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## Regulatory Program



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### **INTERIM APPROVED JURISDICTIONAL DETERMINATION FORM U.S. Army Corps of Engineers**

This form should be completed by following the instructions provided in the Interim Approved Jurisdictional Determination Form User Manual.

#### **SECTION I: BACKGROUND INFORMATION**

**A. COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (AJD):** November 28, 2018

**B. ORM NUMBER IN APPROPRIATE FORMAT (e.g., HQ-2015-00001-SMJ):** NAE-2000-01240

#### **C. PROJECT LOCATION AND BACKGROUND INFORMATION:**

State: Connecticut County/parish/borough: Fairfield City: Greenwich

Center coordinates of site (lat/long in degree decimal format): Lat. 41.07197, Long. -73.60338.

Map(s)/diagram(s) of review area (including map identifying single point of entry (SPOE) watershed and/or potential jurisdictional areas where applicable) is/are:  attached  in report/map titled Ecological Assessment Report dated August 22, 2007.

Other sites (e.g., offsite mitigation sites, disposal sites, etc.) are associated with this action and are recorded on a different jurisdictional determination (JD) form. List JD form ID numbers (e.g., HQ-2015-00001-SMJ-1):

#### **D. REVIEW PERFORMED FOR SITE EVALUATION:**

Office (Desk) Determination Only. Date:

Office (Desk) and Field Determination. Office/Desk Dates: August 8 & 12, 2018, September 1, 2018, and November 1, 2018 Field Date(s): June 1, 2000.

#### **SECTION II: DATA SOURCES**

Check all that were used to aid in the determination and attach data/maps to this AJD form and/or references/citations in the administrative record, as appropriate.

Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant. Title/Date:

- Federal Wetland and Watercourse Delineation Map, prepared by William Kenney Associates, dated "March 20, 2018.
- Environmental evaluation prepared by Land-Tech Consultants, dated "May 12, 2000 .

Data sheets prepared/submitted by or on behalf of the applicant/consultant.

Data sheets/delineation report are sufficient for purposes of AJD form. Title/Date:

- Wetland delineation data forms prepared by William Kenney Associates dated March 20, 2018
- Wetland delineation prepared by William Kenney Associates dated "March 3, 2008.
- Wetland delineation, Cherry Hill Farm, Greenwich, Connecticut prepared by Land-Tech Consultants dated "May 4, 2000.

Data sheets/delineation report are not sufficient for purposes of AJD form. Summarize rationale and include information on revised data sheets/delineation report that this AJD form has relied upon:

Revised Title/Date:

Data sheets prepared by the Corps. Title/Date:

Corps navigable waters study. Title/Date: New England Division, Section 10 Traditional Navigable Waters Disposition Form, 1984.

CorpsMap ORM map layers. Title/Date: Connecticut Permit Evaluation USGS NHD, USGS NED, Capitol Region Council of Governments (CRCOG), FEMA, NRCS, USFWS NWI accessed September 1, 2018..

USGS Hydrologic Atlas. Title/Date: USGS NHD & Catchment layers from The National Map depicted in Stanwich School, Connectivity Flow Path to TNW (CosCob Harbor), September 1, 2018 .

USGS, NHD, or WBD data/maps. Title/Date: USGS Historical Topographic Map, 1947 Stanford Quadrangle.

USGS 8, 10 and/or 12 digit HUC maps. HUC number: 01100006.



- USGS maps. Scale & quad name and date: Stamford 7.5 Minute 1:24000 and 1:31680 accessed on September 1, 2018.
- USDA NRCS Soil Survey. Citation: See below  
USDA Soil Survey Maps for Fairfield Country accessed from Web Soil Survey on August 8, 2018  
USDA SSURGO, Fairfield Country accessed from Soil Web, UC Davis on September 12, 2018.
- USFWS National Wetlands Inventory maps. Citation: Connecticut NWI Update, 2010 NAIP imagery delineated at 1:8000 with maximum zoom scale of 1:12000, accessed September 1, 2018 .
- State/Local wetland inventory maps. Citation:
- FEMA/FIRM maps. Citation: Panel 09001C0503F, 6/18/2010, FIRMette Report exported on 11/27/18.
- Photographs:  Aerial. Citation: See Below  
-Federal Wetland Delineation Site Photos by William Kenney Associates, March 3, 2008  
-Federal Wetland Delineation Site Photos by William Kenney Associates, March 20, 2018  
-CT DEEP 2016 Spring 3-inch Color, March 11, 2016 through April 16, 2016  
-USDA NAIP Color Summer 0.6 m, accessed on September 1, 2018 .. or  Other. Citation:
- LiDAR data/maps. Citation: CRCOG, 2016 USGS LIDAR Bare Earth DEM, March 11, 2016 through April 16, 2016, Base Specification 1.2, OL2, 19.6 cm VVA, NAD83 and NAVD88.
- Previous JDs. File no. and date of JD letter: NAE-2000-01240 July 7, 2008 and October 10, 2008 .
- Applicable/supporting case law: 2015 Clean Water Rule 33 CFR Part 328 and associated technical documentation.
- Applicable/supporting scientific literature:
- Other information (please specify):

### **SECTION III: SUMMARY OF FINDINGS**

**Complete ORM "Aquatic Resource Upload Sheet" or Export and Print the Aquatic Resource Water Droplet Screen from ORM for All Waters and Features, Regardless of Jurisdictional Status – Required**

#### **A. RIVERS AND HARBORS ACT (RHA) SECTION 10 DETERMINATION OF JURISDICTION:**

- "navigable waters of the U.S." within RHA jurisdiction (as defined by 33 CFR part 329) in the review area.

**• Complete Table 1 - Required**

*NOTE:* If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Section 10 navigable waters list, DO NOT USE THIS FORM TO MAKE THE DETERMINATION. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Section 10 RHA navigability determination.

#### **B. CLEAN WATER ACT (CWA) SECTION 404 DETERMINATION OF JURISDICTION: "waters of the U.S." within CWA jurisdiction (as defined by 33 CFR part 328.3) in the review area. Check all that apply.**

- (a)(1): All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide. (Traditional Navigable Waters (TNWs))
  - Complete Table 1 - Required**
  - This AJD includes a case-specific (a)(1) TNW (Section 404 navigable-in-fact) determination on a water that has not previously been designated as such. Documentation required for this case-specific (a)(1) TNW determination is attached.
- (a)(2): All interstate waters, including interstate wetlands.
  - Complete Table 2 - Required**
- (a)(3): The territorial seas.
  - Complete Table 3 - Required**
- (a)(4): All impoundments of waters otherwise identified as waters of the U.S. under 33 CFR part 328.3.
  - Complete Table 4 - Required**
- (a)(5): All tributaries, as defined in 33 CFR part 328.3, of waters identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3.
  - Complete Table 5 - Required**
- (a)(6): All waters adjacent to a water identified in paragraphs (a)(1)-(a)(5) of 33 CFR part 328.3, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters.
  - Complete Table 6 - Required**
  - Bordering/Contiguous.

Neighboring:

- (c)(2)(i): All waters located within 100 feet of the ordinary high water mark (OHWM) of a water identified in paragraphs (a)(1)-(a)(5) of 33 CFR part 328.3.
- (c)(2)(ii): All waters located within the 100-year floodplain of a water identified in paragraphs (a)(1)-(a)(5) of 33 CFR part 328.3 and not more than 1,500 feet of the OHWM of such water.
- (c)(2)(iii): All waters located within 1,500 feet of the high tide line of a water identified in paragraphs (a)(1) or (a)(3) of 33 CFR part 328.3, and all waters within 1,500 feet of the OHWM of the Great Lakes.
- (a)(7): All waters identified in 33 CFR 328.3(a)(7)(i)-(v) where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3.
- **Complete Table 7 for the significant nexus determination. Attach a map delineating the SPOE watershed boundary with (a)(7) waters identified in the similarly situated analysis. - Required**
- Includes water(s) that are geographically and physically adjacent per (a)(6), but are being used for established, normal farming, silviculture, and ranching activities (33 USC Section 1344(f)(1)) and therefore are not adjacent and require a case-specific significant nexus determination.
- (a)(8): All waters located within the 100-year floodplain of a water identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3 not covered by (c)(2)(ii) above and all waters located within 4,000 feet of the high tide line or OHWM of a water identified in paragraphs (a)(1)-(a)(5) of 33 CFR part 328.3 where they are determined on a case-specific basis to have a significant nexus to a water identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3.
- **Complete Table 8 for the significant nexus determination. Attach a map delineating the SPOE watershed boundary with (a)(8) waters identified in the similarly situated analysis. - Required**
- Includes water(s) that are geographically and physically adjacent per (a)(6), but are being used for established, normal farming, silviculture, and ranching activities (33 USC Section 1344(f)(1)) and therefore are not adjacent and require a case-specific significant nexus determination.

#### C. NON-WATERS OF THE U.S. FINDINGS:

##### Check all that apply.

- The review area is comprised entirely of dry land.
- Potential-(a)(7) Waters: Waters that DO NOT have a significant nexus to a water identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3.
- **Complete Table 9 and attach a map delineating the SPOE watershed boundary with potential (a)(7) waters identified in the similarly situated analysis. - Required**
- Includes water(s) that are geographically and physically adjacent per (a)(6), but are being used for established, normal farming, silviculture, and ranching activities (33 USC Section 1344(f)(1)) and therefore are not adjacent and require a case-specific significant nexus determination.
- Potential-(a)(8) Waters: Waters that DO NOT have a significant nexus to a water identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3.
- **Complete Table 9 and attach a map delineating the SPOE watershed boundary with potential (a)(8) waters identified in the similarly situated analysis. - Required**
- Includes water(s) that are geographically and physically adjacent per (a)(6), but are being used for established, normal farming, silviculture, and ranching activities (33 USC Section 1344(f)(1)) and therefore are not adjacent and require a case-specific significant nexus determination.
- Excluded Waters (Non-Waters of U.S.), even where they otherwise meet the terms of paragraphs (a)(4)-(a)(8):
- **Complete Table 10 - Required**
- (b)(1): Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA.
- (b)(2): Prior converted cropland.
- (b)(3)(i): Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.
- (b)(3)(ii): Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.
- (b)(3)(iii): Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (a)(1)-(a)(3).
- (b)(4)(i): Artificially irrigated areas that would revert to dry land should application of water to that area cease.
- (b)(4)(ii): Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds.
- (b)(4)(iii): Artificial reflecting pools or swimming pools created in dry land.<sup>1</sup>
- (b)(4)(iv): Small ornamental waters created in dry land.<sup>1</sup>
- (b)(4)(v): Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water.



- (b)(4)(vi): Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways.<sup>1</sup>
- (b)(4)(vii): Puddles.<sup>1</sup>
- (b)(5): Groundwater, including groundwater drained through subsurface drainage systems.<sup>1</sup>
- (b)(6): Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.<sup>1</sup>
- (b)(7): Wastewater recycling structures created in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.
- Other non-jurisdictional waters/features within review area that do not meet the definitions in 33 CFR 328.3 of (a)(1)-(a)(8) waters and are not excluded waters identified in (b)(1)-(b)(7).
  - **Complete Table 11 - Required.**

D. ADDITIONAL COMMENTS TO SUPPORT AJD:

The Review Area has a history of modification from historical agriculture and residential activities, including woods roads, cart paths, modified tributaries and/or manmade drainage and conveyance features and manipulated waters. The site is associated with bedrock controlled terrain and wetland soil development is limited by the terrain

The wetlands at the site were delineated in accordance with the 1987 Manual and the delineation was revised at our request in 2018 in accordance with the 2012 NCNE Regional Supplement.

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<sup>1</sup> In many cases these excluded features will not be specifically identified on the AJD form, unless specifically requested. Corps Districts may, in case-by-case instances, choose to identify some or all of these features within the review area.

Jurisdictional Waters of the U.S.

Table 1. (a)(1) Traditional Navigable Waters

<b>(a)(1) Waters Name</b>	<b>(a)(1) Criteria</b>	<b>Rationale to Support (a)(1) Designation Include High Tide Line or Ordinary High Water Mark indicators, when applicable.</b>
N/A	Choose an item.	N/A

Table 2. (a)(2) Interstate Waters

<b>(a)(2) Waters Name</b>	<b>Rationale to Support (a)(2) Designation</b>
N/A	N/A

Table 3. (a)(3) Territorial Seas

<b>(a)(3) Waters Name</b>	<b>Rationale to Support (a)(3) Designation</b>
N/A	N/A

Table 4. (a)(4) Impoundments

<b>(a)(4) Waters Name</b>	<b>Rationale to Support (a)(4) Designation</b>
N/A	N/A
N/A	N/A

**Table 5. (a)(5) Tributaries**

<b>(a)(5) Waters Name</b>	<b>Flow Regime</b>	<b>(a)(1)-(a)(3) Water Name to which this (a)(5) Tributary Flows</b>	<b>Tributary Breaks</b>	<b>Rationale for (a)(5) Designation and Additional Discussion. Identify flowpath to (a)(1)-(a)(3) water or attach map identifying the flowpath; explain any breaks or flow through excluded/non-jurisdictional features, etc.</b>
Stream 1	Intermittent	Cos Cob Harbor	Yes	<p>Stream 1 (1<sup>st</sup> order) commences within a headwater PEM/PFO wetland with ephemeral (upper) and intermittent (lower) throughflow around exposed bedrock and lodgment till that may have been enhanced or modified by artificial pathway. The feature is identified by the consultant as a manmade ditch but it does not meet the criteria for (b)(3)(i) or (b)(3)(ii) ditch exclusion. It is the approximately 221 linear foot feature drains wetland features (Wetland 1 and Wetland 3) and possesses both bed and banks with an ordinary high water mark in a landscape position on topographic map of a headwater tributary mapped as hydric soil (Ridgebury, Leicester, Whitman Fine Sandy Loam). The feature is currently conveyed through an artificial stone culvert under a former cart path. Stream 1's flow path is carried out of the 37 acre AJD Review Area through a restricted conveyance (stone outlet structure and stone-lined channel) into a lowland wooded area and then joins another 1<sup>st</sup> order tributary from offsite before it enters Dublin Pond. Photos indicate OHWM is present both upstream and downstream of these artificial features. Site documentation and topographic analysis appear to suggest that the manmade feature is a relocated tributary which may have hydrologically connected Wetland 1 to Wetland 3.</p> <p>From this point USGS NHD identifies the feature as "perennial" and it continues to flow south through 4 additional impoundments before merging with Brothers Brook approx. 1.1 miles downstream to become a 2<sup>nd</sup> order water. The USGS NHD indicates that the tributary passes through a minimum of at least 10 artificial pathways/breaks, including a long underground pipe below recreational ball fields at 57 Bible Street, a box culvert under East Putnam Avenue, several smaller local roadway culverts (Pine Ridge Rd, Montgomery Lane, Rustic Review Rd, &amp; Dublin Hill Rd) in addition to multiple impoundments. Flow continues as 2<sup>nd</sup> order Brothers Brook another 0.67 mile into a larger impoundment known as "Cos Cob Pond" and then flows south and east approximately one more mile to discharge into Cos Cob Harbor which is a Section 10 TNW and (a)(1) tidal water just south of East Putnam Avenue, Greenwich, CT. The single point of entry watershed for Stream 1 is a component (lower reach) of the Mianus River watershed and the basin area is estimated at 2.7 sq miles and where the Mianus River watershed is estimated at 28.6 sq. miles.</p>

