KATE BRENNAN

From: Arron Kotlensky <akotlensky@edrdpc.com>
Sent: Friday, January 22, 2021 9:27 AM
To: Labadia, Catherine
Cc: Joe Dietrich; KATE BRENNAN
Subject: EXTERNAL:Milvon-West River Project Notification submission (New Haven County--Cities of Milford, West Haven, and New Haven, and Town of Orange)
Attachments: ProjectNotificationForm_Milvon_West_River_Rebuild_01-20-2021.pdf; 2021-01-22 _Milvon-West River Rebuild_Cultural Resources Assessment Memorandum_revised.pdf; Milvon-West River WSS_Soil_Report.pdf; 20230 Attachment SHPO Review 1-Mile_Attachment A.pdf; 20230 CT SHPO_Attachment B - Photolog.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Good morning Cathy. Thank you for accepting the attached project notification form for the Milvon-West River project via email and we will follow up with a hard copy submission in the coming week. The applicable supporting documents are attached here, including a memo providing detail on the proposed project, historical background context, recent and historic mapping, photolog, and USDA soils survey report for the project APE. The 30-percent project plans file exceeds 20 MB in size, so please follow the link below for the file and please let me know if you encounter any issues downloading it.

Thirty-percent design plans: https://cloud.westwoodps.com/owncloud/index.php/s/qC5stA1sntRJymD

On behalf of the project proponent, I appreciate your time in reviewing and commenting on this submission. Please don't hesitate to contact me if you should have any questions.

Best regards,

-Arron Kotlensky

T. Arron Kotlensky, RPA
Senior Archaeologist

Environmental Design & Research,
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memorandum

January 22, 2020

Catherine Labadia
Deputy State Historic Preservation Officer/Staff Archaeologist
Connecticut State Historic Preservation Office
450 Columbus Boulevard, Suite 5
Hartford, CT 06103

RE: Milvon-West River Railroad Transmission Line 115-kV Rebuild Project
EDR Project No. 20230
Cultural Resources Assessment Memorandum

Dear Ms. Labadia:

On behalf of The United Illuminating Company (UI; the Project Proponent), Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR) has prepared a Consultation Request and supporting attachments for the proposed Milvon-West River Railroad Transmission Line 115-kV Rebuild Project (the Project), located in portions of the Town of Orange, and the Cities of Milford, West Haven, and New Haven, New Haven County, Connecticut (Attachment A: Maps and Attachment B: Photolog). The information provided in this Consultation Request was prepared in support of an environmental review being conducted in accordance with the Connecticut Siting Council (CSC), as well as those reviews of other federal and state agencies, including the U.S. Army Corps of Engineers and Connecticut Department of Energy and Environmental Protection (DEEP). A Project Review Cover Form is included with this submission (Attachment C).

The Project information and findings described here are provided to the Connecticut State Historic Preservation Office (CT SHPO) for review and comment with respect to potential effects the Project may have on identified and potential cultural resources that are listed in or may be eligible for listing in State/National Register of Historic Places (S/NRHP).

Project Background and Description

The Project involves the rebuild of two existing single-circuit 115-kilovolt (kV) overhead lines that extend southwest-northeast within the Connecticut DOT (CT DOT) - Metro-North Railroad (MNR)/Amtrak Railroad corridor between the Milvon Substation (located in the City of Milford) and the West River Substation (located in the City of New Haven), all within New Haven County, Connecticut (Project Area). The existing 115-kV lines between Milvon and West River substations, which encompass approximately 9.5 miles per line, traverse portions of southern Milford, the Town of

Orange, City of West Haven, and City of New Haven. The lines also connect to the Woodmont Substation, located adjacent to the railroad corridor in the City of Milford, and to the Allings Crossing and Elmwest substations, situated adjacent to the railroad corridor in the City of West Haven.

Currently, the Milvon-West River 115-kV lines are located within the existing railroad corridor, on top of catenary structures that span the MNR and Amtrak rail lines. Photographs of the Project are provided in Attachment B: Photolog. These lattice-type catenary structures, which are owned by CT DOT and operated by MNR, were initially built between 1912 and 1914 to support signal and feeder wires for the operation of electrified freight and passenger trains for the former New York, New Haven, & Hartford Railroad. Recent engineering analyses, commissioned by the Project Proponent, of the existing 115-kV lines along the MNR corridor between Milvon and West River substations determined that in order to maintain the reliability of the bulk transmission grid, the transmission support structures need to be upgraded to meet current electrical codes and to withstand extreme weather conditions such as hurricanes.

Based on these engineering analyses, the Project Proponent proposes to rebuild the 115-kV lines on double-circuit monopoles, located parallel to and mostly along the north side of the railroad corridor, on public and private property. The primary components of the Project will include:

- Rebuild the two 115-kV lines in a double-circuit configuration, supported on galvanized steel monopole structures, between Milvon and West River substations within a construction corridor that spans 64 feet in width. The new monopoles will be offset from the catenary structures based on the railroad corridor width and clearance requirements specified by CT DOT/MNR and electrical standards. This offset will vary based on location, but typically is expected to be 25 feet. The centerline of the new monopoles will be approximately 15 feet from the edge of the ROW (i.e., the edge of the CT DOT ROW, where space is available within that ROW, or from the edge of the new easement (to be acquired).
- The new structure heights will vary by location. Based on current design information, the proposed pole heights, by segment, are:
    - Milvon to Woodmont: 80-140 feet. The tallest poles (125-140 feet) will be between the Milford Train Station and the Milford Cemetery. Structures adjacent to the US Route 1 crossing and the Indian River crossing will be approximately 120 feet tall. Along the remainder of the segment, structure heights will be 80-100 feet.
    - Woodmont to Allings Crossing: 75-115 feet.
    - Allings Crossing to Elmwest: 65-160 feet. The tallest poles (>120 feet) will be near the West Haven Train Station. The proposed parking garage between P1017N and P1018N requires the tallest poles of the Project (150 and 160 feet).
    - Elmwest to West River: 65-130 feet. The tallest poles (greater than 120 feet) are between 1st Avenue and the I-95 crossing, as required to span the MNR underbuild and road overpasses.
- Modify existing 115-kV connections, based on the configuration of the rebuilt 115-kV lines, to the Milvon and West River substations and to four other existing substations located adjacent to the railroad corridor (Woodmont, Allings Crossing, Elmwest, and West River) between Milvon and West River substations.
- Remove or modify certain steel monopoles that were installed as part of previous transmission upgrade projects completed between the 1940s and 1980s. Originally constructed at 69 kV in the 1940s, the lines were

upgraded to 115 kV in the 1960s. In the 1980s, UI re-conductored the 115-kV lines and since that time, UI has completed various modifications to the lines and to the catenary structures themselves. Over the past 20 years, to maintain conformance with national electric reliability codes, at certain locations (e.g., near Milvon and Allings Crossing substations, West Haven Train Station), UI removed small segments of the 115-kV lines from specific catenary structures and reinstalled the line on separate monopoles within the railroad corridor.

- Decommission and remove the existing 115-kV facilities on the railroad catenary structures (the bonnets may remain in place if CT DOT accepts ownership of them).
- The proponent does not propose to remove or alter any other freestanding buildings or structures apart from those discussed herein for the Project.

Project Historical Context

To prepare a brief summary of the historical context of the Project, EDR consulted secondary and historic map sources that include the *History of New Haven County, Connecticut*, Vol. I (Rockey, 1892a), the *History of New Haven County, Connecticut*, Vol. II (Rockey, 1892b), and the *History of New Haven County, Connecticut* Vol. I (Mitchell, 1930). Historic maps reviewed include the 1856 *Map of New Haven County, Connecticut* (H. & C.T. Smith, 1856), the 1893 *Town and City Atlas of the State of Connecticut* (D.H. Hurd & Co., 1893a, 1893b, 1893c, 1893d), and the 1920 *Bridgeport, CT* (USGS, 1920), the 1921 *New Haven, CT* (USGS, 1921), the 1951 *Milford, CT* (USGS, 1951), the 1953 *Ansonia, CT* (USGS, 1953), and the 1954 *New Haven, CT* (USGS, 1954) USGS topographic quadrangles.

New Haven County, formed in May 1666, was one of the four original counties in the Connecticut Colony and included the early Towns of Branford, Guilford, New Haven, and Milford (Rockey, 1892a). Throughout the following centuries, much of the county was occupied by small farms. New Haven County exported flax seed, wheat, rye, maize corn, and livestock to the Eastern Seaboard and as far as the French and English West Indies (Mitchell, 1930). As trade increased, shipping warehouses for agricultural goods and other products were constructed near the New Haven Harbor. By the early twentieth century, the amount of cultivated agricultural land sharply declined from 126,446 acres in 1900 to 75,880 acres in 1920. Urbanization and population growth paralleled the rise in manufacturing in New Haven County, with 48,582 residents in 1840 and 460,984 residents by 1930 (Mitchell, 1930).

Early local roads followed existing trails and natural clearings, while ferries and ships navigated along the rivers and coast. In the 1790s, New Haven County had approximately eight turnpikes; most notably, the Hartford & New Haven Turnpike that extended for 34.5 miles. Toll roads and plank roads were widely opposed by residents. By the late nineteenth-century, rail lines traversed the county; the New Haven & Hartford, the Housatonic, the New Haven-Northampton, the New Haven-New York, the New Haven-New London, the Waterbury-Hartford, and the New Haven & Derby railroads and subsequent branches connected the townships to neighboring counties and states (Mitchell, 1930). During this period, street railways were established along primary roads and transported workers to and from the factories. These electric street lines were later consolidated in 1902 by the Fair Haven Electric Road. Throughout the early-twentieth-century, street lines expanded, and interurban lines extended to nearby states (Mitchell, 1930).

The Town of New Haven was founded in 1637 by a group of Puritans. Its original name, Quinnipac, referred to the Native Americans who formerly lived in the area; shortly after, the settlement was renamed New Haven in 1640

(Rockey, 1892a). The City of New Haven, incorporated in 1784, was among the earliest incorporated cities in the United States. The New Haven Harbor was integral to both the city's and the county's mercantile- and manufacturing-based economies. By the end of the nineteenth-century, New Haven supported more than seven hundred manufacturing businesses, including carriage, gun, piano, corset, clock, and paper box factories. The city quickly developed into an urban, regional economic center, with 6,967 residents in 1810 and 86,045 residents by 1890 (Rockey, 1892a).

The Town of Milford was founded in 1639 by Peter Prudden and later granted a patent on May 25, 1685. It was originally named Wepawaug for the nearby Wepawaug River, but the town was renamed Milford the following year (Rockey, 1892a, 1892b). Despite additional land purchases in the seventeenth- and eighteenth centuries, the town's boundaries were later reduced to accommodate the formation of the Towns of Woodbridge and Orange in 1784 and 1822, respectively. Although Milford did not feature a prominent commercial center like the City of New Haven, it did support the manufacture of carriages, shoes, paper boxes, and straw goods. Milford's coastal setting promoted shipbuilding, fisheries, and beach resorts (Rockey, 1892b). The predominantly rural town featured limited population growth throughout the nineteenth century, with 2,674 residents in 1810 and 3,811 residents in 1890 (Rockey, 1892a). Following the development of major thoroughfares and suburbanization, the Town of Milford was incorporated as a City in 1959.

The Town of Orange was formed on May 28, 1822 and named in honor of William, Prince of Orange (Rockey, 1892b). The town was originally settled by farmers from New Haven and Milford, who referred to the area as "West Farms" and "North Farms" (also "Bryan's Farms"), respectively. By 1822, North Farms became North Milford and West Farms became West Haven, and both constituted the Town of Orange (Rockey, 1892a). Although primarily agricultural, the town's economy was bolstered by beach resorts along the Long Island Sound as well as silver, copper, and other mineral mining enterprises (Rockey, 1892b). The rural town featured limited population growth throughout the nineteenth century, with 1,341 residents in 1820 and 4,537 residents in 1890 (Rockey, 1892a).

