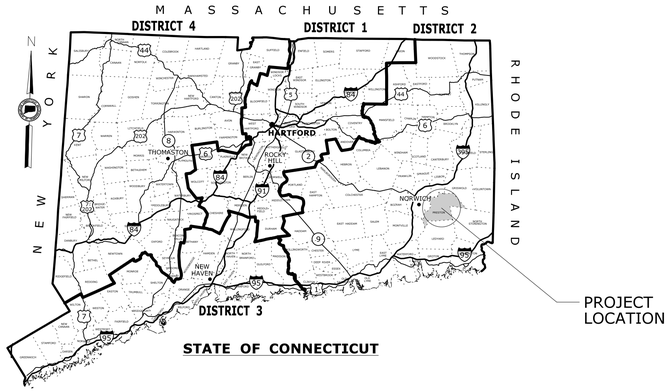


ENVIRONMENTAL PERMIT PLANS
STATE PROJECT NO. XXXX-XXXX
REPLACEMENT OF BRIDGE NO. XXXXX
IN THE TOWN OF _____

SAMPLE PROJECT USED FOR PLANS

The following sample project involves replacing an existing large pipe with a three-sided (open bottom) culvert. The project is planned to be constructed in 3 stages. A water handling pipe will be used and placed within the existing pipe. This project involves a roadway overbuild in the staging, therefore, an access road is not needed for construction of the project.
The following permits are anticipated for this project:
DEEP Inland Water Resources Division Flood Management Certification (IWRD FMC)
General Permit for Water Resource Construction Activities (IWRD GP)
US Army Corps of Engineers Category Self-Verification (USACE SV)

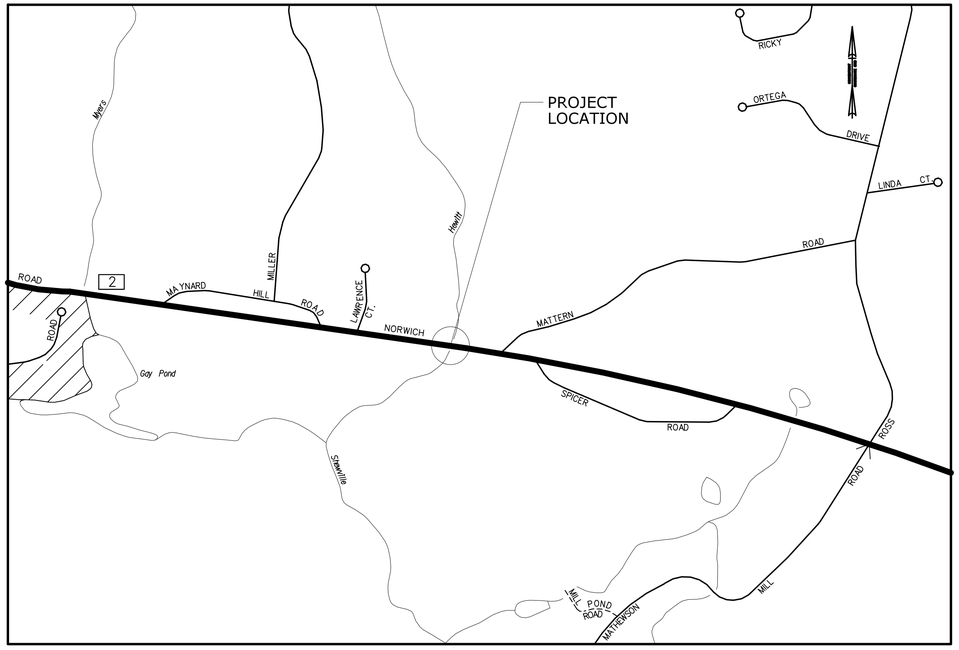
For this sample project, the water-handling-cofferdam was designed using a 2-year frequency discharge. The culvert was designed for a 100-year storm. The sample project falls within a mapped FEMA area with no elevation provided on the FEMA map. A 100-year storm elevation (existing) has been calculated and this elevation is used in determining the floodplain impact area. An 8 1/2" x 11" FEMA map is provided within the permit application.

Impact areas include ALL areas to be impacted due to the project construction and activities related to the project, both temporary and permanent. On this project, additional impact area was included to allow the contractor to utilize different methods and equipment. Engineering judgement should be used to determine the amount of area the contractor needs to perform the work, while trying to minimize the disturbance to the wetland resources. The designer should also evaluate utility work needed as part of the project and include any impacts due to project related utility work.

NOTE: This sample project has been altered from the actual project to produce this sample set of plans.

GENERAL NOTES:

1. THESE PLANS ARE INTENDED ONLY FOR ENVIRONMENTAL PERMITTING PURPOSES. THESE PLANS HOLD AUTHORITY FOR ALL ACTIVITIES CONCERNING THE REGULATED AREA. FOR DETAILED PLANIMETRIC INFORMATION AND PAYMENT REFER TO THE APPLICABLE CONTRACT DOCUMENTS.
2. THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP AND USACE FOR CHANGES TO THE DESIGN THAT WILL AFFECT REGULATED AREAS.
3. FOR A DESCRIPTION OF THE WATERCOURSES, WETLANDS AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE PERMIT APPLICATION.
4. 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1927 VERTICAL DATUM BASED ON NGVD OF 1929.
5. ALL CONSTRUCTION ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH THE DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROADS, BRIDGE, AND INCIDENTAL CONSTRUCTION, FORM 817, SECTION 1.10 AND WILL ALSO FOLLOW REQUIRED BEST MANAGEMENT PRACTICES (BMPs) AND SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE 2002 EROSION & SEDIMENTATION CONTROL GUIDELINES AND THE 2004 STORMWATER QUALITY MANUAL.



LOCATION PLAN
1" = 500'

LIST OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	GENERAL SITE PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	100-YEAR FLOOD IMPACT PLAN
PMT-05	ELEVATIONS & SECTION PLAN
PMT-06	STAGING AND WATER HANDLING PLAN
PMT-07	PERMIT PLANTING PLAN

GUIDE FOR THE DEVELOPMENT OF THE PERMIT PLAN SET

TITLE SHEET:

1. LOCATION PLAN AT AN APPROPRIATE SCALE THAT SHOWS PROJECT LOCATION AND NEARBY CROSS STREETS (EX. 1"=500', 1"=1000'). FOR LATERAL PROJECTS, DEPICT BEGINNING AND END OF PROJECT (PROJECT LIMITS).
2. STATE OF CONNECTICUT MAP WITH TOWN SHADED AND CALL-OUT PROJECT LOCATION
3. GENERAL INDEX FOR "LIST OF DRAWINGS"
4. GENERAL NOTES 1-5 (ADDITIONAL NOTES MAY BE ADDED AS APPROPRIATE FOR THE PROJECT)
5. SIGNATURE BLOCK FOR CONSULTANT ENGINEER, IF NEEDED.
6. PLAN DATE (LATEST REVISION DATE OF SHEET. DATES DO NOT NEED TO MATCH WITHIN PLAN SET)

ON ALL OTHER PLAN VIEWS:

1. WETLAND LIMITS - BOLD (NOT SCREENED). IDENTIFY IF STATE AND/OR FEDERAL WETLANDS
2. SHOW CUT/FILL LIMITS AND SEDIMENTATION CONTROL SYSTEM (SCS). (SCS NOT NECESSARY ON PLANTING PLAN)
3. SHOW ORDINARY HIGH WATER (OHW) - BOLD
4. SHOW FLOOD LIMIT LINES ON PLAN VIEWS - BOLD. IDENTIFY AS APPLICABLE FOR PROJECT:
   A) CALCULATED ELEVATION ON A FEMA MAP GOVERNS. LABEL AS: "FEMA 100-YR FLOOD (CALCULATED)"
   B) OTHERWISE, SHOW HYDRAULIC ANALYSIS ELEVATION. LABEL AS: "EXISTING 100-YR FLOOD (CALCULATED)"
   C) IF NO CALCULATIONS WERE PERFORMED, SHOW MAPPED FEMA LINES. LABEL AS : "MAPPED FEMA 100-YR FLOOD LIMIT"
5. FLOW ARROWS (EXISTING AND PROPOSED)