**Table 6. (a)(6) Adjacent Waters**

(a)(6) Waters Name	(a)(1)-(a)(5) Water Name to which this Water is Adjacent	<b>Rationale for (a)(6) Designation and Additional Discussion.</b> <b>Identify the type of water and how the limits of jurisdiction were established (e.g., wetland, 87 Manual/Regional Supplement); explain how the 100-year floodplain and/or the distance threshold was determined; whether this water extends beyond a threshold; explain if the water is part of a mosaic, etc.</b>
Wetland 1	Stream 1 - (a)(5)	<p>This wetland feature which is close to one acre in size is identified as a perched depressional wetland at the base of a bedrock outcrop in soils mapped as poorly and very poorly drained Ridgebury, Leicester, Whitman Fine Sandy Loam. The wetland is a sparsely vegetated headwater feature driven by a combination of groundwater and precipitation, although it has been altered and degraded by development practices (adjacent to an abandoned septic field filter and colonized by invasive reed). Wetland 1 is inundated for an extended period of time resulting in low vegetation density. It is bordering and contiguous with Stream 1, both laterally and upslope (at the head) of the waterway. The consultant indicates that the ground surface to the north and south of this wetland has been modified, including the installation of two narrow stone-line channels within the center of the feature. The wetland was delineated in accordance with the 1987 Manual/2012 NCNE Regional Supplement and is best described as PEM/PFO1/PSS by Cowardin method. Vegetation within the northern section of the wetland consists of monotypic invasive common reed. The southern section is dominated by sparse vegetation with clumps of tussock sedge and shrubs such as sweet pepperbush. The feature was evaluated for potential vernal pool habitat and the evaluation concluded that the longevity of water retention did not appear sufficient for amphibian development. Wetland 1 is hydrologically connected to Wetland 2 with an approximately 120 linear foot discrete conveyance in the form of a narrow stone-lined channel.</p>
Wetland 2	Stream 1 - (a)(5)	<p>Wetland 2 is a very small (0.07 acre) slope feature that borders Stream 1 at the toe of a rock slope. Vegetation canopy includes red maple and both cinnamon fern and Christmas fern are present in the understory. Wetland 2 is connected to Wetland 3 via an approximately 40 linear foot section of Stream 1. A stone box culvert lies between Wetland 2 and Wetland 3. The consultant also indicates that subsurface tile-drainage associated with Wetland 4 has affected subsurface condition of Wetland 2.</p>
Wetland 3	Stream 1 - (a)(5)	<p>Wetland 3 is identified by the agent as a roughly 0.61 acre circular manmade pond with contiguous wetland below and above ordinary high water. In addition to groundwater discharge, surface waters from Wetland 1 and 5 and tile drainage from Wetland 4 discharge into this feature. The level of water in the pond is controlled by a stone outlet and the border of the feature is lined with stone along the banks. Wetland above OHW is described as a layer of sparse transitional shrubs including highbush blueberry, sweet pepperbush, spice bush, and rosebay fern. The herbaceous understory includes sensitive fern. This wetland was evaluated for vernal pool function and it was concluded that the feature does provide habitat for obligate vernal pool amphibians. Stream 1 discharges out of the Review Area through the stone outlet and merges with the wetland feature offsite identified as Wetland 6. These two features are one contiguous system bordering and contiguous with Stream 1.</p>

Wetland 5	Stream 1 - (a)(5)	The small (0.08 acre) wetland feature is identified as a perched depressional wetland that appears to only be connected to other features at the site via overland flow which intersects Stream 1 at the stone box culvert. Vegetation within the wetland consists of trees and shrubs including red maple and spice bush. Understorey also includes cinnamon fern. The wetland lies approximately 67 feet east of the OHWM of Stream 1. It does not physically abut the waterway and thus is not bordering or contiguous to the water. The wetland lies within 100 feet of the OHWM for Stream 1 which is an (a)(5) waterway per 33 CFR 328.3, and therefore meets the definition of (a)(6)(c)(2)(1) as neighboring per 33 CFR 328.3. The distance threshold was measured by the project manager using remote imagery (CROCOG LiDAR) and 2016 color orthophotography (scale of 3-inch) and verified by comparing this measurement to the scale of the consultant's March 20, 2018 Federal Wetland and Watercourse Delineation Map.
Wetland 6	Stream 1 - (a)(5)	Wetland 6 is identified as "small finger-like projections of an off-site wetland" and its character is expressed as "mature" with a moderately dense understory of shrubs and herbaceous vegetation including red maple, green ash, sweet pepperbush, highbush blueberry, cinnamon fern and skunk cabbage. The portion of wetland within the Review Area is estimated at approximately 0.10 acre in area and the portion of the wetland feature downstream of the Wetland 3 stone outlet is estimated at approximately 0.5 acre in area. Wetlands 3 and 6 merge into one system outside of the Review Area.

**Table 7. (a)(7) Waters**

SPOE Name	(a)(7) Waters Name	(a)(1)-(a)(3) Water Name to which this Water has a Significant Nexus	Significant Nexus Determination Identify SPOE watershed; discuss whether any similarly situated waters were present and aggregated for SND; discuss data, provide analysis, and summarize how the waters have more than speculative or insubstantial effect on the physical, chemical, or biological integrity of the (a)(1)-(a)(3) water, etc.
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

**Table 8. (a)(8) Waters**

SPOE Name	(a)(8) Waters Name	(a)(1)-(a)(3) Water Name to which this Water has a Significant Nexus	Significant Nexus Determination Identify SPOE watershed; explain how 100-yr floodplain and/or the distance threshold was determined; discuss whether waters were determined to be similarly situated to subject water and aggregated for SND; discuss data, provide analysis, and then summarize how the waters have more than speculative or insubstantial effect the on the physical, chemical, or biological integrity of the (a)(1)-(a)(3) water, etc.
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A



Non-Jurisdictional Waters

**Table 9. Non-Waters/No Significant Nexus**

SPOE Name	Non-(a)(7)/(a)(8) Waters Name	(a)(1)-(a)(3) Water Name to which this Water DOES NOT have a Significant Nexus	Basis for Determination that the Functions DO NOT Contribute Significantly to the Chemical, Physical, or Biological Integrity of the (a)(1)-(a)(3) Water. Identify SPOE watershed; explain how 100-yr floodplain and/or the distance threshold was determined; discuss whether waters were determined to be similarly situated to the subject water; discuss data, provide analysis, and summarize how the waters did not have more than a speculative or insubstantial effect on the physical, chemical, or biological integrity of the (a)(1)-(a)(3) water.
N/A	N/A	N/A	
SPOE B (Greenwich Creek)	WETLAND 7	Indian Harbor/Long Island Sound	<p>Wetland 7 is a 0.27 acre geographically isolated area that possesses hydrology consistent for conditions of seasonal inundation and hydric soil development. The agent describes the feature as "a poorly-drained manicured lawn area. Hydrophytic vegetation is present (white pines demonstrating morphological adaptations to regular seasonal saturation) but not dominant in the depressional wetland area where the majority of the feature is maintained as turf grass. Surrounding vegetation is invasive in origin, including oriental bittersweet and Norway maple and horticultural landscape plants.</p> <p>Wetland 7 is located approximately 630 linear feet from Stream 1, which is within the Review Area, and approximately 350 linear feet to the east of a perennial waterway identified as Greenwich Creek, which is outside of the review area. The Review Area straddles two USGS subregional watershed/catchments. Stream 1 and Wetland 7 are both located within the AJD Review Area, but Wetland 7 is located in a different Single Point of Entry Watershed (SPOE) than Stream 1.</p> <p>The SPOE watershed (SPOE B) for Wetland 7 is associated with a perennial 1<sup>st</sup> order tributary known as Greenwich Creek which flows southerly to discharge into (Section 10 TNW and (a)(1) water) Indian Harbor and then Long Island Sound (Section 10 TNW and Interstate (a)(2) water). SPOE B has a watershed area of 8.07 sq. miles and originates as a headwater tributary approximately 1.75 miles upstream of the project Review Area. From its location proximal to the AJD Review Area and Wetland 7 (Creek Pond) the waterway travels through 5 impoundments before its confluence with another 1<sup>st</sup> order tributary (Rockwood Lake Brook) approximately 0.5 mile downstream from the Review Area. From this point the tributary flows through another 5 impoundments and 2.2 miles before it flows under Interstate 95 into Indian Harbor which is a tidal TNW/Section 10. The waterway is also passed through at least 9 roadway culverts including two major highways.</p> <p>We assessed the potential for significant nexus for Wetland 7 as an (a)(8) water through evaluation of individual and cumulative function of similarly situated waters in SPOE B to affect the chemical, physical or biological integrity of an (a)(1) to (a)(3) water. We</p>

			<p>identified Similarly Situated waters for the purpose of this assessment using remote mapping tools and selected based upon type of wetland feature (USFWS Cowardin Classification), substrate, landform and vegetation character. Similarly situated waters within SPOE B were limited to PFO wetland features (which possess similar NWI classification/functions) that were not "adjacent" waters as defined by 328.3 (a)(6) and were sufficiently close to Wetland 7 either in proximity or in the same contiguous land area with homogenous soil (NRCS soil survey SSURGO), vegetation (USGS Gap Land Cover data, aerial photography) and landform (USGS and Connecticut Quaternary geology). To determine similarly situated significant nexus for Wetland 7 we selected those forested wetland areas in a well-drained landscape of glacial till, outside of mapped hydric soils, within a similar woodland setting and terrain (using hillshade LiDAR) and having similar proximity (within 500 feet) to an (a)(5) tributary. A total of 8 feet were assessed within SPOE B. However we found that only 3 wetland features (SS-5, SS-2 and SS-1) on the attached figures could be reasonably considered for this analysis. We then used the USFWS March 2013 NWI Landscape Level Functional Assessment characterization to identify potential functions of these wetlands in comparison, and in conjunction, with Wetland 7. The wetlands identified and considered as potentially similarly situated of a terrene nature (either headwater or isolated), depressions and with no surface water inlet or outlet.</p> <p>We found that even the similarly situated wetland features identified for this analysis were at a much different functional level than Wetland 7. Wetland 7 possesses little wetland function due to its manmade origin and landscape setting. Its primary function is expected to be retention of surface water and storage of precipitation at a very low level. The function of sediment and pollutant trapping may also exist at a low level as the feature does border a local roadway and a driveway that receives surface flow/drainage. Retention and attenuation of flood waters is unlikely as the feature is present in an "area of minimal flood hazard/zone X" according to FEMA and the nearby waterway (Greenwich Creek) does not possess a delineated floodplain. The functions that Wetland 7 may contribute are expected to be insignificant on an individual and cumulative basis, due to the small size/capacity of the feature storage. Sparse vegetation and turf grass significantly limit wildlife.</p> <p>Wetland 7 and its potentially similarly situated wetlands within SPOE B, even if considered cumulatively, are not believe to rise to a level beyond speculative or insubstantial impact to downstream waters. SPOE B at 8.07 sq. mile (~5165 acres) and the influence that these geographically-isolated, similarly situated wetlands (1.6 acre in total) cumulatively contribute to Indian Harbor and Long Island Sound are unlikely to discernibly effect the chemical, physical or biological integrity of an (a)(1) through (a)(3) water. Additionally, Wetland 7 is hydrologically isolated, non-navigable and intrastate without any other reasonable connection to navigable servitude or interstate commerce.</p>
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**Table 10. Non-Waters/Excluded Waters and Features**

