

## TOWN OF LEDYARD

### INLAND WETLAND & WATERCOURSE COMMISSION

#### PERMIT APPLICATION

*WHITFORD BROOK WATERSHED CULVERT, LEDYARD/N.STONINGTON, CT*



**MAY 2026**

**Prepared For:**

Town Of Ledyard  
Public Works Department  
741 Colonel Ledyard Highway  
Ledyard, Connecticut

**Prepared By:**

WMC Consulting Engineers, Inc.  
87 Holmes Road  
Newington, CT 06111

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Street No./ Name: \_\_\_\_\_

**TOWN OF LEDYARD  
INLAND WETLANDS AND WATERCOURSES COMMISSION (IWWC)  
APPLICATION FOR PERMIT** (Or Commission ruling that a permit is not needed)

Application No. \_\_\_\_\_  
Receipt Date \_\_\_\_\_

Date Submitted \_\_\_\_\_

Applicant/Agent \_\_\_\_\_ Owner (if different) \_\_\_\_\_

Address \_\_\_\_\_ Address of Owner \_\_\_\_\_

Phones \_\_\_\_\_ / \_\_\_\_\_ cell Phone \_\_\_\_\_

- I have received information on the Army Corps of Engineers permit procedure.
- I have read and have included all the application and site plan requirements in Section 7 of the IWWC Regulations

\_\_\_\_\_  
Signature of Applicant/ Agent

Location of Property \_\_\_\_\_

Tax Assessor's Map No. \_\_\_\_\_ Zoning District \_\_\_\_\_

Written Description of Proposed Activity \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Proposed Erosion/ Sediment Control Measures: \_\_\_\_\_

Total Area of Site \_\_\_\_\_ Total Area of Wetlands per Official Inventory Map \_\_\_\_\_

Amount of Fill, in Cubic Yards \_\_\_\_\_ Disturbed Area, in Square Feet \_\_\_\_\_ or in Acres \_\_\_\_\_

Area Increase/Decrease in Wetlands \_\_\_\_\_ (For Map Amendment Only\*)

Soil Types from USDA Soil Survey \_\_\_\_\_

General Description of Vegetative Cover \_\_\_\_\_

Name and Address of Adjacent Property Owners  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Anticipated Start Date \_\_\_\_\_ Completion Date \_\_\_\_\_

List previous IWWC application #'s \_\_\_\_\_

IWW Commission Disposition: IWWC Regulations; Section \_\_\_\_\_ Classification \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Signature of Chair

**FEE:** \_\_\_\_\_ + \$60.00 State Fee = \_\_\_\_\_ **DATE PAID** \_\_\_\_\_ **RECEIPT #** \_\_\_\_\_



SUPV.	S.R.M.
DESIGN	
DRAWN	M.E.F.
CHECKED	
DATE	1/22/25


**WMC**  
 CONSULTING ENGINEERS

• WENGELL, McDONNELL & COSTELLO •  
 87 HOLMES ROAD  
 NEWINGTON, CT 06111  
 (860) 667-9624

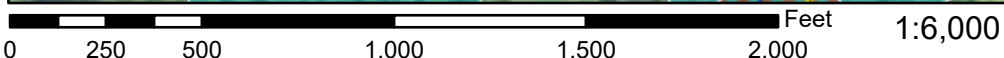
PREPARED FOR:  
 TOWN OF LEDYARD  
 741 COLONEL LEDYARD HIGHWAY  
 LEDYARD, CT 06339

SHPO SUBMITTAL AERIAL MAP SCALE - 1:50				SHEET 1
- LANTERN HILL PROJECT	- AERIAL FILE NAME	- 23016 NUMBER	- 0 REV.	OF 1

# National Flood Hazard Layer FIRMMette



71°56'55"W 41°26'29"N



71°56'18"W 41°26'2"N

Basemap Imagery Source: USGS National Map 2023

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- |                             |                      |  |
|-----------------------------|----------------------|--|
| SPECIAL FLOOD HAZARD AREAS  |                      | Without Base Flood Elevation (BFE)<br><i>Zone A, V, A99</i>  |
|                             |                      | With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>   |
|                             |                      | Regulatory Floodway  |
| OTHER AREAS OF FLOOD HAZARD |                      | 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i> |
|                             |                      | Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>  |
|                             |                      | Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>  |
|                             |                      | Area with Flood Risk due to Levee <i>Zone D</i>  |
| OTHER AREAS                 |                      | NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>   |
|                             |                      | Effective LOMRs  |
| GENERAL STRUCTURES          |                      | Area of Undetermined Flood Hazard <i>Zone D</i>  |
|                             |                      | Channel, Culvert, or Storm Sewer   |
| OTHER FEATURES              |                      | Levee, Dike, or Floodwall  |
|                             |                      | 20.2 Cross Sections with 1% Annual Chance Water Surface Elevation  |
| MAP PANELS                  |                      | 17.5 Water Surface Elevation   |
|                             |                      | Coastal Transect   |
|                             |                      | Base Flood Elevation Line (BFE)  |
|                             |                      | Limit of Study   |
|                             |                      | Jurisdiction Boundary  |
|                             |                      | Coastal Transect Baseline  |
|                             |                      | Profile Baseline   |
|                             | Hydrographic Feature |  |
| MAP PANELS                  |                      | Digital Data Available   |
|                             |                      | No Digital Data Available  |
|                             |                      | Unmapped   |
|                             |                      | The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.                                     |






This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/6/2026 at 3:26 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

# Natural Diversity Data Base Areas

LEDYARD, CT  
December 2024

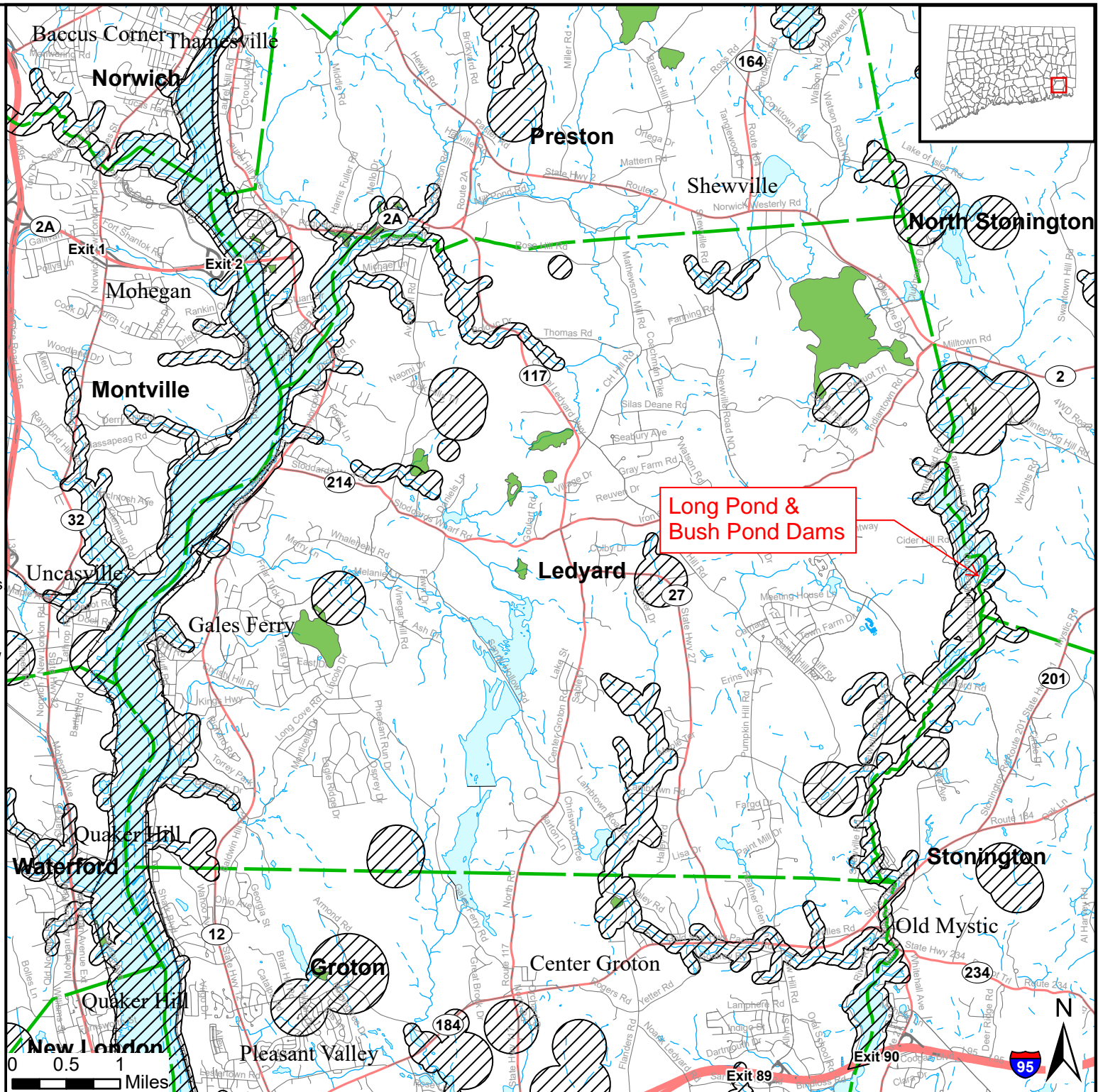
-  State and Federal Listed Species
-  Critical Habitat
-  Town Boundary

NOTE: This map shows known locations of State and Federal Listed Species and Critical Habitats. Information on listed species is collected and compiled by the Natural Diversity Data Base (NDDB) from a variety of data sources. Exact locations of species have been buffered to produce the generalized locations.

This map is intended for use as a preliminary screening tool for conducting a Natural Diversity Data Base Review Request. To use the map, locate the project boundaries and any additional affected areas. If the project is within a hatched area there may be a potential conflict with a listed species. For more information, use DEEP ezFile <https://filings.deep.ct.gov/DEEPPortal/> to submit a Request for Natural Diversity Data Base State Listed Species Review or Site Assessment. More detailed instructions are provided along with the request form on our website. <https://portal.ct.gov/deep-nddbrequest>

Use the CTECO Interactive Map Viewers at <http://cteco.uconn.edu> to more precisely search for and locate a site and to view aerial imagery with NDDB Areas.





QUESTIONS: Department of Energy and Environmental Protection (DEEP)  
79 Elm St, Hartford, CT 06106  
email: [deep.nddbrequest@ct.gov](mailto:deep.nddbrequest@ct.gov)  
Phone: (860) 424-3011



# AQUIFER PROTECTION AREAS

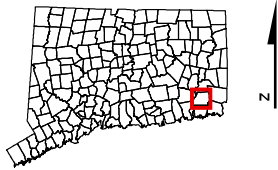
Ledyard, CT

December 23, 2021

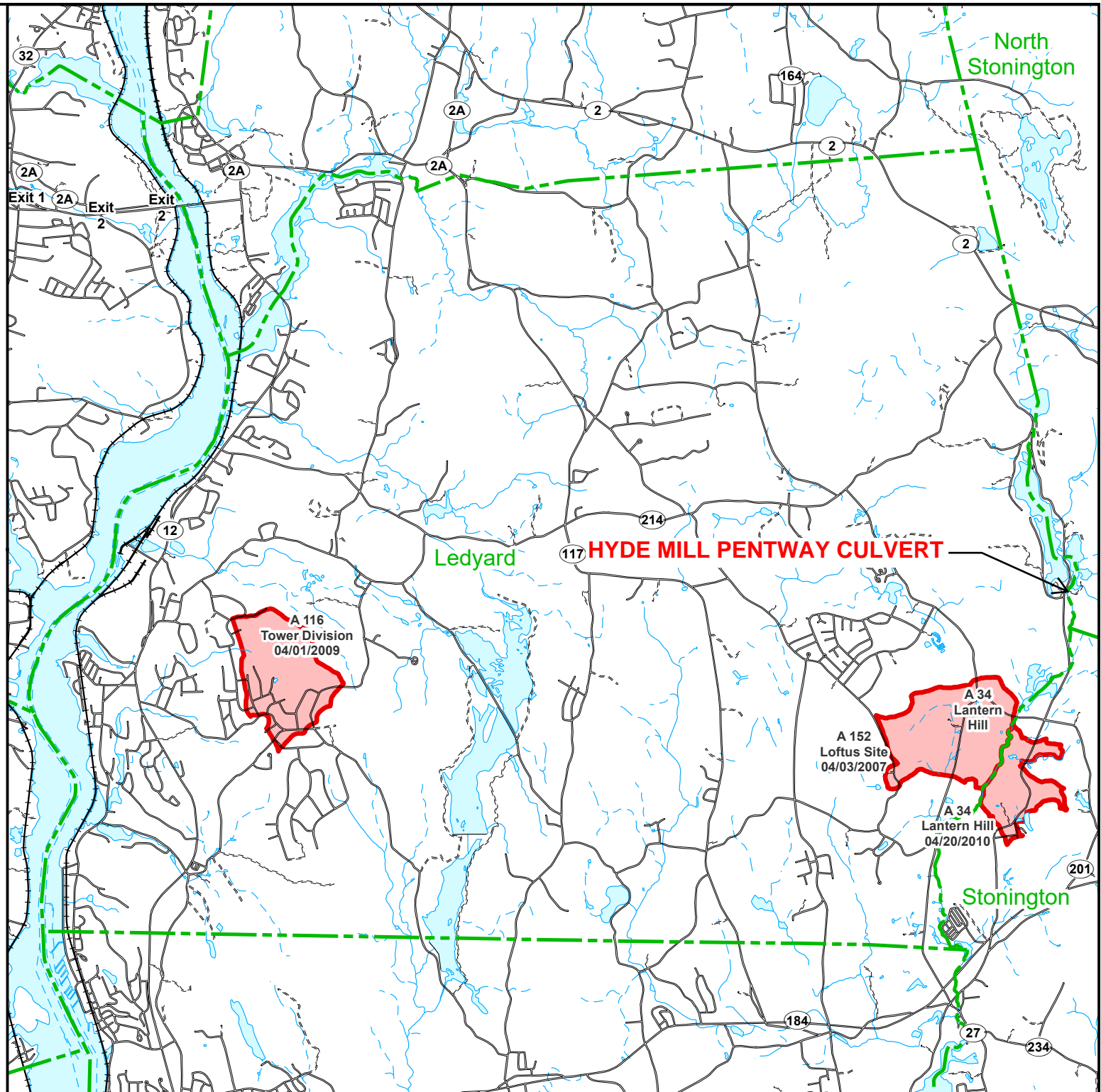
-  Level A APA (Final Adopted)
-  Level A APA (Final)
-  Level B APA (Preliminary)
-  Town Boundary

NOTE: The Aquifer Protection Areas were delineated through Connecticut's Level A and Level B Mapping Processes. Aquifer Protection Areas are delineated for active public water supply wells in stratified drift that serve more than 1000 people, in accordance with Sections 22a-354c and 22a-354z of the Connecticut General Statutes. Level B Mapping delineates a preliminary aquifer protection area, providing an estimate of the land area from which the well draws its water. Level A Mapping delineates the final Aquifer Protection Area, which becomes the regulatory boundary for land use controls designed to protect the well from contamination. As Level A Mapping is completed for each well field and approved by DEEP, it replaces the Level B Mapping. Final Adopted Level A Areas are those where towns have land use regulations for them. Massachusetts and Rhode Island Wellhead Protection Areas may be shown for informational purposes.

QUESTIONS:  
 Bureau of Water Protection and Land Reuse  
 Planning and Standards Division  
 Phone: (860) 424-3020  
[www.ct.gov/deep/aquiferprotection](http://www.ct.gov/deep/aquiferprotection)



STATE OF CONNECTICUT  
 DEPARTMENT OF  
 ENERGY & ENVIRONMENTAL PROTECTION  
 79 Elm Street  
 Hartford, CT 06106-5127





Ledyard, CT

1 inch = 218 Feet



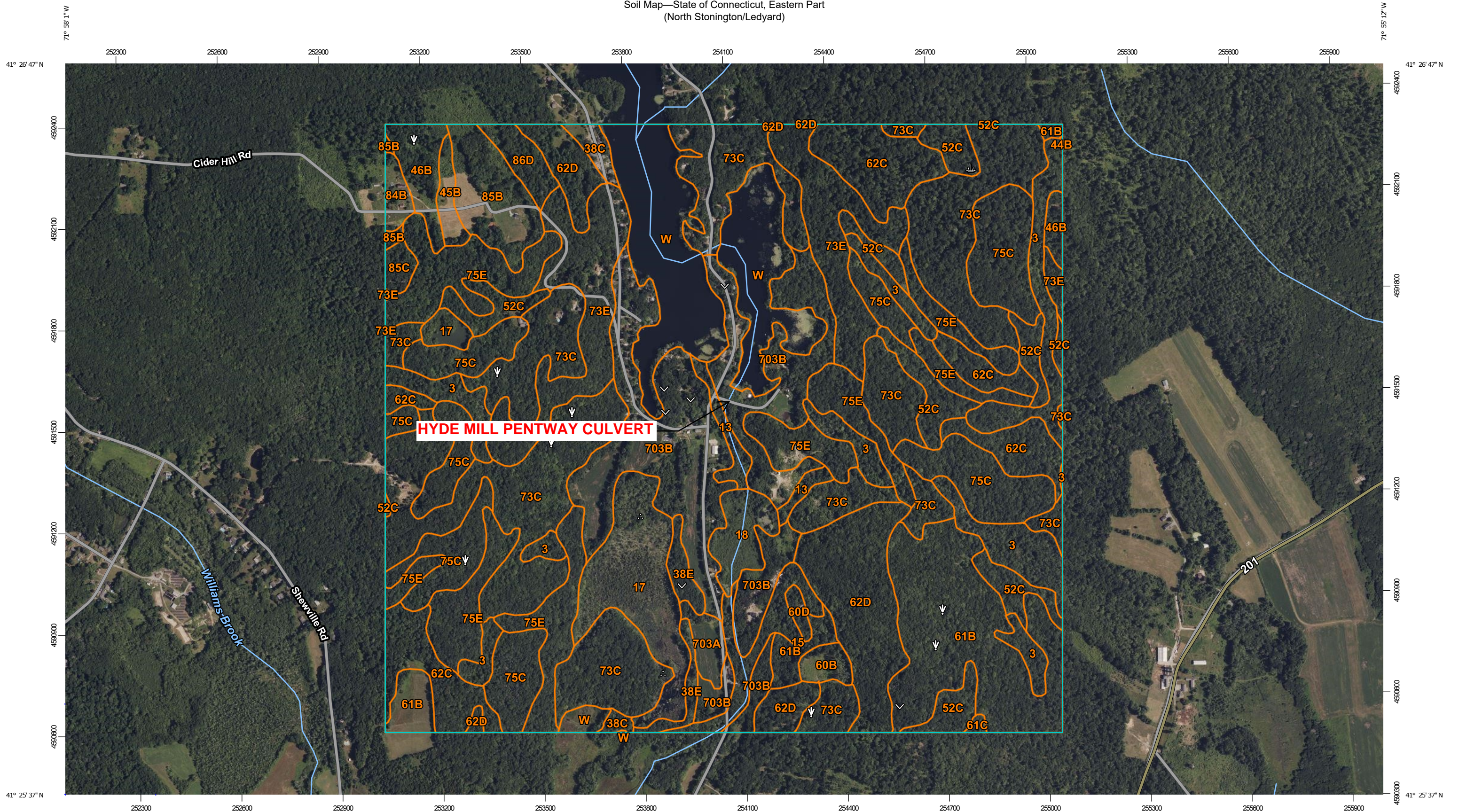
www.cai-tech.com

May 12, 2026

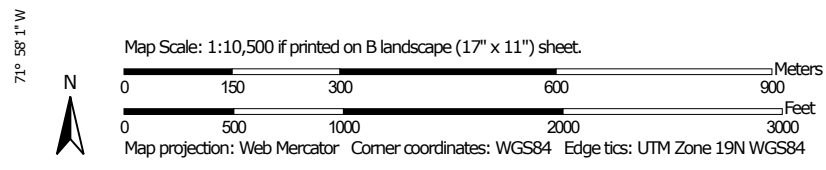


Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

Soil Map—State of Connecticut, Eastern Part  
(North Stonington/Ledyard)




**HYDE MILL PENTWAY CULVERT**



## 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, Eastern Part  
Survey Area Data: Version 6, Sep 16, 2025

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

Date(s) aerial images were photographed: Jun 14, 2022—Jul 1, 2022

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
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	48.2	5.4%
13	Walpole sandy loam, 0 to 3 percent slopes	5.9	0.7%
15	Scarboro muck, 0 to 3 percent slopes	11.1	1.2%
17	Timakwa and Natchaug soils, 0 to 2 percent slopes	33.2	3.7%
18	Catden and Freetown soils, 0 to 2 percent slopes	9.5	1.1%
38C	Hinckley loamy sand, 3 to 15 percent slopes	4.3	0.5%
38E	Hinckley loamy sand, 15 to 45 percent slopes	6.7	0.7%
44B	Rainbow silt loam, 2 to 8 percent slopes, very stony	0.0	0.0%
45B	Woodbridge fine sandy loam, 3 to 8 percent slopes	4.0	0.5%
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	11.3	1.3%
52C	Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony	34.5	3.8%
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	3.8	0.4%
60D	Canton and Charlton soils, 15 to 25 percent slopes	1.7	0.2%
61B	Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony	63.2	7.1%
61C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes, very stony	0.6	0.1%
62C	Canton and Charlton fine sandy loams, 3 to 15 percent slopes, extremely stony	47.2	5.3%
62D	Canton and Charlton fine sandy loams, 15 to 35 percent slopes, extremely stony	45.5	5.1%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	165.8	18.5%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	56.1	6.3%
75C	Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes	75.0	8.4%
75E	Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes	74.7	8.3%
84B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes	3.4	0.4%
85B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony	18.3	2.0%
85C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes, very stony	2.8	0.3%
86D	Paxton and Montauk fine sandy loams, 15 to 35 percent slopes, extremely stony	6.0	0.7%
703A	Haven silt loam, 0 to 3 percent slopes	4.7	0.5%
703B	Haven silt loam, 3 to 8 percent slopes	93.7	10.5%
W	Water	64.6	7.2%
<b>Totals for Area of Interest</b>		<b>895.9</b>	<b>100.0%</b>

**Whitford Watershed Improvement, Hyde Mill Pentway Culvert Replacement**  
**North Stonington/Ledyard, CT**

**Project Description**

The Town of Ledyard & the Town of North Stonington has initiated design work for improvements within the Whitford Watershed, including the Hyde Mill Pentway culvert replacement. The Hyde Mill Pentway is a dead-end road used by multiple residential homes. The Whitford brook flow through the Hyde Mill Pentway. The Bush Pond Dam, located upstream of the Hyde Mill Pentway, will be modified to improve spillway capacity and accommodate increased flow conditions.

The proposed work includes:

1. Replacement of the existing Hyde Mill Pentway culvert with a new structure designed to accommodate increased hydraulic capacity with the separate project construction of a new spillway at Bush Pond Dam upstream.
2. Implementation of Erosion and Sedimentation controls during construction.
3. Restoration of all disturbed areas upon completion.

To mitigate impacts, best management practices will be utilized for sedimentation and erosion control. Temporary water handling measures will be implemented as necessary, and environmental impacts will be minimized to the extent practicable.



Photo #1 - Hyde Mill Pentway Road looking West towards Lantern Hill Rd



Photo #2 - Hyde Mill Pentway Road looking South



Photo #3 - Hyde Mill Pentway Road looking North



Photo #4 - Hyde Mill Pentway Road looking South West

January 27, 2026

Michael Fanning  
WMC Consulting, Inc.  
87 Holmes Road  
Newington, CT 06111  
(sent only via email to [mfanning@wmcengineers.com](mailto:mfanning@wmcengineers.com))

Subject: Improvements to Whitford Brook Watershed  
Lantern Hill Road, Bush Pond  
Ledyard and Stonington, Connecticut

Dear Mr. Fanning,

The State Historic Preservation Office (SHPO) has reviewed the referenced project in response to your request for our comments regarding potential effects to historic properties. The request for comments is in support of a permit from the United States Army Corps of Engineers (USACE) and is subject to the provisions of Section 106 of the National Historic Preservation Act. Project plans consist of dam, dike, and drainage improvements. This primarily will be accomplished by adding new intake structures, expanding an existing dike, and adding a box culvert with riprap. To facilitate these activities, a cofferdam and temporary access will be required.

The subject property is located east of Lantern Hill Road and at the southern end of Brush Pond. The location is associated with a historic mill. Although the specific components of the property have not been inventoried and the property has not been formally evaluated for historic significance, the proposed project will have the primary benefit of reducing flood hazards to the historic mill. SHPO recommends limiting the ground disturbing activities and removal of historic materials to the greatest extent possible. Should artifacts be encountered during construction, our office requests to be notified. With these requests taken into consideration, and based on the information submitted to our office, the proposed project will result in no adverse effect to historic properties.

This office appreciates the opportunity to review and comment upon this project. Do not hesitate to contact Catherine Labadia, Staff Archaeologist and Deputy State Historic Preservation Officer, for additional information at (860) 500-2329 or [catherine.labadia@ct.gov](mailto:catherine.labadia@ct.gov).

Sincerely,



Jonathan Kinney  
State Historic Preservation Officer



**Connecticut**  
Department of Energy &  
Environmental Protection

portal.ct.gov/DEEP

8/30/2023

Michael Fanning  
WMC CONSULTING ENGINEERS, INC.  
87 HOLMES RD  
NEWINGTON, CT 06111  
mfanning@wmcengineers.com

Subject: Long Pond and Bush Pond Dam Improvements

Filing #: 100309

NDDB - New Determination Number: 202306276

Expiration Date: 8/30/2025

I have reviewed Natural Diversity Data Base (NDDB) maps and files regarding the area of work provided for the proposed Long Pond and Bush Pond Dam improvements, Ledyard and North Stonington, Connecticut. According to our records there is a population of the State Special Concern fish, Bridle shiner (*Notropis bifrenatus*) in Long Pond. If you intend to seek any permits, registrations or authorizations with DEEP for this project you must first conduct a DEEP Fisheries Consultation. Use the attached DEEP Fisheries Consultation Form and submit the required materials to DEEP.Inland.Fisheries@ct.gov as indicated on the form. A DEEP Fisheries Biologist will review the project and provide actions needed to mitigate negative impacts to fisheries resources, including state listed fish species. The completed DEEP Fisheries Division Determination will be returned to the applicant and must be submitted with any subsequent applications or registrations to DEEP regarding this project.

Your submission information indicates that your project requires a state permit, license, registration, or authorization, or utilizes state funding or involves state agency action. This NDDB - New determination may be utilized to fulfill the Endangered and Threatened Species requirements for state-issued permit applications, licenses, registration submissions, and authorizations.

Please be aware of the following limitations and conditions:

Natural Diversity Database information includes all information regarding listed species available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, land owners, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as enhance existing data. Such new information is incorporated into the Database and accessed through the ezFile portal as it becomes available. New information may result in additional review, and new or modified restrictions or conditions may be necessary to remain in compliance with certain state permits.

During your work listed species may be encountered on site. A report must be submitted by the observer to the Natural Diversity Database promptly and additional review and restrictions or conditions may be necessary to remain in compliance with certain state permits. Please fill out the [appropriate survey form](#) and follow the instructions for submittal.

- Your project involves the state permit application process or other state involvement, including state funding or state agency actions; please note that consultations with your permit analyst or the agency may result in additional requirements. In this situation, additional evaluation of the proposal by the DEEP Wildlife Division may be necessary and additional information, including but not limited to species-specific site surveys, may be required. Any additional review may result in specific restrictions or conditions relating to listed species that may be found at or in the vicinity of the site.
- If your project involves preparing an Environmental Impact Assessment, this NDDDB consultation and determination should not be substituted for biological field surveys assessing on-site habitat and species presence.
- The NDDDB - New determination for the Long Pond and Bush Pond Dam Improvements as described in the submitted information and summarized at the end of this document is valid until 8/30/2025. This determination applies only to the project as described in the submission and summarized at the end of this letter. Please re-submit an updated Request for Review if the project's scope of work and/or timeframe changes, including if work has not begun by 8/30/2025.

If you have further questions, please contact me at the following:

Karen Zyko  
CT DEEP Bureau of Natural Resources  
Wildlife Division  
Natural Diversity Database  
79 Elm Street  
Hartford, CT 06106-5127  
(860) 424-3378  
Karen.Zyko@ct.gov

Please reference the Determination Number 202306276 when you e-mail or write. Thank you for consulting the Natural Diversity Data Base.

Karen Zyko  
Wildlife Division- Natural Diversity Data Base  
79 Elm Street  
Hartford, CT 06106-5127  
(860) 424-3378  
Karen.Zyko@ct.gov

Application Details:

Project involves federal funds or federal permit:	No
Project involves state funds, state agency action, or relates to CEPA request:	Yes
Project requires state permit, license, registration, or authorization:	Yes
DEEP enforcement action related to project:	
Project Type:	Dams
Project Sub-type:	Repair/modification of Dam Without Drawdown
Project Name:	Long Pond and Bush Pond Dam Improvements
Project Description:	south end of ponds surrounded by rural residential areas and municipal roadway. Generally, dams are grassy areas, with some minor areas of low brush.

**From:** Rafid Islam  
**Sent:** Thursday, May 14, 2026 2:37 PM  
**To:** 'MEJohnson@mptn-nsn.gov'; 'jquinn@moheganmail.com';  
 'rbrownbarnett@gmail.com'; 'thpo@wampanoagtribe-nsn.gov'  
**Cc:** 'Keegan Elder'; Michael Fanning; Jay Costello; 'Stephen McDonnell'  
**Subject:** THPO Coordination for Whitford Brook Watershed on Hyde Mill Pentway  
 over Whitford Brook in N.Stonington/Ledyard, CT  
**Attachments:** [THPO Attachments.zip](#)

Hi Everyone,

I am reaching out on behalf of WMC Consulting Engineers. We are seeking THPO Coordination for the project listed below. Please see attached the THPO coordination letter and plans for your respective Tribe for review. If you have any questions, please feel free to reach out.

Project No.	Project Name	Project Description	Coordinate
ConnDOT Project No. N/A	Hyde Mill Pentway Culvert over Whitford Brook– Ledyard / North Stonington, CT	The existing Bush Pond Dam conveys flow through a stone masonry outlet structure with no visible pipe system, resulting in frequent debris accumulation and overtopping of Hyde Mill Pentway (shared driveway) during storm events. The project consists of replacing the existing outlet structure with a new 4-foot by 8-foot precast concrete box culvert and improved hydraulic control structure to restore safe conveyance capacity and improve roadway protection. The procedures that follow include installation of erosion and sedimentation controls, temporary water handling measures utilizing a pump basin, construction of the new culvert and widened roadway section, channel stabilization, and restoration of disturbed areas.	41.437680120561375, - 71.94346304857145

Thank you,

**Rafid Islam**  
**Project Engineer**



**Wengell, McDonnell & Costello, Inc | 87 Holmes Road, Newington, CT  
06111**

Ph: 860.667.9624 | Fax: 860.665.1551

email: [rislam@wmcengineers.com](mailto:rislam@wmcengineers.com)

web site: [www.wmcengineers.com](http://www.wmcengineers.com)

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WMC Consulting Engineers, 87 Holmes Road, Newington, Connecticut 06111



**Connecticut Department of  
Energy & Environmental Protection**  
Bureau of Natural Resources  
Fisheries Division

## DEEP Fisheries Consultation Form

**To the Applicant** - Prior to the submission of your permit application, registration, or authorization to the Connecticut Department of Energy & Environmental Protection (DEEP), please complete Part I below and e-mail the following to [deep.inland.fisheries@ct.gov](mailto:deep.inland.fisheries@ct.gov):

1. this completed DEEP *Fisheries Consultation Form*;
2. a site location map,
3. a PDF version of the proposed project plans including a site survey of existing conditions (if available), and
4. photos of the site.

Fisheries Division staff will contact you if further details are needed. Once the Fisheries Division staff returns the completed form to you, please include the form, and any signed plans (if applicable) in your license application submittal to DEEP or as a supporting document along with your NDDDB Determination letter.

### Part I: Applicant and Site Information *(to be completed by APPLICANT)*

#### 1. Applicant/Registrant Information

Name: Town of Ledyard  
 Mailing Address: 714 Colonel Ledyard Highway  
 City/Town: Ledyard State: CT Zip Code: 06339  
 Business Phone: (860) 464-3238 Ext.:         
 Contact Person: Stece Masalin, P.E. Phone: same Ext:         
 E-mail Address: public.works.director@ledyardct.org

#### 2. Engineer/Surveyor/Agent Information (list as applicable)

Name: WMC Consulting Engineers, Inc.  
 Mailing Address: 87 Holmes Road  
 City/Town: Newington State: CT Zip Code: 06111  
 Business Phone: (860) 667-9624 Ext.:         
 Contact Person: Emanuel Duarte, P.E. Phone: same Ext:         
 E-mail Address: eduarte@wmcengineers.com  
 Service Provided: Design & Permitting

#### 3. Site Location:

Name of Site: Lantern Hill Road Bridge over Whitford Brook  
 Address of Site or Location Description: road crosses brook at Stonington/Ledyard municipal boundary  
 City/Town: Ledyard State: CT Zip Code: 06339  
 Parcel Location/Tax Assessor's Reference: Map N/A Block N/A Lot N/A  
 Name of Stream or Waterbody: Whitford Brook

#### 4. Activity: Check the box best describing your activity: (check all that apply):

- new public/fishing access;
- new docks and marinas on the Connecticut River;
- coastal/tidal dredging projects;
- activities in inland/non-tidal waterbodies and watercourses;
- withdrawal of water from a non-tidal/inland river, stream, pond or lake;
- withdrawal of water from a wetland, marsh, swamp, or bog hydrologically connected to a non-tidal/inland river, stream, pond or lake;
- withdrawal of groundwater from stratified drift deposits hydrologically connected to a non-tidal/inland river, stream, pond or lake.
- other, please describe: bridge replacement

**Part I: Applicant and Site Information (to be completed by APPLICANT) (continued)**

Note: Fisheries consultation is **not required** for docks and marinas on Long Island Sound.

