetlands, which develop on sloping hillsides, as opposed to depressional wetlands in which fen habitat develops. All on-Site wetlands are typical forested wetlands common within the State and the Region.

3.5.2 USFWS Consultation

Federal consultation was completed in accordance with Section 7 of the Endangered Species Act through the U.S. Fish and Wildlife Service's ("USFWS") Information, Planning, and Conservation System ("IPaC"). Based on the results of the IPaC review, one federally-listed¹³ threatened species, northern long-eared bat ("NLEB"; *Myotis septentrionalis*), is known to occur in the vicinity of the Site. The NLEB's range encompasses the entire State of Connecticut and suitable NLEB roost habitat includes trees (live, dying, dead, or snag) with a diameter at breast height ("DBH") of three (3) inches or greater.

APT reviewed the DEEP's publicly available *Northern long-eared bat areas of concern in Connecticut to assist with Federal Endangered Species Act Compliance* map (February 1, 2016) to determine the locations of any known maternity roost trees or hibernaculum in the state. This map reveals that there are currently no known NLEB maternity roost trees in Connecticut. The

¹² Plants of the heather family

¹³ Listing under the federal Endangered Species Act

nearest NLEB habitat resource to the Site is located in Winchester, approximately 2.6 miles to the southeast.

APT completed a determination of compliance with Section 7 of the Endangered Species Act of 1973 for the Project. In compliance with the USFWS criteria for assessing NLEB, the Project will not likely result in an adverse effect or incidental take¹⁴ of NLEB and does not require a permit from USFWS. A USFWS letter dated July 13, 2022 confirmed compliance; thus, no further consultation with USFWS is required for the proposed activity at this time.¹⁵ See Appendix B, *NDDB and USFWS Responses*.

3.6 Soils and Geology

The construction of the water quality basins and swales and grading within the Project Area will generate some excess material that will be redistributed on Site. Topsoil will be segregated from underlying soil, stockpiled, and spread over disturbed areas being seeded. See Appendix A, *Project Plans*.

All exposed soils resulting from construction activities will be properly and promptly treated in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*.

Surficial materials within the Project Area are predominantly thin deposits of glacial till. Bedrock beneath the Site is identified as Rusty mica schist and gneiss. Rusty mica schist and gneiss is described as a dark-gray, rusty-weathering, well-foliated and well- to poorly layered schist and gneiss composed of quartz, plagioclase, biotite, muscovite, sillimanite, and locally garnet.¹⁶ The Petitioner does not anticipate encountering bedrock during Project development.

3.6.1 Prime Farmland Soils

In accordance with the Code of Federal Regulations, CFR Title 7, part 657, farmland soils include land that is defined as prime, unique, or farmlands of statewide or local importance based on soil

¹⁴ "Incidental take" is defined by the Endangered Species Act as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." For example, harvesting trees can kill bats that are roosting in the trees, but the purpose of the activity is not to kill bats.

¹⁵ It should be noted that, since issuance of the letter, the USFWS published a proposal to reclassify the NLEB as Endangered under the Endangered Species Act. The proposed reclassification, if finalized, is anticipated to take effect by December 30, 2022. It is possible that the Project would be subject to additional review through a formal procedure that has yet to be established.

¹⁶ Connecticut Natural Resources Atlas Series: Bedrock Geological map, cteco.uconn.edu/maps/state/Bedrock_Geologic_Map_of_Connecticut.pdf

type. They represent the most suitable land for producing food, feed, fiber, forage, and oilseed crops.

According to the Connecticut Environmental Conditions Online Resource Guide¹⁷, no prime farmland soils are found on the Site.

In accordance with General Statutes §16-50k(a), the Petitioner initiated consultation with the Connecticut Department of Agriculture (“DOA”) on July 28, 2022 requesting the DOA’s concurrence with the Petitioner’s finding. The DOA responded by email on August 10, 2022 confirming the absence of prime farmland soils on Site. See Appendix C, *DEEP and DOA correspondence*.

3.7 Historic and Archaeological Resources

The Petitioner requested review by the Connecticut State Historic Preservation Office (“SHPO”) of the proposed Project. SHPO responded on October 27, 2021 with a finding that “no historic properties will be affected by the proposed activities.” See Appendix D, *SHPO Determination*.

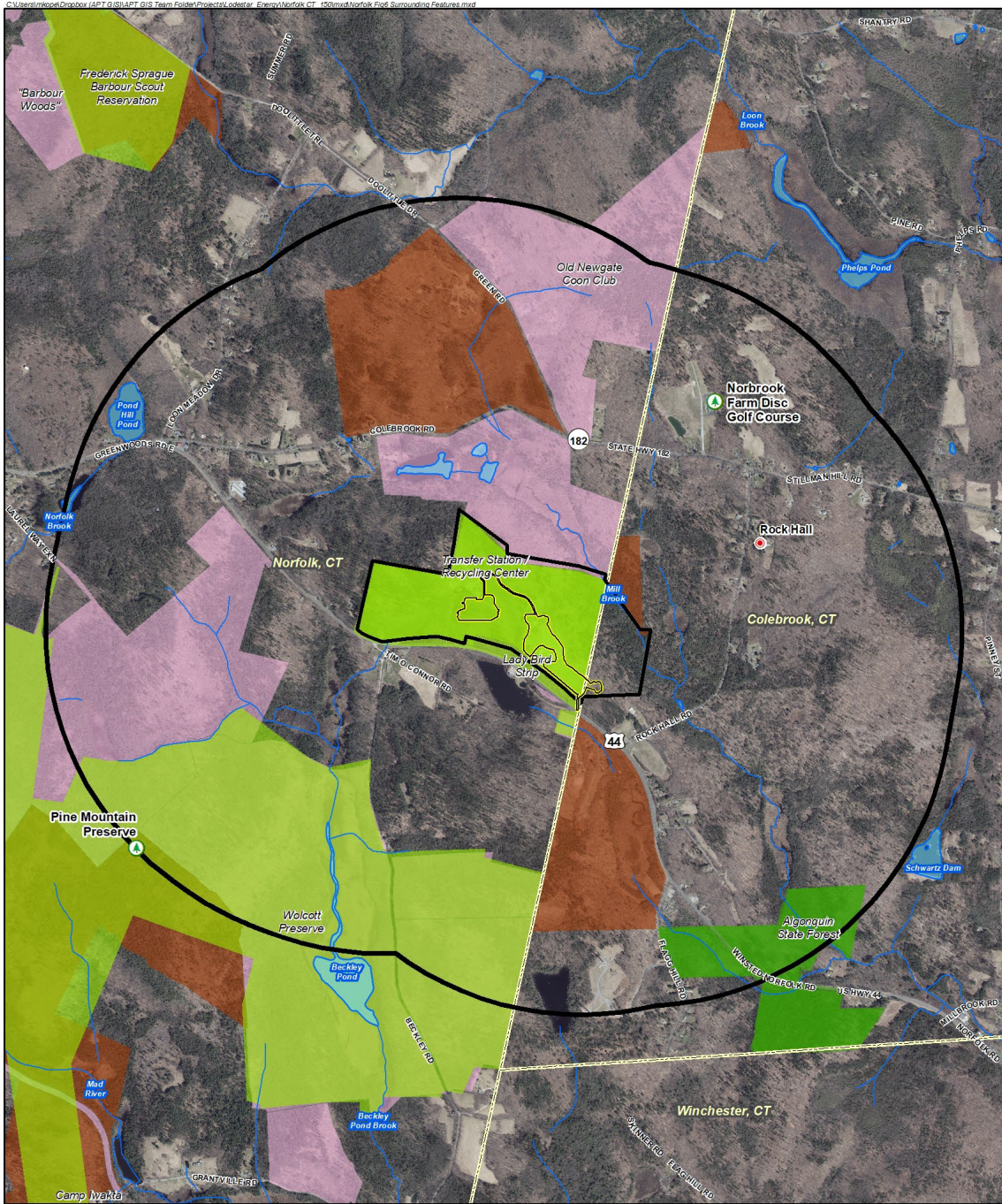
3.8 Scenic and Recreational Areas

No state or local designated scenic roads or scenic areas are located near the Site and therefore none will be physically or visually impacted by development of the Project. The nearest scenic road is a portion of State Route 272, located approximately 2.1 miles west of the Project Area.

There are no Connecticut Blue Blaze Hiking Trails located proximate to the Site. A portion of the Algonquin State Forest (to the southeast) and the Wolcott Preserve (to the south) are located within one mile of the Site. The Project will have no effect on any of these resources.

See Figure 6, *Surrounding Features Map*, for these and other resources located within one mile of the Project Area.

¹⁷ Connecticut Environmental Conditions Online (CTECO) Resource Guide, www.cteco.uconn.edu.



- Legend**
- Site
 - Project Area
 - 1 Mile Radius
 - Municipal Boundary
 - NRHP Building
 - Surrounding Features**
 - Park / Recreation / Open Space
- Open Space Property (CTDEEP)**
- Land Trust
 - Municipal
 - Private
 - State
 - Watercourse (CTDEEP)
 - Open Water (CTDEEP)

Map Notes
 Base Map Source: 2019 Aerial Photograph (CTECO)
 Map Scale: 1 inch = 2,200 feet
 Map Date: October 2022



Figure 6
Surrounding Features Map
 Proposed Solar Energy Facility
 599 Greenwood Road East
 Norfolk, Connecticut



3.10 Lighting

The Project area is currently unlit. No exterior lighting is planned for the Project. There will be some small, non-intrusive lighting fixtures within the equipment to aid in maintenance.

4 Conclusion

As demonstrated in this Environmental Assessment, the Project will comply with the DEEP air and water quality standards. Further, it will not have an undue adverse effect on the existing environment and ecology; nor will it affect the scenic, historic and recreational resources in the vicinity of the Project.

APPENDIX A

PROJECT PLANS

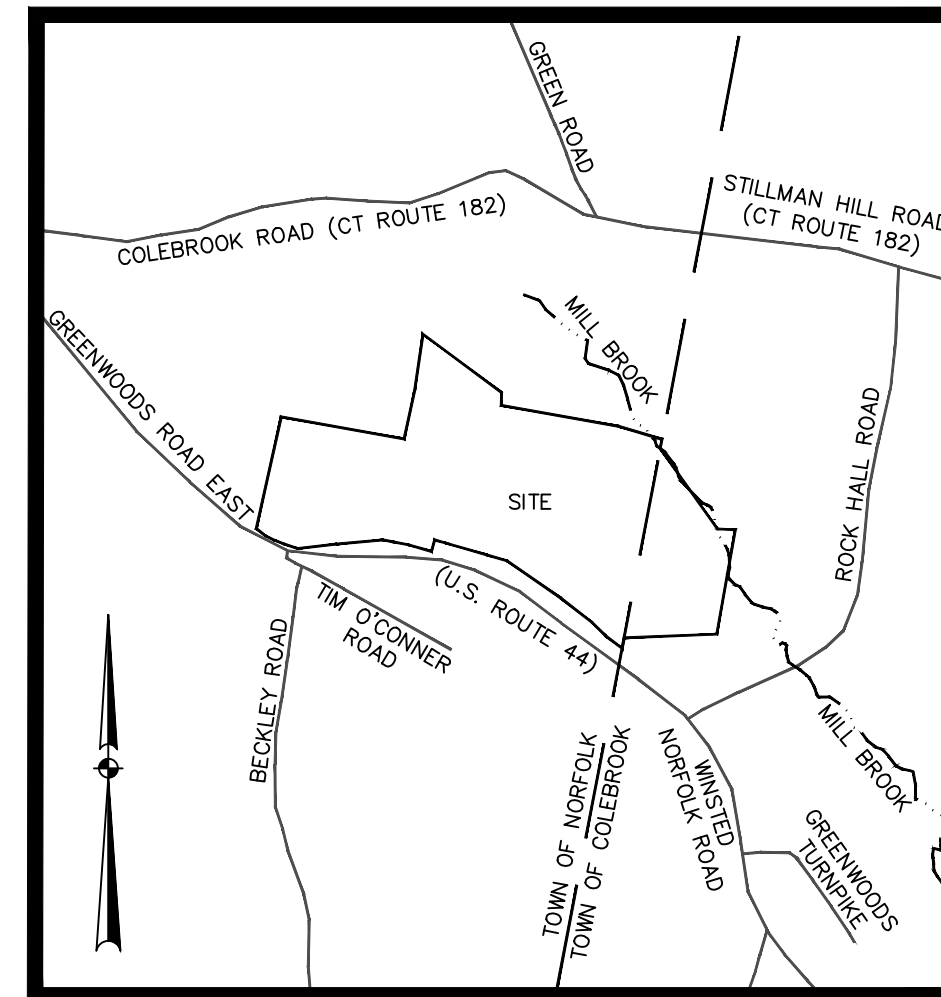
Norfolk Landfill Solar

Town of Norfolk

599 Greenwoods Rd E (Rte. 44)

Norfolk, Connecticut

Map 4 Block 10 Lot 4 Zone: C



KEY PLAN MAP

1"=2000'

Applicant

Lodestar Energy
40 Tower Lane, Suite 201
Avon, CT 06001



Owner

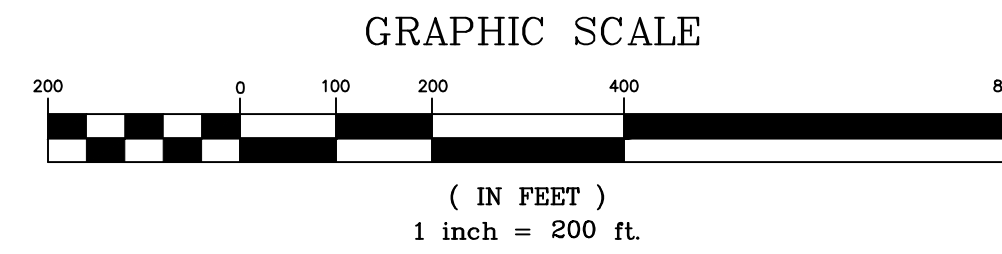
Town Of Norfolk
P.O. Box 592
Norfolk, CT 06058-0592

Prepared By



DRAWING INDEX

SHEET TITLE	SHEET NO.	LATEST REVISION
CIVIL		
COVER SHEET	1 of 8	9-21-2022
OVERALL PLAN	2 of 8	9-21-2022
EXISTING CONDITIONS PLAN	3 of 8	7-12-2022
EXISTING CONDITIONS PLAN	4 of 8	7-12-2022
ARRAY 1 SITE PLAN	5 of 8	9-21-2022
ARRAY 2 SITE PLAN	6 of 8	9-21-2022
EROSION CONTROL NOTES	7 of 8	7-12-2022
DETAILS	8 of 8	7-12-2022



REVISIONS	
9-21-22	MODIFY BASINS, ADJUST ACCESS ROAD

BY: CJC/TAC CHK: JEU

Norfolk Landfill Solar
557 Greenwood Road
Norfolk, CT
Map 077 Block 48 Lot 007 Zone: R-2

Overall Site Plan
DATE 7-12-22
SCALE 1"=200'
JOB NUMBER 2021-077
SHEET 2 of 8

S:\acad\2021 Civil 3D\2021-077 Lodestar - 599 Greenwood Rd. E\Russo Drawings\2021-077.dwg

Notes:

1. Portion of the parcel is located in inland wetlands as delineated by New England Environmental Services.
2. Portion of the parcel is located within Special Flood Hazard Area Zone A per Flood Insurance Rate Map Town Of Norfolk, Connecticut Litchfield County Panel 10 of 15 Community Panel Number 0901810010A Effective Date: December 3, 1987.
3. Horizontal datum is NAD 83. Vertical datum is NAVD 88.
4. All underground utility locations on this plan are approximate and may not be complete. Anyone using this information without verifying the locations does so at their own risk. No construction will be done on this site prior to utility mark out. "Call Before You Dig 1-800-922-4455".