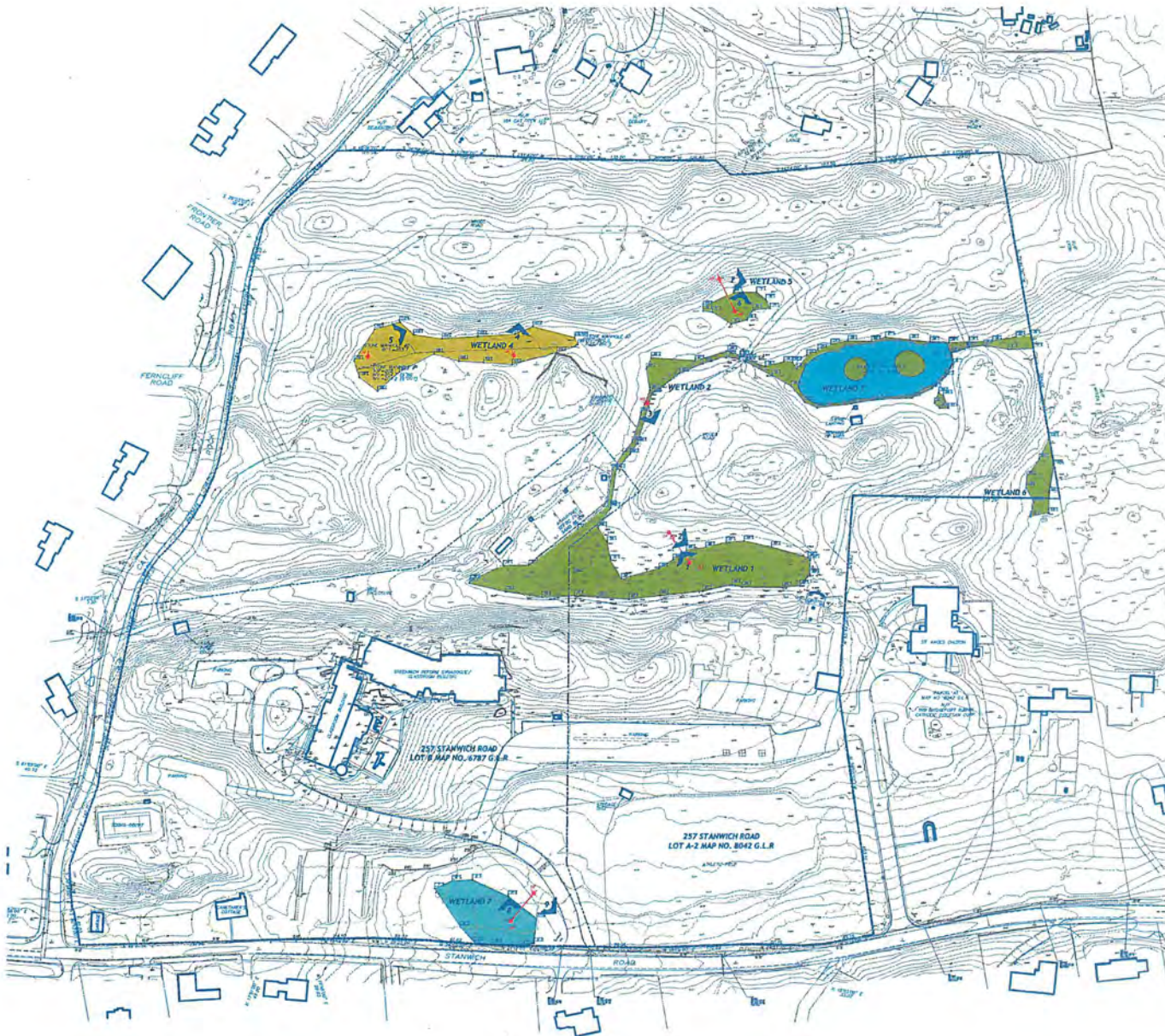
Paragraph (b) Excluded Feature/Water Name	Rationale for Paragraph (b) Excluded Feature/Water and Additional Discussion.
N/A	N/A
N/A	N/A

**Table 11. Non-Waters/Other**

Other Non-Waters of U.S. Feature/Water Name	Rationale for Non-Waters of U.S. Feature/Water and Additional Discussion.
Wetland 4	<p>Physical Character: Wetland 4 is a 0.41 acre area with drained hydric soils where hydrology has been permanently altered with installation of drainage tile prior to 1970. The soils within the feature still retain features that indicate they were formed under poorly-drained conditions. Thus, in the State of Connecticut this feature is still regulated as a wetland even if it has been permanently modified. At the site, drainage tile is greater than 3 feet deep and is connected by stone manholes. Soils post-modification are moderately well-drained. Vegetation at the site is dominated by FACU indicator species. Depth to free water exceeded 20 inches in 2008 and seasonal groundwater hydrology is no longer appropriate to support hydrophytic vegetation. Site documentation including federal wetland delineation data forms reveal there is no indicator of hydrology present.</p> <p>In its historical context, the wetland most closely resembles Wetland 2 and its location on the landscape suggests that it may have been contiguous with that feature and thus, would have been adjacent to Stream 1. In its current state Wetland 4 does not meet the requisite parameters for a federal wetland, and thus is not a WOTUS.</p>







**LEGEND**

- LOCAL WETLAND (DRAINED WETLAND)
- LOCAL WETLANDS/ JURISDICTIONAL FEDERAL WETLANDS
- LOCAL WETLANDS/ NON-JURISDICTIONAL FEDERAL WETLANDS
- POND/LAKE/STREAM AND ORDINARY HIGH WATER MARK, LOCAL AND NON-JURISDICTIONAL FEDERAL
- WETLAND BOUNDARY & FLAG NUMBER
- TRANSECT AND DATA PLOT
- PROJECT PROPERTY BOUNDARY
- TAX LOT BOUNDARY
- PHOTO LOCATIONS

**NOTES**

- EXISTING CONDITIONS INFORMATION (INCLUDING WETLAND AND WATERCOURSE BOUNDARIES) TAKEN FROM A SURVEY PREPARED BY ROCCO V. D'AMBREA, INC AND DATED FEBRUARY 1, 2006.
- WETLAND BOUNDARIES WERE FIELD LOCATED AND MARKED BY WILLIAM KENNY ASSOCIATES LLC IN FEBRUARY 2006 AND SUBSEQUENTLY SURVEYED AND MAPPED BY ROCCO V. D'AMBREA, INC. IN FEBRUARY AND JUNE 2006.

**FEDERAL WETLAND & WATERCOURSE  
DELINEATION MAP**

OWNER:  
**THE STANWICH SCHOOL**

LOCATION:  
**STANWICH ROAD  
GREENWICH, CONNECTICUT**

DATE: MARCH 30, 2018  
SCALE: 1" = 80' 0"







PHOTO # 1- WETLAND 4



PHOTO # 2- WETLAND 4



PHOTO # 3- WETLAND 5



PHOTO # 4- MANMADE DRAINAGE DITCH



PHOTO # 5- WETLAND 3



PHOTO # 6- WETLAND 3



PHOTO # 7- MANMADE DRAINAGE DITCH



PHOTO # 9- WETLAND 1

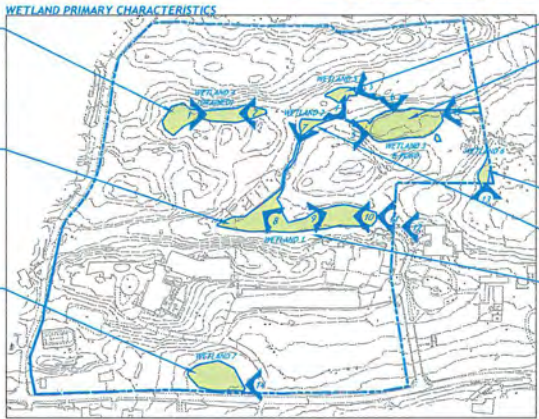


PHOTO # 11- WETLAND 1

**WETLAND 4** - DRAINED AND DEGRADED WOODLAND WETLAND DEPRESSION TO BE RESTORED THROUGH REFORMATION AND PLANTING OF NATIVE HYDROPHITIC TREES AND SHRUBS. AREA CURRENTLY FUNCTIONS PRIMARILY AS AN UPLAND.

**WETLAND 1** - WOODLAND AND MARSH, SHALLOW DEPRESSION, DISTURBED NORTHERN AND SOUTHERN AREAS TO BE ENHANCED AND EXPANDED VIA REMOVAL OF "PRAGMATES" AND PLANTING OF NATIVE TREES, SHRUBS AND HERBS.

**WETLAND 7** - DEGRADED LAWN WETLAND SLOPE TO BE ENHANCED VIA PLANTING OF NATIVE TREES, SHRUBS AND HERBS, MICROTOPOGRAPHY IMPROVEMENTS AND INTRODUCTION OF STORMWATER.



**WETLAND 5** - WOODLAND WETLAND, SHALLOW DEPRESSION TO REMAIN UNDISTURBED.

**WETLAND 3** - SHALLOW POND AND FRINGE WOODLAND WETLAND, PROVIDES BREEDING AND DEVELOPMENT HABITAT TO OBLIGATE VERNAL POOL SPECIES (E.G., SPOTTED SALAMANDER AND WOOD FROG). AREA TO BE PROTECTED AND UNALTERED.

**WETLAND 6** - GENTLY SLOPING, WOODLAND WETLAND TO REMAIN UNDISTURBED.

**WETLAND 2** - GENTLY SLOPING, WOODLAND WETLAND TO REMAIN UNALTERED, HISTORICALLY SYSTEM ALTERED FOR INSTALLATION OF SUBSURFACE DRAIN BETWEEN WETLAND 4 AND 3.

WOODS ROAD AND CONTAMINATED SOILS TO BE REMOVED FROM WESTERN BOUNDARY.

**LEGEND**

▶ PHOTO NUMBER AND VIEW DIRECTION



PHOTO # 8- WETLAND 1



PHOTO # 10- WETLAND 1



PHOTO # 12- LAWN & GROTTO SOUTH OF WETLAND 1

**WETLAND & WATERCOURSE FUNCTIONAL ASSESSMENT**

WETLAND & WATERCOURSE FUNCTION	WETLAND & WATERCOURSE ID NO. & RELATIVE CAPACITY TO PERFORM FUNCTION													
	1		2		3		4		5		6		7	
	EXTG	PROP	EXTG	PROP	EXTG	PROP	EXTG	PROP	EXTG	PROP	EXTG	PROP	EXTG	PROP
MODIFICATION OF GROUNDWATER DISCHARGE	H	L	H	L	H	L	H	L	H	L	H	L	H	L
MODIFICATION OF GROUNDWATER RECHARGE	H	L	H	L	H	L	H	L	H	L	H	L	H	L
STORM AND FLOODWATER STORAGE	H	L	H	L	H	L	H	L	H	L	H	L	H	L
MODIFICATION OF STREAM FLOW	L	L	L	L	L	L	L	L	L	L	L	L	L	L
MODIFICATION OF WATER QUALITY	H	L	H	L	H	L	H	L	H	L	H	L	H	L
EXPORT OF DETRITUS	L	L	L	L	L	L	L	L	L	L	L	L	L	L
CONTRIBUTION TO THE ABUNDANCE AND DIVERSITY OF WETLAND VEGETATION	H	L	H	L	H	L	H	L	H	L	H	L	H	L
CONTRIBUTION TO THE ABUNDANCE OF DIVERSITY OF WETLAND FAUNA	H	L	H	L	H	L	H	L	H	L	H	L	H	L
AVERAGE/OVERALL	H	L	H	L	H	L	H	L	H	L	H	L	H	L

**WETLAND PRIMARY CHARACTERISTICS**

ID NO.	PRINCIPAL SOURCE(S) OF HYDROLOGY	WATER TABLE TYPE	HGM CLASSIFICATION	USFWS CLASSIFICATION	VEGETATION COVER TYPE(S)
1	SEASONALLY HIGH WATER TABLE AND PRECIPITATION	PERCHED	DEPRESSIONAL	PPWBL1	FORESTED
2	PRECIPITATION	PERCHED	SLOPE	PPWBL2	FORESTED
3	SEASONALLY HIGH WATER TABLE AND PRECIPITATION	PERCHED	LACUSTRINE FRINGE	LPWBL2	FORESTED
4	PRECIPITATION (FORMERLY PERCHED)	PERCHED	DEPRESSIONAL	PPWBL1	FORESTED
5	SEASONALLY HIGH WATER TABLE AND PRECIPITATION	PERCHED	DEPRESSIONAL	PPWBL1	FORESTED
6	SEASONALLY HIGH WATER TABLE AND PRECIPITATION	PERCHED	SLOPE	PPWBL1	FORESTED
7	SEASONALLY HIGH WATER AND PRECIPITATION	PERCHED	SLOPE	PEWFL	MANICURED LAWN

1 PPWBL1 - PALUSTRINE FORESTED WETLAND BROAD LEAVED DECIDUOUS COVER TYPE PRECIPITATION  
 2 PPWBL2 - PALUSTRINE FORESTED WETLAND BROAD LEAVED DECIDUOUS COVER TYPE PRECIPITATION  
 3 LPWBL2 - PALUSTRINE FORESTED WETLAND BROAD LEAVED DECIDUOUS COVER TYPE PRECIPITATION  
 4 PPWBL1 - PALUSTRINE FORESTED WETLAND BROAD LEAVED DECIDUOUS COVER TYPE PRECIPITATION  
 5 PPWBL1 - PALUSTRINE FORESTED WETLAND BROAD LEAVED DECIDUOUS COVER TYPE PRECIPITATION  
 6 PPWBL1 - PALUSTRINE FORESTED WETLAND BROAD LEAVED DECIDUOUS COVER TYPE PRECIPITATION  
 7 PEWFL - PALUSTRINE FORESTED WETLAND BROAD LEAVED DECIDUOUS COVER TYPE PRECIPITATION  
 CLASSIFICATION OF WETLANDS AND WATERBODIES OF THE UNITED STATES; CONNOR, L.H. ET AL. 1979



PHOTO # 13- WETLAND 6



PHOTO # 14- WETLAND 7



PHOTO # 15- WETLAND 3

**FIGURE 4: WETLAND LOCATIONS, PHOTOS & CHARACTERISTICS ECOLOGICAL ASSESSMENT REPORT**

OWNER:  
 THE STANWICH SCHOOL  
 LOCATION:  
 275 STANWICH ROAD  
 GREENWICH, CONNECTICUT  
 DATE: AUGUST 22, 2007  
 SCALE: NOT TO SCALE





STANWICH SCHOOL NAE-2000-01240  
APPROVED JURISDICTIONAL DETERMINATION REVIEW AREA

FIGURE 1



Source: USGS NHD, CT Wetlands & CTECO Parcels  
Accessed: September 1, 2018  
Created by: Cori M. Rose, USACE