**5. DEEP Pre-application Contact:** Indicate name of permit analyst or engineer, if applicable.

**6. Project Description:** Provide or attach a brief, but thorough, description of the project including any measures to protect, enhance or restore fish populations:

Project replaces bridge. E&S established, deck of existing bridge removed, stream diverted into twin pipes, remainder of existing bridge removed, foundation and abutments for new bridge installed, stream returned to natural channel and remainder of bridge replacement project completed.

**Part II: Fisheries Determination (To be completed by DEEP Fisheries Staff only)**

**To Fisheries Staff** - This completed consultation form is required to be submitted as part of an application to DEEP. The application has not yet been submitted to DEEP. Please review the enclosed materials and determine whether the project will significantly impact any fisheries or fisheries habitat. You may provide comments or recommendations regarding the proposal. Send this completed form to the applicant and copy the DEEP analyst, if known, or the applicable WPMD/LWRD Supervisor. If the proposed work **WILL** significantly impact any fisheries and/or habitat or if you have any comments or concerns regarding the regulatory review for this project, contact the DEEP analyst, if known, or the applicable WPMD/LWRD Supervisor.

**DEEP FISHERIES DIVISION DETERMINATION**

Date Consultation Form received: 7/18/2022

Please check applicable boxes and return the completed Consultation Form to the applicant:

- I have determined that the work described in Part I of this form and attachments **WILL NOT** significantly impact any fisheries and/or habitat;
- I have determined that the work described in Part I of this form and attachments **WILL NOT** significantly impact any fisheries and/or habitat **if the below Recommendations are followed**; and/or,
- I have determined that the work described in Part I of this form and attachments **WILL NOT** significantly impact any fisheries and/or habitat **if the design features shown on the attached plans are incorporated**. Fisheries staff to sign and date plans and return to the applicant with the completed Consultation Form.

COMMENTS/RECOMMENDATIONS (or check here if these are attached following this page: ):

\_\_\_\_\_

“By entering my name below, I agree that I am providing my legal signature, and am legally bound by the determination above.”

<u>Joe Cassone</u>	<u>10/28/2022</u>
Signature of Fisheries Division Staff	Date
Joseph Cassone	Fisheries Biologist
Print Name of Fisheries Division Staff	Title



The Fisheries Consultation form for the replacement of the Lantern Hill Road Bridge over Whitford Brook, was locked for editing; Fisheries Division comments and recommendations are provided below.

**Fisheries Community:**

Whitford Brook contains coldwater (Wild Brook Trout and Wild Brown Trout) and anadromous (Alewife) species; these species are species of particular interest for the Fisheries Division. The fisheries community in Whitford Brook also contains a diverse assemblage of lentic and lotic species that includes: American Eel, Brown Bullhead, Banded Sunfish (State Threatened Species), Creek Chubsucker, Chain Pickerel, Longnose Dace, Largemouth Bass, Pumpkin Seed and Tessellated Darter.

The dam that formed Whitford Pond has breached, and passage of anadromous alewife is possible up Whitford Brook to the base of Long Pond dam. Plans to provide passage above Long Pond dam are under development.

**Comments and Recommendations:**

- 1.) Unconfined instream work should be limited to the period of July 1 through September 30<sup>th</sup> to protect both inland and anadromous species.
- 2.) When the existing abutments are saw cut to their final elevation, the area surrounding the abutments should be confined to contain concrete slurry produced by saw cutting. Concrete slurry can have an extremely high pH (>12.0), the discharge of this slurry to Whitford Brook could result in fish mortality in downstream areas. Small streams lack the buffering capacity of larger bodies of water and fish are unable to escape the area of elevated pH. Efforts should be made to capture and properly dispose of the slurry. The existing drawings do not show the abutment area behind temporary cofferdams.
- 3.) The proposed design would maintain upstream and downstream fish passage.
- 4.) Leaving the existing abutments in place would minimize disturbance to the streambed and help maintain passage during low flow periods by concentrating the flow relative to the wider channels upstream and downstream. The inclusion of the shelf above Ordinary High Water would also increase the capacity of the structure to pass flood flows.

Joseph Cassone  
Fisheries Biologist

*Joe Cassone*



Connecticut Department of Energy & Environmental Protection

Certification of Notice Form - Notice of Application

DEEP USE ONLY
Division
Application No.

I, Steven E. Masalin, P.E., certify that (Name of Applicant)

the attached notice represents a true copy of the notice that appeared in The Day (Name of Newspaper)

on February 1, 2023 (Date)

I also certify that I have provided a copy of said notice to the chief elected municipal official listed below as required by section 22a-6g CGS.

Fred Allyn III Mayor (Name of Official Title of Official)

741 Colonel Ledyard Highway Address

Ledyard CT 06339 (City/Town State Zip Code)

Signature of Applicant Date (Handwritten signature and date)

Steven E. Masalin, P.E. Director of Public Works (Name of Applicant Title)

# PUBLISHER'S CERTIFICATE

State of Connecticut  
County of New London, ss. New London

Personally appeared before the undersigned, a Notary Public within and for said County and State, Matt Suraci, Legal Advertising Clerk, of The Day Publishing Company Classifieds dept, a newspaper published at New London, County of New London, state of Connecticut who being duly sworn, states on oath, that the Order of Notice in the case of

A true copy of which is hereunto annexed, was published in said newspaper in its issue(s) of  
2-1-23

Cust: WMC Consulting Engineers

Ad #: d01051181



Subscribed and sworn to before me

This Wednesday, February 8, 2023



Notary Public

My commission expires

5/31/24

001051181

Notice of Permit Application

Town(s): Ledyard & Stonington

Notice is hereby given that Town of Ledyard (the "applicant") of 741 Colonel Ledyard Highway, Ledyard, CT 06339 will submit to the Department of Energy & Environmental Protection an application under Connecticut General Statutes Section(s) 22a-39; Section 401 of the Federal Clean Water Act, 33 U.S.C. 1341.

Specifically, the applicant proposes to replace the Lantern Hill Road bridge over Whitford Brook. The proposed activity will take place at crossing of Lantern Hill Road over Whitford Brook, at the corporate boundary of the Town of Ledyard and the Town of Stonington. The proposed activity will potentially affect: Whitford Brook and associated inland wetlands.

Interested persons may obtain copies of the application from WMC Consulting Engineers, 87 Holmes Road, Newington, CT 06111. Contact: Keegan O. Elder, P.E. kelder@wmcengineers.com.

The application will be available for inspection at the Department of Energy & Environmental Protection, Land & Water Resources Division, 79 Elm Street, Hartford, CT 06106-5127, telephone (860) 424-3019 from 8:30 to 4:30 Monday through Friday. Please call in advance to schedule review of the application.



**Connecticut Department of  
Energy & Environmental Protection**  
Bureau of Natural Resources  
Inland Fisheries Division

## Request for Determination of Need for Fishway for Dam Safety Permit

Section 26-136 of the Connecticut General Statutes requires that the DEEP determine if a fishway is necessary at any dam for which there will be work done that requires a DEEP Dam Safety Permit. This form is used to initiate this review. It is recommended that you submit the form prior to submitting the Dam Safety permit application to allow the review process to be more efficient.

Send the completed form to DEEP Inland Fisheries Division, P.O. Box 719, Old Lyme, CT 06371 or scan to PDF and email to: [deep.inland.fisheries@ct.gov](mailto:deep.inland.fisheries@ct.gov). Include additional pages as required. **Please include a map showing the location of the dam and if available, attach one or two photos of the dam.**

Once received, the bottom of page 2 will be completed by the Inland Fisheries Division. A copy will be sent to the dam owner(s), their agent, and the DEEP Dam Safety Program. If the approved form indicates that a fishway or other protective measures are necessary, the dam owner should contact the Inland Fisheries Division at 860-434-6043 or [deep.inland.fisheries@ct.gov](mailto:deep.inland.fisheries@ct.gov) to discuss the details of these determinations.

If the owner prepares an application for a Dam Safety Permit, a copy of the signed form must be included with the application materials. If not included, the application may take longer to process and review.

Contact the Inland Fisheries Division at 860-434-6043 or [deep.inland.fisheries@ct.gov](mailto:deep.inland.fisheries@ct.gov) with questions.

### Part I: Dam Information

<p>1. Dam Name: <b>Bush Pond</b> <i>(Provide name of dam on file with DEEP Dam Safety Program. If unsure of name or ID, contact Dam Safety at 860-424-3706)</i></p> <p>Alternate Dam or Pond Name: <b>N/A</b></p> <p>Town: <b>Ledyard &amp; N. Stonington</b>      Name of stream: <b>Whitford Brook</b></p> <p>Describe dam (e.g. earthen, concrete, etc.): <b>Earthen embankment, vertical rock wall on back side</b></p> <p>Type of spillway (e.g. concrete weir, drop inlet, etc.): <b>pipes</b></p> <p>Total length of dam including spillway: <b>185 feet</b>      Length of Spillway: <b>1 feet</b></p> <p>Height of Dam: <b>8 feet</b>      Height of Spillway: <b>N/A feet</b> <i>(Measured from downstream bed to top of dam)      (Measured from downstream stream bed to top spillway)</i></p>	<p>DEEP Dam ID#: <b>10248</b></p>												
<p>2. What is the purpose of the dam and impoundment? (check all that apply)</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Agricultural</td> <td><input type="checkbox"/> Hydropower</td> <td><input type="checkbox"/> Recreation</td> </tr> <tr> <td><input type="checkbox"/> Conservation</td> <td><input type="checkbox"/> Public water supply</td> <td><input type="checkbox"/> Aesthetic</td> </tr> <tr> <td><input type="checkbox"/> Fire protection</td> <td><input type="checkbox"/> Non-public water supply</td> <td><input type="checkbox"/> No identified use</td> </tr> <tr> <td><input type="checkbox"/> Detention sediment basin</td> <td><input type="checkbox"/> Flood control</td> <td></td> </tr> </table>		<input type="checkbox"/> Agricultural	<input type="checkbox"/> Hydropower	<input type="checkbox"/> Recreation	<input type="checkbox"/> Conservation	<input type="checkbox"/> Public water supply	<input type="checkbox"/> Aesthetic	<input type="checkbox"/> Fire protection	<input type="checkbox"/> Non-public water supply	<input type="checkbox"/> No identified use	<input type="checkbox"/> Detention sediment basin	<input type="checkbox"/> Flood control	
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<input type="checkbox"/> Conservation	<input type="checkbox"/> Public water supply	<input type="checkbox"/> Aesthetic											
<input type="checkbox"/> Fire protection	<input type="checkbox"/> Non-public water supply	<input type="checkbox"/> No identified use											
<input type="checkbox"/> Detention sediment basin	<input type="checkbox"/> Flood control												
<p>3. What is the reason you are proposing working on the dam?</p> <p><input type="checkbox"/> DEEP Dam Repair order; if so, indicate order #:</p> <p><input type="checkbox"/> Maintenance or Engineering Request from DEEP Dam Safety. <i>(include copy of the correspondence from DEEP Dam Safety Program)</i></p> <p><input type="checkbox"/> Initiated by owner for safety, conservation, or other reasons.</p>													





# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 Commercial Street, Suite 300  
Concord, NH 3301-5094  
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To:

05/08/2026 14:20:47 UTC

Project Code: 2026-0087138

Project Name: New Culvert Installation on Hyde Mill Pentway (Private Driveway)

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

*Updated 4/12/2023 - Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.*

## **About Official Species Lists**

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

## **Endangered Species Act Project Review**

Please visit the “**New England Field Office Endangered Species Project Review and Consultation**” website for step-by-step instructions on how to consider effects on listed

species and prepare and submit a project review package if necessary:

<https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review>

**\*NOTE\*** Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

**Northern Long-eared Bat - (Updated 4/12/2023)** The Service published a final rule to reclassify the northern long-eared bat (NLEB) as endangered on November 30, 2022. The final rule went into effect on March 31, 2023. You may utilize the **Northern Long-eared Bat Rangewide Determination Key** available in IPaC. More information about this Determination Key and the Interim Consultation Framework are available on the northern long-eared bat species page:

<https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>

For projects that previously utilized the 4(d) Determination Key, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective. If your project was not completed by March 31, 2023, and may result in incidental take of NLEB, please reach out to our office at [newengland@fws.gov](mailto:newengland@fws.gov) to see if reinitiation is necessary.

#### *Additional Info About Section 7 of the Act*

Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/service/section-7-consultations>

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

**Candidate species** that appear on the enclosed species list have no current protections under the ESA. The species' occurrence on an official species list does not convey a requirement to

consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

### **Migratory Birds**

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

<https://www.fws.gov/program/migratory-bird-permit>

<https://www.fws.gov/library/collections/bald-and-golden-eagle-management>

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

- Official Species List

## **OFFICIAL SPECIES LIST**

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**New England Ecological Services Field Office**  
70 Commercial Street, Suite 300  
Concord, NH 3301-5094  
(603) 223-2541

## PROJECT SUMMARY

Project Code: 2026-0087138  
Project Name: New Culvert Installation on Hyde Mill Pentway (Private Driveway)  
Project Type: Culvert Repair/Replacement/Maintenance  
Project Description: WHITFORD WATERSHED IMPROVEMENT, HYDE MILL PENTWAY  
CULVERT REPLACEMENT  
LEDYARD, CONNECTICUT

### Project Description

The Town of Ledyard has initiated design work for improvements within the Whitford Watershed, including the Hyde Mill Pentway culvert replacement and associated upgrades to the Bush Pond Dam.

The Bush Pond Dam, located upstream of the Hyde Mill Pentway, will be modified to improve spillway capacity and accommodate increased flow conditions.

The proposed work includes:

1. Replacement of the existing Hyde Mill Pentway culvert with a new structure designed to accommodate increased hydraulic capacity.
2. Construction of a new spillway at Bush Pond Dam.
3. Implementation of Erosion and Sedimentation controls during construction.
4. Restoration of all disturbed areas upon completion.

To mitigate impacts, best management practices will be utilized for sedimentation and erosion control. Temporary water handling measures will be implemented as necessary, and environmental impacts will be minimized to the extent practicable.

### Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@41.43766275,-71.94349972270786,14z>



Counties: New London County, Connecticut

## ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## MAMMALS

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/10515">https://ecos.fws.gov/ecp/species/10515</a>	Proposed Endangered

## INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> There is <b>proposed</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Proposed Threatened

## CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

## **IPAC USER CONTACT INFORMATION**

Agency: Newington town  
Name: Rafid Islam  
Address: 87 Holmes Rd  
City: Newington  
State: CT  
Zip: 06111  
Email: rislam@wmcengineers.com  
Phone: 8606679624

## **LEAD AGENCY CONTACT INFORMATION**

Lead Agency: North Stonington town



## Statewide Inland Wetlands & Watercourses Activity Reporting Form

Please complete and mail this form in accordance with the instructions.  
If completing by hand - please print and use the [pdf version](#).  
Incomplete or incomprehensible forms will be mailed back to the municipal inland wetlands agency.

### PART I: Must Be Completed By The Inland Wetlands Agency

- DATE ACTION WAS TAKEN: year: [Click Here for Year](#) month: [Click Here for Month](#)
- CHOOSE ACTION TAKEN (see instructions for code): [Click Here to Choose a Code](#)
- WAS A PUBLIC HEARING HELD (check one)? yes  no
- NAME OF AGENCY OFFICIAL VERIFYING AND COMPLETING THIS FORM:  
(type name) \_\_\_\_\_ (signature) \_\_\_\_\_

### PART II: To Be Completed By The Inland Wetlands Agency Or The Applicant

- TOWN IN WHICH THE ACTIVITY IS OCCURRING (type name): [Town Of Ledyard / N.Stonington](#)  
does this project cross municipal boundaries (check one)? yes  no   
if yes, list the other town(s) in which the activity is occurring (type name(s)): [Ledyard](#), [N.Stonington](#)
- LOCATION (click on hyperlinks for information): [USGS quad map name](#): [Old Mystic](#) or [quad number](#): [88](#)  
[subregional drainage basin number](#): [2104](#)
- NAME OF APPLICANT, VIOLATOR OR PETITIONER (type name): [WMC Consulting Engineers](#)
- NAME & ADDRESS OF ACTIVITY / PROJECT SITE (type information): [Hyde Mill Pentway \(Private Driveway\)](#)  
briefly describe the action/project/activity (check and type information): temporary  permanent  description: \_\_\_\_\_  
[Improvements To Whitford Brook Watershed Bush Pond](#)
- ACTIVITY PURPOSE CODE (see instructions for code): [E](#)
- ACTIVITY TYPE CODE(S) (see instructions for codes): [1](#), [2](#), [9](#), [12](#)
- WETLAND / WATERCOURSE AREA ALTERED (see instructions for explanation, type acres or linear feet as indicated):  
wetlands: [0.00](#) acres open water body: [0.00](#) acres stream: [0.00](#) linear feet
- UPLAND AREA ALTERED (type acres as indicated): [0.03](#) acres
- AREA OF WETLANDS / WATERCOURSES RESTORED, ENHANCED OR CREATED (type acres as indicated): [0.00](#) acres

DATE RECEIVED:

### PART III: To Be Completed By The DEEP

DATE RETURNED TO DEEP:

FORM COMPLETED: YES NO

FORM CORRECTED / COMPLETED: YES NO

BARNETT ROBERT C  
61 CHURCH HILL RD  
LEDYARD, CT 06339

HONEYSETTE LINDA JEAN  
4-30 LONG POND RD  
LEDYARD, CT 06339

ROBBINS WINFIELD S SR  
4-Q LONG POND RD  
LEDYARD, CT 06339

BUCHANAN DANNY E + KAREN  
593 LANTERN HILL RD  
LEDYARD, CT 06339

JONES DAVID + PAMELA  
7 ASH ST  
STONINGTON, CT 06378

ROGERS DONA - LIFE USE  
KEELER STEVEN C + CASTEEL  
599 LANTERN HILL RD  
LEDYARD, CT 06339

BUCHANAN DANNY E + KAREN  
593 LANTERN HILL RD  
LEDYARD, CT 06339

KEARNY HOMER C + ETHEL  
% ROBERT KEARNEY  
22 LONG POND RD  
LEDYARD, CT 06339

WILSON KIMBERLY A  
4D LONG POND RD  
LEDYARD, CT 06339

CHAMPLIN S  
608 LANTERN HILL RD  
LEDYARD, CT 06339

KEEHN DEBORAH  
610 LANTERN HILL RD  
LEDYARD, CT 06339

E LONG POND COMMON LAND T  
40 5TH ST  
NORWALK, CT 06855

KRYNICK GREGORY  
4-I LONG POND RD  
LEDYARD, CT 06339

GRAHAM ROBERT G + MARY E  
72A LONG POND RD SOUTH  
LEDYARD, CT 06339

LAMON TEL B + BROWN EUGEN  
4-O LONG POND RD  
LEDYARD, CT 06339

GRAHAM ROBERT G + MARY E  
ROBERT + MARY GRAHAM LIVI  
72A LONG POND RD S  
LEDYARD, CT 06339

LAYTON DONALD H  
4-24 LONG POND RD  
LEDYARD, CT 06339

GREEN EDWARD R JR + KAREN  
424 62ND ST  
HOLMES BEACH, FL 34217

M A STIMPSON PROPERTIES L  
PO BOX 135  
NORTH STONINGTON, CT 06359

GREENE RANDY  
4-E LONG POND RD  
LEDYARD, CT 06339

MCKEE FARM TRUST AGREEMEN  
C/O KEEHN ADAM  
150 W 95TH ST APT 5B  
NEW YORK, NY 10025

HAINES ALLISON+EDWARD T+P  
MOLINA PATRICIA + MAYNE S  
3 MARK ST  
PAWCATUCK, CT 06379

PERKINS PROPERTIES LLC  
P O BOX 437  
NORTH STONINGTON, CT 06359

U.S. Army Corps of Engineers (USACE)  
**AUTHORIZATION TO ACT AS AN AGENT**

For use of this form, see Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act of 1899, and Section 103 of the Marine Protection, Research, and Sanctuaries Act, the proponent agency is CECW-COR.

*Form Approved -  
 OMB No. 0710-0003  
 Expires 2027-10-31*

**The Agency Disclosure Notice (ADN)**

The Public reporting burden for this collection of information, 0710-003, is estimated to average 5 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at [whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil](mailto:whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

**Purpose:** This form is used by members of the public to authorize an agent (for example - a private consultant) to act on their behalf in all matters relating to all dealings with the USACE regarding the project. This includes taking all necessary actions for the application, processing, issuance, and/or acceptance of a Clean Water Act and/or Rivers and Harbors Act delineations, determinations, and/or permits.

This form is a component in the Corps Regulatory Request System (RRS), which is an online permitting application portal for the Regulatory Program.


**ITEMS 1 THRU 3 - FOR USACE USE ONLY**

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED
--------------------	----------------------	------------------

**ITEMS 4 THRU 14 - COMPLETD BY THE APPLICANT or REQUESTOR**

4. PROJECT NAME Lantern Hill Resiliency		5. PROJECT LOCATION Ledyard & N. Stonington, CT	
6. APPLICANT NAME (first, middle, last) Steve Masalin		7. AGENT NAME Stephen McDonnell	
Company (if applicable): Town of Ledyard		Company: WMC Consulting Engineers	
E-mail Address: pwd@ledyardct.org		E-mail Address: smcdonnell@wmcengineers.com	
8. APPLICANT ADDRESS (if applicable) Address 741 Colonel Ledyard Highway		9. AGENT ADDRESS (if applicable) Address 87 Holmes Road	
City: Ledyard	State: CT	City: Newington	State: CT
10. APPLICANT PHONE NUMBERS. w/AREA CODE		11. AGENT PHONE NUMBERS. w/AREA CODE	
a. Residence	b. Business 860.464.3238	c. Fax	a. Residence
			b. Business 860.667.9624
			c. Fax

**12. APPLICANT/AGENT CERTIFICATION**  
 By signing below, I hereby authorize the agent listed above, to act on my behalf in all matters relating to all dealings with the USACE regarding the project and properties listed above, including taking all necessary actions for the application, processing, issuance, and/or acceptance of a Clean Water Act and/or Rivers and Harbors Act delineations, determinations, and/or permits. Any and all acts carried out by my agent on my behalf as it relates to this project and property shall have the same effect as acts of my own.  
 I agree to review all information submitted to the USACE on my behalf by my agent and certify that any information submitted on my behalf is true and correct.

13. SIGNATURE of APPLICANT or REQUESTOR 	14. DATE 12/17/25
--	----------------------

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

January 19, 2024

ATTN: Keegan Elder  
WMC Consulting Engineers  
87 Holmes Road  
Newington, CT 06111

**Re: Wetlands Delineation and Description Report  
Whitford Brook Watershed Infrastructure Improvements Project  
Area, Ledyard and North Stonington, CT**

Dear Mr. Elder:

In accordance with your request, Scott D. Stevens, Registered Professional Soil Scientist, and Jennifer L. Beno, Biologist/Wetland Scientist, with Soil Science And Environmental Services, Inc. (SSES) provided wetland and watercourse identification services on the above-referenced project area. Our findings are as follows.

## **I Introduction**

SSES inspected the Whitford Brook watershed infrastructure improvements project area on November 20 and 21, 2023. The purpose of the inspections was to identify regulated wetlands and watercourses within the designated project limits. The project limits included the vicinity of both dams, west: Long Pond Dam; east: Bush Pond Dam, along Whitford Brook, and along the discharge channel of Bush Pond to 25 ft downstream of Hyde Mill Pentway road crossing. See Project area map included in Appendix A. The work was completed for WMC Consulting Engineers acting as agent for the Town of Ledyard. The project area is located within the eastern portion of Ledyard and western portion of North Stonington. See Appendix A for project location map.

## **II Methodology**

Soils, hydrology, and vegetation were investigated within the project limits. A spade and auger were used to dig numerous test holes up to 40-inches deep for soils identification. Soil color, texture, and depths to redoximorphic features and

restrictive layers were observed within each test hole. Specifically, we were looking for poorly drained, very poorly drained, floodplain and/or alluvial soils which were delineated with consecutively numbered survey tapes as CT inland wetlands. In addition to the soils, hydrology indicators such as depth to saturation and groundwater were observed within the test holes. Hydric soils are poorly to very poorly drained soils that typically support wetland vegetation and contain saturated soils at or near the ground surface (hydrology). And finally, vegetation communities were observed to determine if a prevalence of hydrophytic vegetation was present. When hydric soils, hydrology, and hydrophytic vegetation were present, a Federal wetland was delineated with consecutively numbered survey tapes. Ordinary High Water (OHW) was identified at multiple points along the watercourse channels existing within the project area based on the observed physical conditions such as wrack line, bent vegetation, lack of vegetation, change in vegetation, sediment deposition, scour, washed out vegetation/leaf litter, and water staining.

### III Results

CT inland wetlands, Federal wetlands, and waterbodies are present within the project limits. The project area is situated on a hillside and is associated with Long Pond and Bush Pond, and Whitford Brook (a perennial watercourse). The limits of the CT inland wetlands and the Federal wetlands were determined to differ within the project limits. The CT inland wetland boundaries were delineated with consecutively numbered orange survey tapes and the Federal wetland boundaries were delineated with consecutively numbered blue survey tapes. OHW was identified with blue flags at sixteen locations along the ponds and perennial watercourses within the project area. Sketch maps of the delineated wetland boundaries and OHW flag locations are included in Appendix A.

The soil types associated with the wetlands within the project limits include:

Aq Aquents - This is a poorly to very poorly drained, disturbed soil where two or more feet of the original soil surface has been altered by filling, excavation and/or grading. Aquents are characterized by a seasonal to prolonged high groundwater table at or near the ground surface. Aquents are capable of supporting a prevalence of hydrophytic plants.

12 Raypol silt loam (Aeric Endoaquepts)- This is a deep, poorly drained, friable, loamy textured soil that developed over sandy and gravelly, glacial outwash. Outwash soils occur in valleys, outwash plains and terraces. The Raypol soil was previously mapped in Hartford County as the Walpole loam.

13 Walpole sandy loam (Aeric Endoaquepts)- This is a deep, poorly drained, friable, coarse-loamy textured soil that developed over sandy and gravelly, glacial outwash. Outwash soils occur in valleys, outwash plains and terraces.

109 Fluvaquents-Udifluvents - This soil map unit consists of well drained to very poorly drained, nearly level soils that formed in very recent alluvium deposited by rivers and streams. The soils are occasionally to frequently flooded, which often results in stream scouring, lateral erosion and shifting of soil from place to place. Soil characteristics, such as texture and stoniness, are usually highly variable within short distances.

Three wetland systems were delineated within the designated project area. A wetland was delineated within the western portion of the project area and is associated with Long Pond (lake habitat) to the north and Whitford Brook that extends southerly to Lantern Hill Road. Both CT and Federal wetlands are associated with this area. The soil types within the wetland include Aq, 12, 13, and 109. Evidence of hydrology within the wetlands includes water marks, wash/debris, buttressed and exposed tree roots, and shallow depth to groundwater. A palustrine forested (PFO) wetland community dominates the wetland along Whitford Brook between the Long Pond spillway and Lantern Hill Road. The tree canopy cover within the wetlands is dense and the shrub and herbaceous understory growth is moderately dense to dense. Vegetation within the palustrine forested wetland is dominated by red maple, black birch, sycamore, spicebush, sweet pepperbush, winterberry, arrowwood, burning bush, cinnamon fern, sensitive fern, sedges, manna grass, Japanese honeysuckle, grape, and bittersweet. Palustrine scrub-shrub (PSS) and palustrine emergent (PEM) wetland communities dominate the wetland along the edge of Long Pond and the dam. The vegetation growth is moderately dense to dense and is dominated by sweet pepperbush, willow, alder, buttonbush, winterberry, sedges, false nettle, and bur-reed.

A wetland was delineated within the eastern portion of the project area and is associated with Bush Pond (lake habitat). Both CT and Federal wetlands are associated with this area. The soil types within the wetland include Aq and 109. Evidence of hydrology within the wetlands includes water marks, buttressed and exposed tree roots, and shallow depth to groundwater. Palustrine scrub-shrub (PSS) and palustrine emergent (PEM) wetland communities dominate the wetland along the edge of Bush Pond and the dam. The vegetation growth is moderately dense to dense and is dominated by buttonbush, sweet pepperbush, multiflora rose, spicebush, alder, winterberry, elderberry, cattail, false nettle, sedges, joe-pye weed, and sensitive fern.

A very narrow CT wetland, dominated by a palustrine forested (PFO) wetland community, was delineated along the edge of the low flow outlet channel south, and downstream, of the Bush Pond dam. The soil types associated with the wetland include Aq and 109. Evidence of hydrology within the wetland includes water marks, wash/debris, and stained and matted leaves. The tree canopy cover within the wetland is moderately dense to dense and the shrub and herbaceous understory growth is moderately dense to dense. Vegetation is dominated by red maple, sycamore, spicebush, raspberry, multiflora rose, Japanese honeysuckle, Christmas fern, and Canada goldenrod.

Federal Wetland boundary delineation data sheets are included in Appendix B.

Photos of the wetlands within the project area are included in Appendix C.

Several functions are provided by the wetlands associated with Long Pond, Bush Pond, and Whitford Brook. The primary functions provided include groundwater discharge, floodflow alteration, finfish habitat, sediment and nutrient retention/removal, wildlife habitat, uniqueness, visual/aesthetics, and possible habitat for listed (endangered, threatened, special concern) species. The primary functions associated with the channelized low flow watercourse are limited and include groundwater discharge and wildlife habitat. A Highway Methodology form was completed for each wetland area within the project area and are included in Appendix D.

The non-wetland soils within the project area include:

75 Hollis-Chatfield-rock outcrop complex (Typic & Lithic Dystrudepts) - These are shallow to moderately deep to bedrock, well drained to somewhat excessively drained, friable, coarse-loamy textured, glacial till soils derived from schist, gneiss and granite. Depths to bedrock range from 0 to over 5 feet. Roughly 1/3 of the soils in this complex are shallow (10-20 inches) to bedrock, while another 1/3 are moderately deep (20-40 inches) to bedrock. The Hollis-Chatfield-rock outcrop complex occurs on glaciated plains, hills and ridges.

306 Udorthents-Urban land complex - This map unit consists of extensive areas where soils have been disturbed from land development along with large areas of impervious surfaces associated with streets, parking lots, buildings and other structures.

308 Udorthents, smoothed - This is a well drained to moderately well drained soil area that has had two or more feet of the original soil surface altered by filling, excavation or grading activities. Udorthents, smoothed soils commonly occur on leveled land and fill landforms.

702 Tisbury soil (Aquic Dystrudepts) – This is a deep, moderately well drained, friable, loamy textured soil that developed over sandy and gravelly, glacial outwash derived from schist, gneiss and granite. Outwash soils occur in valleys, outwash plains and terraces.

703 Haven silt loam (Typic Dystrudepts) – This is a deep, well drained, friable, loamy textured soil developed over sandy and gravelly outwash derived from schist, gneiss and granite. Outwash soils occur in valleys, outwash plains and terraces.

The upland (non-wetland) areas adjacent to the wetlands consist of fill, dams, paved and dirt roads, residences, and wooded upland. The dominant vegetation observed within the upland areas adjacent to the wetlands includes maples, oaks, sycamore, black cherry, black birch, beech, elm, ironwood, multiflora rose, burning bush, Japanese barberry, spicebush, Tatarian honeysuckle, raspberry, greenbrier, bittersweet, grape, Christmas fern, Japanese honeysuckle, mugwort, dandelion, plantains, cinquefoil,

violet, and grasses.

Respectfully submitted,  
SOIL SCIENCE AND ENVIRONMENTAL SERVICES, INC.



Scott D. Stevens  
Registered Professional Soil Scientist



Jennifer L. Beno  
Biologist/Wetland Scientist

Scott Stevens, Registered Professional Soil Scientist

Mr. Stevens is one of the partners at Soil Science And Environmental Services, Inc. He is the principal Soil Scientist and has been with the firm since 1987. Mr. Stevens has a master's degree in Environmental Science and has graduate and undergraduate studies in Soil Science and Groundwater Hydrology. He is a member of the Society of Soil Scientists of Southern New England. Mr. Stevens has extensive experience delineating Inland, Tidal and Federal Wetland boundaries and classifying soil types. He has completed over a thousand wetland mapping projects throughout CT along with numerous sites in MA and NY. Mr. Stevens also inspects deep test pits, provides detailed soil descriptions, and conducts soil permeability and sieve tests for septic systems.