Reference Maps:

1. "Connecticut Department of Transportation Bureau of Highways Right of Way Map Town of Norfolk Greenwoods Turnpike From The Colebrook Town Line Westerly to Pond Hill Route U.S. 44" Scale 1"=40' Number 97-09 Sheet No. 2 Of 3 Date November 28, 1947.
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4. Map 920 "Map of Land Owned By Town of Norfolk, Connecticut Towns of Norfolk & Colebrook, Conn." Scale 1"=200' June, 1979" By Charles P. Hurley.
5. Map 966 "Map Showing Proposed Land Sale Washington to Bascetta, Conn. Rte #44, Norfolk, Conn." 1"=80' Jan. 1985" by Hall & McChesney, Inc. By Peter B. Keefe.
6. Map 1346 "Compilation Plan Map Showing Easement Area To Be Granted To The Connecticut Light And Power Company Across The Property Of Town of Norfolk Greenwoods Road East - U.S. Route 44, Norfolk, Connecticut" By URS Corporation AES Scale:1"=100' Date: September, 2007.
7. Map 1394 "Map Prepared For Yvonne Travaglin 132 Colebrook Road (AKA CT Rte 182) Norfolk, Connecticut Scale June 10 2009" by Keefe Land Surveying.
8. Map 1398 "Property Survey - Lot Line Revision Prepared For 114 Colebrook Road LLC, 114 Colebrook Road, Norfolk, Connecticut" Scale 1"=100' Date October, 2011 Sheet No. 1 Of 1 Revised: 12/30/2011 Job No: 1036-102 By GM2 Associates, Inc.



J.R. Russo & Associates, LLC
 11Shelham Rd East Windsor CT 06088 • CT 860.653.0599 • MA 483.780.1858
 www.russosurvey.com • info@russosurvey.com

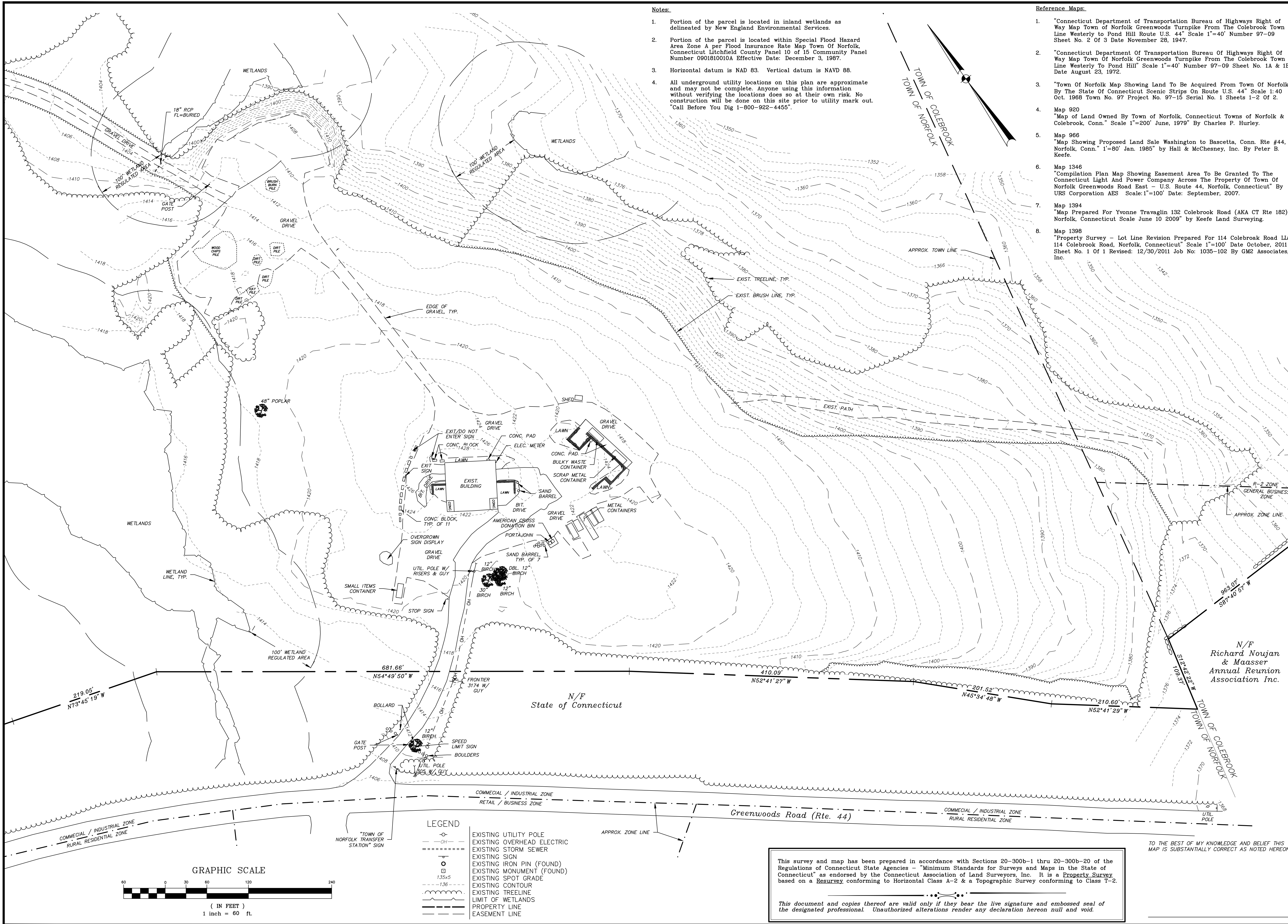
Prepared For
Lodestar Energy
 40 Tower Lane, Suite 201
 Avon, CT 06001

REVISIONS	
BY: CJC/TAC	CHK: JEU

Norfolk Landfill Solar
 599 Greenwoods Rd E (Rte. 44)
 Norfolk, CT
 Map4 Block 10 Lot 4 Zone: C

Existing Conditions Plan

DATE	7-12-22
SCALE	1"=60'
JOB NUMBER	2021-077
SHEET	3 of 8



LEGEND

	EXISTING UTILITY POLE
	EXISTING OVERHEAD ELECTRIC
	EXISTING STORM SEWER
	EXISTING SIGN
	EXISTING IRON PIN (FOUND)
	EXISTING MONUMENT (FOUND)
	EXISTING SPOT GRADE
	EXISTING CONTOUR
	EXISTING TREELINE
	LIMIT OF WETLANDS
	PROPERTY LINE
	EASEMENT LINE

This survey and map has been prepared in accordance with Sections 20-300b-1 thru 20-300b-20 of the Regulations of Connecticut State Agencies - "Minimum Standards for Surveys and Maps in the State of Connecticut" as endorsed by the Connecticut Association of Land Surveyors, Inc. It is a **Property Survey** based on a **Resurvey** conforming to Horizontal Class A-2 & a Topographic Survey conforming to Class T-2.

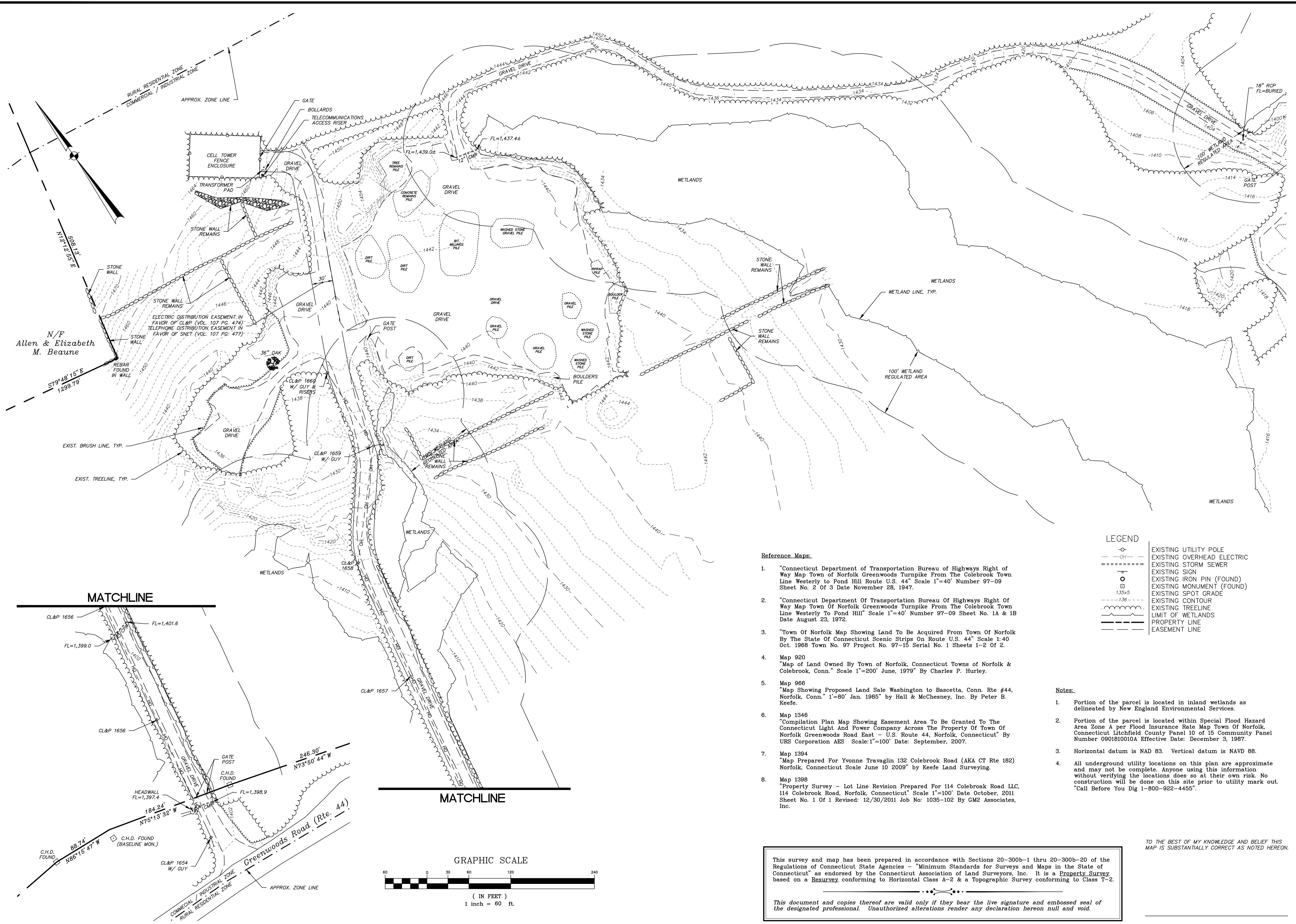
This document and copies thereof are valid only if they bear the live signature and embossed seal of the designated professional. Unauthorized alterations render any declaration hereon null and void.

TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

REVISIONS	
BY: CJC/TAC	CHK: JEU

Existing Conditions Plan

DATE	7-12-22
SCALE	1"=60'
JOB NUMBER	2021-077
SHEET	4 of 8



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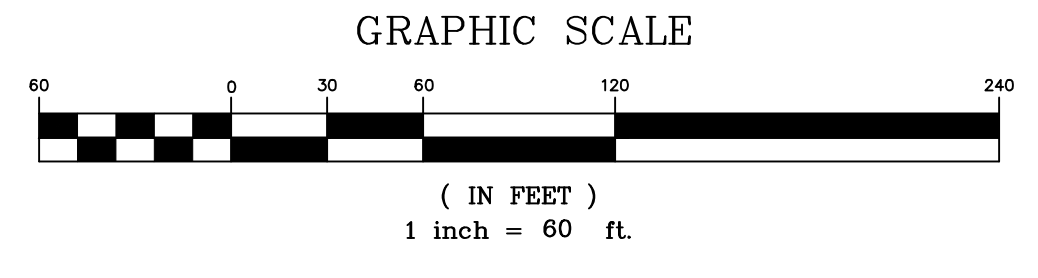
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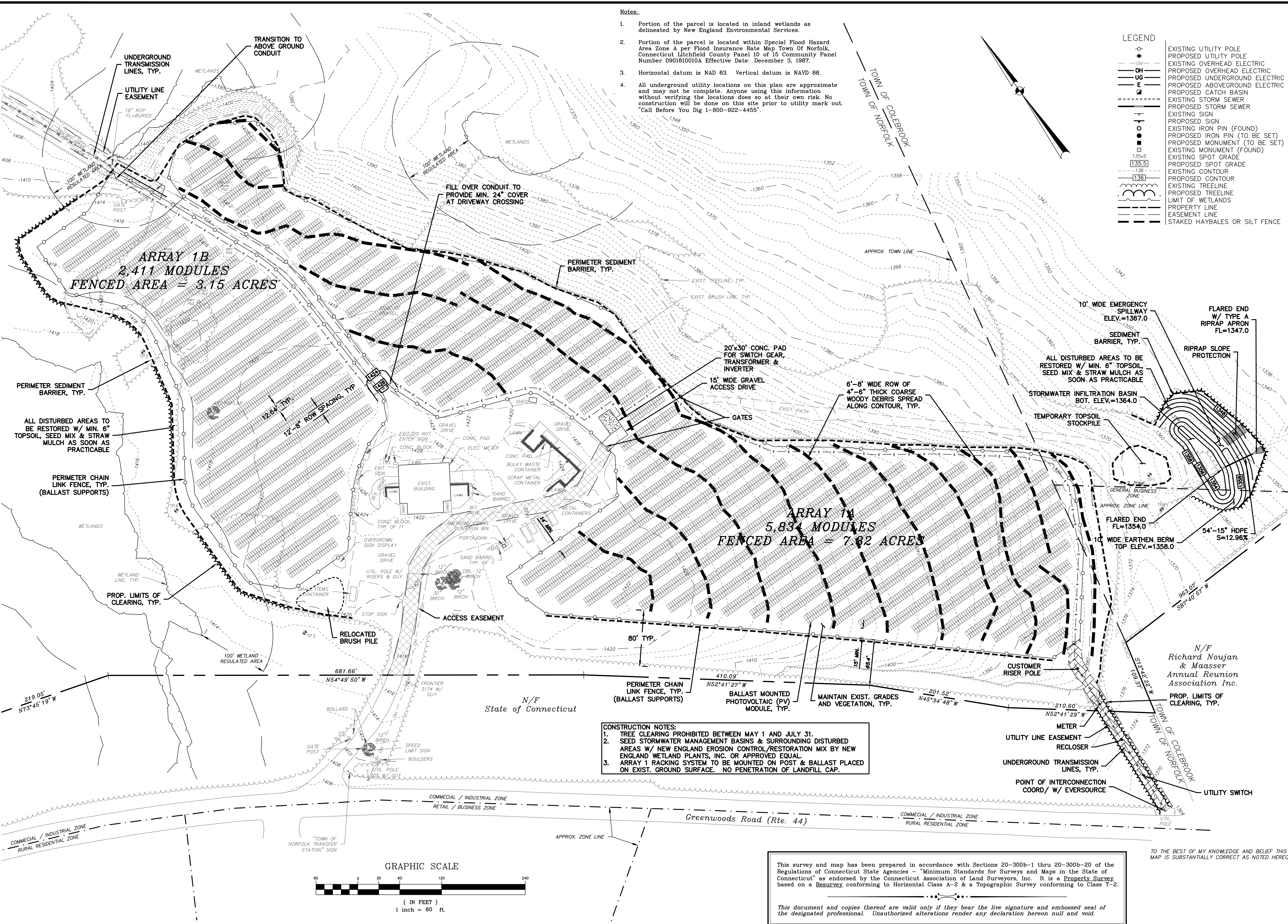
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 - o- PROPOSED UTILITY POLE
 - OH- EXISTING OVERHEAD ELECTRIC
 - OH- PROPOSED OVERHEAD ELECTRIC
 - UG- EXISTING UNDERGROUND ELECTRIC
 - E- PROPOSED ABOVEGROUND ELECTRIC
 - PROPOSED CATCH BASIN
 - EXISTING STORM SEWER
 - PROPOSED STORM SEWER
 - EXISTING SIGN
 - PROPOSED SIGN
 - EXISTING IRON PIN (FOUND)
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 - EXISTING TREELINE
 - PROPOSED TREELINE
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 - PROPERTY LINE
 - EASEMENT LINE
 - STAKED HAYBALES OR SILT FENCE

- CONSTRUCTION NOTES:**
1. TREE CLEARING PROHIBITED BETWEEN MAY 1 AND JULY 31.
 2. SEED STORMWATER MANAGEMENT BASINS & SURROUNDING DISTURBED AREAS W/ NEW ENGLAND EROSION CONTROL/RESTORATION MIX BY NEW ENGLAND WETLAND PLANTS, INC. OR APPROVED EQUIV.
 3. ARRAY 1 RACKING SYSTEM TO BE MOUNTED ON POST & BALLAST PLACED ON EXIST. GROUND SURFACE. NO PENETRATION OF LANDFILL CAP.