STANWICH SCHOOL NAE-2000-01240  
POTENTIAL A(8) WETLAND RESOURCES

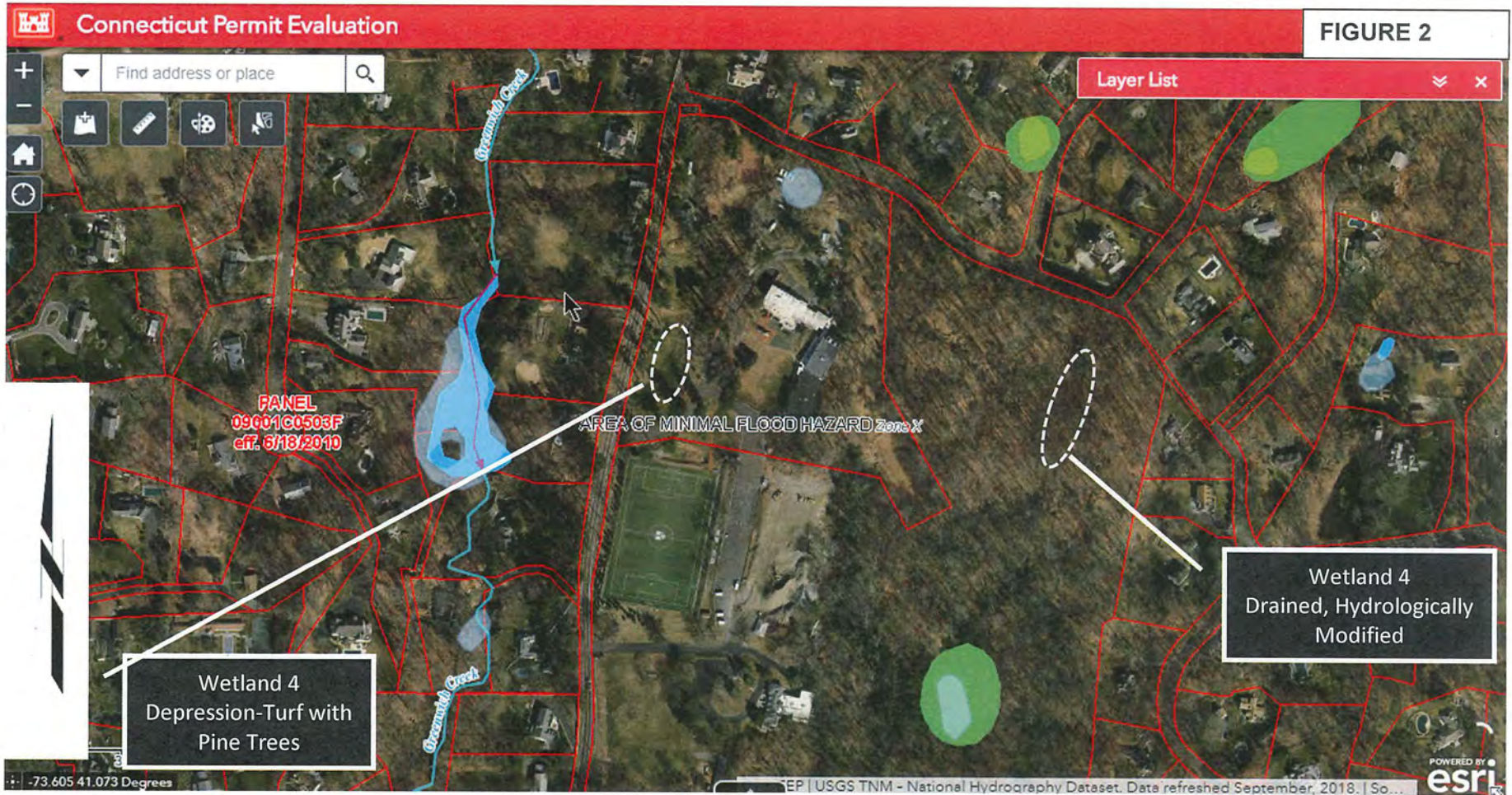


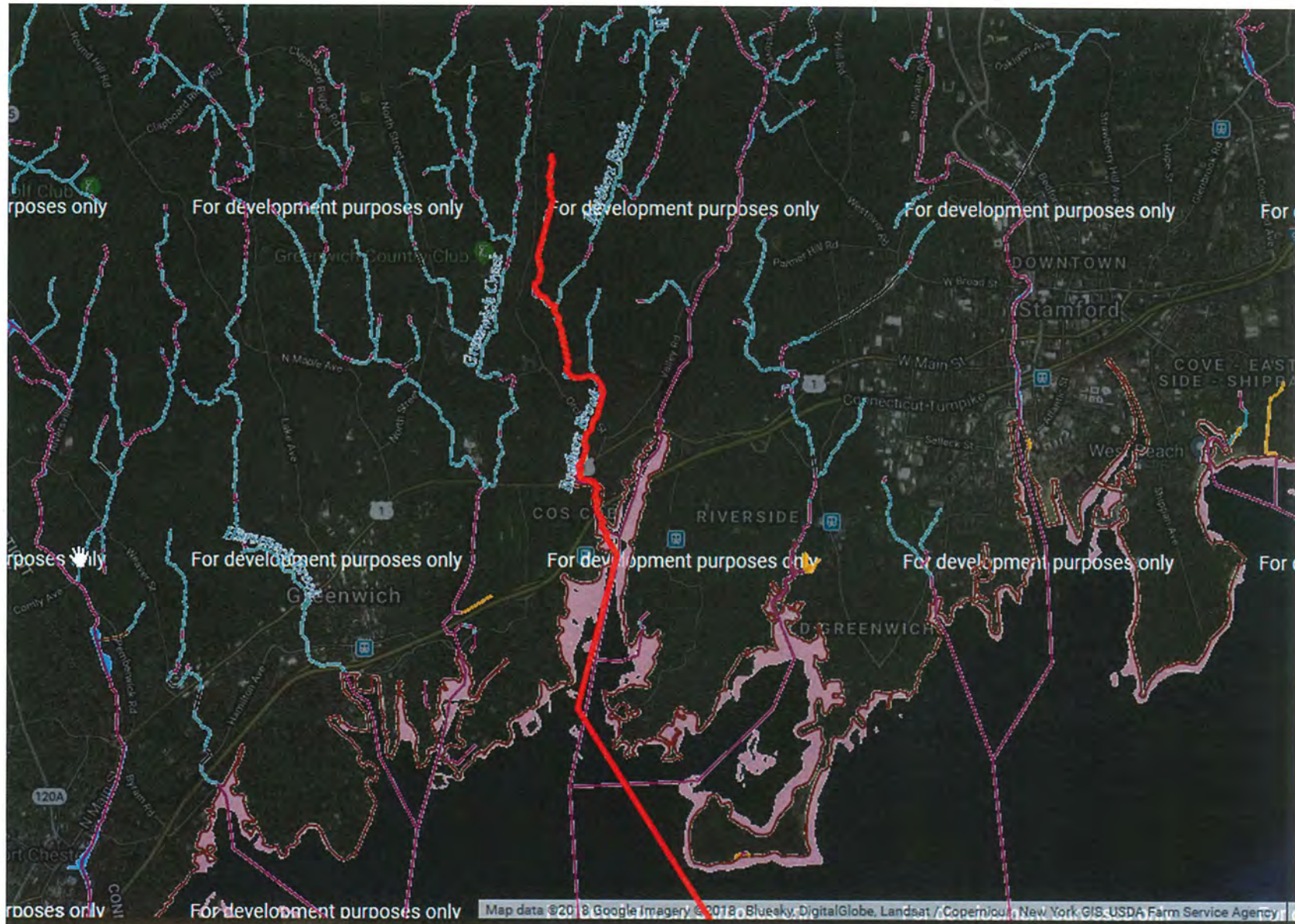
FIGURE 2

Source: USGS NHD, USFWS NWI, FEMA Floodplains & CTECO Parcels  
Accessed: September 1, 2018  
Created by: Cori M. Rose, USACE



STANWICH SCHOOL NAE-2000-01240  
CONNECTIVITY FLOW PATH TO TNW (COS COB HARBOR)

FIGURE 3

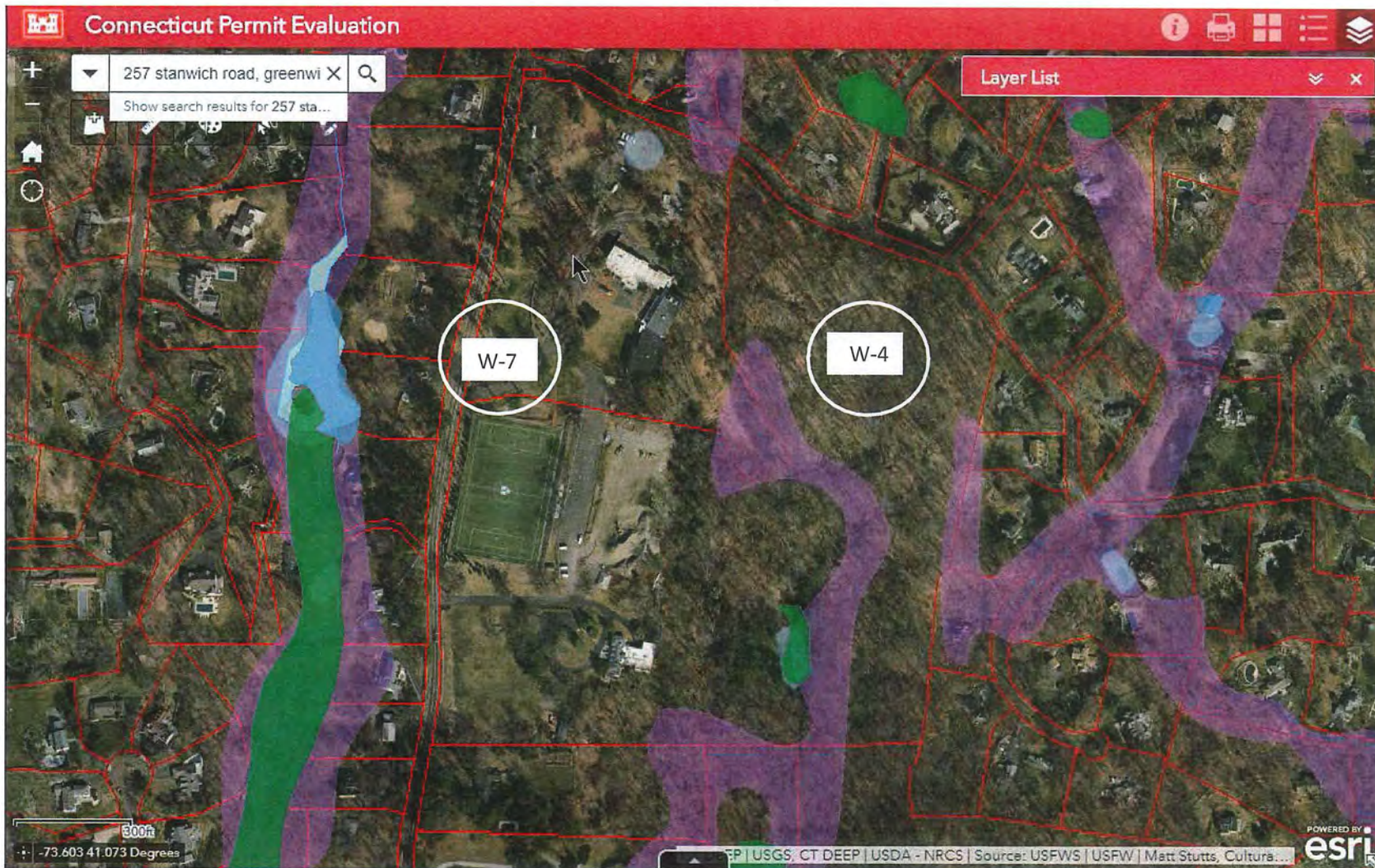


Source: Google Earth, DigitalGlobe, USDA  
Accessed: September 1, 2018  
Created by: Cori M. Rose, USACE



257 STANWICH ROAD, STANWICH SCHOOL NAE-2000-01240

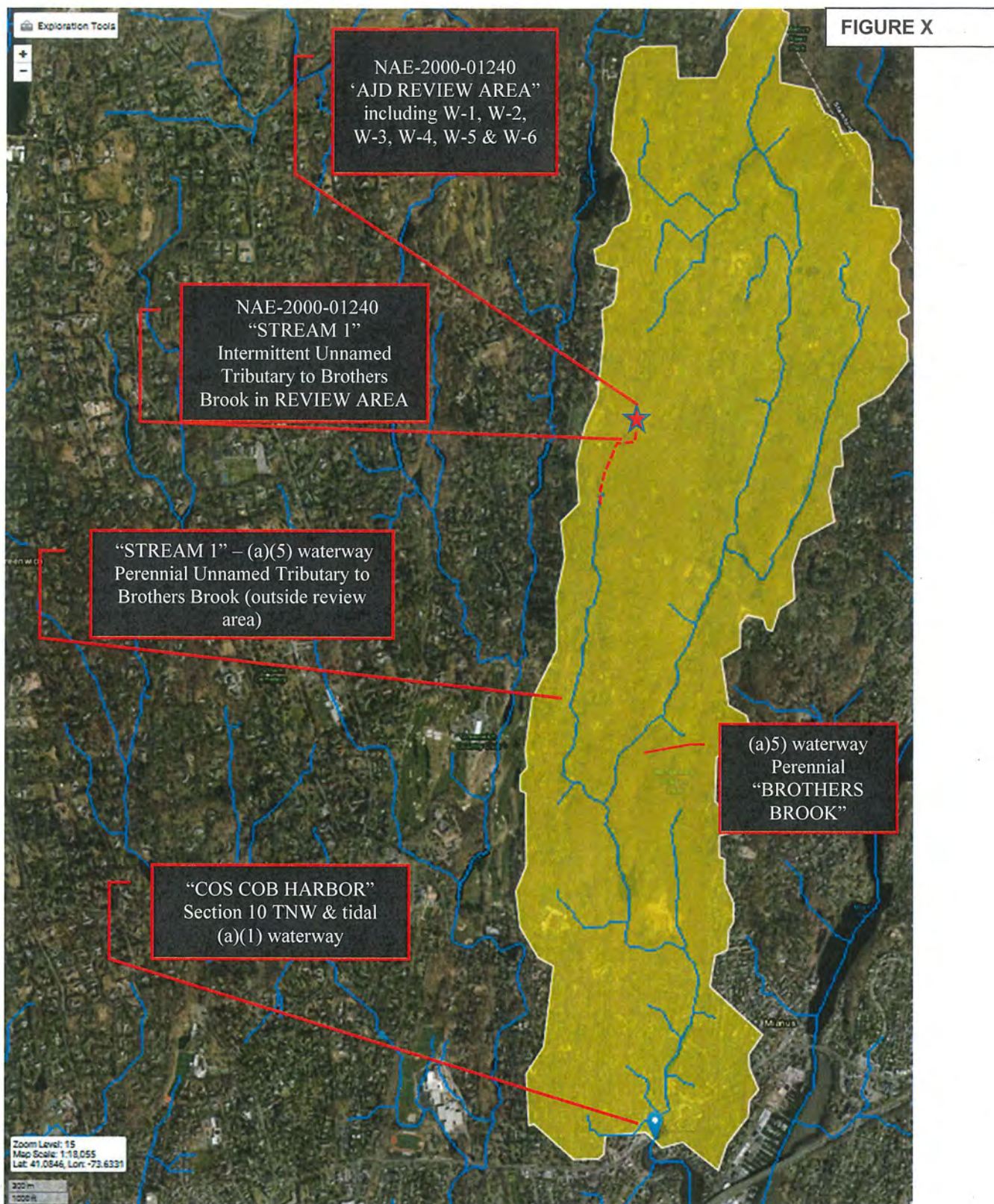
FIGURE 4



SOURCE: NAE REGULATORY VIEWER  
DATA: CT DEEP, USGS, NRCS, USFWS  
DATE ACCESSED: AUGUST 13, 2018  
ACCESSED BY: CORI M. ROSE, USACE



