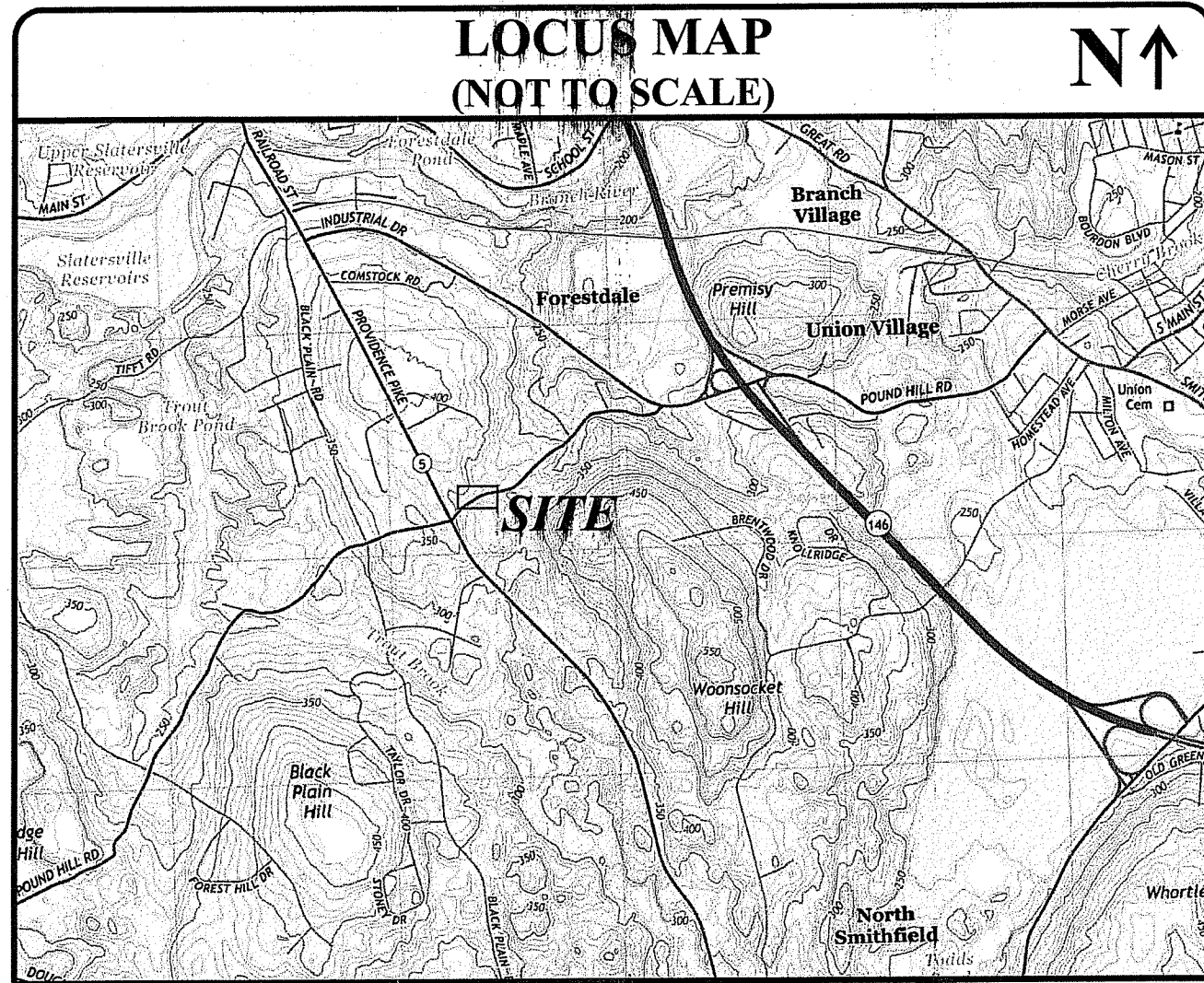


**EMERGENCY CULVERT REPLACEMENT PLAN for**

**TOWN OF NORTH SMITHFIELD  
819 POUND HILL ROAD**

**NORTH SMITHFIELD, RHODE ISLAND**



**OWNER/APPLICANT**  
TOWN OF NORTH SMITHFIELD  
ATTN: DEPT. OF PUBLIC WORKS  
83 GREENE STREET  
NORTH SMITHFIELD, RI 02886

**OWNER/APPLICANT**  
AP 8, LOT 141  
DANIEL & KYM LAROCHE  
819 POUND HILL ROAD  
NORTH SMITHFIELD, RI 02886

**OWNER/APPLICANT**  
AP 8, LOT 263  
AMANDA & CLAYTON WRIGHT  
520 PROVIDENCE PIKE  
NORTH SMITHFIELD, RI 02886

**ENGINEER**  
JOE CASALI ENGINEERING, INC.  
300 POST ROAD  
WARWICK, RI 02888  
(401) 944-1300 PHONE  
WWW.JOECASALI.COM