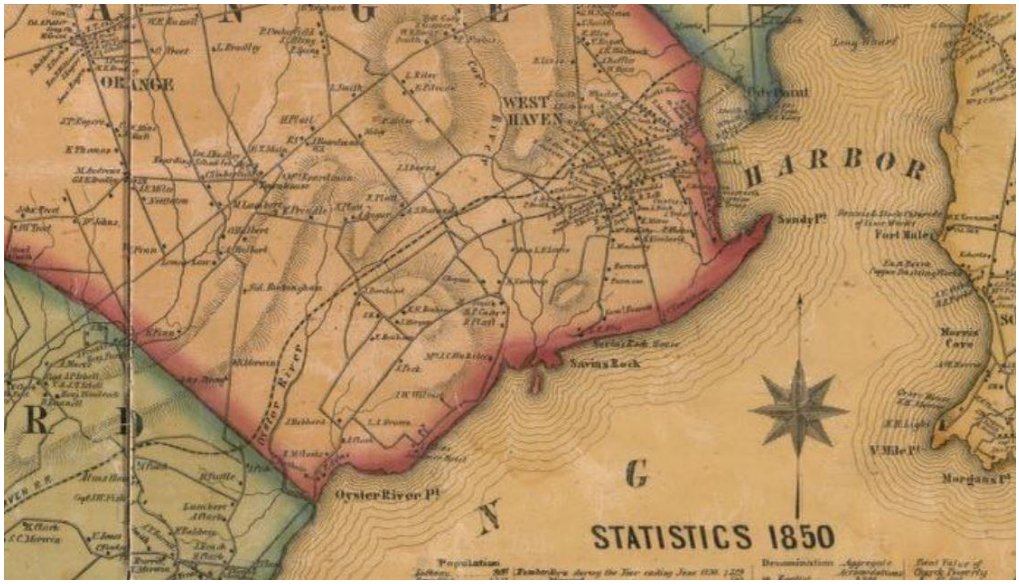
West Haven, originally the settlement of West Farms, was a village in the Town of Orange. It was incorporated as a Borough of the Town of Orange in 1873. By the mid-nineteenth-century, West Haven became increasingly developed and served as a manufacturing hub for carriages, buckles, musical instruments, and rubber (Rockey, 1892b; West Haven Historical Society, 2020). Beach resorts and the Savin Rock Amusement Park bolstered the town's seasonal economy. West Haven is widely recognized for its prolific shipbuilding industry, from the colonial era through World War II. West Haven was established as a Town in 1921, and later incorporated as a City in 1959 (West Haven Historical Society, 2020).

Historic Map Review

Historic maps depict nineteenth- and twentieth-century settlement and development within the proposed Project Area. Maps reviewed for the Project Area include the 1856 H. & C.T. Smith *Map of New Haven County, Connecticut*, the 1893 D.H. Hurd & Co. *Town and City Atlas of the State of Connecticut*, the 1920 *Bridgeport, CT* and 1921 *New Haven, CT* USGS topographic quadrangles, and the 1951 *Milford, CT*, 1953 *Ansonia, CT*, and 1954 *New Haven, CT* USGS topographic quadrangle maps.

1856 H. & C.T. Smith *Map of New Haven County, Connecticut*

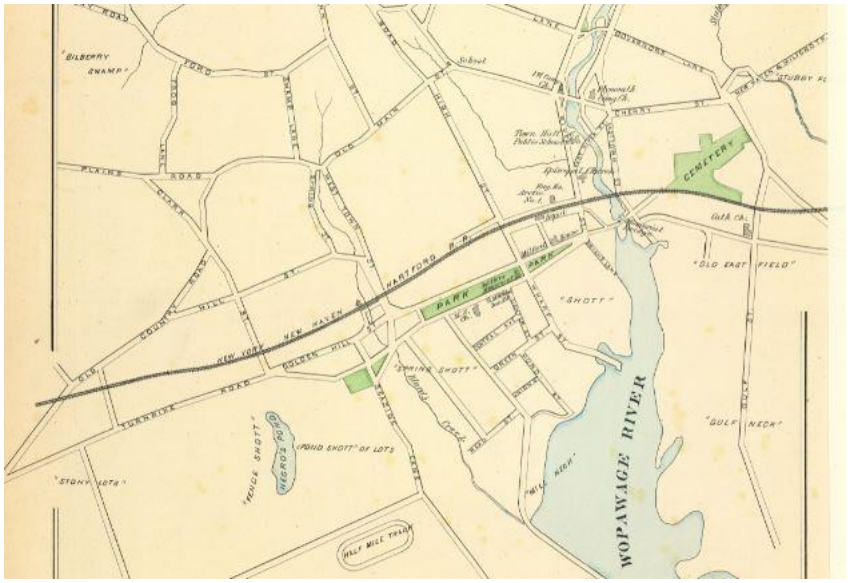
The H. & C.T. Smith *Map of New Haven County, Connecticut* shows the intensive agriculture use of land in the mid-nineteenth century in the vicinity of the Project (see inset). Most towns in New Haven County are traversed by roads that connect scattered farmsteads, which are depicted with the property owners' names. By 1856, the Towns of Milford and Orange, and the City of New Haven were well-established municipalities; however, West Haven remained a Borough of the Town of Orange. The City of New Haven is the most developed in the county; the central and eastern parts of the city feature a dense, grid pattern that extends to the New Haven Harbor. The New York, New Haven & Hartford Railroad runs southwest to northeast, connecting Milford to New Haven along what is now the Amtrak line.



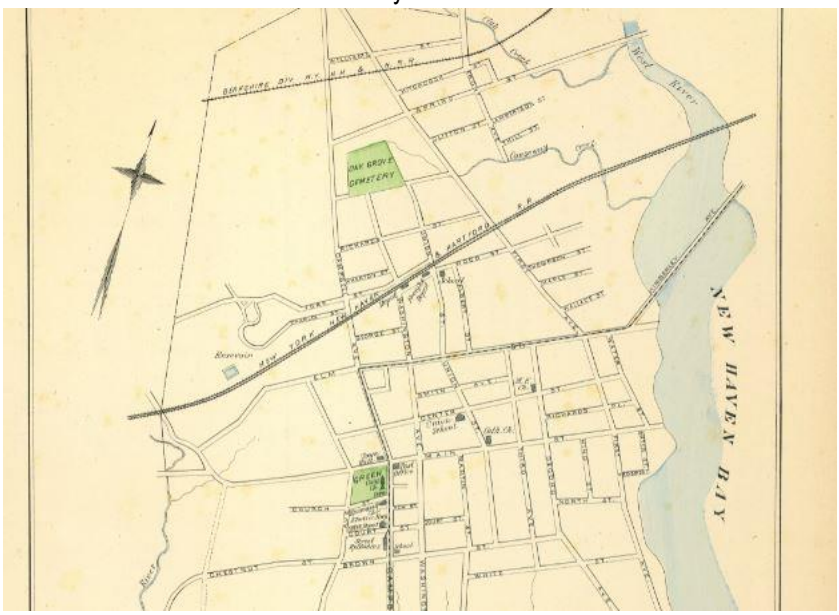
Inset: Detail from H. & C.T. Smith *Map of New Haven County, Connecticut* (1856) depicting vicinity of the Project.

1893 D.H. Hurd & Co. *Town and City Atlas of the State of Connecticut*

The "Milford," "Borough of West Haven, Town of Orange, County of New Haven," and "South Part of City of New Haven" maps in the *Town and City Atlas of the State of Connecticut* were also reviewed (see insets below). These maps depict the names of roads, branch rail lines, parks, churches, and other amenities. Incorporated as a city in 1784, the City of New Haven is more clearly distinguished by the extension of dense, grid patterned development. Both the Towns of Milford and Orange remain predominantly rural, with most of the most noticeable development along the shore of the Long Island Sound. The Borough of West Haven shows significant new development inland as well as coastal improvements in the form of beach houses, a restaurant, and a "surf house."



Inset: Detail from D.H. Hurd & Co. *Town and City Atlas of the State of Connecticut* (1893) depicting the Project within the City of Milford.

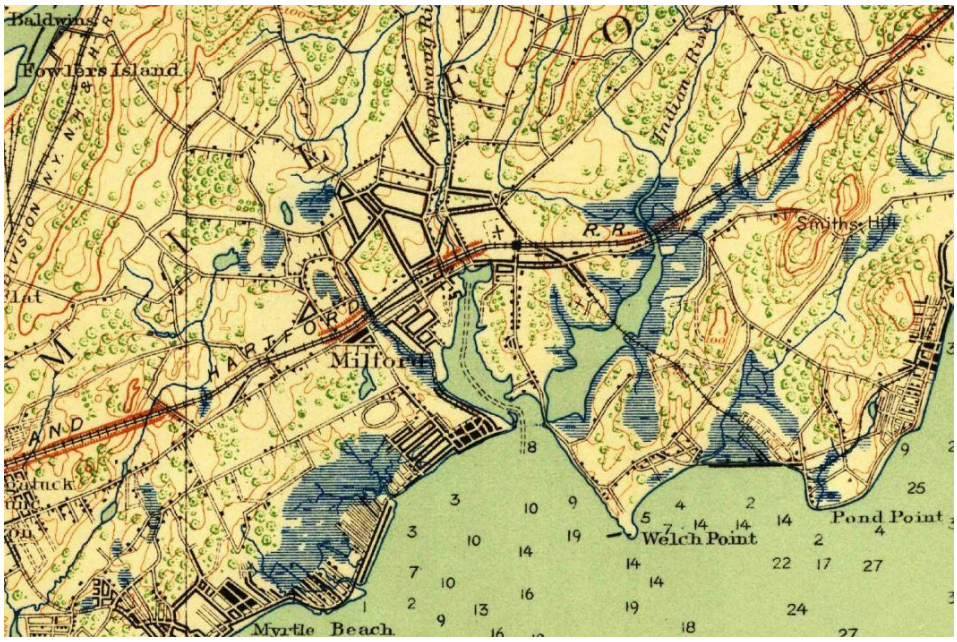


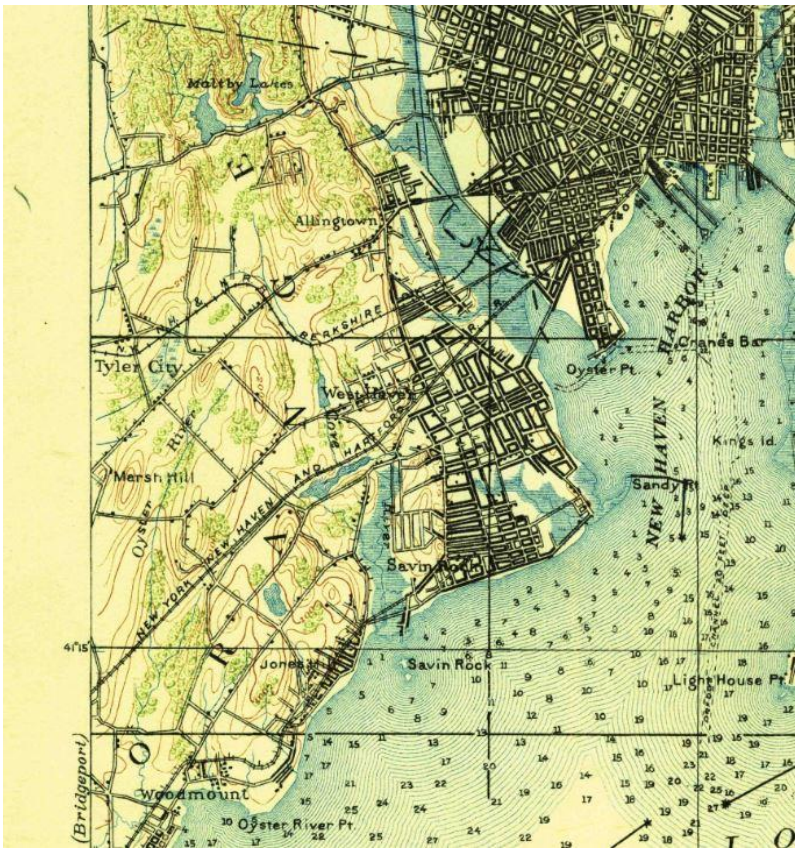
Inset: Detail from D.H. Hurd & Co. *Town and City Atlas of the State of Connecticut* (1893) depicting the Project within the City of West Haven.