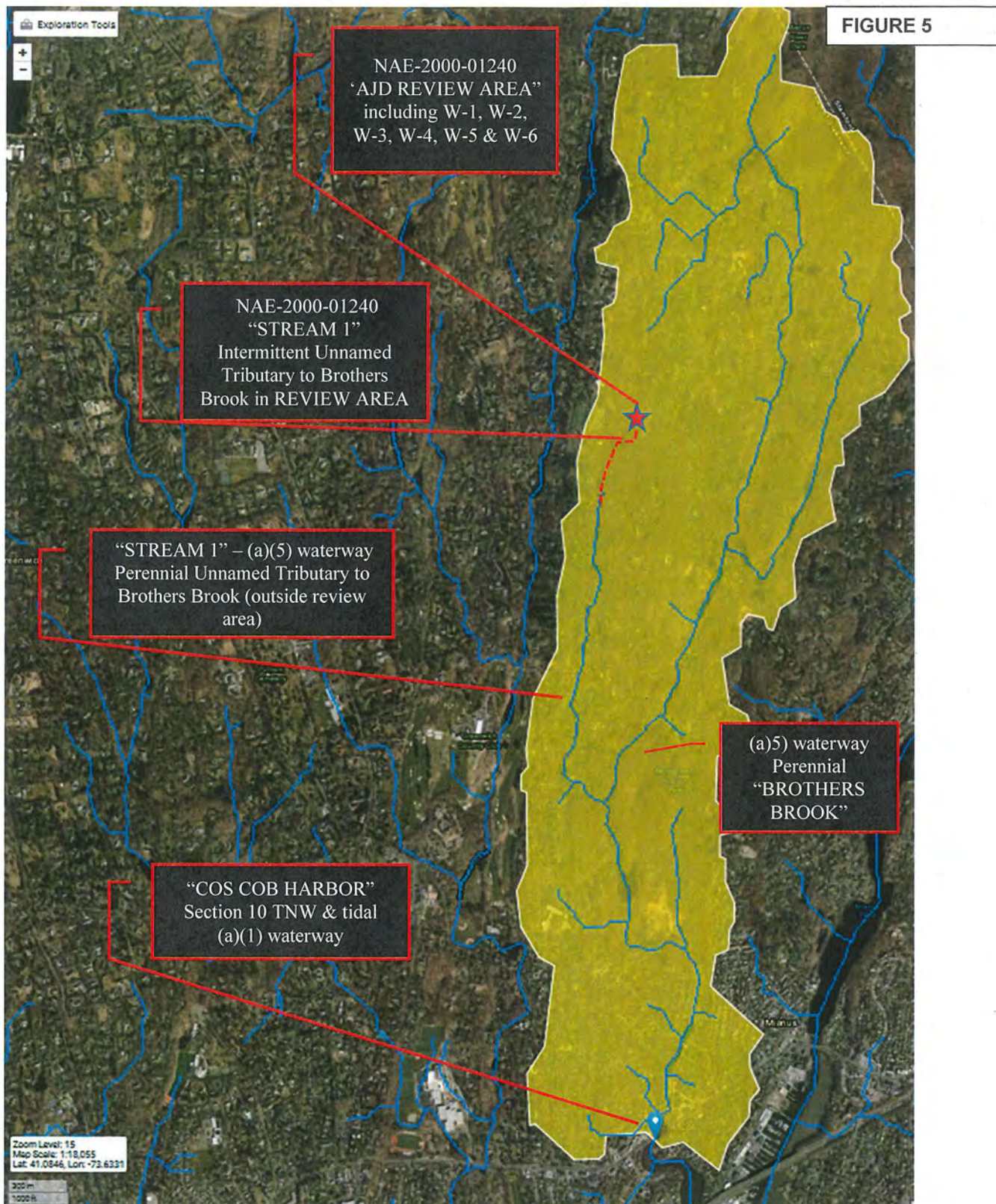
STANWICH SCHOOL NAE-2000-01240  
AJD SPOE A for (a)(5) STREAM 1 to (a)(1) water - Cos Cob Harbor



Source: USGS NHD, USGS StreamStats  
Accessed: September 1, 2018  
Created by: Cori M. Rose, USACE



STANWICH SCHOOL NAE-2000-01240  
AJD SPOE A for (a)(5) STREAM 1 to (a)(1) water - Cos Cob Harbor

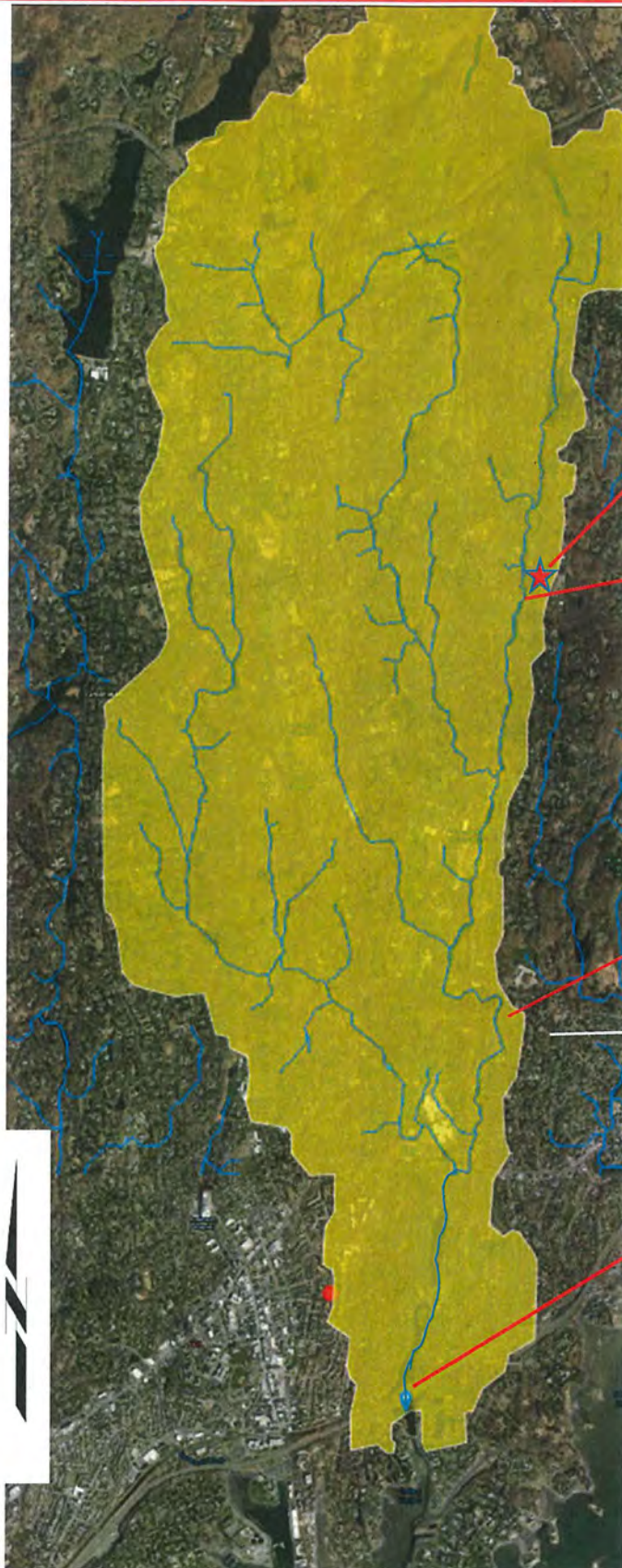


Source: USGS NHD, USGS StreamStats  
Accessed: September 1, 2018  
Created by: Cori M. Rose, USACE



STANWICH SCHOOL NAE-2000-01240  
AJD SPOE B for (a)(5) STREAM 2 to (a)(1) water – Indian Harbor

FIGURE X



NAE-2000-01240  
'AJD REVIEW AREA' including  
W-7

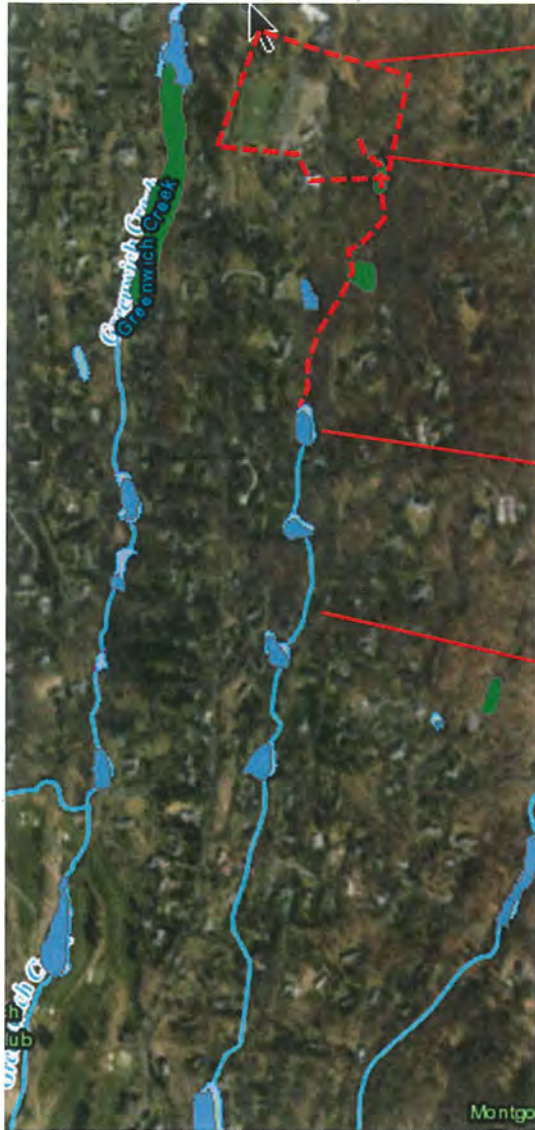
"STREAM 2" – (a)(5) waterway  
Perennial Greenwich Creek  
(outside review area)

(a)(5) waterway Perennial  
Greenwich Creek

"INDIAN HARBOR"  
Section 10 TNW & tidal  
(a)(1) waterway



FIGURE X

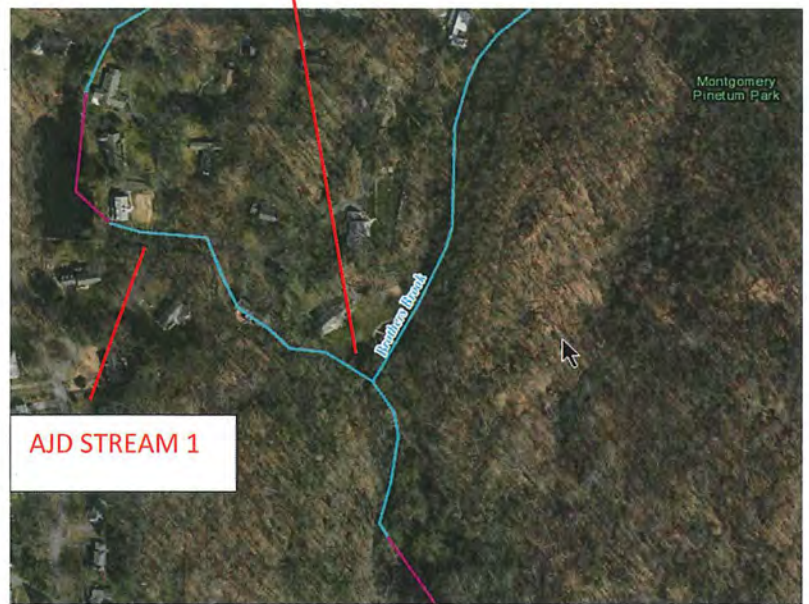


AJD review area -257 Stanwich Road

AJD (a)(5) STREAM 1 (headwater, Intermittent unnamed tributary of Brothers Brook) at 257 Stanwich Road within the AJD Review Area

AJD (a)(5) STREAM 1 Unnamed tributary transitions to Perennial at 57 Stanwich Road

Travels through 6 impoundments before merging with Brothers Brook at 57 Bible Street, adjacent to Montgomery Pinetum Park

