ABBREVIATIONS

Bit.	BITUMINOUS
C.I.P.	CAST IRON PIPE
Conc.	CONCRETE
CPEP	CORRUGATED POLYETHYLENE PIPE
EL.	ELEVATION
INV.	INVERT
N.I.C.	NOW OR FORMERLY
PEFE	POLYETHYLENE FLARED END
RCFE	REINFORCED CONCRETE FLARED END
RCP	REINFORCED CONCRETE PIPE
T.F.	TOP OF FRAME
T.O.W.	TOP OF WALL
TYP.	TYPICAL
WSEL	WATER SURFACE ELEVATION

LEGEND

Existing		PROPOSED
100	INDEX CONTOUR	100
98	INTERMEDIATE CONTOUR	98
× 99.0	SPOT ELEVATION	99.00
	CONIFEROUS TREE	
	DECIDUOUS TREE	
	SHRUB	
	LANDSCAPING	
	LAWN EDGE	
	WATER EGDE	
WF 1	WETLAND FLAG	
	WETLAND LINE	
	SIGN	
	BOULDER	
	GUIDERAIL	
	STORM PIPE	
	UTILITY BOX	
	SURVEY CONTROL	
	STREET LINE	
	PROPERTY LINE	
	PERMANENT EASEMENT	
	TEMPORARY EASEMENT	
	BORING	
	PLANTING	1
	CLEARING	
	REMOVE TREE	
	PROTECT TREE	
	SEDIMENT BARRIER	
	RIPRAP	
	BROOK BOTTOM MATERIAL	
	CONTAINMENT BOOM	
	APPROXIMATE SOILS BOUNDARY LOCATION LINE	

PERMITTING
OCTOBER 2025

TOWN OF
EAST HADDAM
CONNECTICUT

REPLACEMENT OF BRIDGE No. 040026 BEEBE ROAD OVER PINE BROOK

BOARD OF SELECTMEN
IRENE M. HAINES, FIRST SELECTWOMAN
ERIK W. DILL
TANYA M. BOURGOIN

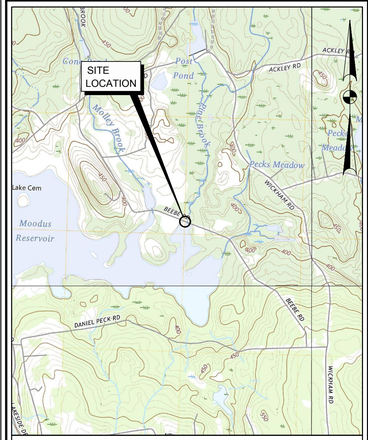
PUBLIC WORKS DIRECTOR
MICHELE M. VELEZ

SCHEDULE OF DRAWINGS

SHEET No.	TITLE
1 OF 15	COVER SHEET
2 OF 15	TOPOGRAPHIC SURVEY
3 OF 15	DEMOLITION PLAN
4 OF 15	ROADWAY PLAN
5 OF 15	ROADWAY PROFILE
6 OF 15	ROADWAY CROSS-SECTIONS
7 OF 15	EROSION AND SEDIMENT CONTROL AND WATER HANDLING PLAN
8 OF 15	EROSION AND SEDIMENT CONTROL NOTES & DETAILS
9 OF 15	MAINTENANCE AND PROTECTION OF TRAFFIC PLAN
10 OF 15	SITE DETAILS AND NOTES
11 OF 15	CULVERT GENERAL PLAN
12 OF 15	CULVERT AND PARAPET DETAILS
13 OF 15	WINGWALL DETAILS
14 OF 15	FIGURES FOR DATES ON BRIDGE PARAPETS
15 OF 15	ENVIRONMENTAL IMPACT PLAN

CTDOT STANDARD DRAWINGS

SHEET No.	TITLE
HW-822_01	TEMPORARY PRECAST CONCRETE BARRIER CURB
HW-910_12b	MERRITT PARKWAY GUIDERAIL HARDWARE DETAILS
HW-911_05	MERRITT PARKWAY GUIDERAIL ANCHORS
TR-1208_02	METAL SIGN POSTS AND SIGN MOUNTING DETAILS
TR-1220_01	SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS
TR-1220_02	CONSTRUCTION SIGN SUPPORTS AND CHANNELIZING DEVICES



PROJECT LOCATION MAP
SCALE: 1" = 2,000'
2,000 1,000 0 2,000 4,000
(SCALE IN FEET)

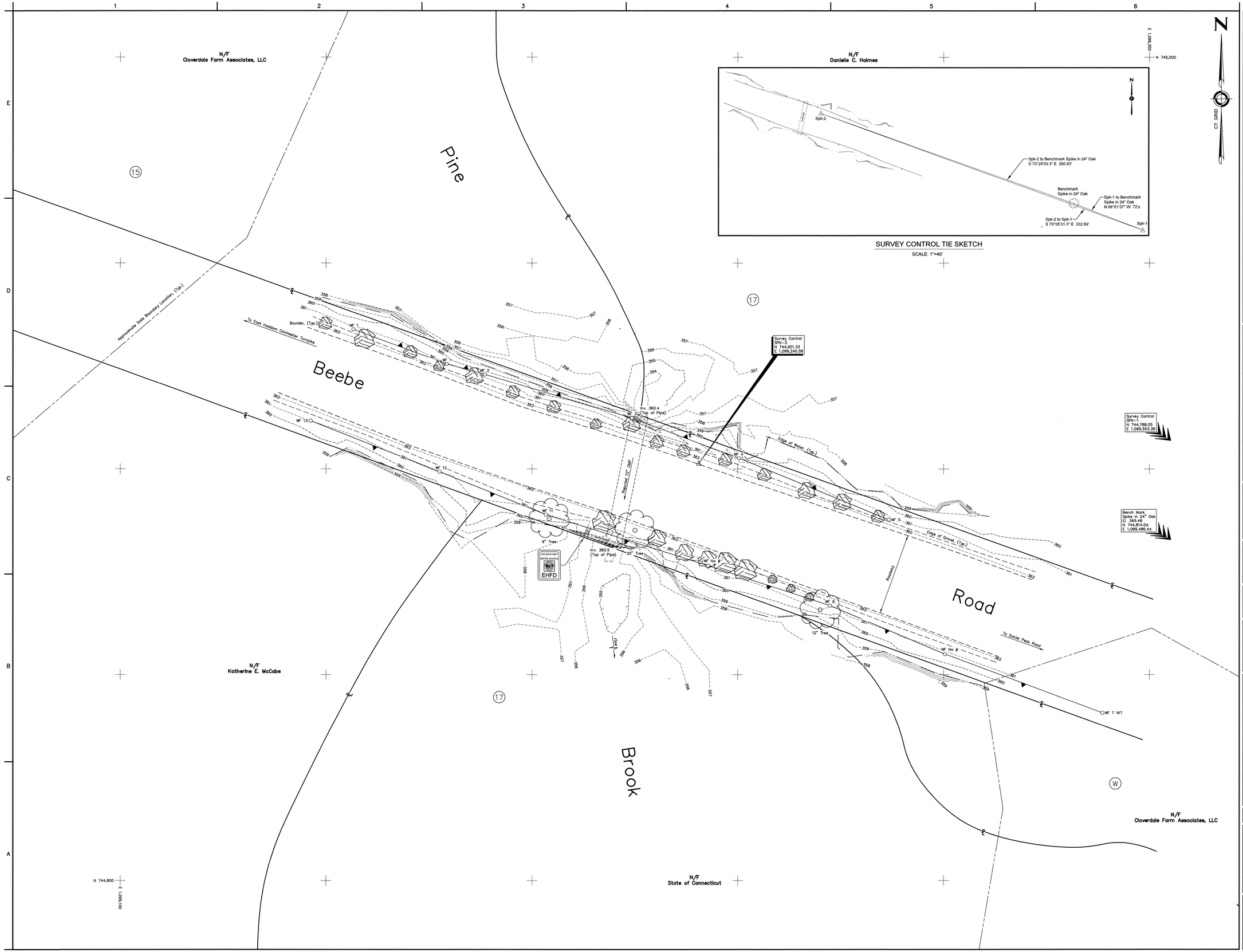
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Jacobson Consulting Civil and Environmental Engineers Since 1872

STATE OF CONNECTICUT · REGISTERED PROFESSIONAL ENGINEER · LICENSED

J. Howard Pfrommer, P.E.
2025.10.10
08:01:04-04'00'

J. HOWARD PFROMMER, P.E.
CT REGISTRATION No. 15871

PROJECT NO. 06980014 - PROJECT NAME: REPLACEMENT OF BRIDGE No. 040026 BEEBE ROAD OVER PINE BROOK - PERMITTING - DATE: OCTOBER 2025



NOTES:

1. THIS SURVEY WAS PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300B-1 THROUGH 20-300B-20 AS A CLASS T-2 TOPOGRAPHIC SURVEY (VERTICAL ACCURACY CLASS V-2). BOUNDARY LINES DEPICTED HEREON ARE BASED ON RECORDS RESEARCH, OTHER MAPS AND LIMITED FIELD SURVEY AND DO NOT REPRESENT A BOUNDARY OPINION.
2. UNDERGROUND OR OVERHEAD ENCROACHMENTS, STRUCTURES, AND SYSTEMS WERE NOT INVESTIGATED AS A PART OF THIS SURVEY, EXCEPT AS SHOWN OR NOTED HEREON.
3. STONE WALLS AND/OR FENCES MAY DEVIATE SLIGHTLY FROM PRINCIPAL COURSES SHOWN.
4. PERIPHERAL PROPERTY LINES OF ADJACENT OWNERS ARE SHOWN FOR GENERAL INFORMATIONAL PURPOSES ONLY AND ARE NOT TO BE CONSTRUED AS BEING ACCURATELY LOCATED OR SHOWN HEREON.
5. HORIZONTAL DATUM IS NAD83. VERTICAL DATUM IS NAVD88.
6. PARCELS ARE SHOWN ON TAX MAPS 67 AND 68.
7. WETLANDS BOUNDARIES WERE DELINEATED IN THE FIELD BY RICHARD SNARSKI, CPSS, AND LOCATED BY FIELD SURVEY.
8. PARCELS MAY BE SUBJECT TO SUCH RIGHTS AND EASEMENTS AS APPEAR OF RECORD OR ARE APPARENT BY USAGE. THIS SURVEY REFLECTS ENCUMBRANCES NOTICED AND DISCOVERED BY THE SURVEYOR IN THE NORMAL COURSE OF WORK AND DOES NOT NECESSARILY SHOW EVERY POSSIBLE CONDITION AFFECTING THE PROPERTY. EASEMENTS, SERVITUDES, LOCAL ORDINANCES, ZONING AND OTHER LEGAL ENCUMBRANCES MAY EXIST WHICH ARE NOT REFLECTED HEREON. CONSULT A TITLE ATTORNEY TO DISCOVER ALL LEGAL ENCUMBRANCES, IF ANY, ATTACHED TO THIS PROPERTY.

THIS DRAWING IS INTENDED TO BE USED FOR INFORMATION AND REVIEW PURPOSES ONLY AND IS NOT INTENDED TO BE USED FOR CONSTRUCTION.

GRAPHIC SCALES

10 8 6 4 2 0 10 20
SCALE: 1"=10'

40 30 20 10 0 40 80
SCALE: 1"=40'

TOWN OF EAST HADDAM, CONNECTICUT

REPLACEMENT OF BRIDGE No. 040026 BEEBE ROAD OVER PINE BROOK

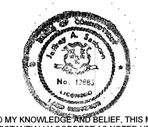
TOPOGRAPHIC SURVEY

PERMITTING

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TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

JEFFREY A. SANBORN, L.S.
CT REGISTRATION No. 12883

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REVISIONS

No.	DESCRIPTION	DATE

DATE:	OCTOBER 2025
SCALE:	1"=10'
PROJECT No.:	09590014
CADD FILE:	09590014SP
FIELD BOOK:	-
DRAWN:	CEB
CHECKED:	-

SHEET No.:

2 OF 15

N/F
Cloverdale Farm Associates, LLC

N/F
Danielle C. Holmes

N 745,000
E 1,099,350

N

CT. GRID

Pine

Beebe

Road

Brook

PERMANENT EASEMENT, (TYP.)

TEMPORARY EASEMENT

REMOVE ROADWAY AND BASE MATERIALS TO 16" DEPTH

REMOVE CULVERT PIPE

REMOVE TREE, (TYP.)

REMOVE AND RELOCATE SIGN

REMOVE BOULDER, (TYP.)

To East Haddam Colchester Turnpike

To Daniel Peck Road

Survey Control
SPK-2
N 744,901.33
E 1,099,240.58

Survey Control
SPK-1
N 744,788.05
E 1,099,553.39

Bench Mark
Spike in 24" Oak
El. 365.48
N 744,814.04
E 1,099,486.44

Inv. 360.4
(Top of Pipe)

Inv. 360.5
(Top of Pipe)

Edge of Water, (Typ.)

Top of Gravel, (Typ.)

6" Tree

20" Tree

12" Tree

EHFD

N/F
Katherine E. McCabe

N/F
Cloverdale Farm Associates, LLC

N/F
State of Connecticut

N 744,800
E 1,099,100

NOTES:

1. SEE SHEET 10 FOR PROJECT NOTES.

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GRAPHIC SCALE
10 8 6 4 2 0 10 20
SCALE: 1"=10'

TOWN OF EAST HADDAM, CONNECTICUT

REPLACEMENT OF BRIDGE No. 040026 BEEBE ROAD OVER PINE BROOK

DEMOLITION PLAN

PERMITTING

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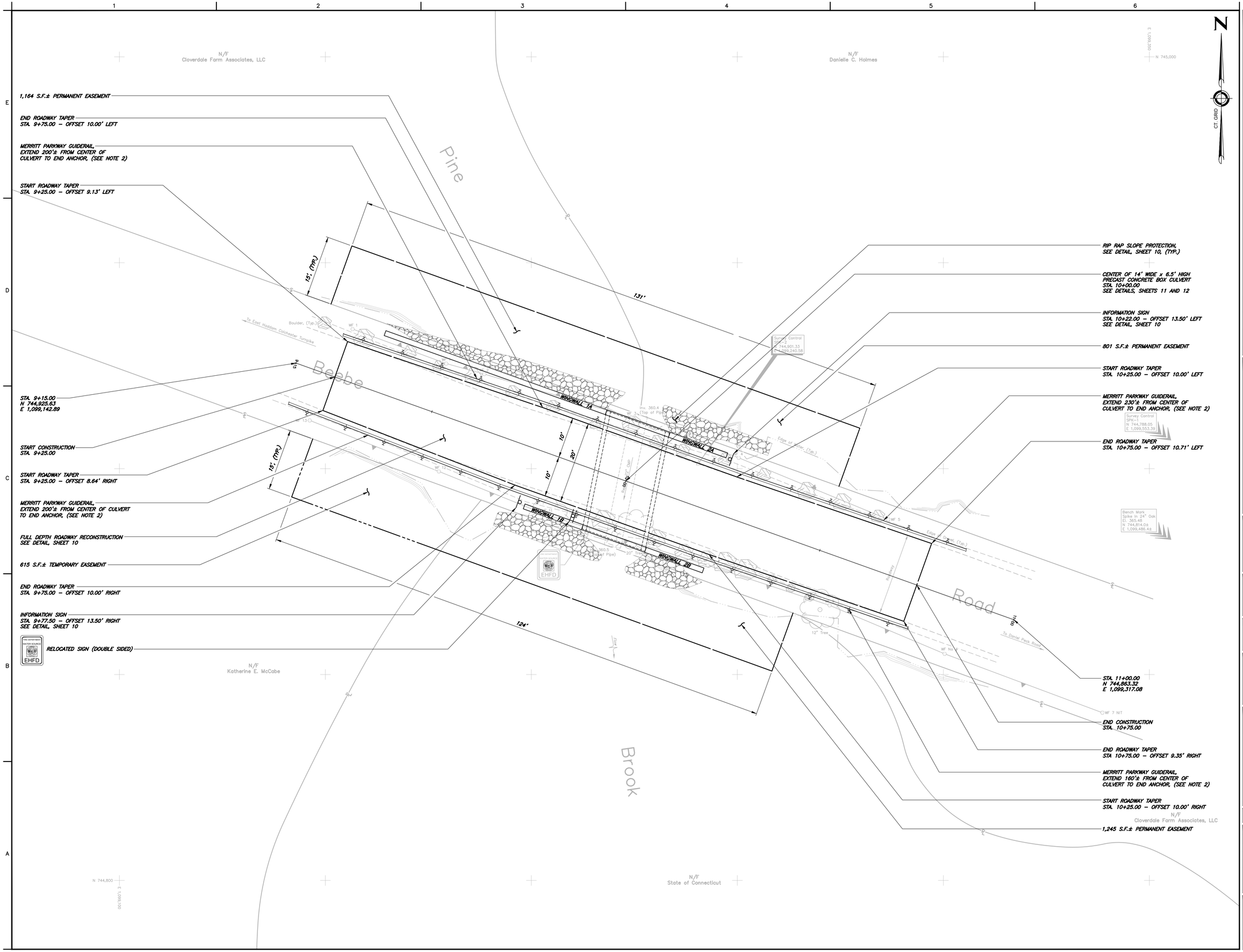
REVISIONS

No.	DESCRIPTION	DATE

DATE:	OCTOBER 2025
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PROJECT No.:	09590014
CADD FILE:	09590014SP
DESIGNED:	JRE
DRAWN:	CEB
CHECKED:	-

SHEET No.:

3 OF 15



NOTES:

1. SEE SHEET 10 FOR PROJECT NOTES.
2. MERRITT PARKWAY GUIDERAIL SHALL BE INSTALLED WITH 7.5 FT LONG POSTS. CONTRACTOR SHALL PHYSICALLY STAKE EACH GUIDERAIL FLARE AND END ANCHOR FOR TOWN AND ENGINEER REVIEW AND APPROVAL PRIOR TO GUIDERAIL INSTALLATION.