Inset: Detail from D.H. Hurd & Co. *Town and City Atlas of the State of Connecticut* (1893) depicting the Project within the City of New Haven.

1920 *Bridgeport, CT* and 1921 *New Haven, CT* USGS Topographic Quadrangles

Early USGS topographic quadrangles encompassing the Project Area depict moderate change in the pattern of land use in the Towns of Milford and Orange. The Borough of West Haven is established as a Town in 1921, independent of the Town of Orange. Further development is primarily located along the route of the New York, New Haven & Hartford Railroad and the Long Island Sound shoreline.

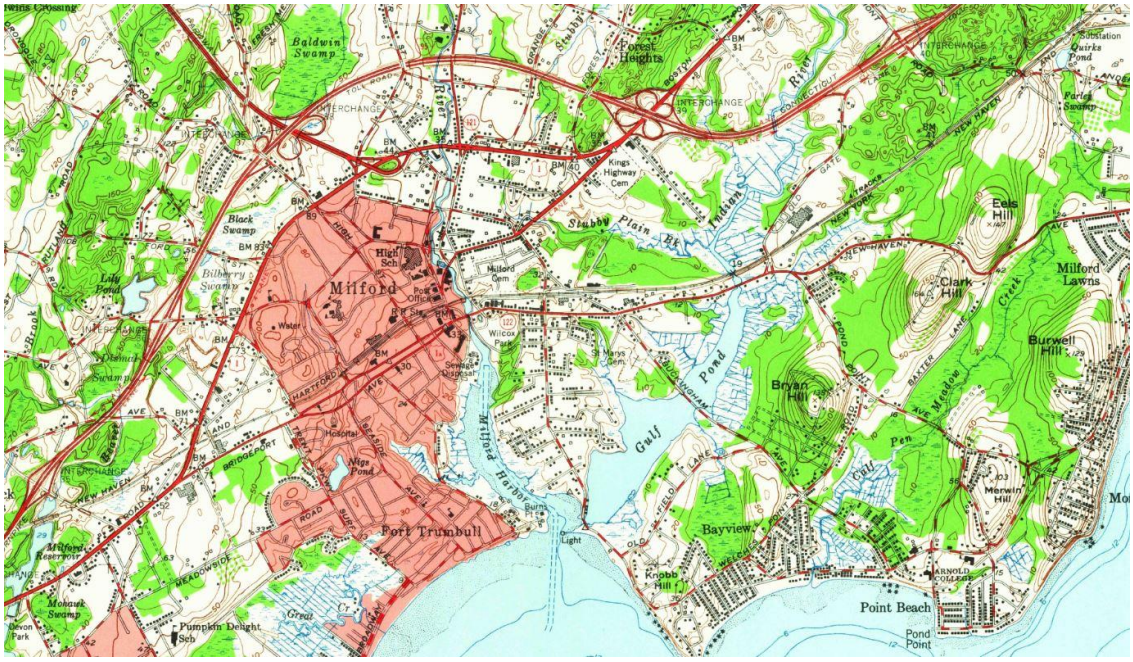


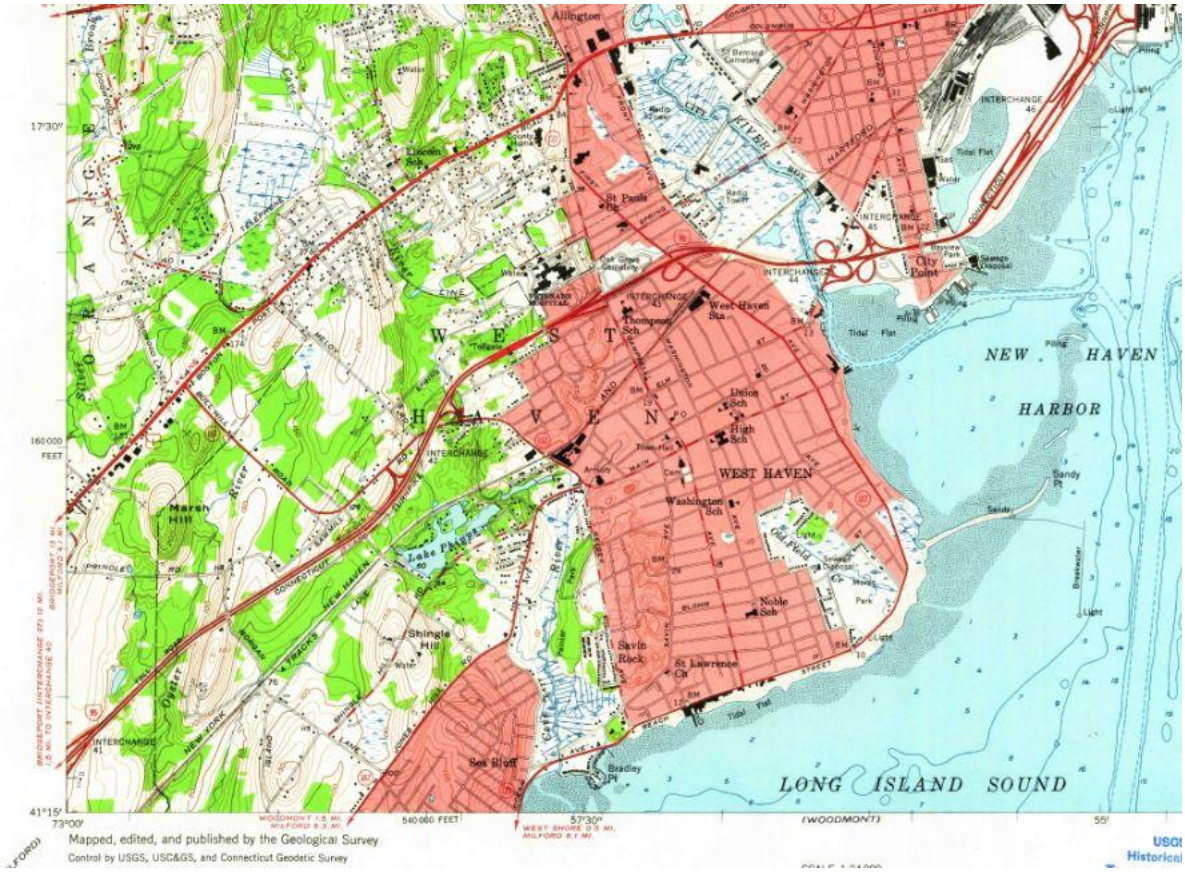


Insets: Details from the *Bridgeport, CT* (1920) (above) and *New Haven, CT* (1921) (below) USGS topographic quadrangles depicting the vicinity of the Project.

1951 *Milford, CT* and 1954 *New Haven, CT* USGS Topographic Quadrangles

USGS topographic quadrangle maps dating from the mid-twentieth century illustrate a rapid shift from rural to suburban land development near urban areas in southern Connecticut following World War II. New vehicular transportation routes in the vicinity of the Project Area included the Milford Parkway, Connecticut Turnpike, US Route 1A/1, and State Route 122. Most existing roads were improved to medium- and light-duty secondary roadways. The City of New Haven illustrates continued growth, particularly along the New Haven Harbor and the New York, New Haven & Hartford Railroad corridor that encompasses the Project Area. The Town of West Haven features extensive suburban communities and additional urban development. Both Milford and West Haven later incorporated as cities in 1959.





Insets (pages 9 and 10): Details from the *Milford, CT* (1951) (above) and *New Haven, CT* (1954) (below) USGS topographic quadrangles depicting the vicinity of the Project.

Previous Ground Disturbance

The Project Area has been intensively developed since the early twentieth century, primarily for the existing railroad corridor and adjoining roadways, as well as residential, commercial, industrial, and institutional developments, likely disturbing the integrity of earlier Native American and historic-period archaeological sites and/or concealing them under fill deposits.

Previously Recorded Archaeological Sites and Previously Conducted Archaeological Investigations

According to site file information provided by the CT SHPO, there are no pre-contact, Native American or historic-period archaeological sites mapped within the Project Area but two archaeological sites are mapped within 500 feet of the Project Area: Site 107-015 (located 115 feet northwest of the Project) and Site 107-016 (located 325 feet northwest of the Project), both in the Town of Orange. An additional 25 archaeological sites are mapped within one-mile of the Project.

Site 107-15 is a Native American archaeological site, dated to the Archaic Period (based on the presence of a Lamoka-like projectile point) and Site 107-16 is an undated Native American archaeological site comprised of a quartz drill and charred wood matter. The S/NRHP listing eligibility of both sites is not recorded in their site forms.

Although it is not listed as an archaeological site, the Milford Cemetery includes several marked burials dating from the eighteenth century situated along the cemetery margin that abuts the Project Area (Attachment A: Maps and Attachment B: Photographs 6-8). This linear area is of high archaeological sensitivity for buried human remains and associated funerary features.

Information on previous archaeological investigations conducted within or intersecting the Project Area is pending from the CT SHPO.

National Register-Listed Historic Resources

As reported by the CT SHPO, the Project Area does not intersect or encompass any S/NRHP-listed historic resources. However, four National Register-listed historic resources are mapped within 500 feet of the Project Area, located in the City of Milford: River Park Historic District, U.S. Post Office-Milford Main, St. Peter's Episcopal Church, and the Taylor Memorial Library. An additional 14 S/NRHP-listed historic resources are mapped within one-mile of the Project Area.

Conclusions

The proposed Milvon-West River Railroad Transmission Line 115-kV Rebuild Project is in a rail line corridor of considerable prior ground disturbance, and no previously recorded archaeological sites or National Register-listed historic resources are mapped within the Project Area. Based on the development history of the vicinity of the Project, the extent of previous ground disturbance is significant and within the general areas of proposed new disturbance. Therefore, in the opinion of EDR, there is very little likelihood for archaeological resources to be located within the limits of disturbance of the proposed Project, and no additional archaeological investigation is recommended. The Project Proponent acknowledges the cultural and archaeological sensitivity of the Milford Cemetery in the City of Milford and will prepare work plans designed to exclude potential impacts to marked or unmarked burials within the cemetery. The Project Proponent expects to submit the draft work plan as an amendment to this submission to the CT SHPO for review and comment.

We appreciate your consideration of this submittal. If you have any questions or require additional information, please contact me at akotlensky@edrdpc.com or (412) 334-2128 or Douglas Pippin at dpippin@edrdpc.com or (585) 752-6147.

Sincerely,

T. Arron Kotlensky, RPA
Senior Archaeologist
Environmental Design and Research, D.P.C

Attachments:

- Attachment A: Project Mapping
- Attachment B: Photolog
- Attachment C: Project Review Cover Form

Copies To: Ryan Jendrasiak, Weston Solutions
Pat Heaton and Doug Pippin, EDR

References:

D.H. Hurd & Co. 1893a. Borough of West Haven, Town of Orange, County of New Haven. In *Town and City Atlas of the State of Connecticut*. D.H. Hurd & Co., Boston, MA. David Rumsey Historical Map Collection. Available at https://www.davidrumsey.com/. (Accessed November 2020).