**GENERAL NOTES:**

- LIMITED EXISTING CONDITIONS AND TOPOGRAPHIC SURVEY COMPLETED BY JOE CASALI ENGINEERING INC., 300 POST ROAD, WARWICK, RI 02888 IN DECEMBER 2023. ADDITIONAL EXISTING CONDITIONS INFORMATION OBTAINED FROM TOWN OF NORTH SMITHFIELD GEOGRAPHICAL INFORMATION SYSTEM (GIS), RHODE ISLAND GEOGRAPHICAL INFORMATION SYSTEM (RIGIS) AND AVAILABLE AERIAL IMAGERY.
- THE LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE LATEST AVAILABLE INFORMATION. THE UTILITY LOCATIONS ARE APPROXIMATE AND MAY NOT BE ALL INCLUSIVE. THE CONTRACTOR SHALL CHECK AND VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, BOTH OVERHEAD AND UNDERGROUND, AND "DIG-SAFE" MUST BE NOTIFIED PRIOR TO COMMENCING ANY CONSTRUCTION OPERATIONS. RESTORATION AND REPAIR OF DAMAGE TO EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WITH NO ADDITIONAL COST TO THE OWNER. NO EXCAVATION SHALL COMMENCE UNTIL ALL INVOLVED UTILITY COMPANIES AND/OR CITY WHOSE FACILITIES MIGHT BE AFFECTED BY THE CONTRACTOR ARE NOTIFIED AT LEAST 72 HOURS IN ADVANCE.
- ALL ELEVATIONS SHOWN ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAV88).
- THE SITE IS LOCATED ON FLOOD INSURANCE RATE MAP FOR PROVIDENCE COUNTY, RHODE ISLAND, MAP NUMBER 4400700152G, EFFECTIVE DATE OF MARCH 2, 2009. BASED ON THE FEMA FLOOD INSURANCE RATE MAP, THE ENTIRE PROJECT AREA LIES WITHIN ZONE X - AREAS OF 0.2% ANNUAL CHANCE FLOOD / AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE.
- SOILS WITHIN THE PROJECT AREA PRIMARILY CONSIST OF RIDGEBURY, LEICESTER, AND WHITMAN SOILS. 0 TO 8 PERCENT SLOPES, EXTREMELY STONY (R). RI SOILS GENERALLY EXHIBIT A DEPTH TO THE SEASONAL HIGH GROUNDWATER TABLE OF 0 TO 6 INCHES BELOW THE GROUND SURFACE BELONGING TO HYDROLOGIC SOIL GROUP D.
- WETLAND WITHIN THE PROJECT SITE WERE FIELD DELINEATED BY AVIZINS ENVIRONMENTAL SERVICES INC. (AES) IN JANUARY 2024. AES FIELD DELINEATED THE ORIGINAL HIGH WATER MARK (OHWM) AS IT RELATES TO THE PROJECT AREA ON FEBRUARY 27, 2025. WETLAND FLAGS AND OHWM FLAGS WERE SURVEY LOCATED BY JOE CASALI ENGINEERING INC. THE SITE IS LOCATED WITHIN THE BRANCH RIVER WATERSHED AREA (RIDEM INVENTORY ID# 010900030204).
- THE PROPOSED TEMPORARY WETLAND/STREAM ALTERATION AREA ASSOCIATED WITH THE PROJECT IS 417 SF WHILE THE PERMANENT ALTERATION AREA IS APPROXIMATELY 137 SF. CONSISTENT WITH THE REQUIREMENTS FOR SELF-VERIFICATION PROJECTS UNDER RHODE ISLAND GP.19, STREAM, RIVER AND BROOK CROSSINGS (NOT INCLUDING WETLAND CROSSINGS) AS DESCRIBED IN THE DEPARTMENT OF THE ARMY GENERAL PERMITS FOR THE STATE OF RHODE ISLAND AND LANDS LOCATED WITHIN THE BOUNDARIES OF THE NARRAGANSETT LAND CLAIM SETTLEMENT AREA, ESTABLISHED BY THE USACE ON MAY 6, 2022 AND EFFECTIVE THROUGH MAY 6, 2027. USACE SELF-VERIFICATION FILE NO. IAE-2025-00319.