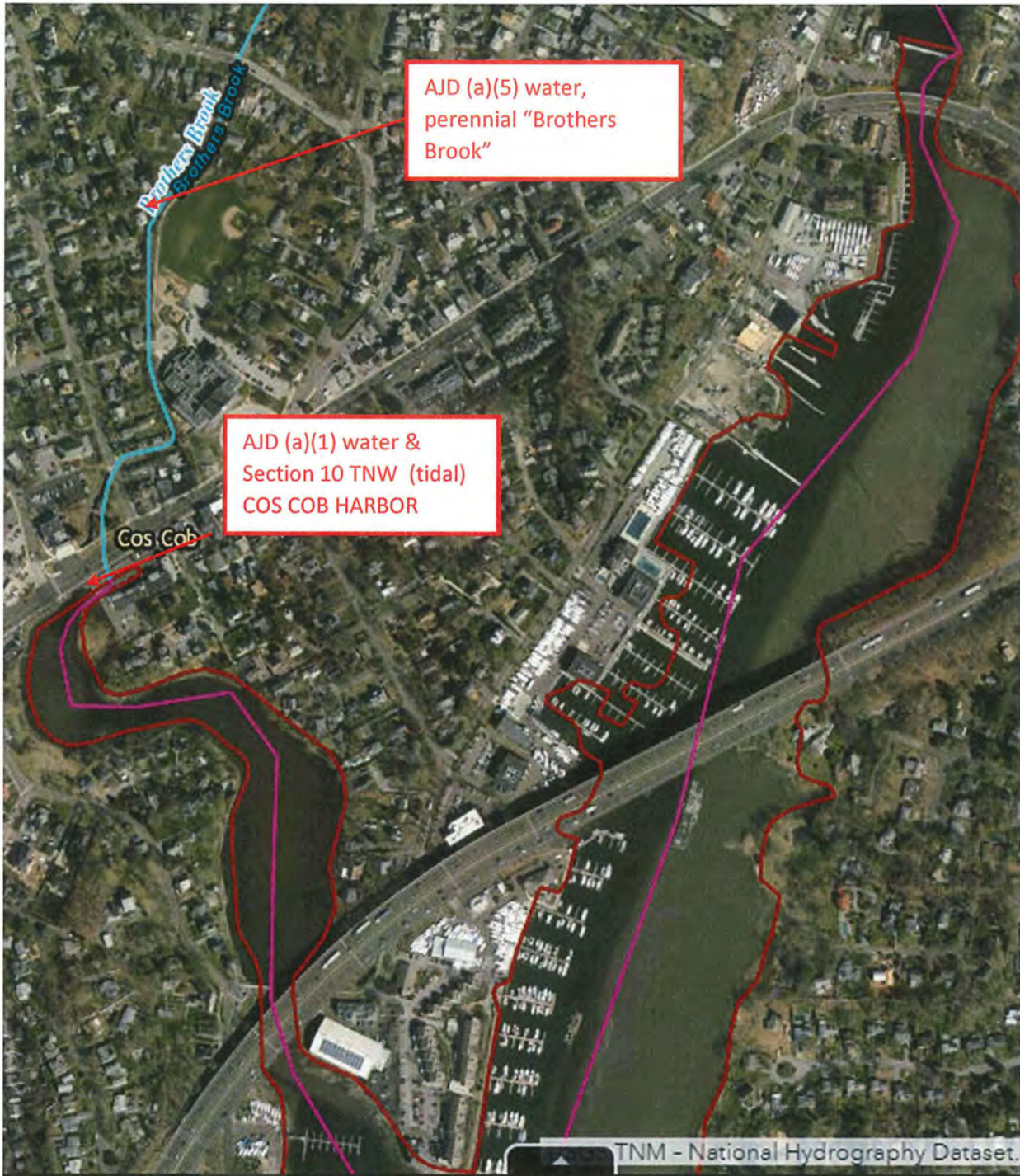




**CONNECTIVITY TO (A)(1) TO (A)(3) WATERWAY**

**FIGURE 7**

AJD STREAM 1 TRAVELS DUE SOUTH 1.06 MILE FROM 257 STANWICH ROAD TO MERGE WITH BROTHERS BROOK IN GREENWICH, CT AT 57 BIBLE STREET, THEN BROTHERS BROOK TRAVELS SOUTH/SOUTHWEST FOR APPROXIMATELY 0.67 MILE BEFORE EMPTYING INTO COS COB HARBOR JUST BELOW EAST PUTNAM AVENUE IN GREENWICH, CONNECTICUT



Source: USGS NHD, CT Wetlands  
Accessed: September 1, 2018  
Created by: Cori M. Rose, USACE



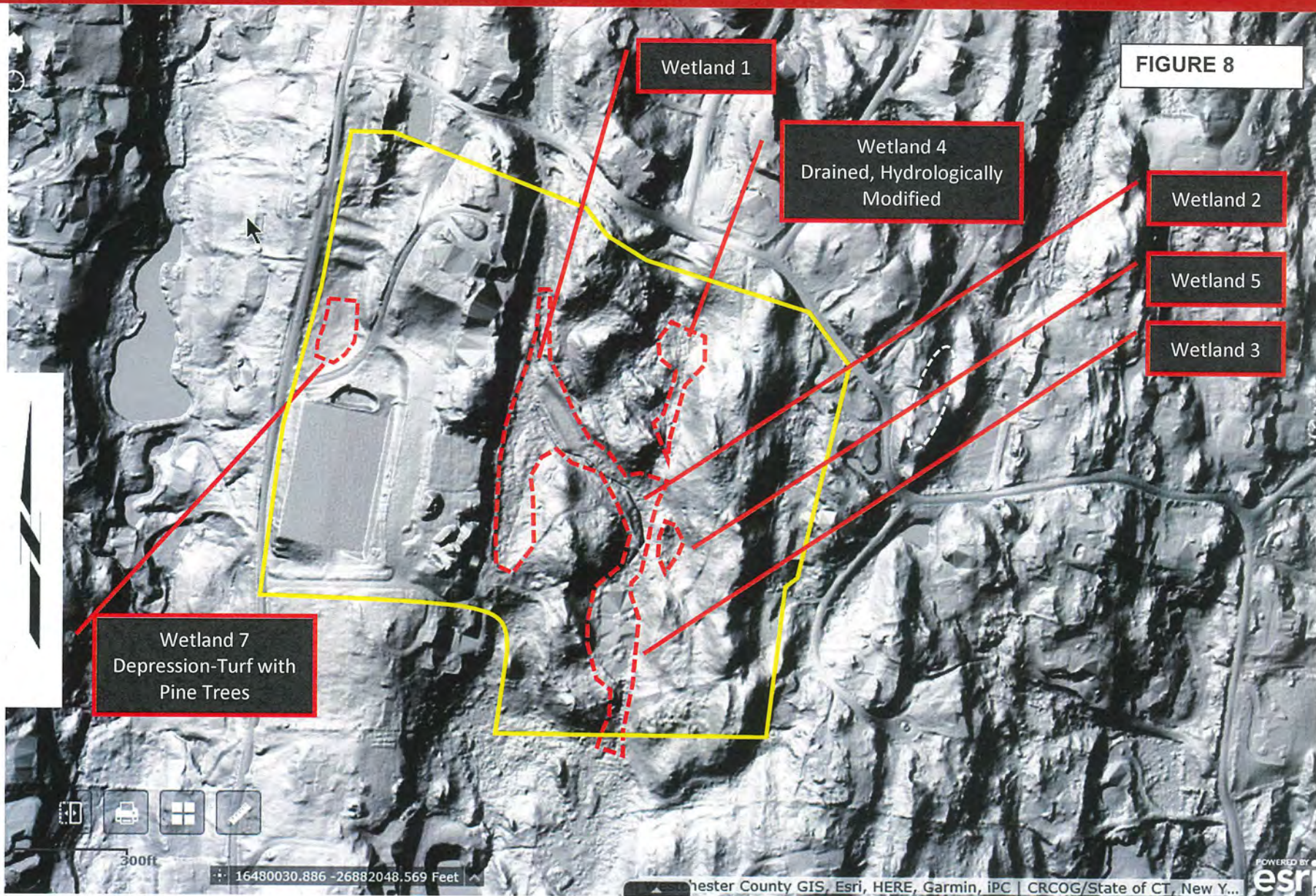


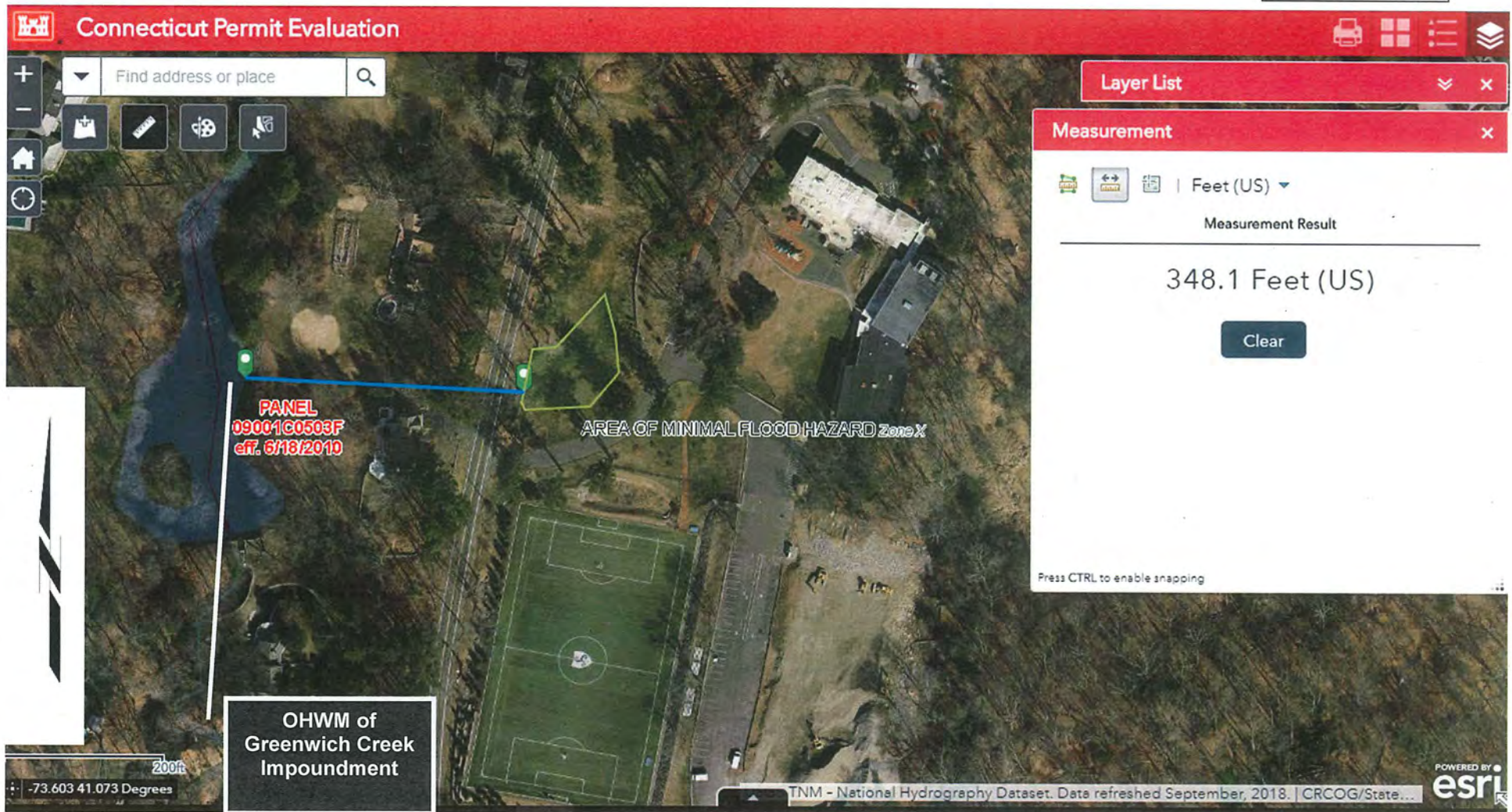
FIGURE 8

Source: USGS NHD, USFWS NWI, FEMA Floodplains & CTECO Parcels  
Accessed: September 1, 2018  
Created by: Cori M. Rose, USACE



STANWICH SCHOOL NAE-2000-01240  
DISTANCE TO WETLAND 7

FIGURE 9



Source: USGS NHD, CRCOG, FEMA  
Accessed: September 1, 2018  
Created by: Cori M. Rose, USACE



STANWICH SCHOOL NAE-2000-01240  
VIEW OF WETLAND 7 FROM 260 STANWICH ROAD

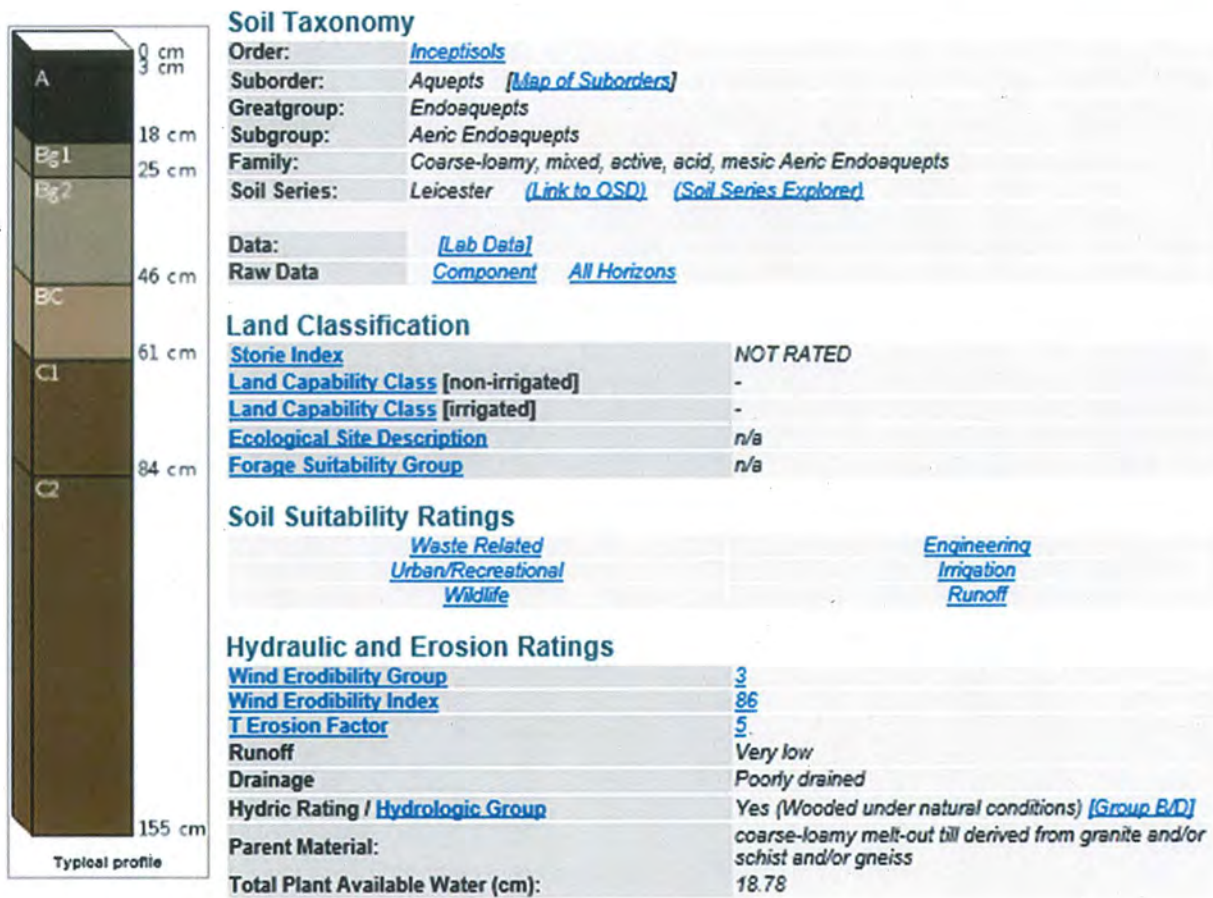
FIGURE 10



Source: Google Maps  
Accessed: September 1, 2018  
Photo Date: December 2015  
Created by: Cori M. Rose, USACE