This survey and map has been prepared in accordance with Sections 20-300b-1 thru 20-300b-20 of the Regulations of Connecticut State Agencies - "Minimum Standards for Surveys and Maps in the State of Connecticut" as endorsed by the Connecticut Association of Land Surveyors, Inc. It is a Property Survey based on a Resurvey conforming to Horizontal Class A-2 & a Topographic Survey conforming to Class T-2.

This document and copies thereof are valid only if they bear the live signature and embossed seal of the designated professional. Unauthorized alterations render any declaration hereon null and void.

NO.	DESCRIPTION	DATE

REVISIONS
BY: CJC/TAC CHK: JEU

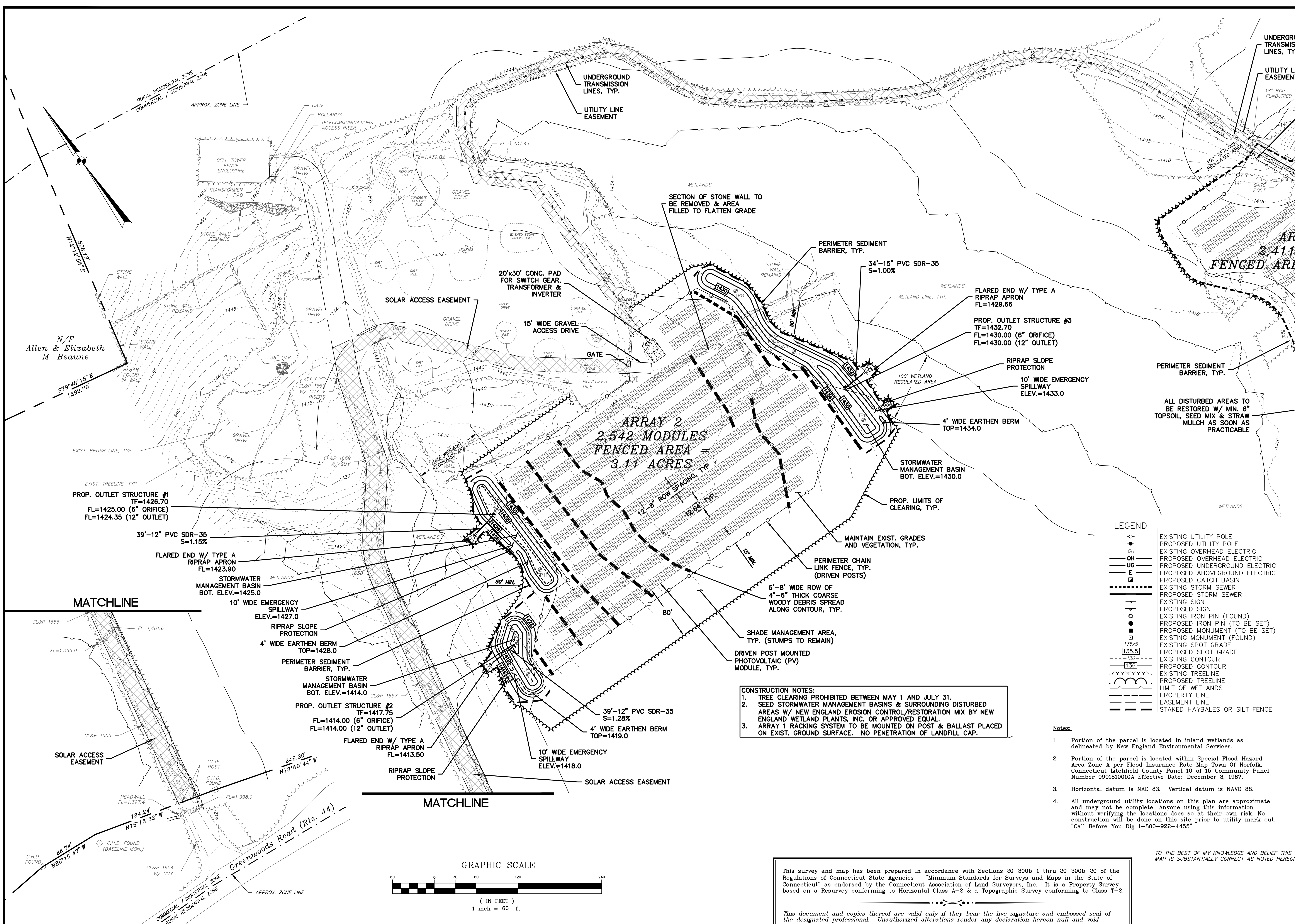
Norfolk Landfill Solar
599 Greenwood Rd E (Rte. 44)
Norfolk, CT
Map 4 Block 10 Lot 4 Zone: C

N/F
Richard Noujan
& Maasser
Annual Reunion
Association Inc.

Array 1 Site Plan

DATE	7-12-22
SCALE	1"=60'
JOB NUMBER	2021-077
SHEET	5 of 8

S:\Acad\2021 Civil 3D\2021-077 Lodestar - 599 Greenwood Rd. E\Russo Drawings\2021-077.dwg



Prepared For
Lodestar Energy
40 Tower Lane, Suite 201
Avon, CT 06001

NO.	REVISIONS	BY:	CHK:
		CJC/TAC	CHK: JEU

Norfolk Landfill Solar
599 Greenwood Rd E (Rte. 44)
Norfolk, CT
Map4 Block 10 Lot 4 Zone: C

Array 2 Site Plan	
DATE	7-12-22
SCALE	1"=60'
JOB NUMBER	2021-077
SHEET	6 of 8

CONSTRUCTION NOTES:
1. TREE CLEARING PROHIBITED BETWEEN MAY 1 AND JULY 31.
2. SEED STORMWATER MANAGEMENT BASINS & SURROUNDING DISTURBED AREAS W/ NEW ENGLAND EROSION CONTROL/RESTORATION MIX BY NEW ENGLAND WETLAND PLANTS, INC. OR APPROVED EQUAL.
3. ARRAY 1 RACKING SYSTEM TO BE MOUNTED ON POST & BALLAST PLACED ON EXIST. GROUND SURFACE. NO PENETRATION OF LANDFILL CAP.

- Notes:**
- Portion of the parcel is located in inland wetlands as delineated by New England Environmental Services.
 - Portion of the parcel is located within Special Flood Hazard Area Zone A per Flood Insurance Rate Map Town Of Norfolk, Connecticut Litchfield County Panel 10 of 15 Community Panel Number 0901810010A Effective Date: December 3, 1987.
 - Horizontal datum is NAD 83. Vertical datum is NAVD 88.
 - All underground utility locations on this plan are approximate and may not be complete. Anyone using this information without verifying the locations does so at their own risk. No construction will be done on this site prior to utility mark out. "Call Before You Dig 1-800-922-4455".

This survey and map has been prepared in accordance with Sections 20-300b-1 thru 20-300b-20 of the Regulations of Connecticut State Agencies - "Minimum Standards for Surveys and Maps in the State of Connecticut" as endorsed by the Connecticut Association of Land Surveyors, Inc. It is a Property Survey based on a Resurvey conforming to Horizontal Class A-2 & a Topographic Survey conforming to Class T-2.

This document and copies thereof are valid only if they bear the live signature and embossed seal of the designated professional. Unauthorized alterations render any declaration hereon null and void.

TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

PERMANENT SEEDING (PS)

SPECIFICATIONS

Time Of Year

Seeding dates in Connecticut are normally April 1 through June 15 and August 15 through October 1. Spring seedings give the best results and spring seedings of all mixes with legumes is recommended. There are two exceptions to the above dates. The first exception is when seedings will be made in the areas of Connecticut known as the Coastal Slope and the Connecticut River Valley. The Coastal Slope includes the coastal towns of New London, Middlesex, New Haven, and Fairfield counties. In these areas, with the exception of crown vetch (when crown vetch is seeded in late summer, at least 35% of the seed should be hard seed (unscarified), the final fall seeding dates can be extended an additional 15 days. The second exception is frost crack or dormant seeding, the seed is applied during the time of year when no germination can be expected, normally November through February. Germination will take place when weather conditions improve, mulching is extremely important to protect the seed from wind and surface erosion and to provide erosion protection until the seeding becomes established.

Site Preparation

Grade in accordance with the Land Grading measure which is in the Connecticut Guidelines For Soil Erosion and Sediment Control latest edition.

Install all necessary surface water controls.

For areas to be mowed remove all surface stones 2 inches or larger. Remove all other debris such as wire, cable tree roots, pieces of concrete, clods, lumps, or other unsuitable material.

Seed Selection

Bosnis & Surrounding Disturbed Areas: New England Erosion Control/Restoration Mix by New England Wetland Plants Inc. or Approved Equal.

Seedbed Preparation

Apply topsoil, if necessary, in accordance with the Topsoiling measure which is in the Connecticut Guidelines For Soil Erosion and Sediment Control latest edition.

Apply ground limestone and fertilizer according to soil test recommendations (such as those offered by the University of Connecticut Soil Testing Laboratory or other reliable source).

Where soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 300 pounds per acre or 7.5 pounds per 1,000 square feet of 10-10-10 or equivalent and limestone at 4 tons per acre or 200 pounds per 1,000 square feet.

Work lime and fertilizer into the soil to a depth of 3 to 4 inches with a disc or other suitable equipment.

Inspect seedbed just before seeding. If the soil is compacted, crusted or hardened, scarify the area prior to seeding.

Seed Application

Apply selected seed at rates per manufacturer's recommendations uniformly by hand, cyclone seeder, drill, cultipacker type seeder or hydroseeder (slurry including seed, fertilizer). Normal seeding depth is from 0.25 to 0.5 inch. Increase seeding rates by 10% when hydroseeding or frost crack seeding. Seed warm season grasses during the spring period only.

Mulching

See guidelines in the Mulch For Seed measures.

MAINTENANCE

Inspect temporary soil protection area at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater during the first growing season.

Where seed has been moved or where soil erosion has occurred, determine the cause of the failure and repair as needed.

TEMPORARY SEEDING (TS)

SPECIFICATIONS

Site Preparation

Install needed erosion control measures such as diversions, grade stabilization structures, sedimentation basins and grassed waterways in accordance with the approved plan.

Grade according to plans and allow for the use of appropriate equipment for seedbed preparation, seeding, mulch application and mulch anchoring.

Seedbed Preparation

Loosen the soil to a depth of 3-4 inches with a slightly roughened surface. If the area has been recently loosened or disturbed, no further roughening is required. Soil preparation can be accomplished by tracking with a bulldozer, discing, harrowing, raking or dragging with a section of chain link fence.

Apply ground limestone and fertilizer according to soil test recommendations (such as those offered by the University of Connecticut Soil Testing Laboratory or other reliable source).

If soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 300 pounds per acre or 7.5 pounds per 1,000 square feet of 10-10-10 or equivalent.

Seeding

Apply seed uniformly by hand, cyclone seeder, drill, cultipacker type seeder or hydroseeder. The temporary seed shall be Rye (grain) applied at a rate of 120 pounds per acre. Increase seeding rates by 10% when hydroseeding.

Mulching

See guidelines in the Mulch For Seed measures.

MAINTENANCE

Inspect temporary seeding area at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater for seed and mulch movement and rill erosion.

Where seed has been moved or where soil erosion has occurred, determine the cause of the failure and repair as needed.

MULCH FOR SEED (MS)

SPECIFICATIONS

Materials

Types of Mulches within this specification include, but are not limited to:

1. Hay: The dried stems and leafy parts of plants cut and harvested, such as alfalfa, clovers, other forage legumes and the finer stemmed, leafy grasses. The average stem length should not be less than 4 inches. Hay that can be windblown should be anchored to hold it in place.

2. Straw: Cut and dried stems of herbaceous plants, such as wheat, barley, cereal rye, or broom. The average stem length should not be less than 4 inches. Straw that can be windblown should be anchored to hold it in place.

3. Cellulose Fiber: Fiber origin is either virgin wood, post-industrial/pre-consumer wood or post consumer wood complying with materials specification (collectively referred to as "wood fiber"), newspaper, kraft paper, cardboard (collectively referred to as "paper fiber") or a combination of wood and paper fiber. Paper fiber, in particular, shall not contain boron, which inhibits seed germination. The cellulose fiber must be manufactured in such a manner that after the addition to and agitation in slurry tanks with water, the fibers in the slurry become uniformly suspended to form a homogeneous product. Subsequent to hydraulic spraying on the ground, the mulch shall allow for the absorption and percolation of moisture and shall not form a tough crust such that it interferes with seed in germination or growth. Generally applied with tackifier and fertilizer. Refer to manufacturer's specifications for application rates needed to attain 80%-95% coverage without interfering with seed germination or plant growth. Not recommended as a mulch for use when seeding occurs outside of the recommended seeding dates.

Tackifiers within this specification include, but are not limited to: Water soluble materials that cause mulch particles to adhere to one another, generally consisting of either a natural vegetable gum blended with gelling and hardening agents or a blend of hydrophilic polymers, resins, viscosifiers, sticking aids and gums. Good for areas intended to be mowed. Cellulose fiber mulch may be applied as a tackifier to other mulches, provided the application is sufficient to cause the other mulches to adhere to one another. **Emulsified asphalts are specifically prohibited for use as tackifiers due to their potential for causing water pollution following its application.**

Nettings within this specification include, but are not limited to: Prefabricated openwork fabrics made of cellulose cords, ropes, threads, or biodegradable synthetic material that is woven, knotted or molded in such a manner that it holds mulch in place until vegetation growth is sufficient to stabilize the soil. Generally used in areas where no mowing is planned.