**SOIL EROSION AND SEDIMENTATION CONTROL NOTES:**

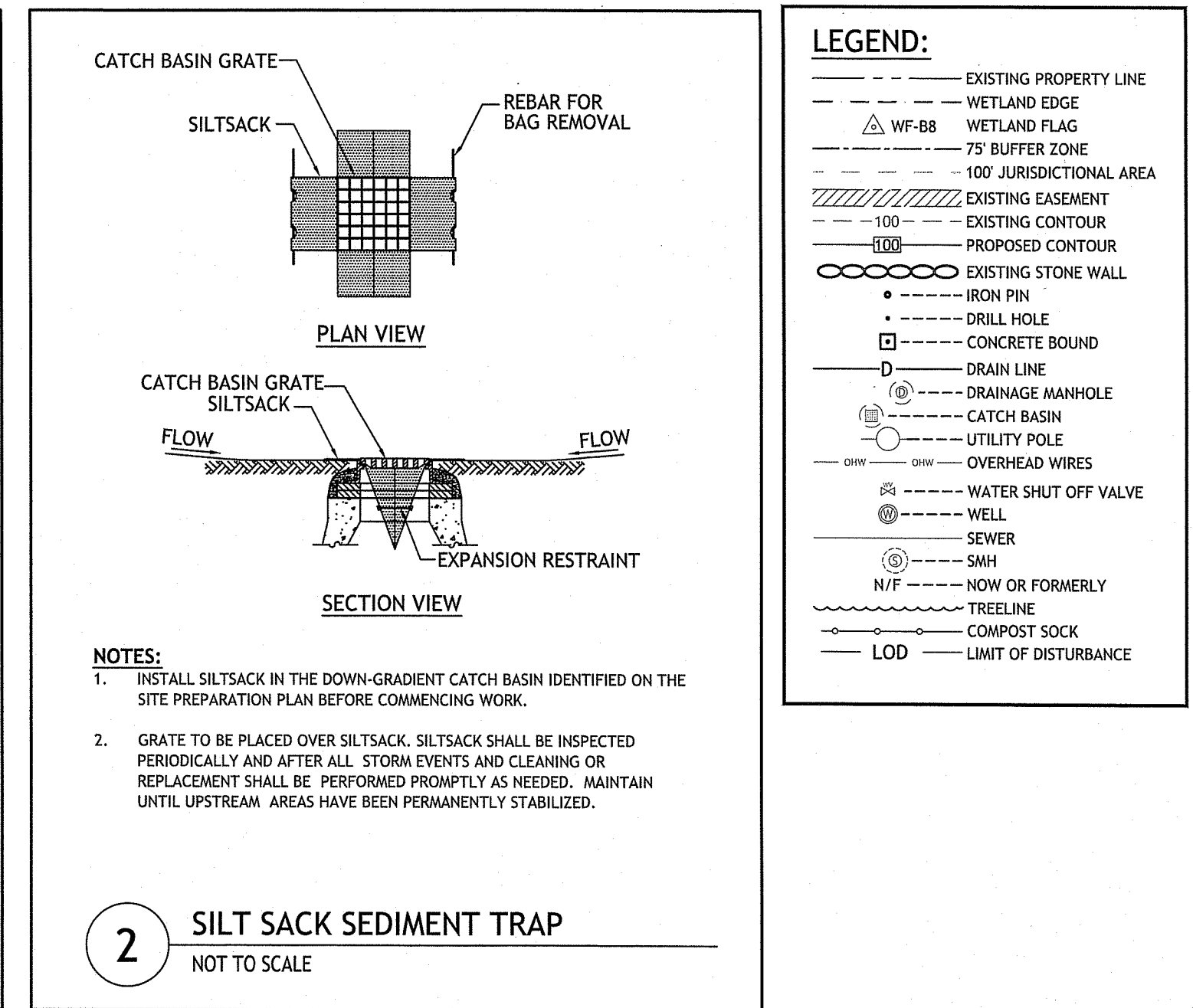
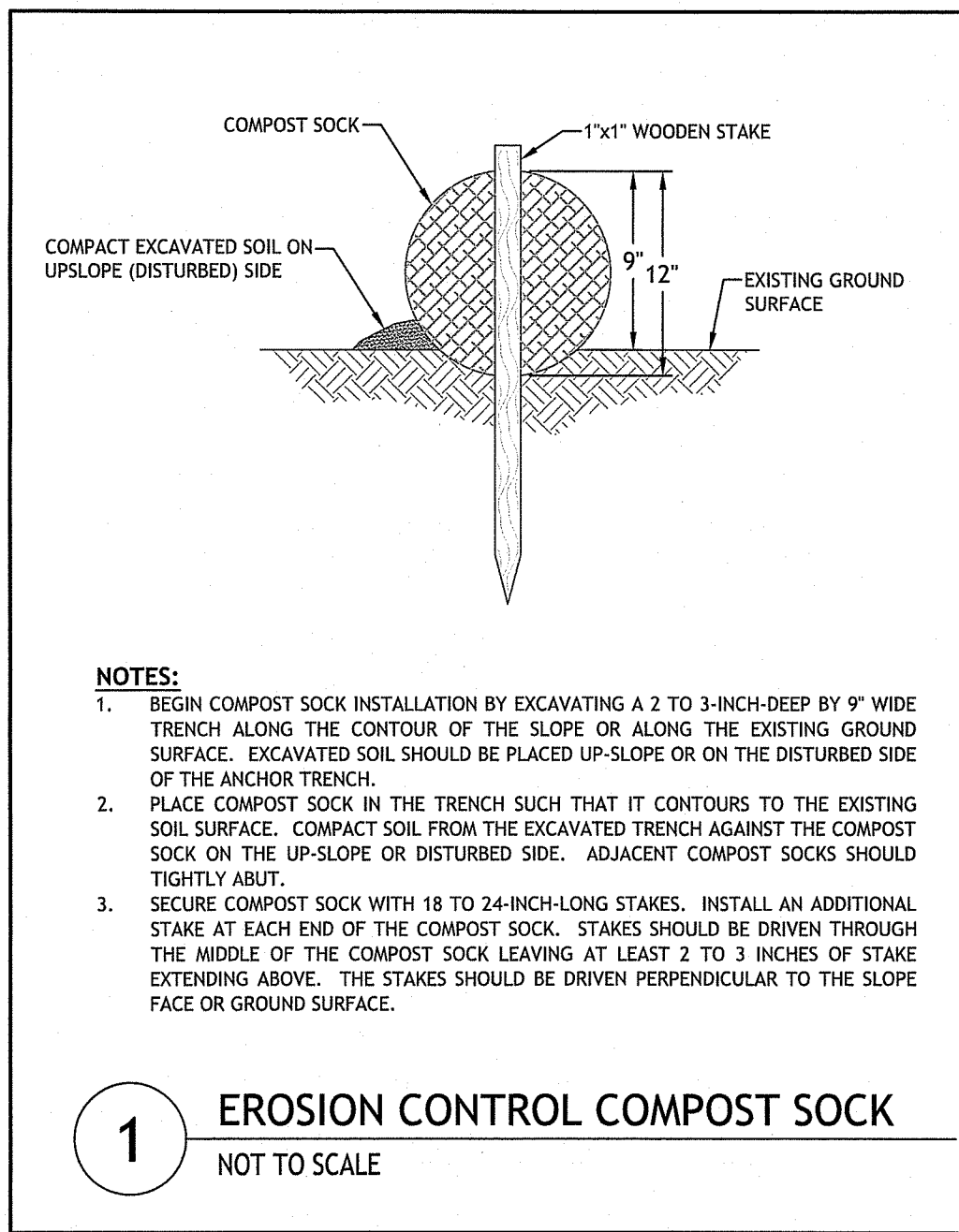
- THE COMPOST FILTER SOCK ILLUSTRATED ON THESE PLANS SHALL SERVE AS THE STRICT LIMIT OF DISTURBANCE FOR THE PROJECT WITHIN OR ADJACENT TO REGULATED FRESHWATER WETLAND AREAS.
- THE LIMITS OF CLEARING, GRADING, AND DISTURBANCE SHALL BE KEPT TO A MINIMUM WITHIN THE PROPOSED AREA OF CONSTRUCTION. ALL AREAS OUTSIDE OF THESE LIMITS, AS DEPICTED ON THE PLAN SHALL BE TOTALLY UNDISTURBED, TO REMAIN IN NATURAL CONDITION.
- ALL DISTURBED SLOPES EITHER NEWLY CREATED OR CURRENTLY EXPOSED SHALL BE SEED, PROTECTED AND MAINTAINED BY THE CONTRACTOR. THE CONTRACTOR SHALL REGULARLY CHECK ALL SEEDING AREAS TO ENSURE THAT A GOOD STAND IS MAINTAINED.
- ALL COMPOST FILTER SOCK, TEMPORARY TREATMENT (HAY, STRAW, ETC.) AND TEMPORARY EROSION PROTECTION SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION AND SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED.
- STOCKPILES OF TOPSOIL SHALL NOT BE LOCATED NEAR WATERWAYS. THEY SHALL HAVE SIDE SLOPES OF NO GREATER THAN 2:1 AND SHALL BE TEMPORARILY SEED AND/OR STABILIZED PER CONTRACT SPECIFICATIONS.