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USGS. 1951. *Milford, CT*. 1960 ed. Topographic Quadrangle, Scale 1:24,000. United States Department of the Interior, Geological Survey, Washington, D.C.

USGS. 1953. *Ansonia, CT*. 1960 ed. Topographic Quadrangle, Scale 1:24,000. United States Department of the Interior, Geological Survey, Washington, D.C.

USGS. 1954. *New Haven, CT*. 1960 ed. Topographic Quadrangle, Scale 1:24,000. United States Department of the Interior, Geological Survey, Washington, D.C.

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Milvon-West River Rebuild

City of Milford, Town of Orange, City of West Haven and City of New Haven
New Haven County, Connecticut

Attachment A: Mapping Connecticut SHPO 1-Mile Review Area

Sheet 1 of 4

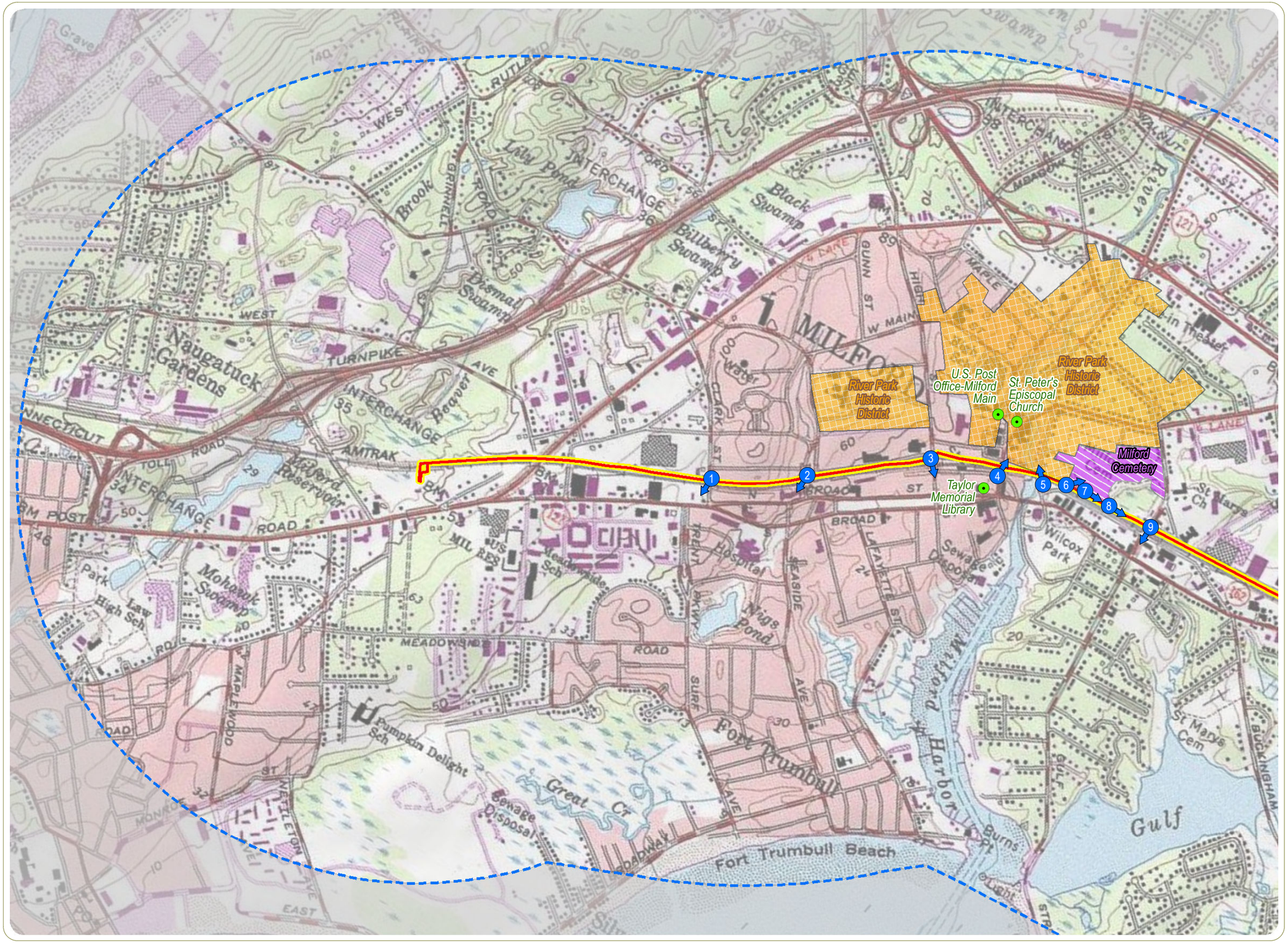
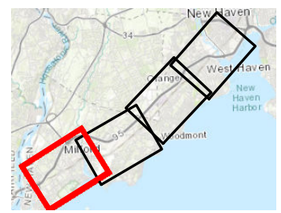


Photo Locations and Angles
NR-Listed Historic Properties
Cemetery
NR-Listed Historic District
Project Centerline
Construction Corridor
1-Mile Buffer of Project Centerline



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Notes: 1. Basemap: ESRI ArcGIS Online "USA Topo Maps" map service. **2.** This map was generated in ArcMap on January 13, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

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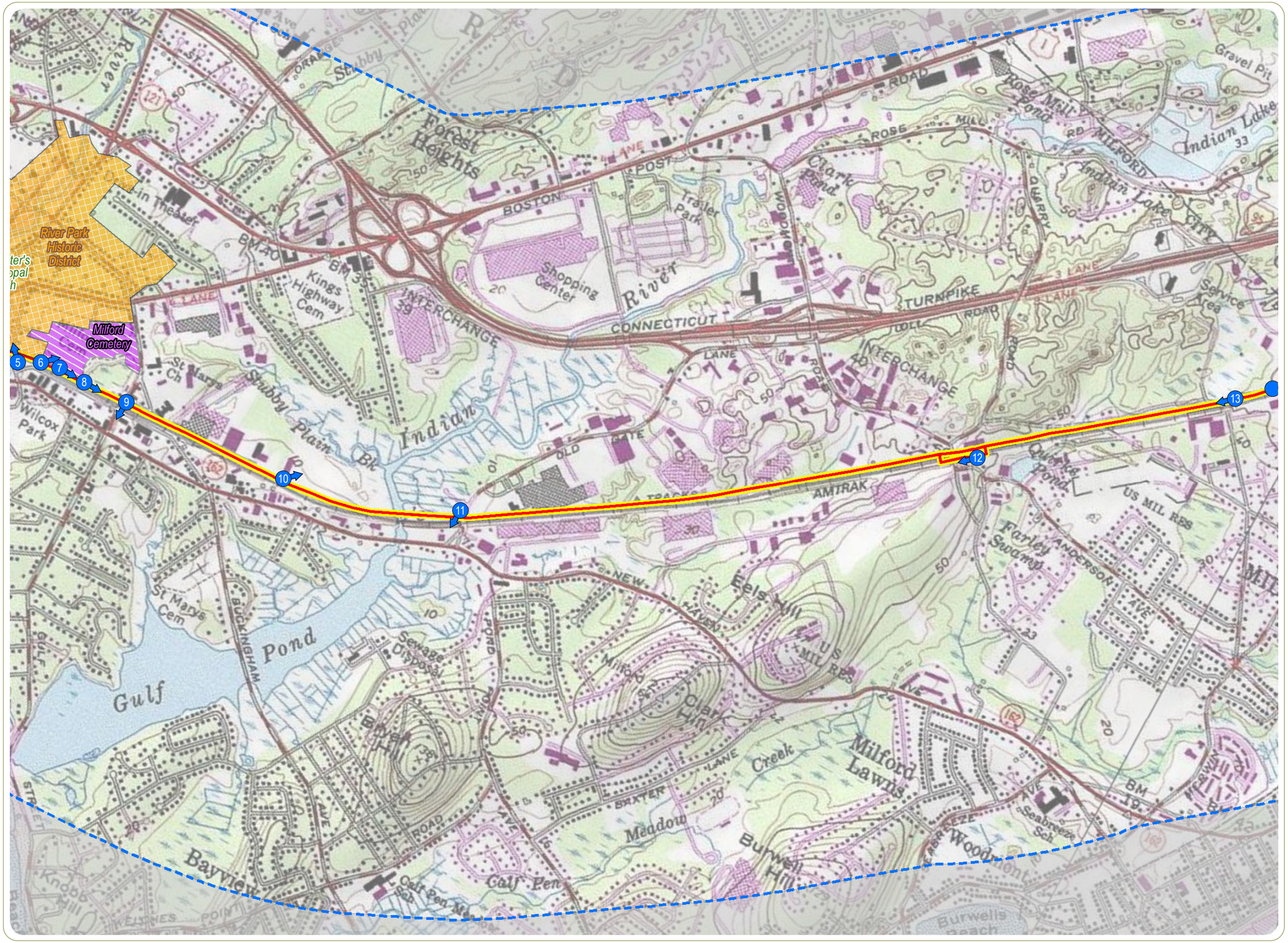
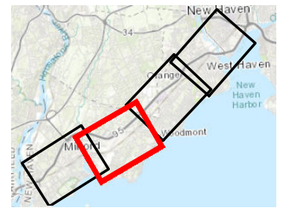
Milvon-West River Rebuild

City of Milford, Town of Orange, City of West Haven and City of New Haven
New Haven County, Connecticut

Attachment A: Mapping Connecticut SHPO 1-Mile Review Area

Sheet 2 of 4





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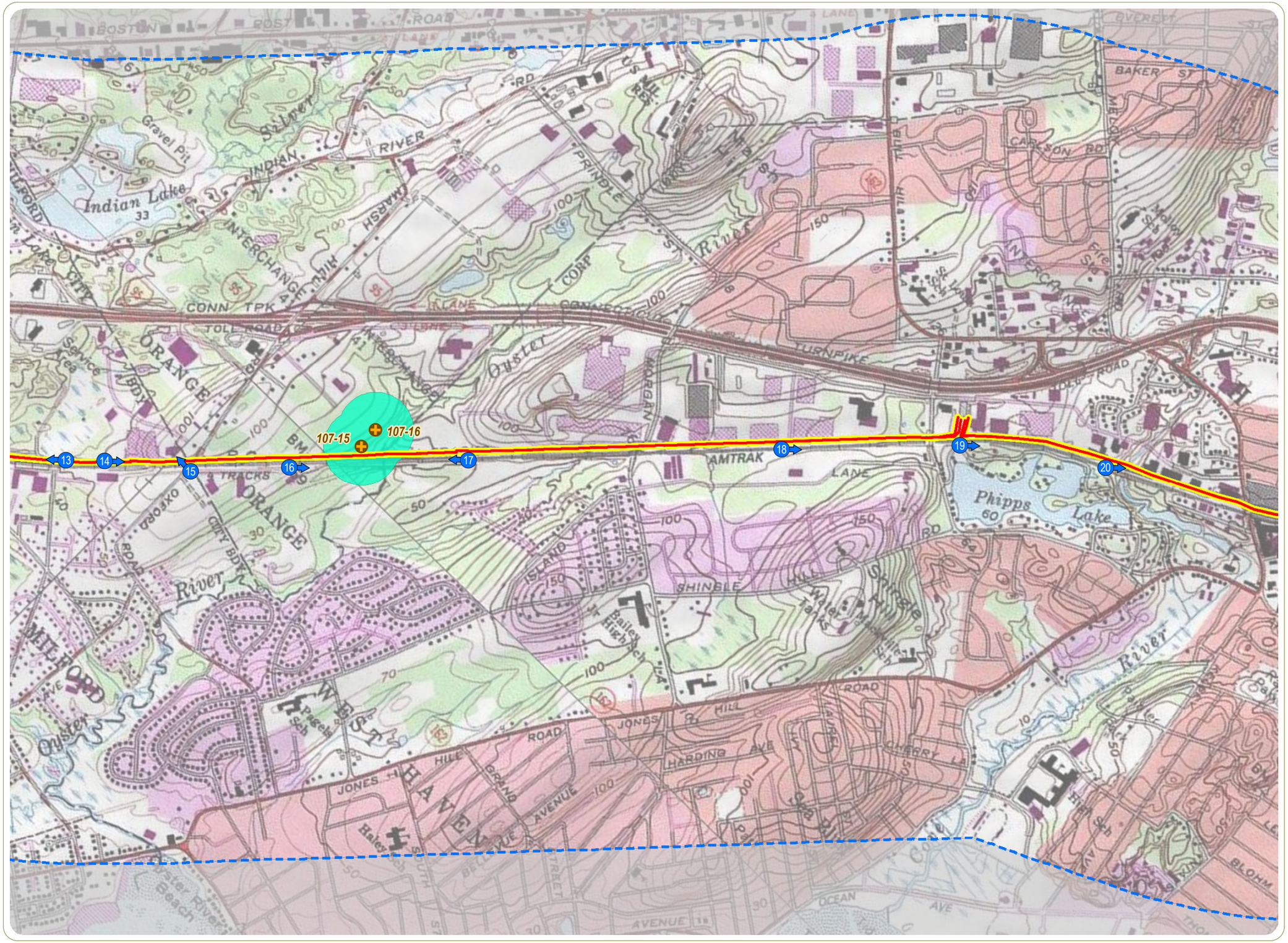