Site Preparation

Grade according to plans and allow for the use of appropriate equipment for seedbed preparation, seeding, mulch application and mulch anchoring.

Application

Timing: Applied immediately following seeding. Some cellulose fiber may be applied with seed to assist in marking where seed has been sprayed, but expect to apply a second application of cellulose fiber to meet the requirements of **Mulch For Seed** in the Connecticut Guidelines For Soil Erosion and Sediment Control latest edition.

Spreading: Mulch material shall be spread uniformly by hand or machine resulting in 80%-95% coverage of the disturbed soil when seeding within the recommended seeding dates. Applications that are uneven can result in excessive mulch smothering the germinating seeds. For hay or straw anticipate an application rate of 2 tons per acre. For cellulose fiber follow manufacturer's recommended application rates to provided 80%-95% coverage.

When seeding outside the recommended seeding dates, increase mulch application rate to provide between 95%-100% coverage of the disturbed soil. For hay or straw anticipate an application rate to 2.5 to 3 tons per acre.

When spreading hay mulch by hand, divide the area to be mulched into approximately 1,000 square feet and place 1.5-2 bales of hay in each section to facilitate uniform distribution.

For cellulose fiber mulch, expect several spray passes to attain adequate coverage, to eliminate shadowing, and to avoid slippage.

Anchoring: Expect the need for mulch anchoring along the shoulders of actively traveled roads, hill tops and long open slopes not protected by wind breaks.

When using netting, the most critical aspect is to ensure that the netting maintains substantial contact with the underlying mulch and the mulch, in turn, maintains continuous contact with the soil surface. Without such contact, the material is useless and erosion can be expected to occur.

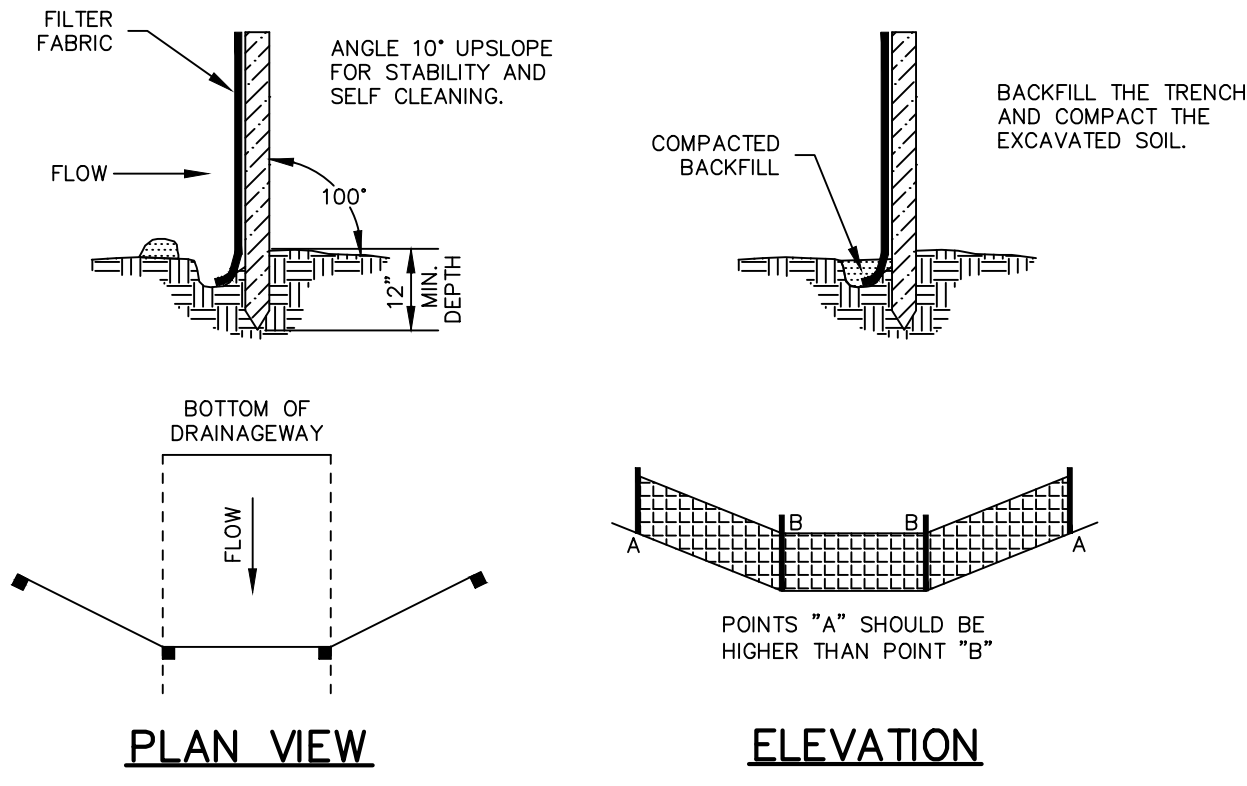
MAINTENANCE

Inspect mulch for seed area at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater until the grass has germinated to determine maintenance needs.

Where mulch has been moved or where soil erosion has occurred, determine the cause of the failure and repair as needed.

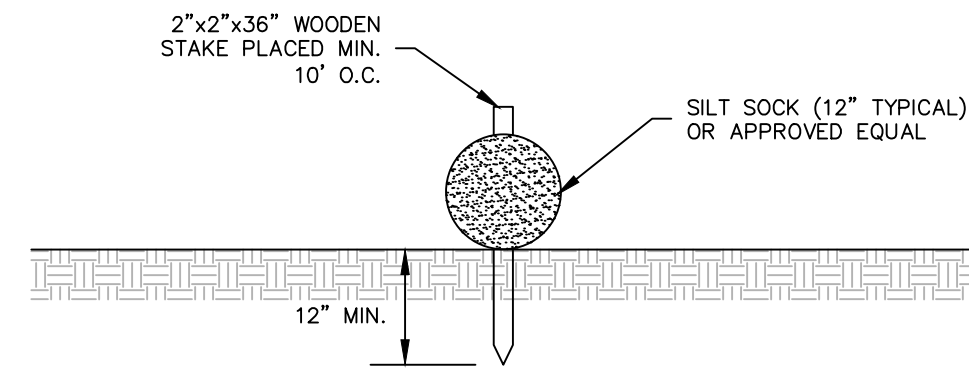
SOIL EROSION & SEDIMENT CONTROL NOTES

- All soil erosion and sediment control work shall be done in strict accordance with the Connecticut Guidelines For Soil Erosion and Sediment Control latest edition.
- Any additional erosion/sediment control deemed necessary by the engineer during construction, shall be installed by the developer. In addition, the developer shall be responsible for the repair/replacement and/or maintenance of all erosion control measures until all disturbed areas are stabilized to the satisfaction of the town staff.
- All soil erosion and sediment control operations shall be in place prior to any grading operations and installation of proposed structures or utilities and shall be left in place until construction is completed and/or area is stabilized.
- In all areas, removal of trees, bushes and other vegetation as well as disturbance of the soil is to be kept to an absolute minimum while allowing proper development of the site. During construction, expose as small an area of soil as possible for as short a time as possible.
- The developer shall practice effective dust control per the soil conservation service handbook during construction and until all areas are stabilized or surface treated. The developer shall be responsible for the cleaning of nearby streets of any debris from these construction activities.
- All fill areas shall be compacted sufficiently for their intended purpose and as required to reduce slipping, erosion or excess saturation. Fill intended to support buildings, structures, conduits, etc., shall be compacted in accordance with local requirements or codes.
- Topsoil is to be stripped and stockpiled in amounts necessary to complete finished grading of all exposed areas requiring topsoil. The stockpiled topsoil is to be located as designated on the plans. Topsoil shall not be placed while in a frozen or muddy condition, when the subgrade is excessively wet, or in a condition that may otherwise be detrimental to proper grading or proposed sodding or seeding.
- Any and all fill material is to be free of brush, rubbish, timber, logs vegetative matter and stumps in amounts that will be detrimental to constructing stable fills. Maximum side slopes of exposed surfaces of earth to be 3:1 or as otherwise specified by local authorities.
- Soil stabilization should be completed within 5 days of clearing or inactivity in construction.
- Waste Materials - All waste materials (including wastewater) shall be disposed of in accordance with local, state and federal law. Litter shall be picked up at the end of each work day.
- The Contractor shall maintain on-site additional erosion control materials as a contingency in the event of a failure or when required to shore up existing BMPs. At a minimum, the on-site contingency materials should include 30 feet of silt fence and 5 straw haybales with 10 stakes.



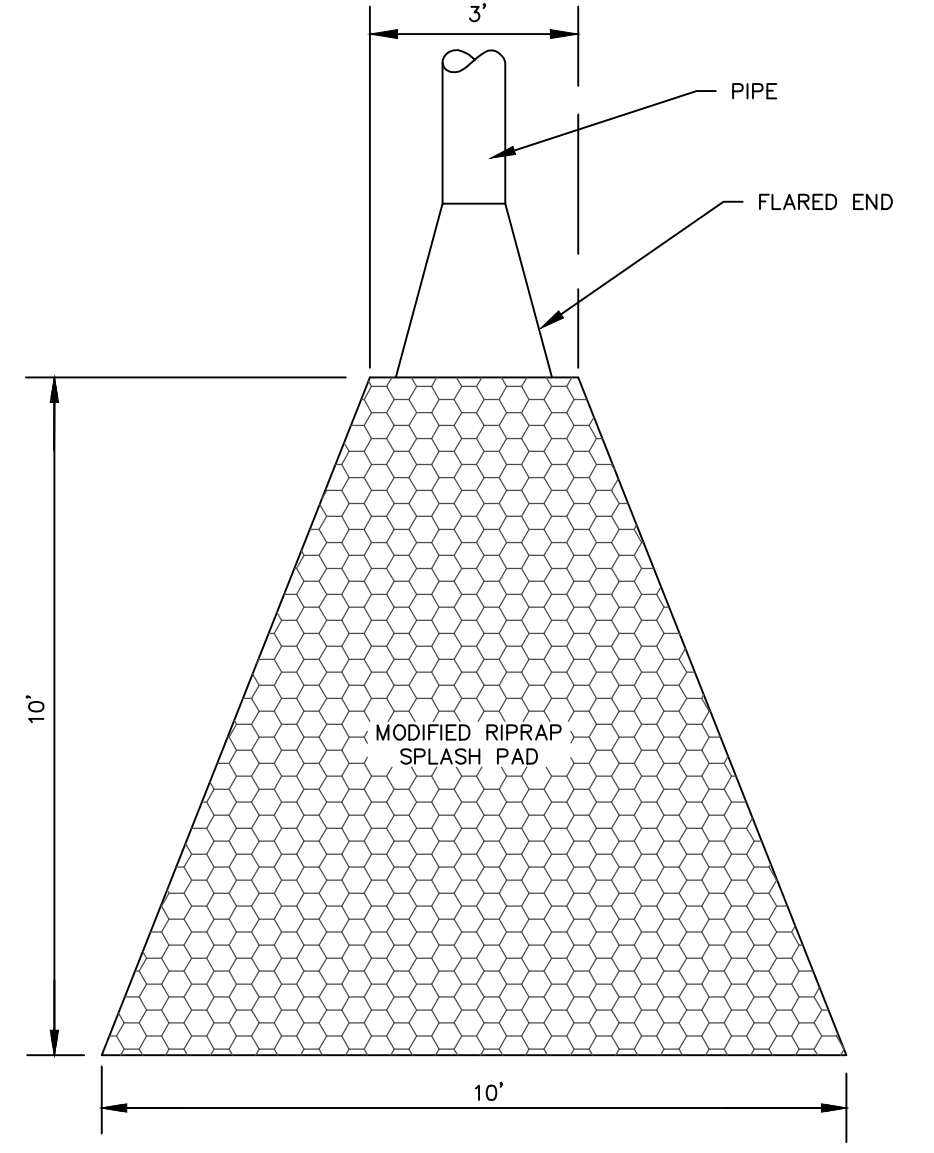
SOURCE: U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, STORRS, CONNECTICUT

GEOTEXTILE SILT FENCE (GSF)
NOT TO SCALE



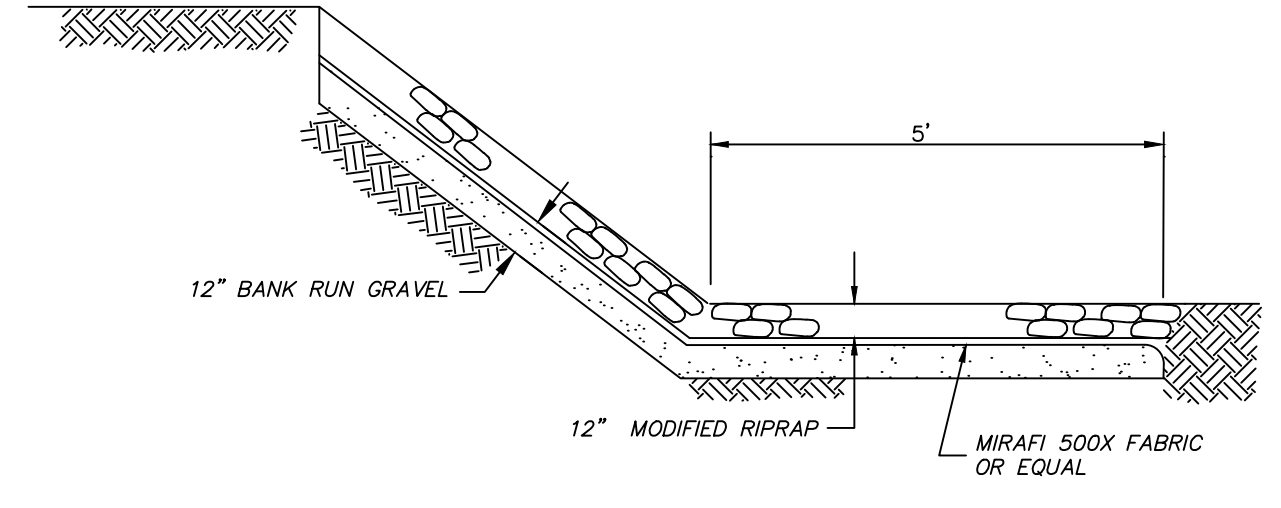
NOTE: MAY BE USED AS ALTERNATIVE TO GEOTEXTILE SILT FENCE.

SILT SOCK (ALTERNATE SEDIMENT BARRIER)
NOT TO SCALE

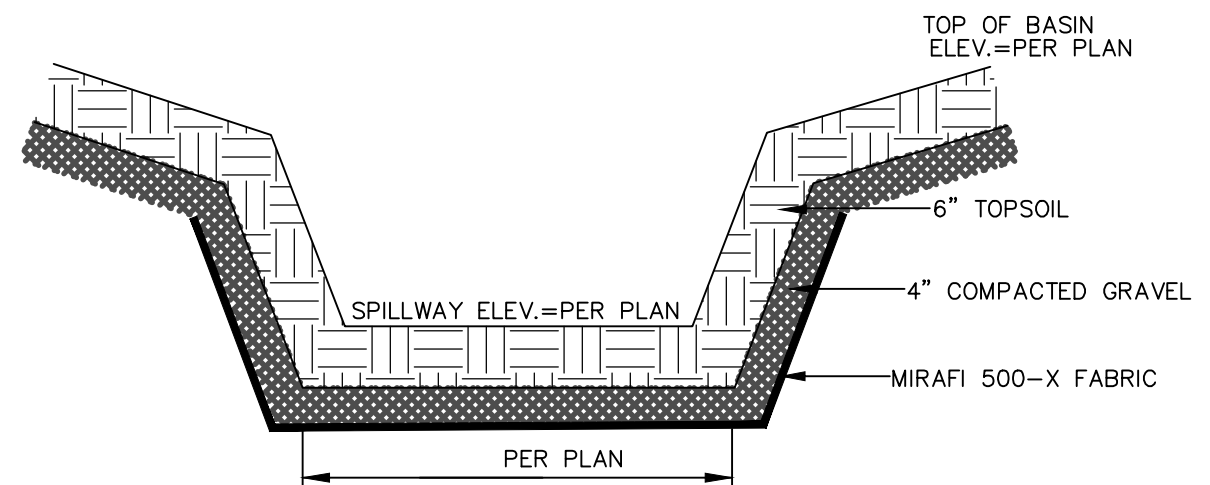


NOTE: MODIFIED RIPRAP APRON (12\"/>

TYPE A RIPRAP APRON (OP)
N.T.S.