- THE COMPOST FILTER SOCK SHALL BE CHECKED BY THE CONTRACTOR ON A WEEKLY BASIS AND AFTER EACH STORM FOR UNDERMINING OR DETERIORATION. THE CONTRACTOR SHALL CLEAN THE ACCUMULATED SEDIMENT IF HALF OF THE ORIGINAL HEIGHT OF THE HAY-BALES BECOMES FILLED WITH SEDIMENTS.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL SOIL EROSION AND SEDIMENTATION CONTROLS ON THE PROJECT SITE FOR THE ENTIRE DURATION OF THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL FOLLOW THE DIRECTION OF THE RESIDENT ENGINEER WITH REGARD TO INSTALLATION, MAINTENANCE, AND REPAIR OF ALL SOIL EROSION AND SEDIMENTATION CONTROLS ON THE PROJECT SITE. TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROLS SHALL BE MAINTAINED UNTIL ALL EXPOSED SOILS ARE SATISFACTORILY STABILIZED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND/OR RESEEDING ALL AREAS THAT DO NOT DEVELOP WITHIN ONE YEAR FROM THE COMPLETION OF CONSTRUCTION.
- ALL REFERENCED SOIL EROSION AND SEDIMENTATION CONTROLS INCLUDING MATERIALS USED, APPLICATION RATES AND THE INSTALLATION PROCEDURES SHALL BE PERFORMED PER THE "RHODE ISLAND EROSION AND SEDIMENTATION HANDBOOK", DATED 1989, REVISED 2014.