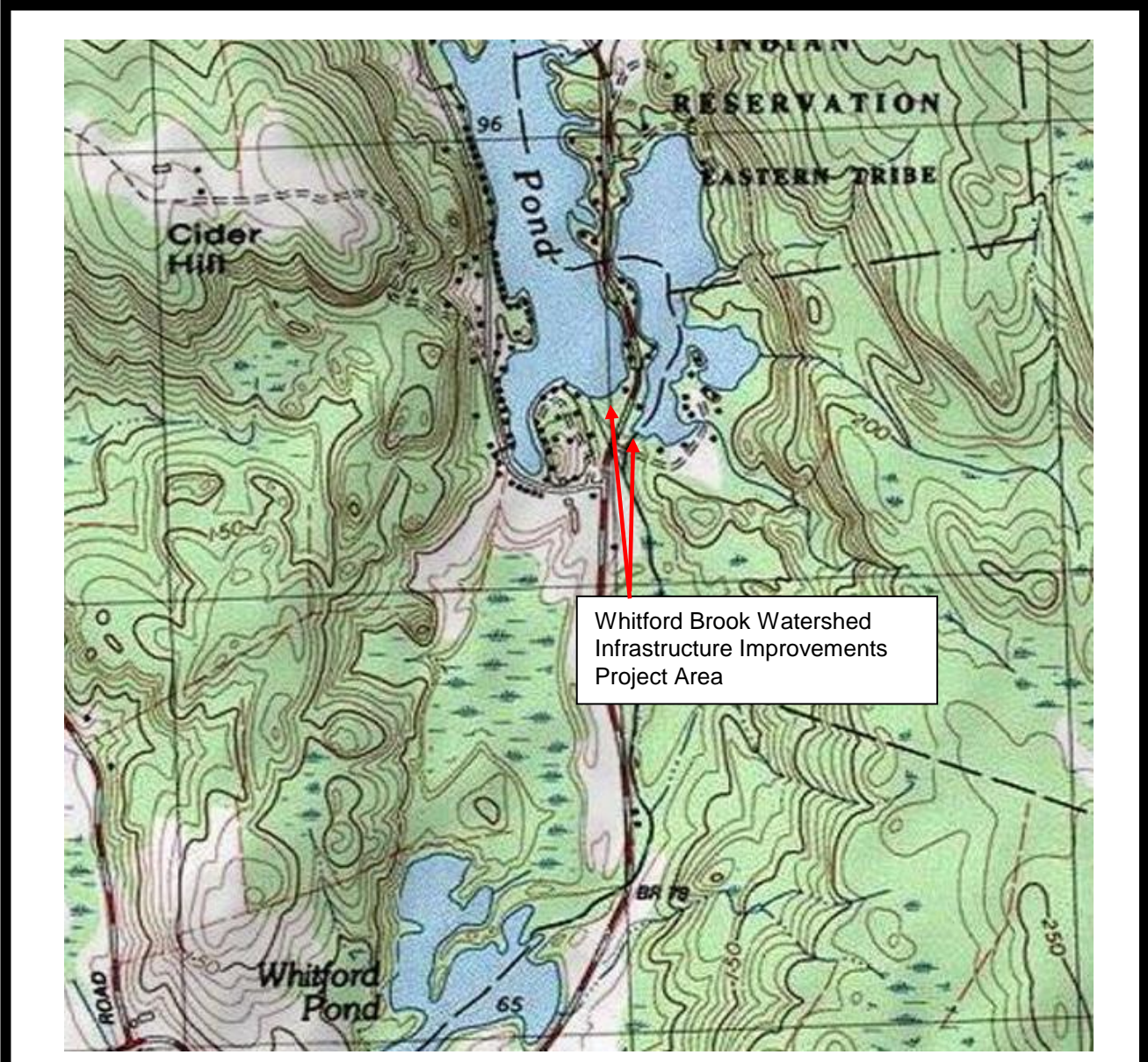
Jennifer Beno, Biologist/Wetland Scientist

Ms. Beno is one of the partners at Soil Science And Environmental Services, Inc. She is the principal Biologist/Wetland Scientist with the firm and has been with the company since 1994. She has a bachelor's degree in Zoology and is a member of the CT Association of Wetland Scientist and the Society of Wetland Scientists. Ms. Beno has assisted in Federal and Tidal wetland delineations for the past 20 years. She prepares a variety of reports including wetland assessments, wetland impact analyses, mitigation and planting plans, and invasive species identification and control plans. Ms. Beno also conducts vernal pool inspections. Her reports are submitted as supporting documentation for municipal, State and US Army Corps of Engineers review.

## Appendix A – Maps



**Project Limits (in red) Provided by WMC Consulting Engineers.**



**SOIL SCIENCE and ENVIRONMENTAL SERVICES, INC.**

USGS Topographic Map  
Whitford Brook Watershed  
Infrastructure Improvements Project  
Area, Ledyard and  
North Stonington, CT

Date 1/8/2024

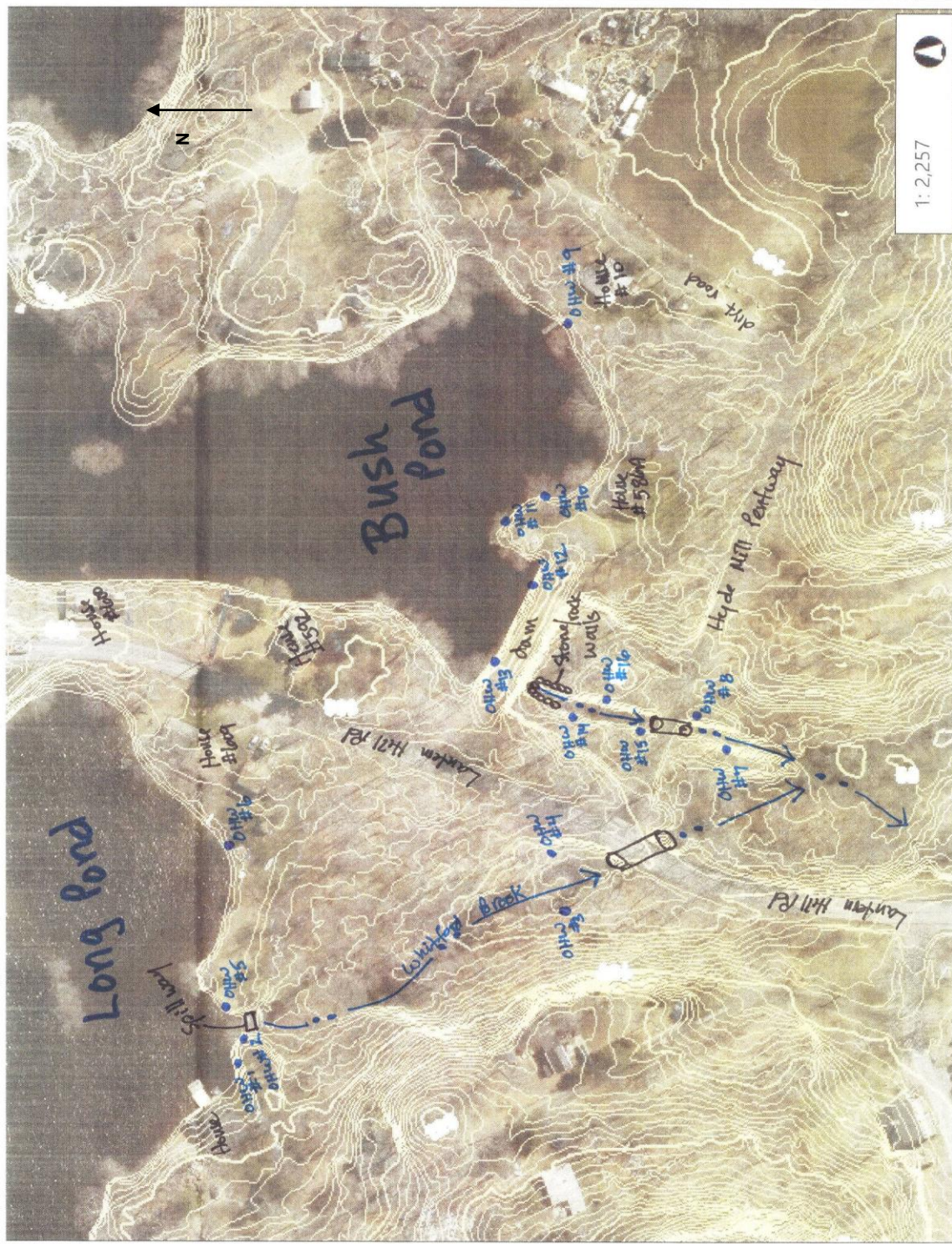
Location Map



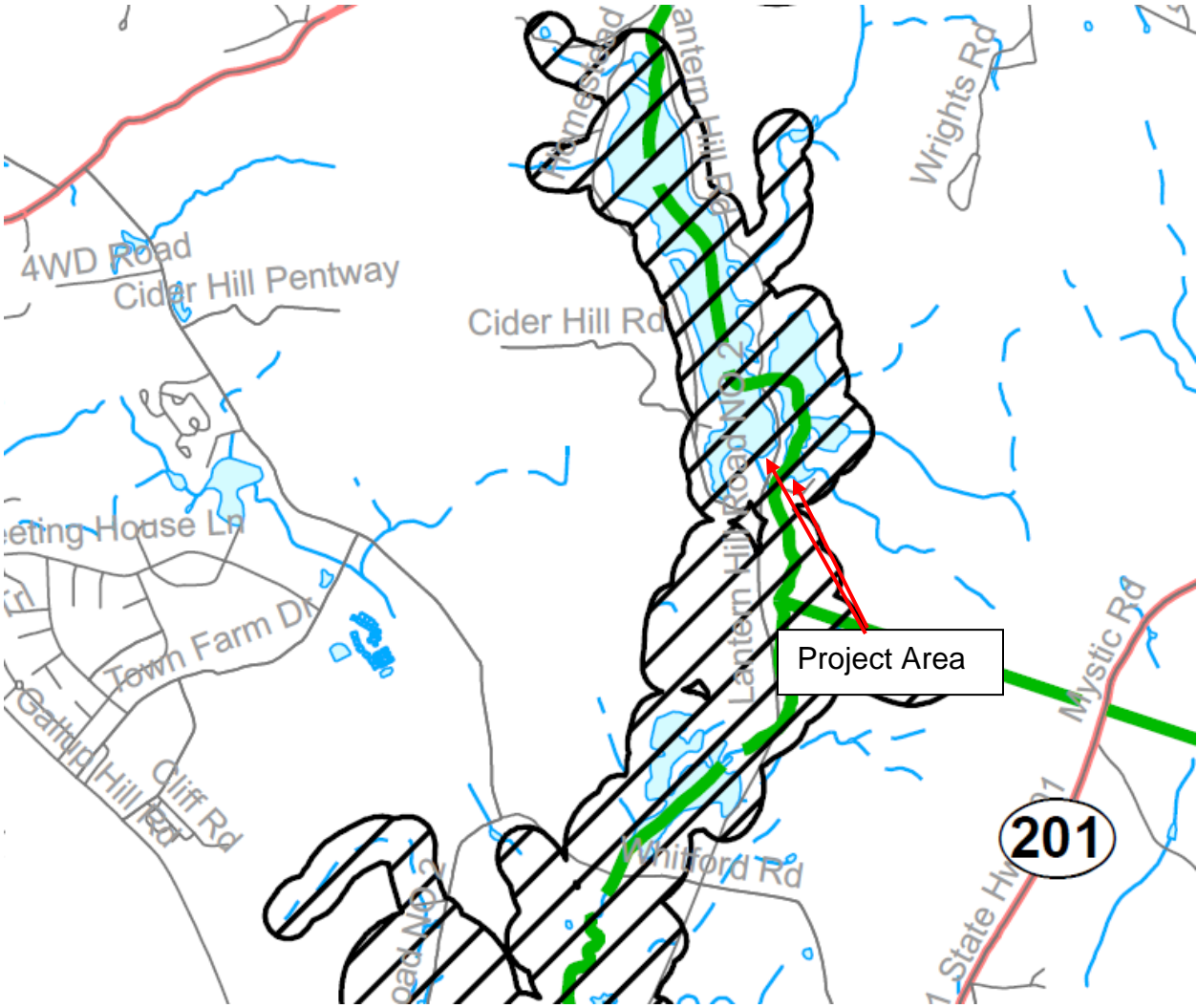
Sketch of CT Wetland Boundaries – approximate (CT ECO - Spring 2016 Aerial Photo)



**Sketch of Federal Wetland Boundaries – approximate  
(CT ECO - Spring 2016 Aerial Photo)**



Sketch of OHW Flag Locations – approximate  
(CT ECO - Spring 2016 Aerial Photo)



December 2023 CT DEEP NDDB Division Map

## Appendix B - Federal Wetland Delineation Data Forms

### WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Whitford Brook Watershed Infrastructure Improvement Project City/County: Ledyard/New London Sampling Date: Nov. 21, 2023  
 Applicant/Owner: WMC Consulting Engineers / Town of Ledyard State: CT Sampling Point: 18-W  
 Investigator(s): Scott Strunk + Jenn Bono - SSES Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: ±41.43863°N Long: ±71.94443°W Datum: \_\_\_\_\_  
 Soil Map Unit Name: Walden Sandy loam + fluvioglacial - udifluvents complex NWI classification: PFO1E  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1)      ___ Water-Stained Leaves (B9) <u>X</u> High Water Table (A2)      ___ Aquatic Fauna (B13) <u>X</u> Saturation (A3)              ___ Marl Deposits (B15) ___ Water Marks (B1)          ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2)    ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3)        ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4)     ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5)         ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7)    ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>±12</u> Saturation Present? (includes capillary fringe) Yes <u>X</u> No _____ Depth (inches): <u>±10</u>	Wetland Hydrology Present? Yes <u>X</u> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

**VEGETATION** – Use scientific names of plants.

Sampling Point: 18-W

Tree Stratum (Plot size: <u>±30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Quercus alba</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)  Total Number of Dominant Species Across All Strata: <u>9</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>55.6%</u> (A/B)
2. <u>Acer saccharum</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Betula lenta</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
4. _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
5. _____				
6. _____				
7. _____				
<u>±70%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>±15'</u> )				
1. <u>Clethra alnifolia</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Lindera benzoin</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
3. <u>Sambucus nigra</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
4. _____				
5. _____				
6. _____				
7. _____				
<u>±50%</u> = Total Cover				
Herb Stratum (Plot size: <u>±5'</u> )				
1. <u>Osmundastrum cinnamomeum</u>	<u>25</u>	<u>Y</u>	<u>FACW</u>	<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.   <b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
2. <u>Boenmeria cylindrica</u>	<u>10</u>	<u>Y</u>	<u>OBL</u>	
3. <u>Celastrus orbiculatus</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
<u>±40%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>±30'</u> )				
1. <u>Vitis labrusca</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
2. _____				
3. _____				
4. _____				
<u>±5%</u> = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: 18-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1.5	10YR 3/2						fine sandy loam to silt loam	
1.5-18	10YR 5/4		10YR 5/3 + 5/10 e 12"				loamy fine sand	
18-20	10YR 5/2 to 5/4						loamy fine sand	

- <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.
- |   |   |
|---|---|
| <p><b>Hydric Soil Indicators:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Histosol (A1)</li> <li><input type="checkbox"/> Histic Epipedon (A2)</li> <li><input type="checkbox"/> Black Histic (A3)</li> <li><input type="checkbox"/> Hydrogen Sulfide (A4)</li> <li><input type="checkbox"/> Stratified Layers (A5)</li> <li><input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)</li> <li><input type="checkbox"/> Thick Dark Surface (A12)</li> <li><input type="checkbox"/> Sandy Mucky Mineral (S1)</li> <li><input type="checkbox"/> Sandy Gleyed Matrix (S4)</li> <li><input type="checkbox"/> Sandy Redox (S5)</li> <li><input type="checkbox"/> Stripped Matrix (S6)</li> <li><input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)</li> <li><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)</li> <li><input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)</li> <li><input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)</li> <li><input type="checkbox"/> Loamy Gleyed Matrix (F2)</li> <li><input type="checkbox"/> Depleted Matrix (F3)</li> <li><input type="checkbox"/> Redox Dark Surface (F6)</li> <li><input type="checkbox"/> Depleted Dark Surface (F7)</li> <li><input type="checkbox"/> Redox Depressions (F8)</li> </ul> | <p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)</li> <li><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</li> <li><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)</li> <li><input type="checkbox"/> Dark Surface (S7) (LRR K, L)</li> <li><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)</li> <li><input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)</li> <li><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)</li> <li><input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)</li> <li><input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)</li> <li><input type="checkbox"/> Red Parent Material (F21)</li> <li><input type="checkbox"/> Very Shallow Dark Surface (TF12)</li> <li><input type="checkbox"/> Other (Explain in Remarks)</li> </ul> |
|---|---|

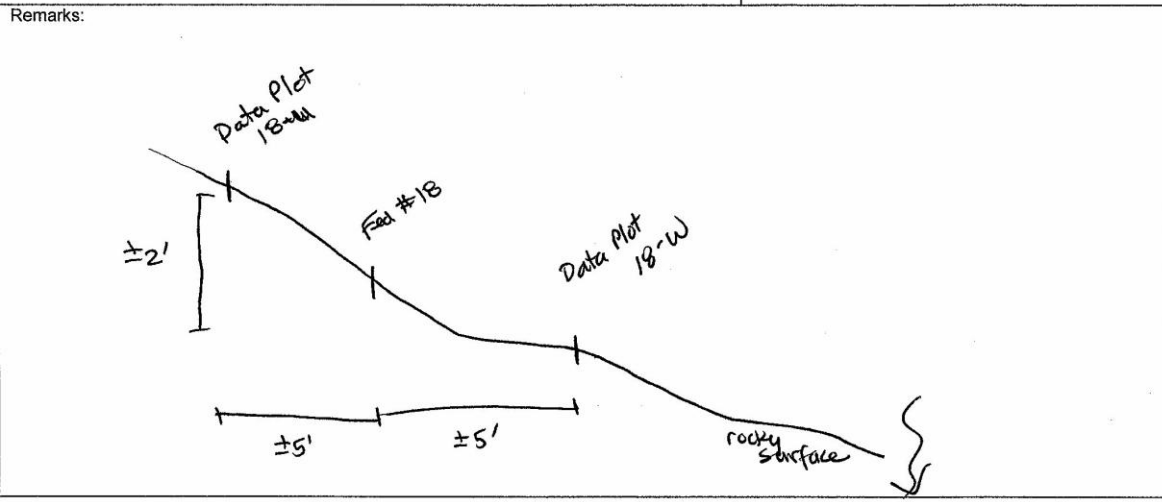
<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No



**WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: Whitford Brook Watershed Infrastructure Improvement Project City/County: Ledyard/New London Sampling Date: Nov. 21, 2023  
 Applicant/Owner: WME Consulting Engineers / Town of Ledyard State: CT Sampling Point: 18-U  
 Investigator(s): Scott Stevens + Jenn Beno - SSES Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: ±41.43862°N Long: ±71.94445°W Datum: \_\_\_\_\_  
 Soil Map Unit Name: Tisbury silt loam NWI classification: N/A  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Sampling Point: 18-U

Tree Stratum (Plot size: <u>±30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Quercus alba</u>	<u>30</u>	<u>4</u>	<u>FACU</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>8</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>37.5%</u> (A/B)
2. <u>Acer saccharum</u>	<u>20</u>	<u>4</u>	<u>FACU</u>	
3. <u>Betula lenta</u>	<u>20</u>	<u>4</u>	<u>FACU</u>	
4. _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
5. _____				
6. _____				
7. _____				
<u>±70%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>±15'</u> )				
1. <u>Clethra alnifolia</u>	<u>40</u>	<u>4</u>	<u>FAC</u>	
2. <u>Londra benzoin</u>	<u>10</u>	<u>4</u>	<u>FACW</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
<u>±50%</u> = Total Cover				
Herb Stratum (Plot size: <u>±5'</u> )				
1. <u>Osmundastrum cinnamomeum</u>	<u>10</u>	<u>4</u>	<u>FACW</u>	<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.   <b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
<u>±10%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>±30'</u> )				
1. <u>Vitis labrusca</u>	<u>5</u>	<u>4</u>	<u>FACU</u>	
2. _____				
3. _____				
4. _____				
<u>±5%</u> = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				



**WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: Whitford Brook watershed Infrastructure Improvements Project City/County: Ledyard/New London Sampling Date: Nov. 20 2023  
 Applicant/Owner: WMC Consulting Engineers / Town of Ledyard State: CT Sampling Point: 40-W  
 Investigator(s): Scott Stearns + Jerrin Beno - SSES Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: ±41.43873°N Long: ±71.94448°W Datum: \_\_\_\_\_  
 Soil Map Unit Name: Walpole sandy loam + Fluvaquents - udicfluvents NWI classification: Pem2E/PSS1E  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____ If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: (Explain alternative procedures here or in a separate report.)		

**HYDROLOGY**

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)		_____ Surface Soil Cracks (B6)	
_____ Surface Water (A1)	_____ Water-Stained Leaves (B9)	_____ Drainage Patterns (B10)	
<u>X</u> High Water Table (A2)	_____ Aquatic Fauna (B13)	_____ Moss Trim Lines (B16)	
<u>X</u> Saturation (A3)	_____ Marl Deposits (B15)	_____ Dry-Season Water Table (C2)	
_____ Water Marks (B1)	_____ Hydrogen Sulfide Odor (C1)	_____ Crayfish Burrows (C8)	
_____ Sediment Deposits (B2)	_____ Oxidized Rhizospheres on Living Roots (C3)	_____ Saturation Visible on Aerial Imagery (C9)	
_____ Drift Deposits (B3)	_____ Presence of Reduced Iron (C4)	_____ Stunted or Stressed Plants (D1)	
_____ Algal Mat or Crust (B4)	_____ Recent Iron Reduction in Tilled Soils (C6)	_____ Geomorphic Position (D2)	
_____ Iron Deposits (B5)	_____ Thin Muck Surface (C7)	_____ Shallow Aquitard (D3)	
_____ Inundation Visible on Aerial Imagery (B7)	_____ Other (Explain in Remarks)	_____ Microtopographic Relief (D4)	
_____ Sparsely Vegetated Concave Surface (B8)		_____ FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes _____ No <u>X</u> Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____	
Water Table Present?	Yes <u>X</u> No _____ Depth (inches): <u>±4</u>		
Saturation Present? (includes capillary fringe)	Yes <u>X</u> No _____ Depth (inches): <u>0</u>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

**VEGETATION** – Use scientific names of plants.

Sampling Point: 40-w

Tree Stratum (Plot size: <u>±30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>±15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Acer rubrum</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Salix discolor</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Rosa multiflora</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>±40%</u> = Total Cover				
Herb Stratum (Plot size: <u>±5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Carex stricta</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Solidago canadensis</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Dichanthelium clandestinum</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
4. <u>Alnus incana</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
5. <u>Boehmeria cylindrica</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
6. <u>Taraxacum officinale</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
<u>±102%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>±30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

**Dominance Test worksheet:**  
 Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)  
 Total Number of Dominant Species Across All Strata: 5 (B)  
 Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

**Prevalence Index worksheet:**  
 Total % Cover of: \_\_\_\_\_ Multiply by: \_\_\_\_\_  
 OBL species \_\_\_\_\_ x 1 = \_\_\_\_\_  
 FACW species \_\_\_\_\_ x 2 = \_\_\_\_\_  
 FAC species \_\_\_\_\_ x 3 = \_\_\_\_\_  
 FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_  
 UPL species \_\_\_\_\_ x 5 = \_\_\_\_\_  
 Column Totals: \_\_\_\_\_ (A) \_\_\_\_\_ (B)  
 Prevalence Index = B/A = \_\_\_\_\_

**Hydrophytic Vegetation Indicators:**  
 1 - Rapid Test for Hydrophytic Vegetation  
 2 - Dominance Test is >50%  
 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Vegetation Strata:**  
**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  
**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  
**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  
**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes  No

**SOIL**

Sampling Point: 40-w

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR4/2						loamy sand + gravel	
4-6	10YR4/1						Sandy loam	
6-15	10YR4/1 to 5/1						Silt loam	
15-24	10YR 5/1						Silt loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

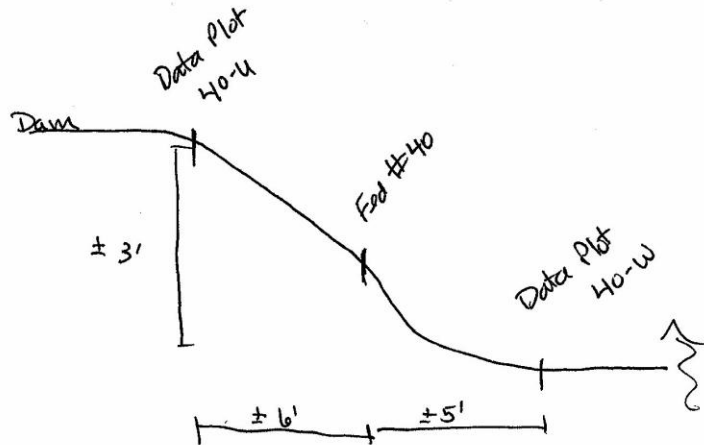
<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

**Remarks:**



**WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

whitford Brook Watershed Infrastructure  
 Project/Site: Improvements Project City/County: Ledyard/New London Sampling Date: Nov. 20, 2023  
 Applicant/Owner: WMC Consulting Engineers/Town of Ledyard State: CT Sampling Point: 40-U  
 Investigator(s): Scott Stevens + Jenn Bono - SSES Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: ± 41.43072°N Long: ± 71.94440°W Datum: \_\_\_\_\_  
 Soil Map Unit Name: udorthards, smoothed NWI classification: N/A  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil X, or Hydrology \_\_\_\_\_ significantly disturbed? yes Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
If yes, optional Wetland Site ID: _____		
Remarks: (Explain alternative procedures here or in a separate report.)		

**HYDROLOGY**

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)		_____ Surface Soil Cracks (B6)	
___ Surface Water (A1)	___ Water-Stained Leaves (B9)	___ Drainage Patterns (B10)	
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Moss Trim Lines (B16)	
___ Saturation (A3)	___ Marl Deposits (B15)	___ Dry-Season Water Table (C2)	
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Crayfish Burrows (C8)	
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Saturation Visible on Aerial Imagery (C9)	
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Stunted or Stressed Plants (D1)	
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Geomorphic Position (D2)	
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Shallow Aquitard (D3)	
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)	___ Microtopographic Relief (D4)	
___ Sparsely Vegetated Concave Surface (B8)		___ FAC-Neutral Test (D5)	
<b>Field Observations:</b>		Wetland Hydrology Present? Yes _____ No <u>X</u>	
Surface Water Present?	Yes _____ No <u>X</u> Depth (inches): _____		
Water Table Present?	Yes _____ No <u>X</u> Depth (inches): _____		
Saturation Present?	Yes _____ No <u>X</u> Depth (inches): _____		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

**VEGETATION** – Use scientific names of plants.

Sampling Point: LD-U

Tree Stratum (Plot size: <u>±30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>±15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Rosa multiflora</u>	<u>25</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Salix discolor</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>±30%</u> = Total Cover				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Herb Stratum (Plot size: <u>±5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>mowed grasses</u>	<u>50</u>	<u>Y</u>	_____	
2. <u>Plantago lanceolata</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
3. <u>Taraxacum officinale</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
<u>±10%</u> = Total Cover				<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: <u>±30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
Remarks: (Include photo numbers here or on a separate sheet.)				



**WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: Whitford Brook Watershed Infrastructure Improvements Project City/County: N. Stonington/New London Sampling Date: Nov. 21, 2023  
 Applicant/Owner: WMC Consulting Engineers / Town of Ledyard State: CT Sampling Point: 60-W  
 Investigator(s): Scott Stevens + Jenn Beno - SSES Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: ±41.43786°N Long: ±71.94261°W Datum: \_\_\_\_\_  
 Soil Map Unit Name: Aquerts NWI classification: PEM2E  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil X, or Hydrology \_\_\_\_\_ significantly disturbed? yes Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	If yes, optional Wetland Site ID: _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	Remarks: (Explain alternative procedures here or in a separate report.)	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
<b>Primary Indicators (minimum of one is required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>±2</u> Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>0</u> (includes capillary fringe)	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

**VEGETATION** – Use scientific names of plants.

Sampling Point: 60-W

Tree Stratum (Plot size: <u>±30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Acer saccharum</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (AVB)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
<u>±10%</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>±15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Lindera benzoin</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
<u>±10%</u> = Total Cover				
Herb Stratum (Plot size: <u>±5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Typha latifolia</u>	<u>50</u>	<u>Y</u>	<u>OBL</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Eutrochium maculatum</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
3. <u>Carex lurida</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
4. <u>Brenneria cylindrica</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
<u>±70%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>±30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.
2. _____				
3. _____				
4. _____				
<u>0</u> = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____

**SOIL**

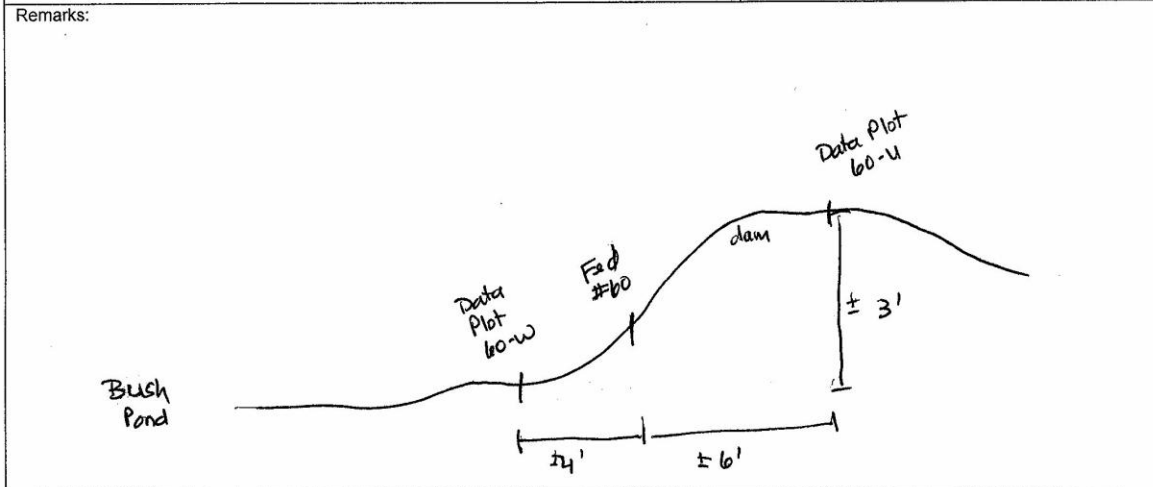
Sampling Point: 60-w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10YR2/1						organic material	
2-24	10YR2/1						sandy loam with stones - fill within dam	

- <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.
- |   |  |   |
|---|--|---|
| <p><b>Hydric Soil Indicators:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Histosol (A1)</li> <li><input type="checkbox"/> Histic Epipedon (A2)</li> <li><input type="checkbox"/> Black Histic (A3)</li> <li><input type="checkbox"/> Hydrogen Sulfide (A4)</li> <li><input type="checkbox"/> Stratified Layers (A5)</li> <li><input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)</li> <li><input type="checkbox"/> Thick Dark Surface (A12)</li> <li><input type="checkbox"/> Sandy Mucky Mineral (S1)</li> <li><input type="checkbox"/> Sandy Gleyed Matrix (S4)</li> <li><input type="checkbox"/> Sandy Redox (S5)</li> <li><input type="checkbox"/> Stripped Matrix (S6)</li> <li><input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)</li> <li><input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)</li> <li><input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)</li> <li><input type="checkbox"/> Loamy Gleyed Matrix (F2)</li> <li><input type="checkbox"/> Depleted Matrix (F3)</li> <li><input type="checkbox"/> Redox Dark Surface (F6)</li> <li><input type="checkbox"/> Depleted Dark Surface (F7)</li> <li><input type="checkbox"/> Redox Depressions (F8)</li> </ul> | <p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)</li> <li><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</li> <li><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)</li> <li><input type="checkbox"/> Dark Surface (S7) (LRR K, L)</li> <li><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)</li> <li><input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)</li> <li><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)</li> <li><input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)</li> <li><input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)</li> <li><input type="checkbox"/> Red Parent Material (F21)</li> <li><input type="checkbox"/> Very Shallow Dark Surface (TF12)</li> <li><input type="checkbox"/> Other (Explain in Remarks)</li> </ul> |
|---|--|---|

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<p><b>Restrictive Layer (if observed):</b></p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
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**WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: Whitford Brook Watershed Infrastructure Improvements Project City/County: N. Stonington/New London Sampling Date: Nov. 21, 2023  
 Applicant/Owner: WMC Consulting Engineers / Town of Ledyard State: CT Sampling Point: Lo-U  
 Investigator(s): Scott Stevens + Jenn Beno - SSES Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: ±41.43784°N Long: ±71.94262°W Datum: \_\_\_\_\_  
 Soil Map Unit Name: Udorthents, smoothed NWI classification: N/A  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil X, or Hydrology \_\_\_\_\_ significantly disturbed? yes Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Microtopographic Relief (D4)
	<input type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b>	
Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____	
Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

**VEGETATION** – Use scientific names of plants.

Sampling Point: 60-U

Tree Stratum (Plot size: <u>±30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Acer saccharum</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40%</u> (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
<u>±10%</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____	
Sapling/Shrub Stratum (Plot size: <u>±15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Lindera benzoin</u>	<u>25</u>	<u>Y</u>	<u>FACW</u>		<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
<u>±25%</u> = Total Cover				<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.	
Herb Stratum (Plot size: <u>±5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>mowed grasses</u>	<u>25</u>	<u>Y</u>			<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
2. <u>Taraxacum officinale</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>		
3. <u>Viola sororia</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
<u>±45%</u> = Total Cover					
Woody Vine Stratum (Plot size: <u>±30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>	
2. _____					
3. _____					
4. _____					
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					



### Appendix C – Photos



Long Pond, narrow palustrine emergent and palustrine scrub-shrub wetland communities, and dam in northwestern portion of project area (11/20/2023).