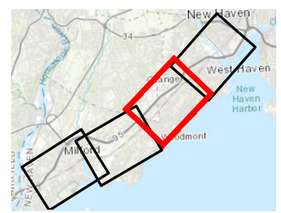
Milvon-West River Rebuild

City of Milford, Town of Orange, City of West Haven and City of New Haven
New Haven County, Connecticut

Attachment A: Mapping Connecticut SHPO 1-Mile Review Area

Sheet 3 of 4

- Photo Locations and Angles
- Archaeological Sites
- Archaeological Site 500-foot Buffer
- Project Centerline
- Construction Corridor
- 1-Mile Buffer of Project Centerline



0 500 1,000 2,000
Feet

Notes: 1. Basemap: ESRI ArcGIS Online "USA Topo Maps" map service. **2.** This map was generated in ArcMap on January 13, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

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Milvon-West River Rebuild

City of Milford, Town of Orange, City of West Haven and City of New Haven
New Haven County, Connecticut

Attachment A: Mapping Connecticut SHPO 1-Mile Review Area

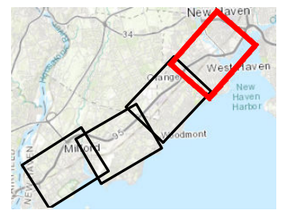
Sheet 4 of 4

Photo Locations and Angles

Project Centerline

Construction Corridor

1-Mile Buffer of Project Centerline



0 500 1,000 2,000
Feet

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Photo 1

Clark Street overpass in the City of Milford, view to the south. Note, all photos date to November 13, 2020.

Photo 2

Railroad viaduct at Beardsley Avenue in the City of Milford, view to the south.

Photo 3

Railroad viaduct and Metro-North Railroad Milford Station at High Street in the City of Milford, view to the southeast.

Photo 4

Railroad viaduct at River Street in the City of Milford, view to the north.

Photo 5

Railroad viaduct near Buckingham Avenue in the City of Milford, view to the northwest.

Photo 6

Milford Cemetery margin along railroad ROW in the City of Milford, view to the northeast.

Photo 7

Overview of Milford Cemetery, view to the east.

Photo 8

Detail of headstone in Milford Cemetery along cemetery margin.

Photo 9

Railroad viaduct at Gulf Street in the City of Milford, view to the south.

Photo 10

Railroad ROW along Wampus Lane in the City of Milford, view to the northeast.

Photo 11

Railroad viaduct at Old Gate Lane in the City of Milford, view to the south.

Photo 12

Woodmont Road overpass in the City of Milford, view to the southwest.

Photo 13

Railroad ROW near abandoned rail siding in the City of Milford, view to the southwest.

Photo 14

View of abandoned rail siding leading to a light industrial business in the City of Milford, view to the northeast.

Photo 15

Oxford Road overpass in the City of Milford, view to the west.

Photo 16

Railroad ROW near Conair Road in the Town of Orange, view to the northeast.

Photo 17

Railroad ROW near Callegari Drive in the City of West Haven, view to the southwest.

Photo 18

Railroad ROW west of Island Drive in the City of West Haven, view to the northeast.

Photo 19

Railroad ROW adjacent to Phipps Drive in the City of West Haven, view to the northeast.

Photo 20

Railroad ROW adjacent to stormwater channel and basin in the City of West Haven, view to the northeast.

Photo 21

Railroad ROW at intersection of Campbell Avenue in the City of West Haven, view to the southwest.

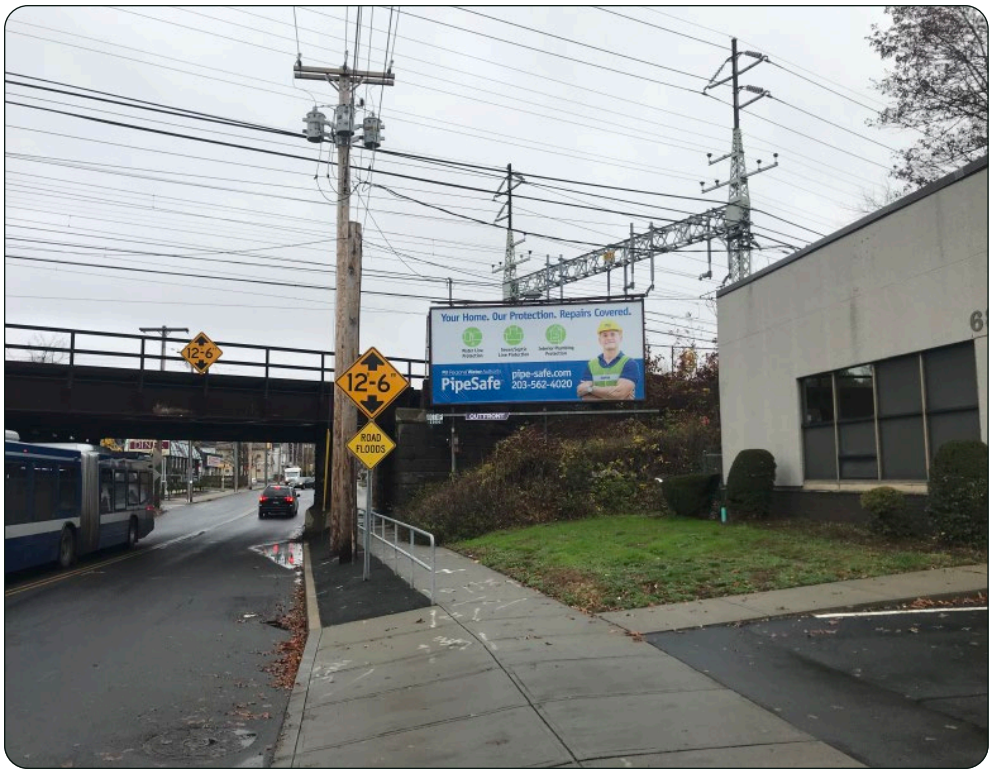

Photo 22

Railroad viaduct at Campbell Avenue in the City of West Haven, view to the north.

Photo 23

Railroad ROW adjacent to Road A in the City of New Haven, view to the southwest.

Photo 24

Railroad ROW adjacent to Road A in the City of New Haven, with Ella T. Grasso overpass in the background, view to the northeast.

Connecticut still revolutionary | Department of Economic and Community Development
State Historic Preservation Office

450 Columbus Boulevard, Suite 5 | Hartford, CT 06103 | 860.500.2300 | cultureandtourism.org

PROJECT REVIEW COVER FORM

This is: ■ a new submittal ☐ supplemental information ☐ other Date Submitted: 01-20-2021

PROJECT INFORMATION

Project Name: Milvon-West River Railroad Transmission Line 115-kV Rebuild Project

Project Proponent: The United Illuminating Company (UI)
The individual or group sponsoring, organizing, or proposing the project.

Project Street Address: Please see attached mapping
Include street number, street name, and or Route Number. If no street address exists give closest intersection.

City or Town: Town of Orange; Cities of Milford, West Haven, and New Haven County: New Haven
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:
Please see attached memorandum prepared by EDR (consultant) for project description

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
■ State ☐ Federal	Connecticut Siting Council	Certificate of Environmental Compatibility & Public Need or Petition, TBD
☐ State ■ Federal	U.S Army Corps of Engineers	GP-6 Utility Line Activities, Pre-Construction Notification
■ State ☐ Federal	Connecticut Department of Energy and Environmental Protection (DEEP)	GP Discharge of SW and Dewatering WW from Construction Activities
■ State ☐ Federal	Connecticut Department of Energy and Environmental Protection (DEE	Temporary Authorization; Structures, Dredge, and Fill & Tidal Wetlands

If there is no state or federal agency involvement, please state the reason for your review request:
Not applicable

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 Date
Deputy State Historic Preservation Officer

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

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State Historic Preservation Office

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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

Please see attached memorandum prepared by EDR (consultant) for project description

■ No

CHECKLIST (Did you attach the following information?)

Required for all Projects	Required for Projects with architectural resources
■ Completed Form	☐ Work plans for rehabilitation or renovation
■ Map clearly labelled depicting project area	☐ Assessor's Property Card
■ Photographs of current site conditions	Required for Projects with ground disturbing activities
■ Site or project plans for new construction	■ Soil survey map
Suggested Attachments, as needed	
■ Supporting documents needed to explain project	☐ Supporting documents identifying historic properties
■ Historic maps or aerials (available at http://magic.lib.uconn.edu or https://www.historicaerials.com/)	

PROJECT CONTACT

Name: T. Arron Kotlensky, RPA Firm/Agency: EDR, D.P.C.

Address: 217 Montgomery Street, Suite 1000

City: Syracuse State: NY Zip: 13202

Phone: 412.334.2128 Email: akotlensky@edrdpc.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.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for State of Connecticut

Milvon-West River WSS Soils Report

January 18, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

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.

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 20, Jun 9, 2020

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

Date(s) aerial images were photographed: Jan 1, 1999—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

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
17	Timakwa and Natchaug soils, 0 to 2 percent slopes	0.9	1.1%
18	Catden and Freetown soils, 0 to 2 percent slopes	0.2	0.3%
29B	Agawam fine sandy loam, 3 to 8 percent slopes	2.6	3.4%
29C	Agawam fine sandy loam, 8 to 15 percent slopes	0.2	0.2%
60C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes	0.1	0.1%
77C	Cheshire-Holyoke complex, 3 to 15 percent slopes, very rocky	1.9	2.4%
84C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes	0.1	0.2%
98	Westbrook mucky peat, 0 to 2 percent slopes, very frequently flooded	0.9	1.2%
108	Saco silt loam	0.1	0.2%
229B	Agawam-Urban land complex, 0 to 8 percent slopes	3.8	5.0%
235B	Penwood-Urban land complex, 0 to 8 percent slopes	4.8	6.3%
260B	Charlton-Urban land complex, 3 to 8 percent slopes	0.0	0.0%
260C	Charlton-Urban land complex, 8 to 15 percent slopes	2.1	2.7%
302	Dumps	1.6	2.1%
306	Udorthents-Urban land complex	21.4	27.8%
307	Urban land	31.9	41.5%
308	Udorthents, smoothed	3.1	4.1%
703A	Haven silt loam, 0 to 3 percent slopes	0.5	0.6%
W	Water	0.5	0.7%
Totals for Area of Interest		**76.8**	**100.0%**

Map Unit Descriptions

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, 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*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one 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.