**INDEX OF DRAWINGS**

SHEET NO.	PLAN
1	EXISTING CONDITIONS & SITE PREP. PLAN
2	GRADING & DRAINAGE PLAN

**CULVERT INSTALLATION NOTES:**

- PRIOR TO ANY WORK ASSOCIATED WITH EXISTING CULVERT REMOVAL AND/OR NEW CULVERT CONSTRUCTION, CONTRACTOR SHALL INSTALL ALL NECESSARY SOIL EROSION AND SEDIMENT CONTROL MEASURES AS DETAILED ON THIS SHEET.
- ALL CONSTRUCTION WORK SHALL BE PERFORMED IN THE DRY. THE CONTRACTOR SHALL PROVIDE, OPERATE AND MAINTAIN ALL PUMPS, DRAINS, WET POINTS, SCREENS, OR OTHER FACILITIES NECESSARY TO CONTROL, COLLECT AND DISPOSE OF ALL SURFACE AND SUBSURFACE WATER ENCOUNTERED IN THE PERFORMANCE OF THE WORK.
- THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH OSHA REQUIREMENTS INCLUDING SHORING IN TRENCHES.
- ALL WORK ASSOCIATED WITH THE EXISTING CULVERT REMOVAL AND/OR THE NEW CULVERT CONSTRUCTION SHALL BE LIMITED TO THE LOW FLOW PERIOD (THE PERIOD FROM JULY 1 TO OCTOBER 31 OF ANY CALENDAR YEAR).
- THE DIVERSION IS DESIGNED FOR THE 2 YEAR DESIGN STORM.
- THE CONTRACTOR SHALL HAVE A BY-PASS PUMP AND ALL NECESSARY EQUIPMENT FOR TRENCH DEWATERING AND BY PASS PUMPING.
- PROPOSED DIVERSION PLAN INCLUDES INSTALLING SANDBAG DAM AND 12" HDPE PIPE TO CARRY FLOW THROUGH CONSTRUCTION AREA.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A STREAM BYPASS PLAN TO THE DESIGN ENGINEER OF RECORD FOR REVIEW AND APPROVAL. THE PLAN SHALL INCLUDE MEASURES TO DESIGN, INSTALL, OPERATE, MAINTAIN, REMOVE AND DISPOSE A TEMPORARY STREAM DIVERSION SYSTEM AS NECESSARY TO ALLOW FOR REMOVAL OF THE EXISTING CULVERT AND INSTALLATION OF THE NEW CULVERT IN THE DRY. THE PLAN SHALL ADHERE TO THE FOLLOWING REQUIREMENTS:
  - TEMPORARY STREAM DIVERSION MAY BE EITHER A GRAVITY OR A PUMPED SYSTEM. IF A PUMPED SYSTEM IS SPECIFIED, ONCE A PUMPED DIVERSION BEGINS, THE PUMPS MUST RUN CONTINUOUSLY UNTIL IT IS NO LONGER NECESSARY TO BYPASS FLOWS. BACK-UP PUMPS MUST BE MADE AVAILABLE ON SITE AND 24-HOUR MONITORING OF THE SYSTEM WILL BE REQUIRED.
  - SCOUR PROTECTION MUST BE PROVIDED AT THE OUTLET OF THE TEMPORARY STREAM DIVERSION SYSTEM.
  - CONTRACTOR SHALL ARRANGE A MEETING WITH THE DESIGN ENGINEER OF RECORD PRIOR TO IMPLEMENTATION OF THE TEMPORARY STREAM DIVERSION A MINIMUM OF 7 DAYS PRIOR TO IMPLEMENTATION.
  - THE PLAN SHALL INCLUDE DRAWINGS SHOWING THE LOCATION OF TEMPORARY STREAM DIVERSION, ACCESS ROUTES AND EQUIPMENT TO BE USED. SCHEDULE AND SEQUENCE OF WORK SHALL ALSO BE PROVIDED. PLAN SHALL ADDRESS DEWATERING OF THE ISOLATED WORK AREA (NOTE 6), RESTORATION AND STABILIZATION OF THE TEMPORARY STREAM CHANNEL, AND CHANNEL REWATERING.
  - CALCULATIONS SHALL BE PROVIDED, STAMPED BY A RI REGISTERED PROFESSIONAL ENGINEER, DEMONSTRATING THAT THE DIVERSION SYSTEM CAN ADEQUATELY CONVEY THE PEAK FLOWS ANTICIPATED.
  - INSPECTION AND MAINTENANCE SCHEDULE SHALL BE PROVIDED. CONTRACTOR SHALL KEEP RECORDS OF ALL INSPECTION AND MAINTENANCE ACTIVITIES.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A DEWATERING PLAN TO THE DESIGN ENGINEER OF RECORD FOR REVIEW AND APPROVAL. THE DEWATERING PLAN MAY BE MADE A PART OF THE TEMPORARY STREAM DIVERSION PLAN. ALL DEWATERING SHALL BE IN ACCORDANCE WITH SECTION 203 OF THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION (RIDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR DESIGNING, FURNISHING, INSTALLING, OPERATING, MAINTAINING, AND SUBSEQUENTLY REMOVING TEMPORARY DEWATERING SYSTEM. REFER TO ADDITIONAL DEWATERING NOTES PROVIDED ON THIS SHEET.
  - DEWATERING SYSTEM SHALL BE DESIGNED TO LOWER THE GROUNDWATER LEVEL TO A MINIMUM OF TWO (2) FEET BELOW THE MAXIMUM EXCAVATION LEVEL.
  - DEWATERING DESIGN SHALL INCLUDE PROVISIONS FOR DIVERSION OF SURFACE WATER AWAY FROM EXCAVATIONS AND OTHER WORK AREAS. CONTROL AND REMOVAL OF PRECIPITATION FROM EXCAVATION AREAS, PREVENTION OF DISTURBANCE OF ADJACENT STRUCTURES DUE TO DEWATERING AND SEDIMENTATION CONTROLS OF DEWATERING EFFLUENT. CONTRACTOR SHALL SUBMIT THE FOLLOWING AS PART OF DEWATERING PLAN: QUALIFICATIONS AND CREDENTIALS OF DEWATERING CONTRACTOR, PROPOSED LOCATIONS OF DEWATERING EQUIPMENT, SHOP DRAWINGS AND DESIGN CALCULATIONS (STAMPED/CERTIFIED BY A RI REGISTERED PROFESSIONAL ENGINEER) AND PROPOSED INSTALLATION AND ABANDONMENT PROCEDURES.
  - UPON STABILIZATION OF THE LOWERED GROUNDWATER TABLE, THE CONTRACTOR SHALL EXCAVATE FOR CULVERT FOOTINGS. UPON EXPOSURE OF SUBGRADE, THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER OF RECORD FOR INSPECTION. ANY ORGANIC, LOOSE OR OTHERWISE DELETERIOUS MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE GRAVEL BORROW COMPACTED TO 95% DRY DENSITY (MODIFIED PROCTOR) AND CRUSHED STONE (MIN. 12-INCH DEPTH BELOW FOOTINGS). EXTENT OF UNSUITABLE MATERIAL REMOVAL WILL BE DETERMINED IN THE FIELD BY THE DESIGN ENGINEER OF RECORD. ANY UNSUITABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF OFF-SITE.



**LEGEND:**

---	EXISTING PROPERTY LINE
---	WETLAND EDGE
△ WF-BB	WETLAND FLAG
---	75' BUFFER ZONE
---	100' JURISDICTIONAL AREA
---	EXISTING EASEMENT
---	EXISTING CONTOUR
---	PROPOSED CONTOUR
---	EXISTING STONE WALL
---	CONCRETE BOUND
---	DRILL HOLE
---	IRON PIN
---	CONCRETE BOUND
---	DRAIN LINE
---	DRAINAGE MANHOLE
---	CATCH BASIN
---	UTILITY POLE
---	OVERHEAD WIRES
---	WATER SHUT OFF VALVE
---	WELL
---	SEWER
---	SHM
---	N/O OR FORMERLY
---	TREELINE
---	COMPOST SOCK
---	L/D
---	LIMIT OF DISTURBANCE

- NOTES:**
- BEGIN COMPOST SOCK INSTALLATION BY EXCAVATING A 2 TO 3-INCH-DEEP BY 9" WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE OR ALONG THE EXISTING GROUND SURFACE. EXCAVATED SOIL SHOULD BE PLACED UP-SLOPE OR ON THE DISTURBED SIDE OF THE ANCHOR TRENCH.
  - PLACE COMPOST SOCK IN THE TRENCH SUCH THAT IT CONTOURS TO THE EXISTING SOIL SURFACE. COMPACT SOIL FROM THE EXCAVATED TRENCH AGAINST THE COMPOST SOCK ON THE UP-SLOPE OR DISTURBED SIDE. ADJACENT COMPOST SOCKS SHOULD TIGHTLY ABUT.
  - SECURE COMPOST SOCK WITH 18 TO 24-INCH-LONG STAKES. INSTALL AN ADDITIONAL STAKE AT EACH END OF THE COMPOST SOCK. STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE COMPOST SOCK LEAVING AT LEAST 2 TO 3 INCHES OF STAKE EXTENDING ABOVE. THE STAKES SHOULD BE DRIVEN PERPENDICULAR TO THE SLOPE FACE OR GROUND SURFACE.