NOTE: FOR ADDITIONAL ENVIRONMENTAL INFORMATION, SEE ALSO THE DEPARTMENT'S OFFICE OF ENVIRONMENTAL PLANNING'S PERMIT PLAN CHECKLIST FOUND ON THE WATER & NATURAL RESOURCES WEBPAGE UNDER "PERMITTING PROCESS"

BLOCK FOR CONSULTANT STAMP AND SIGNATURE

DESIGNED BY:

PLAN DATE: MARCH 13, 2019

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/10/2019

DESIGNER/DRAFTER:
CHECKED BY:
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\TITLE SHEET - Proj XXX.dgn

SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. XXXXX ROUTE X OVER A BROOK

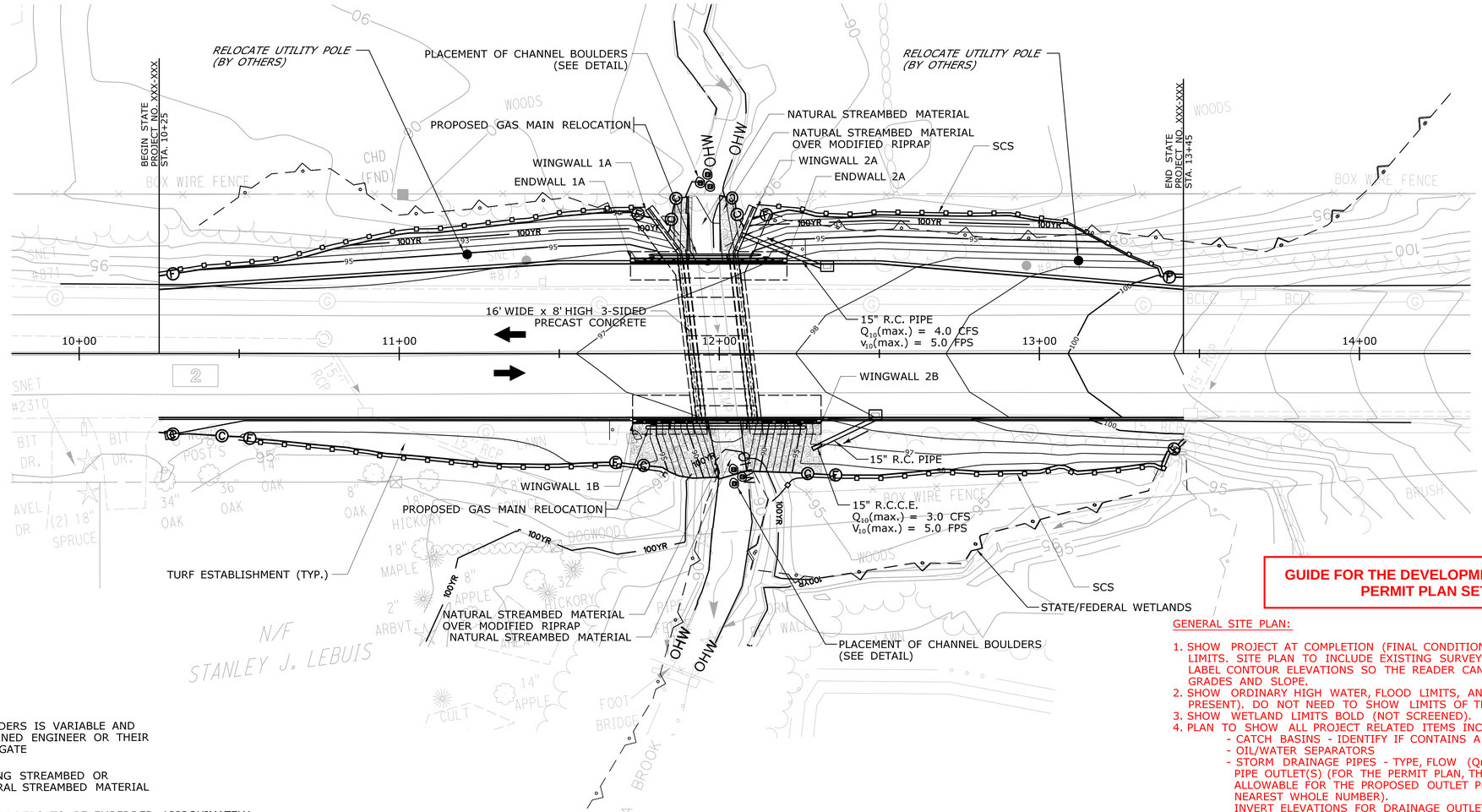
TOWN:
TOWN

DRAWING TITLE:
TITLE SHEET

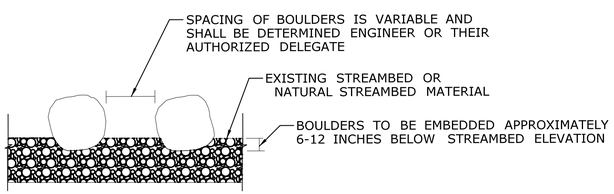
PROJECT NO.
XXX-XXX

DRAWING NO.
PMT-01

SHEET NO.



FOR THE FISHERIES DETAIL IN MICROSTATION FORMAT, CONTACT THE DOT EPC UNIT.
THE FISHERIES DETAIL IN PDF AND THE SPECIFICATION CAN BE FOUND ON THE OEP'S WATER & NOISE WEBPAGE



PLACEMENT OF CHANNEL BOULDERS
SECTION VIEW
N.T.S.

NOTE

1. ROUNDED BOULDERS APPROXIMATELY 2 FT. MIN. DIAMETER SHALL BE PLACED IN CLUSTERS, AS DIRECTED IN THE FIELD BY THE ENGINEER OR THEIR AUTHORIZED DELEGATE. SEE SPECIAL PROVISION "PLACEMENT OF CHANNEL BOULDER"

LEGEND

- 100YR — EXISTING 100-YEAR FLOOD (CALCULATED)
- OHW — ORDINARY HIGH WATER (OHW)
- STATE/FEDERAL WETLANDS
- SEDIMENTATION CONTROL SYSTEM (SCS)

GUIDE FOR THE DEVELOPMENT OF THE PERMIT PLAN SET

GENERAL SITE PLAN:

1. SHOW PROJECT AT COMPLETION (FINAL CONDITION) AND IDENTIFY PROJECT LIMITS. SITE PLAN TO INCLUDE EXISTING SURVEY AND PROPOSED CONTOURS. LABEL CONTOUR ELEVATIONS SO THE READER CAN CLEARLY UNDERSTAND GRADES AND SLOPE.
2. SHOW ORDINARY HIGH WATER, FLOOD LIMITS, AND FLOODWAY (IF PRESENT). DO NOT NEED TO SHOW LIMITS OF TEMPORARY DESIGN STORM.
3. SHOW WETLAND LIMITS BOLD (NOT SCREENED).
4. PLAN TO SHOW ALL PROJECT RELATED ITEMS INCLUDING (BUT NOT LIMITED TO):
   - CATCH BASINS - IDENTIFY IF CONTAINS A DEEP SUMP
   - OIL/WATER SEPARATORS
   - STORM DRAINAGE PIPES - TYPE, FLOW (Qmax) AND VELOCITY (Vmax) AT THE PIPE OUTLET(S) (FOR THE PERMIT PLAN, THE Q AND V ARE THE MAXIMUM ALLOWABLE FOR THE PROPOSED OUTLET PROTECTION - TRUNCATED TO THE NEAREST WHOLE NUMBER).
     INVERT ELEVATIONS FOR DRAINAGE OUTLETS AT RIPRAP APRONS ARE NOT REQUIRED.
   - CALL-OUT FOR OUTLET PROTECTION TYPE (RIPRAP APRON, SCOUR HOLE), AND RIPRAP/STREAMBED MATERIAL
   - CULVERT: CALL-OUT TYPE
   - FLOW ARROWS
   - TURF ESTABLISHMENT

   PROJECT FEATURES IN, OR REASONABLY ADJACENT TO, REGULATED AREAS SHOULD BE IDENTIFIED. CALL-OUTS DO NOT NEED TO BE EXACT D.O.T. PAY ITEM DESCRIPTION.
5. SHOW FISHERIES ENHANCEMENT (IF REQUIRED). INCLUDE NOTE "TO BE DIRECTED IN THE FIELD BY DEEP FISHERIES/OEP STAFF" (AS APPROPRIATE FOR PROJECT).
6. APPROPRIATE LEGEND
7. PLAN DATE (LATEST REVISION DATE OF SHEET. DATES DO NOT NEED TO MATCH WITHIN PLAN SET)