Looking north at Long Pond and Long Pond spillway (11/20/2023).



Looking south at Whitford Brook and palustrine forested wetland below Long Pond dam (11/20/2023).



Looking northwest at Whitford Brook and palustrine forested wetland from Lantern Hill Road (11/20/2023).



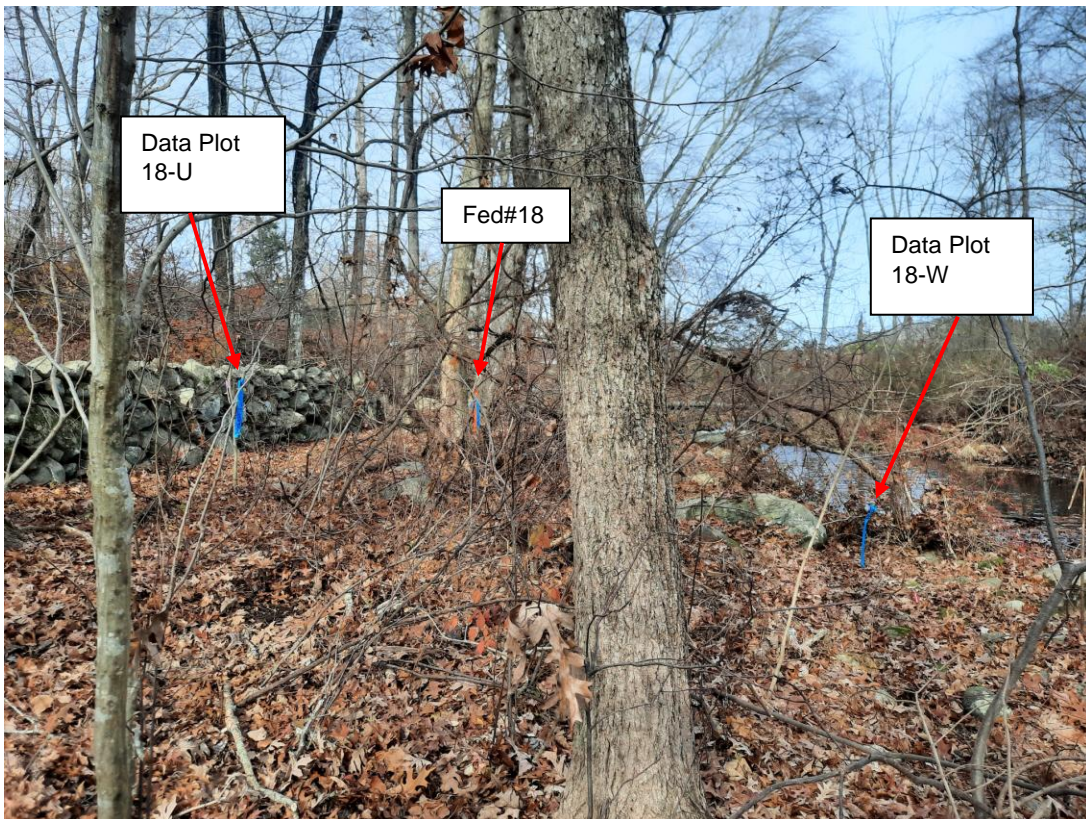
Bush Pond, narrow palustrine emergent and palustrine scrub-shrub wetland communities, and dam in northeast portion of project area (11/21/2023).



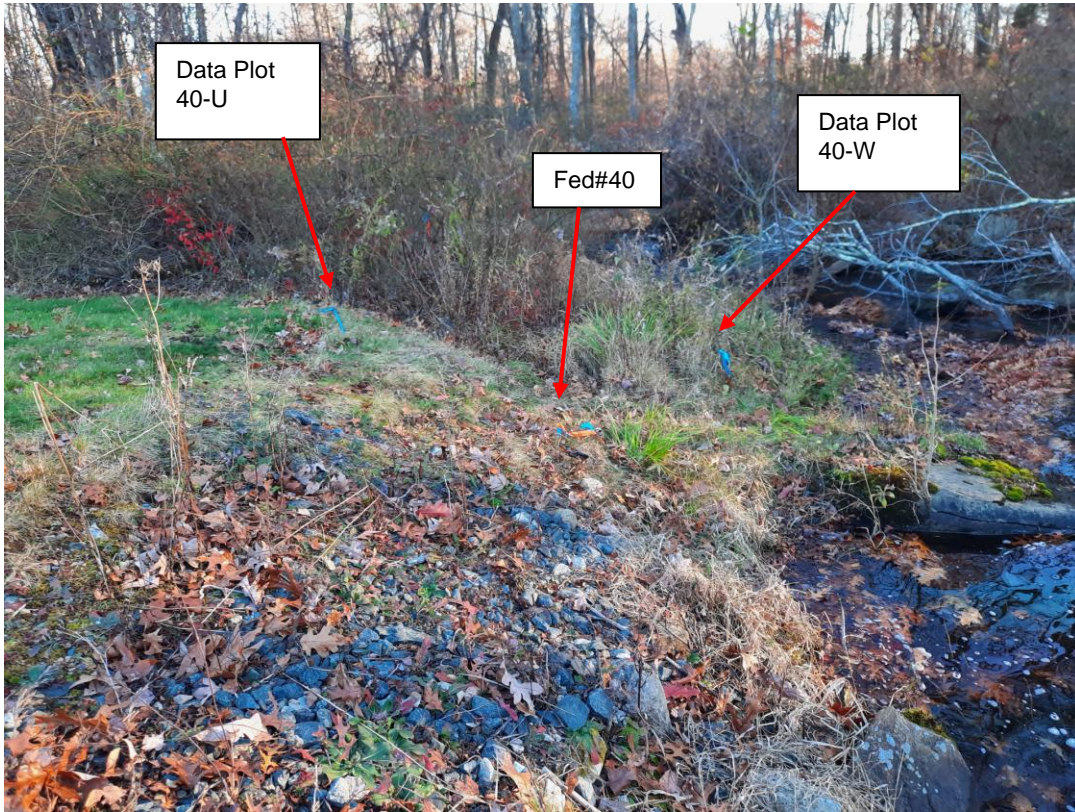
Looking north at narrow low flow channel below Bush Pond dam and north of Hyde Mill Pentway Crossing (11/21/2023).



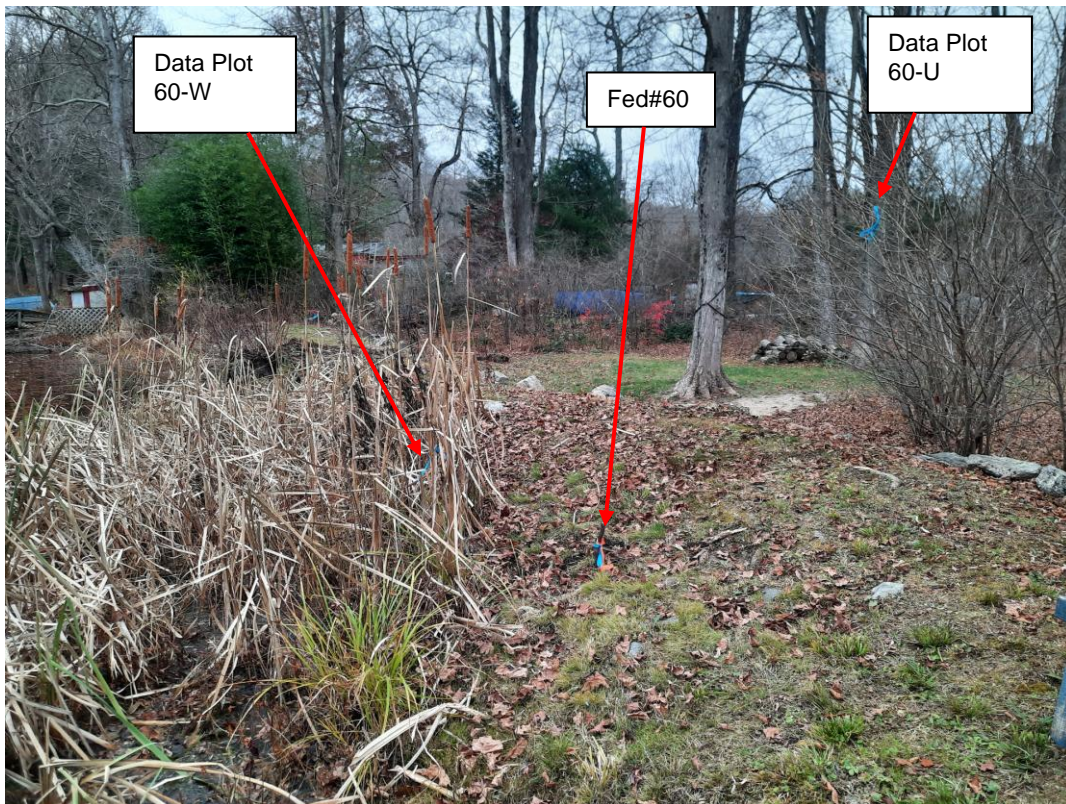
Looking south at narrow low flow channel south of Hyde Mill Pentway Crossing (11/21/2023).



Federal Wetland Boundary Transect: Data Plots 18-W and 18-U (11/21/2023).



Federal Wetland Boundary Transect: Data Plots 40-W and 40-U (11/20/2023).



Federal Wetland Boundary Transect: Data Plots 60-W and 60-U (11/21/2023).

**Appendix D – Wetland Function –Value Evaluation Forms**

**WETLAND FUNCTION-VALUE EVALUATION FORM**

West - Long Pond Wetland- Whitford Brook Watershed Infrastructure Improvements Project Area,

Total area of wetland \_\_\_\_\_ Human made? Yes/No Is wetland part of a wildlife corridor? Yes Or a “habitat island”? No  
 Adjacent land use: fill; dam; road; woodland; residences Distance to nearest roadway or development 0' (fill)  
 Dominant wetland systems present PFOIE/ PSSIE/PEM2E Contiguous undeveloped buffer zone present No  
 Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Low  
 How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (*see attached*)

Wetland I.D. Ledyard, CT  
 Lat. +41.43868°N Long. +71.94447°W  
 Prepared by JLB Date 11/20/2023  
 Wetland Impact:  
 Type: \_\_\_\_\_ Area \_\_\_\_\_  
 Evaluation based on:  
 Office Y Field Y  
 Corps manual wetland delineation.  
 Completed? Y X N \_\_\_\_\_

**Occurrence Rationale Principal**

Function/Value	Y	N	(Reference #)	Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		2,7,11,12,13,15	X	Water quality designated as Class GA within this area of the project site.
Floodflow Alteration	X		5,6,7,8,9,15,18	X	Narrow wetland is associated with Long Pond. Some dense vegetation growth.
Fish and Shellfish Habitat	X		1,2,3,4,7,8,9,10,12,14	X	Fish reported. None observed.
Sediment/Toxicant Retention	X		1,3,4,5,6,8,9,10,12	X	Some dense vegetation along Long Pond. Very narrow wetland in project area. Dense vegetation along Whitford Brook.
Nutrient Removal	X		1,2,3,5,7,8,9,10,11,13	X	Some dense vegetation along Long Pond. Very narrow wetland in project area. Dense vegetation along Whitford Brook.
Production Export	X		1,2,4,5,6,9,10,11		Dam controlled outlet associated with Long Pond. Nutrients flushed during storm events.
Sediment/Shoreline Stabilization	X		2,3,6,7,9,10,11,13		No significant erosion observed along Long Pond. Some dense vegetation growth in project area. Gradient along Whitford Brook.
Wildlife Habitat	X		2,6,7,8,11,12,13,16,17,18,19,20,21	X	Long Pond associated with narrow wetlands. Some dense vegetation growth in project area.
Recreation	X		2,5		Private properties within project area. Boating and fishing available on Long Pond.
Educational Scientific Value	X		1		Private properties within project area. Boating and fishing available on Long Pond.
Uniqueness/Heritage	X		3,4,5,7,12,13,14,17,18,19,23,24,27		Wetland provides several functions. Listed species known to occur within/near project area.
Visual Quality/Aesthetics	X		2,6,8,12	X	Long Pond contrasts with adjacent upland/development in project area.
ES Endangered Species Habitat	X		1	X	None observed. CT DEEP Natural Diversity Data Base map indicates known listed species within the project area. See map dated December 2023 (Appendix A).

**WETLAND FUNCTION-VALUE EVALUATION FORM**

East - Bush Pond Wetland- Whitford Brook Watershed Infrastructure Improvements Project Area,  
Wetland I.D. Ledyard & North Stonington, CT

Total area of wetland \_\_\_\_\_ Human made? Yes/No Is wetland part of a wildlife corridor? Yes Or a "habitat island"? No  
 Adjacent land use: fill; dam; woodland; residences Distance to nearest roadway or development 0' (fill)  
 Dominant wetland systems present PSS1E/PEM2E Contiguous undeveloped buffer zone present No  
 Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Lower  
 How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (*see attached*)

Lat. ±41.43801°N Long. ±71.94293°W  
 Prepared by JLB Date 11/21/2023  
 Wetland Impact:  
 Type: \_\_\_\_\_ Area \_\_\_\_\_  
 Evaluation based on:  
 Office Y Field Y  
 Corps manual wetland delineation.  
 Completed? Y X N \_\_\_\_\_

**Occurrence Rationale Principal**

Function/Value	Y	N	(Reference #)	Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		2,7,11,12,13,15	X	Water quality designated as Class GA within this area of the project site.
Floodflow Alteration	X		5,6,7,8,9,15	X	Narrow wetland is associated with Bush Pond. Some dense vegetation growth.
Fish and Shellfish Habitat	X		1,2,3,4,7,8,9,10,12,14	X	Fish reported. None observed.
Sediment/Toxicant Retention	X		1,3,4,5,6,8,9,10,12	X	Some dense vegetation along Bush Pond. Very narrow wetland in project area.
Nutrient Removal	X		1,2,3,5,7,8,9,10,11,13,	X	Some dense vegetation along Bush Pond. Very narrow wetland in project area.
Production Export	X		1,2,4,5,6,9,10,11		Dam controlled outlet associated with Bush Pond. Nutrients flushed during storm events.
Sediment/Shoreline Stabilization	X		3,6,9,10,11,13		No significant erosion observed along Bush Pond. Some dense vegetation growth in project area.
Wildlife Habitat	X		2,6,7,8,11,12,13,16,17, 18,19,20,21	X	Bush Pond associated with narrow wetlands. Some dense vegetation growth in project area.
Recreation	X		2,5		Private properties within project area. Boating and fishing available on Bush Pond.
Educational Scientific Value	X		1		Private properties within project area. Boating and fishing available on Bush Pond.
Uniqueness/Heritage	X		3,4,5,12,13,14,17,18, 19,23,24,27	X	Wetland provides several functions. Listed species known to occur within/near project area.
Visual Quality/Aesthetics	X		2,6,8,12	X	Bush Pond contrasts with adjacent upland/development in project area.
ES Endangered Species Habitat	X		1	X	None observed. CT DEEP Natural Diversity Data Base map indicates known listed species within the project area. See map dated December 2023 (Appendix A).

## WETLAND FUNCTION-VALUE EVALUATION FORM

*Bush Pond Low Flow Channel Wetland- Whitford Brook Watershed Infrastructure Improvements Project Area,*

Wetland I.D. Ledyard, CT

Total area of wetland \_\_\_\_\_ Human made? Yes/No Is wetland part of a wildlife corridor? Yes Or a "habitat island"? No

Lat. ±41.43796°N Long. ±71.94346°W

Adjacent land use: fill; road; woodland; residences Distance to nearest roadway or development 0' (fill)

Prepared by JLB Date 11/21/2023

Dominant wetland systems present PSSIE/PFOIE Contiguous undeveloped buffer zone present No

Wetland Impact:  
Type: \_\_\_\_\_ Area \_\_\_\_\_

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Lower

Evaluation based on:  
Office Y Field Y

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (*see attached*)

Corps manual wetland delineation.  
Completed? Y X N \_\_\_\_\_

### Occurrence Rationale Principal

Function/Value	Y	N	(Reference #)	Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		2,7,11,12,15	X	Water quality designated as Class GA within this area of the project site.
Floodflow Alteration	X		7,8,9,13		Very narrow channelized watercourse/wetland associated with Bush Pond low flow channel.
Fish and Shellfish Habitat		X	none		Very narrow, channelized low flow watercourse.
Sediment/Toxicant Retention	X		1,4,6,8,10		Very narrow wetland along channelized low flow watercourse.
Nutrient Removal	X		4,5,7		Very narrow wetland along channelized low flow watercourse.
Production Export	X		10,11		Nutrients flushed during storm events.
Sediment/Shoreline Stabilization	X		2,3,9,14		No significant erosion observed along low flow channel.
Wildlife Habitat	X		2,6,7,16,19,20	X	Narrow wetland along channelized low flow watercourse.
Recreation		X	none		Private property.
Educational Scientific Value		X	none		Private property.
Uniqueness/Heritage		X	17,24		Listed species known to occur within/near project area.
Visual Quality/Aesthetics	X		6,12		Channelized low flow watercourse contrasts with adjacent wooded upland.
ES Endangered Species Habitat	X		1	X	None observed. CT DEEP Natural Diversity Data Base map indicates known listed species within the project area. See map dated December 2023 (Appendix A).

**Dominant Wetland Vegetation Inventory (November 20 and 21, 2023)  
Whitford Brook Watershed Infrastructure Improvements Project Area, Ledyard and  
North Stonington, CT**

Scientific Name	Common Name	Indicator Status	Wetland Area
<b>Trees</b>			
<i>Acer rubrum</i>	red maple	FAC	West, East, Low Flow
<i>Betula lenta</i>	black birch	FACU	West
<i>Platanus occidentalis</i>	American sycamore	FACW	West, Low Flow
<b>Saplings/Shrubs</b>			
<i>Acer rubrum</i>	red maple	FAC	West, East
<i>Alnus incana</i>	alder	FACW	West, East
<i>Cephalanthus occidentalis</i>	buttonbush	OBL	West, East
<i>Clethra alnifolia</i>	sweet pepperbush	FAC	West, East
<i>Euonymus alatus</i>	burningbush	FACU	West
<i>Ilex verticillata</i>	winterberry	FACW	West, East
<i>Lindera benzoin</i>	spicebush	FACW	West, East, Low Flow
<i>Rosa multiflora</i>	multiflora rose	FACU	West, East, Low Flow
<i>Rubus idaeus</i>	raspberry	FACU	West, Low Flow
<i>Salix discolor</i>	willow	FACW	West
<i>Sambucus nigra</i>	elderberry	FACW	West, East
<i>Viburnum dentatum</i>	arrowwood	FAC	West
<b>Herbaceous</b>			
<i>Boehmeria cylindrica</i>	false nettle	OBL	West, East
<i>Carex lurida</i>	shallow sedge	OBL	East
<i>Carex stricta</i>	tussock sedge	OBL	West
<i>Carex sp.</i>	sedge	-----	West, East
<i>Eutrochium maculatum</i>	Joe-pye weed	OBL	East
<i>Glyceria striata</i>	manna grass	OBL	West, East
<i>Lonicera japonica</i>	Japanese honeysuckle	FACU	West, Low Flow
<i>Onoclea sensibilis</i>	sensitive fern	FACW	West, East
<i>Osmundastrum cinnamomeum</i>	cinnamon fern	FACW	West
<i>Pachysandra terminalis</i>	pachysandra	-----	East
<i>Polystichum acrostichoides</i>	Christmas fern	FACU	Low Flow
<i>Solidago canadensis</i>	Canada goldenrod	FACU	Low Flow
<i>Sparganium americanum</i>	American bur-reed	OBL	West
<i>Typha latifolia</i>	cattail	OBL	East
<b>Vines</b>			
<i>Celastrus orbiculatus</i>	bittersweet	UPL	West
<i>Vitis labrusca</i>	grape	FACU	West

**Indicator Status:** From the "NWPL-National Wetland Plant List, Northcentral and Northeast 2016 Regional Wetland Plant List" published by the US Army Corps of Engineers.

**OBL:** obligate wetland; almost always occur in wetland / **FACW:** facultative wetland; usually occur in wetland, but may occur in non-wetland / **FAC:** occur in wetland and non-wetland / **FACU:** usually occur in non-wetland, but may occur in wetland /

**UPL :** almost never occur in wetland

Inventory includes the dominant species that were identified within the wetlands in the project area during the inspections. This list is not all-inclusive.

**Dominant Wildlife Inventory (November 20 and 21, 2023)  
Whitford Brook Watershed Infrastructure Improvements Project Area, Ledyard  
and North Stonington, CT**

No wildlife was observed utilizing the project area during the inspections.

Inventory includes the dominant species that were identified within the wetlands in the project area during the inspections. This list is not all-inclusive.

**Appendix E – Include Impact Assessment**

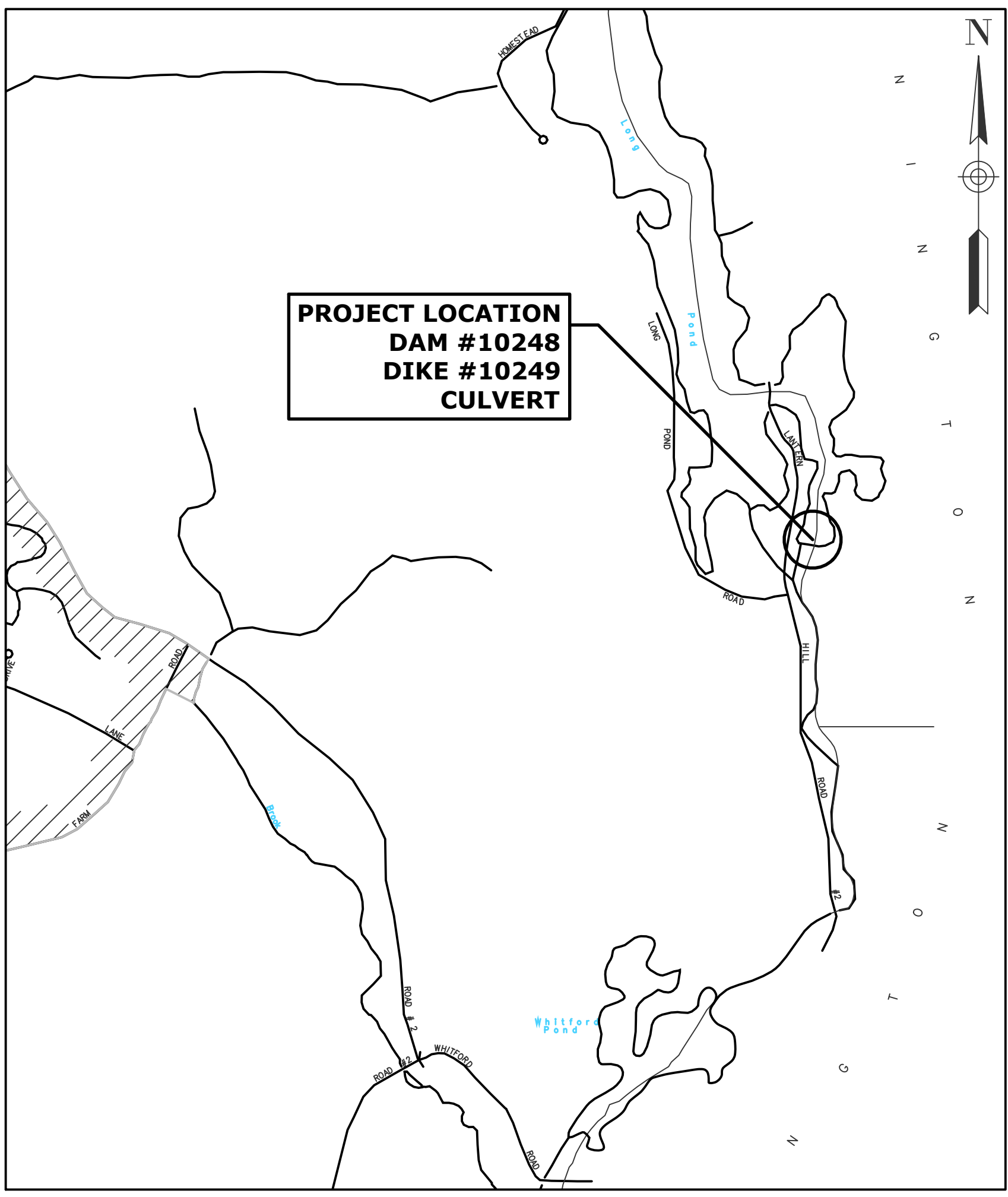
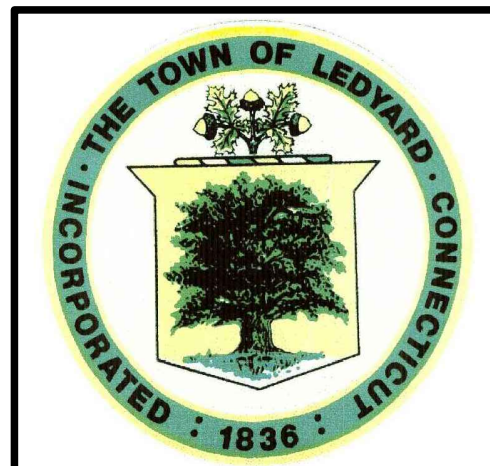
To be prepared as separate report if required.

# TOWN OF LEDYARD, CONNECTICUT

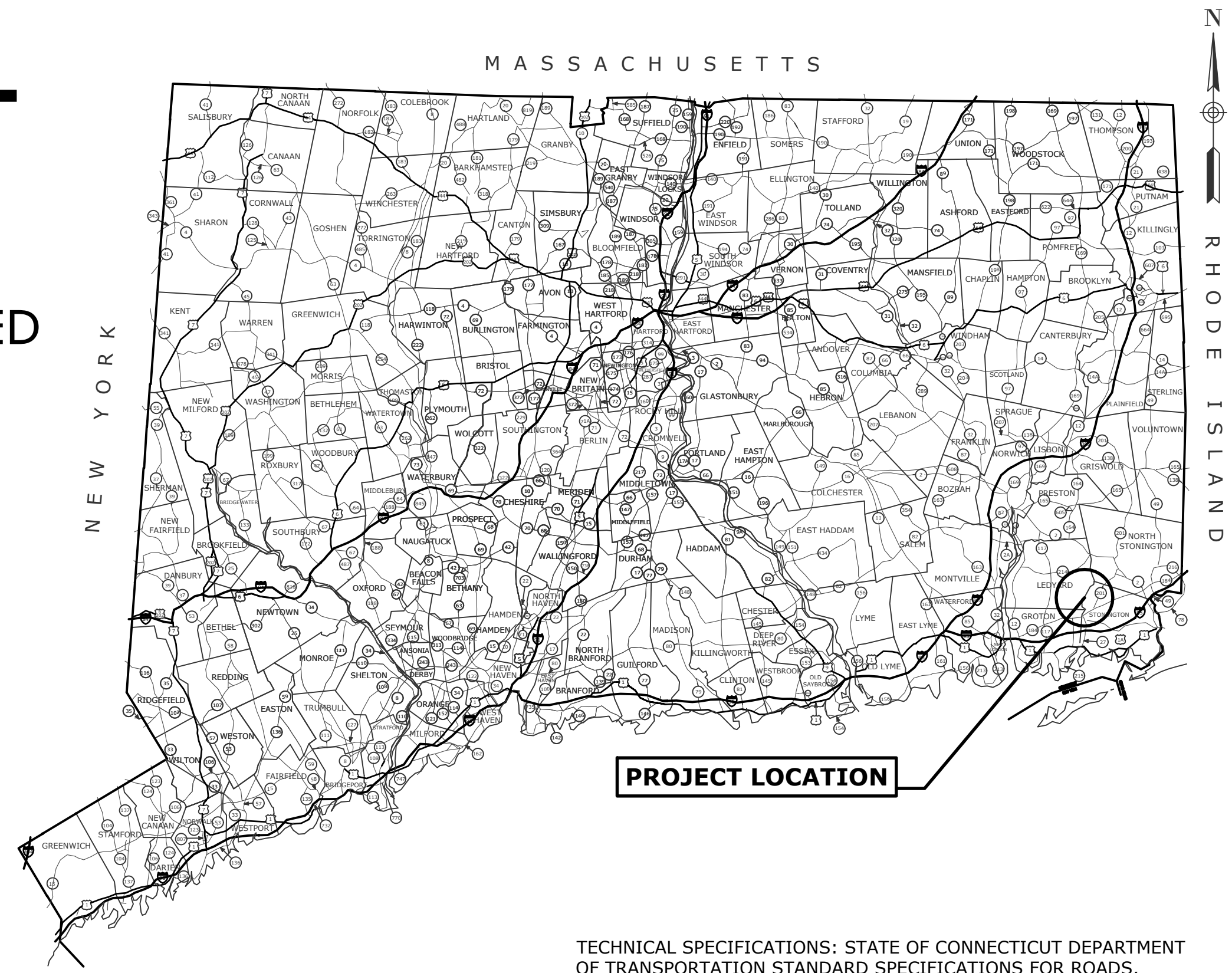
## PERMIT PLAN FOR IMPROVEMENTS TO WHITFORD BROOK WATERSHED BUSH POND

DAM #10248  
DIKE #10249  
CULVERT

IMPROVEMENTS TO WHITFORD BROOK WATERSHED TO BE MAINTAINED BY LANTERN HILL VALLEY ALLIANCE



**LOCATION MAP**  
SCALE: 1" = 1000'



TECHNICAL SPECIFICATIONS: STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES, AND INCIDENTAL CONSTRUCTION (FORM 819) AND ALL LATEST SUPPLEMENTAL SPECIFICATIONS OR LATEST AT THE TIME OF BID THERETO, AS WELL AS ANY SPECIAL PROVISIONS BY THE TOWN OF LEDYARD.

DESIGN STANDARDS: AASHTO POLICY ON THE GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, DATED 2004 AND THE CONNECTICUT DEPARTMENT OF TRANSPORTATION HIGHWAY DESIGN MANUAL DATED 2003. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (AASHTO NINETH EDITION), DATED 2020, AS SUPPLEMENTED BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL DATED 2003.

SURVEY: ALL COORDINATES ON THE PROJECT ARE BASED ON 1983 N.A.D. ALL ELEVATIONS ARE BASED ON 1988 N.A.V.D.

CONNECTICUT DEPARTMENT OF TRANSPORTATION OR TOWN OF LEDYARD BIDDING AND OTHER INFORMATION AND DOCUMENTS WHICH ARE OBTAINED THROUGH THE INTERNET, WORLD WIDE WEB SITES OR OTHER SOURCES ARE NOT TO BE CONSTRUED TO BE OFFICIAL INFORMATION FOR THE PURPOSES OF BIDDING OR CONDUCTING OTHER BUSINESS WITH THE TOWN OF LEDYARD.

IT IS THE RESPONSIBILITY OF EACH BIDDER AND ALL OTHER INTERESTED PARTIES TO OBTAIN ALL BIDDING RELATED INFORMATION AND DOCUMENTS FROM OFFICIAL SOURCES WITHIN THE TOWN OF LEDYARD.

PERSONS AND/OR ENTITIES WHICH REPRODUCE AND/OR MAKE SUCH INFORMATION AVAILABLE BY ANY MEANS ARE NOT AUTHORIZED BY THE TOWN OF LEDYARD TO DO SO AND MAY BE LIABLE FOR CLAIMS RESULTING FROM THE DISSEMINATION OF UNOFFICIAL, INCOMPLETE AND/OR INACCURATE INFORMATION.