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GRAPHIC SCALE

10 8 6 4 2 0 10 20

SCALE: 1"=10'

TOWN OF EAST HADDAM, CONNECTICUT

REPLACEMENT OF BRIDGE No. 040026 BEEBE ROAD OVER PINE BROOK

ROADWAY PLAN

PERMITTING

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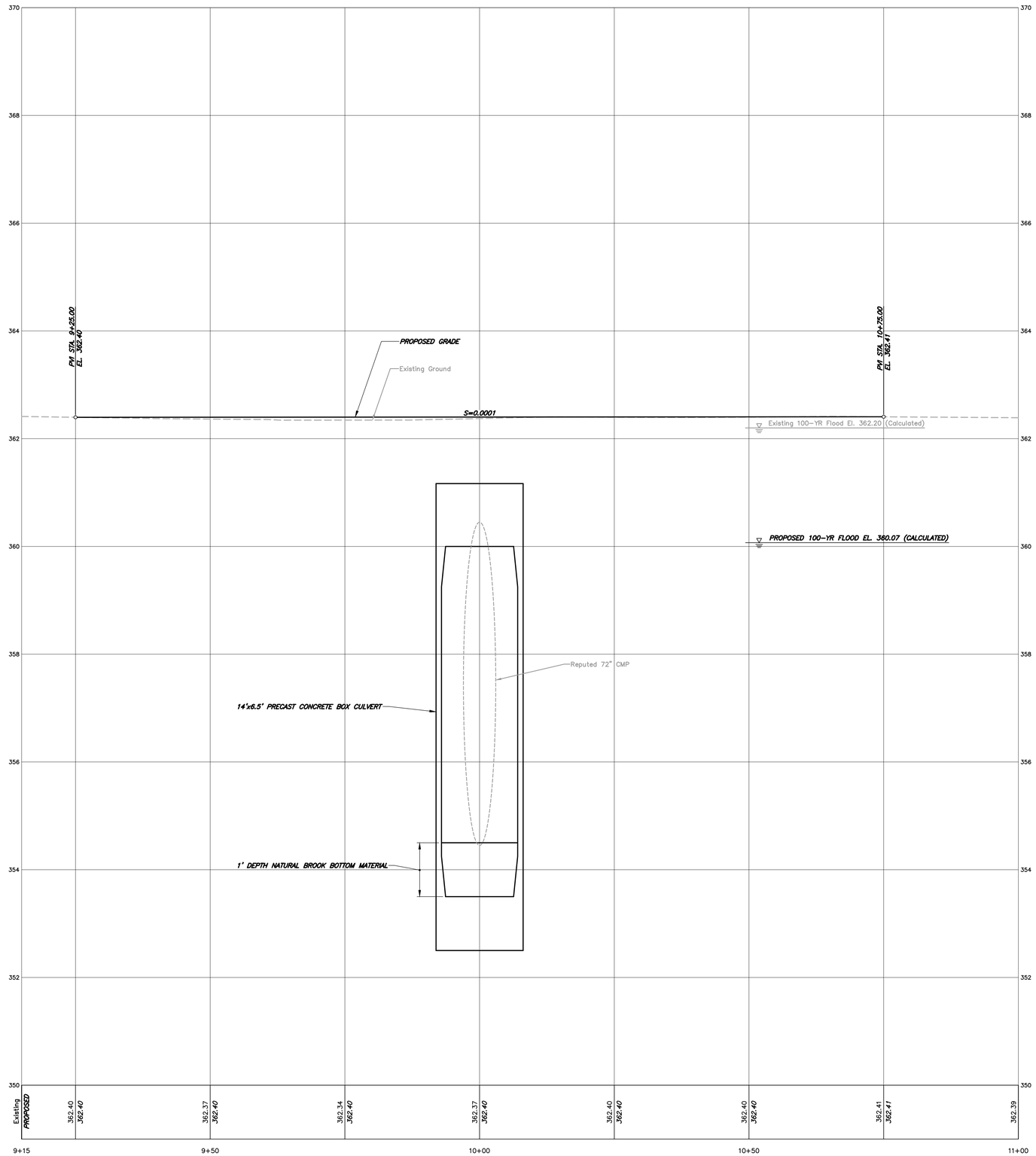
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DESIGNED:	JRE
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SHEET No.:

4 OF 15



NOTES:

1. SEE SHEET 10 FOR PROJECT NOTES.

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GRAPHIC SCALES

10 8 6 4 2 0 10 20

HORIZONTAL SCALE: 1"=10'

1.0 0.8 0.6 0.4 0.2 0 1 2

VERTICAL SCALE: 1"=1'

TOWN OF
EAST HADDAM,
CONNECTICUT

REPLACEMENT OF BRIDGE No. 040026 BEEBE ROAD OVER PINE BROOK

ROADWAY PROFILE

PERMITTING

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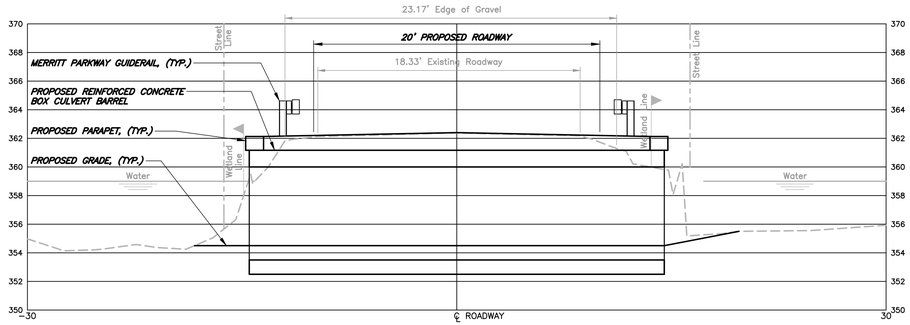
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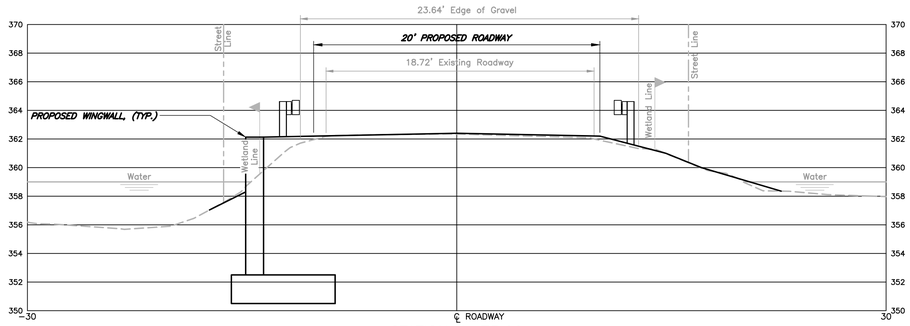
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SCALE:	1"=10' H 1"=1' V
PROJECT No.:	09590014
CADD FILE:	09590014SP
DESIGNED:	JRE
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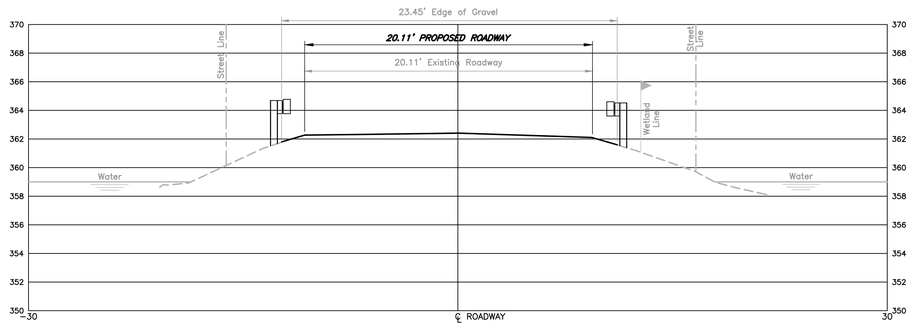
5 OF 15



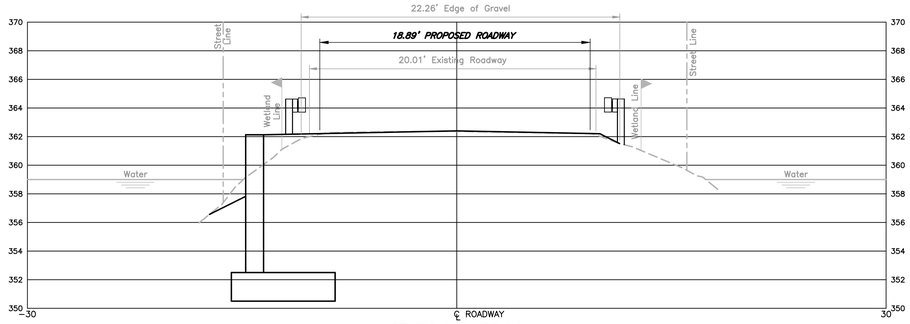
STATION 10+00.00



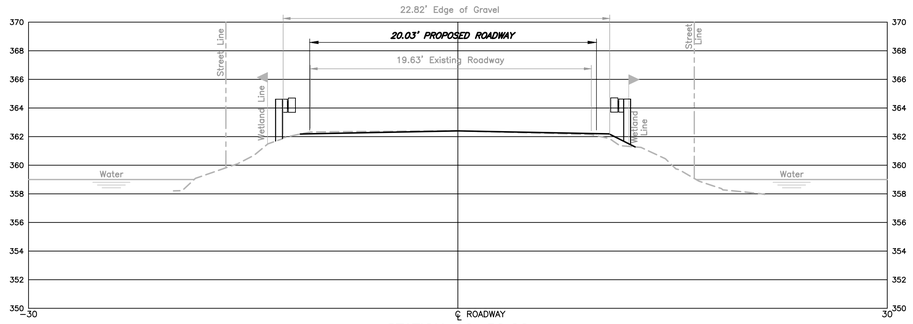
STATION 9+75.00



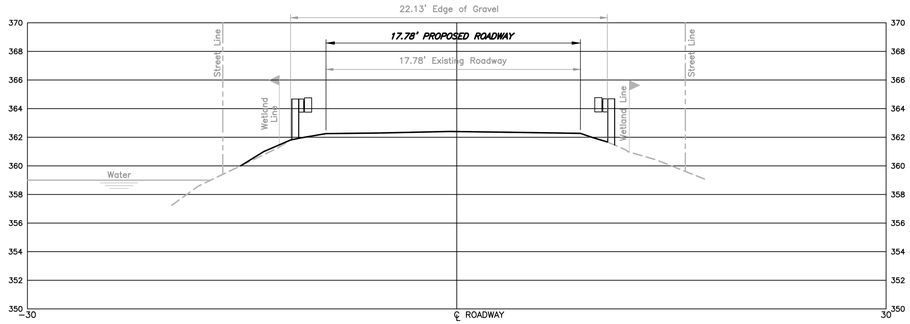
STATION 10+75.00



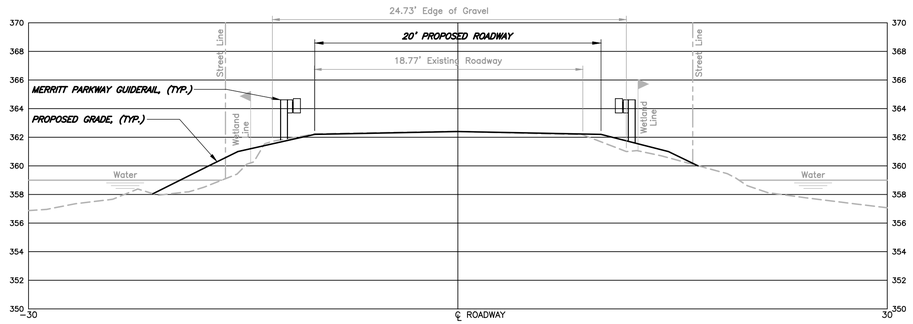
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STATION 10+50.00



STATION 9+25.00



STATION 10+25.00

NOTES:

1. SEE SHEET 10 FOR PROJECT NOTES.

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GRAPHIC SCALE

5 4 3 2 1 0 5 10

SCALE: 1"=5'

TOWN OF
EAST HADDAM,
CONNECTICUT

REPLACEMENT OF BRIDGE No. 040026 BEEBE ROAD OVER PINE BROOK

ROADWAY CROSS-SECTIONS

PERMITTING

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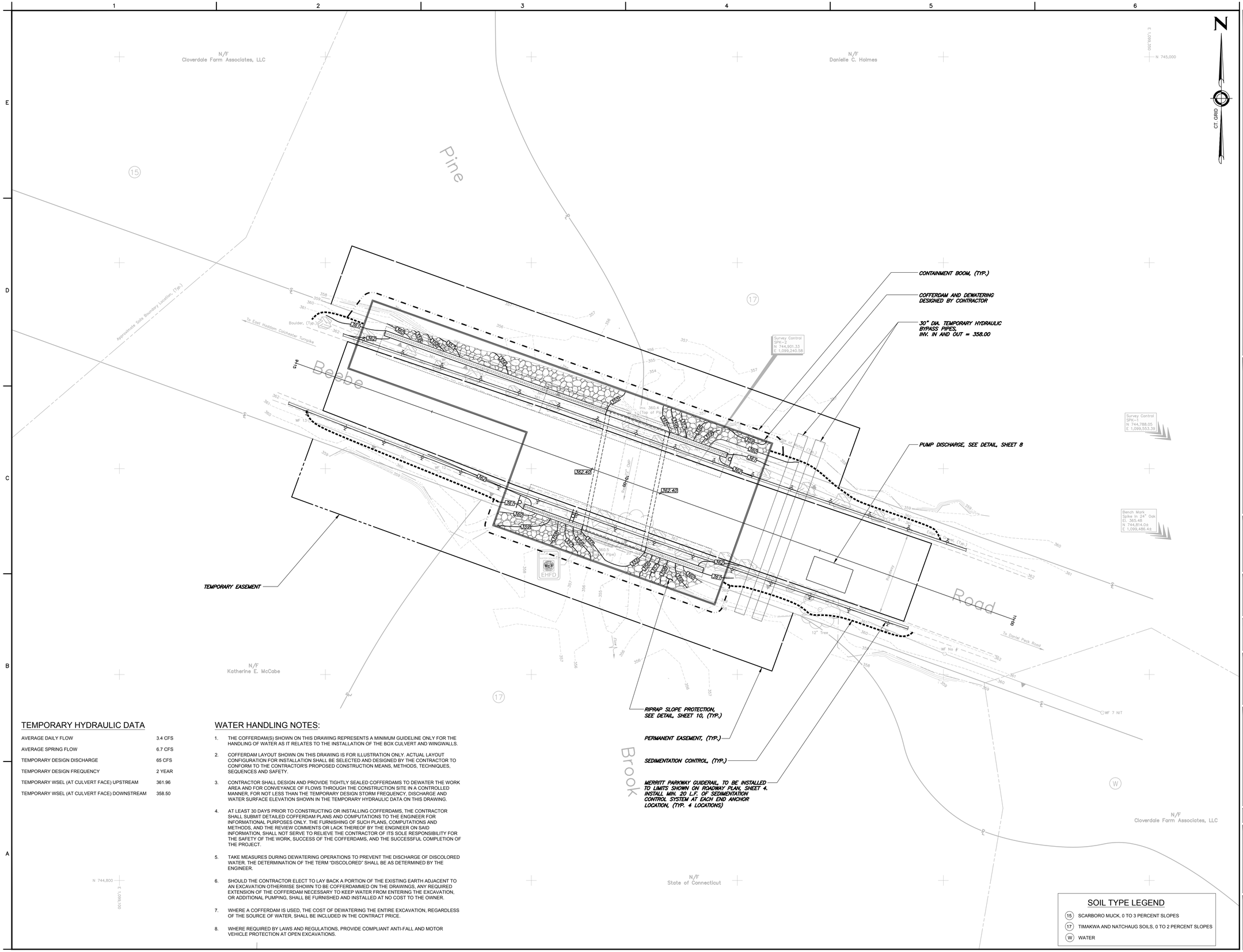
REVISIONS

No.	DESCRIPTION	DATE

DATE:	OCTOBER 2025
SCALE:	1"=5' H 1"=5' V
PROJECT No.:	09590014
CADD FILE:	09590014SP
DESIGNED:	JRE
DRAWN:	CEB
CHECKED:	-