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JUNE 22, 2016

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/10/2019

DESIGNER/DRAFTER:
CHECKED BY:
SCALE IN FEET 0 20 40
SCALE 1"=20'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\GENERAL PLAN - Proj XXX.dgn

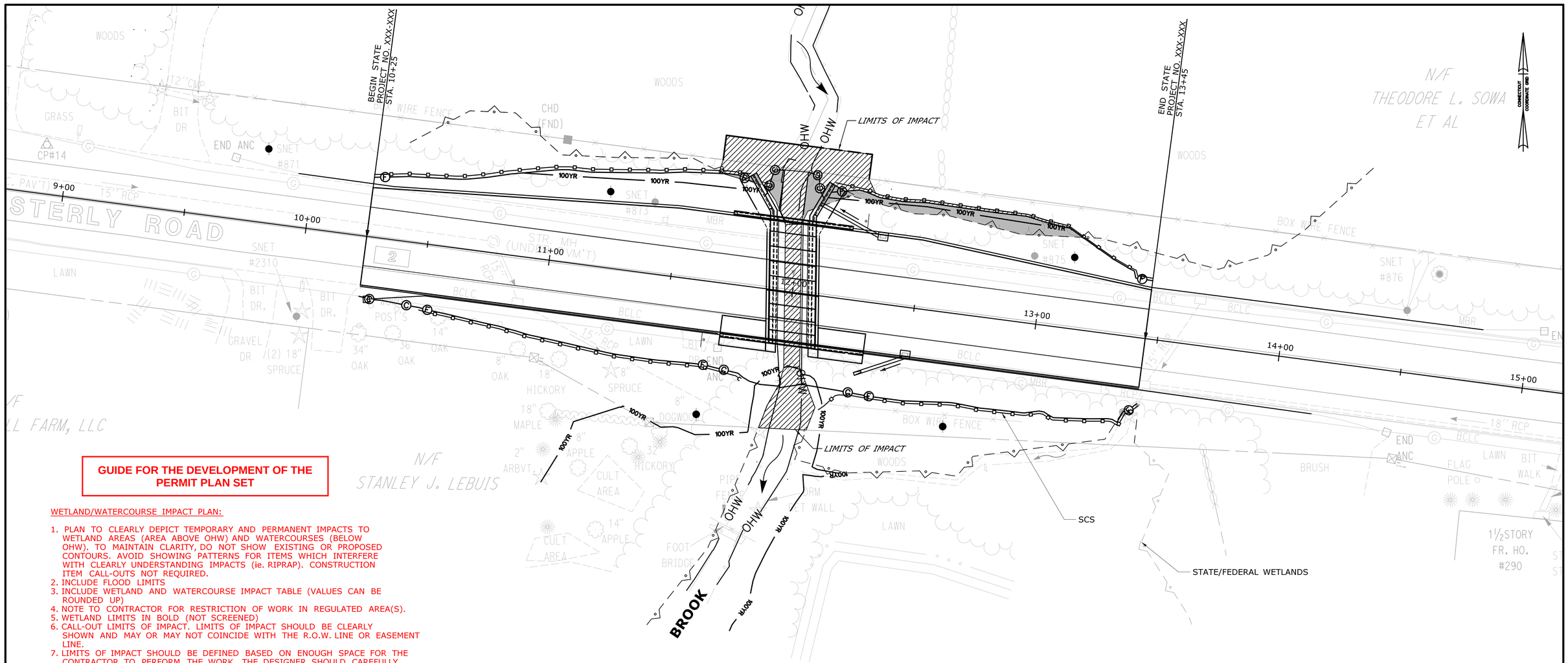
SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. XXXXX ROUTE X OVER A BROOK

TOWN: **TOWN**

DRAWING TITLE: **GENERAL SITE PLAN**

PROJECT NO. **XXX-XXX**
DRAWING NO. **PMT-02**
SHEET NO.



GUIDE FOR THE DEVELOPMENT OF THE PERMIT PLAN SET

WETLAND/WATERCOURSE IMPACT PLAN:

1. PLAN TO CLEARLY DEPICT TEMPORARY AND PERMANENT IMPACTS TO WETLAND AREAS (AREA ABOVE OHW) AND WATERCOURSES (BELOW OHW). TO MAINTAIN CLARITY, DO NOT SHOW EXISTING OR PROPOSED CONTOURS. AVOID SHOWING PATTERNS FOR ITEMS WHICH INTERFERE WITH CLEARLY UNDERSTANDING IMPACTS (ie. RIPRAP). CONSTRUCTION ITEM CALL-OUTS NOT REQUIRED.
2. INCLUDE FLOOD LIMITS
3. INCLUDE WETLAND AND WATERCOURSE IMPACT TABLE (VALUES CAN BE ROUNDED UP)
4. NOTE TO CONTRACTOR FOR RESTRICTION OF WORK IN REGULATED AREA(S).
5. WETLAND LIMITS IN BOLD (NOT SCREENED)
6. CALL-OUT LIMITS OF IMPACT. LIMITS OF IMPACT SHOULD BE CLEARLY SHOWN AND MAY OR MAY NOT COINCIDE WITH THE R.O.W. LINE OR EASEMENT LINE.
7. LIMITS OF IMPACT SHOULD BE DEFINED BASED ON ENOUGH SPACE FOR THE CONTRACTOR TO PERFORM THE WORK. THE DESIGNER SHOULD CAREFULLY CONSIDER HOW THE PROJECT MAY BE CONSTRUCTED AND PROVIDE ENOUGH AREA TO ALLOW THE CONTRACTOR THE ABILITY FOR MINOR VARIATION IN CONSTRUCTION METHODS. UTILITY IMPACTS AS PART OF THE PROJECT SHOULD ALSO BE EVALUATED.
8. CALL-OUT SCS
9. APPROPRIATE LEGEND AND INCLUDE NOTE REGARDING D.O.T. SUBMITTALS FOR REVISIONS
10. PLAN DATE (LATEST REVISION DATE OF SHEET. DATES DO NOT NEED TO MATCH WITHIN PLAN SET)

NOTE:

THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.

WETLAND IMPACT TABLE

	WETLAND SITE NO.	WETLAND IMPACTS	WATERCOURSE IMPACTS	TOTAL
PERMANENT IMPACTS	1	800 S.F (0.018 AC.)	0 S.F. (0 AC.)	800 S.F (0.018 AC.)
TEMPORARY IMPACTS	1	1,200 S.F. (0.028 AC.)	1,000 S.F. (0.023 A.C)	2,200 S.F. (0.051 AC.)
TOTAL IMPACTS		2,000 S.F (0.046 AC.)	1,000 S.F. (0.023 AC.)	3,000 S.F. (0.069 AC.)

CAN ROUND VALUES UP

LEGEND:

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO THE DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

- TEMPORARY WETLAND/WATERCOURSE IMPACT
- PERMANENT WETLAND/WATERCOURSE IMPACT
- SEDIMENTATION CONTROL SYSTEM (SCS)
- 100YR — EXISTING 100-YEAR FLOOD (CALCULATED)
- OHW — ORDINARY HIGH WATER (OHW)
- STATE/FEDERAL WETLANDS

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: MAY 23, 2019

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/19/2019

DESIGNER/DRAFTER:

CHECKED BY:

SCALE IN FEET
0 20 40
SCALE 1"=20'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\WETLAND PLAN - Proj XXXRev.dgn

SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE XXXXX ROUTE X OVER A BROOK