State of Connecticut

17—Timakwa and Natchaug soils, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2t2qx
Elevation: 0 to 1,420 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Timakwa and similar soils: 45 percent
Natchaug and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Timakwa

Setting

Landform: Depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Herbaceous and woody organic material over sandy and gravelly glaciofluvial deposits

Typical profile

Oa1 - 0 to 12 inches: muck
Oa2 - 12 to 37 inches: muck
2Cg1 - 37 to 47 inches: very gravelly loamy coarse sand
2Cg2 - 47 to 60 inches: gravelly loamy very fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: NoneRare
Frequency of ponding: Frequent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Very high (about 14.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144AY042NY - Semi-Rich Organic Wetlands
Hydric soil rating: Yes

Description of Natchaug

Setting

Landform: Depressions, depressions, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed organic material over loamy glaciofluvial deposits and/or loamy glaciolacustrine deposits and/or loamy till

Typical profile

Oa1 - 0 to 12 inches: muck
Oa2 - 12 to 31 inches: muck
2Cg1 - 31 to 39 inches: silt loam
2Cg2 - 39 to 79 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.01 to 14.17 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: RareNone
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Very high (about 17.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144AY042NY - Semi-Rich Organic Wetlands
Hydric soil rating: Yes

Minor Components

Whitman

Percent of map unit: 7 percent
Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Catden

Percent of map unit: 3 percent
Landform: Kettles, depressions, fens, depressions, depressions, swamps, bogs, marshes
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Concave

Hydric soil rating: Yes

Maybid

Percent of map unit: 3 percent
Landform: Depressions, terraces, drainageways
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scarboro

Percent of map unit: 2 percent
Landform: Drainageways, outwash terraces, depressions, outwash deltas
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

18—Catden and Freetown soils, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2t2r2
Elevation: 0 to 1,390 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Catden and similar soils: 45 percent
Freetown and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Catden

Setting

Landform: Depressions, depressions, fens, bogs, depressions, swamps, marshes, kettles
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed herbaceous organic material and/or highly decomposed woody organic material

Typical profile

Oa1 - 0 to 2 inches: muck
Oa2 - 2 to 79 inches: muck

Properties and qualities

Slope: 0 to 2 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: NoneRare
Frequency of ponding: Frequent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Very high (about 26.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144AY042NY - Semi-Rich Organic Wetlands
Hydric soil rating: Yes

Description of Freetown

Setting

Landform: Swamps, bogs, depressions, marshes, depressions, kettles
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed organic material

Typical profile

Oe - 0 to 2 inches: mucky peat
Oa - 2 to 79 inches: muck

Properties and qualities

Slope: 0 to 2 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: RareNone
Frequency of ponding: Frequent
Available water capacity: Very high (about 26.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144AY043MA - Acidic Organic Wetlands
Hydric soil rating: Yes

Minor Components

Natchaug

Percent of map unit: 7 percent
Landform: Depressions, depressions, depressions
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Whitman

Percent of map unit: 6 percent
Landform: Depressions, drainageways
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Timakwa

Percent of map unit: 5 percent
Landform: Depressions
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scarboro

Percent of map unit: 2 percent
Landform: Outwash terraces, outwash deltas, drainageways, depressions
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

29B—Agawam fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tyqx
Elevation: 0 to 820 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 250 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Agawam and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Agawam

Setting

Landform: Moraines, outwash terraces, kame terraces, kames, outwash plains
Landform position (two-dimensional): Backslope, shoulder, footslope, summit
Landform position (three-dimensional): Side slope, crest, tread, riser, rise, dip
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from gneiss, granite, schist, and/or phyllite

Typical profile

Ap - 0 to 11 inches: fine sandy loam
Bw1 - 11 to 16 inches: fine sandy loam
Bw2 - 16 to 26 inches: fine sandy loam
2C1 - 26 to 45 inches: loamy fine sand
2C2 - 45 to 55 inches: loamy fine sand
2C3 - 55 to 65 inches: loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 15 to 35 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: B
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

Minor Components

Sudbury

Percent of map unit: 5 percent
Landform: Terraces, deltas, outwash plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Hinckley

Percent of map unit: 5 percent
Landform: Deltas, outwash plains, eskers, kames
Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Head slope, nose slope, side slope, crest, rise
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

Merrimac

Percent of map unit: 3 percent
Landform: Kames, eskers, moraines, outwash terraces, outwash plains
Landform position (two-dimensional): Backslope, footslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest, riser, tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Windsor

Percent of map unit: 2 percent
Landform: Deltas, outwash plains, dunes, outwash terraces
Landform position (three-dimensional): Riser, tread
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

29C—Agawam fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2tyqy
Elevation: 0 to 360 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Agawam and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Agawam

Setting

Landform: Outwash terraces, outwash plains, kame terraces, kames, moraines
Landform position (two-dimensional): Backslope, shoulder, footslope, summit
Landform position (three-dimensional): Crest, side slope, tread, riser, rise, dip
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from gneiss, granite, schist, and/or phyllite

Typical profile

Ap - 0 to 11 inches: fine sandy loam

Bw1 - 11 to 16 inches: fine sandy loam
Bw2 - 16 to 26 inches: fine sandy loam
2C1 - 26 to 45 inches: loamy fine sand
2C2 - 45 to 55 inches: loamy fine sand
2C3 - 55 to 65 inches: loamy sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 15 to 35 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

Minor Components

Merrimac

Percent of map unit: 5 percent
Landform: Outwash plains, kames, moraines, outwash terraces, eskers
Landform position (two-dimensional): Backslope, footslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest, riser, tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Windsor

Percent of map unit: 5 percent
Landform: Deltas, outwash plains, outwash terraces, dunes
Landform position (three-dimensional): Riser, tread
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Ninigret

Percent of map unit: 5 percent
Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

60C—Canton and Charlton fine sandy loams, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w81z
Elevation: 0 to 1,620 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Canton and similar soils: 50 percent
Charlton and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Landform: Ridges, moraines, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, nose slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: gravelly fine sandy loam
2C - 26 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B

Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Charlton

Setting

Landform: Hills, ground moraines, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw - 7 to 22 inches: gravelly fine sandy loam
C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Chatfield

Percent of map unit: 5 percent
Landform: Hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Leicester

Percent of map unit: 5 percent
Landform: Hills, depressions, drainageways, ground moraines
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave

Hydric soil rating: Yes

Sutton

Percent of map unit: 5 percent
Landform: Ground moraines, hills, ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

77C—Cheshire-Holyoke complex, 3 to 15 percent slopes, very rocky

Map Unit Setting

National map unit symbol: 9lqs
Elevation: 0 to 1,200 feet
Mean annual precipitation: 40 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Cheshire and similar soils: 45 percent
Holyoke and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cheshire

Setting

Landform: Hills, till plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from basalt and/or sandstone and shale

Typical profile

Ap - 0 to 8 inches: fine sandy loam
Bw1 - 8 to 16 inches: fine sandy loam
Bw2 - 16 to 26 inches: fine sandy loam
C - 26 to 65 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F145XY013CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Holyoke

Setting

Landform: Hills, ridges
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy eolian deposits over melt-out till derived from basalt and/or sandstone and shale

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: silt loam
Bw1 - 3 to 8 inches: silt loam
Bw2 - 8 to 18 inches: gravelly silt loam
2R - 18 to 80 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F145XY011CT - Well Drained Shallow Till Uplands
Hydric soil rating: No

Minor Components

Yalesville

Percent of map unit: 10 percent
Landform: Ridges, hills
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop
Percent of map unit: 6 percent
Hydric soil rating: No

Wethersfield
Percent of map unit: 1 percent
Landform: Hills, drumlins
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Watchaug
Percent of map unit: 1 percent
Landform: Till plains, hills
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Wilbraham
Percent of map unit: 1 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Menlo
Percent of map unit: 1 percent
Landform: Drainageways, depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

84C—Paxton and Montauk fine sandy loams, 8 to 15 percent slopes

Map Unit Setting
National map unit symbol: 2w67b
Elevation: 0 to 1,550 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Paxton and similar soils: 55 percent
Montauk and similar soils: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton

Setting

Landform: Ground moraines, drumlins, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 8 inches: fine sandy loam
Bw1 - 8 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: fine sandy loam
Cd - 26 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Description of Montauk

Setting

Landform: Recessionial moraines, drumlins, hills, ground moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 4 inches: fine sandy loam
Bw1 - 4 to 26 inches: fine sandy loam
Bw2 - 26 to 34 inches: sandy loam
2Cd - 34 to 72 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 39 inches to densic material

Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Woodbridge

Percent of map unit: 6 percent
Landform: Drumlins, hills, ground moraines
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Charlton

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Ridgebury

Percent of map unit: 3 percent
Landform: Hills, depressions, drumlins, drainageways, ground moraines
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Stockbridge

Percent of map unit: 1 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

98—Westbrook mucky peat, 0 to 2 percent slopes, very frequently flooded

Map Unit Setting

National map unit symbol: 2tyqf
Elevation: 0 to 10 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Westbrook and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Westbrook

Setting

Landform: Tidal marshes
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Partly-decomposed herbaceous organic material over loamy mineral material

Typical profile

Oe - 0 to 19 inches: mucky peat
Cg - 19 to 59 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Very frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to strongly saline (0.7 to 111.6 mmhos/cm)
Sodium adsorption ratio, maximum: 33.0
Available water capacity: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w

Hydrologic Soil Group: B/D
Ecological site: R144AY001CT - Tidal Salt Low Marsh mesic very frequently flooded, R144AY002CT - Tidal Salt High Marsh mesic very frequently flooded
Hydric soil rating: Yes

Minor Components

Pawcatuck
Percent of map unit: 5 percent
Landform: Tidal marshes
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R144AY001CT - Tidal Salt Low Marsh mesic very frequently flooded, R144AY002CT - Tidal Salt High Marsh mesic very frequently flooded
Hydric soil rating: Yes

Ipswich
Percent of map unit: 5 percent
Landform: Tidal marshes
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R144AY001CT - Tidal Salt Low Marsh mesic very frequently flooded, R144AY002CT - Tidal Salt High Marsh mesic very frequently flooded
Hydric soil rating: Yes

108—Saco silt loam

Map Unit Setting
National map unit symbol: 9ljv
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition
Saco and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Saco

Setting
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-silty alluvium

Typical profile

A - 0 to 12 inches: silt loam
Cg1 - 12 to 32 inches: silt loam
Cg2 - 32 to 48 inches: silt loam
2Cg3 - 48 to 60 inches: stratified very gravelly coarse sand to loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: FrequentNone
Frequency of ponding: Frequent
Available water capacity: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B/D
Ecological site: F144AY016MA - Very Wet Low Floodplain
Hydric soil rating: Yes

Minor Components

Lim

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Limerick

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Winooski

Percent of map unit: 3 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Rippowam

Percent of map unit: 3 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Hadley

Percent of map unit: 2 percent

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Bash

Percent of map unit: 2 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

229B—Agawam-Urban land complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9lkd
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Agawam and similar soils: 40 percent
Urban land: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Agawam

Setting

Landform: Outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 8 inches: fine sandy loam
Bw1 - 8 to 14 inches: fine sandy loam
Bw2 - 14 to 24 inches: fine sandy loam
2C - 24 to 60 inches: stratified very gravelly coarse sand to fine sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

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

Hinckley

Percent of map unit: 5 percent
Landform: Kames, outwash plains, terraces, eskers
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Udorthents

Percent of map unit: 5 percent
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Merrimac

Percent of map unit: 5 percent
Landform: Kames, outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Walpole

Percent of map unit: 5 percent
Landform: Depressions on terraces, drainageways on terraces
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scarboro