LIST OF DRAWINGS	
SHEET NO.	TITLE
1	TITLE SHEET
2	OVERALL SITE
3	CULVERT - EXISTING CONDITIONS
4	CULVERT - PROPOSED CONDITIONS
5	CT INLAND WETLAND IMPACT PLAN
6	100-YR FLOOD PLAN
7	UPLAND REVIEW AREA PLAN
8	DIKE - SECTIONS
9	CULVERT - STRUCTURE PLAN, SECTION & ELEVATION
10	HANDLING WATER PLAN - CULVERT
11	HANDLING WATER DETAILS
12	EROSION CONTROL DETAILS

DESIGNED BY WMC CONSULTING ENGINEERS

SUBMITTED BY \_\_\_\_\_ DATE \_\_\_\_\_

TOWN OF LEDYARD, CONNECTICUT

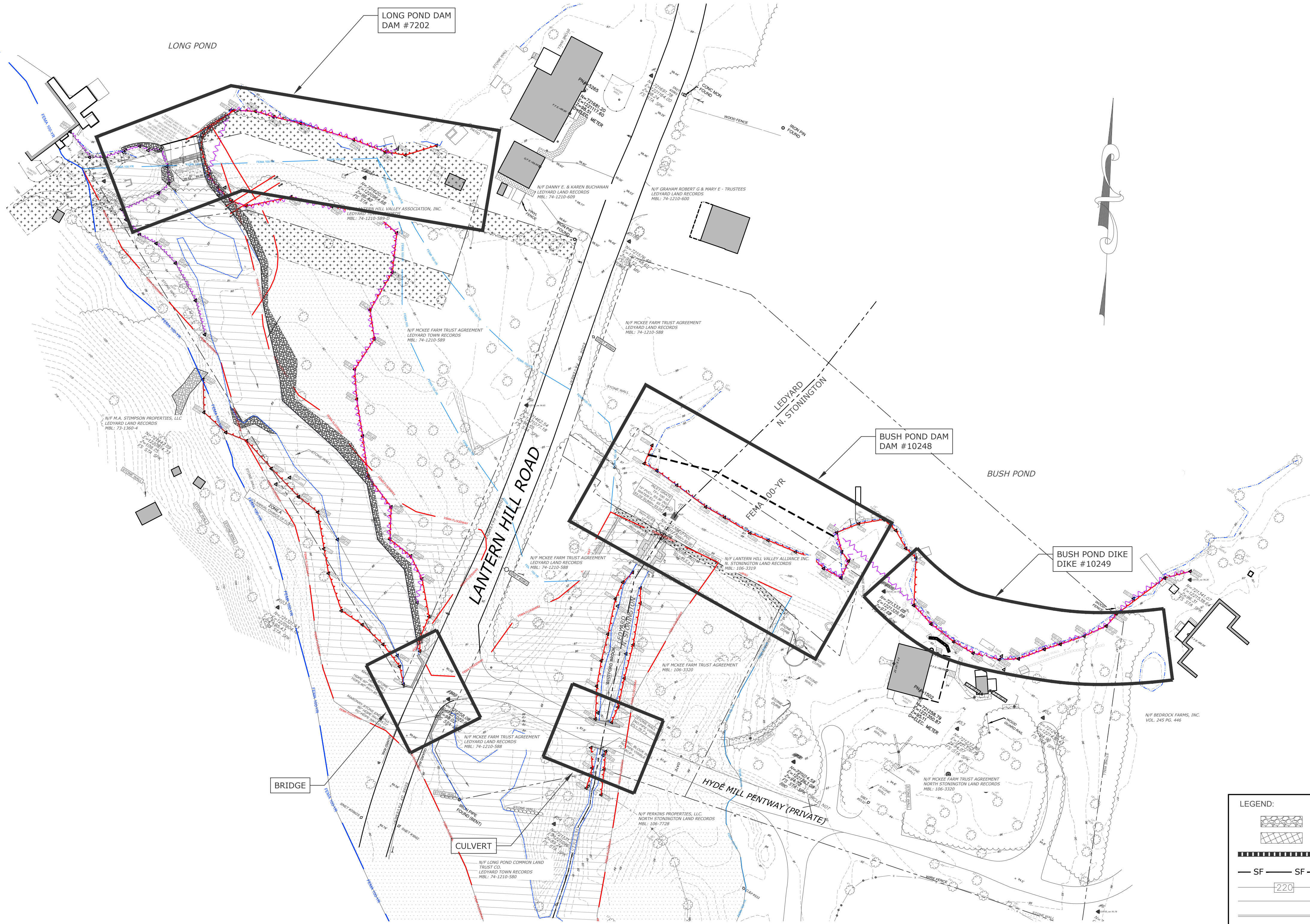
HANNAH GIENAU, ZONING & WETLANDS OFFICIAL

MAP REFERENCES:

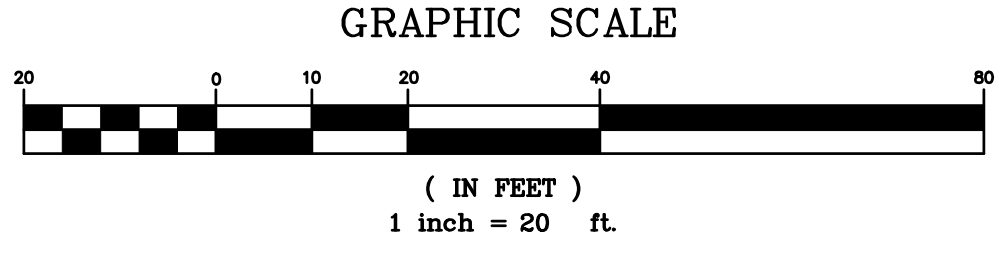
- A. "PROPERTY OF LUCY W. HEATON LANTERN HILL RD LEDYARD AND NORTH STONINGTON, CONNECTICUT" SCALE: 1"=30'; DATED: JUNE, 1964; BY: DICESARE, BENTLY, WELLING ENGINEERS.
- B. "MAP SHOWING LAND NEEDED FOR DAM AND SPILLWAY MAINTENANCE ON LONG AND BRUSH PONDS IN LEDYARD & NORTH STONINGTON, CONNECTICUT TO BE ACQUIRED BY THE LANTERN HILL VALLEY ASSOCIATION, INC" DATED: AUGUST 1976; BY: HOWARD S. IVES.

MAP NOTES:

1. THIS MAP AND SURVEY HAVE BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND "THE MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" ADOPTED JUNE 21, 1996; AMENDED OCTOBER 26, 2018.
2. THE TYPE OF SURVEY PERFORMED AND THE MAPPED FEATURES DEPICTED HEREON ARE IN ACCORDANCE WITH THE REQUIREMENTS OF A TOPOGRAPHIC SURVEY AND IS INTENDED TO DEPICT CERTAIN FEATURES WITHIN A SCOPE DEFINED BY THE CLIENT.
3. THE HORIZONTAL BASELINE CONFORMS TO A CLASS A-2 ACCURACY. THE VERTICAL BASELINE CONFORMS TO A CLASS V-2 ACCURACY. THE TOPOGRAPHIC FEATURES CONFORM TO A CLASS T-2 ACCURACY.
4. THE PROPERTY/BOUNDARY LINES DEPICTED HEREON CONFORM TO A CLASS D AS THEY HAVE BEEN COMPILED FROM RECORD RESEARCH, OTHER MAPS, AND LIMITED FIELD MEASUREMENTS. IT IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A FIELD SURVEY AND IS SUBJECT TO SUCH CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE.
5. THE NORTH ARROW AND BEARINGS ARE BASED UPON THE CONNECTICUT STATE COORDINATE SYSTEM N.A.D. 1983 (2011). THE ELEVATIONS ARE BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) USING GEOID 12B. COORDINATES AND ELEVATIONS WERE DETERMINED FROM RTK GPS OBSERVATIONS MADE ON JANUARY 12, 2024, USING THE CT DOT RTK NETWORK KNOWN AS ACORN (CTGU BASE), HAVING THE FOLLOWING VALUES:  
  
 LATITUDE = N 41° 20' 07.03551"  
 LONGITUDE = W 72° 02' 58.96930"  
 ELLIPSOID HEIGHT = -18.343M
6. THE TOPOGRAPHIC FEATURES DEPICTED HEREON ARE THE RESULT OF A FIELD SURVEY CONDUCTED IN JANUARY, 2024 UNLESS OTHERWISE NOTED.
7. UNDERGROUND UTILITIES, STRUCTURES AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON ARE BASED UPON OBSERVABLE SURFACE EVIDENCE WHILE CONDUCTING THE FIELD SURVEY. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE, THE EXISTENCE WHICH IS UNKNOWN TO MARTIN SURVEYING ASSOCIATES, LLC. ALL CONTRACTORS ARE REQUIRED TO CONTACT CALL-BEFORE-YOU-DIG AT 1-800-922-4455 FOR LOCATION AND OR STAKEOUT OF ANY UTILITY PRIOR TO ANY EXCAVATION.



**EXISTING OVERALL SITE PLAN**  
SCALE: 1" = 40'-0"



LEGEND:

	RIPRAP SLOPE / OUTFALL
	BITUMINOUS CONCRETE DRIVEWAY
	STORM PIPE
	SEDIMENTATION CONTROL SYSTEM
	CONTOUR
	EDGE OF BITUMINOUS DRIVE
	EDGE OF ROAD (BITUMINOUS CURB)
	APPROXIMATE CUT/FILL LIMITS (COINCIDENT WITH TREE CLEARING)
	EDGE OF BITUMINOUS DRIVE
	APPROXIMATE BORING LOCATION
	CATCH BASIN / CATCH BASIN TOP
	DRAINAGE MANHOLE
	TREE TO BE REMOVED

SUPV.	K.O.E.	
DESIGN	R.I.	
DRAWN	D.T.J.	
CHECKED	M.E.F.	
DATE	04/02/2026	
NO.	DATE	DESCRIPTION
<b>REVISIONS</b>		

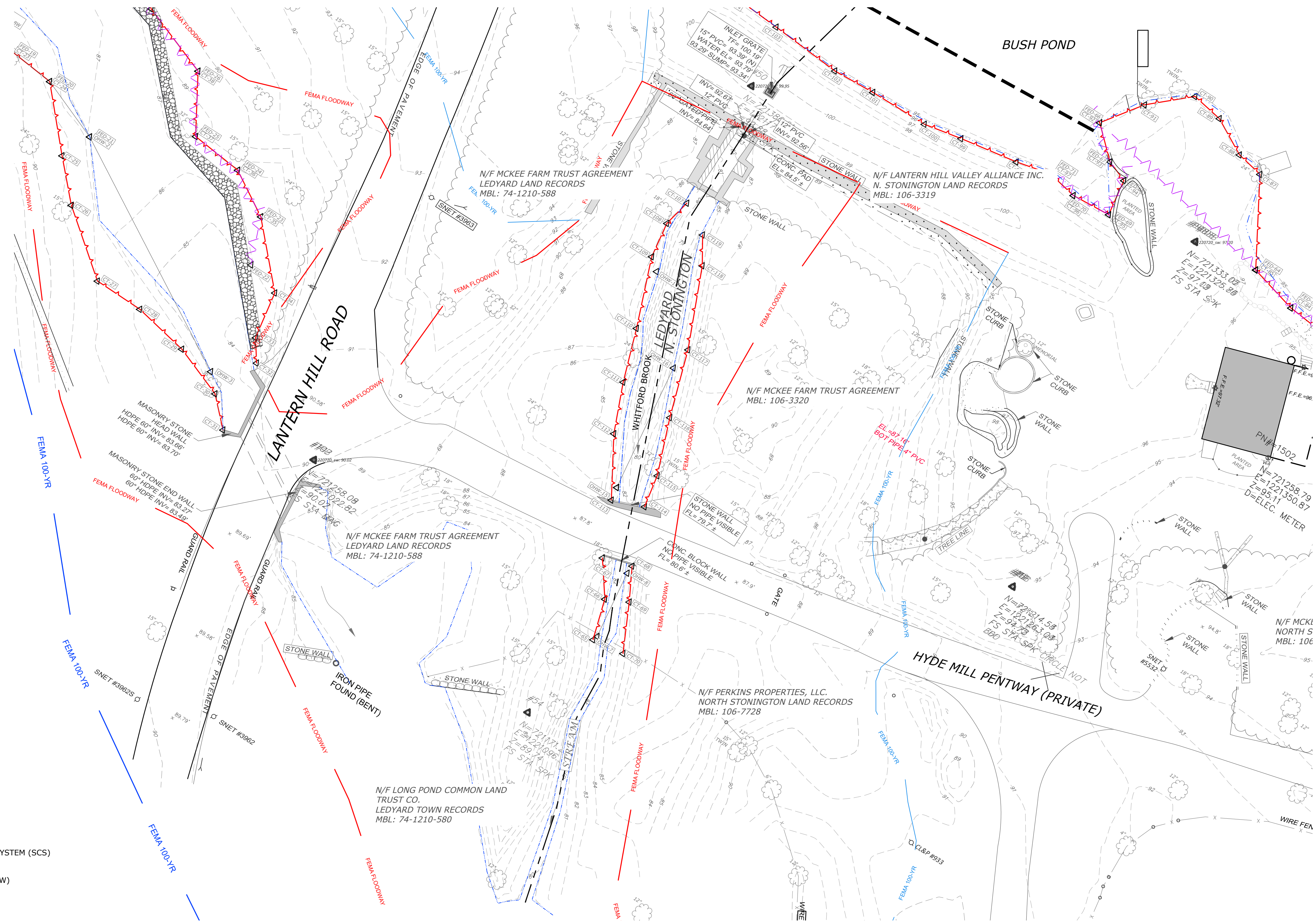
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**WMC**  
CONSULTING ENGINEERS

• WENGELL, McDONNELL & COSTELLO •  
87 HOLMES ROAD  
NEWINGTON, CT 06111  
(860) 667-9624

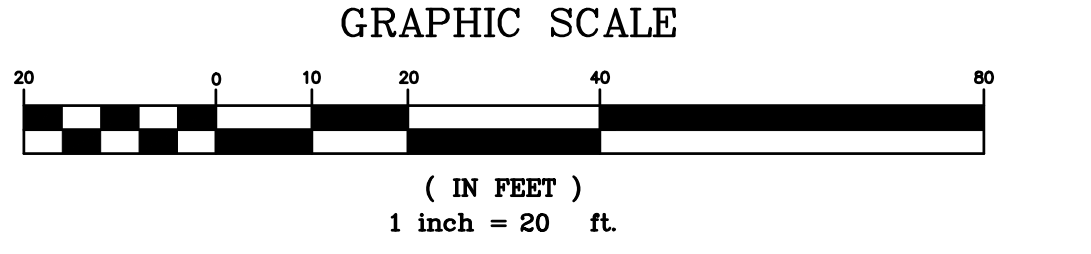
**PREPARED FOR**  
TOWN OF NORTH STONINGTON/LEDYARD  
40 MAIN STREET/ 741 COLONEL HIGHWAY  
NORTH STONINGTON, CT 06359 / LEDYARD, CT 06339

<b>IMPROV. TO WHITFORD BROOK WATERSHED BUSH POND EXISTING OVERALL SITE PLAN</b>				
D	LANTERN HILL	S.F.D.	23016	SHEET 2
SIZE	PROJECT	FILE NAME	NUMBER	REV. OF 12



**EXISTING CONDITIONS - CULVERT**  
SCALE: 1" = 20'-0"

- LEGEND**
- SEDIMENTATION CONTROL SYSTEM (SCS)
  - ORDINARY HIGH WATER (OHW)
  - STATE WETLANDS
  - FEDERAL WETLANDS
  - LIMIT OF FLOODWAY
  - FEMA 100-YR FLOOD (CALCULATED)



- LEGEND:**
- RIPRAP SLOPE / OUTFALL
  - BITUMINOUS CONCRETE DRIVEWAY
  - STORM PIPE
  - SEDIMENTATION CONTROL SYSTEM
  - CONTOUR
  - EDGE OF BITUMINOUS DRIVE
  - EDGE OF ROAD (BITUMINOUS CURB)
  - APPROXIMATE CUT/FILL LIMITS (COINCIDENT WITH TREE CLEARING)
  - EDGE OF BITUMINOUS DRIVE
  - APPROXIMATE BORING LOCATION
  - CATCH BASIN / CATCH BASIN TOP
  - DRAINAGE MANHOLE
  - TREE TO BE REMOVED

NO.	DATE	DESCRIPTION
<b>REVISIONS</b>		

SUPV.	K.O.E.
DESIGN	R.I.
DRAWN	D.T.J.
CHECKED	M.E.F.
DATE	04/02/2026

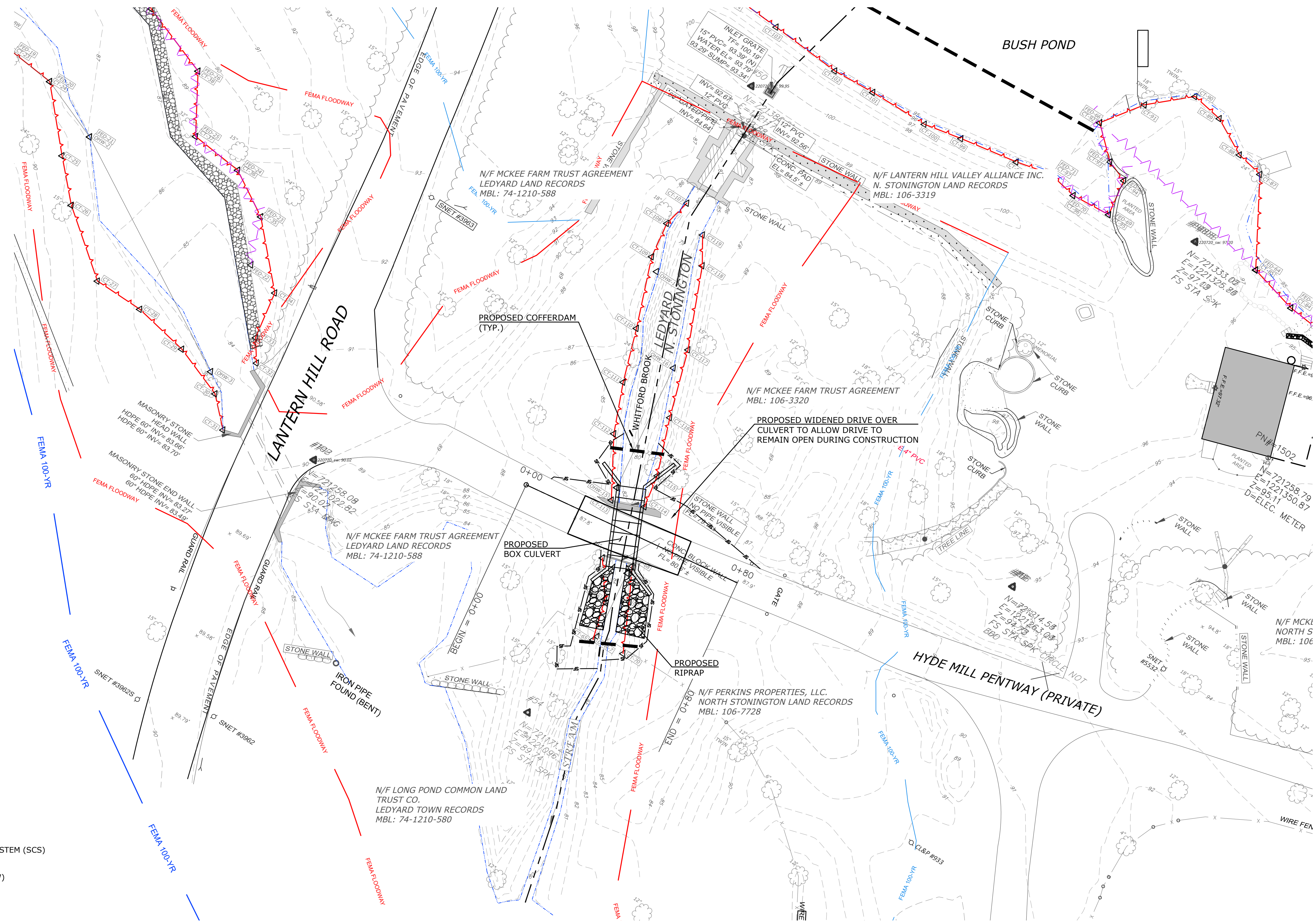
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**PREPARED FOR**  
TOWN OF NORTH STONINGTON/LEDYARD  
40 MAIN STREET/ 741 COLONEL HIGHWAY  
NORTH STONINGTON, CT 06359 / LEDYARD, CT 06339

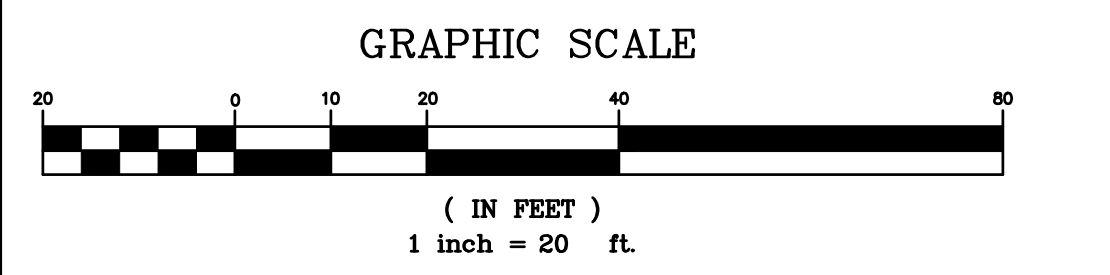
**IMPROV. TO WHITFORD BROOK WATERSHED CULVERT EXISTING CONDITIONS**

D	LANTERN HILL	S.F.D.	23016	REV.	OF	12
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**PROPOSED CONDITIONS - CULVERT**  
SCALE: 1" = 20'-0"

- LEGEND**
- SEDIMENTATION CONTROL SYSTEM (SCS)
  - ORDINARY HIGH WATER (OHW)
  - STATE WETLANDS
  - FEDERAL WETLANDS
  - LIMIT OF FLOODWAY
  - FEMA 100-YR FLOOD (CALCULATED)



- LEGEND:**
- RIPRAP SLOPE / OUTFALL
  - BITUMINOUS CONCRETE DRIVEWAY
  - STORM PIPE
  - SEDIMENTATION CONTROL SYSTEM
  - CONTOUR
  - EDGE OF BITUMINOUS DRIVE
  - EDGE OF ROAD (BITUMINOUS CURB)
  - APPROXIMATE CUT/FILL LIMITS (COINCIDENT WITH TREE CLEARING)
  - EDGE OF BITUMINOUS DRIVE
  - APPROXIMATE BORING LOCATION
  - CATCH BASIN / CATCH BASIN TOP
  - DRAINAGE MANHOLE
  - TREE TO BE REMOVED

NO.	DATE	DESCRIPTION
<b>REVISIONS</b>		

SUPV.	K.O.E.
DESIGN	R.I.
DRAWN	D.T.J.
CHECKED	M.E.F.
DATE	04/02/2026

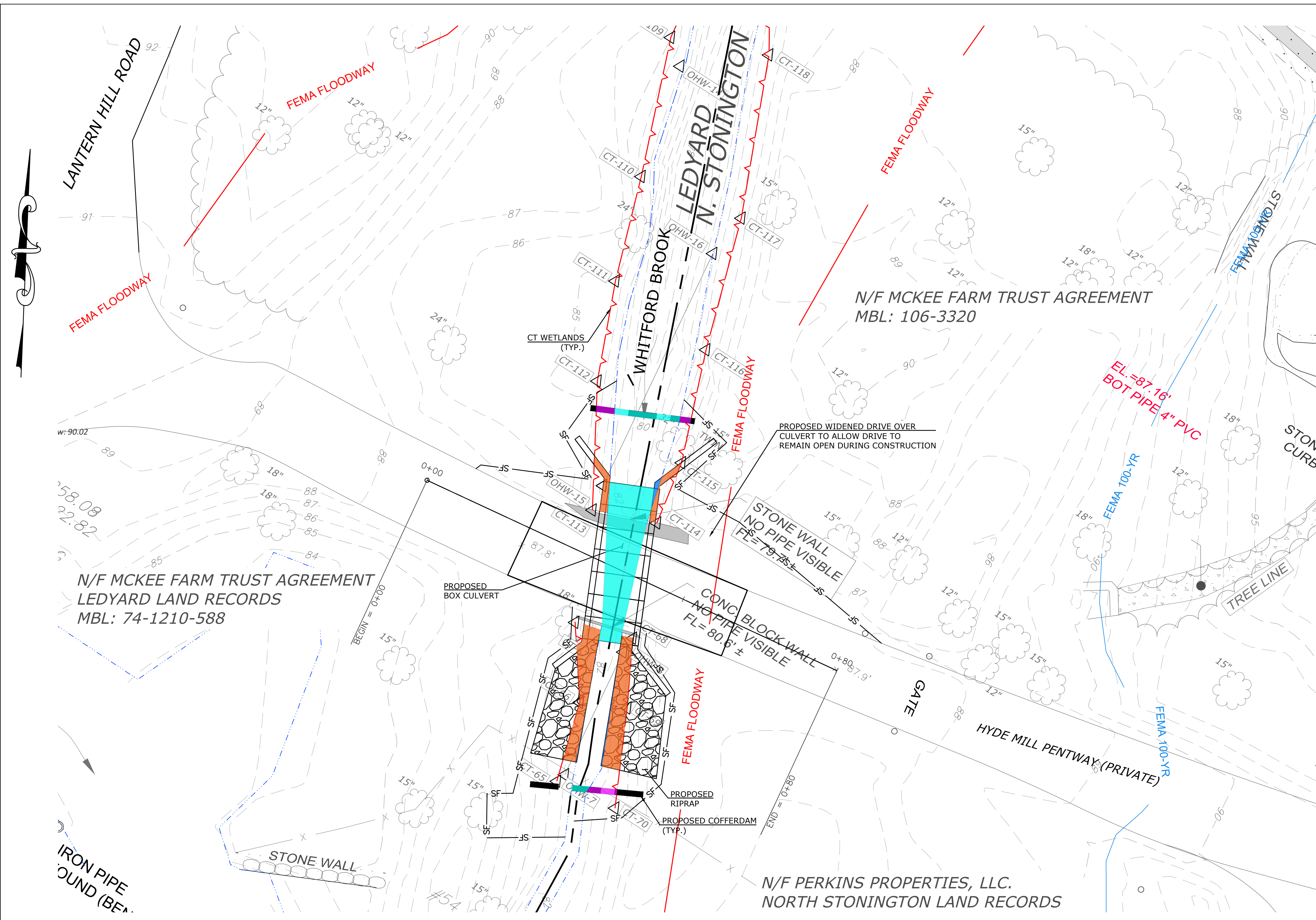
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TOWN OF NORTH STONINGTON/LEDYARD  
40 MAIN STREET/ 741 COLONEL HIGHWAY  
NORTH STONINGTON, CT 06359 / LEDYARD, CT 06339

**IMPROV. TO WHITFORD BROOK WATERSHED CULVERT PROPOSED SITE PLAN**

D	LANTERN HILL	S.F.D.	23016	REV.	OF	4
SIZE	PROJECT	FILE NAME	NUMBER	REV.	OF	12



**LEGEND**

- SEDIMENTATION CONTROL SYSTEM (SCS)
- ORDINARY HIGH WATER (OHW)
- STATE WETLANDS
- FEDERAL WETLANDS
- LIMIT OF FLOODWAY
- FEMA 100-YR FLOOD (CALCULATED)
- PERMANENT WATERCOURSE IMPACTS
- TEMPORARY WATERCOURSE IMPACTS
- PERMANENT WETLAND IMPACTS
- TEMPORARY WETLAND IMPACTS

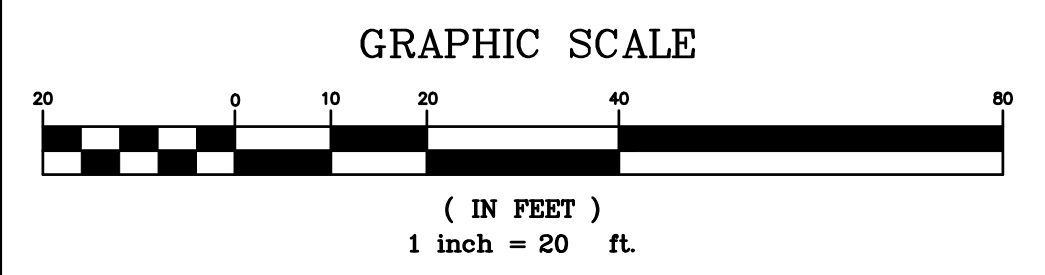
**STATE WETLAND AND WATERCOURSE IMPACT TABLE (NORTH STONINGTON)**

	WETLAND SITE NO.	WETLAND IMPACTS	WATERCOURSE IMPACTS	TOTAL
PERMANENT IMPACTS	1	71 S.F. (0.0016 AC.)	7 S.F. (0.0001 AC.)	78 S.F. (0.0018 AC.)
TEMPORARY IMPACTS	1	8 S.F. (0.0002 AC.)	65 S.F. (0.0015 AC.)	73 S.F. (0.0016 AC.)
TOTAL IMPACTS		79 S.F. (0.0018 AC.)	72 S.F. (0.0016 AC.)	151 S.F. (0.0034 AC.)

**STATE WETLAND AND WATERCOURSE IMPACT TABLE (LEDYARD)**

	WETLAND SITE NO.	WETLAND IMPACTS	WATERCOURSE IMPACTS	TOTAL
PERMANENT IMPACTS	1	66 S.F. (0.0015 AC.)	0 S.F. (0.000 AC.)	66 S.F. (0.0015 AC.)
TEMPORARY IMPACTS	1	3 S.F. (0.0000 AC.)	110 S.F. (0.002 AC.)	113 S.F. (0.002 AC.)
TOTAL IMPACTS		69 S.F. (0.0015 AC.)	110 S.F. (0.002 AC.)	179 S.F. (0.004 AC.)

**STATE WETLAND/WATERCOURSE IMPACT PLAN**  
SCALE: 1" = 10'-0"



SUPV.	K.O.E.
DESIGN	R.I.
DRAWN	D.T.J.
CHECKED	M.E.F.
DATE	04/02/2026

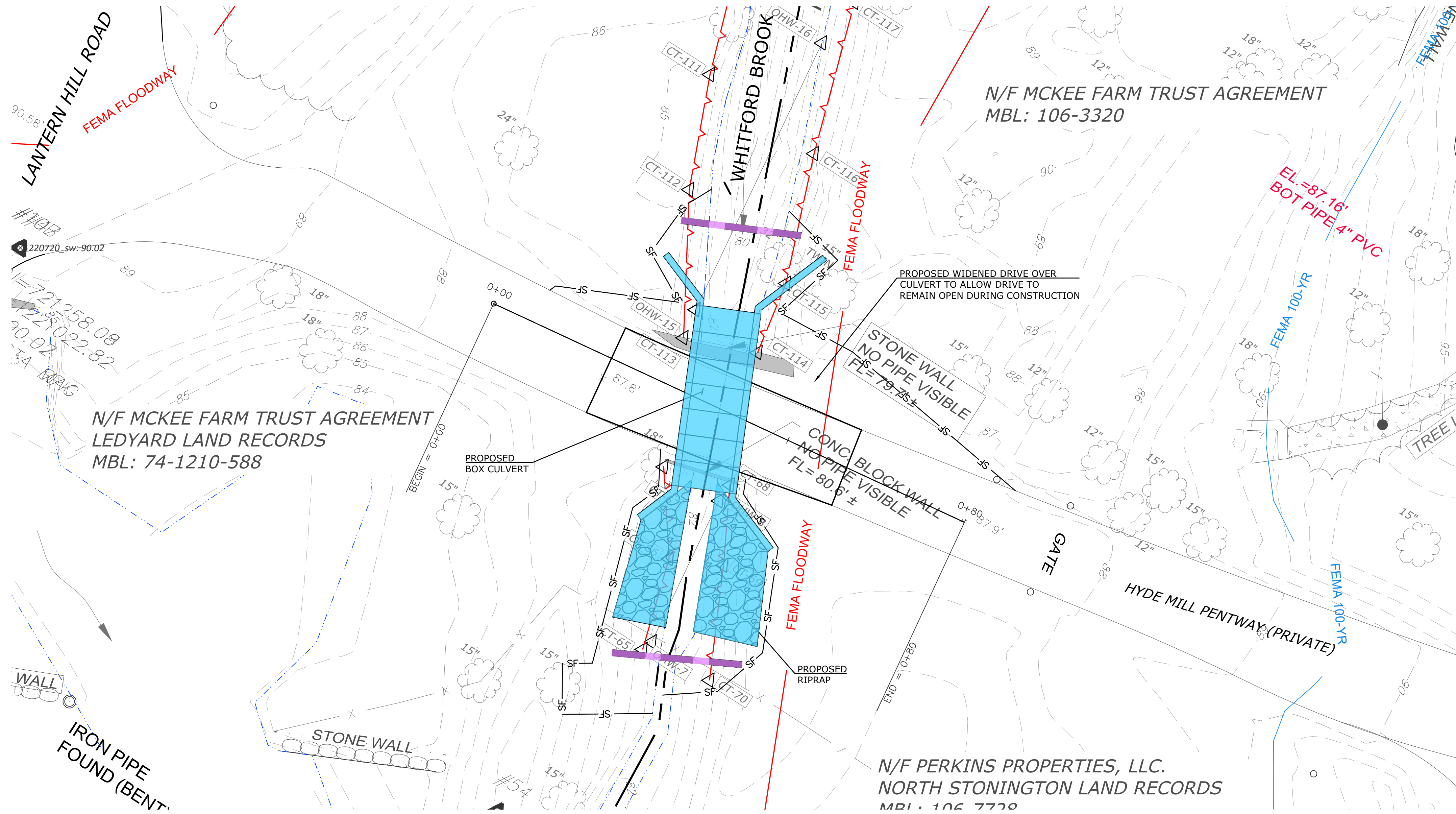
NO.	DATE	DESCRIPTION
<b>REVISIONS</b>		

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**PREPARED FOR**  
 TOWN OF NORTH STONINGTON/LEDYARD  
 40 MAIN STREET/ 741 COLONEL HIGHWAY  
 NORTH STONINGTON, CT 06359 / LEDYARD, CT 06339

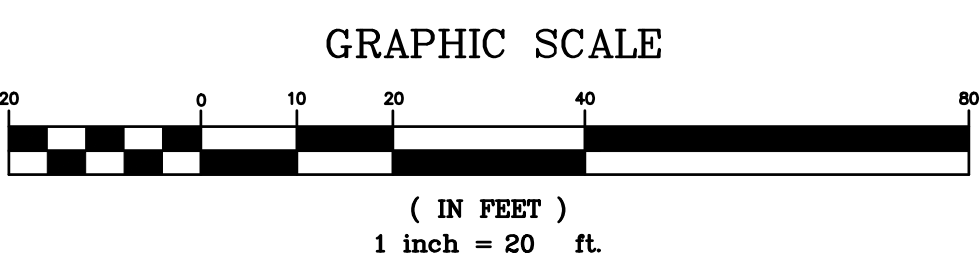
**IMPROV. TO WHITFORD BROOK WATERSHED  
 CULVERT  
 CT WETLAND/WATERCOURSE IMPACT PLAN**

D -	LANTERN HILL	S.F.D.	23016		SHEET	5
SIZE	PROJECT	FILE NAME	NUMBER	REV.	OF	12



**100-YEAR FLOOD IMPACT PLAN**  
SCALE: 1" = 10'

- LEGEND**
- SEDIMENTATION CONTROL SYSTEM (SCS)
  - ORDINARY HIGH WATER (OHW)
  - STATE WETLANDS
  - FEDERAL WETLANDS
  - LIMIT OF FLOODWAY
  - FEMA 100-YR FLOOD (CALCULATED)
  - PERMANENT FLOOD IMPACTS
  - TEMPORARY FLOOD IMPACTS



100-YEAR FLOODPLAIN IMPACTS CUT & FILL	
VOLUME IMPACTS	
EXCAVATION IN FLOODPLAIN	FILL IN FLOODPLAIN
5 C.Y.	5 C.Y.