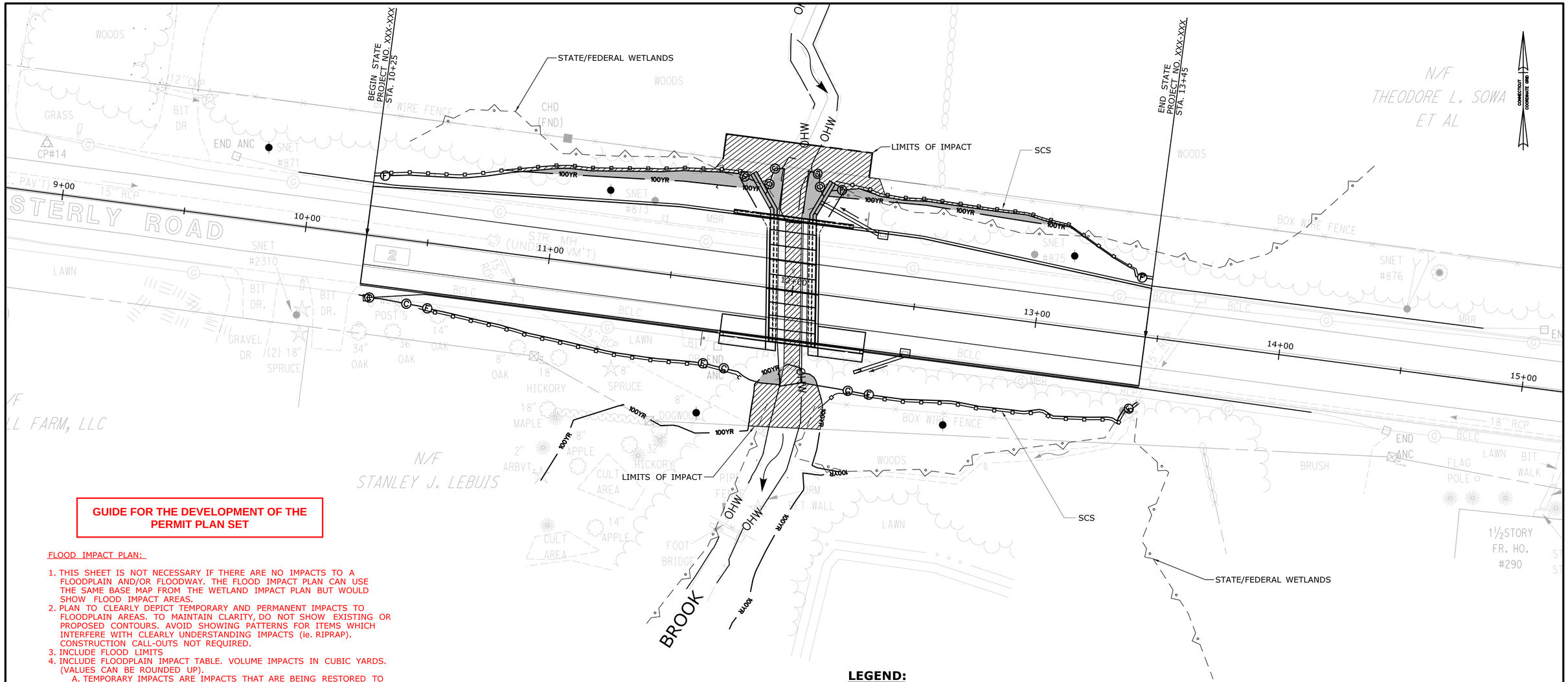
TOWN:
TOWN

DRAWING TITLE:
WETLAND/WATERCOURSE IMPACT PLAN

PROJECT NO.
XXX-XXX

DRAWING NO.
PMT-03

SHEET NO.



GUIDE FOR THE DEVELOPMENT OF THE PERMIT PLAN SET

FLOOD IMPACT PLAN:

1. THIS SHEET IS NOT NECESSARY IF THERE ARE NO IMPACTS TO A FLOODPLAIN AND/OR FLOODWAY. THE FLOOD IMPACT PLAN CAN USE THE SAME BASE MAP FROM THE WETLAND IMPACT PLAN BUT WOULD SHOW FLOOD IMPACT AREAS.
2. PLAN TO CLEARLY DEPICT TEMPORARY AND PERMANENT IMPACTS TO FLOODPLAIN AREAS. TO MAINTAIN CLARITY, DO NOT SHOW EXISTING OR PROPOSED CONTOURS. AVOID SHOWING PATTERNS FOR ITEMS WHICH INTERFERE WITH CLEARLY UNDERSTANDING IMPACTS (ie. RIPRAP). CONSTRUCTION CALL-OUTS NOT REQUIRED.
3. INCLUDE FLOOD LIMITS
4. INCLUDE FLOODPLAIN IMPACT TABLE. VOLUME IMPACTS IN CUBIC YARDS. (VALUES CAN BE ROUNDED UP).
   A. TEMPORARY IMPACTS ARE IMPACTS THAT ARE BEING RESTORED TO ORIGINAL GRADE.
   B. PERMANENT IMPACTS ARE IMPACTS THAT CONTAIN AN OVERALL CUT OR FILL IN THE ORIGINAL GRADE AND PLACEMENT OF PROJECT FEATURES. (IE. RIRPAP, ENDWALLS, ETC.)
5. LIMITS OF IMPACT SHOULD BE DEFINED BASED ON ENOUGH SPACE FOR THE CONTRACTOR TO PERFORM THE WORK. THE DESIGNER SHOULD CAREFULLY CONSIDER HOW THE PROJECT MAY BE CONSTRUCTED AND PROVIDE ENOUGH AREA TO ALLOW THE CONTRACTOR THE ABILITY FOR MINOR VARIATION IN CONSTRUCTION METHODS. UTILITY IMPACTS AS PART OF THE PROJECT SHOULD ALSO BE EVALUATED.
6. WETLAND LIMITS IN BOLD (NOT SCREENED)
7. CALL-OUT LIMITS OF IMPACT. THE LIMITS OF IMPACT SHOULD BE CLEARLY SHOWN AND MAY OR MAY NOT COINCIDE WITH THE R.O.W. LINE OR EASEMENT LINE
8. CALL-OUT SCS
9. APPROPRIATE LEGEND AND INCLUDE NOTE REGARDING D.O.T. SUBMITTALS FOR REVISIONS
10. PLAN DATE (LATEST REVISION DATE OF SHEET. DATES DO NOT NEED TO MATCH WITHIN PLAN SET)

100-YEAR FLOODPLAIN IMPACTS CUT AND FILL	
VOLUME IMPACTS	
EXCAVATION IN FEMA FLOODPLAIN	FILL IN FEMA FLOODPLAIN
180 C.Y.	160 C.Y.

CAN ROUND VALUES UP

LEGEND:

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO THE DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

- TEMPORARY IMPACT
- PERMANENT IMPACT
- SEDIMENTATION CONTROL SYSTEM (SCS)
- 100YR — EXISTING 100-YEAR FLOOD (CALCULATED)
- OHW — ORDINARY HIGH WATER (OHW)
- STATE/FEDERAL WETLANDS

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: MAY 23, 2019

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/10/2019

DESIGNER/DRAFTER:

CHECKED BY:

SCALE IN FEET
0 20 40
SCALE 1"=20'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FEMA IMPACT PLAN - Proj XXXRev.dgn

SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE XXXXX ROUTE X OVER A BROOK

TOWN:
TOWN

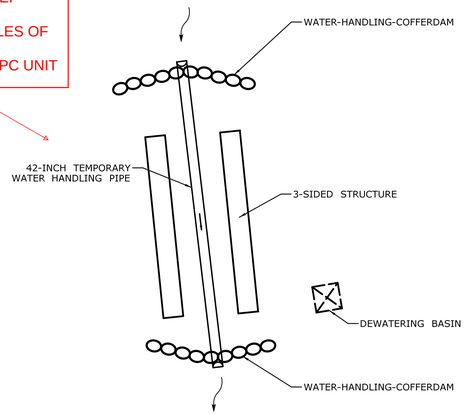
DRAWING TITLE:
100-YEAR FLOOD IMPACT PLAN

PROJECT NO.
XXX-XXX

DRAWING NO.
PMT-04

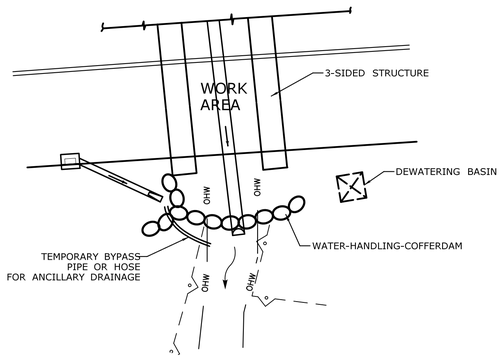
SHEET NO.