RIPRAP SLOPE PROTECTION AT SPILLWAY
NOT TO SCALE



EARTHEN SPILLWAY
NOT TO SCALE

CHECKLIST FOR EROSION CONTROL PLAN

PROJECT: Norfolk Landfill Solar
LOCATION: 599 Greenwoods Road East, Norfolk, CT
PROJECT DESCRIPTION: Construction of two solar arrays
PARCEL AREA: 181.0± acres
RESPONSIBLE PERSONNEL: Kevin Midea, Lodestar Energy (410) 274-2716
EROSION AND SEDIMENT CONTROL PLAN PREPARER: J.R. Russo & Associates, LLC

CHECKLIST:

Work Description Erosion & Sediment Control Measures	Location	Date Installed	Initials	Date Removed	Initials
Install perimeter sediment barriers	As shown on plan.				

MAINTENANCE OF MEASURES:

Location	Description or Number	Date	Initials

Project Dates:
Date of groundbreaking for project:
Date of final stabilization:

PROJECT NARRATIVE AND CONSTRUCTION SEQUENCE

This project is located at 599 Greenwoods Road East in Norfolk, Connecticut. The proposed activity is the construction of two solar arrays. The suggested schedule of construction is as follows:

- Conduct a pre-construction meeting on-site with the contractor to review the design and requirements of the Stormwater Pollution Control Plan.
- Install perimeter silt fence (GSF) downgradient of the construction activities as shown on the project plans.
- Clear trees & grub stumps within security fence. Stumps outside of fence to remain.
- Grind brush & stumps and spread woody debris along contours across site as intermediate sediment barriers as shown on plans.
- Strip topsoil in the vicinity of the proposed stormwater management basins. Stockpile suitable amount of topsoil for reuse on areas shown. Stockpiles shall be surrounded by sediment barriers (GSF).
- Construct stormwater management basin. Seed & mulch to establish vegetation as soon as practicable.
- Construct access road.
- Install foundations and solar panels.
- Install electrical equipment and distribution lines.
- Install security fence.
- Restore all disturbed areas with topsoil, seed mix and mulch as soon as practicable.
- Remove silt fence after site is fully stabilized.

Construction of this site is anticipated to begin in the spring of 2023 and be complete by January 2024, pending approvals. Temporary erosion control measures shall be installed prior to any soil disturbance and maintained throughout construction until soils have been stabilized with permanent vegetation.

The Contractor shall keep the area of disturbance to a minimum and establish vegetative cover on exposed soils as soon as practical. All soil and erosion control measures shall be installed and maintained in accordance with these plans and the "Connecticut DEP Guidelines for Soil Erosion and Sediment Control", as amended. The Contractor shall verify all conditions noted on the plans and shall immediately notify the Engineer of any discrepancies.

The developer shall be responsible for the repair/replacement/maintenance of all erosion control measures until all disturbed areas are stabilized. Accumulated sediment shall be removed as required to keep silt fence functional. In all cases, deposits shall be removed when the accumulated sediment has reached one-half above the ground height of the silt fence. This material is to be spread and stabilized in areas not subject to erosion, or to be used in areas which are not to be paved or built on. Silt fence (GSF) is to be replaced as necessary to maintain proper filtering action. Silt fence (GSF) are to remain in place and shall be maintained to insure efficient sediment capture until all areas above the erosion checks are stabilized and vegetation has been established.

POST CONSTRUCTION MAINTENANCE NOTES:

The property owner shall be responsible for performing the following post construction maintenance schedule:

- Inspect stormwater management basins annually for evidence of hydrocarbons and remove by vac-truck. Repair eroded areas and replace riprap and vegetation as required. Dredge bottom to remove accumulated sediment every 10 years or when significant volume reduction is observed. Mow basins on a regular basis to prevent woody growth.



Prepared For
Lodestar Energy
40 Tower Lane, Suite 201
Avon, CT 06001

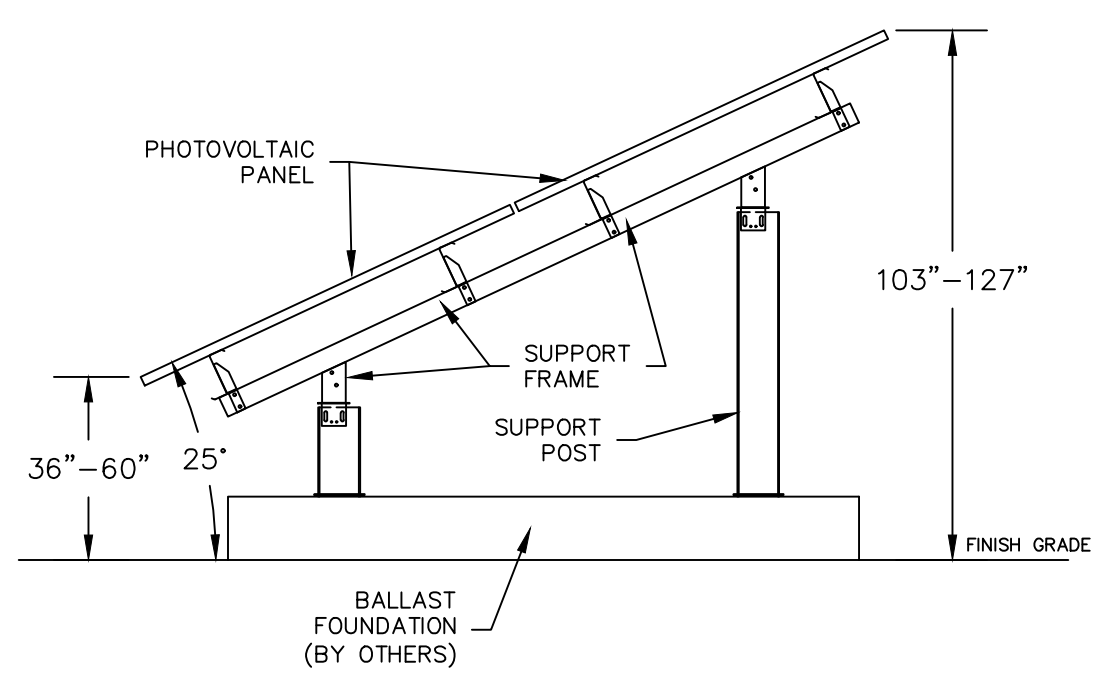
NO.	DESCRIPTION	DATE

REVISIONS
BY: CJC/TAC CHK: JEU

Norfolk Landfill Solar
599 Greenwoods Rd E (Rte. 44)
Norfolk, CT
Map4 Block 10 Lot 4 Zone: C

Erosion Control Notes

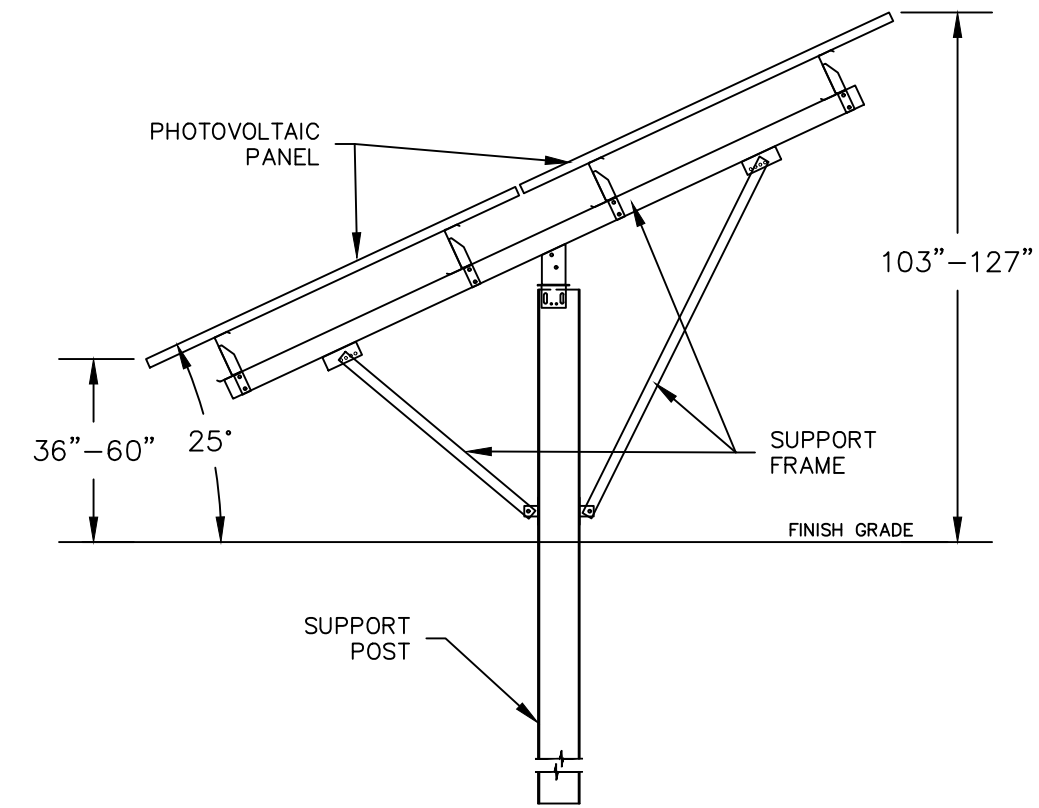
DATE	7-12-22
SCALE	As Shown
JOB NUMBER	2021-077
SHEET	7 of 8



NOTE: NOT FOR CONSTRUCTION. SEE SPECIFIC POST & RACKING SYSTEM PLANS BY OTHERS.

TYPICAL RACKING BALLAST MOUNTED ON LANDFILL CAP

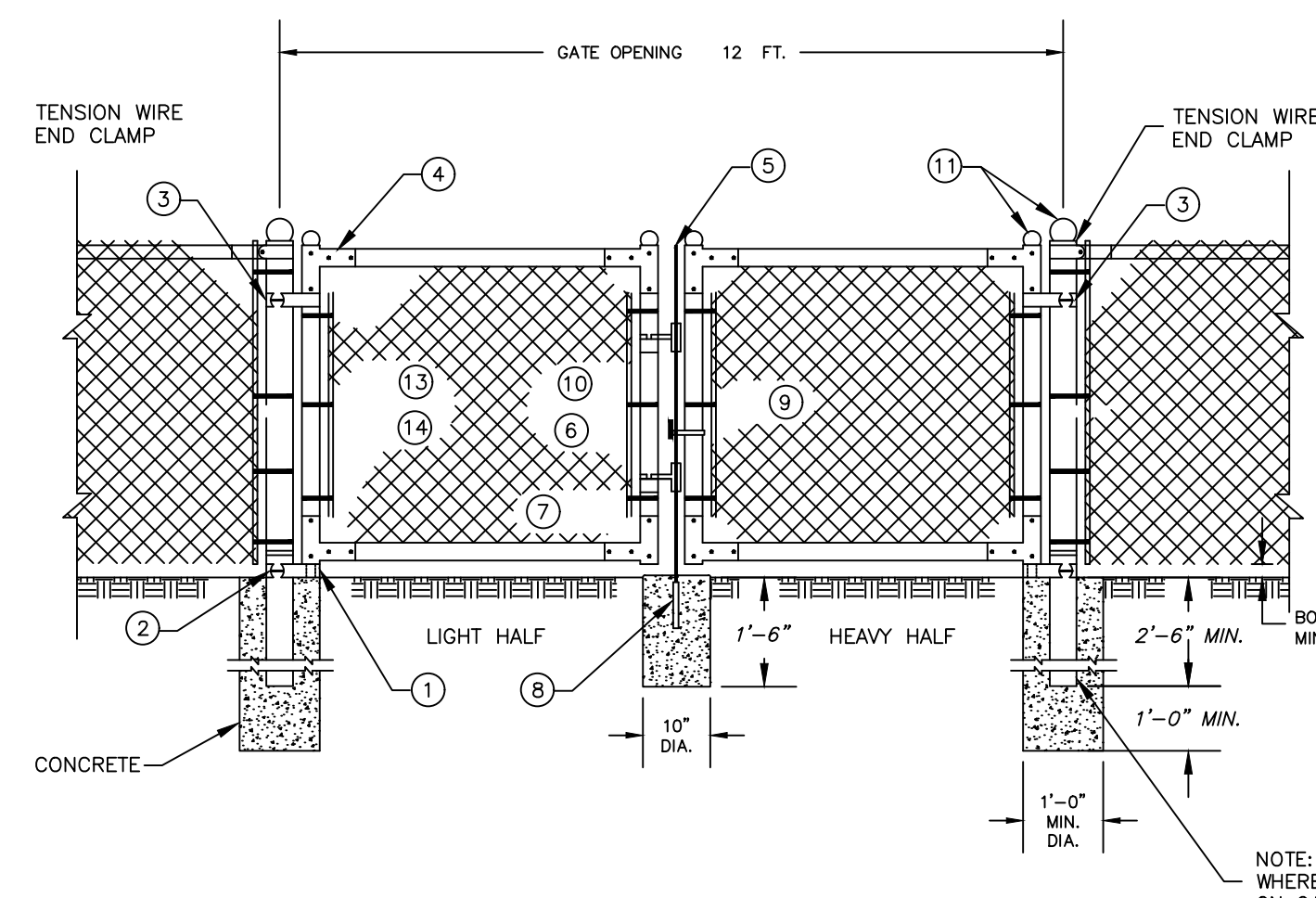
NOT TO SCALE



NOTE: NOT FOR CONSTRUCTION. SEE SPECIFIC POST & RACKING SYSTEM PLANS BY OTHERS.