SHEET No.:

6 OF 15



TEMPORARY HYDRAULIC DATA

AVERAGE DAILY FLOW	3.4 CFS
AVERAGE SPRING FLOW	6.7 CFS
TEMPORARY DESIGN DISCHARGE	65 CFS
TEMPORARY DESIGN FREQUENCY	2 YEAR
TEMPORARY WSEL (AT CULVERT FACE) UPSTREAM	361.96
TEMPORARY WSEL (AT CULVERT FACE) DOWNSTREAM	358.50

WATER HANDLING NOTES:

1. THE COFFERDAM(S) SHOWN ON THIS DRAWING REPRESENTS A MINIMUM GUIDELINE ONLY FOR THE HANDLING OF WATER AS IT RELATES TO THE INSTALLATION OF THE BOX CULVERT AND WINGWALLS.
2. COFFERDAM LAYOUT SHOWN ON THIS DRAWING IS FOR ILLUSTRATION ONLY. ACTUAL LAYOUT CONFIGURATION FOR INSTALLATION SHALL BE SELECTED AND DESIGNED BY THE CONTRACTOR TO CONFORM TO THE CONTRACTOR'S PROPOSED CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND SAFETY.
3. CONTRACTOR SHALL DESIGN AND PROVIDE TIGHTLY SEALED COFFERDAMS TO DEWATER THE WORK AREA AND FOR CONVEYANCE OF FLOWS THROUGH THE CONSTRUCTION SITE IN A CONTROLLED MANNER, FOR NOT LESS THAN THE TEMPORARY DESIGN STORM FREQUENCY, DISCHARGE, AND WATER SURFACE ELEVATION SHOWN IN THE TEMPORARY HYDRAULIC DATA ON THIS DRAWING.
4. AT LEAST 30 DAYS PRIOR TO CONSTRUCTING OR INSTALLING COFFERDAMS, THE CONTRACTOR SHALL SUBMIT DETAILED COFFERDAM PLANS AND COMPUTATIONS TO THE ENGINEER FOR INFORMATIONAL PURPOSES ONLY. THE FURNISHING OF SUCH PLANS, COMPUTATIONS AND METHODS, AND THE REVIEW COMMENTS OR LACK THEREOF BY THE ENGINEER ON SAID INFORMATION, SHALL NOT SERVE TO RELIEVE THE CONTRACTOR OF ITS SOLE RESPONSIBILITY FOR THE SAFETY OF THE WORK, SUCCESS OF THE COFFERDAMS, AND THE SUCCESSFUL COMPLETION OF THE PROJECT.
5. TAKE MEASURES DURING DEWATERING OPERATIONS TO PREVENT THE DISCHARGE OF DISCOLORED WATER. THE DETERMINATION OF THE TERM "DISCOLORED" SHALL BE AS DETERMINED BY THE ENGINEER.
6. SHOULD THE CONTRACTOR ELECT TO LAY BACK A PORTION OF THE EXISTING EARTH ADJACENT TO AN EXCAVATION OTHERWISE SHOWN TO BE COFFERDAMMED ON THE DRAWINGS, ANY REQUIRED EXTENSION OF THE COFFERDAM NECESSARY TO KEEP WATER FROM ENTERING THE EXCAVATION, OR ADDITIONAL PUMPING, SHALL BE FURNISHED AND INSTALLED AT NO COST TO THE OWNER.
7. WHERE A COFFERDAM IS USED, THE COST OF DEWATERING THE ENTIRE EXCAVATION, REGARDLESS OF THE SOURCE OF WATER, SHALL BE INCLUDED IN THE CONTRACT PRICE.
8. WHERE REQUIRED BY LAWS AND REGULATIONS, PROVIDE COMPLIANT ANTI-FALL AND MOTOR VEHICLE PROTECTION AT OPEN EXCAVATIONS.

SOIL TYPE LEGEND

- (15) SCARBORO MUCK, 0 TO 3 PERCENT SLOPES
- (17) TIMAKWA AND NATCHAUG SOILS, 0 TO 2 PERCENT SLOPES
- (W) WATER

NOTES:

1. SEE SHEET 10 FOR PROJECT NOTES.

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GRAPHIC SCALE
10 8 6 4 2 0 10 20
SCALE: 1"=10'

TOWN OF
EAST HADDAM,
CONNECTICUT

REPLACEMENT OF BRIDGE No. 040026 BEEBE ROAD OVER PINE BROOK

EROSION AND SEDIMENT CONTROL AND WATER HANDLING PLAN

PERMITTING

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REVISIONS

No.	DESCRIPTION	DATE

DATE:	OCTOBER 2025
SCALE:	1"=10'
PROJECT No.:	09590014
CADD FILE:	09590014SP
DESIGNED:	JRE
DRAWN:	CEB
CHECKED:	-

SHEET No.:
7 OF 15

PROJECT NARRATIVE:

THE SUBJECT PROJECT INCLUDES THE REPLACEMENT OF AN EXISTING CORRUGATED METAL PIPE CULVERT.

ADDRESS OF PROPOSED USE:

BEEBE ROAD OVER PINE BROOK
EAST HADDAM, CT

OWNER'S AGENT:

MICHELLE M. VALEZ, DIRECTOR OF PUBLIC WORKS
TOWN OF EAST HADDAM.
P.O. BOX 385
MOODUS, CT 06467
Tel. 860-873-5023

CONSTRUCTION SCHEDULING:

IT IS PROPOSED TO BEGIN CONSTRUCTION IN SUMMER AND TO ACHIEVE SUBSTANTIAL COMPLETION IN THE FALL OF THE SAME YEAR. IN GENERAL, THE SEQUENCE FOR SITE CONSTRUCTION AND SITE STABILIZATION MAY BE AS FOLLOWS:

1. INSTALL TEMPORARY ROADWAY DETOUR AND TRAFFIC CONTROLS, AND THEN CLOSE BEEBE ROAD.
2. CLEAR, AND THEN INSTALL SEDIMENT AND EROSION CONTROLS.
3. REMOVE BOULDERS AND GRUB STUMPS.
4. INSTALL TEMPORARY WATER DIVERSION PIPES.
5. DRIVE SHEETING.
6. EXCAVATE BETWEEN COFFERDAM AND EXISTING CULVERT BARREL, DOWN TO BARREL INVERT.
7. INSTALL TEMPORARY DEWATERING SUMPS IN COFFERDAM AS NEEDED.
8. REMOVE EXISTING BARREL.
9. EXCAVATE BETWEEN COFFERDAM TO SUBGRADE.
10. INSTALL MUD SLAB AND BOX CULVERT FOOTINGS.
11. INSTALL PRECAST CONCRETE BOX CULVERT BARREL.
12. INSTALL MUD SLAB AND WINGWALL FOOTINGS.
13. INSTALL WINGWALL STEMS.
14. BACKFILL BARREL AND WINGWALL STEMS.
15. INSTALL RIPRAP ON SLOPES.
16. CUT SHEETING DOWN TO PROPOSED TOP ELEVATIONS.
17. INSTALL PARAPETS.
18. CONSTRUCT ROADWAY.
19. INSTALL TOPSOIL AND PLANTINGS.
20. INSTALL GUIDERAIL.
21. FERTILIZE, LIME, SEED, AND MULCH.
22. REMOVE TEMPORARY ROADWAY DETOUR AND TRAFFIC CONTROLS.
23. REMOVE EROSION CONTROLS ONCE VEGETATION HAS BEEN RE-ESTABLISHED.

THE CONTRACTOR SELECTED TO CONSTRUCT THIS PROJECT WILL BE RESPONSIBLE FOR IMPLEMENTATION OF SEDIMENT AND EROSION CONTROL MEASURES ON THIS SITE. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR WILL PROVIDE THE TOWN OF EAST HADDAM CONSERVATION COMMISSION OFFICIAL WITH THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE RESPONSIBLE PERSON. SHOULD ANY PROBLEMS OCCUR, THEN THE OWNER'S AGENT, MICHELE M. VALEZ, SHOULD BE CONTACTED AT 860-873-5023.

CONTINGENCY PLAN

A MINIMUM OF TWO WEEKS PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE THE OWNER'S AGENT AND THE TOWN ENGINEER WITH THE NAMES AND TELEPHONE NUMBERS OF THE RESPONSIBLE PERSONS TO BE CONTACTED IN THE EVENT OF AN EROSION AND/OR SEDIMENT CONTROL PROBLEM.

THE CONTRACTOR SHALL AT ALL TIMES KEEP SUFFICIENT ADDITIONAL SEDIMENTATION CONTROL FENCE AND/OR HAY BALES ON THE PROJECT SITE TO CONTROL UNFORESEEN EROSION AND/OR SEDIMENT PROBLEMS. IN THE EVENT OF A PROBLEM THE CONTRACTOR SHALL PROMPTLY STABILIZE THE PROBLEM AND CONTAIN ANY SEDIMENT AND THEN NOTIFY THE OWNER'S AGENT.

EROSION AND SEDIMENT CONTROL

THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF THE EROSION AND SEDIMENT CONTROL PLAN FOR THE PROJECT.

THE MINIMUM STANDARDS FOR ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE THOSE OUTLINED IN THE "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL", LATEST REVISION. ALTERNATIVE MEASURES, METHODS, MEANS AND TECHNIQUES MAY BE ALLOWED WITH THE PRIOR APPROVAL OF THE OWNER'S AGENT.

GENERAL GUIDELINES:

1. NO CONSTRUCTION ACTIVITY SHALL TAKE PLACE WITHIN AREAS DESIGNATED AS INLAND WETLANDS, WATERCOURSES OR FLOODPLAINS, DESIGNATED UPLAND REVIEW ZONES OR WITHIN STREAM CHANNEL ENCROACHMENT LINES WITHOUT ALL REQUIRED APPROVALS AND/OR PERMITS.
2. TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION.
3. ALL EROSION AND SEDIMENT CONTROLS SHALL BE MAINTAINED CONTINUOUSLY AND SHALL NOT BE REMOVED UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED.
4. THE CONTRACTOR SHALL LIMIT THE DISTURBANCE OF LAND TO THOSE AREAS SHOWN ON THE DRAWINGS AND SHALL TAKE REASONABLE CARE TO PROTECT AND PRESERVE EXISTING VEGETATION WITHIN THE LIMITS OF DISTURBANCE WHERE FEASIBLE.
5. WHERE PRACTICABLE, THE CONTRACTOR SHALL PLAN HIS CONSTRUCTION OPERATIONS SO AS TO LIMIT THE AREAS OF EXPOSED SOIL TO AREAS ACTIVELY UNDER CONSTRUCTION. THE CONTRACTOR SHALL TAKE REASONABLE CARE TO LIMIT THE PERIOD OF EXPOSURE OF DISTURBED AREAS. THE INSTALLATION OF PERMANENT VEGETATIVE MEASURES SHALL BE ACCOMPLISHED AS SOON AS IS PRACTICABLE.
6. ADEQUATE PROVISIONS SHALL BE TAKEN TO PROTECT ALL EXPOSED CUT AND FILL SLOPES FROM SURFACE WATER FLOW DAMAGE.
7. ALL MATERIAL FROM CLEARING AND GRUBBING OPERATIONS SHALL BE DISPOSED OF IN A LAWFUL MANNER.
8. WATER FROM DEWATERING OPERATIONS SHALL NOT BE DISCHARGED DIRECTLY TO ANY WETLAND OR WATERCOURSE. SUCH WATER SHALL BE DISCHARGED TO AN APPROVED SEDIMENT BASIN AND/OR FILTER DEVICE OR TO A STORM DRAINAGE SYSTEM ONLY WHEN APPROVED. NO WATER FROM DEWATERING OPERATIONS SHALL BE DISCHARGED INTO A SANITARY SEWER SYSTEM.
9. THE STORAGE, WASHING, FUELING AND MAINTENANCE OF EQUIPMENT AND VEHICLES SHALL TAKE PLACE IN DESIGNATED AREAS ONLY. IN THE EVENT OF A CONTAMINANT SPILL THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION OIL AND CHEMICAL SPILL RESPONSE DIVISION (860-424-3338) AND THE OWNER'S AGENT.

PRESERVE AND CONSERVE SOIL

TOPSOILING

MATERIALS

SITE INVESTIGATIONS SHALL BE MADE TO DETERMINE IF THERE IS A SUFFICIENT QUANTITY OF TOPSOIL OF GOOD QUALITY ON THE SITE TO JUSTIFY STRIPPING. HIGH QUALITY TOPSOIL SHALL BE FRIABLE AND LOAMY (LOAM, SANDY LOAM, SILT LOAM, SANDY CLAY LOAM, CLAY LOAM). OTHER SOIL TYPES WITH HIGH ORGANIC CONTENT MAY BE FOUND SUITABLE AFTER TESTING. IT SHALL BE FREE OF DEBRIS, TRASH, STUMPS, ROCKS, ROOTS AND NOXIOUS WEEDS. IT SHALL GIVE EVIDENCE OF BEING ABLE TO SUPPORT HEALTHY VEGETATION. IT SHALL CONTAIN NO SUBSTANCE THAT IS POTENTIALLY TOXIC TO PLANT GROWTH.

ALL TOPSOIL SHALL BE TESTED BY A RECOGNIZED LABORATORY TO DETERMINE THE PROPER APPLICATION RATES OF LIME AND FERTILIZER.

INSTALLATION REQUIREMENTS

1. STRIPPING OF TOPSOIL SHALL BE CONFINED TO THE IMMEDIATE CONSTRUCTION AREA. THE DEPTH OF REMOVAL MAY VARY DEPENDING ON THE SITE CONDITIONS. ALL SEDIMENT CONTROLS SHALL BE IN PLACE PRIOR TO BEGINNING STRIPPING OPERATIONS.
2. TOPSOIL SHALL BE STOCKPILED IN SUCH A MANNER THAT NATURAL SURFACE WATER FLOW IS NOT OBSTRUCTED AND NO OFF-SITE SEDIMENT DAMAGE SHALL RESULT.
3. SIDE SLOPES OF STOCKPILES SHALL NOT BE STEEPER THAN 2 HORIZONTAL TO 1 VERTICAL.
4. A SEDIMENT BARRIER SHALL SURROUND ALL TOPSOIL STOCKPILES.
5. TEMPORARY SEEDING OF STOCKPILES SHALL BE COMPLETED WITHIN 30 DAYS OF THE FORMATION OF THE STOCKPILE, IN ACCORDANCE WITH THE TEMPORARY VEGETATIVE COVER REQUIREMENTS.
6. PREVIOUSLY ESTABLISHED GRADES ON THE AREAS TO BE TOPSOILED SHALL BE MAINTAINED ACCORDING TO THE DRAWINGS.
7. WHERE THE pH OF THE SUBSOIL IS 6.0 OR LESS, GROUND AGRICULTURAL LIMESTONE SHALL BE SPREAD IN ACCORDANCE WITH THE SOIL TEST TO A pH OF 6.0 TO 6.5 OR THE VEGETATIVE ESTABLISHMENT PRACTICE BEING USED.
8. AFTER THE AREAS TO BE TOPSOILED HAVE BEEN BROUGHT TO GRADE, AND IMMEDIATELY PRIOR TO SPREADING THE TOPSOIL, THE SUBGRADE SHALL BE LOOSENED BY DISCING OR SCARIFYING OR TRACKING TO A DEPTH OF AT LEAST 4 INCHES TO ENSURE BONDING OF THE TOPSOIL AND SUBSOIL.
9. TOPSOIL SHALL NOT BE PLACED WHILE IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBGRADE IS EXCESSIVELY WET, OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING OR PROPOSED SODDING OR SEEDING. THE TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED TO A MINIMUM COMPACTED DEPTH OF 6 INCHES, UNLESS OTHERWISE NOTED. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
10. TOPSOIL SHALL BE COMPACTED ENOUGH TO ENSURE GOOD CONTACT WITH THE UNDERLYING SOIL AND TO OBTAIN A UNIFORM FIRM SEEDBED FOR THE ESTABLISHMENT OF A DURABLE TURF. UNDUE COMPACTION IS TO BE AVOIDED AS IT INCREASES RUNOFF VELOCITY AND VOLUME, AND PREVENTS SEED GERMINATION.
11. IMMEDIATELY FOLLOWING TOPSOIL APPLICATION, PROTECT THE TOPSOIL FROM EROSION BY EITHER SODDING, SEEDING AND/OR MULCHING.

LAND GRADING

1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.
2. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
3. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS.
4. FILL MATERIAL SHALL BE FREE OF BRUSH, RUBBISH, ROCKS, LOGS, STUMPS, BUILDING DEBRIS AND OTHER OBJECTIONABLE MATERIALS.
5. FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
6. FILL SHALL NOT BE PLACED ON A FROZEN FOUNDATION.
7. TOPSOILING SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE REQUIREMENTS FOR TOPSOILING.
8. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.

DUST CONTROL

INSTALLATION REQUIREMENTS

WATER

1. THE EXPOSED SOIL SURFACE SHALL BE MOISTENED PERIODICALLY WITH ADEQUATE QUANTITIES OF WATER TO CONTROL DUST.

STONE

1. COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL. IN AREAS ADJACENT TO WATERWAYS USE CHEMICALLY STABLE AGGREGATE.