THESE WATER HANDLING SCHEMATICS ARE FOUND WITHIN THE GUIDE (SEE NOTE 2) ON THE OEP WEBPAGE. FOR MICROSTATION FILES OF THE SCHEMATICS CONTACT DOT'S EPC UNIT



PROPOSED WATER HANDLING SCHEMATIC FOR PROJECT

SEE NOTE 4



ANCILLARY STORM DRAINAGE NEAR WORK AREA

WATER HANDLING NOTES:

1. THE CONTRACTOR SHALL MAINTAIN WATER THROUGH THE TEMPORARY WATER HANDLING SYSTEM AS REQUIRED DURING CONSTRUCTION OF THE NEW STRUCTURE.

2. EQUIPMENT SHALL NOT BE PERMITTED IN THE STREAM WHEN TEMPORARY WATER HANDLING SYSTEM IS NOT IN PLACE WIHOUT APPROVAL FROM THE ENGINEER.

3. A DEWATERING BASIN SHALL BE ESTABLISHED OUTSIDE OF THE WETLAND LIMITS.

4. TEMPORARY WATER-HANDLING-COFFERDAM SHALL CONSIST OF AN APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND SHALL CONFORM TO PERMITS.

ANY WATER HANDLING SCHEME DEPICTED WITHIN THE DEPARTMENT'S 'HANDLING WATER TYPICAL SCHEMATICS' MAY BE UTILIZED UNLESS SPECIFICALLY PROHIBITED. A MEANS AND METHOD FOR WATER HANDLING SYSTEM SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL.

5. WATER HANDLING MEASURES SHALL NOT EXCEED IMPACT AREAS SHOWN ON THE WETLAND AND FLOODPLAIN IMPACT SHEETS OF THE PERMIT PLANS.

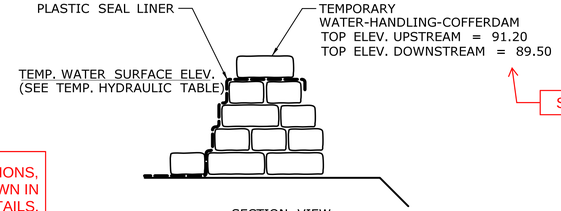
6. ANY STORM DRAINAGE DISCHARGING INTO A CONFINED WORK AREA FROM EXISTING OR PROPOSED STORM DRAINAGE PIPES SHALL BE DIVERTED OR PUMPED OUTSIDE THE CONFINED AREAS. PUMPS/PIPES SHALL BE SIZED BY THE CONTRACTOR TO HANDLE THE EXPECTED FLOWS AND BE DISCHARGED TO A STABLE LOCATION. THE CONTRACTOR SHALL SUBMIT THE MEANS AND METHODS OF HANDLING STORM DRAINAGE TO THE ENGINEER FOR APPROVAL AND IS INCLUDED AS PART OF WATER HANDLING.

7. IF A SHORT DURATION PUMP SYSTEM IS PROPOSED DURING LOW FLOW CONDITIONS, THE PUMP SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR AND HAVE A MINIMUM CAPACITY AS SHOWN IN THE TEMPORARY HYDRAULIC TABLE. PUMP SYSTEM PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

BASED UPON FIELD CONDITIONS, WORK DURATION, AND EXPECTED WEATHER CONDITIONS, THE ENGINEER MAY APPROVE A CONSTRUCTION WATER HANDLING PLAN WITH LOWER PUMPING FLOWS, PROVIDED THAT THIS INCLUDES A CONTINGENCY PLAN, WHICH MINIMIZES NEGATIVE IMPACTS AND SAFELY CONVEYS LARGER FLOWS THROUGH THE WORK AREA.

TIME-OF-YEAR BMP NOTE:

ANY "UNCONFINED" INSTREAM WORK WITHIN THE BROOK SHALL BE RESTRICTED TO THE PERIOD FROM JUNE 1 TO SEPTEMBER 30, INCLUSIVE.



SEE NOTE 6

SECTION VIEW

WATER-HANDLING-COFFERDAM SANDBAGS

(NOT TO SCALE)

VALUES, ELEVATIONS, AND DATES SHOWN IN THE TABLES, DETAILS, AND NOTES ARE DEPENDENT UPON PROJECT SPECIFICS

TEMPORARY HYDRAULIC DATA	
AVERAGE DAILY FLOW	3 CFS
AVERAGE SPRING FLOW	7 CFS
2-YEAR FREQUENCY DISCHARGE	46 CFS
SHORT-TERM, LOW FLOW PUMPING TEMPORARY DESIGN DISCHARGE = 2 x AVG DAILY	6 CFS
GRAVITY FLOW BYPASS PIPE TEMPORARY DESIGN DISCHARGE = 2-YEAR FREQUENCY	46 CFS
2-YEAR WATER SURFACE ELEVATION UPSTREAM	90.62 FT
2-YEAR WATER SURFACE ELEVATION DOWNSTREAM	89.02 FT

VALUES CALCULATED BY DOT'S HYDRAULICS AND DRAINAGE UNIT OR CONSULTANT

SUGGESTED SEQUENCE OF CONSTRUCTION

CONSTRUCTION OF THIS PROJECT WILL BE PERFORMED BY SHIFTING TWO-WAY TRAFFIC

STAGE 1:

1. COORDINATE WITH UTILITY COMPANIES TO RELOCATE UTILITY POLES AND GAS MAIN.
2. INSTALL SEDIMENTATION CONTROL SYSTEM (SCS).
3. PERFORM CLEARING AND GRUBBING, AS NECESSARY.
4. INSTALL TEMPORARY DEWATERING BASIN. BASIN TO REMAIN THROUGH ALL STAGES.
5. INSTALL TEMPORARY WATER HANDLING SYSTEM INCLUDING WATER-HANDLING-COFFERDAMS AND TEMPORARY PIPE. WATER HANDLING SYSTEM TO REMAIN THROUGH ALL STAGES.
6. CONSTRUCT TEMPORARY ROADWAY WIDENING.

STAGE 2:

1. SHIFT TRAFFIC TO SOUTH SIDE OF ROADWAY. EXCAVATE AND CONSTRUCT MICROPILES. CONSTRUCT FOOTINGS ON NORTH SIDE
2. PARTIALLY REMOVE TOP AND SIDE PORTIONS OF EXISTING CULVERT AND CONSTRUCT THE FINAL CHANNEL OUTSIDE THE TEMPORARY PIPE.
3. ERECT NORTH SIDE PRECAST CONCRETE THREE-SIDED FRAME UNITS. COMPLETE WINGWALLS 1A AND 2A. CONSTRUCT ENDWALLS AND BACKFILL. COMPLETE NORTH SIDE ROADWAY CONSTRUCTION.
4. COORDINATE WITH EXISTING OVERHEAD UTILITIES TO RELOCATE POLES AS SHOWN PRIOR TO STAGE 3 CONSTRUCTION. COORDINATE WITH UTILITY TO RELOCATE THEIR FACILITIES TO THE PERMANENT LOCATION ALONG THE OUTSIDE OF WINGWALLS 1A AND 2A.

STAGE 3:

1. SHIFT TRAFFIC TO NORTH SIDE OF THE ROADWAY.
2. EXCAVATE AND CONSTRUCT MICROPILES. CONSTRUCT FOOTINGS ON SOUTH SIDE.
3. PARTIALLY REMOVE TOP AND SIDE PORTIONS OF EXISTING CULVERT AND CONSTRUCT THE FINAL CHANNEL OUTSIDE THE TEMPORARY PIPE.
4. ERECT PRECAST CONCRETE THREE-SIDED FRAME UNITS ON SOUTH SIDE. COMPLETE ENDWALLS AND BACKFILL. COMPLETE STAGE 3 ROADWAY CONSTRUCTION.
5. REMOVE THE REMAINING PORTION OF THE EXISTING CULVERT AND COMPLETE CHANNEL CONSTRUCTION.
6. REMOVE TEMPORARY WATER HANDLING SYSTEM. INSTALL CHANNEL BOULDERS.
7. COORDINATE WITH GAS COMPANY TO RELOCATE FACILITIES TO THE PERMANENT LOCATION ALONG THE SOUTH FASCIA.
8. PERFORM FINAL GRADING AND INSTALL PLANTINGS.
9. REMOVE EROSION AND SEDIMENTATION CONTROL UPON PERMANENT STABILIZATION.