TYPICAL RACKING MOUNTED ON DRIVEN POST

NOT TO SCALE



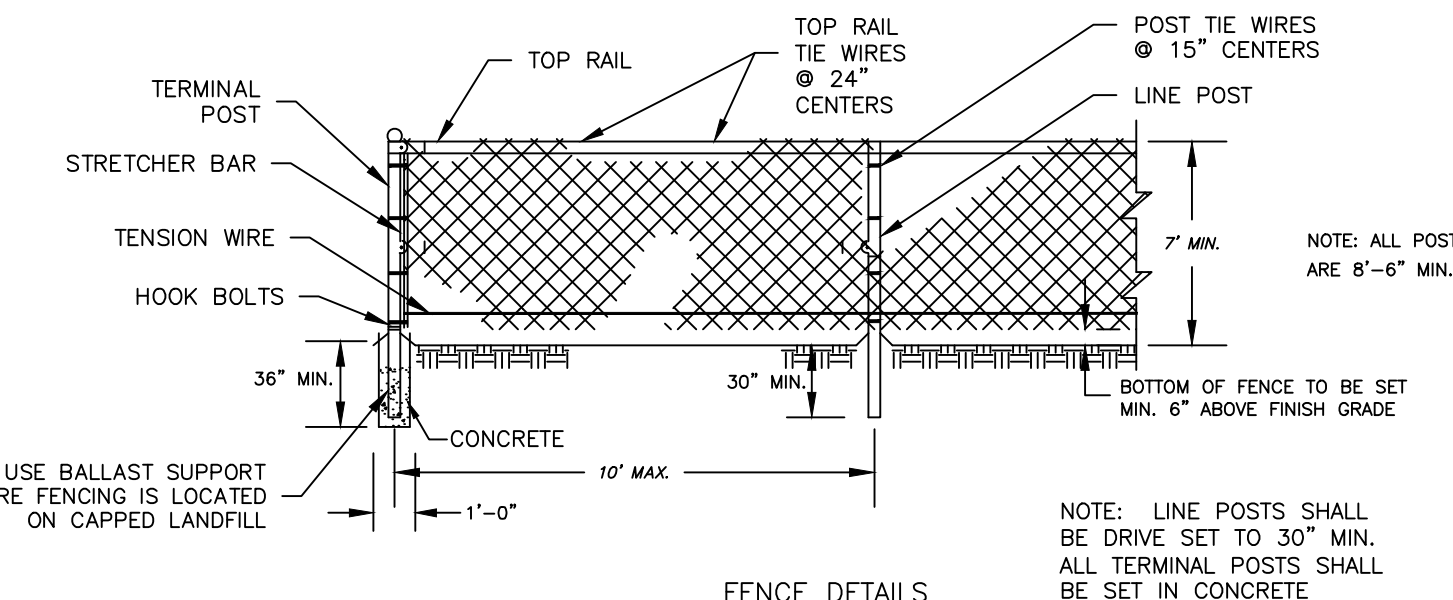
LEGEND

PART NO.	DESCRIPTION	QUANTITY
1	STRAIGHT PLUG	2
2	BOTTOM HINGE	2
3	TOP HINGE	2
4	CORNER ELBOW	8
5	PLUNGER ROD	1
6	LATCH FORK	2
7	FORK CATCH	2
8	PLUNGER ROD CATCH	1
9	LOCK KEEPER GUIDE	1
10	LOCK KEEPER	1
11	ORNAMENTAL TOPS	6
12	TRUSS RODS	4
13	STRETCHER BAR	4
14	HOOK BOLTS	12

NOTE: THE FENCING SHALL BE #9 GAGE FENCE FABRIC, STANDARD 2-INCH CHAIN LINK DIAMOND MESH.

CHAIN LINK FENCE DETAIL

NOT TO SCALE



SHAPE, SIZE AND WEIGHT REQUIREMENTS FOR FENCE POSTS AND RAILS

ITEM	SHAPE	OUTSIDE DIMENSIONS INCHES	WEIGHT LBS./LIN. FT.
** TERMINAL POSTS	ROUND	2.375	3.65
	*ROUND	2.375	3.12
LINE POSTS	ROUND	1.90	2.72
	*ROUND	1.90	2.28
TOP & BRACE RAILS	ROUND	1.66	2.27
	*ROUND	1.66	1.84

GATE FRAME MEMBERS SIZE AND WEIGHT

GATE FRAME	OUTSIDE DIMENSIONS INCHES	WEIGHT LBS./LIN. FT.
ROUND	1.66	2.27
*ROUND	1.66	1.84

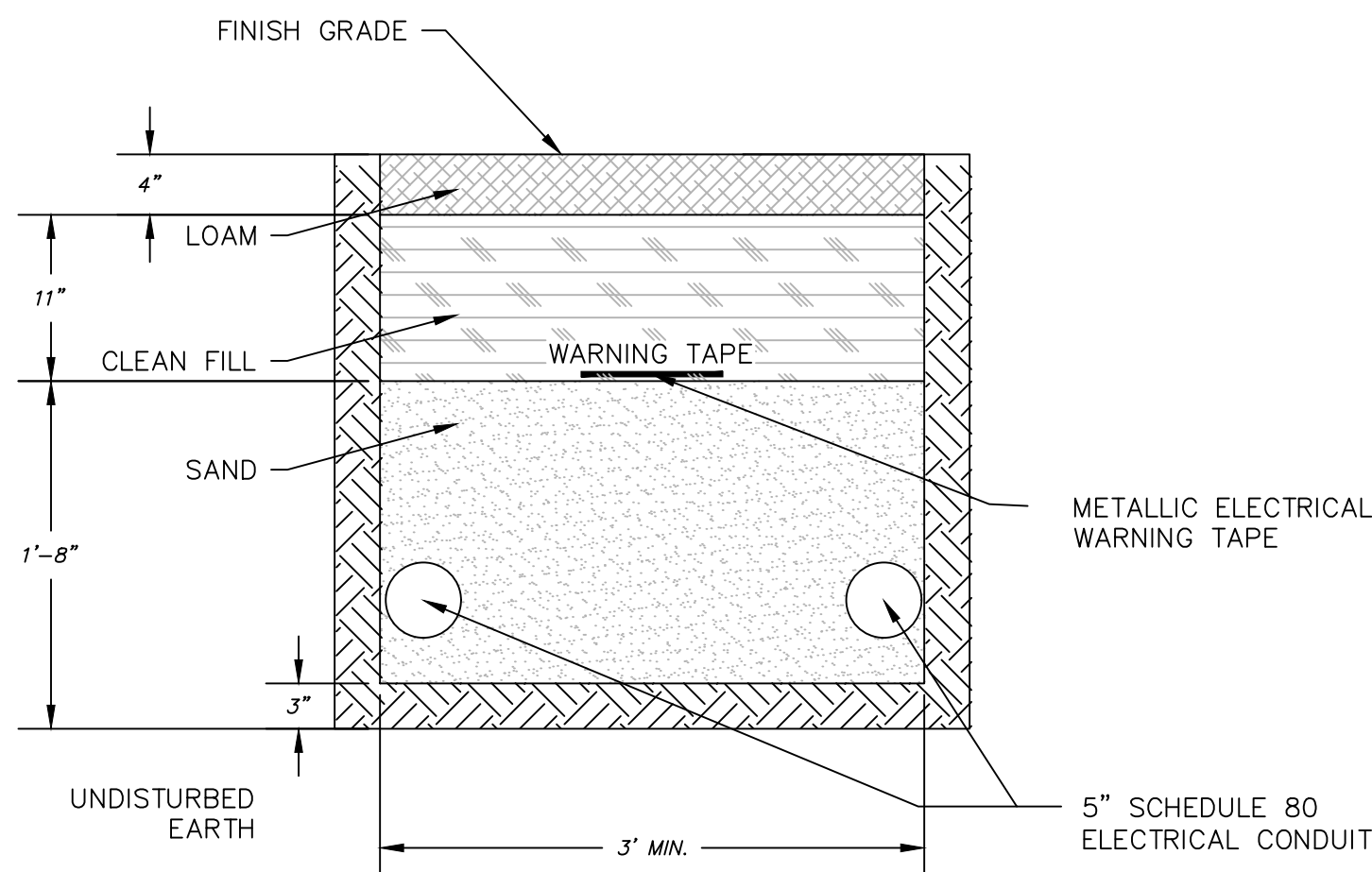
GATE POST SIZE AND WEIGHT

GATE LEAF WIDTH OF 6 FT. OR LESS	OUTSIDE DIMENSIONS INCHES	WEIGHT LBS./LIN. FT.
ROUND	2.875	5.79
*ROUND	2.875	4.64

NOTE: ALL POSTS ARE 8'-6" MIN. NOTE: LINE POSTS SHALL BE DRIVE SET TO 30" MIN. ALL TERMINAL POSTS SHALL BE SET IN CONCRETE.

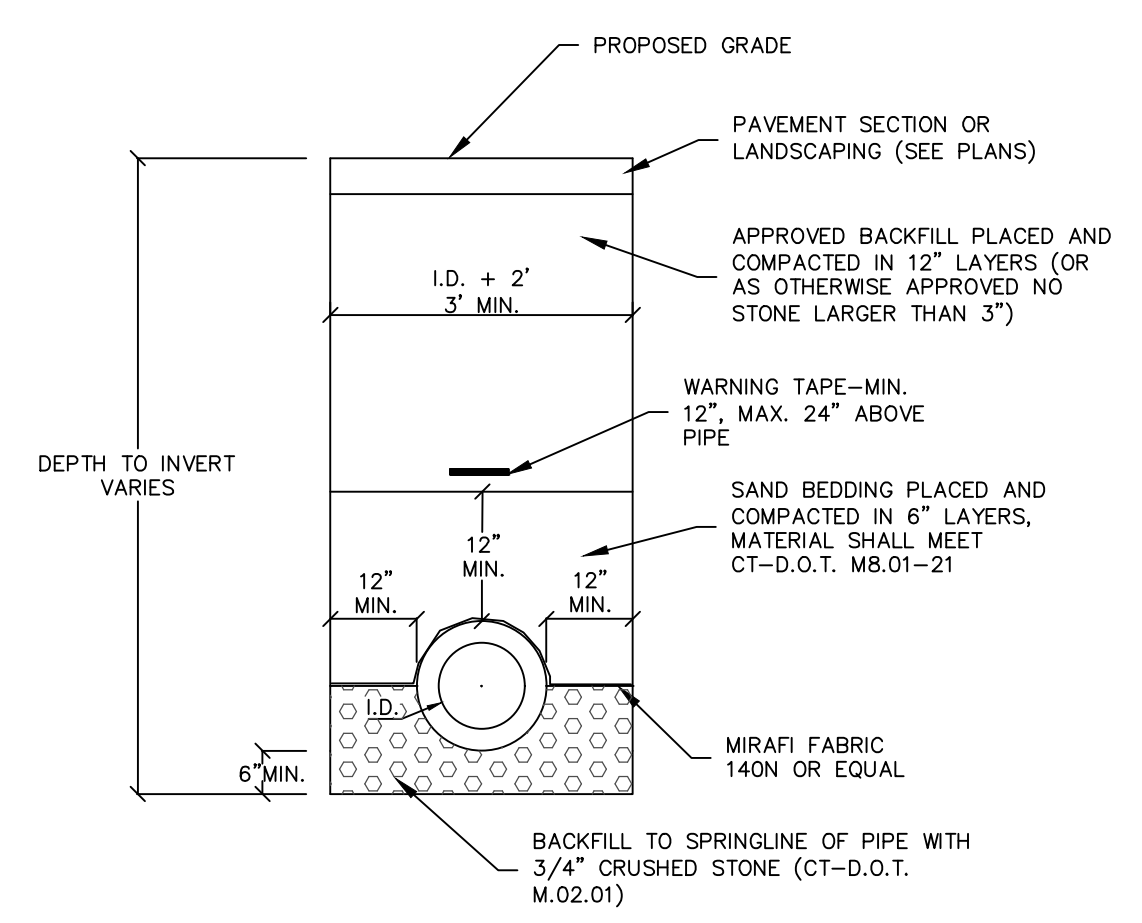
CONSTRUCTION NOTES

- MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE MANUFACTURER'S SPECIFICATIONS.
- ALL POSTS SHALL BE INSTALLED VERTICALLY. WHERE POSTS ARE INSTALLED ON AN INCLINED SURFACE, THE ANGLE OF THE POST SHALL BE ADJUSTED SO THAT THE POST WILL BE VERTICAL.
- THE FENCING SHALL BE #9 GAGE FENCE FABRIC, STANDARD 2-INCH CHAIN LINK DIAMOND MESH.



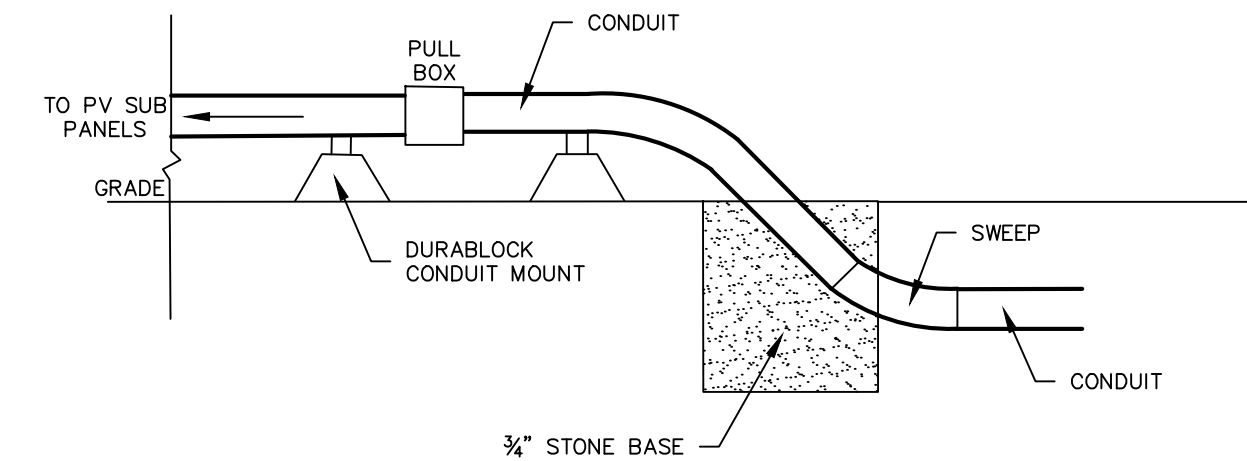
MEDIUM VOLTAGE CABLE TRENCH DETAIL (MV)