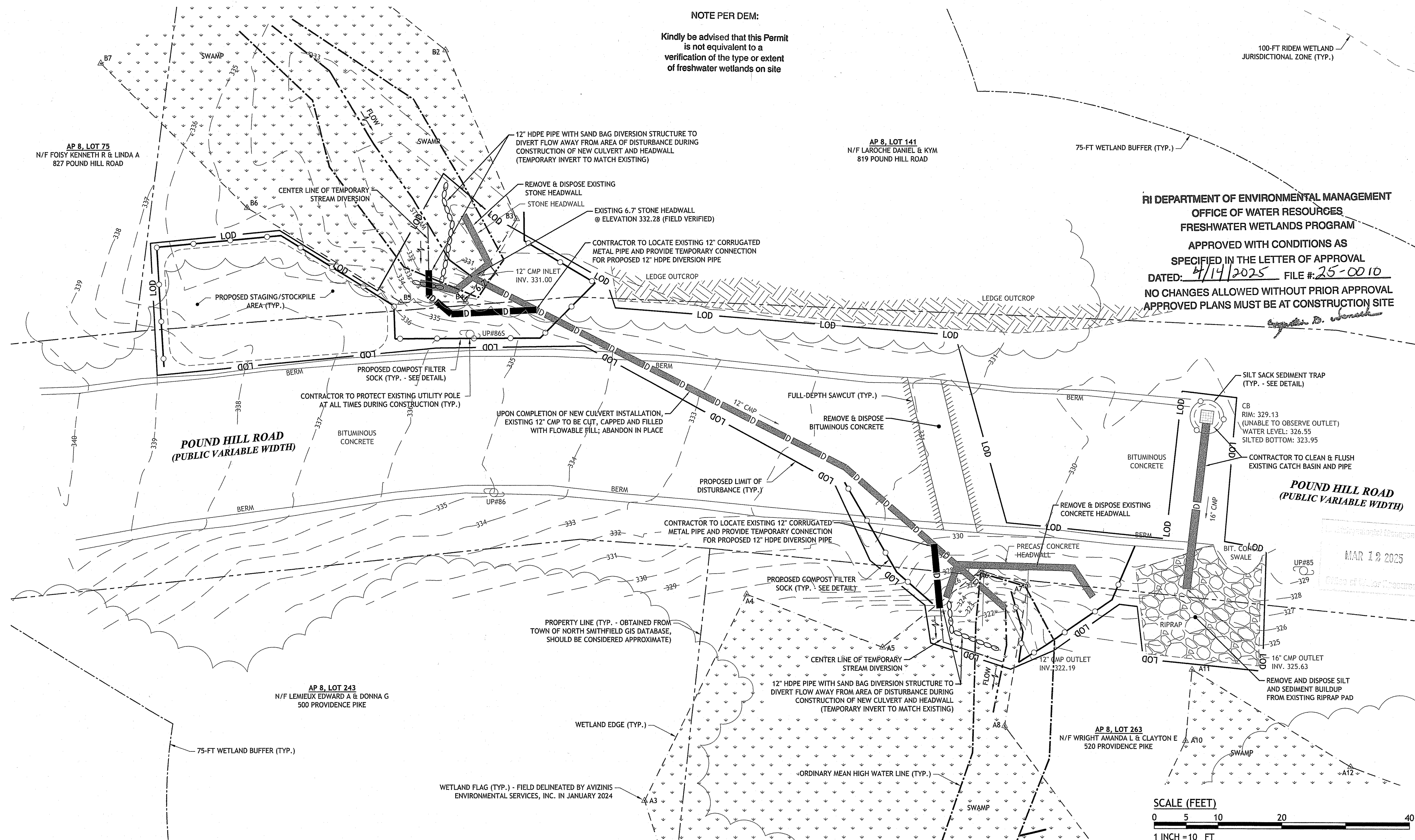
- NOTES:**
- INSTALL SILTSACK IN THE DOWN-GRADIENT CATCH BASIN IDENTIFIED ON THE SITE PREPARATION PLAN BEFORE COMMENCING WORK.
  - GRATE TO BE PLACED OVER SILTSACK. SILTSACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED. MAINTAIN UNTIL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED.

**1 EROSION CONTROL COMPOST SOCK**  
NOT TO SCALE

**2 SILT SACK SEDIMENT TRAP**  
NOT TO SCALE

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM

NOTE PER DEM:  
Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site



RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED: 4/14/2025 FILE #: 25-CO-10  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

**EMERGENCY CULVERT REPLACEMENT**  
**TOWN OF NORTH SMITHFIELD**  
**DEPARTMENT OF PUBLIC WORKS**  
819 POUND HILL ROAD  
NORTH SMITHFIELD, RHODE ISLAND