MAINTENANCE

1. WHEN TEMPORARY DUST CONTROL MEASURES ARE USED, REPETITIVE TREATMENT SHALL BE APPLIED AS NEEDED TO ACCOMPLISH CONTROL.

VEGETATIVE SOIL COVER

TEMPORARY SEEDING

INSTALLATION REQUIREMENTS

SITE PREPARATION

1. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH THE REQUIREMENTS FOR LAND GRADING.
2. INSTALL NEEDED EROSION CONTROL MEASURES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, SEDIMENT BASINS AND GRASSED WATERWAYS.

SEEDBED PREPARATION

1. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS THOSE OFFERED BY THE UNIVERSITY OF CONNECTICUT SOIL TESTING LABORATORY. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL COOPERATIVE EXTENSION SERVICE OFFICE. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 300 POUNDS PER ACRE OR 7.5 POUNDS PER 1,000 SQUARE FEET OF 10-10-10 OR EQUIVALENT. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AS FOLLOWS:

SOIL TEXTURE	TONS/ACRE	LBS/1,000 SQUARE FEET
CLAY, CLAY LOAM, AND HIGH ORGANIC SOIL	3	135
SANDY LOAM, LOAM, SILT LOAM	2	90
LOAMY SAND, SAND	1	45

REFER TO COUNTY SOIL SURVEY REPORT FOR SOIL TEXTURES AT THE SITE.

SEEDING

1. ANNUAL RYE GRASS 40 LBS/ACRE, 1 LB/1000 SF
2. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER LIME AND SEED.
3. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTIPACKER TYPE SEEDER OR HYDROSEEDER. HYDROSEEDINGS WHICH INCLUDE MULCH, MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED BY 10 PERCENT WHEN HYDROSEEDING.
4. SPRING SEEDINGS USUALLY GIVE THE BEST RESULTS, SPRING SEEDINGS OF ALL SEED LEGUMES IS RECOMMENDED. HOWEVER, LATE SUMMER SEEDINGS PRIOR TO SEPTEMBER 1 CAN BE MADE. WHEN CROWN VETCH IS SEEDED IN LATE SUMMER AT LEAST 35 PERCENT OF THE SEED SHOULD BE HARD SEED (UNSCARIFIED), THE RECOMMENDED SEEDING DATES ARE:

MARCH 15 THROUGH JUNE 15
AUGUST 15 THROUGH OCTOBER 15

PERMANENT SEEDING

INSTALLATION REQUIREMENTS

1. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION AND ANCHORING, AND MAINTENANCE. ALL GRADING SHOULD BE BE DONE IN ACCORDANCE WITH THE REQUIREMENTS FOR LAND GRADING.

SEEDBED PREPARATION

1. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TESTS SUCH AS THOSE OFFERED BY THE UNIVERSITY OF CONNECTICUT SOIL TESTING LABORATORY. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL COOPERATIVE EXTENSION SERVICE OFFICE. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 300 POUNDS PER ACRE OR 7.5 POUNDS PER 1,000 SQUARE FEET USING 10-10-10 OR EQUIVALENT. IN ADDITION, 300 POUNDS OF 36-0-0 PER ACRE OR EQUIVALENT OF SLOW RELEASE NITROGEN MAY BE USED FOR TOPDRESSING. APPLY GROUND LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AS FOLLOWS:

SOIL TEXTURE	TONS/ACRE	LBS/1,000 SQUARE FEET
CLAY, CLAY LOAM, AND HIGH ORGANIC SOIL	3	135
SANDY LOAM, LOAM, SILT LOAM	2	90
LOAMY SAND, SAND	1	45

REFER TO COUNTY SOIL SURVEY REPORT FOR SOIL TEXTURES AT THE SITE.

2. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISCING OPERATION SHALL BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM, FINE SEEDBED IS PREPARED. ALL BUT CLAY OR SILTY SOILS AND COARSE SANDS SHOULD BE ROLLED TO FIRM THE SEEDBED WHEREVER FEASIBLE.
3. REMOVE FROM THE SURFACE ALL STONES ONE AND ONE-QUARTER INCHES OR LARGER IN ANY DIMENSION UNLESS OTHERWISE SPECIFIED. REMOVE ALL OTHER DEBRIS SUCH AS WIRE, CABLE, TREE ROOTS, PIECES OF CONCRETE, CLODS, LUMPS OR OTHER UNSUITABLE MATERIAL.
4. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILLED AND FIRMED AS ABOVE.

SEEDING DATES

1. SPRING SEEDINGS USUALLY GIVE THE BEST RESULTS. SPRING SEEDINGS OF ALL SEED MIXES WITH LEGUMES IS RECOMMENDED, HOWEVER LATE SUMMER SEEDINGS PRIOR TO SEPTEMBER 15 CAN BE MADE. WHEN CROWN VETCH IS SEEDED IN LATE SUMMER AT LEAST 35 PERCENT OF THE SEED SHOULD BE HARD SEED (UNSCARIFIED). THE RECOMMENDED SEEDING DATES ARE:

MARCH 15 THROUGH JUNE 30
AUGUST 15 THROUGH OCTOBER 30

2. WITH THE EXCEPTION OF CROWN VETCH, THE FINAL SEEDING DATE MAY BE EXTENDED 15 DAYS IN THE COASTAL TOWNS OF NEW LONDON, MIDDLESEX, NEW HAVEN AND FAIRFIELD COUNTIES.

SEEDING

1. UNLESS OTHERWISE SPECIFIED, THE SEED MIXTURE SHALL BE NEW ENGLAND CONSERVATION/WILDLIFE MIX FROM NEW ENGLAND WETLAND PLANTS, INC. AMHERST, MA. OR ACCEPTED SUBSTITUTION.
2. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTIPACKER TYPE SEEDER OR HYDROSEEDER. NORMAL SEEDING DEPTH IS FROM 1/4 TO 1/2 INCH. HYDROSEEDINGS WHICH ARE MULCHED MAY BE LEFT ON SOIL SURFACE.
3. WHERE FEASIBLE, EXCEPT WHERE EITHER A CULTIPACKER TYPE SEEDER OR HYDROSEEDER IS USED, THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A ROLLER, OR LIGHT DRAG. SEEDING OPERATIONS SHOULD BE ON THE CONTOUR.
4. FROST CRACK SEEDING MUST BE DONE IN LATE WINTER OR EARLY SPRING. SUITABLE WEATHER CONDITIONS ARE FREEZING NIGHTS AND THAWING DAYS WITH LITTLE OR NO SNOW COVER. SEEDING RATES MUST BE INCREASED 10 PERCENT WHEN USING THIS METHOD.
5. HYDRAULIC APPLICATION (HYDROSEEDING), IS A SUITABLE METHOD FOR USE ON CRITICAL AREAS. WHEN HYDROSEEDING, A SEEDBED IS PREPARED IN THE CONVENTIONAL WAY OR BY HAND RAKING TO LOOSEN AND SMOOTH THE SOIL AND TO REMOVE SURFACE STONES LARGER THAN ONE AND ONE-QUARTER INCHES IN DIAMETER. SLOPES MUST BE NO STEEPER THAN 2 TO 1 (2 FEET HORIZONTALLY TO ONE FOOT VERTICALLY). LIME AND FERTILIZER MAY BE APPLIED SIMULTANEOUSLY WITH THE SEED. THE USE OF FIBER MULCH ON CRITICAL AREAS IS NOT RECOMMENDED (UNLESS IT IS USED TO HOLD STRAW OR HAY). FIBER MULCH DOES NOT PROVIDE ADEQUATE SEEDBED PROTECTION. BETTER PROTECTION IS GAINED BY USING STRAW MULCH AND HOLDING IT WITH ADHESIVE MATERIALS OR 500 POUNDS PER ACRE OF WOOD FIBER MULCH. SEEDING RATES MUST BE INCREASED BY 10 PERCENT WHEN HYDROSEEDING.
6. APPLY MULCH ACCORDING TO THE TEMPORARY MULCHING MEASURE.
7. IF SEEDING CANNOT BE DONE WITHIN THE SEEDING DATES, USE THE TEMPORARY MULCHING MEASURE TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.

MAINTENANCE

1. LIME ACCORDING TO A SOIL TEST OR AT A MINIMUM OF EVERY FIVE YEARS USING A RATE OF TWO TONS PER ACRE (100 POUNDS PER 1,000 SQUARE FEET).
2. WHERE GRASSES PREDOMINATE, FERTILIZE ACCORDING TO A SOIL TEST OR BROADCAST BIENNIALLY, 300 POUNDS OF 10-10-10 OR EQUIVALENT PER ACRE (7.5 POUNDS PER 1,000 SQUARE FEET).
3. WHERE LEGUMES PREDOMINATE, FERTILIZE ACCORDING TO A SOIL TEST OR BROADCAST EVERY THREE YEARS 300 POUNDS OF 0-20-20 PER ACRE OR EQUIVALENT (7.5 POUNDS PER 1,000 SQUARE FEET).

NON-LIVING SOIL PROTECTION

MULCH FOR SEED

MATERIALS

1. SELECT MULCH MATERIALS BASED ON SITE CONDITIONS, AVAILABILITY OF MATERIALS AND LABOR AND EQUIPMENT. OTHER MATERIALS MAY BE USED ONLY WITH THE PERMISSION OF THE APPROVING AUTHORITY.

INSTALLATION REQUIREMENTS

ORGANIC MULCHES

1. ORGANIC MULCHES MAY BE USED IN ANY AREA WHERE MULCH IS REQUIRED, SUBJECT TO THE RESTRICTIONS NOTED BELOW:

MULCHES	RATES PER ACRE	PER 1,000 SQUARE FEET
STRAW OR HAY	1 1/2 - 2 TONS	35-45 LBS

APPLICATION

1. MULCH MATERIALS SHALL BE SPREAD UNIFORMLY, BY HAND OR MACHINE. WHEN SPREADING STRAW OR HAY MULCH BY HAND, DIVIDE THE AREA TO BE MULCHED INTO APPROXIMATELY 1,000 SQUARE FOOT SECTIONS AND PLACE 35-45 POUNDS (3/4 TO 1 BALE) OF STRAW OR HAY IN EACH SECTION TO ENSURE UNIFORM DISTRIBUTION.

ANCHORING

1. HAY OR STRAW MULCHES MUST BE ANCHORED IMMEDIATELY AFTER APPLICATION TO PREVENT WINDBLOWING. HAY OR STRAW MULCH MAY BE ANCHORED BY TRACKING WITH CONSTRUCTION EQUIPMENT, BUT NOT BY USING NETTING.

MAINTENANCE

1. ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS, TO CHECK FOR RILL EROSION. WHERE EROSION IS OBSERVED, ADDITIONAL MULCH SHOULD BE APPLIED. NETS SHALL BE INSPECTED AFTER RAINSTORMS FOR DISLOCATION OR FAILURE. IF WASHOUTS OR BREAKAGE OCCUR, REINSTALL NET AS NECESSARY AFTER REPAIRING DAMAGE TO THE SLOPE. INSPECTIONS SHALL TAKE PLACE UNTIL GRASSES ARE FIRMLY ESTABLISHED. GRASSES SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED WHICH IS MATURE ENOUGH TO CONTROL SOIL EROSION AND TO SURVIVE SEVERE WEATHER CONDITIONS. WHERE MULCH IS USED IN CONJUNCTION WITH ORNAMENTAL PLANTINGS, INSPECT PERIODICALLY THROUGHOUT THE YEAR TO DETERMINE IF MULCH IS MAINTAINING COVERAGE OF THE SOIL SURFACE, REPAIR AS NEEDED.

ENERGY DISSIPATORS

OUTLET PROTECTION

DEFINITION

1. STRUCTURALLY LINED APRONS OR OTHER ACCEPTABLE ENERGY DISSIPATING DEVICES PLACED BETWEEN THE OUTLETS OF PIPES OR PAVED CHANNEL SECTIONS AND A STABLE DOWNSTREAM CHANNEL.

PURPOSE

1. TO PREVENT SCOUR AT STORM DRAIN, CULVERT OR DRAINAGEWAY OUTLETS AND TO MINIMIZE THE POTENTIAL FOR OWNSTREAM EROSION BY REDUCING THE VELOCITY OF CONCENTRATED STORM WATER FLOWS.

APPLICABILITY

1. AT THE OUTFALL OF ALL STORM DRAIN OUTLETS, ROAD CULVERTS, PAVED CHANNEL OUTLETS, NEW CHANNELS CONSTRUCTED AS OUTLETS FOR CULVERTS AND CONDUITS, ETC. DISCHARGING INTO NATURAL OR CONSTRUCTED CHANNELS, WHICH IN TURN DISCHARGE INTO EXISTING STREAMS OR DRAINAGE SYSTEMS.

PLANNING CONSIDERATIONS

1. ANALYSIS AND APPROPRIATE TREATMENT SHALL BE DONE ALONG THE ENTIRE LENGTH OF THE FLOW PATH FROM THE END OF THE CONDUIT, CHANNEL OR STRUCTURE TO THE POINT OF ENTRY INTO AN EXISTING STREAM OR PUBLICLY MAINTAINED DRAINAGE SYSTEM. WHERE FLOW IS EXCESSIVE FOR THE ECONOMICAL USE OF AN APRON, EXCAVATED STILLING BASINS MAY BE USED.

DESIGN CRITERIA

1. DETERMINATION OF NEEDS. THE NEED FOR CONDUIT OUTLET PROTECTION SHALL BE DETERMINED BY COMPARING THE ALLOWABLE VELOCITY WHICH THE SOIL WILL WITHSTAND TO THE EXIT VELOCITY OF THE FLOW FROM THE CONDUIT. THE ALLOWABLE VELOCITY FOR WATER OVER THE SOIL SHALL BE THAT GIVEN IN FIGURE OP-1 BELOW. THE EXIT VELOCITY OF THE WATER IN THE CONDUIT SHALL BE CALCULATED USING THE GREATER OF THE CONDUIT DESIGN STORM OR THE 25-YEAR FREQUENCY STORM. WHEN THE EXIT VELOCITY OF THE WATER IN THE CONDUIT EXCEEDS THE ALLOWABLE VELOCITY FOR THE SOIL, OUTLET PROTECTION IS REQUIRED. OUTLET PROTECTION IS ALSO REQUIRED IF THE CONDUIT OUTFALL IS SET ABOVE THE RECEIVING CHANNEL (I.E., CANTILEVERED) CAUSING THE WATER TO DROP AT THE OUTLET END OF THE CULVERT.

FIGURE OP-1 ALLOWABLE VELOCITIES FOR VARIOUS SOILS

SOIL TEXTURE	ALLOWABLE VELOCITY (FT./SEC.)
SAND AND SANDY LOAM	2.5
SILT LOAM	3.0
SANDY CLAY LOAM	3.5
CLAY LOAM	4.0
CLAY, FINE GRAVEL, GRADED LOAM TO SOIL	5.0
COBBLES	5.5
SHALE	6.0

RIPRAP APRONS

1. DESIGN LIMITATIONS: NO BENDS OR CURVES AT THE INTERSECTION OF THE CONDUIT AND THE APRON PROTECTION WILL BE PERMITTED.
2. THERE SHALL BE NO VERTICAL DROP FROM THE END OF THE APRON TO THE RECEIVING CHANNEL.

OTHER OUTLET PROTECTIONS

1. STANDARD ENGINEERING PRACTICES ALLOW FOR MANY DIFFERENT TYPES OF OUTLET PROTECTION WHICH PROVIDE ENERGY DISSIPATION. COMMON OUTLET PROTECTIONS INCLUDE THE USE OF A RIPRAP APRON AND A RIPRAP STILLING BASIN.

INSTALLATION REQUIREMENTS

1. INSTALL IN ACCORDANCE WITH THE REQUIREMENTS OF THE ENGINEERED DESIGN.

MAINTENANCE

1. INSPECT THE COMPLETED STRUCTURE ANNUALLY AND AFTER EACH MAJOR RAINFALL FOR DAMAGE AND DETERIORATION. REPAIR DAMAGES IMMEDIATELY.

SEDIMENT IMPOUNDMENTS, BARRIERS, AND FILTERS

HAY BALE BARRIER

INSTALLATION REQUIREMENTS

SHEET FLOW APPLICATIONS

1. BALES SHALL BE PLACED IN A SINGLE ROW, LENGTHWISE ON THE CONTOUR, WITH THE ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.
2. ALL BALES SHALL BE EITHER WIRE-BOUND OR STRING TIED. BALES SHALL BE INSTALLED SO THAT BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES TO PREVENT DETERIORATION OF THE BINDINGS.
3. A TRENCH SHALL BE EXCAVATED THE WIDTH OF A BALE AND THE LENGTH OF THE PROPOSED BARRIER TO A MINIMUM DEPTH OF 4 INCHES. AFTER THE BALES ARE STAKED AND CHINKED, THE EXCAVATED SOIL SHALL BE BACKFILLED AGAINST THE BARRIER. BACKFILL SOIL SHALL CONFORM TO THE GROUND LEVEL ON THE DOWNHILL SIDE AND SHALL BE BUILT UP TO 4 INCHES AGAINST THE UPHILL SIDE OF THE BARRIER. BALES SHOULD BE PLACED 10 FEET AWAY FROM THE TOE OF SLOPES UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR DIRECTED.
4. EACH BALE SHALL BE SECURELY ANCHORED BY AT LEAST TWO STAKES DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN DEEP ENOUGH INTO THE GROUND TO SECURELY ANCHOR THE BALES.
5. THE GAPS BETWEEN BALES SHALL BE CHINKED (FILLED BY WEDGING) STRAW BETWEEN THEM TO PREVENT WATER FROM FLOWING BETWEEN THE BALES.