	SUPV.	K.O.E.
	DESIGN	R.I.
	DRAWN	D.T.J.
	CHECKED	M.E.F.
NO.	DATE	DESCRIPTION
<b>REVISIONS</b>		
	DATE	04/02/2026

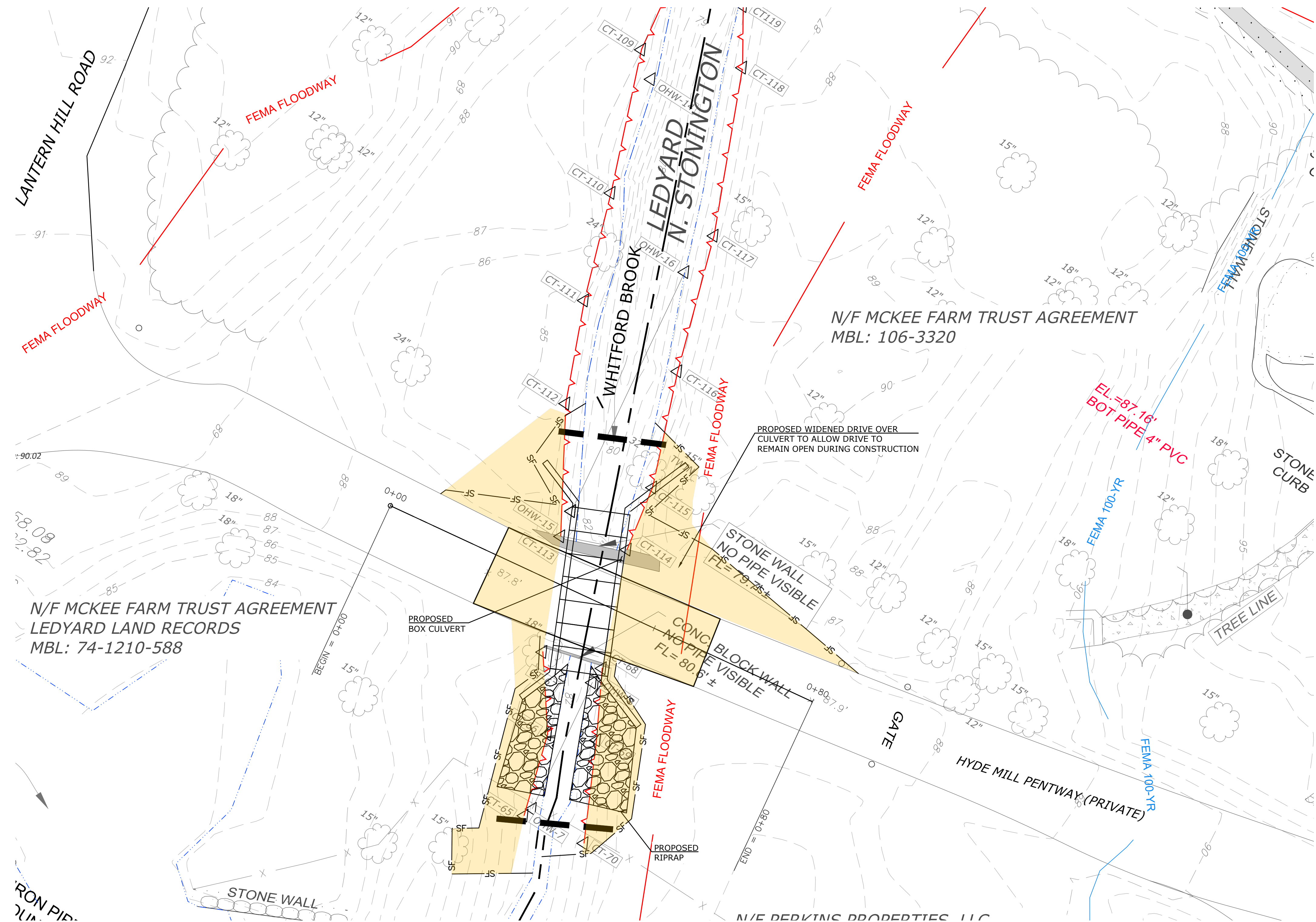
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**PREPARED FOR**  
TOWN OF NORTH STONINGTON/LEDYARD  
40 MAIN STREET/ 741 COLONEL HIGHWAY  
NORTH STONINGTON, CT 06359 / LEDYARD, CT 06339

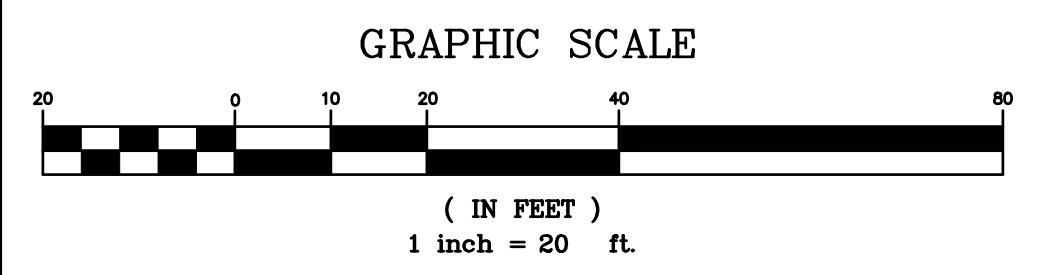
<b>IMPROV. TO WHITFORD BROOK WATERSHED CULVERT 100-YR FLOOD IMPACT PLAN</b>				SHEET 6
D -	LANTERN HILL	S.F.D. -	23016 -	
SIZE	PROJECT	FILE NAME	NUMBER	REV. OF
				12



**LEGEND**

	SEDIMENTATION CONTROL SYSTEM (SCS)
	ORDINARY HIGH WATER (OHW)
	STATE WETLANDS
	FEDERAL WETLANDS
	LIMIT OF FLOODWAY
	FEMA 100-YR FLOOD (CALCULATED)
	UPLAND REVIEW AREA

**UPLAND REVIEW AREA PLAN**  
SCALE: 1" = 10'



NO.	DATE	DESCRIPTION
<b>REVISIONS</b>		

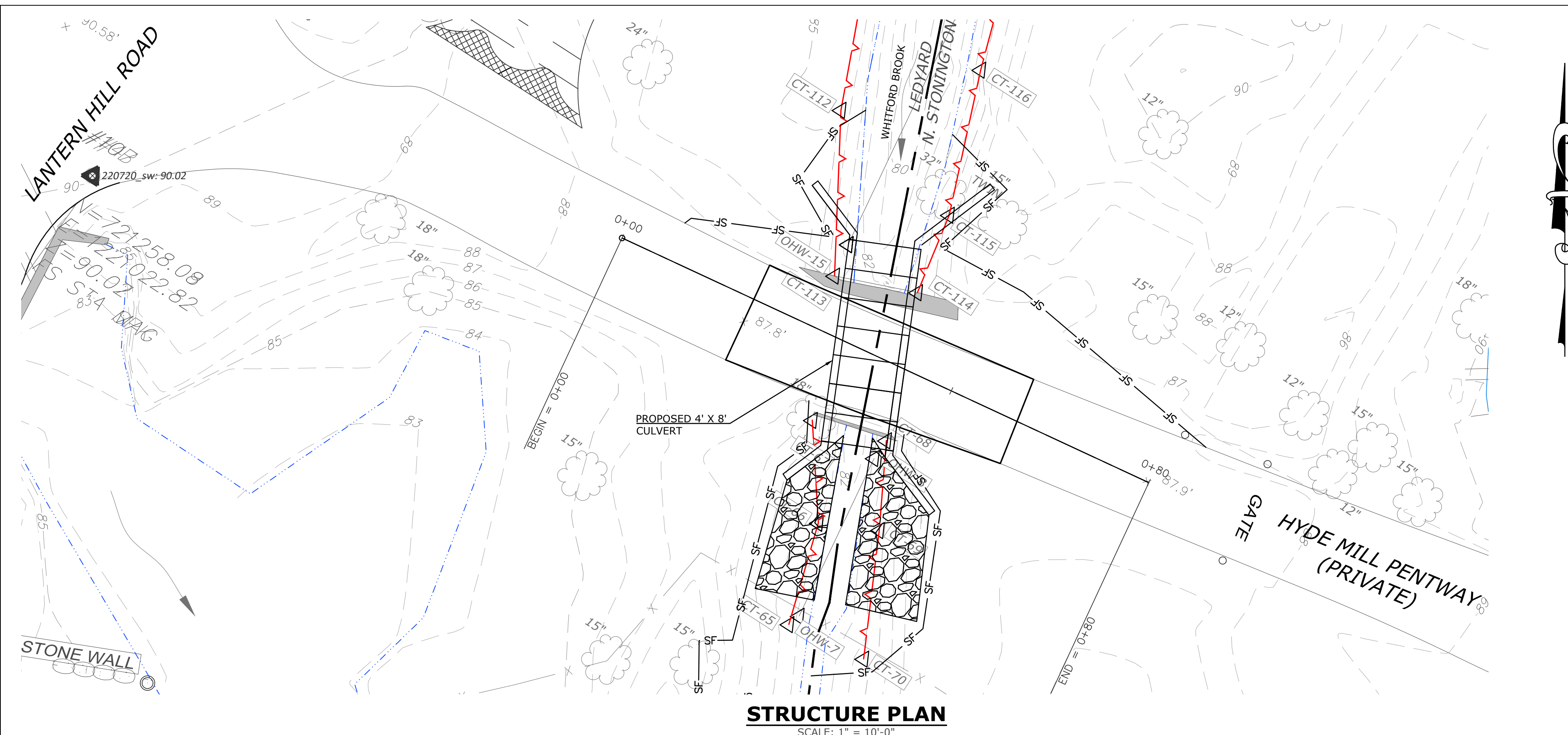
SUPV.	K.O.E.
DESIGN	R.I.
DRAWN	D.T.J.
CHECKED	M.E.F.
DATE	04/02/2026

**WMC**  
CONSULTING ENGINEERS

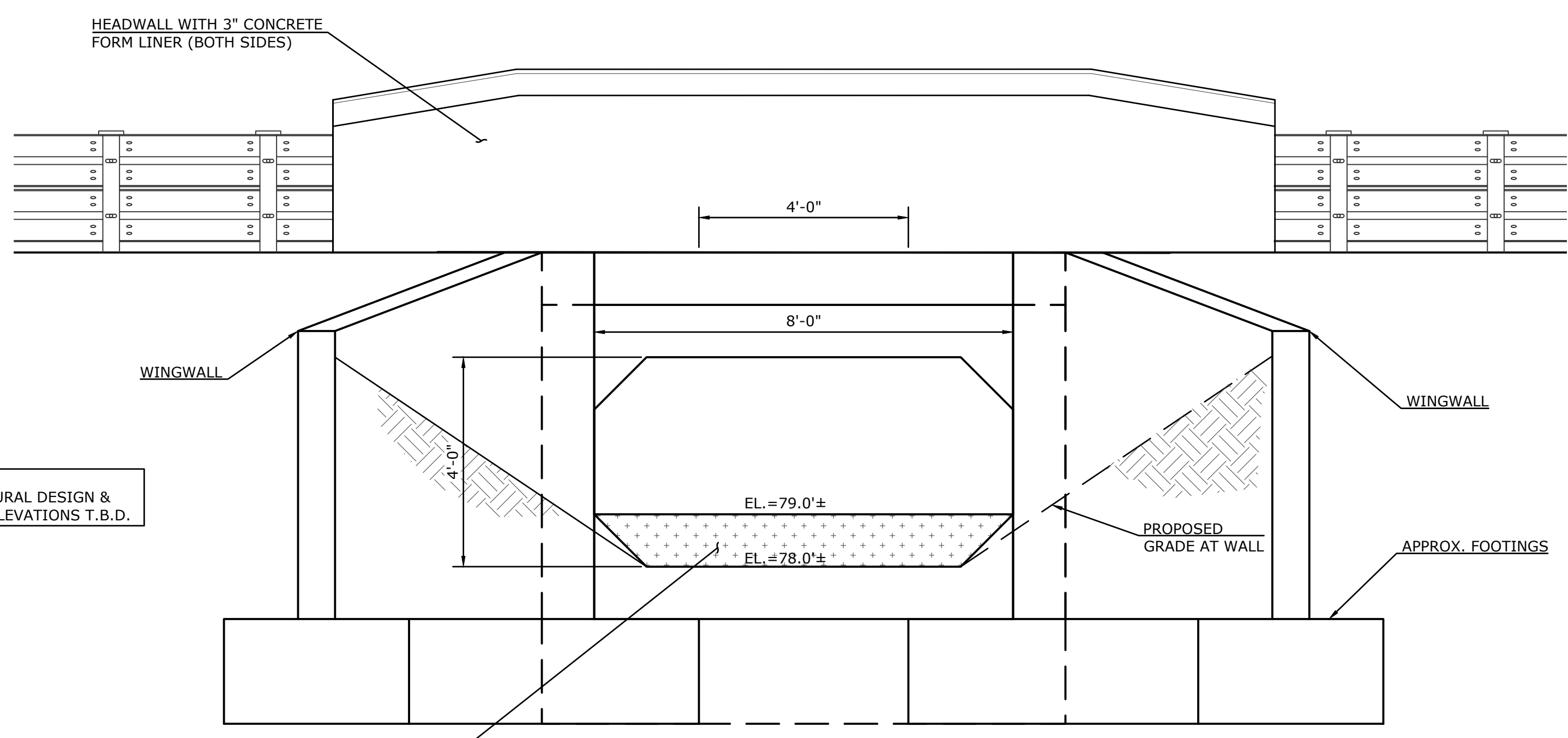
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NEWINGTON, CT 06111  
(860) 667-9624

**PREPARED FOR**  
TOWN OF NORTH STONINGTON/LEDYARD  
40 MAIN STREET/ 741 COLONEL HIGHWAY  
NORTH STONINGTON, CT 06359 / LEDYARD, CT 06339

<b>IMPROV. TO WHITFORD BROOK WATERSHED CULVERT UPLAND REVIEW AREA PLAN</b>			
D	LANTERN HILL	S.F.D.	23016
SIZE	PROJECT	FILE NAME	NUMBER
		REV.	OF
			12

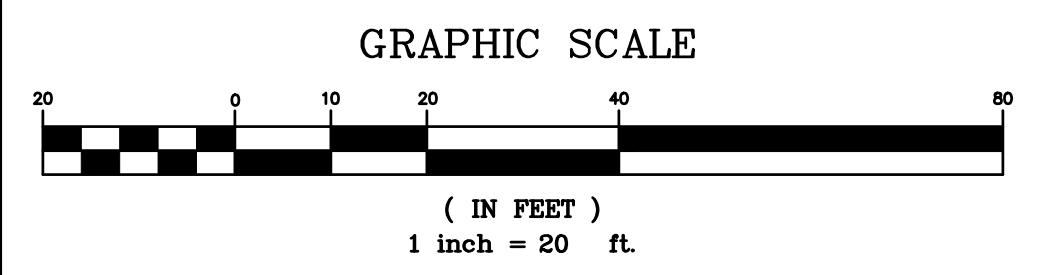


**STRUCTURE PLAN**  
SCALE: 1" = 10'-0"



**4'X8' BOX CULVERT SECTION & ELEVATION**  
(T.B.D.)  
SCALE: 1/2" = 1'-0"

NOTICE TO BRIDGE INSPECTORS	
THE DEPARTMENT'S BRIDGE SAFETY PROCEDURES REQUIRE THIS BRIDGE TO BE INSPECTED FOR, BUT NOT LIMITED TO, ALL APPROPRIATE COMPONENTS INDICATED IN THE GOVERNING MANUALS FOR BRIDGE INSPECTION. ATTENTION MUST BE GIVEN TO INSPECTING THE FOLLOWING SPECIAL COMPONENTS AND DETAILS. (THE LISTING OF COMPONENTS FOR SPECIFIC ATTENTION SHALL NOT BE CONSTRUED TO REDUCE THE IMPORTANCE OF INSPECTION OF ANY OTHER COMPONENT OF THE STRUCTURE.) THE FREQUENCY OF INSPECTION OF THIS STRUCTURE SHALL BE IN ACCORDANCE WITH THE GOVERNING MANUALS FOR BRIDGE INSPECTION, UNLESS OTHERWISE DIRECTED BY THE MANAGER OF BRIDGE SAFETY AND EVALUATION.	
COMPONENT OR DETAIL	STRUCTURE SHEET REFERENCE
NONE	NONE



**GENERAL NOTES:**  
**SPECIFICATIONS:** CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 817 (2019) SUPPLEMENTAL SPECIFICATIONS DATED JULY 2019 OR LATEST AT THE TIME OF BID AND SPECIAL PROVISIONS.  
**DESIGN SPECIFICATIONS:** AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (AASHTO EIGHTH EDITION, DATED 2017 INCLUDING INTERIM SPECIFICATIONS UP TO 2018), AS SUPPLEMENTED BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL (2003).  
**MATERIAL STRENGTHS:**  
 CONCRETE:  
 CLASS PCC 03340  $f_c = 3000$  P.S.I.  
 CLASS PCC 04462  $f_c = 4000$  P.S.I.  
 THE CONCRETE STRENGTH,  $f_c$ , USED IN DESIGN OF THE CONCRETE COMPONENTS IS NOTED ABOVE. THE COMPRESSIVE STRENGTH OF THE CONCRETE IN THE CONSTRUCTED COMPONENTS SHALL CONFORM TO THE REQUIREMENTS OF 6.01 - CONCRETE FOR STRUCTURES, AND M.03 - PORTLAND CEMENT CONCRETE REINFORCEMENT.  
 ALL REINFORCEMENT SHALL BE GALVANIZED AFTER FABRICATION UNLESS NOTED OTHERWISE. ALL REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A767, CLASS 1, INCLUDING SUPPLEMENTAL REQUIREMENTS. THE COST OF FURNISHING AND PLACING THIS REINFORCEMENT SHALL BE INCLUDED IN THE ITEM "DEFORMED STEEL BARS - GALVANIZED."  $f_y = 60,000$  P.S.I.  
**LIVE LOAD:** HL-93, LEGAL AND PERMIT VEHICLES  
**HMA OVERLAY:** SHALL CONSIST OF 2" (MIN.) HMA S0.5 ON 1" OF HMA S0.25 ON MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC).  
**FUTURE PAVING ALLOWANCE:** NONE  
**DIMENSIONS:** WHEN DECIMAL DIMENSIONS ARE GIVEN TO LESS THAN THREE DECIMAL PLACES, THE OMITTED DIGITS SHALL BE ASSUMED TO BE ZEROS.  
**EXISTING DIMENSIONS:** DIMENSIONS OF THE EXISTING STRUCTURE SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. THEY HAVE BEEN TAKEN FROM THE ORIGINAL DESIGN DRAWINGS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL TAKE ALL FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF THE FINISHED WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY. WHEN SHOP DRAWINGS BASED ON FIELD MEASUREMENTS ARE SUBMITTED FOR REVIEW, THE FIELD MEASUREMENTS SHALL ALSO BE SUBMITTED FOR REFERENCE BY THE REVIEWER.  
**STRUCTURE REMOVAL:** BEFORE INITIATING CONSTRUCTION, CONTRACTOR SHALL SUBMIT A PLAN FOR APPROVAL DEFINING METHOD FOR PROTECTION OF THE STREAM AREA DURING REMOVAL OF EXISTING BRIDGE. COST TO BE INCLUDED IN THE COST OF "REMOVAL OF SUPERSTRUCTURE".  
**COFFERDAMS AND DEWATERING:** BEFORE INITIATING CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A PLAN FOR APPROVAL THAT DEFINES METHODS AND MATERIALS FOR CONTROLLING STREAM WATER (COFFERDAMS, ETC.), DEWATERING, STRUCTURE EXCAVATION AND PROTECTING THE STREAM DURING VARIOUS STAGES OF CONSTRUCTION. THE COST OF THIS WORK SHALL BE INCLUDED IN THE COST OF "COFFERDAM AND DEWATERING".  
**PRECAST CONCRETE THREE-SIDED CULVERT:** SEE SPECIAL PROVISIONS.  
**UTILITY RELOCATIONS:** OVERHEAD OR UNDERGROUND UTILITY LINES MAY BE IN CONFLICT WITH DRIVING SHEET PILING, THE SETTING OF PRECAST CULVERT SECTIONS AND OTHER CONSTRUCTION. DEPENDING UPON THE CONTRACTOR'S CONSTRUCTION OPERATIONS, THESE UTILITIES MAY NEED TO BE TEMPORARILY RELOCATED FOR PORTIONS OF THE CONSTRUCTION OPERATIONS AND THEN MOVED BACK TO PERMANENT LOCATIONS WHICH MAY BE OTHER THAN CURRENT LOCATIONS. EXCEPT FOR UTILITY WORK SPECIFICALLY INCLUDED IN THIS CONTRACT THE ACTUAL UTILITY RELOCATIONS (PERMANENT OR TEMPORARY) WILL BE THE RESPONSIBILITY OF THE INDIVIDUAL UTILITY OWNER, HOWEVER THE CONTRACTOR WILL BE REQUIRED TO COORDINATE ALL UTILITY RELOCATIONS WITH EACH UTILITY OWNER AND TO PHASE HIS WORK AS REQUIRED TO ACCOMMODATE TEMPORARY AND PERMANENT UTILITY RELOCATION WORK.

**CONCRETE NOTES:**  
**CONCRETE:** THE FOLLOWING PAY ITEMS AND CONCRETE CLASSES ARE REQUIRED FOR CAST-IN-PLACE BRIDGE COMPONENTS:

ITEM	BRIDGE COMPONENTS	PCC CLASS
FOOTING CONCRETE	WINGWALL AND ABUTMENT FOOTINGS	PCC03340
ABUTMENT AND WALL CONCRETE	WINGWALL STEMS AND ABUTMENT STEMS	PCC03340
PARAPET CONCRETE	BRIDGE AND APPROACH WALLS PARAPET	PCC04462

**JOINT SEAL:** SEE SPECIAL PROVISIONS.  
**EXPOSED EDGES:** EXPOSED EDGES OF CONCRETE SHALL BE BEVELED 1"x1" UNLESS DIMENSIONED OTHERWISE  
**CONCRETE COVER:** ALL REINFORCEMENT SHALL HAVE MIN. 2" COVER UNLESS DIMENSIONED OTHERWISE.  
**REINFORCEMENT:** ALL REINFORCEMENT SHALL BE GALVANIZED AFTER FABRICATION UNLESS NOTED OTHERWISE. ALL REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A767, CLASS 1, INCLUDING SUPPLEMENTAL REQUIREMENTS. THE COST OF FURNISHING AND PLACING THIS REINFORCEMENT SHALL BE INCLUDED IN THE ITEM " DEFORMED STEEL BARS-GALVANIZED."  
**CONSTRUCTION JOINTS:** CONSTRUCTION JOINTS, OTHER THAN THOSE SHOWN ON THE PLANS, WILL NOT BE PERMITTED WITHOUT PRIOR APPROVAL OF THE ENGINEER.

**PRECAST CONCRETE THREE-SIDED CULVERTS:**  
 FABRICATOR OF PRECAST CONCRETE THREE-SIDED CULVERT SHALL BE REQUIRED TO PROVIDE SHOP DRAWINGS. IF THERE ARE ANY DESIGN CHANGES, THE FABRICATOR SHALL SUBMIT DESIGN CALCULATIONS AND LOAD RATING CALCULATIONS PREPARED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT FOR REVIEW AND APPROVAL. LOAD RATINGS SHALL BE PROVIDED FOR THE INVENTORY & OPERATING LOAD CASES UTILIZING THE LOAD AND RESISTANCE FACTOR RATING (LRFR) METHOD AS FOLLOWS:  

<b>LOAD CASE</b>	<b>VEHICLE</b>
INVENTORY	PER CT DOT LOAD RATING MANUAL
OPERATING	PER CT DOT LOAD RATING MANUAL
AVERAGE DAILY TRUCK TRAFFIC (ADTT) <100	

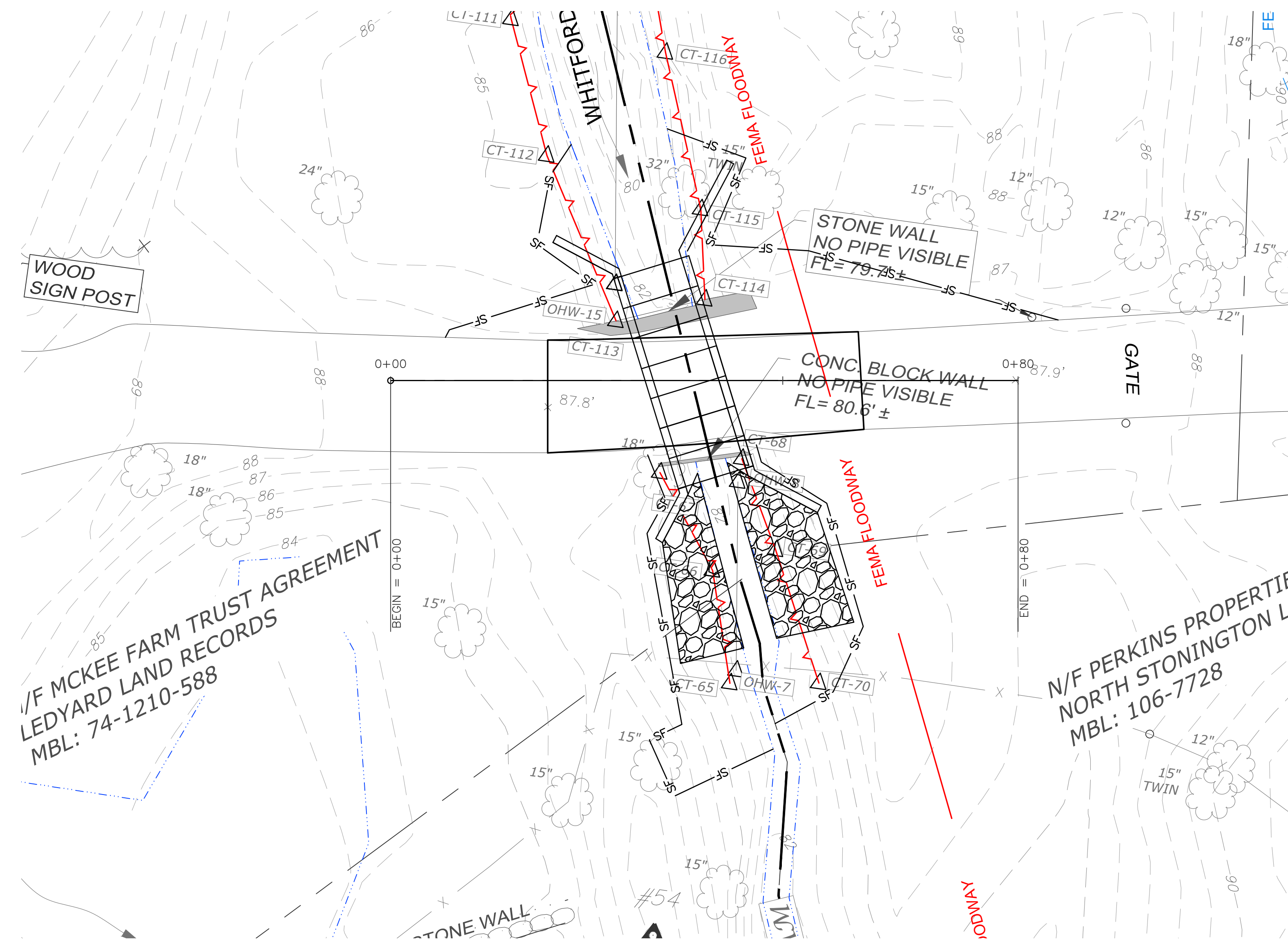
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DATE	04/02/2026

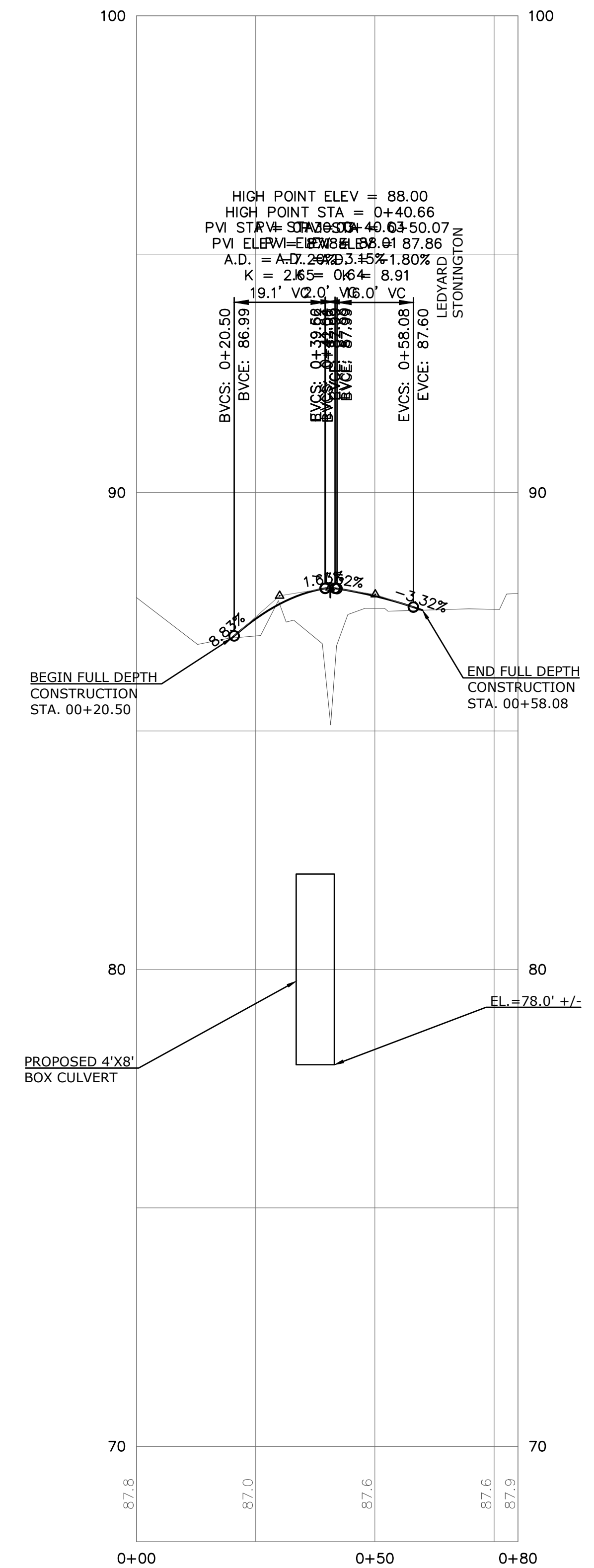
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 87 HOLMES ROAD  
 NEWINGTON, CT 06111  
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**PREPARED FOR**  
 TOWN OF NORTH STONINGTON/LEDYARD  
 40 MAIN STREET/ 741 COLONEL HIGHWAY  
 NORTH STONINGTON, CT 06359 / LEDYARD, CT 06339

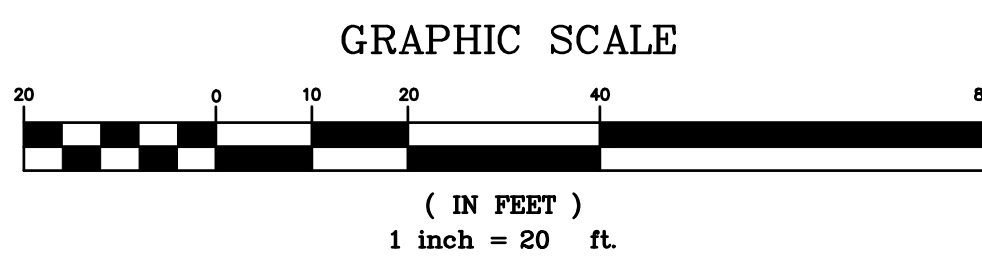
IMPROV. TO WHITFORD BROOK WATERSHED CULVERT STRUCTURE PLAN, SECTION & ELEVATION				
D	LANTERN HILL	S.F.D.	23016	SHEET 8
SIZE	PROJECT	FILE NAME	NUMBER	REV. OF
				12