FIGURE 11



**Geomorphology**

Landform	depressions
Landform	drainageways
Landscape	uplands

**Plants**

Symbol	Scientific Name	Common Name	Range Prod.
<a href="#">ALINR</a>	<i>Alnus incana ssp. rugosa</i>	speckled alder	
<a href="#">AMCA4</a>	<i>Amelanchier canadensis</i>	Canadian serviceberry	
<a href="#">ATFI</a>	<i>Athyrium filix-femina</i>	common ladyfern	
<a href="#">MAIAN</a>	<i>Maianthemum</i>	false Solomons seal	
<a href="#">LIBE3</a>	<i>Lindera benzoin</i>	northern spicebush	
<a href="#">VEVI</a>	<i>Veratrum viride</i>	American false hellebore	
<a href="#">RHVI2</a>	<i>Rhododendron viscosum</i>	swamp azalea	
<a href="#">VACO</a>	<i>Vaccinium corymbosum</i>	highbush blueberry	
<a href="#">CLAL3</a>	<i>Clethra alnifolia</i>	coastal sweetpepperbush	
<a href="#">OSCI</a>	<i>Osmunda cinnamomea</i>	cinnamon fern	
<a href="#">SYFO</a>	<i>Symplocarpus foetidus</i>	skunk cabbage	

**Forest Productivity**

Symbol	Common Name	Site Index	Site Index Curve Number	Productivity (cu.ft. / ac. / yr.)
<a href="#">ACRU</a>	red maple	70	Lloyd 1971b (094)	43
<a href="#">BEAL2</a>	yellow birch		Lloyd 1971a (120)	
<a href="#">PIST</a>	eastern white pine	69	Lloyd 1970b (660)	129
<a href="#">QURU</a>	northern red oak	56	Schnur 1937 (820)	

Source: USDA NRCS SSURGO  
 Accessed: September 1, 2018  
 Created by: Cori M. Rose, USACE

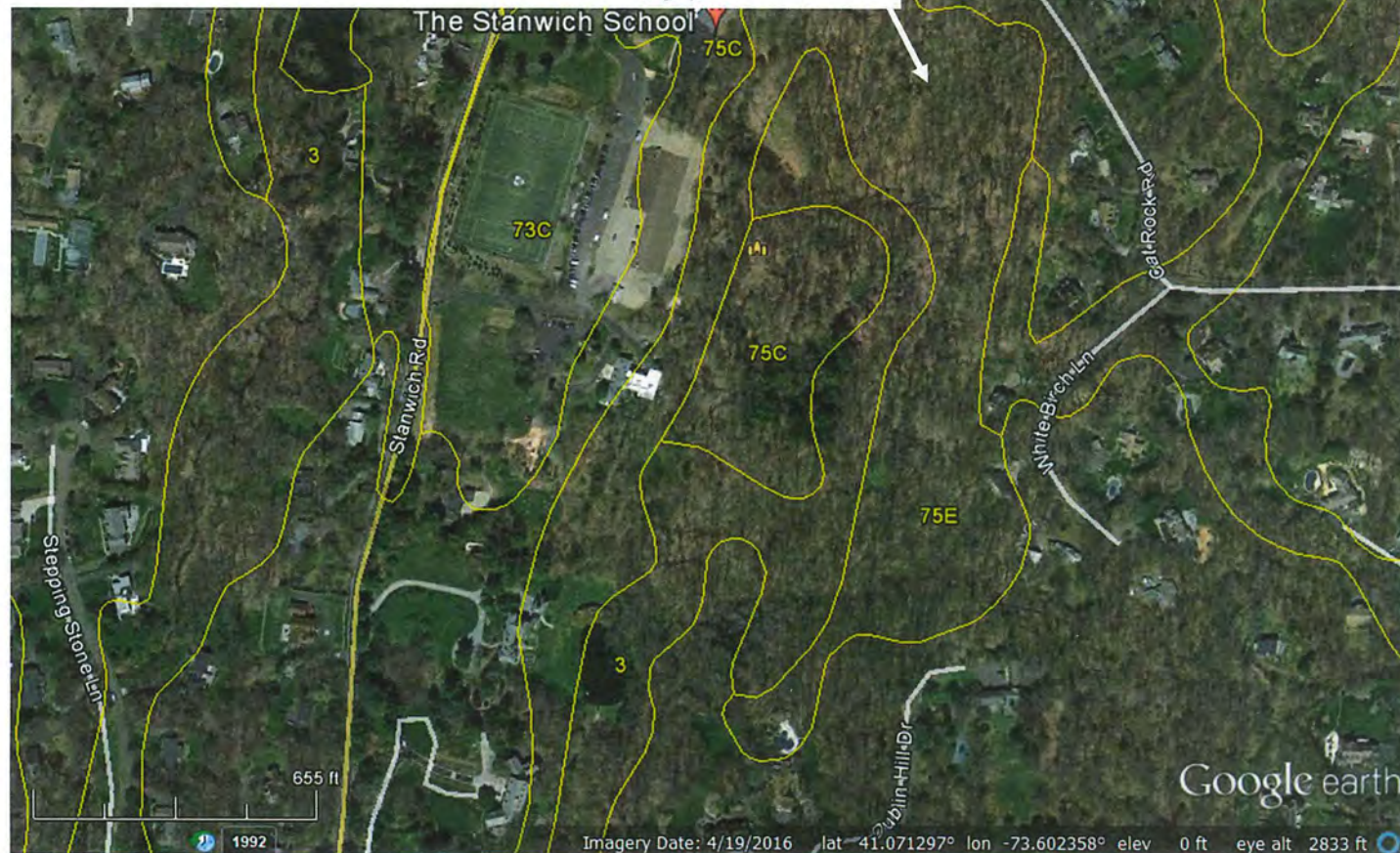
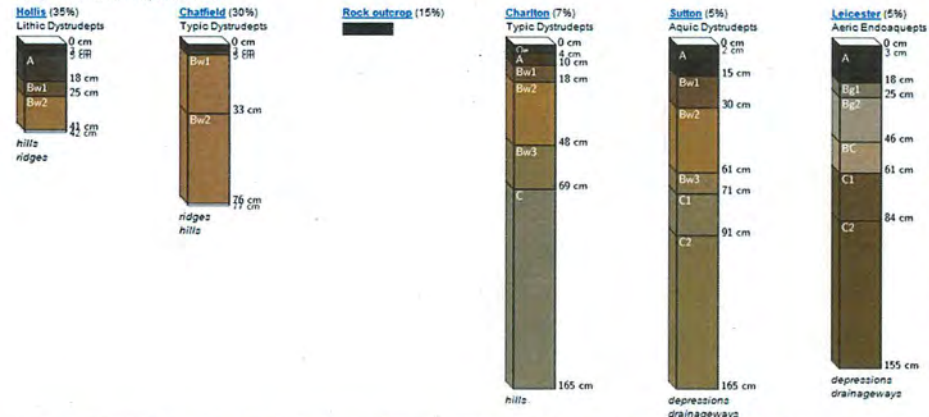


# STANWICH SCHOOL NAE-2000-01240 NRCS MAPPED SOIL SERIES FOR WETLAND 4

Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes (SSURGO Export: 2018-09-05)