MAINTENANCE

1. INSPECTION SHALL BE MADE AFTER EACH STORM EVENT AND PERIODICALLY DURING PROLONGED RAIN EVENTS AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
2. ACCUMULATED SEDIMENT BEHIND THE BALES SHALL BE REMOVED WHEN IT REACHES 1/2 OF THE ORIGINAL HEIGHT OF THE BALES.

GEOTEXTILE SILT FENCE

MATERIALS

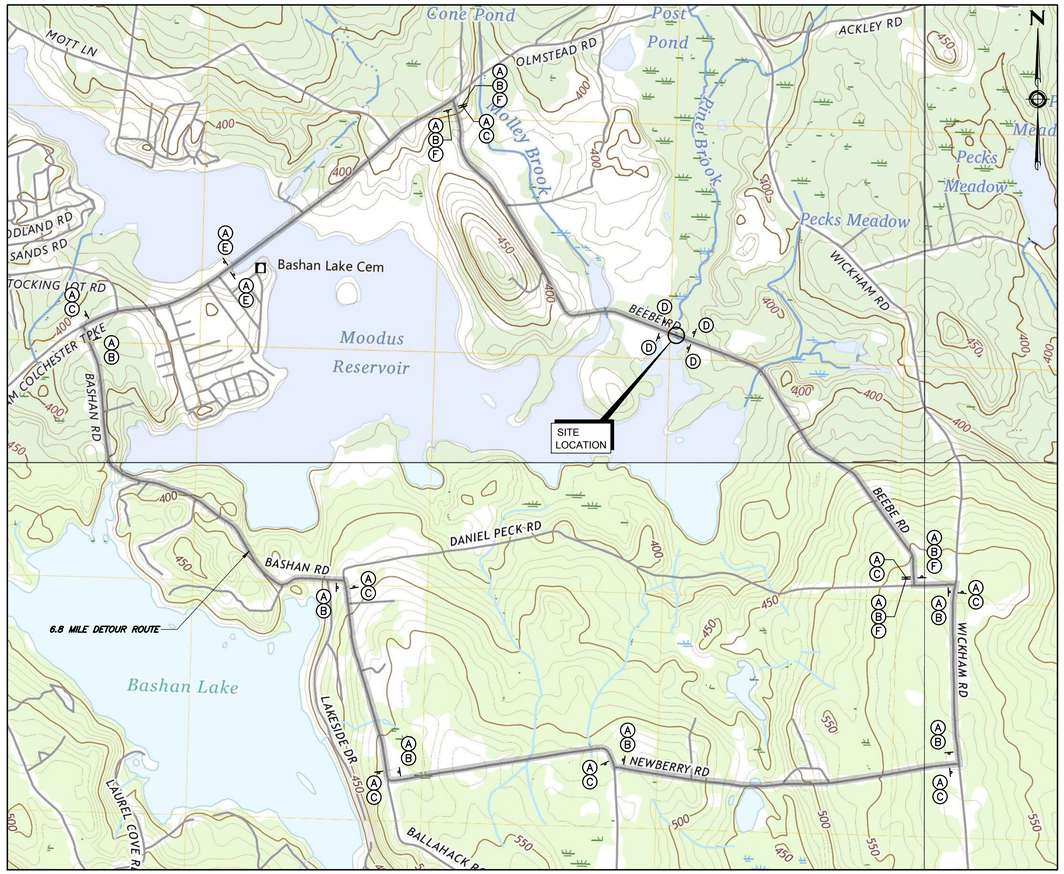
1. GEOTEXTILE. GEOTEXTILE SHALL BE A PERVIOUS SHEET OF PROPYLENE, NYLON, POLYESTER OR ETHYLENE FILAMENTS AND SHALL BE CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE FOLLOWING REQUIREMENTS:

PHYSICAL PROPERTY	REQUIREMENTS
FILTERING EFFICIENCY	75% (MIN)
TENSILE STRENGTH AT 20% (MAX) ELONGATION	-
EXTRA STRENGTH	50 LBS./LIN. IN. (MIN)
STANDARD STRENGTH	30 LBS./LIN. IN. (MIN)
FLOW RATE	12 GAL./SF/MIN. (MIN.)

2. STAKES FOR GEOTEXTILE SILT FENCES SHALL BE 1" x 1" WOOD WITH A MINIMUM LENGTH OF 3 FEET.
3. WIRE FENCE REINFORCEMENT FOR GEOTEXTILE SILT FENCES USING STANDARD STRENGTH MATERIAL SHALL BE A MINIMUM OF 42 INCHES IN HEIGHT, A MINIMUM OF 14 GAUGE AND SHALL HAVE A MAXIMUM MESH SPACING OF 6 INCHES.

INSTALLATION REQUIREMENTS

1. THE HEIGHT OF THE BARRIER SHALL NOT EXCEED 36 INCHES. (HIGHER BARRIERS MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE). THE SEDIMENTATION CONTROL FENCE SHALL BE PLACED 10 FEET AWAY FROM THE TOE OF SLOPES UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR DIRECTED.
2. WHEN JOINTS ARE NECESSARY



DETOUR PLAN

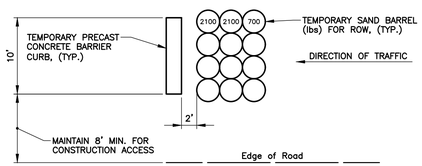
SCALE: 1"=1,000'

MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:

1. WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE "MAINTENANCE AND PROTECTION OF TRAFFIC" SECTION IN THE PROJECT MANUAL.
2. BE SOLELY RESPONSIBLE FOR MAINTENANCE AND PROTECTION OF TRAFFIC, INCLUDING FURNISHING ALL NECESSARY TRAFFIC CONTROL AND SAFETY SIGNS, DEVICES, FLAGMAN, ETC.
3. NOTIFY THE TOWN AT LEAST FOURTEEN (14) DAYS IN ADVANCE OF ANTICIPATED WORK IN A ROADWAY.
4. FOR SIGN FACE MATERIAL DETAILS, SEE CTDOT STANDARD SHEET TR-1220_01.
5. FOR SIGN INSTALLATION DETAILS, SEE CTDOT STANDARD SHEET TR-1208_02 AND SHEET TR-1220_02.
6. THE PLACEMENT OF SIGNS SHALL NOT OBSCURE ANY PRESENT SIGNING OR SIGHTLINES FROM DRIVEWAYS OR INTERSECTING ROUTES. COORDINATE EXACT PLACEMENT OF SIGNS WITH THE ENGINEER.
7. SIGNS SHALL BE PLACED ON THE SPECIFIC METAL SIGN POSTS. THEY SHALL NOT BE PLACED ON EXISTING POSTS, UTILITY POLES OR TREES.
8. LOCATION AND DISTANCE BETWEEN CONSTRUCTION SIGNS MAY BE REVISED BY THE ENGINEER TO MEET FIELD CONDITIONS.
9. EXISTING AND PROPOSED TRAFFIC SIGNS SHALL BE REMOVED OR COVERED WITH AN OPAQUE COVER IF IN CONFLICT WITH THE MAINTENANCE AND PROTECTION OF TRAFFIC PLAN.
10. PROVIDE TYPE "B" BARRICADE WARNING LIGHTS HIGH INTENSITY ON SIGN D AND SIGN F AND ON CONSTRUCTION BARRICADES.
11. THE "MAINTENANCE AND PROTECTION OF TRAFFIC PLAN" IS A MINIMUM GUIDELINE ONLY FOR THE MAINTENANCE AND PROTECTION OF TRAFFIC. A SPECIFIC MAINTENANCE AND PROTECTION OF TRAFFIC PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

CONSTRUCTION SIGN LEGEND

SIGN DESIGNATION	CTDOT SIGN NUMBER	DIMENSION	SIGN FACE
(A)	80-9916	48" x 10"	BEEBE ROAD
(B)	80-9701R	48"x18"	DETOUR
(C)	80-9702L	48"x18"	DETOUR
(D)	80-9082	48" x 30"	BRIDGE CLOSED
(E)	80-9707	24" x 12"	DETOUR
(F)	80-9078	60" x 30"	BRIDGE CLOSED 00 MILES AHEAD LOCAL TRAFFIC ONLY

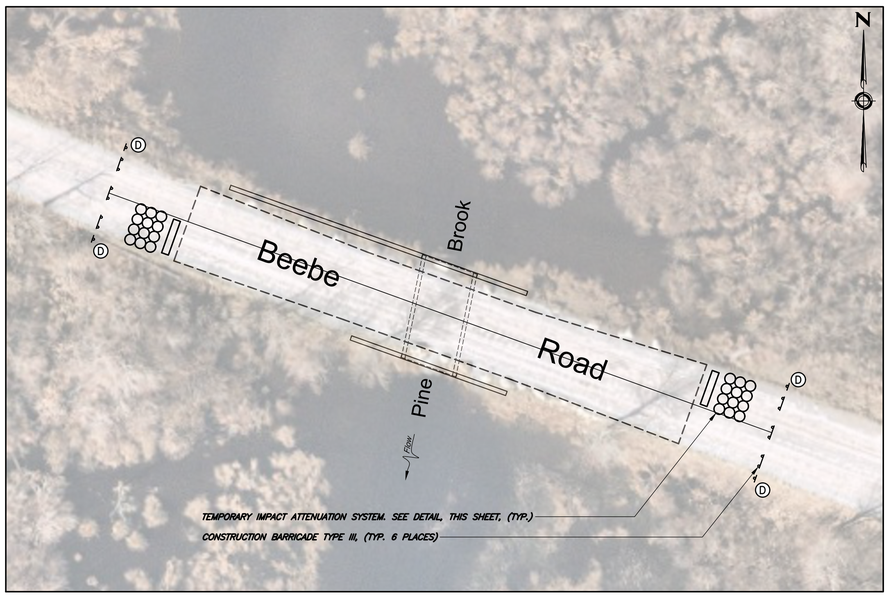


TEMPORARY IMPACT ATTENUATION SYSTEM

N.T.S.

NOTES:

1. BARREL ARRAY DESIGN BASED ON 25 MPH DESIGN SPEED AND CONFIGURATION SUCH THAT AN UNRESTRAINED PASSENGER DOES NOT STRIKE THE INTERIOR OF THE VEHICLE IN EXCESS OF 30 FPS. THE SUBSEQUENT VEHICLE DECELERATION DOES NOT EXCEED 15 G's AND THE VEHICLE VELOCITY AFTER THE LAST BARREL IS 10 MPH OR LESS.
2. INSTALL IN MIRROR IMAGE TO THAT SHOWN, AS NEEDED.



TEMPORARY CONSTRUCTION ROAD CLOSURE PLAN

SCALE: 1"=20'

NOTES:

1. SEE SHEET 10 FOR PROJECT NOTES.

THIS DRAWING IS INTENDED TO BE USED FOR INFORMATION AND REVIEW PURPOSES ONLY AND IS NOT INTENDED TO BE USED FOR CONSTRUCTION.

GRAPHIC SCALES

20 15 10 5 0 20 40

SCALE: 1"=20'

1,000 750 500 250 0 1,000 2,000

SCALE: 1"=1,000'

TOWN OF
EAST HADDAM,
CONNECTICUT

REPLACEMENT OF BRIDGE No. 040026 BEEBE ROAD OVER PINE BROOK

MAINTENANCE AND PROTECTION OF TRAFFIC PLAN

PERMITTING

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NOT VALID WITHOUT ORIGINAL SEAL

J. HOWARD, PFROMMER, P.E.
CT REGISTRATION No. 15871

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REVISIONS

No.	DESCRIPTION	DATE

DATE:	OCTOBER 2025
SCALE:	AS NOTED
PROJECT No.:	09590014
CADD FILE:	09590014MPT
DESIGNED:	JRE
DRAWN:	CEB
CHECKED:	-

SHEET No.:

PROJECT NOTES:

1. IN-RIVER CONSTRUCTION WINDOW: THE IN-RIVER CONSTRUCTION WINDOW FOR UNCONFINED CONSTRUCTION ACTIVITIES SHALL BE JULY 1 TO SEPTEMBER 30, INCLUSIVE, OF THE SAME YEAR. IN-RIVER UNCONFINED CONSTRUCTION ACTIVITIES SHALL NOT OCCUR AT ANY OTHER TIME OF THE YEAR EXCEPT DURING THE IN-RIVER CONSTRUCTION WINDOW PERIOD. "CONFINED" SHALL BE DEFINED AS BEHIND A COFFERDAM.

2. DEWATERING: THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF WATER TO ENABLE CONSTRUCTION IN THE DRY, INCLUDING BUT NOT LIMITED TO TRENCHES, EXCAVATIONS, WATER CONTROL STRUCTURES AND COFFERDAMS, THAT MAY BE REQUIRED TO PROPERLY COMPLETE THE WORK. PARTICULAR ATTENTION IS CALLED TO FLUCTUATIONS IN WATER FLOWS AND LEVELS THAT MAY OCCUR DUE TO PRECIPITATION EVENTS. NO EXTRA MONETARY COMPENSATION WILL BE ALLOWED DUE TO WATER FLOW OR LEVEL FLUCTUATIONS. WHETHER PUMPING OR SIPHONING FOR DEWATERING IS USED OR NOT, IN ALL CASES, THE DISCHARGE SHALL BE HANDLED SO AS TO AVOID EROSION AND SEDIMENTATION AS APPROVED BY THE ENGINEER. TAKE ALL NECESSARY PRECAUTIONS AND FURNISH EQUIPMENT REQUIRED TO HANDLE ALL SURFACE, SUBSURFACE AND FLOOD FLOWS WHICH MAY BE ENCOUNTERED AT ANY TIME DURING CONSTRUCTION.

3. TEMPORARY HYDRAULIC FACILITIES: PROVIDE TEMPORARY HYDRAULIC FACILITIES TO CARRY THE WATERCOURSE THROUGH THE CONSTRUCTION SITE IN A CONTROLLED MANNER. TEMPORARY HYDRAULIC FACILITIES SHALL BE DESIGNED FOR THE TEMPORARY CRITERIA SHOWN ON SHEET 7. THE CONTRACTOR SHALL INCLUDE THESE CRITERIA IN HIS COFFERDAM SUBMISSION.

4. CONSTRUCTION FLOOD CONTINGENCY OPERATION PLAN: ALL TEMPORARY STRUCTURES, MATERIAL, EQUIPMENT NOT SPECIFICALLY DESIGNATED AS PART OF THE CONTRACTOR'S WATER HANDLING PLAN SHALL BE REMOVED FROM THE FLOOD PLAIN UPON A 'FLOOD WARNING NOTIFICATION' FOR THE PROJECT AREA ISSUED BY THE U.S. WEATHER SERVICE.

5. NATURAL BROOK BOTTOM MATERIAL: REMOVE EXISTING CHANNEL SUBSTRATE WITHIN AREA OF BROOK DISTURBANCE, STOCKPILE ON AN IMPERVIOUS SURFACE DURING CONSTRUCTION, AND THEN RE-INSTALL TO RE-ESTABLISH BROOK BOTTOM. REMOVE SURPLUS MATERIAL OR PROVIDE AN ACCEPTABLE NATURAL BROOK BOTTOM MATERIAL IF THERE IS A DEFICIT.

6. EROSION CONTROLS: INSTALL EROSION CONTROLS TO THE MAXIMUM EXTENT POSSIBLE AND OBTAIN APPROVAL OF THE INSTALLATION (NOT THE DESIGN) FROM THE TOWN OF EAST HADDAM CONSERVATION COMMISSION OFFICIAL PRIOR TO THE START OF CONSTRUCTION.

7. MAINTENANCE OF EROSION CONTROLS: INSPECT EROSION CONTROLS REGULARLY AND IMMEDIATELY AFTER RAINFALL EVENTS AND MAINTAIN AND MODIFY AS NECESSARY OR AS DIRECTED BY THE TOWN TO ENSURE OPTIMUM PERFORMANCE.

8. PERMITS: ALL ACTIVITIES SHALL COMPLY WITH LOCAL, STATE AND FEDERAL AUTHORIZATIONS; SEE PROJECT MANUAL, PERMITS SECTION.

9. STOCKPILES: INSTALL EROSION CONTROLS AROUND THE BASE OF ALL STOCKPILES, AND TEMPORARILY SEED OR COVER THE PILES WITH AN IMPERVIOUS COVER IF THEY WILL REMAIN ON THE SITE LONGER THAN ONE MONTH.