**PLAN VIEW**  
SCALE: 1" = 10'-0"



**PROFILE**  
SCALE: 1" = 20'-0"



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		DRAWN	D.T.J.
		CHECKED	M.E.F.
NO.	DATE	DESCRIPTION	DATE
		<b>REVISIONS</b>	04/02/2026

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**IMPROV. TO WHITFORD BROOK WATERSHED  
CULVERT  
ROADWAY PROFILE**

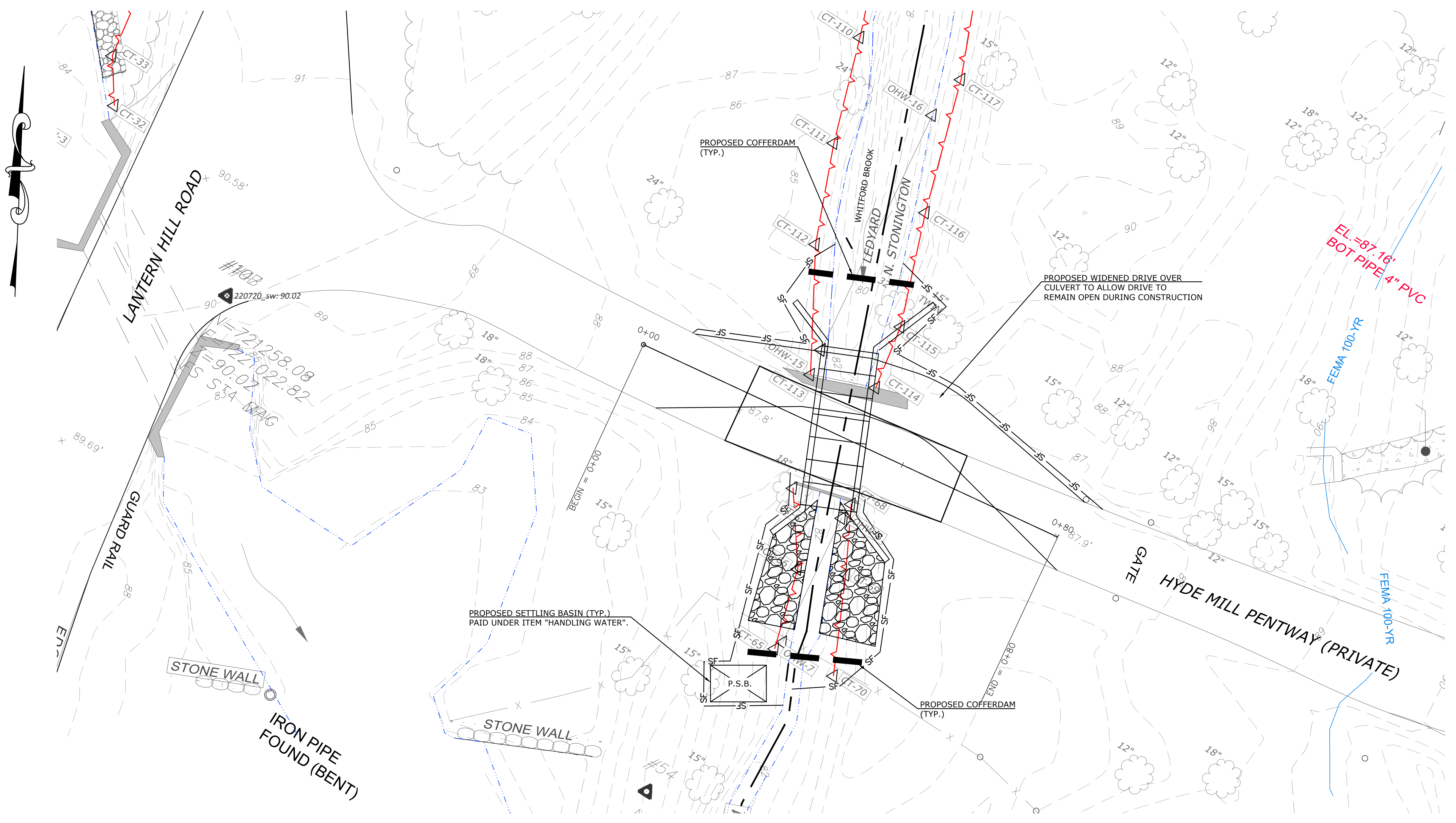
D	LANTERN HILL	S.F.D.	23016	REV.	9
SIZE	PROJECT	FILE NAME	NUMBER	OF	12

- WATER HANDLING NOTES:**
1. THE CONTRACTOR SHALL MAINTAIN WATER THROUGH THE TEMPORARY BYPASS PIPE AND WATER-HANDLING-COFFERDAMS AS SHOWN DURING CONSTRUCTION.
  2. EQUIPMENT SHALL NOT BE PERMITTED IN THE STREAM WHEN TEMPORARY COFFERDAMS ARE NOT IN PLACE WITHOUT THE APPROVAL OF THE ENGINEER.
  3. PRIOR TO ANY DEWATERING, THE CONTRACTOR MUST SUBMIT TO THE ENGINEER A WRITTEN PROPOSAL FOR SPECIFIC METHODS AND DEVICES TO BE USED AND MUST OBTAIN THE ENGINEER'S WRITTEN APPROVAL OF SUCH METHODS AND DEVICES.
  4. WATER-HANDLING-COFFERDAMS SHALL CONSIST OF ANY APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY PROTECT THE CONSTRUCTION AREA FROM THE TEMPORARY DESIGN DISCHARGE ELEVATION, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND EXCAVATION, AND SHALL CONFORM TO PERMITS.
  5. ANY SURFACE RUNOFF OR GROUNDWATER DISCHARGING INTO A CONFINED WORK AREA SHALL BE DIVERTED OR PUMPED OUTSIDE THE CONFINED AREAS. THE CONTRACTOR SHALL SUBMIT THE MEANS AND METHODS OF HANDLING THE DISCHARGE TO THE ENGINEER FOR APPROVAL. WORK PAID UNDER "HANDLING WATER".
  6. THE INSTALLATION, MAINTENANCE AND REMOVAL OF THE PROPOSED SETTLING BASIN SHALL BE PAID FOR UNDER ITEM "HANDLING WATER".

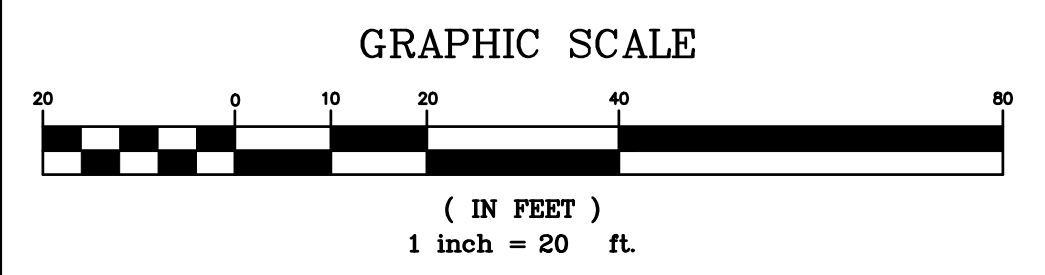
- SUGGESTED CONSTRUCTION SEQUENCE NOTES:**
- 1) RECONFIGURATION OF POWER AND COMMUNICATION SERVICES TO BE COMPLETED PRIOR TO CONSTRUCTION.
  - 2) DAM, FISHWAY & SPILLWAY CONSTRUCTION TO BE COMPLETED PRIOR TO CULVERT CONSTRUCTION.
  - 3) MOBILIZE AND INSTALL CONSTRUCTION SIGNS.
  - 4) INSTALL SEDIMENTATION AND EROSION CONTROLS AS SHOWN IN THE PLANS OR AS APPROVED/DIRECTED BY THE ENGINEER.
  - 5) PERFORM ADDITIONAL CLEARING AND GRUBBING.
  - 6) INSTALL TEMPORARY TRAFFIC BARRIERS AND CLOSE HYDE MILL PENTWAY TO TRAFFIC STARTING ON XX/XX/XXXX AND ENDING ON XX/XX/XXXX. THE CONTRACTOR IS EXPECTED TO COMPLETE ALL MAJOR BRIDGE REMOVAL AND CONSTRUCTION TASKS DURING THIS TIME.
  - 7) REOPEN ROAD TO TRAFFIC ON XX/XX/XXXX.
  - 8) COMPLETE ANY REMAINING CONSTRUCTION ACTIVITY UTILIZING POLICE CONTROLLED ALTERNATING ONE-WAY FOR THE DURATION OF THE PROJECT. ALL OBSTRUCTION AND OBSTACLE MUST BE CLEARED FROM TRAVEL-WAY DURING NONWORKING HOURS.

**NOTES:**

- WATER WILL BE PUMPED AS REQUIRED DURING THE CONSTRUCTION.



**HANDLING WATER PLAN - CULVERT**  
SCALE: 1" = 10'-0"



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DATE	04/02/2026

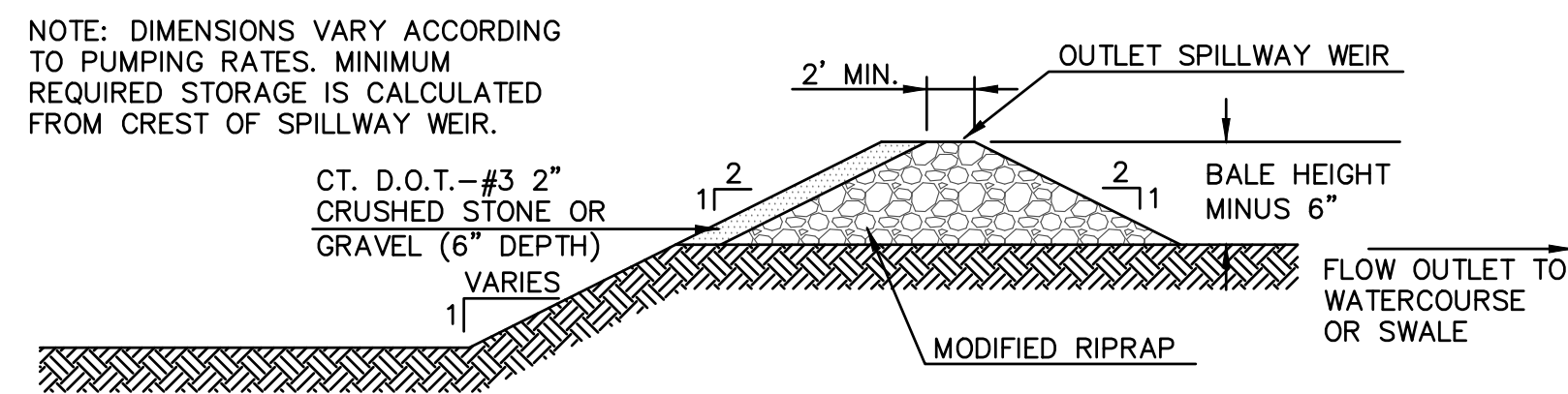
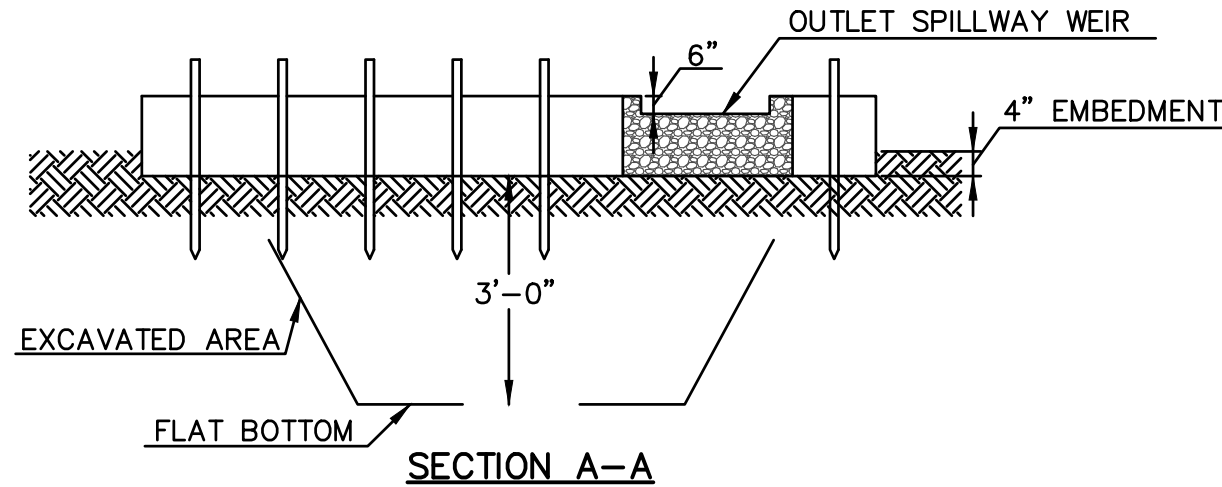
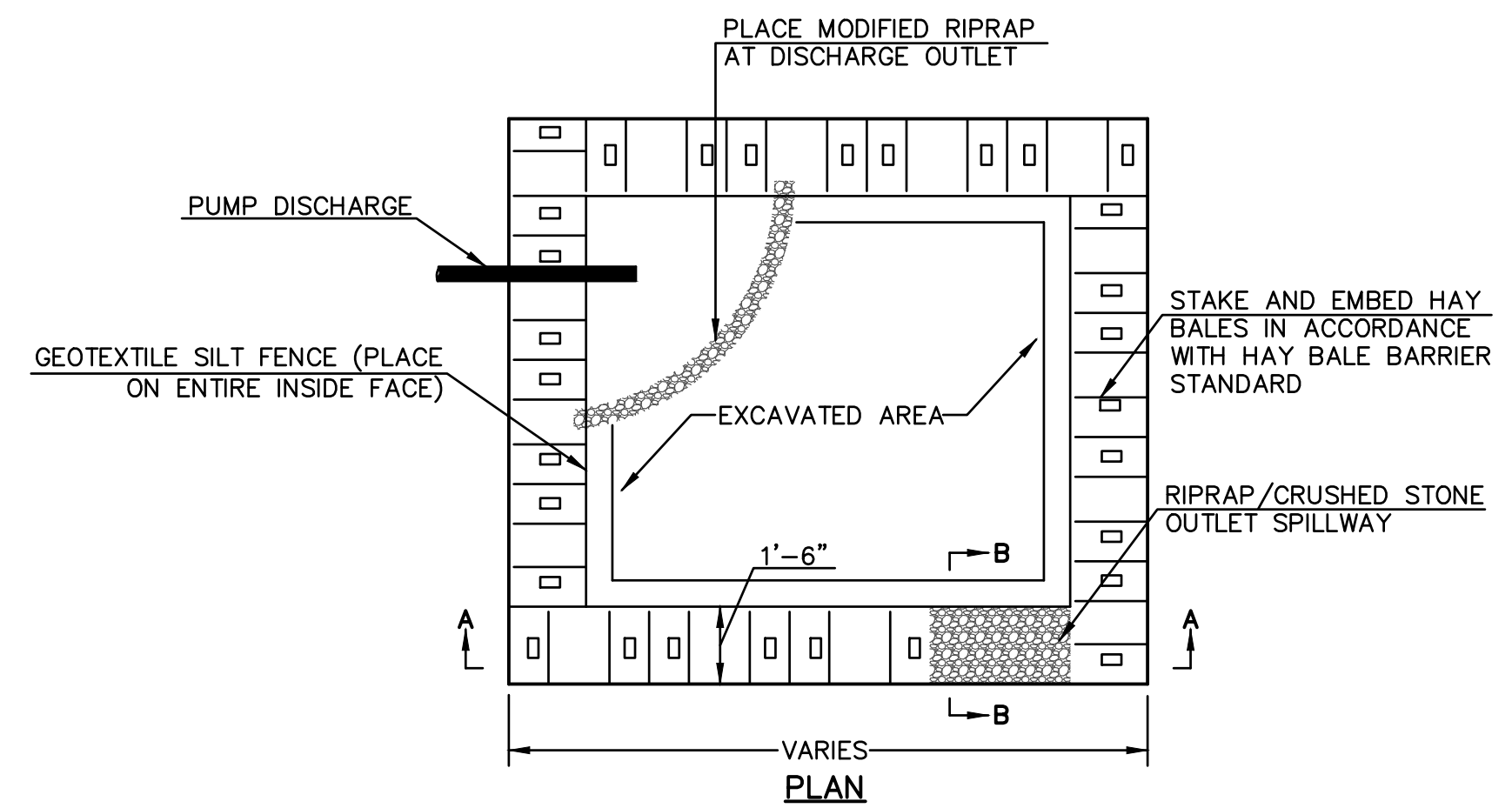
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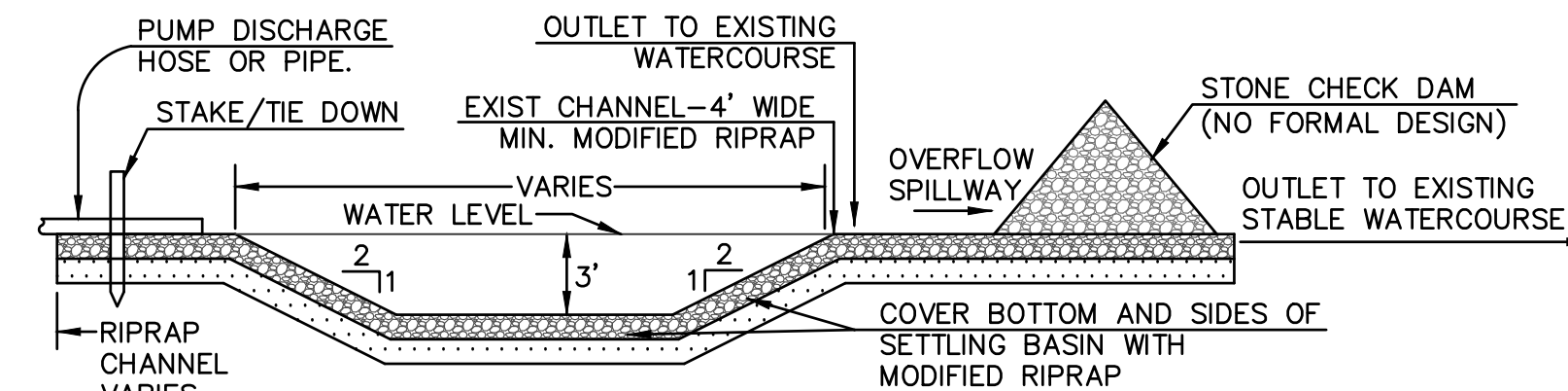
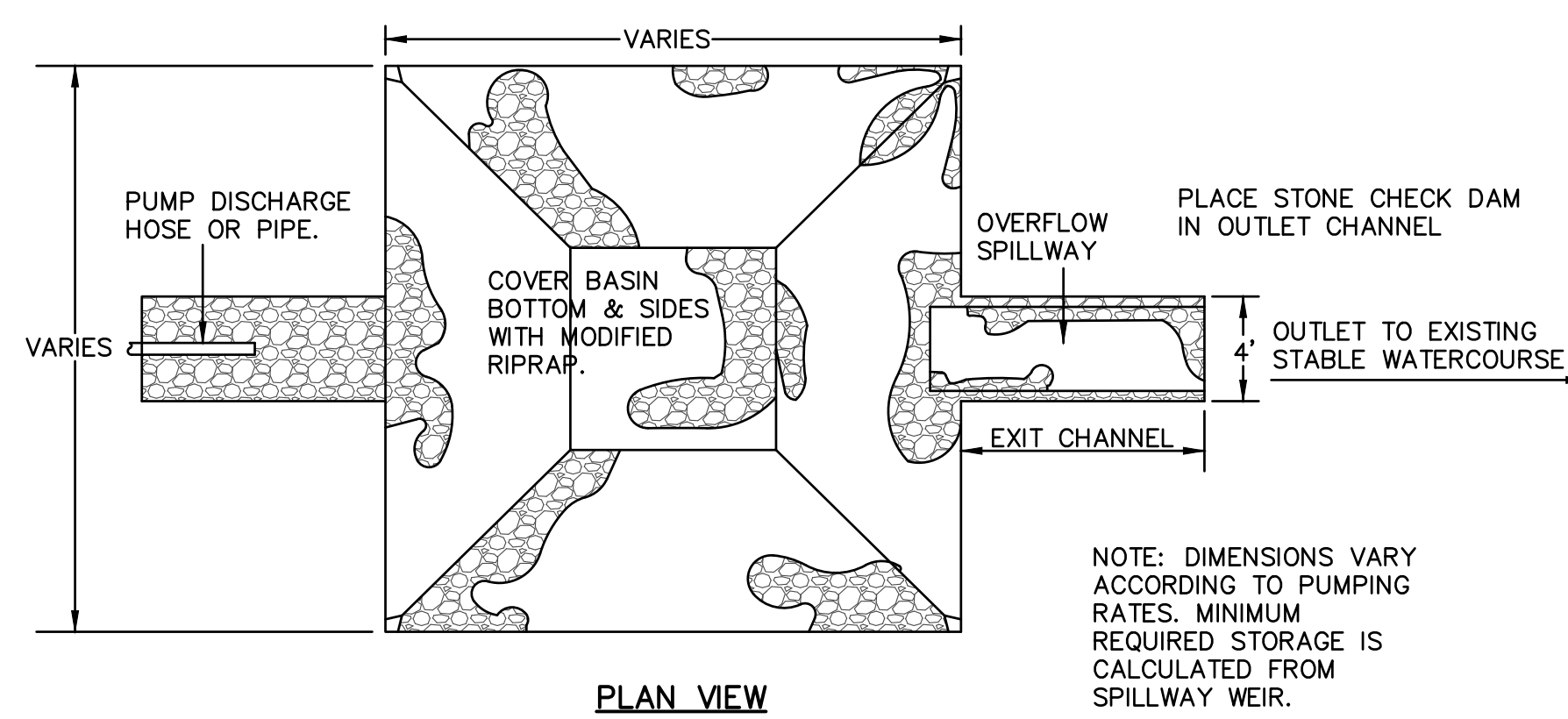
**PREPARED FOR**  
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NORTH STONINGTON, CT 06359 / LEDYARD, CT 06339

<b>IMPROV. TO WHITFORD BROOK WATERSHED BUSH POND HANDLING WATER PLAN - CULVERT</b>			
D - SIZE	LANTERN HILL PROJECT	S.F.D. - FILE NAME	23016 - NUMBER
			REV. OF
			12

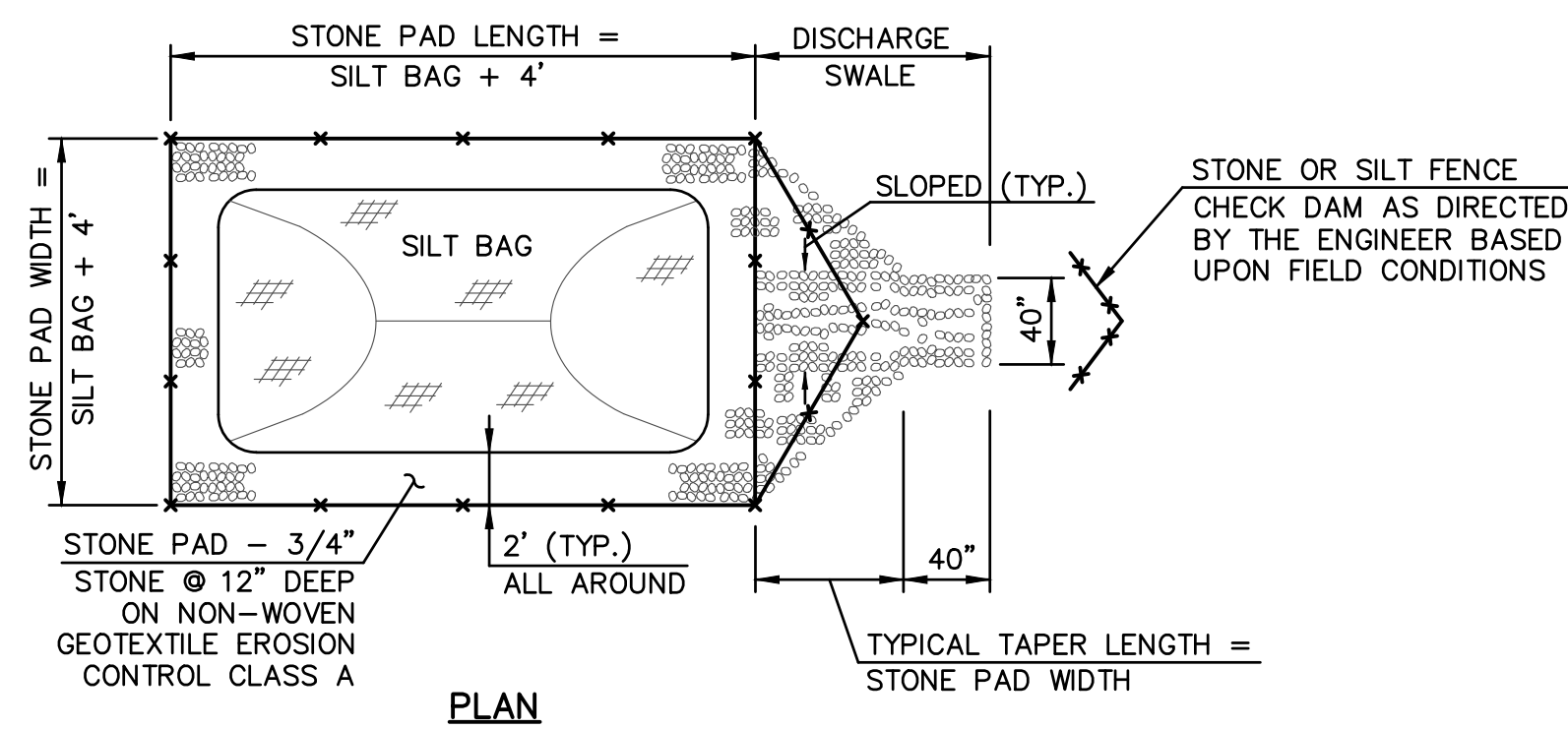
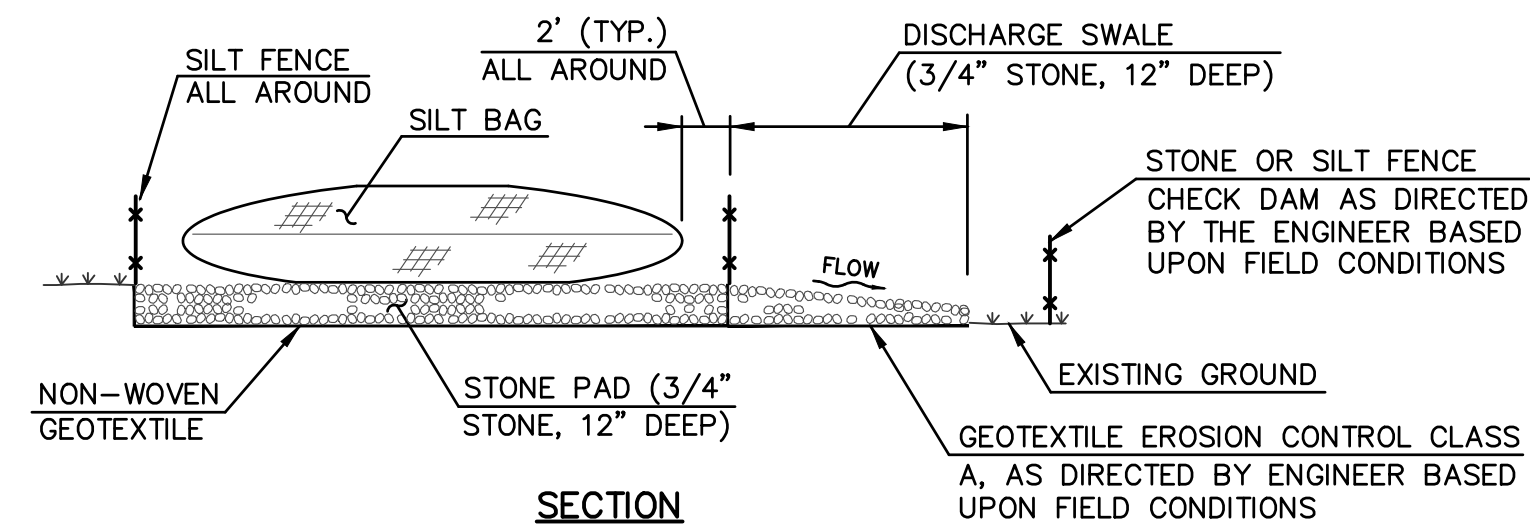


**SECTION B-B**  
REFER TO PAGE 5-13-7 "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL".  
**TYPE II PUMPING SETTLING BASIN**  
N.T.S.

**PUMPING SETTLING BASIN NOTES:**  
1. LOCATION AS DIRECTED BY ENGINEER. REMOVE WHEN PUMPING IS COMPLETED.  
2. PUMP DISCHARGE PAD SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST THE GENERAL WORK.  
3. STORAGE VOLUME BASED UPON PUMP DISCHARGE, LARGER PAD DIMENSIONS MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.  
(MINIMUM REQUIRED STORAGE, CUBIC FEET) = 16 x (PUMP DISCHARGE RATE, GPM)  
4. TYPE II PUMPING SETTLING BASIN TO BE USED WHEN THE EXPECTED DURATION OF USE IS LESS THAN 3 MONTHS. TYPE III PUMPING SETTLING BASIN TO BE USED WHEN THE EXPECTED DURATION OF USE IS LONGER THAN 3 MONTHS.  
5. SETTLING BASIN AND EXIT CHANNEL TO BE BACKFILLED AT COMPLETION OF WORK. AREA SHALL BE GRADED AND STABILIZED ACCORDING TO PLANS OR AS DIRECTED BY THE ENGINEER.



**PROFILE**  
REFER TO PAGE 5-13-7 "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL".  
**TYPE III PUMPING SETTLING BASIN**  
N.T.S.



**PLAN**  
**SILT BAG INSTALLATION**  
N.T.S.

**GENERAL**

EFFLUENT FROM DEWATERED WORK AREA(S) SHOULD NOT BE DISCHARGED DIRECTLY TO THE STREAM BUT BE PROCESSED THROUGH TREATMENT STRUCTURE(S). SUCH STRUCTURES SHOULD NOT BE LOCATED WITHIN THE STREAM CHANNEL OR ADJACENT WETLANDS.

THE PROJECT SHOULD NOT BE CONDUCTED IN A MANNER WHICH IMPEDES STREAM FLOW.

UNCONFINED IN-STREAM ACTIVITIES SHOULD BE LIMITED TO THE TIME PERIOD JUNE 1 THROUGH SEPTEMBER 30.

EQUIPMENT OPERATING IN WETLANDS - OPERATION OF EQUIPMENT IN WETLAND AREAS IS NOT ALLOWED AND MUST BE APPROVED IN ADVANCE. ANY EQUIPMENT OPERATING IN WETLAND AREAS SHALL BE LOW GROUND PRESSURE (LESS THAN 3 PSI) OR SHALL BE SET ON TEMPORARY FILL OR MATTING. TEMPORARY FILL, TIMBER MATTING OR OTHER MATTING MUST BE APPROVED IN ADVANCE AND WILL NOT BE PAID SEPARATELY, BUT SHALL BE INCLUDED IN THE GENERAL COST OF OTHER RELATED WORK ITEMS.

TEMPORARY FILL - PLACEMENT OF TEMPORARY FILL IN WETLAND AREAS THAT IS NOT SPECIFICALLY SHOWN ON THE CONTRACT DRAWINGS IS NOT ALLOWED AND MUST BE APPROVED IN ADVANCE. ANY TEMPORARY FILL APPROVED FOR PLACEMENT, SHALL BE PLACED ON GEOTEXTILE LAID ON THE PRE-CONSTRUCTION WETLAND GRADE. UNCONFINED TEMPORARY FILL THAT IS PLACED IN THE FLOWING WATER SHALL BE ONLY CLEAN WASHED STONE.