FIGURE 12

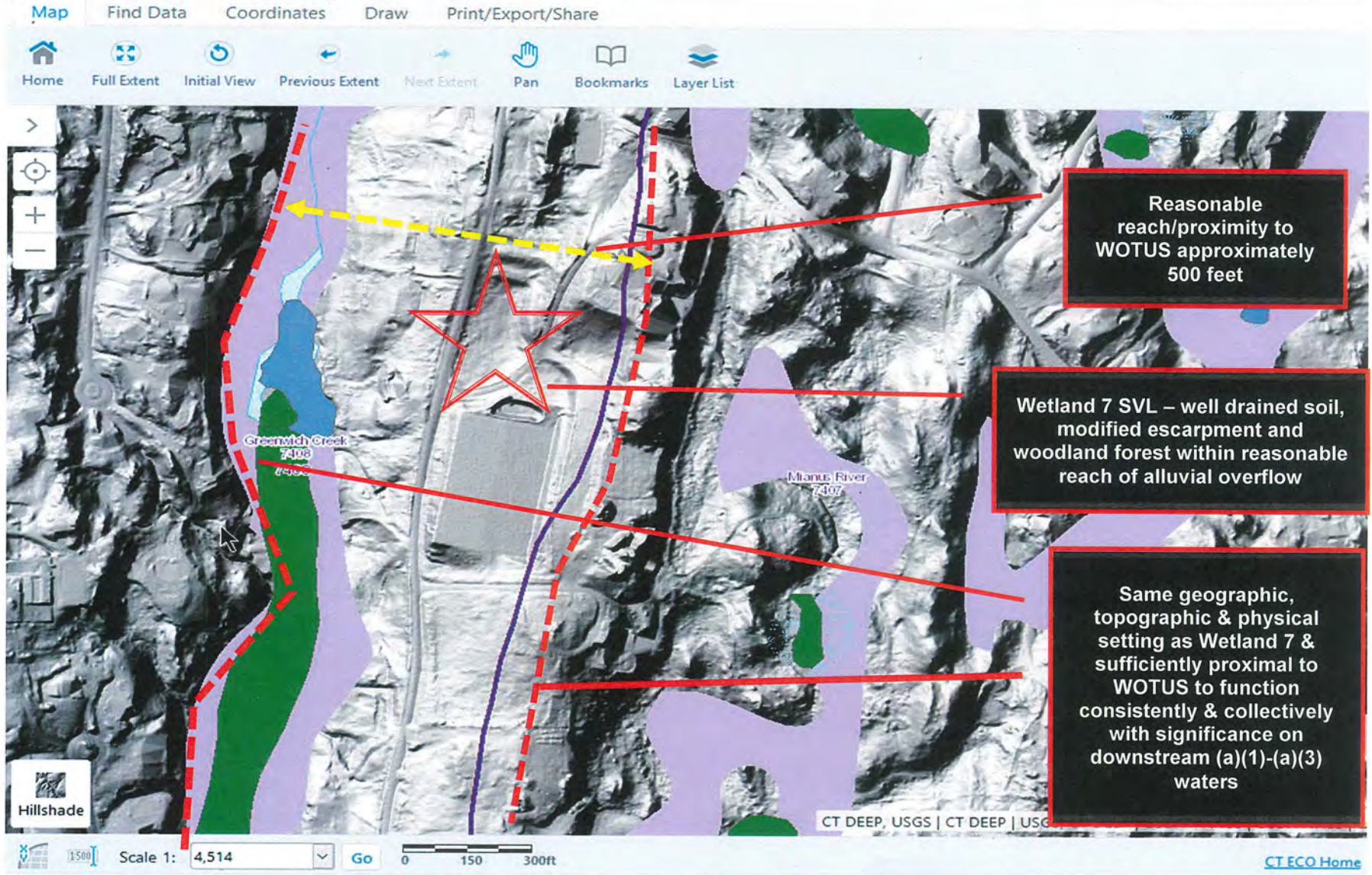
Components within map unit 286120



Source: Google Earth, DigitalGlobe, USDA  
Accessed: September 1, 2018



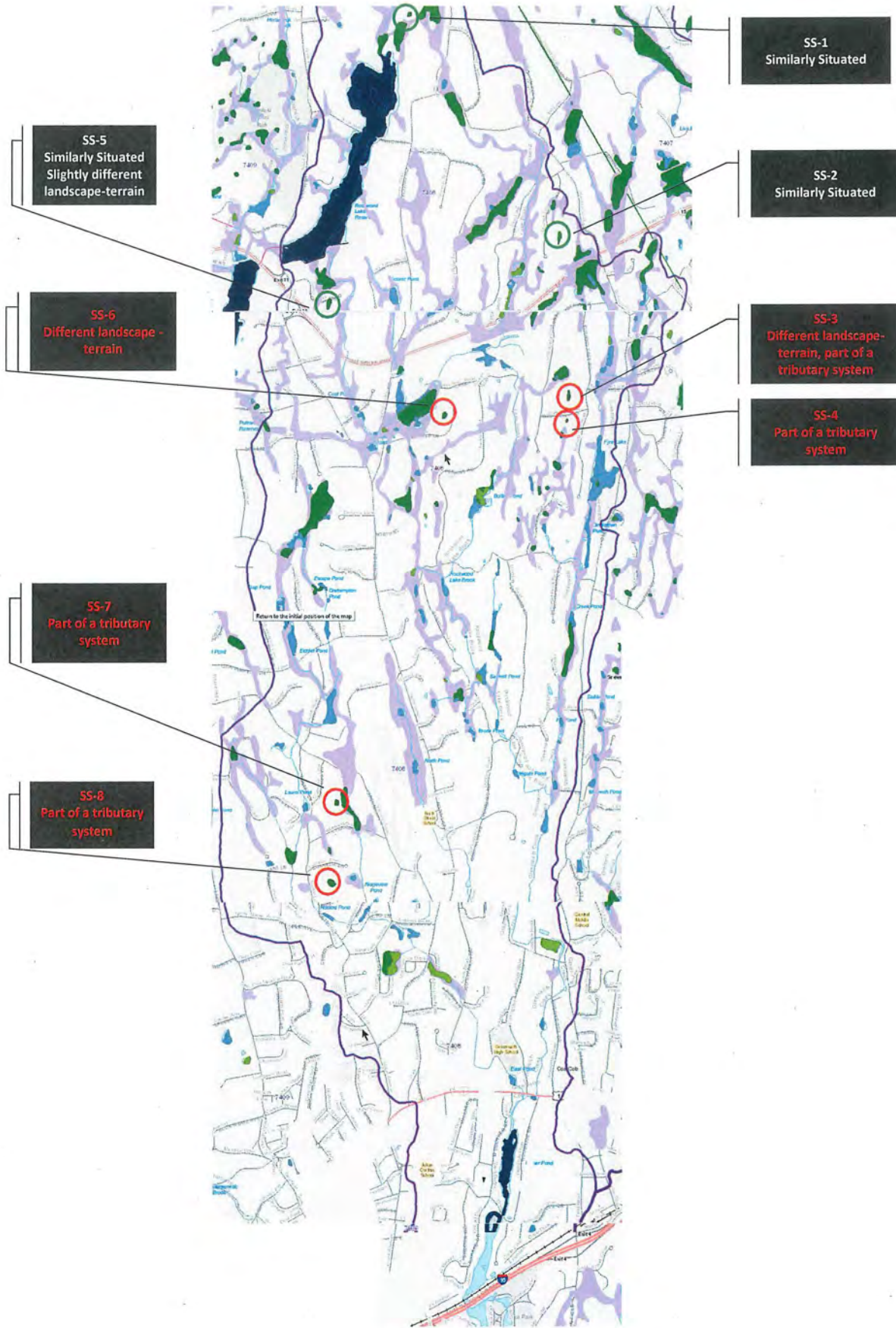
STANWICH SCHOOL NAE-2000-01240 SIMILARLY SITUATED WATERS  
WETLAND 7 SUBSTRATE, LANDFORM AND VEGETATION (SVL)



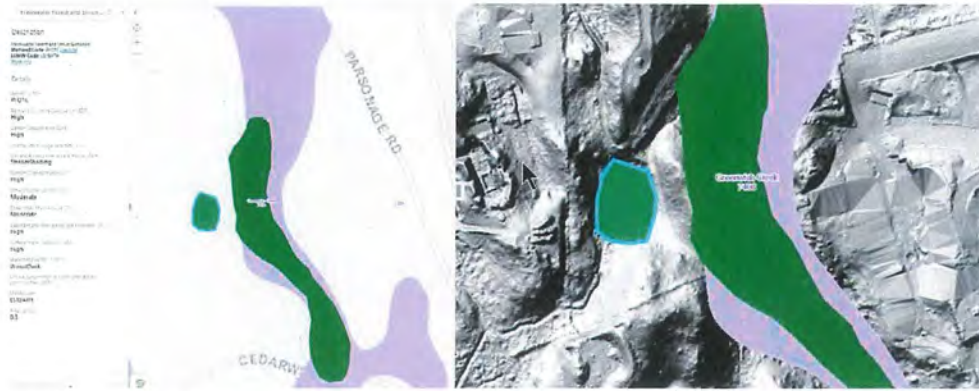
Source: USGS NHD, CRCOG, NWI  
Accessed: November 27, 2018  
Created by: Cori M. Rose, USACE



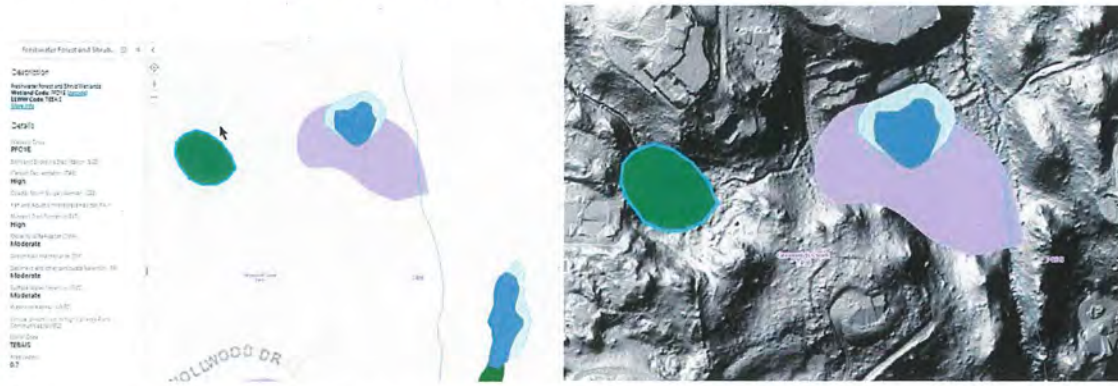
Figure 14



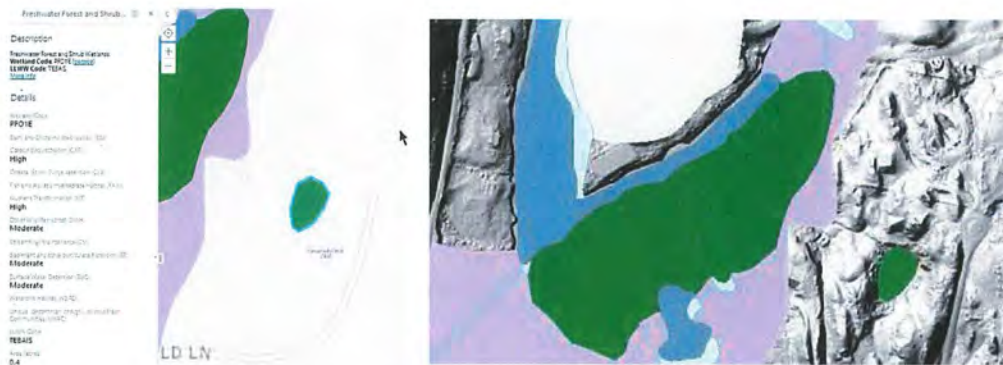




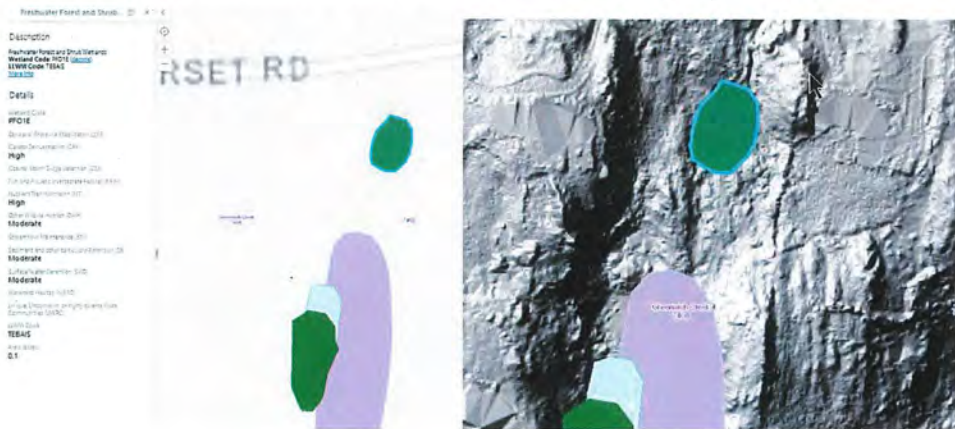
SS-7: Thin till deposits, within proximity to WOTUS but hydrologically connected/part of tributary system



SS-8: Thin till deposits, within proximity to WOTUS but hydrologically connected/part of tributary system

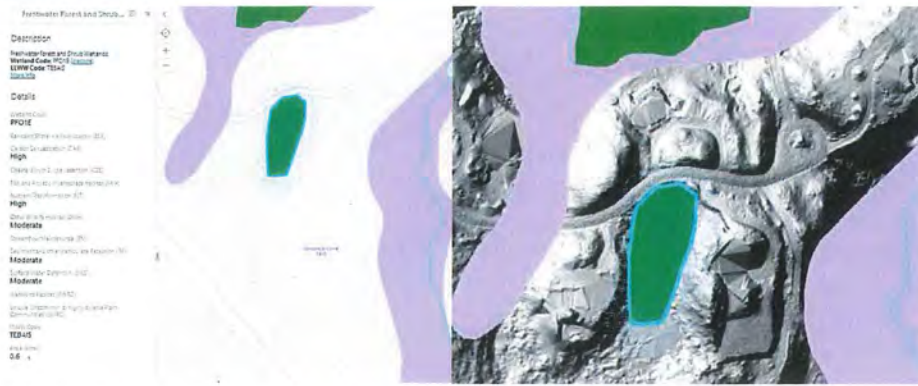


SS-6: Thin till deposits, within proximity to WOTUS but different terrain and landscape setting

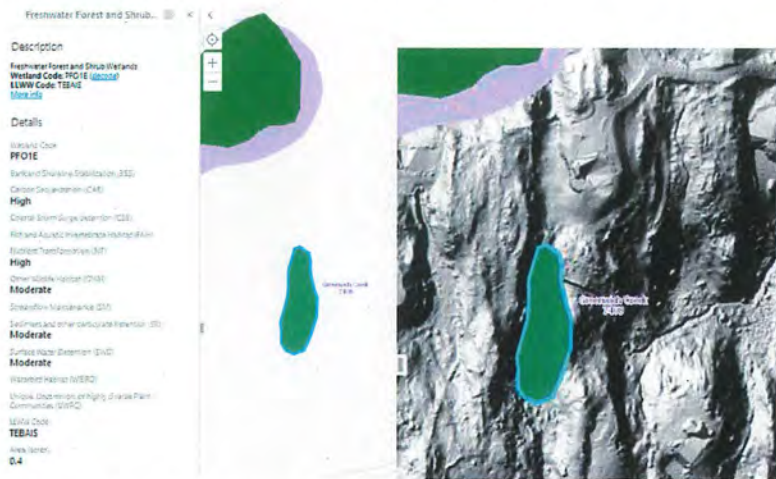


SS-4: Thin till deposits, similar terrain and landscape setting; within proximity of WOTUS but appears hydrologically connected as headwater tributary feature.

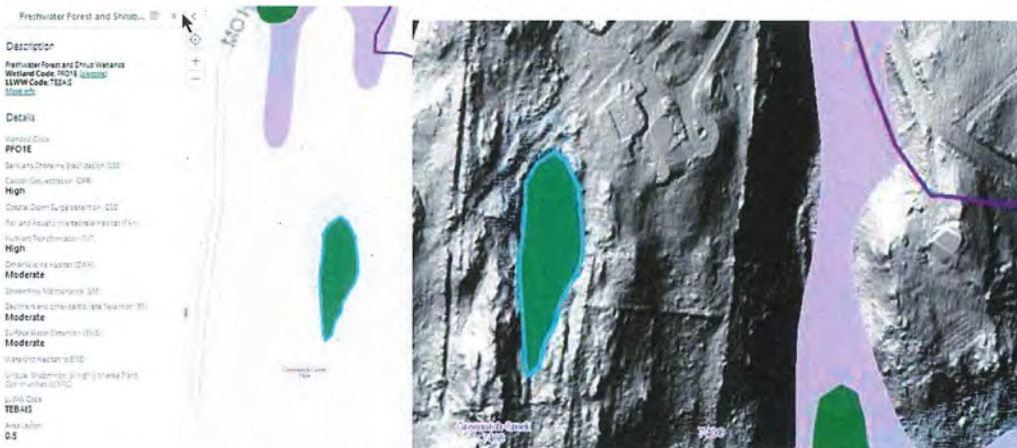




SS-5: Thin till deposits, slightly different terrain; within proximity to WOTUS



SS-3: Thin till deposits, different terrain; within proximity of WOTUS - hydrologically connected/headwater wetland



SS-2: Thin till deposits, similar terrain, with proximity distance to WOTUS



SS-1: Thin till deposits; within proximity distance to WOTUS; similar terrain



## STANWICH SCHOOL NAE-2000-01240 SIGNFICANT NEXUS WETLAND FUNCTIONS

FIGURE

Water Name	Wetland Code	LLWW Code	Function	Level of Function
Wetland 7 (0.27 acre)	PFO	TEBAIS	RAF/RS SED PTTFT	Low Low Low
SS-1 (0.20 acre )	PFO1E	TEBAIS	NUT EFS SED RAF/RS	High Moderate Moderate Moderate
SS-2 (0.5 acre)	PFO1E	TEBAIS	NUT EFS SED RAF/RS	High Moderate Moderate Moderate
SS-5 (0.60 acre)	PFO1E	TEBAIS	NUT EFS RAF/RS SED	High Moderate Moderate Moderate

LLWW Code TEBAIS:

TE = Sources of streams or isolated – completely surrounded by upland, or not affected by the aforementioned waters

BA = Basin, depressional wetland

IS = Isolated; some wetlands have no channelized inflow or outflow – essentially with no water flow path, although water undoubtedly can enter via runoff from the land and exit via groundwater

SIGNFICANT NEXUS FUNCTIONS:

Sediment trapping (SED)

Nutrient cycling (NUT)

Pollutant trapping, transformation, filtering and transport (PTTFT)

Retention and attenuation of flood waters (RAF)

Runoff storage (RS)

Contribution of flow (CF)

Export of organic matter (EOM)

Export of food sources (EFS)



257 STANWICH ROAD, STANWICH SCHOOL NAE-2000-01240  
PHOTOS TAKEN MARCH 20, 2018

Plot-UPLAND 4.1



Plot-UPLAND 4.2





257 STANWICH ROAD, STANWICH SCHOOL NAE-2000-01240  
PHOTOS TAKEN MARCH 20, 2018

Wetland Plot-W7



Upland Plot-W7