NOT TO SCALE



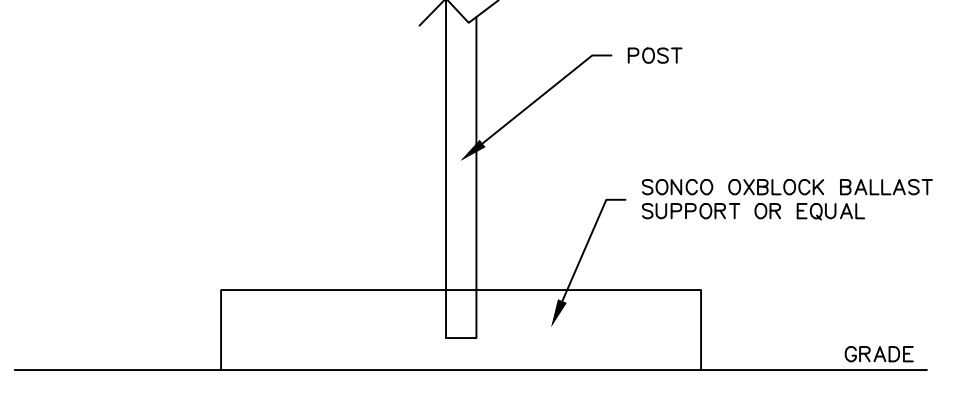
STANDARD STORM DRAIN DETAIL

NOT TO SCALE



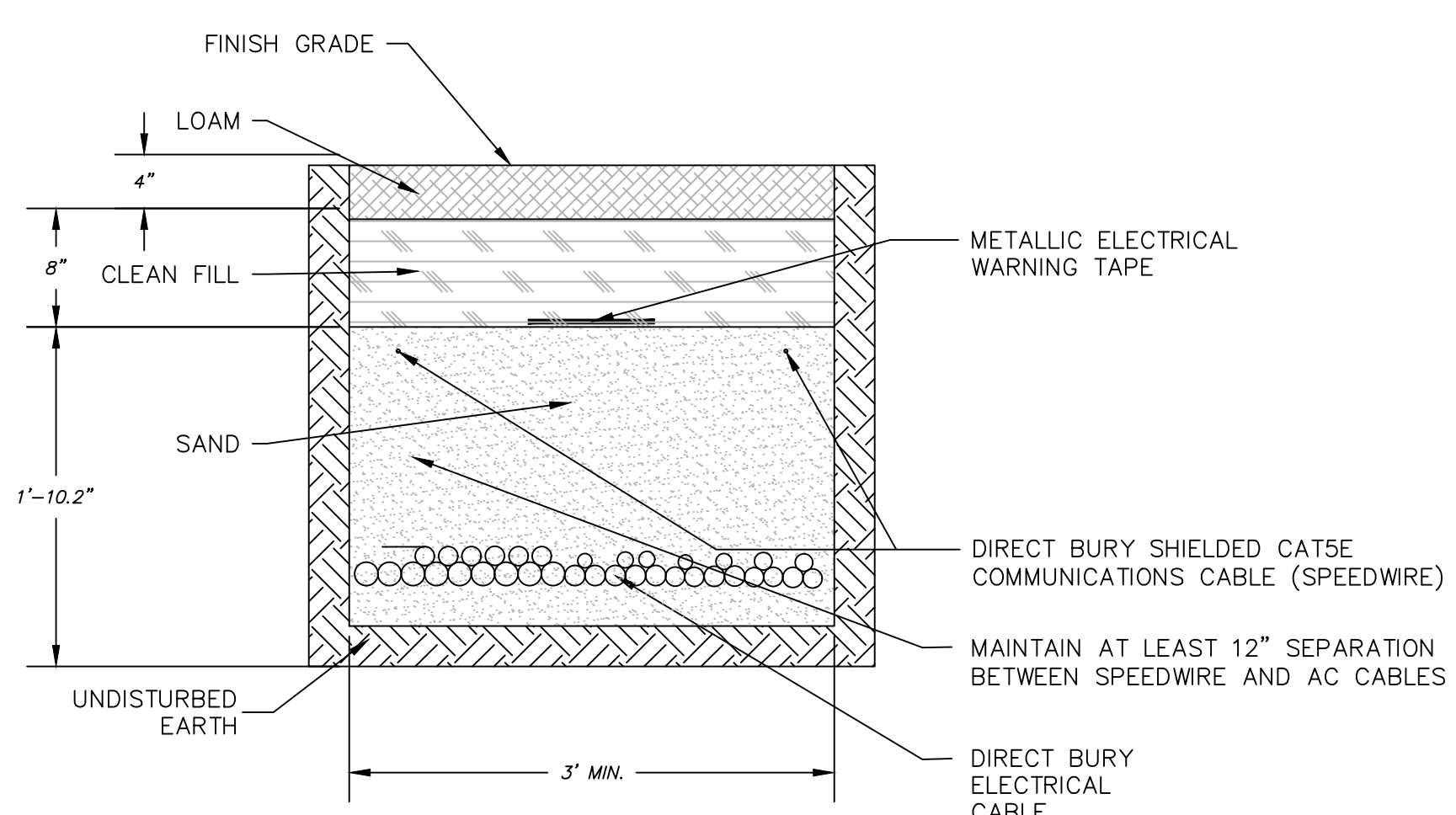
UNDERGROUND TO ABOVEGROUND CONDUIT TRANSITION

NOT TO SCALE



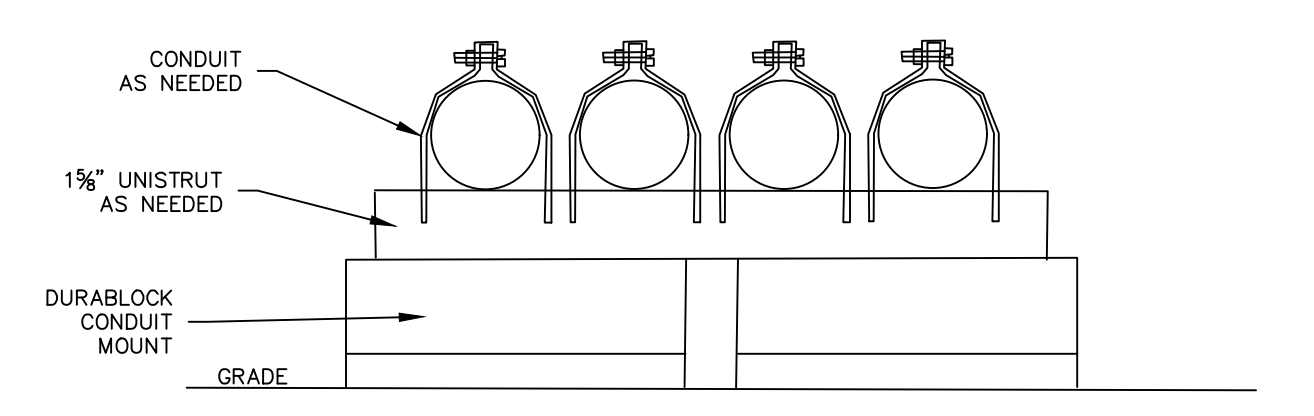
FENCE POST BALLAST SUPPORT DETAIL

NOT TO SCALE



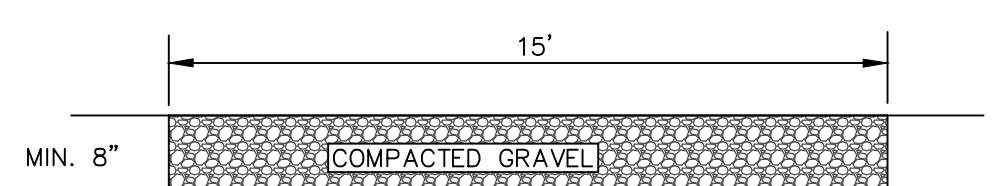
INVERTER POWER & COMMS CABLE TRENCH DETAIL (INV/C)

NOT TO SCALE



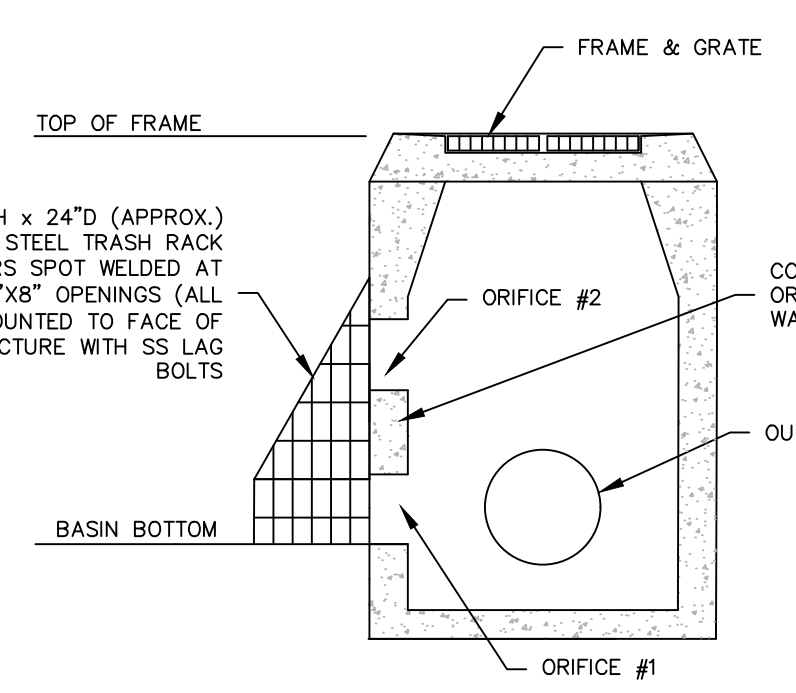
TYPICAL ABOVEGROUND CONDUIT SUPPORT

NOT TO SCALE

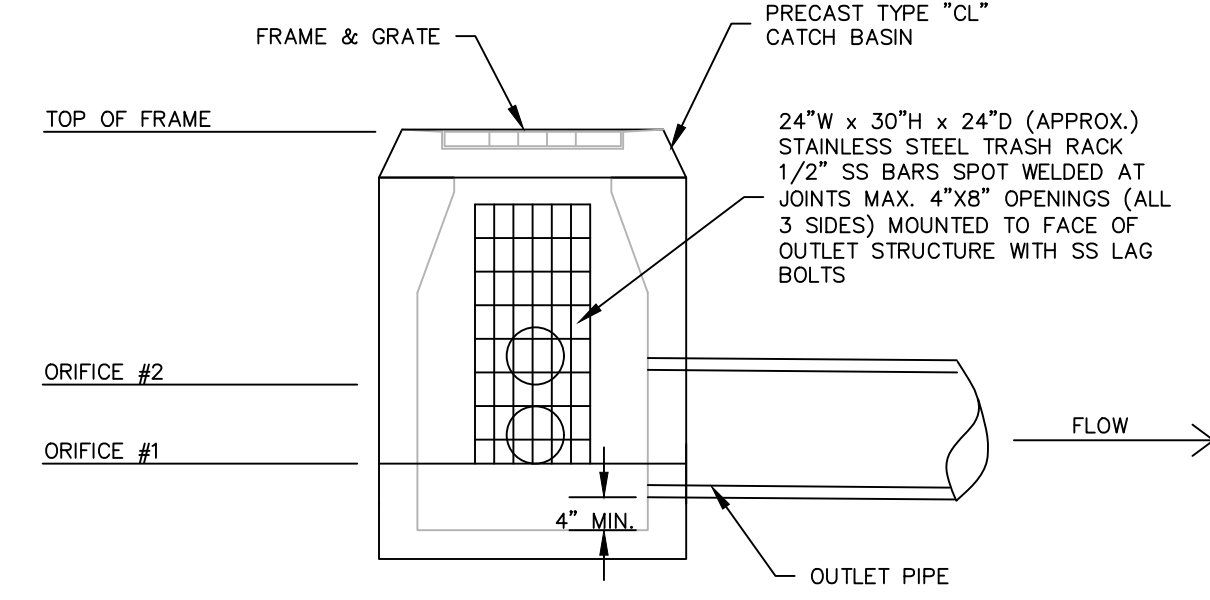


GRAVEL DRIVEWAY DETAIL

NOT TO SCALE



SIDE SECTION VIEW



FRONT VIEW

STRUCTURE TABLE

No.	TF	ORIFICE #1 SIZE FL	ORIFICE #2 SIZE FL	OUTLET PIPE SIZE FL
1	1427.25	6"	1425.10	12"
2	1418.50	4"	1415.10	10"
3	1428.70	8"	1431.20	15"

BASIN OUTLET STRUCTURE

NOT TO SCALE

REVISIONS

BY:	CHK:
CJC/TAC	JEU

Details

DATE
7-12-22
SCALE
As Shown
JOB NUMBER
2021-077
SHEET
8 of 8

APPENDIX B

NDDDB AND USFWS DETERMINATIONS



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To:
Project code: 2022-0063023
Project Name: Lodestar Energy - Norfolk Transfer Station

July 13, 2022

Subject: Consistency letter for the 'Lodestar Energy - Norfolk Transfer Station' project indicating that any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Dear Deborah Gustafson:

The U.S. Fish and Wildlife Service (Service) received on July 13, 2022 your effects determination for the 'Lodestar Energy - Norfolk Transfer Station' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. You indicated that no Federal agencies are involved in funding or authorizing this Action. This IPaC key assists users in determining whether a non-Federal action may cause “take”^[1] of the northern long-eared bat that is prohibited under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the Action is not likely to result in unauthorized take of the northern long-eared bat.

Please report to our office any changes to the information about the Action that you entered into IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation.

If your Action proceeds as described and no additional information about the Action’s effects on species protected under the ESA becomes available, no further coordination with the Service is required with respect to the northern long-eared bat.

The IPaC-assisted determination for the northern long-eared bat **does not** apply to the following ESA-protected species that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Candidate

You may coordinate with our Office to determine whether the Action may cause prohibited take of the animal species listed above.

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

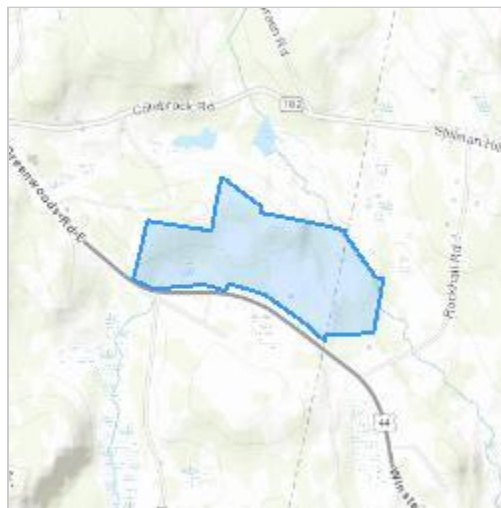
Lodestar Energy - Norfolk Transfer Station

2. Description

The following description was provided for the project 'Lodestar Energy - Norfolk Transfer Station':

Lodestar Energy is proposing a solar photovoltaic electric generating system at the Town of Norfolk ("Town") transfer station and material storage yard located north of Greenwood Road East in Norfolk, Connecticut ("Site"). We understand that the proposed solar facility will occupy three (3) separate areas of the Site, totaling approximately 17.8 acres ("Project Area").

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@41.98130155,-73.152045853922,14z>



Determination Key Result

This non-Federal Action may affect the northern long-eared bat; however, any take of this species that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o).

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on **May 15, 2017**. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for non-Federal actions is to assist determinations as to whether proposed actions are excepted from take prohibitions under the northern long-eared bat 4(d) rule.

If a non-Federal action may cause prohibited take of northern long-eared bats or other ESA-listed animal species, we recommend that you coordinate with the Service.

Determination Key Result

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

No

2. Will your activity purposefully **Take** northern long-eared bats?

No

3. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?

Automatically answered

No

4. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at www.fws.gov/media/nleb-roost-tree-and-hibernacula-state-specific-data-links-0.

Yes

5. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

No

6. Will the action involve Tree Removal?

Yes

7. Will the action only remove hazardous trees for the protection of human life or property?

No

8. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

No

9. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

7

2. If known, estimated acres of forest conversion from April 1 to October 31

7

3. If known, estimated acres of forest conversion from June 1 to July 31

7

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0

IPaC User Contact Information

Agency: All-Points Technology Corporation, P.C.
Name: Deborah Gustafson
Address: 567 Vauxhall Street Extension
Address Line 2: Suite 311
City: Waterford
State: CT
Zip: 06235
Email: dleonardo@allpointstech.com
Phone: 8609849514

October 18, 2021

Timothy A. Coon
J. R. Russo & Associates, LLC
PO Box 938
East Windsor, CT 06088
tcoon@jrrusso.com

NDDB DETERMINATION NUMBER: 202110495

Project: Site assessment/feasibility study; Installation of ground-mounted solar PV on capped landfill; NORFOLK TRANSFER STATION, 599 GREENWOODS ROAD EAST, NORFOLK, CT

Expiration: October 18, 2023

I have reviewed Natural Diversity Database (NDDB) maps and files regarding this project. According to our records, there are State-listed species (RCSA Sec. 26-306) that may be influenced by activities within the proposed project area.