STAGING/WATER HANDLING PLAN:

1. THE PURPOSE OF THIS PLAN SHEET IS TO SHOW THE REGULATING AGENCY THE GENERAL INTENDED SCHEME FOR CONSTRUCTION/STAGING OF THE PROJECT AND ALSO THE METHOD(S) INTENDED FOR WATER HANDLING. IT IS EXPECTED THAT MORE DETAILED PLANS WILL BE DEVELOPED FOR FINAL CONTRACT PLANS AND PLANS WILL ALSO BE SUBMITTED BY THE CONTRACTOR. IT IS INTENDED THAT THESE PERMIT PLANS BE GENERAL ENOUGH THAT LATER CONTRACT PLANS CAN COMPLY WITH THE INTENT OF THE PERMIT PLANS.
2. A "HANDLING WATER TYPICAL SCHEMATICS" GUIDE HAS BEEN DEVELOPED AND CAN BE FOUND ON THE OEP WEBPAGE. THE GUIDE IS ALSO REFERENCED IN AN ENGINEERING DIRECTIVE ED-2019-6 WHICH INCLUDES ADDITIONAL HANDLING WATER INFORMATION.
3. SEQUENCING STATES THE BASIC INFORMATION FOR CONSTRUCTION OF THE PROJECT AS IT RELATES TO REGULATED AREAS. INCLUDE GENERAL WORK IN WETLANDS/WATERCOURSES, INSTALLATION OF ANY FISHERIES ENHANCEMENTS, AND INSTALLATION OF PLANTINGS AS REQUIRED FOR THE PROJECT.
4. CALL-OUT SIZE OF TEMPORARY PIPE FOR GRAVITY FLOW (OR MINIMUM CHANNEL WIDTH, IF APPLICABLE). CALL-OUT THE PUMP HOSE IF PUMPING (WITHOUT HOSE SIZE). LOCATION OF PUMP NOT REQUIRED.
5. SHOW DEWATERING BASIN (IF NEEDED).
6. INCLUDE WATER-HANDLING-COFFERDAM DETAIL AND THE PROPOSED TOP OF WATER-HANDLING -COFFERDAM ELEVATION. TOP ELEVATION TO BE EQUAL TO OR SLIGHTLY ABOVE TEMPORARY DESIGN STORM ELEVATION PER PROJECT SPECIFICS. A MAXIMUM ELEVATION MAY BE SPECIFIED DEPENDING ON PROJECT REQUIREMENTS. (DETAIL IS NOT REQUIRED TO BE SANDBAGS)
7. INCLUDE TEMPORARY HYDRAULIC DATA TABLE AS APPROPRIATE FOR PROJECT.
8. INCLUDE ANY REGULATORY TIME-OF-YEAR (TOY) RESTRICTION AS A NOTE ON THE PLAN.
9. STATE ANY PROHIBITED ACTIONS, IE. WATER HANDLING TECHNIQUES NOT ALLOWED
10. PLAN DATE (LATEST REVISION DATE OF SHEET. DATES DO NOT NEED TO MATCH WITHIN PLAN SET)

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: SEPTEMBER 9, 2019

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 9/11/2019

DESIGNER/DRAFTER:

CHECKED BY:

SCALE IN FEET
0 20 40
SCALE 1"=20'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\Staging Plan - Proj XXXrev - SchematicWH.dgn

SIGNATURE/ BLOCK:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. XXXXX ROUTE X OVER A BROOK

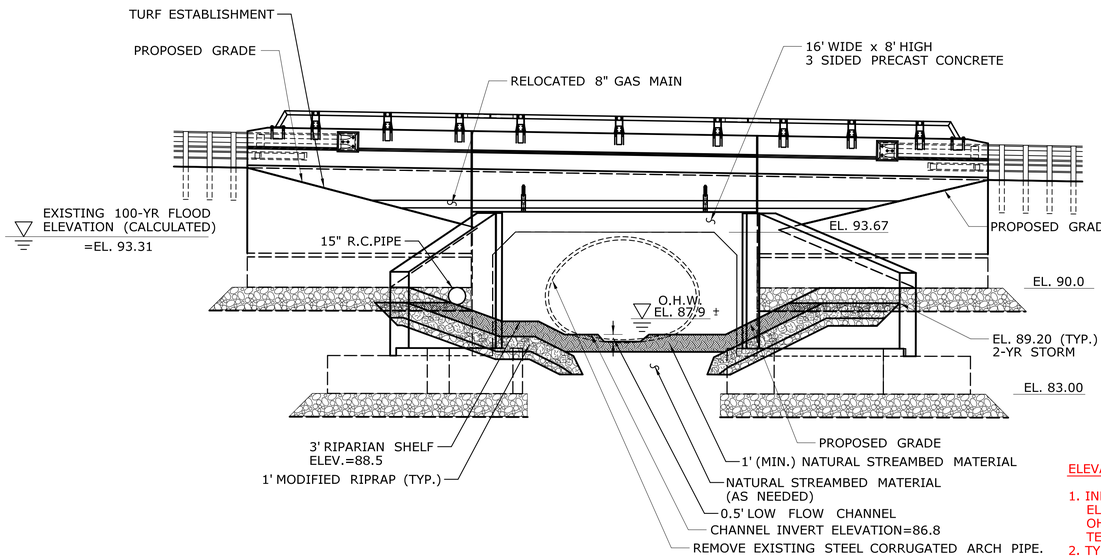
TOWN:
TOWN

DRAWING TITLE:
STAGING/ WATER HANDLING PLAN

PROJECT NO.
XXX-XXX

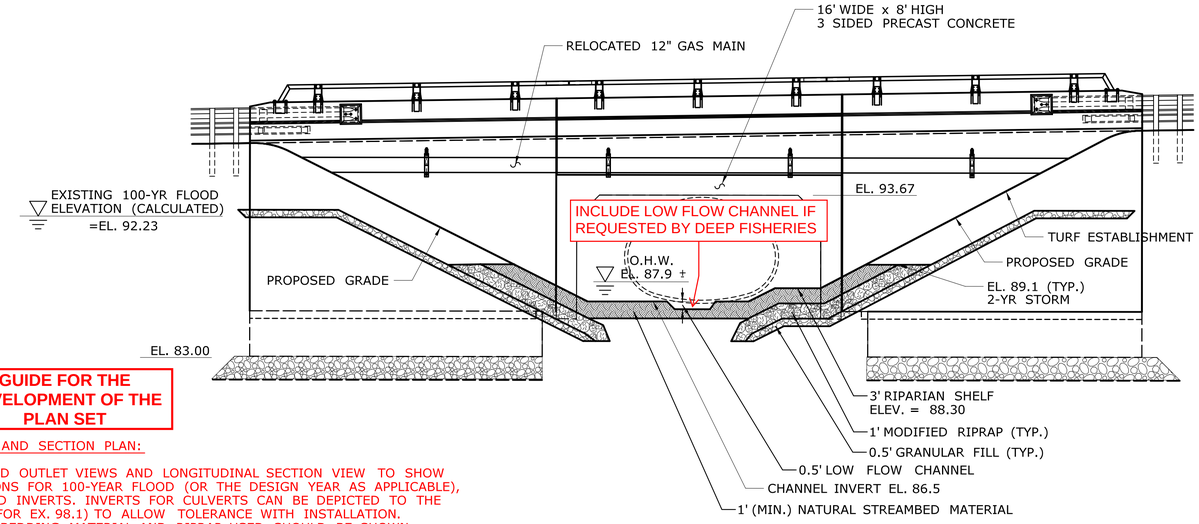
DRAWING NO.
PMT-06

SHEET NO.