Percent of map unit: 3 percent
Landform: Depressions, drainageways, terraces
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Unnamed, red parent material
Percent of map unit: 2 percent
Hydric soil rating: No

235B—Penwood-Urban land complex, 0 to 8 percent slopes

Map Unit Setting
National map unit symbol: 9lkn
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition
Penwood and similar soils: 40 percent
Urban land: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Penwood

Setting
Landform: Outwash plains, terraces
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits derived from sandstone and shale

Typical profile
Ap - 0 to 8 inches: loamy sand
Bw1 - 8 to 18 inches: loamy sand
Bw2 - 18 to 30 inches: sand
C - 30 to 60 inches: sand

Properties and qualities
Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 99.62 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: A
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

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

Hartford

Percent of map unit: 5 percent
Landform: Terraces, outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Branford

Percent of map unit: 5 percent
Landform: Outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ellington

Percent of map unit: 5 percent
Landform: Outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Manchester

Percent of map unit: 5 percent
Landform: Kames, outwash plains, terraces, eskers
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Udorthents

Percent of map unit: 5 percent
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

260B—Charlton-Urban land complex, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2xff7
Elevation: 0 to 1,020 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Charlton and similar soils: 40 percent
Urban land: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton

Setting

Landform: Ridges, hills, ground moraines
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw - 7 to 22 inches: gravelly fine sandy loam
C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Urban Land

Typical profile

M - 0 to 10 inches: cemented material

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 0 inches to manufactured layer
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Available water capacity: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Chatfield

Percent of map unit: 10 percent
Landform: Ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

Leicester

Percent of map unit: 5 percent
Landform: Hills, depressions, drainageways, ground moraines
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

Sutton

Percent of map unit: 5 percent
Landform: Hills, ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Udorthents

Percent of map unit: 5 percent
Landform: Ridges
Landform position (three-dimensional): Tread
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

260C—Charlton-Urban land complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2xff8
Elevation: 0 to 890 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Charlton and similar soils: 40 percent
Urban land: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton

Setting

Landform: Hills, ground moraines, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw - 7 to 22 inches: gravelly fine sandy loam
C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B

Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Urban Land

Typical profile

M - 0 to 10 inches: cemented material

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 0 inches to manufactured layer
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Available water capacity: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Chatfield

Percent of map unit: 10 percent
Landform: Ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

Udorthents

Percent of map unit: 5 percent
Landform: Ridges
Landform position (three-dimensional): Tread
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Sutton

Percent of map unit: 5 percent
Landform: Hills, ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Leicester

Percent of map unit: 5 percent
Landform: Depressions, drainageways, ground moraines, hills
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Concave
Hydric soil rating: Yes

302—Dumps

Map Unit Setting

National map unit symbol: 9lmb
Elevation: 0 to 1,200 feet
Mean annual precipitation: 37 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Dumps: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dumps

Typical profile

C - 0 to 65 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

Minor Components

Udorthents

Percent of map unit: 2 percent
Hydric soil rating: No

Unnamed, frequently flooded

Percent of map unit: 1 percent
Landform: Drainageways
Hydric soil rating: Yes

Westbrook

Percent of map unit: 1 percent
Landform: Tidal marshes, salt marshes
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Rock outcrop

Percent of map unit: 1 percent
Hydric soil rating: No

306—Udorthents-Urban land complex

Map Unit Setting

National map unit symbol: 9lmg
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

Udorthents and similar soils: 50 percent
Urban land: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Drift

Typical profile

A - 0 to 5 inches: loam
C1 - 5 to 21 inches: gravelly loam
C2 - 21 to 80 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: About 54 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Hydric soil rating: No

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

Unnamed, undisturbed soils

Percent of map unit: 8 percent
Hydric soil rating: No

Udorthents, wet substratum

Percent of map unit: 5 percent
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent
Hydric soil rating: No

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

Unnamed, undisturbed soils
Percent of map unit: 10 percent
Hydric soil rating: No

Udorthents, wet substratum
Percent of map unit: 10 percent
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

308—Udorthents, smoothed

Map Unit Setting
National map unit symbol: 9lmj
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
Udorthents and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting
Down-slope shape: Convex
Across-slope shape: Linear

Typical profile
A - 0 to 5 inches: loam
C1 - 5 to 21 inches: gravelly loam
C2 - 21 to 80 inches: very gravelly sandy loam

Properties and qualities
Slope: 0 to 35 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: About 24 to 54 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Unnamed, undisturbed soils

Percent of map unit: 7 percent
Hydric soil rating: No

Udorthents, wet substratum

Percent of map unit: 7 percent
Hydric soil rating: No

Urban land

Percent of map unit: 5 percent
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Hydric soil rating: No

703A—Haven silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2y07k
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Haven and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Haven

Setting

Landform: Outwash terraces, outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 7 inches: silt loam

Bw1 - 7 to 14 inches: silt loam
Bw2 - 14 to 20 inches: silt loam
BC - 20 to 24 inches: fine sandy loam
2C - 24 to 60 inches: stratified very gravelly sand to gravelly fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 18 to 36 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Ecological site: F144AY023CT - Well Drained Outwash
Hydric soil rating: No

Minor Components

Enfield

Percent of map unit: 5 percent
Landform: Outwash plains, outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Tisbury

Percent of map unit: 5 percent
Landform: Deltas, valley trains, outwash terraces, outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Agawam

Percent of map unit: 3 percent
Landform: Moraines, outwash terraces, outwash plains, kame terraces, kames
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Side slope, crest, tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Raypol

Percent of map unit: 2 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Concave

Hydric soil rating: Yes

W—Water

Map Unit Composition

Water: 100 percent

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

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KATE BRENNAN

From: David George <dgeorge@heritage-consultants.com>
Sent: Friday, April 9, 2021 1:49 PM
To: Labadia, Catherine; Wisniewski, Marena
Cc: KATE BRENNAN; TODD BERMAN; JASUN VAN HORN; Correne Auer; Darin M. Lemire
Subject: EXTERNAL:Claifications to SHPO Questions Regarding the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project PNF
Attachments: Letter of Clarification - Milvon to West River Project PNF 040921.pdf

Ms. Labadia and Ms. Wisnewski,

Heritage Consultants, LLC (Heritage) has recently been retained by HRP Associates, Inc., in support of The United Illuminating Company, to assist in the cultural resources aspects of the proposed Milvon to West River Railroad Transmission Line 115-kV Rebuild Project in Milford, Orange, West Haven, and New Haven, Connecticut. Heritage understands that a Project Notification Form (PNF) was previously submitted to your office by EDR and that Ms. Labadia offered some questions concerning its content. The attached document outlines Heritage's role in the Project moving forward and supplies data that clarifies information contained in the originally submitted PNF. Heritage is currently working towards completion of a robust Phase IA cultural resources assessment survey that describes the Project, identifies the APE for direct and visual impacts, considers previously identified historic resources, and that will result in a report that documents potential Project impacts and management recommendation for them and cultural resources generally. Pease do not hesitate to contact me at either the email address or phone number below if you have any questions regarding the attached materials. I am at your service!

David

David R. George
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HERITAGE
CONSULTANTS

April 9, 2021

Ms. Catherine Labadia (Staff Archaeologist)
Ms. Marena Wisniewski (National Register Specialist)
Connecticut State Historic Preservation Office
450 Columbus Boulevard, Suite 5
Hartford, Connecticut 06103

RE: Responses to Connecticut State Historic Preservation Office Project Notification Form Data Requests Related to the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project in Milford, Orange, West Haven, and New Haven, Connecticut

Ms. Labadia and Ms. Wisniewski:

In January of this year, a Project Notification Form (PNF) for the above-referenced Milvon to West River Railroad Transmission Line 115-kV Rebuild Project (the Project) was submitted to the Connecticut State Historic Preservation Office (CT-SHPO) for review and comment. As discussed in that submission, the Project will occur within and adjacent to the Northeast Corridor railway in portions of Milford, Orange, West Haven, and New Haven, Connecticut. The previously submitted PNF was prepared by Environmental Design and Research, D.P.C. (EDR) and was accompanied by a Cultural Resources Assessment Memorandum and supporting documentation, which also were prepared by EDR staff.

Since submission of the PNF materials, Heritage Consultants, LLC (Heritage) has been added to the Project team in a cultural resources management role and has been requested to provide responses to CT-SHPO data requests concerning the previously submitted PNF materials, including the Cultural Resources Assessment Memorandum. Heritage also has been retained by the Project team to complete a robust Phase IA Cultural Resources Assessment Survey of the Project area, which will include a definition of the Area of Potential Effects (APE) for the Project and a consideration of potential impacts to above and below ground historic/archaeological resources that may be located within and adjacent to the Northeast Corridor ROW.

Please find enclosed the responses to the data requests. It is our hope that these will better elucidate the Project and demonstrate that The United Illuminating Company (UI) understands that the Project could have effects on historic resources, however unlikely, and is working diligently to consider and minimize potential impacts to the project ROW and surrounding areas. If you have any questions regarding this letter or any of the attached materials, please do not hesitate to contact me at (860) 299-6328 via email at dgeorge@heritage-consultants.com. We are at your service.

Sincerely,

David R. George

David R. George, M.A., R.P.A.
Heritage Consultants, LLC

Clarification for Question #1 – Did the archaeological evaluation consider all limits of disturbance or just the pole locations?

UI Response: Project plans for the proposed undertaking will avoid to the extent possible unnecessary soil disturbance during construction. Timber and/or composite matting will be used extensively on the Project for the construction of temporary access roads and work pads where gravel and pavement are not currently present. This will limit the amount of soil disturbances both within the existing railroad right-of-way (ROW) corridor and along off-ROW access roads/areas. Soil disturbances currently anticipated during construction will occur at and within proximity to the proposed pole locations. This disturbance will be for the excavation and construction of the pole's concrete caisson foundation. It is anticipated that an approximately 12 ft x 12 ft area at each pole location may be disturbed to create a generally flat and safe workspace area for pole installation. If an area greater than size is to be disturbed, UI will consult with SHPO prior to construction. Any locations beyond the 12 ft x 12 ft area will be protected with timber and/or composite matting.

There is currently only one area where grading is planned outside of a proposed pole location. This area will consist of a temporary gravel access road that will be built in the Town of Milford; it will be situated in the railroad ROW and behind Pearl Hill Street between Clark Street and Beardsley Avenue (Figure 1). Ground disturbance in this area will be limited to the existing railroad ROW and will likely occur at the top of the railroad embankment slope. A combination of cutting, filling, and grading may be necessary to build this planned access road. It is anticipated that the grade may be reduced as much as 3 feet, with the deepest excavation occurring towards the railroad embankment side of the proposed access road. Following construction activities, the roadway will be revegetated with meadow/low-growing vegetation conducive to a transmission ROW. The general location is shown below and the attached plan sheets 0025411-SP-01-4 and 0025411-SP-01-5 show the access road as it is currently planned (Figures 2 and 3). Additional areas of grading may be necessary as the project design progresses but at the present time this location is the only one currently anticipated.

Additionally, during the alternatives analysis phase of the project, UI sponsored a Ground Penetrating Radar (GPR) survey of that portion of the Milford Cemetery located closest to the Project ROW to assess potential construction-related impacts to the cemetery. The GPR study revealed the presence of a large buried anomaly of unknown origin within the Project ROW. Using Best Management Practices (BMPs) and in order to avoid any potential or perceived impacts to the cemetery and the unknown anomaly, the Project team eliminated the need for a monopole structure within the Milford Cemetery. UI is willing to share the findings and data of the GPR study with CT SHPO.

Clarification for #2 – The text states that there are no NR properties within 500 ft, but I see several (River Park Historic District, St. Peter's Episcopal Church, Academy of our Lady of Mercy at Laurelton Hall, Taylor Memorial Library).