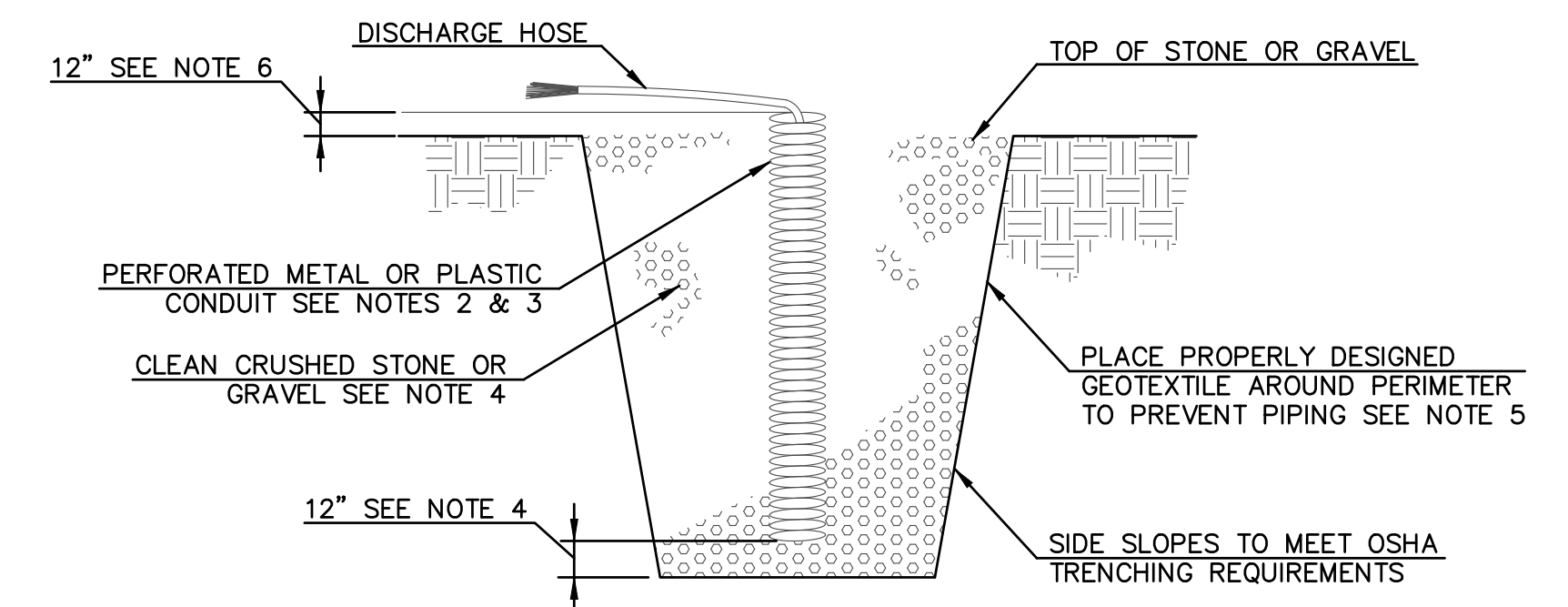
WETLAND DISTURBANCE - ONLY THOSE WETLANDS SPECIFICALLY SHOWN ON THE CONTRACT DRAWINGS OR INCLUDED IN APPROVED PERMITS TO BE DISTURBED, OR ADDITIONAL AREAS SPECIFICALLY APPROVED AS ABSOLUTELY NECESSARY TO COMPLETE THE PROPOSED WORK, SHALL BE DISTURBED.

**COFFERDAM NOTES**

1. A CONSTRUCTION SEQUENCING PLAN AND A WATER HANDLING PLAN INCLUDING A CONTINGENCY PLAN FOR FLOOD EVENTS MUST BE SUBMITTED IN WRITING TO THE ENGINEER AND APPROVED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION IN A WATERWAY.

2. TEMPORARY COFFERDAM SHALL BE DESIGNED AND INSTALLED BY THE CONTRACTOR TO PROVIDE A MAXIMUM HEIGHT ABOVE THE STREAM BED AS NECESSARY TO RETAIN A 3 YEAR STORM EVENT. THE MAXIMUM TOP OF TEMPORARY COFFERDAM ELEVATION SHALL BE AS DESIGNATED ON THE HANDLING WATER PLANS.

3. TEMPORARY COFFERDAM AND PUMPING NOT PAID SEPARATELY. COST TO BE INCLUDED IN THE PAY ITEM "COFFERDAM AND DEWATERING".



REFER TO PAGE 5-13-3 "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL".

**NOTE:**  
1. OVERALL SUMP PIT DIMENSIONS SHALL BE COMPATIBLE WITH ANTICIPATED SEEPAGE RATES AND PUMP SIZE TO BE USED.  
2. THE STANDPIPE DIAMETER AND NUMBER OF PERFORATIONS SHALL BE COMPATIBLE WITH THE PUMP SIZE BEING USED.  
3. PERFORATIONS IN THE STANDPIPE SHALL BE EITHER CIRCULAR OR SLOTS. PERFORATION SIZE SHALL NOT EXCEED 1/2" IN DIAMETER.  
4. CRUSHED STONE OR GRAVEL SHALL BE NO SMALLER THAN CT DOT #67 SIZE NOR LARGER THAN CT DOT #3 SIZE. CRUSHED STONE SHALL EXTEND A MINIMUM OF 12" BELOW THE BOTTOM OF THE STANDPIPE.  
5. IF EXCESSIVE MOVEMENT OF FINE SOIL PARTICLES FROM THE SURROUNDING EXISTING SOILS IS ANTICIPATED, A PROPERLY DESIGNED GEOTEXTILE SHALL BE PLACED BETWEEN THE EXISTING SOILS AND THE CRUSHED STONE OR GRAVEL BACKFILL.  
6. THE STANDPIPE SHALL EXTEND A MINIMUM OF 12" ABOVE THE SURROUNDING GROUND.

**TYPICAL SECTION OF SUMP PIT**  
N.T.S.

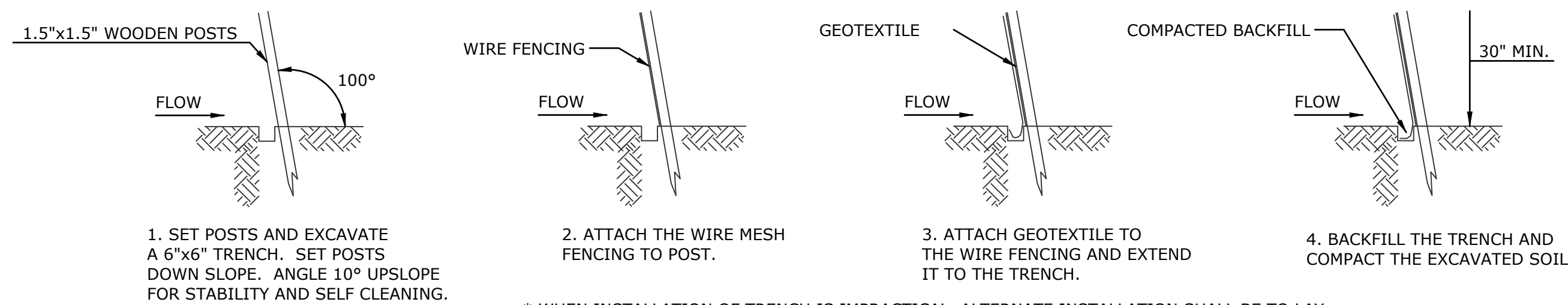
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		DESIGN	R.I.
		DRAWN	D.T.J.
		CHECKED	M.E.F.
NO.	DATE	DESCRIPTION	
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**IMPROV. TO WHITFORD BROOK WATERSHED BUSH POND HANDLING WATER - DETAILS**

D	LANTERN HILL	S.F.D.	23016		SHEET	11
SIZE	PROJECT	FILE NAME	NUMBER	REV.	OF	12

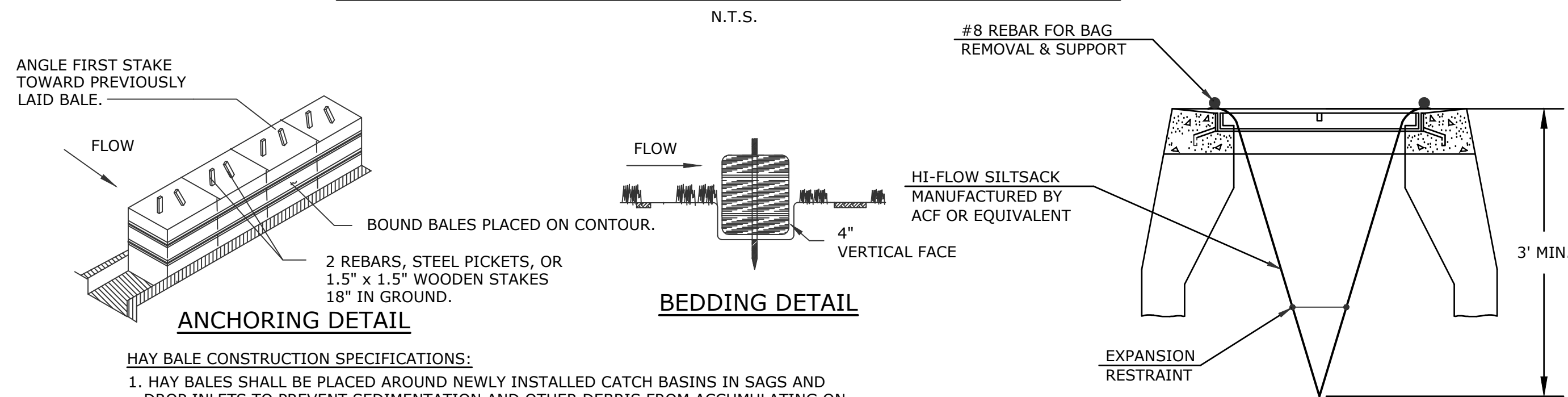


\* WHEN INSTALLATION OF TRENCH IS IMPRACTICAL, ALTERNATE INSTALLATION SHALL BE TO LAY 6" FLAP HORIZONTALLY ON GROUND AND BURY FLAP BY RAMP SOIL OR STONE UP TO CONTROL FENCE. DEPTH OF RAMP SHALL BE AS REQUIRED TO HOLD DOWN FLAP WITHOUT LEAKAGE UNDER CONTROL FENCE WHILE MAINTAINING MINIMUM HEIGHT.

**GEOTEXTILE FENCE SYSTEM**

REFER TO PAGE 5-11-35 "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL" AND PAGE 55 "ON-SITE MITIGATION FOR CONSTRUCTION ACTIVITIES".

**SEDIMENTATION CONTROL SYSTEM INSTALLATION**



**ANCHORING DETAIL**

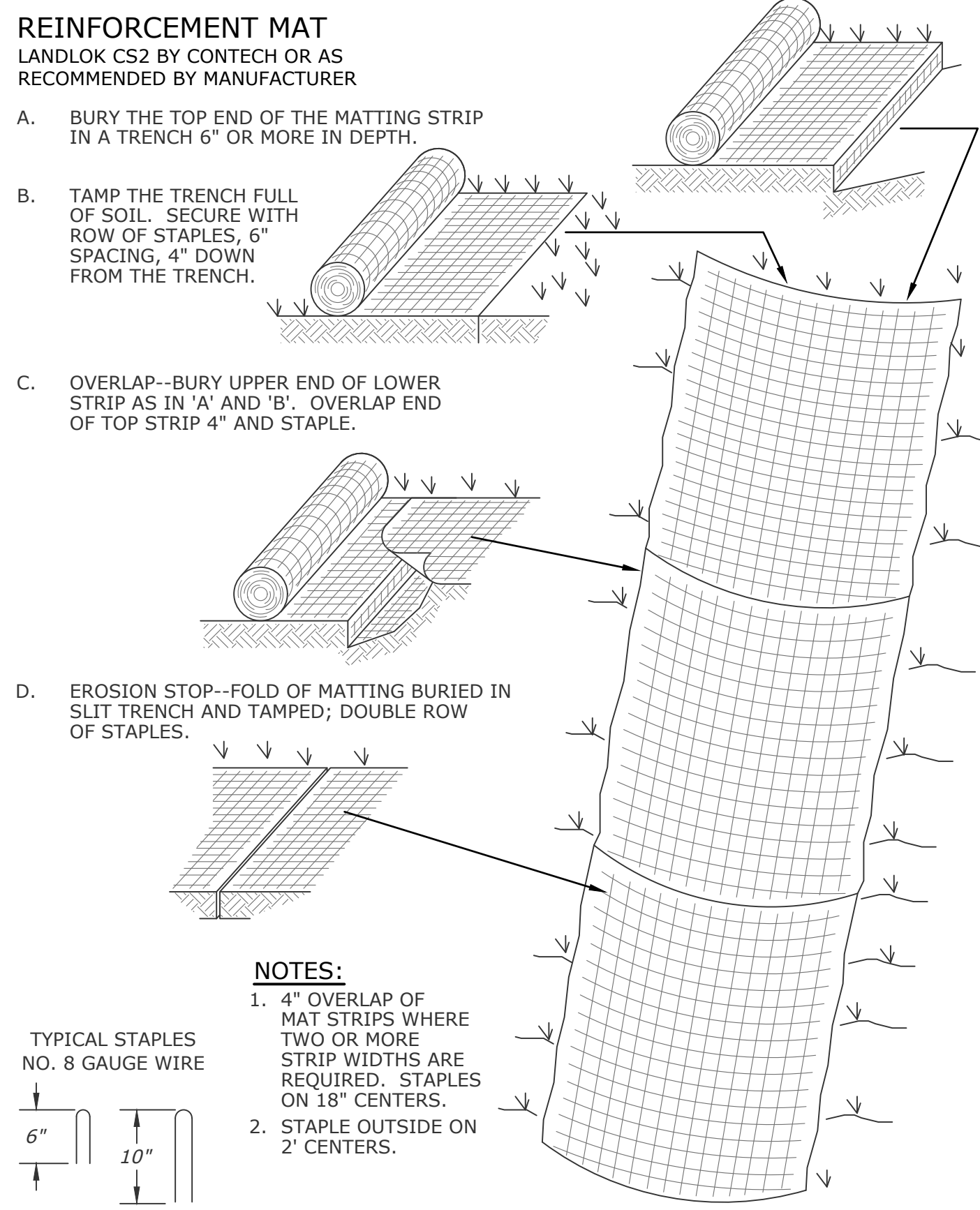
**HAY BALE CONSTRUCTION SPECIFICATIONS:**

- HAY BALES SHALL BE PLACED AROUND NEWLY INSTALLED CATCH BASINS IN SAGS AND DROP INLETS TO PREVENT SEDIMENTATION AND OTHER DEBRIS FROM ACCUMULATING ON THE GRATE OR IN THE SUMP. HAY BALES SHOULD BE KEPT CLEAN AND FREE OF DEBRIS TO FACILITATE FLOW.
- EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4", AND PLACED SO THE BINDINGS ARE HORIZONTAL.
- BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR REBARS DRIVEN THROUGH THE BALE. THE FIRST STAKE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
- INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
- BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

**BEDDING DETAIL**

SILTSACKS SHALL BE EMPTIED WHEN THEY HAVE COLLECTED 1 TO 1.5 FEET OF SEDIMENT. INSPECT EVERY WEEK OR AFTER EVERY RAINFALL EVENT.

**SILTATION SAC IN CATCH BASIN**

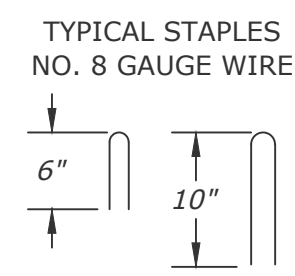


**REINFORCEMENT MAT**  
LANDLOK CS2 BY CONTECH OR AS RECOMMENDED BY MANUFACTURER

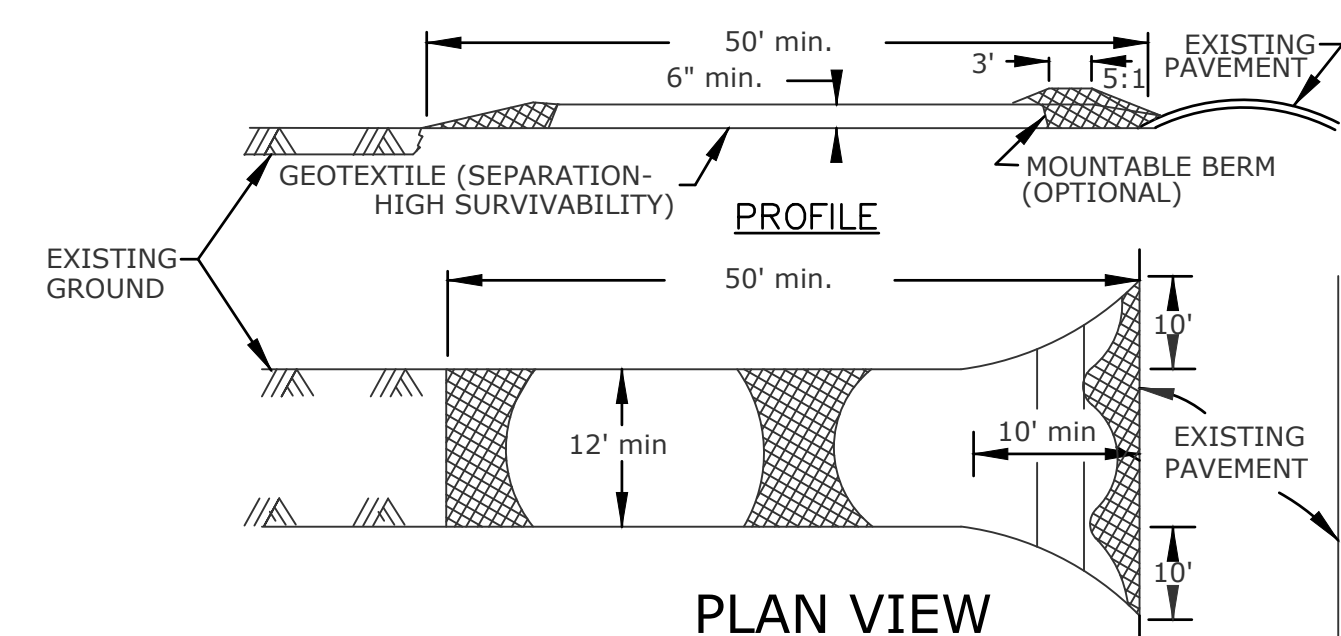
- BURY THE TOP END OF THE MATTING STRIP IN A TRENCH 6" OR MORE IN DEPTH.
- TAMP THE TRENCH FULL OF SOIL. SECURE WITH ROW OF STAPLES, 6" SPACING, 4" DOWN FROM THE TRENCH.
- OVERLAP--BURY UPPER END OF LOWER STRIP AS IN 'A' AND 'B'. OVERLAP END OF TOP STRIP 4" AND STAPLE.
- EROSION STOP--FOLD OF MATTING BURIED IN SLIT TRENCH AND TAMPED; DOUBLE ROW OF STAPLES.

**NOTES:**

- 4" OVERLAP OF MAT STRIPS WHERE TWO OR MORE STRIP WIDTHS ARE REQUIRED. STAPLES ON 18" CENTERS.
- STAPLE OUTSIDE ON 2' CENTERS.



**STEEP SLOPE TREATMENT DETAIL**



REFER TO PAGE 5-12-2 "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL" AND PAGE 50 "ON-SITE MITIGATION FOR CONSTRUCTION ACTIVITIES".

**CONSTRUCTION SPECIFICATION:**

- STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FT (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH WOULD APPLY).
- THICKNESS - NOT LESS THAN 6".
- WIDTH - 12" MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
- GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. GEOTEXTILE WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
- SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAYS MUST BE REMOVED IMMEDIATELY.
- WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SETTLING AREA SIZED TO HOLD THE VOLUME OF WATER USED DURING ANY 2-HOUR PERIOD.
- PERIODIC INSPECTION AND NECESSARY MAINTENANCE SHALL BE PROVIDED AFTER EACH RAINFALL.

**STABILIZED CONSTRUCTION ENTRANCE**

N.T.S.

**GENERAL**

THIS PLAN PROPOSES EROSION CONTROL MEASURES TO HELP CONTROL ACCELERATED EROSION AND SEDIMENTATION AND REDUCE THE DANGER FROM STORM WATER RUNOFF AT THE SITE. THE RUNOFF SHALL BE CONTROLLED BY THE INTERCEPTION, DIVERSION, AND SAFE DISPOSAL OF PRECIPITATION. RUNOFF SHALL ALSO BE CONTROLLED BY STAGING CONSTRUCTION ACTIVITY AND PRESERVING NATURAL VEGETATION WHENEVER POSSIBLE. EXISTING VEGETATION SHALL BE PROTECTED AND ONLY THAT CLEARING AND GRUBBING ABSOLUTELY NECESSARY FOR THE PROPOSED CONSTRUCTION SHALL BE PERFORMED. ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND CONTOUR, UNLESS OTHERWISE INDICATED ON THE PLANS. THE CONTRACTOR SHALL TAKE SPECIAL CARE WITH HIS CONSTRUCTION METHODS AND SHALL COMPLY WITH THE FOLLOWING GUIDELINES. REFERENCE IS MADE TO THE "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL" (2002), AS AMENDED. THE GUIDELINES ARE OBTAINABLE FROM THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, 79 ELM STREET, HARTFORD, CONNECTICUT 06106, AND SHOULD BE USED AS A REFERENCE IN CONSTRUCTING THE EROSION AND SEDIMENTATION CONTROLS INDICATED ON THESE PLANS.

**EROSION CONTROL**

ALL AREAS SHALL BE PROTECTED FROM EROSION DURING AND AFTER CONSTRUCTION, PARTICULARLY THE STORAGE OF EXCAVATED OR STOCKPILED MATERIAL. THE CONTRACTOR SHALL CAREFULLY STRIP ALL TOPSOIL, LOAM, OR ORGANIC MATTER PRIOR TO TRENCHING OR OTHER OPERATIONS AND SHALL STORE THEM SEPARATELY FROM ALL OTHER MATERIALS DURING EXCAVATION. EACH STOCKPILE MUST BE ADEQUATELY RINGED WITH SEDIMENTATION CONTROL SYSTEM (I.E. HAY BALES AND/OR GEOTEXTILE FENCE). DEBRIS AND OTHER WASTE RESULTING FROM EQUIPMENT MAINTENANCE AND CONSTRUCTION WILL NOT BE DISCARDED ON SITE. STABILIZING OF SLOPES SHALL BE DONE IMMEDIATELY AFTER CONSTRUCTION OF SLOPES. SLOPES STEEPER THAN 3:1 SHALL BE PROTECTED WITH EROSION CONTROL MATTING. THIS MATTING IS MANUFACTURED COMBINATIONS OF MULCH AND NETTING AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ALL OTHER AREAS SHALL BE MULCHED WITH HAY OR STRAW AT A RATE OF 2 TO 3 TONS PER ACRE. STRAW OR HAY MULCH MUST BE ANCHORED IMMEDIATELY AFTER SPREADING TO PREVENT WINDBLOWING. THE METHODS RECOMMENDED BY THE "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL" SHALL BE USED FOR THE ANCHORING OF MULCH OR NETTING.

**EROSION AND SEDIMENTATION CONTROL PLAN**

AN EROSION AND SEDIMENTATION CONTROL PLAN MUST BE SUBMITTED IN WRITING TO THE ENGINEER AND APPROVED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. SEDIMENTATION CONTROL SYSTEM - THE SEDIMENTATION CONTROL SYSTEM SHALL CONSIST OF A GEOTEXTILE BARRIER FENCE. THE SEDIMENTATION CONTROL SYSTEM SHALL BE INSTALLED IMMEDIATELY AFTER A CUT SLOPE HAS BEEN GRADED, BEFORE A FILL SLOPE HAS BEEN CREATED AND AS INDICATED ON THE PLANS. THE SYSTEM IS DESIGNED TO INTERCEPT SILT AND SEDIMENT BEFORE IT REACHES THE WETLANDS OR WATERCOURSES. DEPOSITS OF SEDIMENT AND SILT ARE TO BE PERIODICALLY REMOVED FROM THE UPSTREAM SIDE OF THE FENCE. THIS MATERIAL IS TO BE SPREAD AND STABILIZED IN AREAS NOT SUBJECT TO EROSION, OR IN AREAS WHICH ARE NOT TO BE PAVED OR BUILT ON. THE SEDIMENTATION CONTROL SYSTEM IS TO BE REPLACED AS NECESSARY TO PROVIDE PROPER FILTERING ACTION. THE SYSTEM IS TO REMAIN IN PLACE AND BE MAINTAINED TO INSURE EFFICIENT SILTATION CONTROL UNTIL ALL AREAS ABOVE THE FENCE ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED.

STACKED HAY BALES - HAY OR STRAW BALES USED FOR EROSION CONTROL SHALL BE STACKED AT CATCH BASINS WHERE SEDIMENT MAY ENTER THE CATCH BASIN OR AS DIRECTED BY THE ENGINEER. DEPOSITS OF SEDIMENT AND SILT ARE TO BE PERIODICALLY REMOVED FROM THE UPSTREAM SIDE OF THE EROSION CHECKS. THIS MATERIAL IS TO BE SPREAD AND STABILIZED IN AREAS NOT SUBJECT TO EROSION, OR IN AREAS WHICH ARE NOT TO BE PAVED OR BUILT ON. HAY OR STRAW BALES ARE TO BE REPLACED AS NECESSARY TO PROVIDE PROPER FILTERING ACTION. THE SYSTEM IS TO REMAIN IN PLACE AND BE MAINTAINED TO INSURE EFFICIENT SILTATION CONTROL UNTIL ALL AREAS ABOVE THE EROSION CHECKS ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED.

IN ALL AREAS, REMOVAL OF TREES, BUSHES, AND OTHER VEGETATION, AND DISTURBANCE OF THE SOIL, IS TO BE KEPT TO AN ABSOLUTE MINIMUM WHILE ALLOWING PROPER DEVELOPMENT OF THE SITE.

DURING CONSTRUCTION, AS SMALL AN AREA OF SOIL AS POSSIBLE SHOULD BE EXPOSED FOR AS SHORT A TIME AS POSSIBLE. AFTER CONSTRUCTION, GRADE, RE-SPREAD TOPSOIL, AND STABILIZE SOIL BY SEEDING AND MULCHING AS TO PREVENT EROSION.

**EROSION AND SEDIMENTATION CONTROL MAINTENANCE PROCEDURES**

ALL EROSION AND SEDIMENTATION CONTROL DEVICES SHALL BE INSPECTED DURING CONSTRUCTION ON A DAILY BASIS AND FOLLOWING ALL STORMS BY THE RESIDENT ENGINEER. THE CONTRACTOR SHALL MAINTAIN AND MAKE REPAIRS AND REMOVE SEDIMENT AS REQUESTED BY THE ENGINEER. THIS WORK SHALL BE PERFORMED WITHIN 24 HOURS OF THE REQUEST AND THERE SHALL BE NO SEPARATE PAYMENT FOR THIS WORK.

THE CONTRACTOR SHALL CLEAN SEDIMENT AND DEBRIS FROM ALL DRAINAGE STRUCTURES, AND PIPES AT THE COMPLETION OF CONSTRUCTION, AND AS REQUESTED BY THE ENGINEER TO KEEP THE SYSTEM FUNCTIONING PROPERLY DURING CONSTRUCTION.

FOLLOWING COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL REPAIR ALL ERODED AREAS AND ENSURE A GOOD STAND OF TURF IS ESTABLISHED THROUGHOUT. THE CONTRACTOR SHALL REPAIR ALL ERODED OR DISPLACED RIPRAP, AND CLEAN SEDIMENT COVERED STONES.

ALL APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHOULD BE ESTABLISHED PRIOR TO AND BE MAINTAINED THROUGH ALL CONSTRUCTION PHASES.

**WETLAND IMPACTS & DISTURBANCE**

EQUIPMENT OPERATING IN WETLANDS: OPERATION OF EQUIPMENT IN WETLAND AREAS IS GENERALLY NOT ALLOWED AND MUST BE APPROVED IN ADVANCE. ANY EQUIPMENT OPERATING IN WETLAND AREAS SHALL BE LOW GROUND PRESSURE (LESS THAN 3 PSI) OR SHALL BE SET ON TEMPORARY FILL OR MATTING. TEMPORARY FILL, TIMBER MATTING OR OTHER MATTING MUST BE APPROVED IN ADVANCE AND WILL NOT BE PAID SEPARATELY, BUT SHALL BE INCLUDED IN THE GENERAL COST OF OTHER RELATED WORK ITEMS.

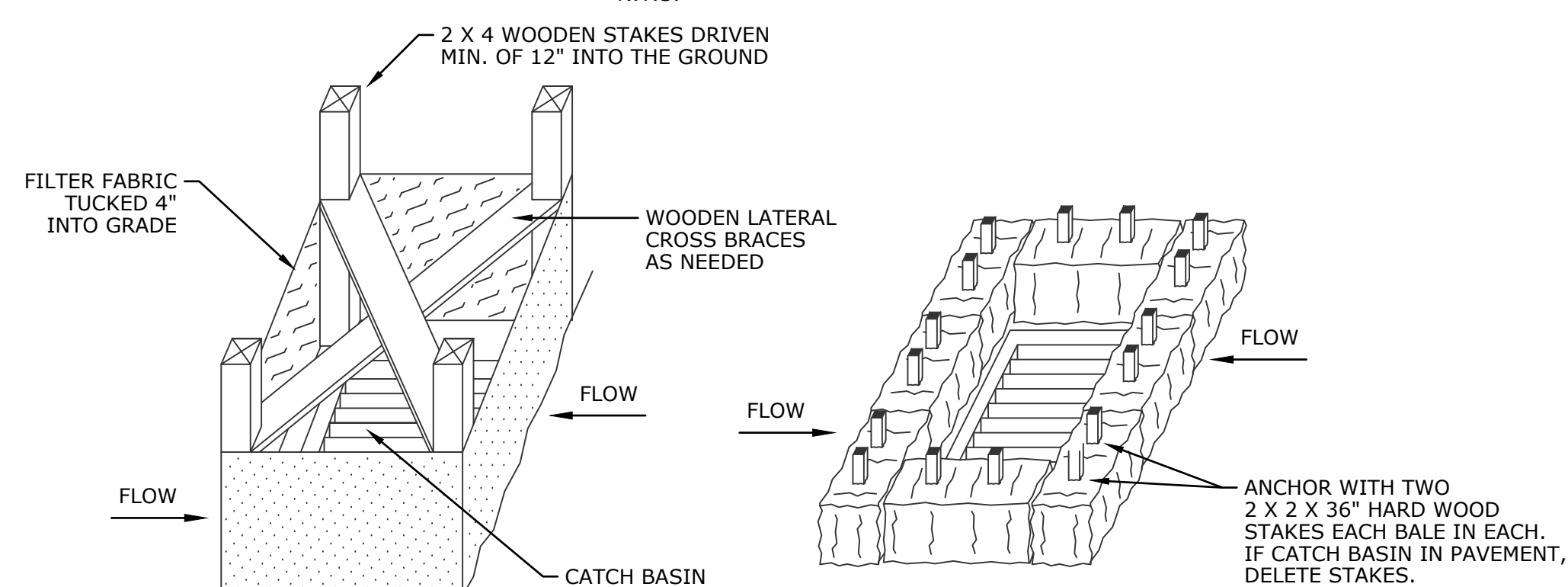
TEMPORARY FILL: PLACEMENT OF TEMPORARY FILL (SOIL, RIP RAP, ETC.) IN WETLAND AREAS THAT IS NOT SPECIFICALLY SHOWN ON THE CONTRACT DRAWINGS IS GENERALLY NOT ALLOWED AND MUST BE APPROVED IN ADVANCE. ANY TEMPORARY FILL APPROVED FOR PLACEMENT, SHALL BE PLACED ON GEOTEXTILE LAID ON THE PRE-CONSTRUCTION WETLAND GRADE. UNCONFINED TEMPORARY FILL THAT IS PLACED IN FLOWING WATER SHALL BE ONLY CLEAN WASHED STONE.

WETLAND DISTURBANCE: ONLY THOSE WETLAND AREAS SPECIFICALLY SHOWN ON THE CONTRACT DRAWINGS OR INCLUDED IN APPROVED PERMITS TO BE DISTURBED, OR ADDITIONAL AREAS SPECIFICALLY APPROVED AS ABSOLUTELY NECESSARY TO COMPLETE THE PROPOSED WORK, SHALL BE DISTURBED.

WETLAND & WETLAND FRINGE AREA RESTORATION: ALL DISTURBED WETLAND AND WETLAND FRINGE AREAS SHALL BE RESTORED WITH A WETLAND SEED MIX OR WETLAND TRANSITIONAL SEED MIX CONTAINING ONLY SPECIES NATIVE TO CONNECTICUT. ALL SEED MIX FOR WETLAND OR WETLAND FRINGE (TRANSITIONAL) AREAS MUST BE SUBMITTED AND APPROVED IN ADVANCE. THIS WORK SHALL NOT BE PAID SEPARATELY, BUT SHALL BE INCLUDED IN THE GENERAL COST OF OTHER RELATED WORK ITEMS.

**HAY BALE DETAIL**

N.T.S.



**SILT FENCE INSTALLATION AT CATCH BASINS**

**HAY BALE INSTALLATION AT CATCH BASINS**

**NOTE:**

- FILTER FABRIC SHALL BE MIRAFI "SILT FENCE", EXXON GTF 180, AMOCO 1380 OR APPROVED EQUAL.
- REFER TO PAGE 5-11-33 "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL" AND PAGE 40 "ON-SITE MITIGATION FOR CONSTRUCTION ACTIVITIES".

**SEDIMENTATION CONTROL DETAILS**

N.T.S.

		SUPV.	K.O.E.
		DESIGN	R.I.
		DRAWN	D.T.J.
		CHECKED	M.E.F.
NO.	DATE	DESCRIPTION	
<b>REVISIONS</b>			
		DATE	04/02/2026



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**PREPARED FOR**

TOWN OF NORTH STONINGTON/LEDYARD  
40 MAIN STREET/ 741 COLONEL HIGHWAY  
NORTH STONINGTON, CT 06359 / LEDYARD, CT 06339

**IMPROV. TO WHITFORD BROOK WATERSHED BUSH POND EROSION CONTROL DETAILS**

PROJECT: LANTERN HILL  
FILE NAME: S.F.D. - 23016  
NUMBER: 23016  
REV. OF: SHEET 12