10. CONSTRUCTION VEHICLES: NO CONSTRUCTION VEHICLES WILL BE STORED, SERVICED, REFUELED, WASHED, OR FLUSHED OUT IN A LOCATION WHERE LEAKS, SPILLAGE, WASTE MATERIALS, CLEANERS, OR WATERS WILL BE INTRODUCED OR FLOW INTO WETLANDS OR WATERCOURSES.

11. SPILL KIT: PROVIDE AND MAINTAIN A SUPPLY OF ABSORBENT SPILL RESPONSE BOOMS AND BLANKETS ON-SITE FOR THE ENTIRE CONSTRUCTION PERIOD.

12. CONTAINMENT SPILLS: NO EQUIPMENT STORAGE, CLEANING, REPAIRING, OR REFUELING SHALL BE CONDUCTED WITHIN 25' OF AN INLAND WETLAND BOUNDARY. SHOULD ANY CONTAMINANT SPILL OCCUR, IMMEDIATELY NOTIFY THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, OIL AND CHEMICAL SPILL RESPONSE DIVISION AT 860-424-3338 AND THE ENGINEER.

13. EQUIPMENT MAINTENANCE AND REFUELING: DURING CONSTRUCTION, ROUTINE EQUIPMENT MAINTENANCE AND REFUELING SHALL OCCUR AWAY FROM STORMWATER CATCH BASINS ON IMPERVIOUS SURFACE WITH OIL ABSORBENT SPILL RESPONSE MATERIALS IN PLACE. NON-ROUTINE MAINTENANCE OF EQUIPMENT SHALL BE CONDUCTED OFF-SITE. SHOULD ANY CONTAMINANT SPILL OCCUR, IMMEDIATELY NOTIFY THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, OIL AND CHEMICAL SPILL RESPONSE DIVISION AT 860-424-3338 AND THE ENGINEER.

14. FUEL STORAGE: BULK FUEL FOR CONSTRUCTION PURPOSES SHALL NOT BE STORED ON-SITE.

15. HAZARDOUS MATERIAL STORAGE: DURING CONSTRUCTION, ALL OIL, PAINT, OR OTHER HAZARDOUS MATERIALS SHALL BE STORED OFF-SITE, OR IF ON-SITE, THEN WITHIN A SECONDARY CONTAINMENT STRUCTURE WITH AN IMPERVIOUS FLOOR THAT WILL BE SECURED DURING NON-WORKING HOURS.

16. TREES: TREES AND VEGETATION TO BE REMOVED MAY NOT ALL BE SHOWN. IN ALL CASES, CLEARING SHALL BE LIMITED TO THE MINIMUM NECESSARY TO PERFORM THE CONSTRUCTION AS APPROVED BY THE TOWN. TREES TO BE REMOVED SHALL BE INDIVIDUALLY VERIFIED IN THE FIELD WITH THE ENGINEER PRIOR TO THE DISTURBANCE.

17. MATERIAL DISPOSAL: SURPLUS OR UNSUITABLE MATERIALS SHALL BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL ORDINANCES, RULES, REGULATIONS AND CODES.

18. UNDERGROUND UTILITIES: FOR LOCATION OF UNDERGROUND ELECTRIC, TELEPHONE, GAS, CABLE TV, AND OTHER FACILITIES OF PUBLIC UTILITY COMPANIES, INQUIRE OF "CALL BEFORE YOU DIG, INC." AT 1-800-922-4455.

19. UTILITIES: PROTECT AND MAINTAIN ALL EXISTING UTILITIES LOCATED WITHIN THE VICINITY OF THE CONSTRUCTION SITE, UNLESS OTHERWISE NOTED. IF ANY UTILITY IS DAMAGED OR SERVICE INTERRUPTED DURING CONSTRUCTION, THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ALL DAMAGES INCLUDING RESTORING SERVICE IN A SAFE MANNER, TO THE COMPLETE SATISFACTION OF THE UTILITY OWNER AND THE ENGINEER.

    INFORMATION OR DATA SHOWN ON OR INDICATED IN THE CONTRACT DOCUMENTS WITH RESPECT TO EXISTING UNDERGROUND PIPES, CABLES, CONDUITS, STRUCTURES OR OTHER UNDERGROUND FACILITIES IS BELIEVED TO BE REASONABLY CORRECT BUT IS NOT GUARANTEED TO BE EXACT OR COMPLETE. SUCH INFORMATION SHALL BE CONSIDERED TO HAVE BEEN PROVIDED FOR THE CONVENIENCE OF THE CONTRACT AND TO ALERT THE CONTRACTOR TO THE EXISTENCE OF SUCH UNDERGROUND FACILITIES WITHIN OR CONTIGUOUS TO THE PROJECT SITE AND THE TOWN, ENGINEER AND THEIR CONSULTANTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ANY SUCH INFORMATION OR DATA.

    THE CONTRACTOR SHALL HAVE FULL RESPONSIBILITY FOR REVIEWING AND CHECKING ALL INFORMATION AND DATA DESCRIBED ABOVE, FOR LOCATING ALL SUCH UNDERGROUND FACILITIES SHOWN OR INDICATED IN THE CONTRACT DOCUMENTS, FOR COORDINATION OF THE WORK WITH THE OWNERS OF SUCH UNDERGROUND FACILITIES DURING CONSTRUCTION, FOR THE SAFETY AND PROTECTION THEREOF, AND FOR REPAIRING ANY DAMAGE THERETO RESULTING FROM THE WORK, THE COST OF ALL WHICH WILL BE CONSIDERED AS HAVING BEEN INCLUDED IN THE CONTRACT PRICE.

20. CONTRACT LIMIT LINE: SHALL BE EASEMENT AND RIGHT OF WAY LINES AS SHOWN ON THE DRAWINGS.

21. SITE DISTURBANCE: SITE DISTURBANCE SHALL BE KEPT TO A MINIMUM.

22. SITE FEATURES: NEATLY REMOVE, STORE AND PROTECT AS APPLICABLE, AND REINSTALL OR REPLACE AS APPLICABLE, EXISTING SITE FEATURES DISTURBED BY CONSTRUCTION, REQUIRED FOR FINISHED CONSTRUCTION.

23. SALVAGE ITEMS: NONE.

24. NOISE: PROPERLY CONTROL MUFFLERS AND NOISE CONTROL DEVICES. REPLACE DEFECTIVE DEVICES AS NECESSARY AND LOCATE DEWATERING PUMPS AS FAR AS POSSIBLE FROM RESIDENTIAL STRUCTURES, SO AS TO MINIMIZE THE AMOUNT OF NOISE GENERATED AT THE SITE THAT WILL REACH RESIDENTIAL STRUCTURES.

25. CONTRACTOR SHALL BE:

    A. SOLELY RESPONSIBLE FOR PROTECTION OF PERSONS AND THE PUBLIC IN GENERAL, THE WORK TO BE PERFORMED UNDER THE CONTRACT, PUBLIC AND PRIVATE PROPERTY, AND EASEMENTS AND RIGHTS-OF-WAY DURING THE COURSE OF THE WORK OF THE CONTRACTOR AND HIS SUBCONTRACTORS;

    B. LIABLE FOR ALL DAMAGES AND CLAIMS RECEIVED OR SUSTAINED BY ANY PERSONS, CORPORATIONS OR PROPERTY IN CONSEQUENCE OF DAMAGE TO EXISTING UTILITIES, ROADWAYS, THEIR APPURTENANCES, OR OTHER FACILITIES CAUSED DIRECTLY OR INDIRECTLY BY THE OPERATIONS OF THE CONTRACTOR, AND;

    C. SOLELY RESPONSIBLE FOR CONSTRUCTION METHODS, MEANS, TECHNIQUES AND FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.

28. IN GENERAL, Lower Case Text Identifies Existing Features/Conditions.

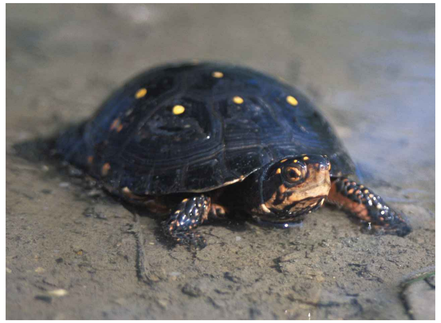
29. IN GENERAL, *UPPER CASE TEXT IDENTIFIES PROPOSED FEATURES/CONDITIONS* UNLESS OTHERWISE SPECIFIED.

REFERENCES:

1. VERTICAL DATUM IS NAVD88. HORIZONTAL DATUM IS NAD83.
2. GROUND BASED TOPOGRAPHIC SURVEY WAS PERFORMED AT VARIOUS TIMES FROM 05-02-2024 TO 06-20-2024 BY LAND SURVEY & TECHNICAL SERVICES, INC., CHESTER, CT.
3. WETLANDS WERE FLAGGED IN THE FIELD ON 02-18-2024 BY R. RICHARD SNARSKI, CPSS, MARLBOROUGH, CT.
4. GEOTECHNICAL REPORT DATED 11-12-2024 WAS PREPARED BY WELTI GEOTECHNICAL, P.C.

TURTLE PROTECTION NOTES:

1. CONSTRUCTION PERSONNEL SHALL BE APPRISED OF THE SPECIES DESCRIPTION AND THE POSSIBLE PRESENCE OF A LISTED SPECIES. THESE TURTLES ARE PROTECTED BY LAW AND SHALL NOT BE HARMED OR REMOVED FROM THE SITE.
2. EXCLUSIONARY PRACTICES (HAYBALE OR SEDIMENTATION FENCE) WILL BE REQUIRED TO PREVENT TURTLE ACCESS INTO CONSTRUCTION AREAS. THESE MEASURES SHALL BE INSTALLED AT THE LIMITS OF DISTURBANCE WHETHER SHOWN ON THE DRAWINGS OR NOT, OR BE SPECIFICALLY DESIGNATED BY A QUALIFIED HERPETOLOGIST,
3. PRIOR TO THE START OF CONSTRUCTION TURTLES ENCOUNTERED WITHIN THE IMMEDIATE WORK AREA SHALL BE CAREFULLY MOVED TO AN ADJACENT AREA OUTSIDE OF THE EXCLUDED AREA AND EXCLUSIONARY PRACTICES SHALL BE INSPECTED TO IDENTIFY AND REMOVE ANY ACCESS POINTS, TO THE EXTENT PRACTICAL.
4. THE CONTRACTOR SHALL SEARCH THE WORK AREA FOR TURTLES EACH MORNING BEFORE THE START OF CONSTRUCTION THAT DAY. SEE NOTE #3.
5. HAYBALE OR SEDIMENTATION FENCE SHALL BE REMOVED AS SOON AS THE AREA IS STABLE TO ALLOW REPTILE AND AMPHIBIAN PASSAGE TO RESUME.



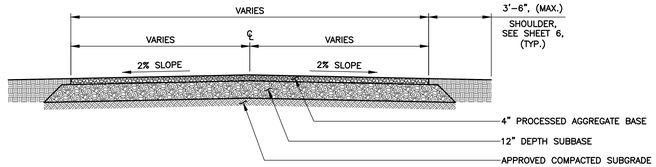
SPOTTED TURTLE

PINE BROOK

REFLECTORIZED ALUMINUM INFORMATION SIGN

N.T.S.

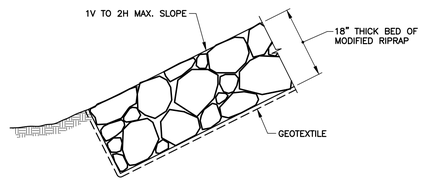
SIZE: 12"x 18"
BACKGROUND: GREEN
LEGEND: WHITE
MARGIN: 1/2" WHITE
BORDER: 1/2" GREEN
CTDOT STANDARD SIGN 51-2009



TYPICAL SECTION

FULL DEPTH ROADWAY RECONSTRUCTION

N.T.S.



TYPICAL SECTION

RIPRAP SLOPE PROTECTION

N.T.S.

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TOWN OF EAST HADDAM, CONNECTICUT

REPLACEMENT OF BRIDGE No. 040026 BEEBE ROAD OVER PINE BROOK

SITE DETAILS AND NOTES

PERMITTING

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CT REGISTRATION No. 15871

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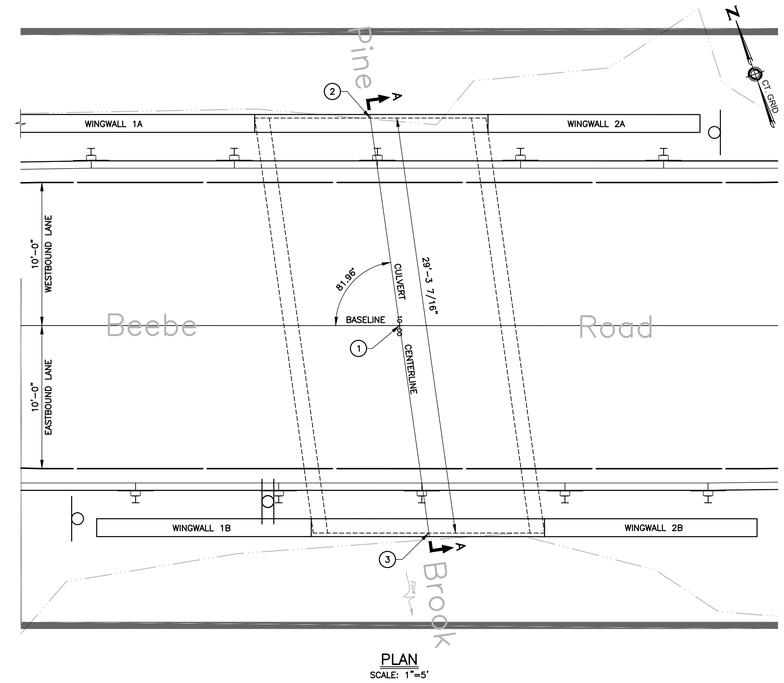
REVISIONS

No.	DESCRIPTION	DATE

DATE:	OCTOBER 2025
SCALE:	AS NOTED
PROJECT No.:	09590014
CADD FILE:	09590014DT
DESIGNED:	JRE
DRAWN:	CEB
CHECKED:	-

SHEET No.:

10 OF 15



PLAN
SCALE: 1"=5'

CULVERT LAYOUT / ELEVATION TABLE

POINT	DESCRIPTION	NORTHING - EASTING	ELEVATION
1	FINISHED PAVEMENT AT CULVERT CENTERLINE	N 744,897.00 - E 1,099,222.92	362.40
2	CULVERT BARREL CENTERLINE AT BARREL UPSTREAM FACE	N 744,911.34 - E 1,099,225.88	-
3	CULVERT BARREL CENTERLINE AT BARREL DOWNSTREAM FACE	N 744,882.66 - E 1,099,219.97	-

NOTES:

1. SEE SHEET 13 FOR WINGWALL FOOTING COORDINATES.

HYDRAULIC DATA	
DRAINAGE AREA	1.86 SM
DESIGN FREQUENCY	100 YEAR
DESIGN DISCHARGE	304 CFS
AVERAGE DAILY FLOW ELEVATION (OHW)	359.5± FT.
UPSTREAM DESIGN WATER SURFACE ELEVATION	360.07 FT.
DOWNSTREAM DESIGN WATER SURFACE ELEVATION	359.65 FT.