Invertebrates

- **Lace-winged horse fly (*Haematopota rara*)- State Endangered**
- **Yellow-banded bumble bee (*Bombus terricola*)- State Threatened**

Bats

- **Hoary bat (*Lasiurus cinereus*)- State Special Concern**
- **Red bat (*Lasiurus borealis*)- State Special Concern**

Reptiles

- **Smooth green snake (*Opheodrys vernalis*)- State Special Concern**

Natural communities

- **Poor fen**

Species information and management recommendations are included below. Apply recommendations where appropriate or potential habitat exists.

Invertebrates

The state endangered **lace-winged horse fly** is found in Beckley Bog. This site is part of the watershed of Beckley Bog. Beckley Bog is a Poor Fen natural community. Poor fens are natural peatlands (bogs) occupying topographically defined basins; influenced by acidic ground water; on deep, poorly decomposed peats; dominated primarily by ericaceous shrubs. Poor fens are primarily threatened by inputs of salts, minerals, and nutrients in both stormwater runoff and groundwater.

- **Ensure that activities will not change water quality, turbidity, temperature, or chemistry of wetland complex.**

Yellow-banded bumble bee (*Bombus terricola*)- State Threatened

Habitat: Bumble bees are important pollinators of flowering plants and agricultural crops. The yellow-banded bumble bee is a generalist forager that gathers pollen and nectar from many different flowering plants. This bumble bee requires early successional habitats such as agricultural fields, grasslands, meadows and shrublands.

Threats: The Yellow-banded bumble bee has declined precipitously throughout most of its range in the U.S. since 1999. Threats to the yellow-banded bumble bee include transfer of pests and diseases from the commercial bumble bee industry, habitat destruction or alteration, pesticides, and loss of floral diversity due to invasive plant species.

The conversion of early successional habitats and adjacent shrubby edges to buildings, structures, turf and pavement equates to a loss of habitat for this species. Maintaining and enhancing early successional habitats in areas where this bumble bee occurs may aid in its conservation by providing quality foraging and nesting habitats. Additionally, limit use of broad-spectrum herbicides which can have a negative impact to the floral resources available, and manage invasive plant infestations to maximize floral diversity.

Bats

Hoary bat (*Lasiurus cinereus*)- State Special Concern

Hoary bats are found in Connecticut during the spring and summer seasons and migrate south to overwinter. They prefer to roost in large diameter coniferous and deciduous trees. They forage in openings and around water. This species may be at risk from wind development. Silver-haired, hoary, and red bats account for the majority of bat fatalities from wind turbines.

Red bat (*Lasiurus borealis*)- State Special Concern

Red bats are a migratory “tree bat” species that is found throughout Connecticut between April-October in a variety of forested habitats. They roost out in the foliage of deciduous and coniferous trees, camouflaged as dead leaves or cones. Red bats are primarily solitary roosters. They can be found roosting and feeding around forest edges and clearings. Typically, larger diameter trees (12-inch DBH and larger) are more valuable to these bats. Additionally, trees with loose, rough bark such as maples, hickories, and oaks are more desirable than other tree species due to the increased cover that the loose bark provides. Large trees with cavities are also utilized by this species.

Forested areas of Connecticut’s coastal towns may also serve as important migratory habitat for red bats. Numbers of bats utilizing these areas can increase dramatically as bats from other northeast locations pass through Connecticut during spring and autumn migration.

This species may be at risk from wind development. Silver-haired, hoary, and red bats account for the majority of bat fatalities from wind turbines.

- Do not remove trees between May 1- July 31 to avoid disturbing breeding bats.

The following activities will benefit bats:

- Preserve natural roosting resources (safety permitting) including snags, trees with cavities, cracks or crevices, trees with exfoliating bark (e.g. shagbark hickory), coniferous trees (e.g. tamarack, hemlock, white pine) as well as preserving talus slopes
- Identify and protect summer roosts in man-made structures, such as barns

- Provide artificial roost structures (i.e., bat houses) and promote their use in the surrounding community
- Minimize erosion and maintaining clean and open water resources free of siltation
- Protect native vegetation which promotes insect availability and diversity
- Avoid the use of pesticides that will affect their invertebrate food source
- Preserve open, edge of forest habitat corridors to allow bats to freely move among roosting, watering and foraging areas

Reptiles:

Smooth greensnakes favor moist, open habitats, such as old fields, meadows, pastures, fens, coastal grasslands, and edges of wetlands. Occasionally, this snake may inhabit sparsely forested areas with scattered shrubs and trees, such as mountaintop balds. Rural, undisturbed locations appear to be preferred, but smooth greensnakes have been found in urban and suburban areas as well. Greensnakes can be found basking on rocks, logs, or other debris. Smooth greensnakes are insectivores; they feed on a variety of insects and spiders. Preserving pastures and fields will benefit this species.

You are encouraged to report incidental observations to the Natural Diversity Database using the [appropriate survey form](#) . Field surveys should be conducted in order to evaluate potential habitat. Field surveys should be performed by a qualified biologist with the appropriate scientific collecting permits at a time when these target species are identifiable. A report summarizing the results of such surveys should include:

- Survey date(s) and duration
- Site descriptions and photographs
- List of component vascular plant and animal species within the survey area (including scientific binomials)
- Data regarding population numbers and/or area occupied by State-listed species
- Detailed maps of the area surveyed including the survey route and locations of State listed species
- Statement/résumé indicating the biologist's qualifications
- **Protection plan for state listed species that may occur on the property or be influenced by the project activities.**

General Site Design Recommendations:

If planned properly, you can increase the value of the habitat for wildlife and state listed species with your development.

- **Create a site management plan to promote native vegetation growth in the area under the solar panels.** Restoring native vegetation will attract pollinators and avoid the need for constant mowing. Reduced need for mowing will reduce the risk for reptiles and amphibians.
- Provide habitat for wildlife and allow for connectivity for wildlife movement. Use wildlife-friendly fencing to allow movement through the solar development.
- More specific management suggestions can be found here: <https://ag.umass.edu/clean-energy/services/pollinator-friendly-solar-pv-for-massachusetts>

Natural Diversity Database 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 Bureau of Natural Resources and cooperating units of DEEP, independent conservation groups, and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the NDDB should not be substituted 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 in the NDDB as it becomes available.

Please contact me if you have any questions (shannon.kearney@ct.gov). Thank you for consulting with the Natural Diversity Database and continuing to work with us to protect State-listed species.

Sincerely,

/s/ Shannon B. Kearney
Wildlife Biologist

APPENDIX C

DEEP AND DOA CORRESPONDENCE

August 9, 2022

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

cc: Carrie L. Ortolano
Associate General Counsel
Lodestar Energy
40 Tower Lane | Suite 201
Avon, CT 06001

RE: LSE Pyxis LLC
Proposed 4.0MW (AC)
599 Greenwoods Road East Road in Norfolk, Connecticut

Dear Ms. Bachman,

Carrie L. Ortolano, Associate General Counsel for Lodestar Energy on behalf of LSE Pyxis LLC (“Petitioner”) has contacted the Connecticut Department of Energy and Environmental Protection (“DEEP”) Bureau of Natural Resources and informed us of the intention to file a petition for a declaratory ruling with the Connecticut Siting Council. Petitioner proposes to construct a solar project with a capacity of two or more megawatts, to be located at 599 Greenwoods Road East Road Norfolk, Connecticut 06058 (“Site”).

Pursuant to Sec. 16-50k of the Connecticut General Statutes the DEEP Bureau of Natural Resources staff have reviewed documents submitted by Attorney Ortolano concerning this proposed project, which includes a site map dated July 2022, attached to written correspondence dated July 28, 2022 prepared by Lodestar Energy.

In conducting such review of the proposed project, DEEP Bureau of Natural Resources has determined that such proposed project, as represented in the above-mentioned documents **will not** materially affect the status of such Site as core forest.

Nothing in this letter relieves the Petitioner of other obligations under applicable federal, state, and local law that may be necessary as part of the proposed project design and implementation.

If you have any questions, you may contact me at 860-424-3060, or by mail at 79 Elm Street, Sixth Floor, Hartford, CT 06106-5127.

Connecticut is one of the most heavily forested states in America. Our forests clean our air and water, shelter our wildlife, sequester carbon, contribute tens of millions of dollars to our economy, and add immeasurably to the quality of our lives. Yet every day, our forests are under threat. Invasive insects

and diseases and our dense and growing human population continue to stress our forests in unprecedented ways. Thank you for helping us to conserve a healthy core forest for future generations, providing public transparency and working to make thoughtful development choices.

Sincerely,

A handwritten signature in cursive script that reads "Christopher P. Martin".

Christopher Martin, State Forester
Bureau of Natural Resources
Department of Energy and Environmental Protection

CC: Bryan P. Hurlburt, Connecticut Department of Agriculture

Holly Lalime, Connecticut Department of Agriculture

Jenny Dickson, Director of Wildlife, Bureau of Natural Resources, DEEP

DEEP.OPPD@ct.gov

siting.council@ct.gov

From: **Lalime, Holly** <Holly.Lalime@ct.gov>
Date: Wed, Aug 10, 2022 at 8:20 AM
Subject: 599 Greenwoods Road East Road, Norfolk Proposed Solar Facility
To: Carrie Ortolano <cortolano@lodestarenergy.com>
Cc: Smith, Jaime <Jaime.Smith@ct.gov>, Briggs, Carole <Carole.Briggs@ct.gov>

Dear Carrie,

I received your letter to the Department of Agriculture dated July 28, 2022 requesting written confirmation that a proposed 4-megawatt solar facility at 599 Greenwoods Road East Road, Norfolk will not materially affect the status of such land as prime farmland. I have reviewed the soil mapping for the proposed project area and it does not contain prime farmland soils. Therefore, a declaratory ruling is not required from our Department.

Kindly,
Holly

E: Holly.Lalime@ct.gov
C: (860)969-7053
Farmland Preservation Program
Connecticut Dept. of Agriculture
www.ctgrown.gov
www.ctfarmlink.org

CONFIDENTIALITY NOTICE: This e-mail message, including attachments, may contain information that is confidential, legally privileged, and/or exempt from disclosure under applicable law. It is intended only for the use of the individual(s) and entity(s) named as recipients in this message. If you are not an intended recipient of this message, please notify the sender immediately and delete this message. Any unauthorized review, use, disclosure, copy, or distribution is prohibited. If you receive this message in error, please do not disclose its contents or take action in reliance on the information it contains.



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LODESTAR ENERGY

Carrie Larson Ortolano

General Counsel

860.539.5137

cortolano@lodestarenergy.com

www.lodestarenergy.com

APPENDIX D

SHPO DETERMINATION

PROJECT REVIEW COVER FORM

This is: a new submittal supplemental information other Date Submitted: _____

PROJECT INFORMATION

Project Name: Norfolk Transfer Station

Project Proponent: Lodestar Energy LLC
The individual or group sponsoring, organizing, or proposing the project.

Project Street Address: 599 Greenwoods Road East
Include street number, street name, and or Route Number. If no street address exists give closest intersection.

City or Town: Norfolk County: Litchfield
Please use the municipality name and **not** the village or hamlet.

PROJECT DESCRIPTION

Describe the overall project in detail. As applicable, provide any information regarding past land use, project area size, renovation plans, demolitions, and/or new construction. Note if this will included in a separate attachment:

Development of ground mounted solar photovoltaic electric generating facility (see attached cover letter).

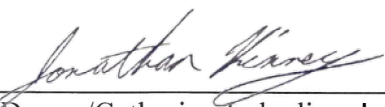
List all state and federal agencies involved in the project and indicate the funding, permit, license or approval program pertaining to the proposed project:

Agency Type	Agency Name	Program Name
<input checked="" type="checkbox"/> State <input type="checkbox"/> Federal	Connecticut Siting Council	
<input checked="" type="checkbox"/> State <input type="checkbox"/> Federal	CT DEEP	Stormwater
<input checked="" type="checkbox"/> State <input type="checkbox"/> Federal	CT DEEP	Solid Waste
<input type="checkbox"/> State <input type="checkbox"/> Federal		

If there is no state or federal agency involvement, please state the reason for your review request:

FOR SHPO USE ONLY

Based on the information submitted to our office for the above named property and project, it is the opinion of the Connecticut State Historic Preservation Office that no historic properties will be affected by the proposed activities.*


~~Mary Dunne/Catherine Labadia~~ Jonathan Kinney Date 10/27/21
Deputy State Historic Preservation Officer

*All other determinations of effect will result in a formal letter from this office

PROJECT REVIEW COVER FORM

CULTURAL RESOURCES IDENTIFICATION

Background research for previously identified historic properties within a project area may be undertaken at the SHPO's office. To schedule an appointment, please contact Catherine Labadia, 860-500-2329 or Catherine.labadia@ct.gov. Some applicants may find it advantageous to hire a qualified historic preservation professional to complete the identification and evaluation of historic properties.

Are there any historic properties listed on the State or National Register of Historic Places within the project area?

Yes No Do Not Know **If yes, please identify:** _____

Architecture

Are there any buildings, structures, or objects within the project area (houses, bridges, barns, walls, etc.)?

- Yes (attach clearly labelled photographs of each resource and applicable property cards from the municipality assessor)
- No (proceed to next section)

Are any of the buildings, structures or objects greater than 50 years old? Yes No Do Not Know

If the project involves rehabilitation, demolition, or alterations to existing buildings older than 50 years, provide a work plan (If window replacements are proposed, provide representative photographs of existing windows).

Archeology

Does the proposed project involve ground disturbing activities?

- Yes (provide below or attach a description of current and prior land use and disturbances. Attach an excerpt of the soil survey map for the project area. These can be created for free at: <https://websoilsurvey.nrcs.usda.gov>
Within currently disturbed material storage area.

No

CHECKLIST (Did you attach the following information?)

<p style="text-align: center;">Required for all Projects</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Completed Form <input checked="" type="checkbox"/> Map clearly labelled depicting project area <input checked="" type="checkbox"/> Photographs of current site conditions <input checked="" type="checkbox"/> Site or project plans for new construction 	<p style="text-align: center;">Required for Projects with architectural resources</p> <ul style="list-style-type: none"> <input type="checkbox"/> Work plans for rehabilitation or renovation <input type="checkbox"/> Assessor's Property Card <p style="text-align: center;">Required for Projects with ground disturbing activities</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Soil survey map
<p>Suggested Attachments, as needed</p> <ul style="list-style-type: none"> <input type="checkbox"/> Supporting documents needed to explain project <input type="checkbox"/> Supporting documents identifying historic properties <input type="checkbox"/> Historic maps or aerials (available at http://magic.lib.uconn.edu or https://www.historicaerials.com/) 	

PROJECT CONTACT

Name: Timothy A. Coon Firm/Agency: J.R. Russo & Associates, LLC

Address: P.O. Box 938

City: East Windsor State: CT Zip: 06088

Phone: 860-623-0569 Email: tcoon@jrrusso.com

Federal and state laws exist to ensure that agencies, or their designated applicants, consider the impacts of their projects on historic resources. At a minimum, submission of this completed form with its attachments constitutes a request for review by the Connecticut SHPO. The responsibility for preparing documentation, including the identification of historic properties and the assessment of potential effects resulting from the project, rests with the federal or state agency, or its designated applicant. The role of SHPO is to review, comment, and consult. SHPO's ability to complete a timely project review largely depends on the quality of the materials submitted. Please mail the completed form with all attachments to the attention of Environmental Review at the address above. Electronic submissions are not accepted at this time.