UI Response: Page 11 of the memorandum compiled by EDR acknowledged the presence of National Register of Historic Places properties/districts within 500 ft of the Project Area. The memorandum stated:

As reported by the CT SHPO, the Project Area does not intersect or encompass any S/NRHP-listed historic resources. However, four National Register-listed historic resources are mapped within 500 feet of the Project Area, located in the City of Milford: River Park Historic District, U.S. Post Office-Milford Main, St. Peter's Episcopal Church, and the Taylor Memorial Library. An additional 14 S/NRHP-listed historic resources are mapped within one-mile of the Project Area.

for the Project. A review of information on file with the CT SHPO and online mapping resources provided by the National Park Service revealed that the Project does not intersect or encompass any S/NRHP-listed historic resources. However, UI understands that five National Register-listed historic resources, not four, are located within 500 feet of the Project Area in the City of Milford. They include the four listed above, as well as the Academy of Our Lady of Mercy—Lauralton Hall property, which was inadvertently missed during the initial review due its small footprint. The Project team also recognizes that an additional 15 S/NRHP-listed historic resources are located within 1.6 km (1 mi) of the Project Area (one individual historic property is listed twice as both the Beth Israel Synagogue and as the Ahavas Sholem Synagogue).

The Project team has also become aware that portions of the Northeast Corridor, while not yet listed in the National Register of Historic Places, have a Determination of Eligibility (DOE) associated with them, indicating that they may be eligible for listing in the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4 [a-d]). The Project team will isolate the areas that have a DOE to determine if they apply the to the proposed Project ROW. The Project team also will consider alterations to the railroad, its setting, and the other above-referenced historical resources within and adjacent to the Project area in an upcoming Phase IA cultural resources assessment survey of the Project and its potential impacts.

Clarification for Question #3 - Was there a consideration of the new poles and their excessive heights on historic properties?

UI Response: As part of the Connecticut Siting Council Application, UI is preparing renderings and a visual analysis study of the post construction views from various locations along the Project ROW. This study is currently in progress and the renderings will depict several of these locations from the vantage point of the historic properties and historic districts within 500 ft of the Project Area. UI will have its cultural resources contractor consider the results of the visual analysis study and the potential for impacts to historic resources. However, due to the presence of numerous modern intervening additions and the general well-developed nature of the region, UI believes the analysis will reveal that the proposed structures will have minimal visual impacts on the historic properties in proximity to the Project ROW.

Clarification for Question #4 – It appears that all of the historic catenaries along this section will be removed as part of the project, is that correct? If so, were these historic structures evaluated either as a theme or as part of a linear historic district associated with the rail line?

UI Response: Project plans do not call for the removal of any of the existing catenaries from the Project ROW. UI recognizes that the catenaries are a historical component of the Northeast Corridor and were installed as original equipment. Adverse impacts to them will be avoided during the Project. Modifications to the catenaries will only consist of the removal of the top portion of some of the structures that support the existing transmission lines, known as the bonnet pole extension or bonnet. Removal of the bonnets is being completed for safety, maintenance, and resiliency of the rail line and electric grid. Some bonnets may stay in-place to support existing UI shield wire if CTDOT accepts ownership of them. A recent UI project located south and west of the current Milvon to West River project completed similar removals of the bonnet structures from the catenaries and it can be used for comparative purposes (Figures 4 and 5). A pre-construction photo of the catenary with the bonnet structure and a post-construction photo after bonnet removal from the other UI project are provided below. The Milvon to West River project is planned to provide similar results, which will return the catenaries to more of their original historic configuration

Figure 1. Excerpt from a modern aerial image showing the proposed gravel access road along the project corridor in the vicinity of Pearl Hill Street between Clark Street and Beardsley Avenue.

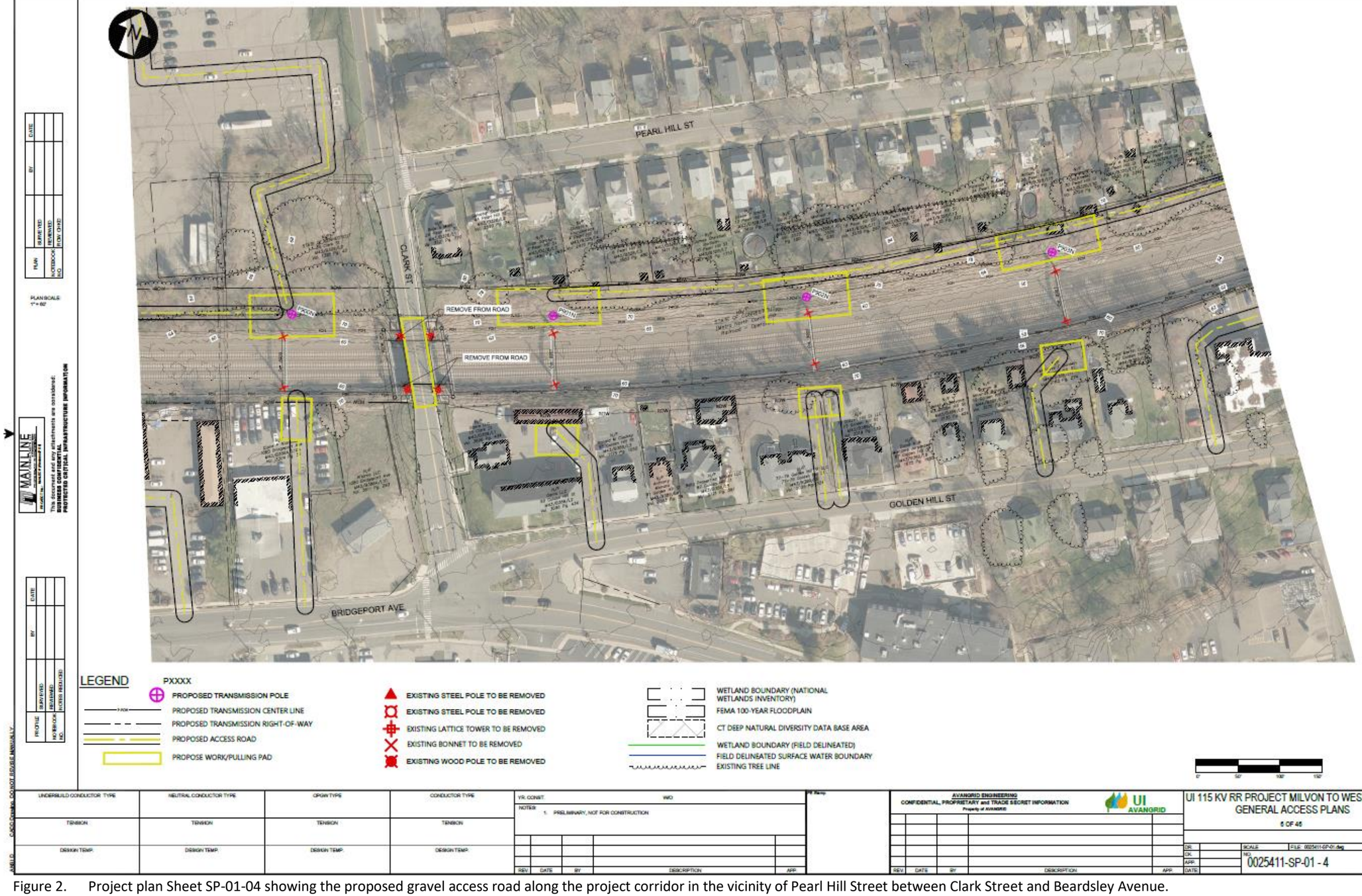

Figure 2. Project plan Sheet SP-01-04 showing the proposed gravel access road along the project corridor in the vicinity of Pearl Hill Street between Clark Street and Beardsley Avenue.

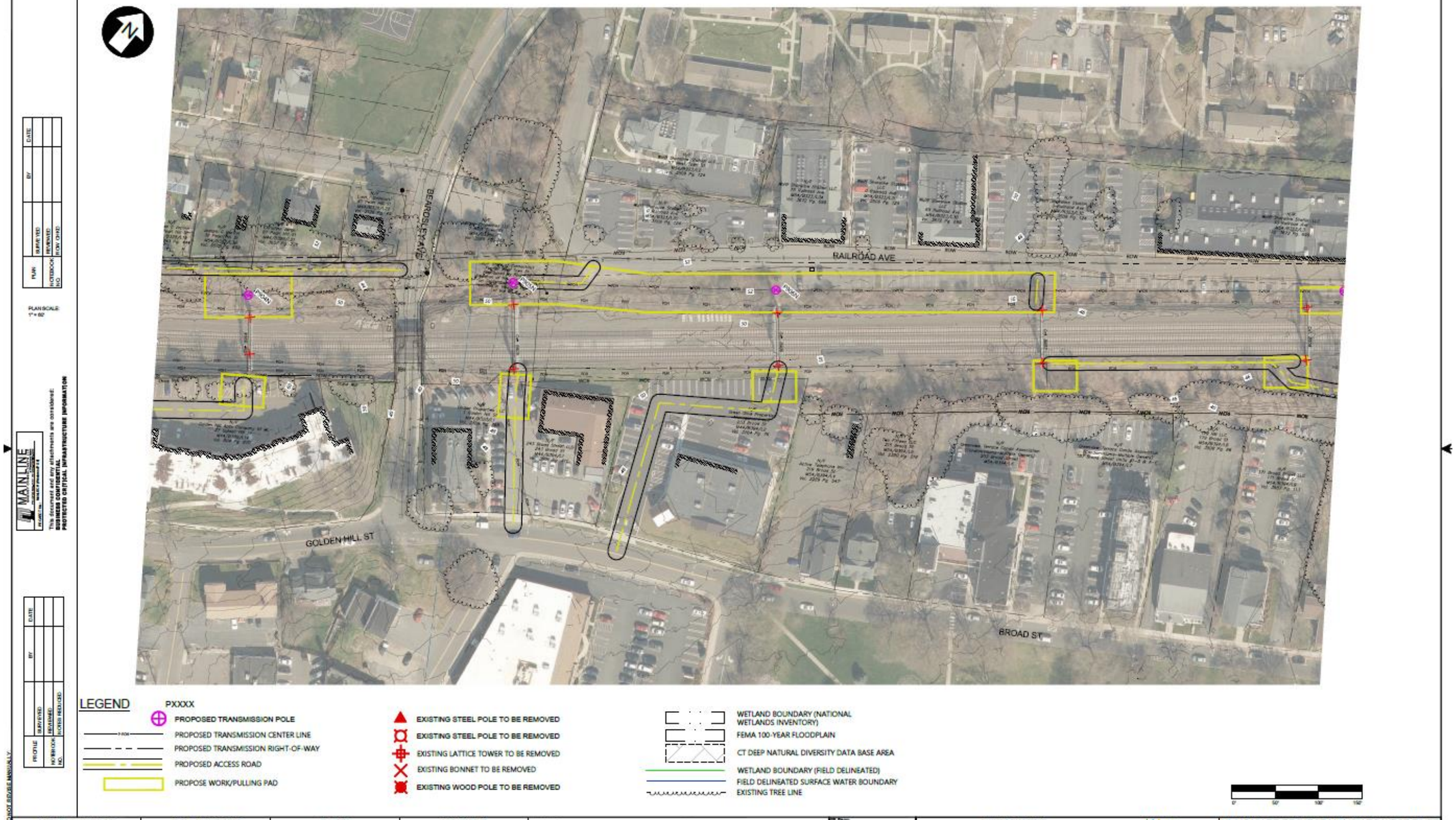

Figure 3. Project plan Sheet SP-01-05 showing the proposed gravel access road along the project corridor in the vicinity of Pearl Hill Street between Clark Street and Beardsley Avenue.

Figure 4. Overview photo of pre-construction conditions at HRX-Baird Pole 838N.

Figure 5. Overview photo of post-construction conditions at HRX-Baird Pole 838N.