CONCRETE DISTRIBUTION		
ITEM	UNIT	QUANTITY
SUPERSTRUCTURE [1]	C.Y.	2
SUBSTRUCTURE [2]	C.Y.	98
FOOTINGS	C.Y.	73
TOTAL	C.Y.	173

FOOTNOTES

[1] PARAPETS
[2] CULVERT BARREL AND WINGWALL STEMS

TRANSPORATION DIMENSIONS AND WEIGHT				
MEMBER	SHIPPING LENGTH	SHIPPING HEIGHT	SHIPPING WIDTH	SHIPPING WEIGHT
PRECAST BOX CULVERT BARREL	16'-0"	8'-8"	TBD BY CONTRACTOR	7.33 KLF

CULVERT GENERAL NOTES:

1. SPECIFICATIONS: PREPARED BY NATHAN L. JACOBSON & ASSOCIATES, INC. TECHNICAL PORTION IS BASED SUBSTANTIALLY ON CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 819 (2024) AS SUPPLEMENTED UP TO THE DATE OF ADVERTISEMENT OR ISSUANCE OF THE INVITATION TO BID.
2. DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, 2020, AS SUPPLEMENTED BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION BRIDGE AND ROADWAY STRUCTURES DESIGN MANUAL (2025), RELEASE 1.1.
3. ALLOWABLE DESIGN STRESSES:

   CLASS PRC05062 CONCRETE BASED ON f'_c = 5,000 psi
   CLASS PCC03340 CONCRETE BASED ON f'_c = 3,000 psi
   CLASS PCC04462 CONCRETE BASED ON f'_c = 4,000 psi
   REINFORCEMENT (ASTM A 615 GRADE 60) f_y = 60,000 psi

   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.
4. LIVE LOAD: AASHTO HL-93, LEGAL AND PERMIT LOADS.
5. FUTURE PAVING ALLOWANCE: NONE.
6. CLASS PRC05062 CONCRETE: CLASS PRC05062 CONCRETE SHALL BE USED FOR PRECAST CONCRETE.
7. CLASS PCC03340 CONCRETE: CLASS PCC03340 CONCRETE SHALL BE USED FOR CAST-IN-PLACE MUD SLABS, FOOTINGS AND WINGWALL STEMS.
8. CLASS PCC04462 CONCRETE: CLASS PCC04462 CONCRETE SHALL BE USED FOR CAST-IN-PLACE CONCRETE PARAPETS.
9. JOINT SEAL: SEE SPECIFICATIONS.
10. EXPOSED EDGES: EXPOSED EDGES OF CONCRETE SHALL BE BEVELED 1" x 1" UNLESS DIMENSIONED OTHERWISE.
11. CONCRETE COVER: REINFORCEMENT SHALL HAVE 2" COVER UNLESS DIMENSIONED OTHERWISE.
12. REINFORCEMENT: REINFORCEMENT SHALL BE ASTM A 615 GRADE 60 AND GALVANIZED AFTER FABRICATION UNLESS NOTED OTHERWISE. ALL REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A767, CLASS 1, INCLUDING SUPPLEMENTAL REQUIREMENTS.
13. CONSTRUCTION JOINTS: CONSTRUCTION JOINTS, OTHER THAN THOSE SHOWN ON THE DRAWINGS, WILL NOT BE PERMITTED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
14. CAST-IN-PLACE CONCRETE: THE SAME READY MIX CONCRETE SUPPLIER SHALL BE USED FOR ALL CAST-IN-PLACE CONCRETE.
15. LAP SPLICES: LAP SPLICES, OTHER THAN THOSE SHOWN ON THE DRAWINGS, WILL NOT BE PERMITTED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
16. MINIMUM LAP SPLICE LENGTHS: UNLESS OTHERWISE SHOWN:

    #4 30"
    #5 48"
    #6 60"
    #7 72"
    #8 72"
17. CAST INSERTS OR HOLES: INSERTS OR HOLES CAST INTO THE PRECAST SECTIONS FOR THE SOLE PURPOSE OF HANDLING AND SEATING THE UNITS SHALL BE GROUTED OVER TO A SMOOTH FINISH UPON COMPLETION OF THE WORK.
18. INSERTS: INSERTS SHALL HAVE A CORROSIVE RESISTANT COATING AND SHALL BE ONE OF THE FOLLOWING:

    STAR EXPANSION INDUSTRIES CORP. TYPE P35T
    RICHMOND SCREW ANCHOR COMPANY TYPE LF
    DAYTON SUPERIOR CORPORATION TYPE F57
19. THREADED BARS: BARS WITH THREADED ENDS SHALL BE COMPATIBLE WITH THREADED INSERTS. THREADS SHALL BE LONG ENOUGH TO FULLY ENGAGE THE INSERTS. THREADED BARS SHALL CONFORM TO THE REQUIREMENTS FOR REINFORCEMENT IN NOTES 3 AND 11.
20. DOWEL BAR SPLICER ASSEMBLIES: DOWEL BAR SPLICER ASSEMBLIES SHALL BE ONE OF THE FOLLOWING:

    RICHMOND SCREW ANCHOR COMPANY DB-SAE AND DOWEL-IN
    DAYTON SUPERIOR CORPORATION D50 DBR COUPLER
    OKABE COMPANY, INC. DS SPLICE CLIP

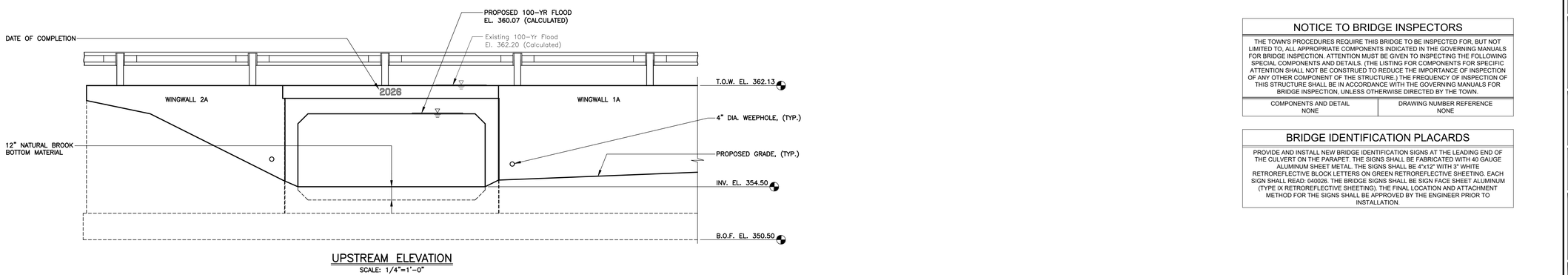
NOTICE TO BRIDGE INSPECTORS

THE TOWN'S 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 FOR 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 TOWN.

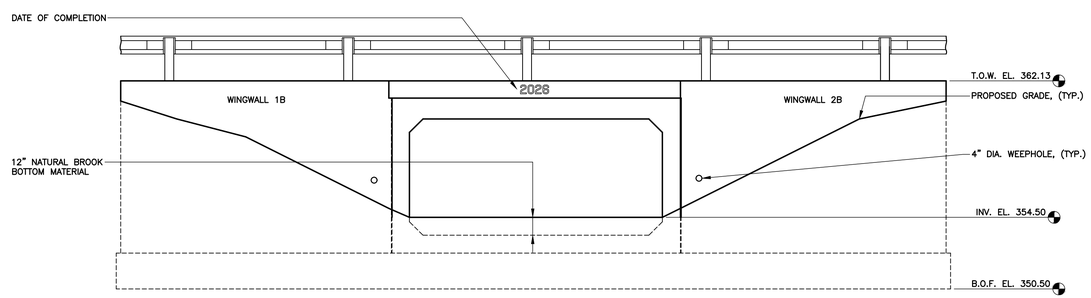
COMPONENTS AND DETAIL	DRAWING NUMBER REFERENCE
NONE	NONE

BRIDGE IDENTIFICATION PLACARDS

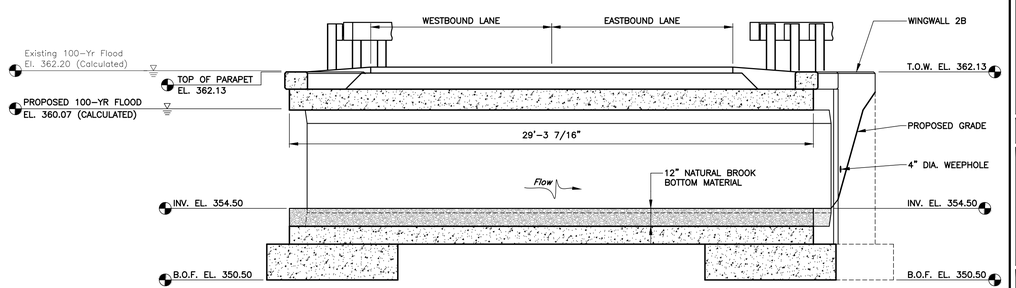
PROVIDE AND INSTALL NEW BRIDGE IDENTIFICATION SIGNS AT THE LEADING END OF THE CULVERT ON THE PARAPET. THE SIGNS SHALL BE FABRICATED WITH 40 GAUGE ALUMINUM SHEET METAL. THE SIGNS SHALL BE 4"x12" WITH 3" WHITE RETROREFLECTIVE BLOCK LETTERS ON GREEN RETROREFLECTIVE SHEETING. EACH SIGN SHALL READ: 040026. THE BRIDGE SIGNS SHALL BE SIGN FACE SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING). THE FINAL LOCATION AND ATTACHMENT METHOD FOR THE SIGNS SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.



UPSTREAM ELEVATION
SCALE: 1/4"=1'-0"



DOWNSTREAM ELEVATION
SCALE: 1/4"=1'-0"



SECTION A-A
PARALLEL TO CULVERT CENTERLINE AT STA. 10+00.00 LOOKING EAST
SCALE: 1/4"=1'-0"

NOTES:

1. SEE SHEET 10 FOR PROJECT NOTES.

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GRAPHIC SCALES
HORIZONTAL SCALE: 1"=5'-0"
VERTICAL SCALE: 1"=4'-0"

TOWN OF
EAST HADDAM,
CONNECTICUT

REPLACEMENT OF BRIDGE No. 040026 BEEBE ROAD OVER PINE BROOK

CULVERT GENERAL PLAN

PERMITTING

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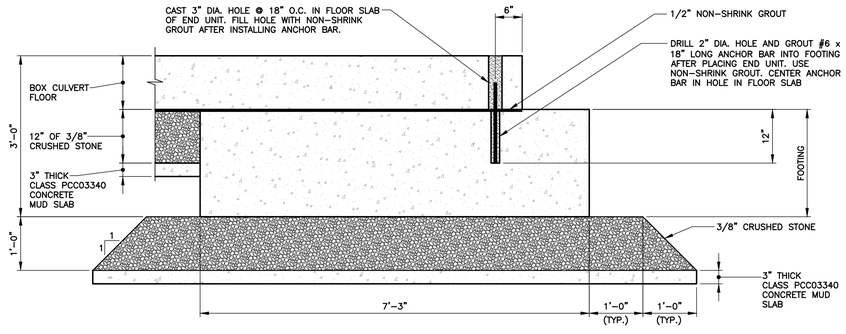
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REVISIONS

No.	DESCRIPTION	DATE

DATE:	OCTOBER 2025
SCALE:	AS NOTED
PROJECT No.:	09590014
CADD FILE:	09590014SP
DESIGNED:	JRE
DRAWN:	CEB
CHECKED:	-

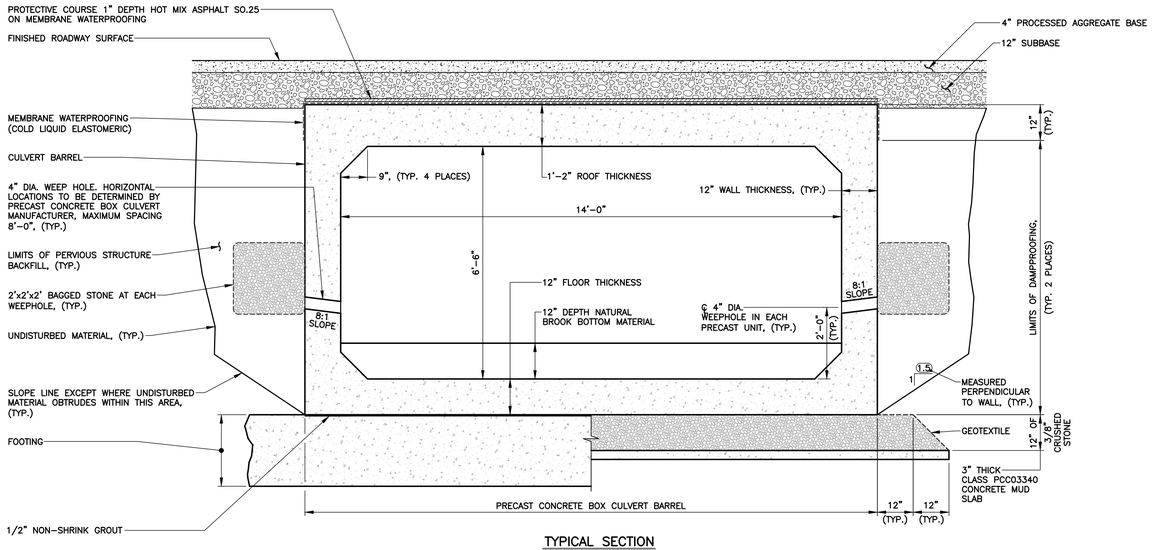
SHEET No.:
11 OF 15



TYPICAL SECTION
CULVERT TO FOOTING CONNECTION PIN
SCALE: 3/4"=1'-0"

NOTES:

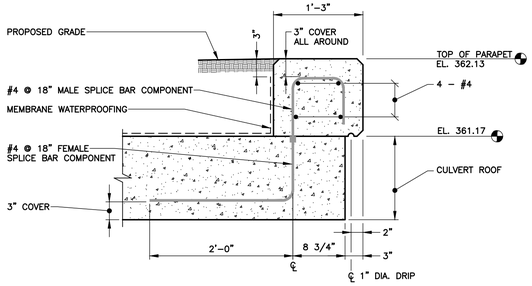
1. RETURN WALL AND CUT-OFF WALL CAN BE PRECAST AT THE CONTRACTOR'S DISCRETION, AND IN ACCORDANCE WITH APPLICABLE SECTIONS OF THE PROJECT MANUAL.
2. ALL REINFORCEMENT IN RETURN AND CUT-OFF WALL SHALL BE HOT-DIPPED GALVANIZED.



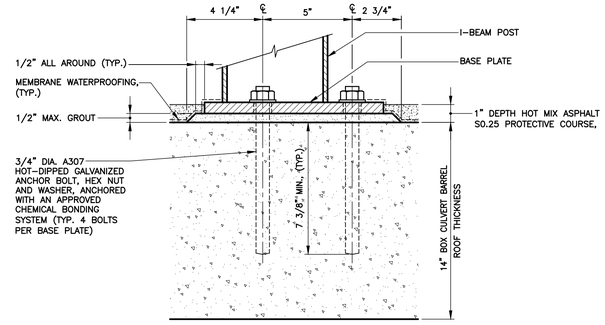
TYPICAL SECTION
PRECAST CONCRETE BOX CULVERT
SCALE: 1/2"=1'-0"

NOTES:

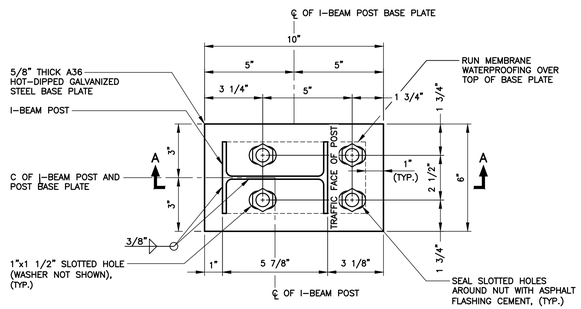
1. IF UNSUITABLE MATERIAL IS ENCOUNTERED, IT SHALL BE EXCAVATED TO A DEPTH DETERMINED BY ENGINEER AND REPLACED WITH ADDITIONAL 3/8" CRUSHED STONE, AS ORDERED BY ENGINEER.
2. MAXIMUM ALLOWABLE DESIGN FOUNDATION PRESSURE = 4,000 psf.



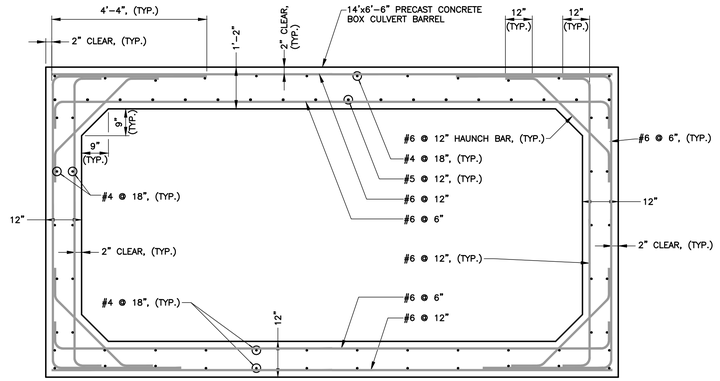
TYPICAL SECTION
PARAPET
SCALE: 1"=1'-0"



SECTION "A-A"



PLAN
TYPE R-B 350 (MODIFIED) POST BASE PLATE
SCALE: 3"=1'-0"



TYPICAL SECTION
PRECAST CONCRETE BOX CULVERT BARREL REINFORCEMENT
SCALE: 1/2"=1'-0"

NOTES:

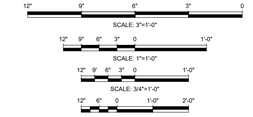
1. ALL REINFORCEMENT SHALL BE HOT-DIPPED GALVANIZED.
2. MANUFACTURER TO ESTABLISH SECTION LENGTHS.
3. MANUFACTURER SHALL PROVIDE A KEYED JOINT BETWEEN ADJACENT SECTIONS CONTAINING A CONTINUOUS GASKET MADE OF PLASTIC, RUBBER OR NEOPRENE THAT SHALL FORM AND MAINTAIN A WATERTIGHT AND FLEXIBLE JOINT, UNLESS OTHERWISE APPROVED.
4. THE MINIMUM COVER FOR REINFORCEMENT SHALL BE 2".
5. WEEPHOLES NOT SHOWN. ADJUST REINFORCING STEEL LOCATIONS TO AVOID WEEPHOLES.
6. OTHER THAN WHAT IS SHOWN IN THIS DRAWING SET, NO OTHER PRECAST COMPONENT DESIGN WORK IS PROVIDED. CONTRACTOR TO PROVIDE ANY OTHER PRECAST COMPONENT DESIGN WORK HE DEEMS NECESSARY FOR HANDLING AND INSTALLATION.