INLET ELEVATION

1" = 5'



OUTLET ELEVATION

1" = 5'

GUIDE FOR THE DEVELOPMENT OF THE PLAN SET

ELEVATION AND SECTION PLAN:

1. INLET AND OUTLET VIEWS AND LONGITUDINAL SECTION VIEW TO SHOW ELEVATIONS FOR 100-YEAR FLOOD (OR THE DESIGN YEAR AS APPLICABLE), OHW, AND INVERTS. INVERTS FOR CULVERTS CAN BE DEPICTED TO THE TENTH (FOR EX. 98.1) TO ALLOW TOLERANCE WITH INSTALLATION.
2. TYPE OF BEDDING MATERIAL AND RIPRAP USED SHOULD BE SHOWN AND DEPTH CALLED OUT. FOR NATURAL STREAMBED MATERIAL, IDENTIFY TOP ELEVATION FOR PLACEMENT (TYPICALLY UP TO THE 2-YR STORM).
3. SHOW OPENNESS RATIO AND BANKFULL WIDTH CALCULATIONS (AS APPROPRIATE FOR PROJECT)
4. IF A WILDLIFE SHELF IS REQUIRED, CALL-OUT AND SPECIFY DIMENSIONS, ELEVATION, AND MATERIAL.
5. HYDRAULIC DATA TABLE AS APPROPRIATE FOR PROJECT.
6. SHEET DOES NOT NEED TO SHOW UNNECESSARY CONSTRUCTION NOTES AND COMMENTS. SHEET SHOULD SHOW ITEMS PERTINENT TO ENVIRONMENTAL PERMITTING.
7. PLAN DATE (LATEST REVISION DATE OF SHEET. DATES DO NOT NEED TO MATCH WITHIN PLAN SET)

OPENNESS RATIO (OR):

OR = OPEN AREA / CULVERT LENGTH
OR = 104 s.f / 51.5 ft. = 2.0 ft.
2.0 ft. > 0.82 ft. (RECOMMENDED MINIMUM)

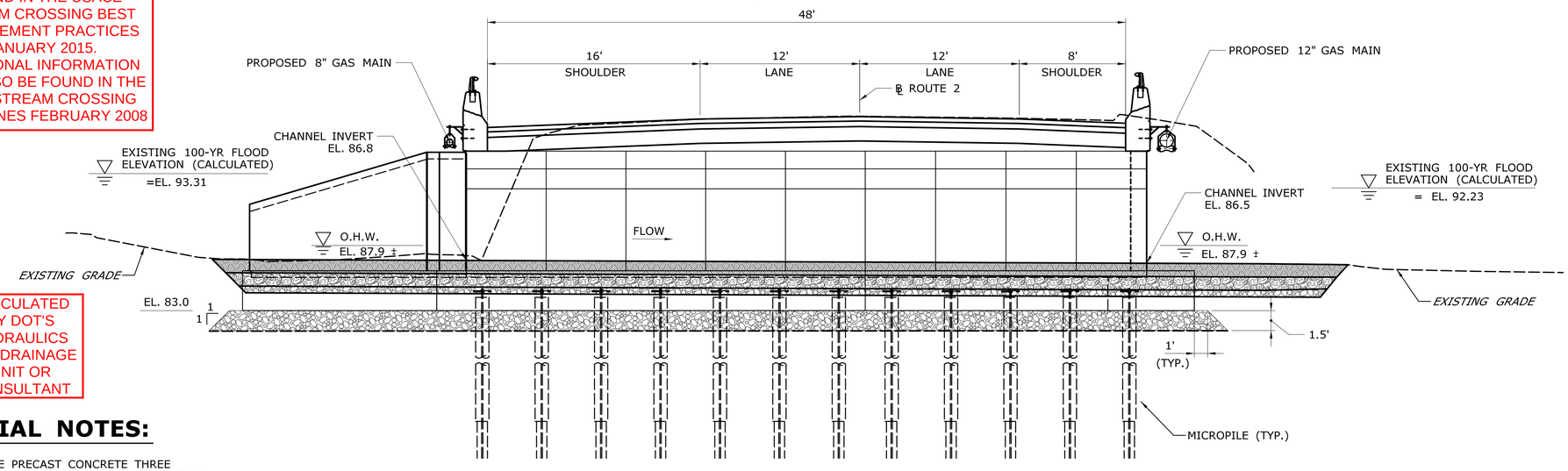
BANKFULL WIDTH (BFW):

BFW = 10 ft. EXISTING UPSTREAM (OHW)
1.2 x BFW = 12 ft.
12 ft. < 16 ft. PROPOSED CULVERT SPAN

INFORMATION FOR OPENNESS RATIO AND BANKFULL WIDTH CAN BE FOUND IN THE USACE STREAM CROSSING BEST MANAGEMENT PRACTICES JANUARY 2015. ADDITIONAL INFORMATION CAN ALSO BE FOUND IN THE DEEP STREAM CROSSING GUIDELINES FEBRUARY 2008

HYDRAULIC DATA	
DRAINAGE AREA	1.59 SQ. MILE
DESIGN FREQUENCY	100 YEAR
DESIGN DISCHARGE	521 CFS
AVERAGE DAILY FLOW ELEVATION	87.76 FT. ±
100-YR UPSTREAM DESIGN WATER SURFACE ELEVATION	93.31 FT. ±
100-YR DOWNSTREAM DESIGN WATER SURFACE ELEVATION	92.23 FT. ±

CALCULATED BY DOT'S HYDRAULICS AND DRAINAGE UNIT OR CONSULTANT



CULVERT SECTION

1" = 5'

NATIVE STREAMBED MATERIAL NOTES:

1. NATIVE STREAMBED MATERIAL EXCAVATED DURING THE PRECAST CONCRETE THREE SIDED RIGID FRAME INSTALLATION SHALL BE STOCKPILED AND THEN REPLACED WITHIN THE PRECAST CONCRETE THREE SIDED RIGID FRAME TO THE DEPTH SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH THE SPECIAL PROVISION "EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL."
2. ADDITIONAL STREAMBED MATERIAL, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION "SUPPLEMENTAL STREAMBED CHANNEL MATERIAL."
3. THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND PROTECTED WITH SEDIMENTATION CONTROL SYSTEM.

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JUNE 8, 2016

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/10/2019

DESIGNER/DRAFTER:

CHECKED BY:

SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\ElevationsRev - Proj XXX.dgn

SIGNATURE/
BLOCK:

PROJECT TITLE:
REPLACEMENT OF
BRIDGE NO. XXXXX
ROUTE X OVER A BROOK

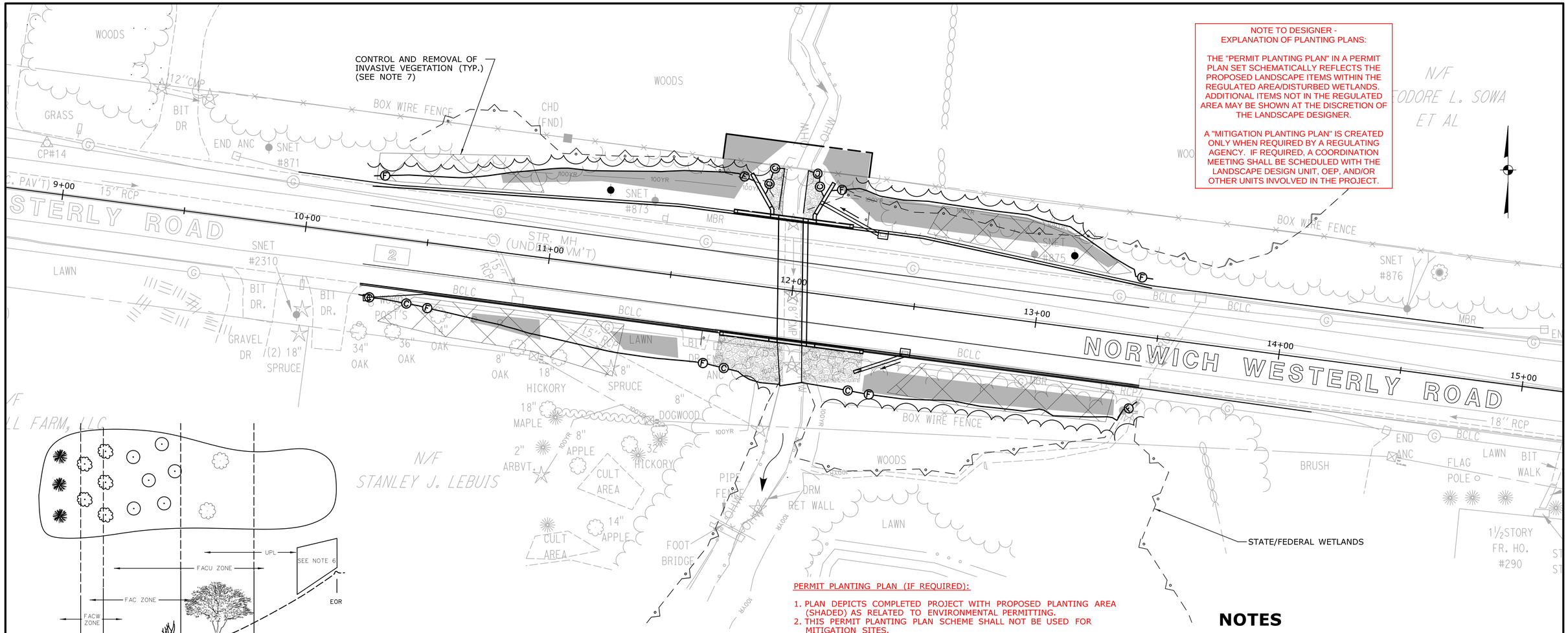
TOWN:
TOWN

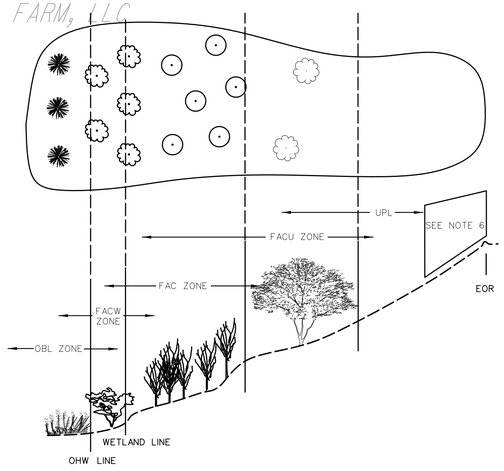
DRAWING TITLE:
ELEVATION AND
SECTION PLAN

PROJECT NO.
XXX-XXX

DRAWING NO.
PMT-05

SHEET NO.





SCHEMATIC PLANTING

NOTE TO DESIGNERS FOR PERMIT PLANTING PLAN:
- DESIGNERS TO PROVIDE OEP A PROJECT PLAN SHEET SHOWING THE SHADED AREA THAT DEPICTS THE AREA AVAILABLE FOR PLANTINGS. THE AMOUNT OF SHADED AREA IN S.F. IS ALSO NEEDED.
- OEP TO PROVIDE THE DESIGNERS WITH THE TABLE OF PROPOSED PLANTINGS FOR THE PROJECT, INCLUDING SPACING AND INDICATOR.

NOTE TO DESIGNER -
EXPLANATION OF PLANTING PLANS:

THE "PERMIT PLANTING PLAN" IN A PERMIT PLAN SET SCHEMATICALLY REFLECTS THE PROPOSED LANDSCAPE ITEMS WITHIN THE REGULATED AREA/DISTURBED WETLANDS. ADDITIONAL ITEMS NOT IN THE REGULATED AREA MAY BE SHOWN AT THE DISCRETION OF THE LANDSCAPE DESIGNER.

A "MITIGATION PLANTING PLAN" IS CREATED ONLY WHEN REQUIRED BY A REGULATING AGENCY. IF REQUIRED, A COORDINATION MEETING SHALL BE SCHEDULED WITH THE LANDSCAPE DESIGN UNIT, OEP, AND/OR OTHER UNITS INVOLVED IN THE PROJECT.

PERMIT PLANTING PLAN (IF REQUIRED):

1. PLAN DEPICTS COMPLETED PROJECT WITH PROPOSED PLANTING AREA (SHADED) AS RELATED TO ENVIRONMENTAL PERMITTING.
2. THIS PERMIT PLANTING PLAN SCHEME SHALL NOT BE USED FOR MITIGATION SITES.
3. INCLUDE PERMIT PLANT LIST TABLE AND DEPICT THE PLANT'S WETLAND RATING (INDICATOR).
4. PLAN MAY INCLUDE INVASIVE SPECIES CONTROL (REQUIRED FOR USACE PRECONSTRUCTION NOTIFICATION (PCN) PERMIT). USE APPROPRIATE HATCHING AND IDENTIFY IN LEGEND. IF ENTIRE PROJECT AREA IS TO BE TREATED, A NOTE AND CALL-OUT CAN BE ADDED IN PLACE OF CROSS HATCHING ENTIRE PROJECT LIMITS.
5. ADD NOTES 1-7 ON PLAN SHEET (NOTE 7 ONLY IF REQUIRED FOR PROJECT). MORE NOTES MAY BE NEEDED AS APPROPRIATE FOR THE PROJECT.
6. ANY PLANTINGS REQUIRED OUTSIDE THE DEPARTMENT'S R.O.W. SHALL BE VETTED THROUGH THE OFFICE OF RIGHTS OF WAY TO ENSURE THE RIGHT TO PLANT IS INCLUDED IN THE EASEMENT AGREEMENT.
7. DESIGNER SHOULD BE AWARE OF PROJECT SLOPE PROTECTION AREAS (IE. RIPRAP, GRAVEL SLOPES) AND STEEP GRADING AREAS.
8. DESIGNER SHOULD ENSURE IN THE LAYOUT THAT NO TREES (TALLER THAN 10' AT MATURITY) ARE PLACED UNDER UTILITY LINES.

NOTES

1. PLANTINGS ON THIS SHEET ARE FOR ENVIRONMENTAL PERMITTING. ANY SUBSTITUTIONS TO THE PERMIT PLANTINGS SHALL BE COORDINATED WITH THE DEPARTMENT'S OFFICE OF ENVIRONMENTAL PLANNING (OEP).

2. PROPOSED PLANTINGS TO BE FIELD LOCATED BY CTDOT OEP OR THEIR DESIGNATED REPRESENTATIVE.

3. WOOD CHIP MULCH SHALL NOT BE PLACED IN THE WETLAND AREA. ABOVE THE WETLAND AREA THE WOOD CHIP MULCH IS TO BE PLACED AROUND THE PLANTINGS, PER STANDARD DETAIL.

4. DISTURBED AREAS BELOW THE WETLAND LIMIT SHALL BE SEEDED WITH WETLAND GRASS ESTABLISHMENT. DISTURBED AREAS ABOVE THE WETLAND LIMIT SHALL BE SEEDED WITH CONSERVATION SEEDING FOR SLOPES, OR OTHER SEED MIX AS SPECIFIED. ALL AREAS SHALL BE RESTORED.

5. ALL PLANT MATERIAL SHALL BE STRAIGHT SPECIES. NO VARIETIES OR CULTIVARS WILL BE ACCEPTED.

6. NO PLANTINGS TO BE PLACED IN MOW AREA

7. AREA TO BE TREATED FOR INVASIVES AND PROPERLY REPARED FOR FINAL PLANTING, SEEDING, AND RESTORATION.

PERMIT PLANT LIST

MUST BE NATIVE PLANTS ON PERMIT PLANS SET. SIZES TO MATCH DOT MASTER BID ITEM LIST

BOTANICAL NAME	COMMON NAME	SIZE	QTY.	SPACING	WETLAND INDICATOR
Alnus incana	Speckled Alder	4'-5' Ht. B.B.	12	Field Located	FACW
Amelanchier canadensis	Service-Berry	4'-5' Ht. B.B.	12	Field Located	FAC
Acer Rubrum	Red Maple	3'-4' Ht. Whips B.R.	20	Field Located	FAC
Cornus racemosa	Gray Dogwood	2'-3' Ht. B.B.	22	Field Located	FAC
Cornus alba	Red Osier	24"-36" Ht. B.B.	22	Field Located	FACW
Rhus aromatica	Fragrant Sumac	18"-24" Ht. B.B.	40	Field Located	UPL
		TOTAL	128		
Control and Removal of Invasive Vegetation					
Conservation Seeding for Slopes					
Wetland Grass Establishment					
Wood Chip Mulch					

CONTROL AND REMOVAL OF INVASIVE VEGETATION SEE NOTE 7

AREA TO BE RESTORED WITH PLANTINGS

TOTAL PLANTS = 128
TOTAL PLANTING AREA = 3,230 S.F.

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: MAY 22, 2019

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 8/29/2019

DESIGNER/DRAFTER:

CHECKED BY:

SCALE IN FEET
0 20 40
SCALE 1"=20'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\LDS_Project XXX_PMT_07Rev.DGN

SIGNATURE/BLOCK:
OFFICE OF ENGINEERING

APPROVED BY:

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. XXXXX
ROUTE X OVER A BROOK

TOWN:
TOWN

DRAWING TITLE:
PERMIT PLANTING PLAN

PROJECT NO.
XXX-XXX

DRAWING NO.
PMT-07

SHEET NO.