

Appendix C: Water Resources

WETLAND DELINEATION REPORT

Project Name: United Illuminating Pequonnock Substation Relocation
Site Location: 8 Ferry Access Road, Bridgeport, CT

Prepared For: United Illuminating
Contact: Shawn Crosbie, UIL Holdings Corporation, 180 Marsh Hill Road, Orange, CT 06477

F&O Project No: 20160766.A20

Project Description: The United Illuminating Company is proposing to re-locate and upgrade the Pequonnock Substation as part of its effort to provide flood protection for electrical substations located in coastal areas. The project area ("Site") shown on the attached Natural Resources Conservation Service (NRCS) Soils map includes both the existing location and proposed new location of the substation.

Date(s) of Investigation: May 23, 2017

Weather: 70°F, Overcast

Rainfall (last 24 hours): 0.61 inches

METHOD OF WETLAND/WATERCOURSE DELINEATION

Delineation: Connecticut Inland Wetlands & Watercourses (CGS 22a-36 to 22a-45)
 U.S. Army Corps of Engineers
 Tidal Wetlands

Flag Number Sequence: N/A

Field Plotted: Site sketch Aerial photograph GPS (sub-meter) located
 Site mapping:
Sheet No.: _____ Scale: _____ Contours: n/a ft.

METHOD OF UPLAND SOIL DELINEATION

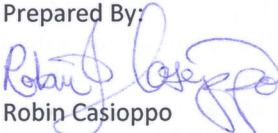
Field Delineated Field confirmed NRCS soil mapping

FIELD INVESTIGATION METHOD

Spade & Auger Deep test pit (backhoe) Other: _____

SOIL CONDITIONS

Dry Moist Wet Frozen (____ in.) Snow cover (____ in.)

Prepared By:

Robin Casioppo
Environmental Scientist

Reviewed By:

Joshua H. Wilson
Registered Soil Scientist

WETLAND DELINEATION REPORT

The Site was assessed in accordance with applicable local, state and federal statutes, regulations and guidance. Classification and mapping of soils on site were conducted in a manner consistent with the U.S. Department of Agriculture Soil Survey Manual (Soil Survey Staff, 1992).

REGULATORY CONTEXT

Inland wetlands and watercourses are regulated in the State of Connecticut by Connecticut General Statutes, Inland Wetlands and Watercourses Act, Chapter 440, sections 22a-36 to 22a-45. **Wetlands** are defined as "soil types designated as poorly drained, very poorly drained, alluvial, and floodplain by the National Cooperative Soils Survey." **Watercourses** are defined as "rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private." **Intermittent watercourses** are identified by "a defined permanent channel and bank and the occurrence of two or more of the following characteristics: (a) Evidence of scour or deposits of recent alluvium or detritus, (b) the presence of standing or flowing water for a duration longer than a particular storm incident, and (c) the presence of hydrophytic vegetation. "

Federal jurisdictional wetland boundaries are defined by 33 CFR 328-329. **Federal jurisdictional wetlands** are "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." The Site was evaluated for the presence of federal wetlands in accordance with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (Version 2.0, January 2012). Activities occurring within Inland Waters and Wetlands within the State of Connecticut are subject to approval by the US Army Corps of Engineers, New England District.

SUMMARY OF SOILS

Wetland Soils

Aquents: Poorly to very poorly drained soils formed in human transported material (HTM) or on excavated (cut) landscapes. No development to incipient B-horizon typical. Evidence of aquic moisture regime found where saturation results in redoximorphic features in upper 20 inches. There are no soils mapped or field identified as Aquents at the Site.

Upland Soils

Urban Land: Areas that consist mostly of sites for buildings, paved roads, and parking lots. The entire Site consists of Urban Land.

SUMMARY OF WATERCOURSES AND HYDROLOGY

No watercourses presently exist on the Site. Standing water was observed in the northeast corner of the parking lot on the north side of Ferry Access Road, where approximately four (4) inches of HTM is underlain by a restrictive layer (e.g. asphalt). The restrictive layer beneath the soil allows for water to remain perched for a period of time sufficient to support obligate wetland plant species growth; however, the dominant species observed were purple loosestrife (*Lythrum salicaria*) and narrow-leaved cattail (*Typha angustifolia*), which are both considered invasive in Connecticut. The soils in this area did not exhibit hydric indicators; therefore, this area is not classified as a wetland, according to Connecticut Inland Wetlands & Watercourses regulations.

WETLAND DELINEATION REPORT

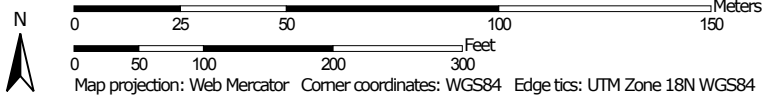
ATTACHMENTS

- NRCS Soils Map and Report

Soil Map—State of Connecticut
(United Illuminating Pequonnock Substation Relocation Project)



Map Scale: 1:1,780 if printed on A portrait (8.5" x 11") sheet.




Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

6/8/2017
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MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

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

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

Date(s) aerial images were photographed: Jun 27, 2014—Jul 22, 2014

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

Map Unit Legend

State of Connecticut (CT600)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
307	Urban land	7.5	99.9%
W	Water	0.0	0.1%
Totals for Area of Interest		7.5	100.0%

Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

State of Connecticut

307—Urban land

Map Unit Setting

National map unit symbol: 9lmh

Elevation: 0 to 2,000 feet

Mean annual precipitation: 43 to 56 inches

Mean annual air temperature: 45 to 55 degrees F

Frost-free period: 120 to 185 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Typical profile

H - 0 to 6 inches: material

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydrologic Soil Group: D

Hydric soil rating: Unranked

Minor Components

Udorthents, wet substratum

Percent of map unit: 10 percent

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Unnamed, undisturbed soils

Percent of map unit: 10 percent

Hydric soil rating: No

Data Source Information

Soil Survey Area: State of Connecticut

Survey Area Data: Version 15, Sep 28, 2016