NOTES:

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GRAPHIC SCALES



TOWN OF EAST HADDAM, CONNECTICUT

REPLACEMENT OF BRIDGE No. 040026 BEEBE ROAD OVER PINE BROOK

CULVERT AND PARAPET DETAILS

PERMITTING

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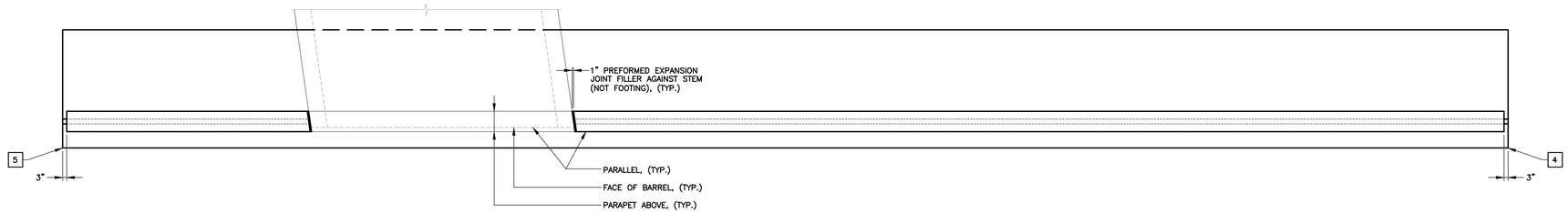
No.	DESCRIPTION	DATE

DATE:	OCTOBER 2025
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CADD FILE:	09590014SP
DESIGNED:	JRE
DRAWN:	CEB
CHECKED:	-

SHEET No.:

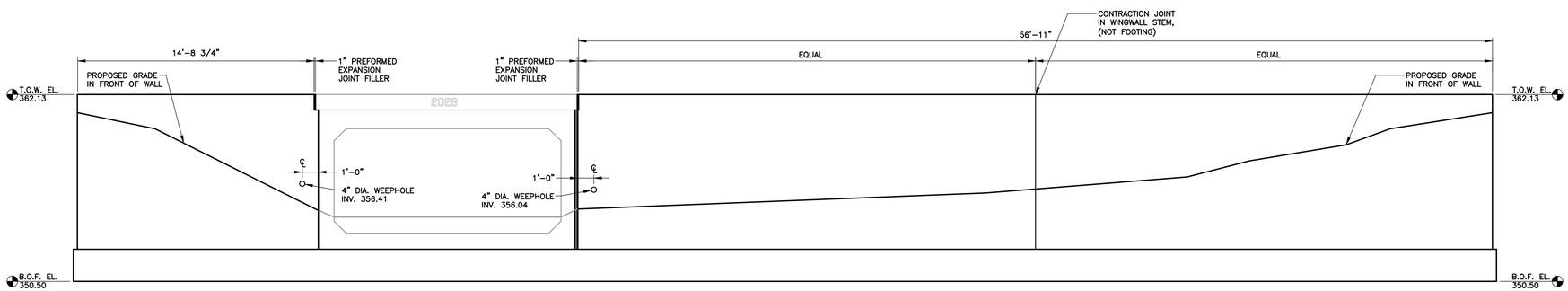
FOOTING LAYOUT / ELEVATION TABLE

POINT	DESCRIPTION	NORTHING - EASTING	ELEVATION
4	WINGWALL FOOTING 1A NORTHWEST CORNER	N 744,934.52 - E 1,099,164.79	-
5	WINGWALL FOOTING 2A NORTHEAST CORNER	N 744,904.68 - E 1,099,248.22	-
6	WINGWALL FOOTING 1B SOUTHWEST CORNER	N 744,889.38 - E 1,099,197.46	-
7	WINGWALL FOOTING 2B SOUTHEAST CORNER	N 744,873.67 - E 1,099,241.37	-



WINGWALL 2A PLAN

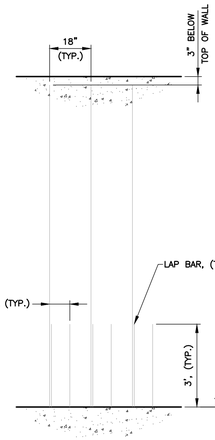
WINGWALL 1A PLAN

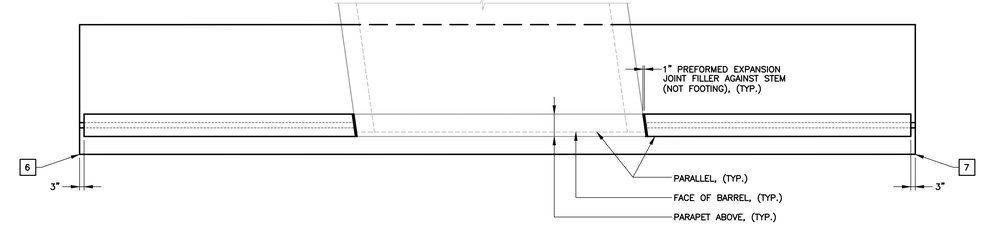


WINGWALL 2A ELEVATION

WINGWALL 1A ELEVATION

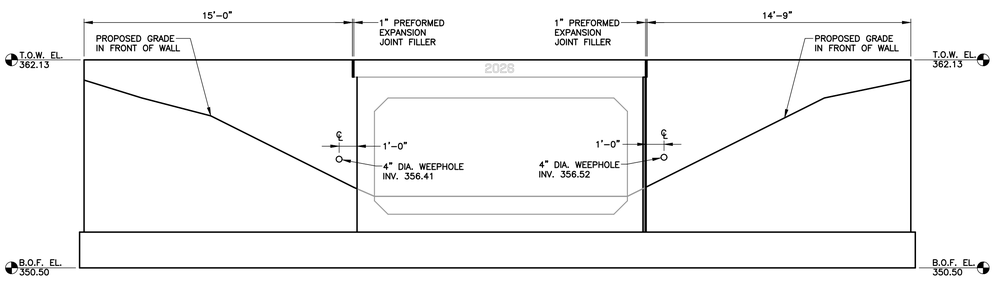
UPSTREAM WINGWALLS
SCALE: 1/4"=1'-0"





WINGWALL 1B PLAN

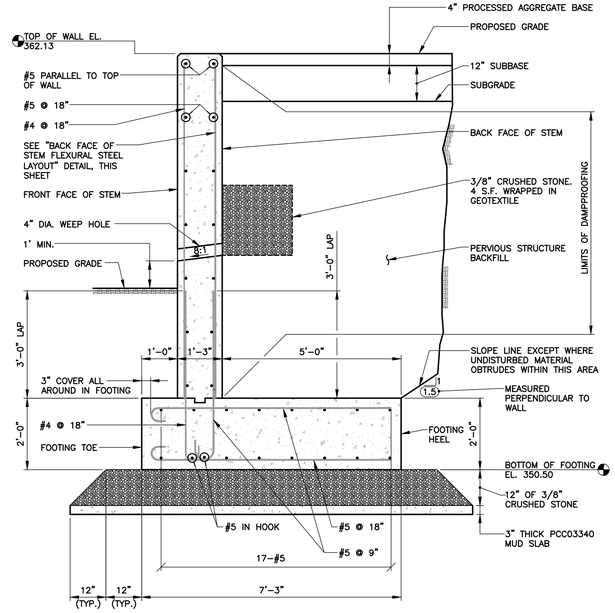
WINGWALL 2B PLAN



WINGWALL 1B ELEVATION

WINGWALL 2B ELEVATION

DOWNSTREAM WINGWALLS
SCALE: 1/4"=1'-0"



TYPICAL SECTION
WINGWALLS
SCALE: 1/2"=1'-0"

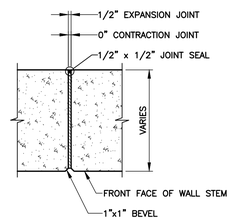
NOTES:

1. MAXIMUM DESIGN FOUNDATION PRESSURE = 2.9 KSF

BACK FACE OF STEM FLEXURAL STEEL LAYOUT
N.T.S.

NOTES:

1. ALL BARS ARE #5 IN THIS DETAIL.



CONSTRUCTION JOINT DETAIL
SCALE: 1/2"=1'-0"

NOTES:

1. JOINT SEAL TO EXTEND FROM TOP OF FOOTING TO TOP OF WALL AND HORIZONTALLY ALONG TOP OF WALL TO FRONT FACE OF WALL UNLESS OTHERWISE DIRECTED BY ENGINEER.
2. NO REINFORCEMENT SHALL PASS THROUGH CONTRACTION OR EXPANSION JOINTS.
3. REINFORCEMENT SHALL PASS THROUGH CONSTRUCTION JOINTS.
4. NO EXPANSION JOINT FILLER SHALL BE USED AT CONTRACTION JOINTS.

NOTES:

1. SEE SHEET 10 FOR PROJECT NOTES.

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GRAPHIC SCALES

12" 6" 0 1'-0" 2'-0"
SCALE: 1/2"=1'-0"

12" 0 1'-0" 2'-0" 3'-0" 4'-0"
SCALE: 1/4"=1'-0"

TOWN OF
EAST HADDAM,
CONNECTICUT

REPLACEMENT OF BRIDGE No. 040026 BEEBE ROAD OVER PINE BROOK

WINGWALL DETAILS

PERMITTING

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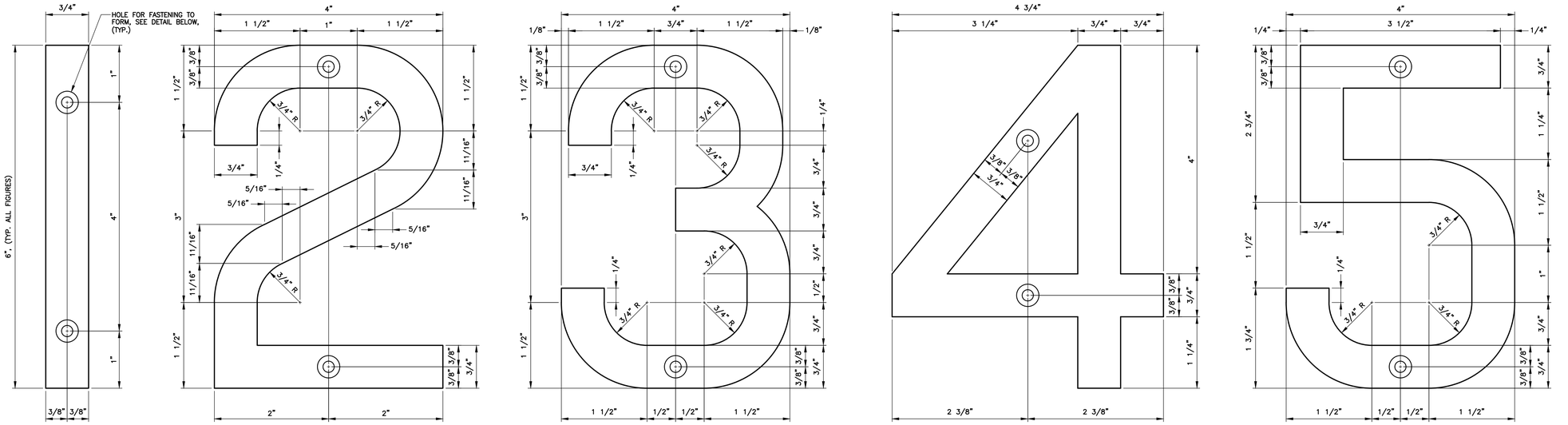
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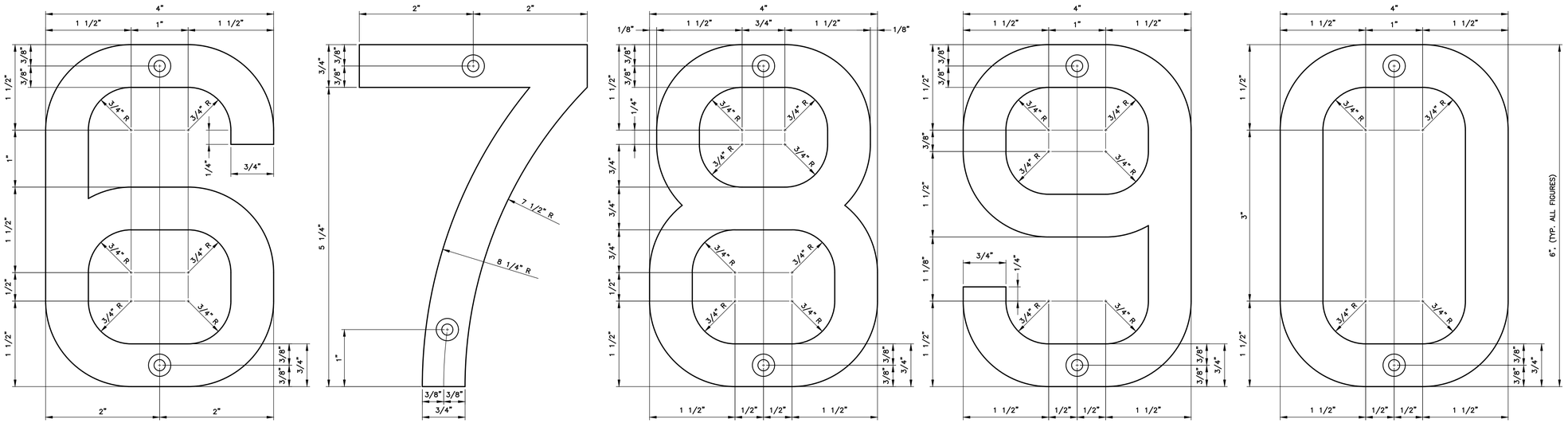
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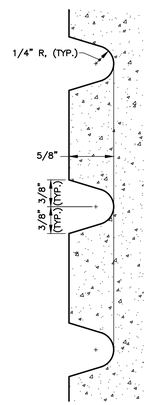
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CADD FILE:	09590014SP
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DRAWN:	CEB
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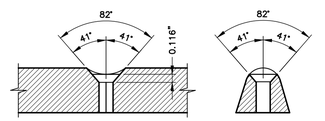
SHEET No.:
13 OF 15







TYPICAL SECTION THROUGH FIGURES
N.T.S.



HOLE FOR FASTENING TO FORM
N.T.S.

NOTES:
1. DRILL HOLE WITH NO.9 DRILL AND COUNTERSINK FOR STANDARD 3/16" – 24 T.P.I. FLATHEAD STOVE BOLT OR NO. 10 – 24 T.P.I. FLATHEAD MACHINE SCREW.

NOTES:
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TOWN OF
EAST HADDAM,
CONNECTICUT

REPLACEMENT OF BRIDGE No. 040026 BEEBE ROAD OVER PINE BROOK

FIGURES FOR DATES ON BRIDGE PARAPETS

PERMITTING

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14 OF 15



NOTES:

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GRAPHIC SCALE

10 8 6 4 2 0 10 20

SCALE: 1"=10'

TOWN OF EAST HADDAM, CONNECTICUT

REPLACEMENT OF BRIDGE No. 040026 BEEBE ROAD OVER PINE BROOK

ENVIRONMENTAL IMPACT PLAN

PERMITTING

WETLAND/WATERCOURSE AREA IMPACTS

		AREA NO.	AREA SQUARE FEET
	PERMANENT IMPACT IN WATERCOURSE	1	130
	PERMANENT IMPACT IN WATERCOURSE	2	187
	PERMANENT IMPACT IN WATERCOURSE	3	42
	PERMANENT IMPACT IN WATERCOURSE	4	31
	PERMANENT IMPACT IN WATERCOURSE	5	57
	PERMANENT IMPACT IN WATERCOURSE	6	106
	PERMANENT IMPACT IN WATERCOURSE TOTAL AREA		553
	TEMPORARY IMPACT IN WATERCOURSE	7	285
	TEMPORARY IMPACT IN WATERCOURSE	8	9
	TEMPORARY IMPACT IN WATERCOURSE	9	117
	TEMPORARY IMPACT IN WATERCOURSE	10	218
	TEMPORARY IMPACT IN WATERCOURSE TOTAL AREA		629
	PERMANENT IMPACT IN STATE/FEDERAL WETLAND	11	110
	PERMANENT IMPACT IN STATE/FEDERAL WETLAND	12	76
	PERMANENT IMPACT IN STATE/FEDERAL WETLAND	13	179
	PERMANENT IMPACT IN STATE/FEDERAL WETLAND	14	119
	PERMANENT IMPACT IN STATE/FEDERAL WETLAND TOTAL AREA		484
	TEMPORARY IMPACT IN STATE/FEDERAL WETLAND	15	213
	TEMPORARY IMPACT IN STATE/FEDERAL WETLAND	16	119
	TEMPORARY IMPACT IN STATE/FEDERAL WETLAND	17	46
	TEMPORARY IMPACT IN STATE/FEDERAL WETLAND	18	1
	TEMPORARY IMPACT IN STATE/FEDERAL WETLAND	19	176
	TEMPORARY IMPACT IN STATE/FEDERAL WETLAND TOTAL AREA		555
	TOTAL IMPACT AREA		2,221

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DRAWN:	CEB
CHECKED:	-

SHEET No.:

15 OF 15