**REVISIONS:**

NO.	DATE	DESCRIPTION
1	3/14/25	RIDEM RTC

DESIGNED BY: DRD  
DRAWN BY: MCGSD  
CHECKED BY: JAC  
DATE: JAN 2025  
PROJECT NO: 08-49ae

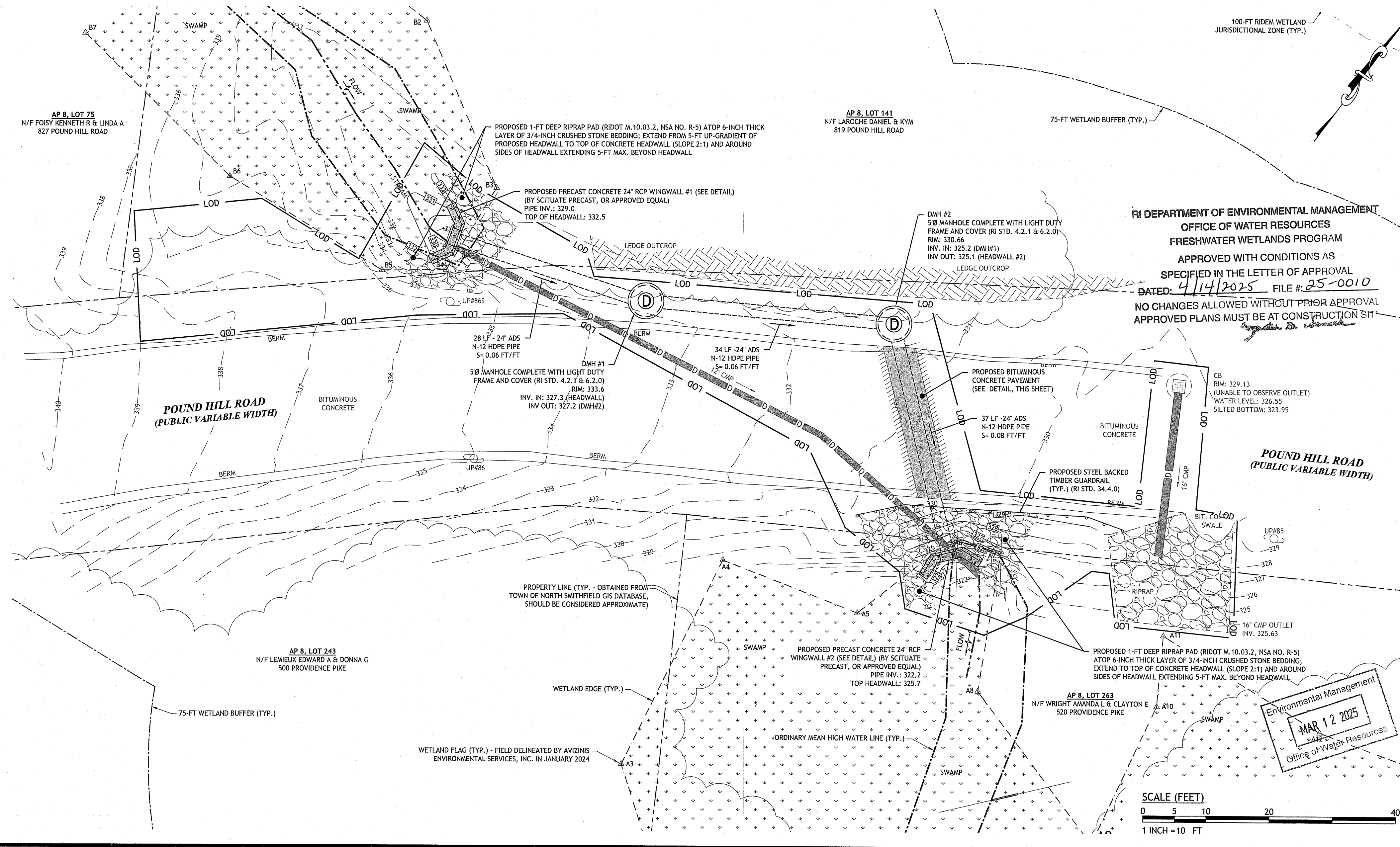
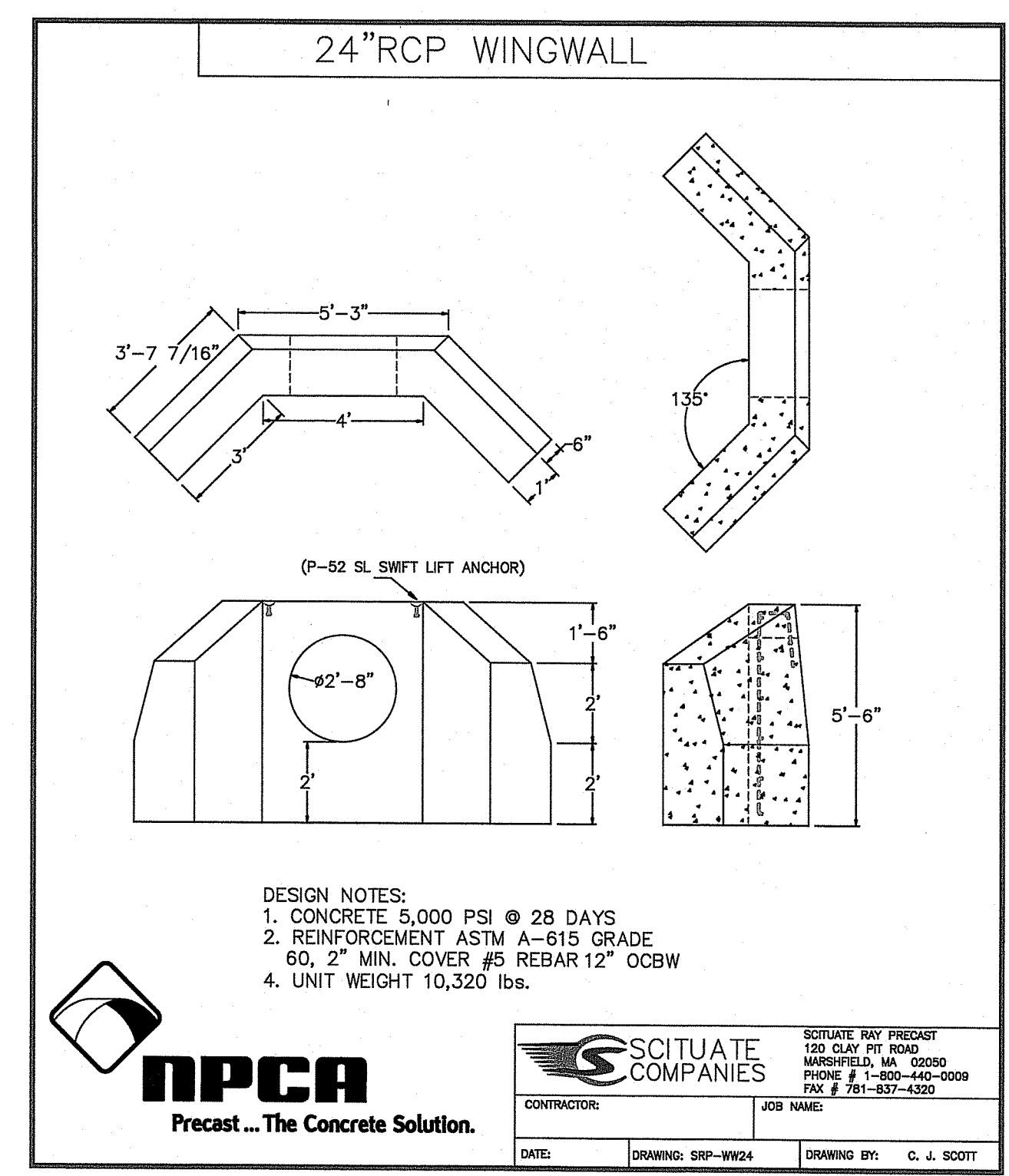
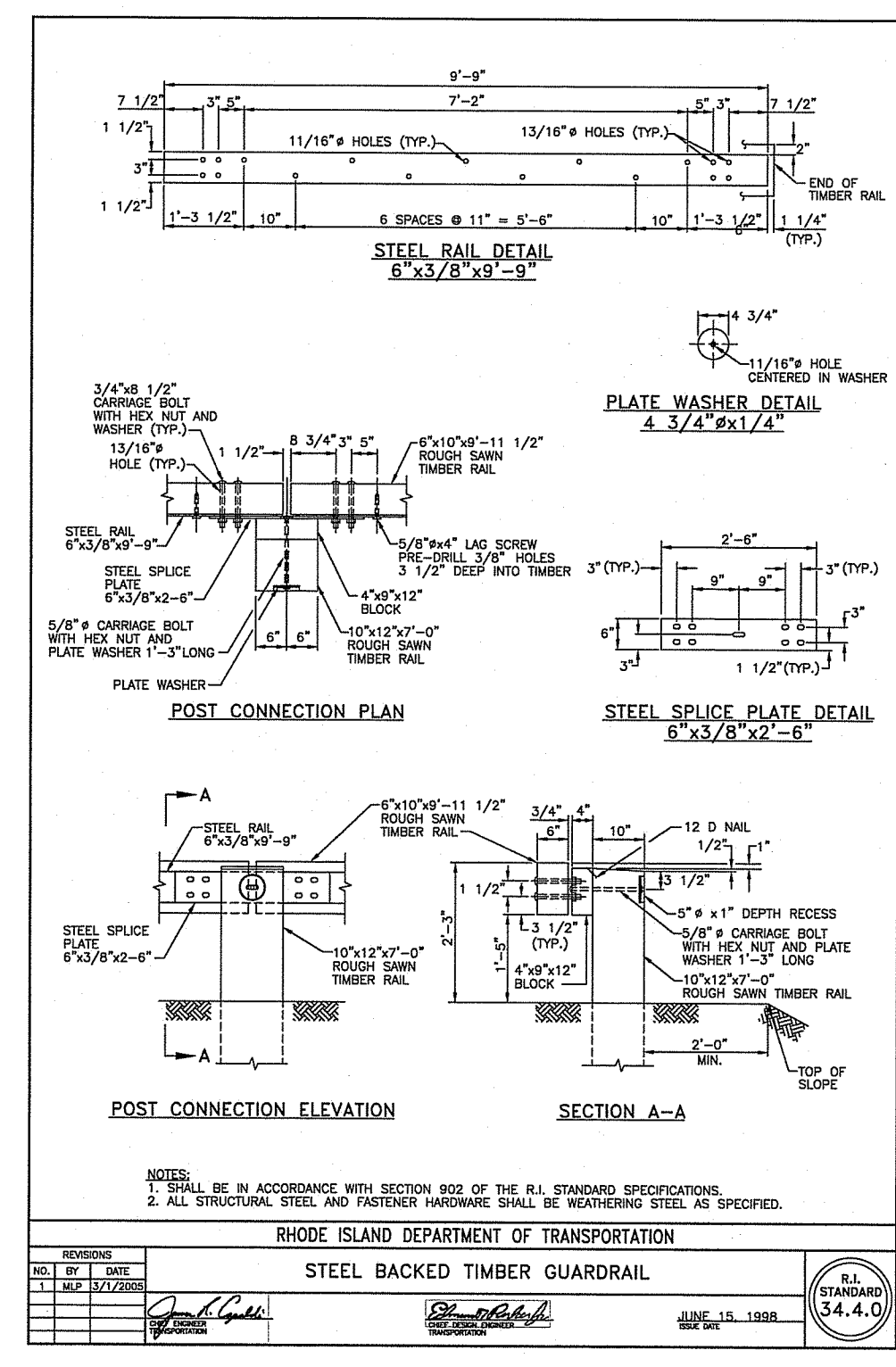
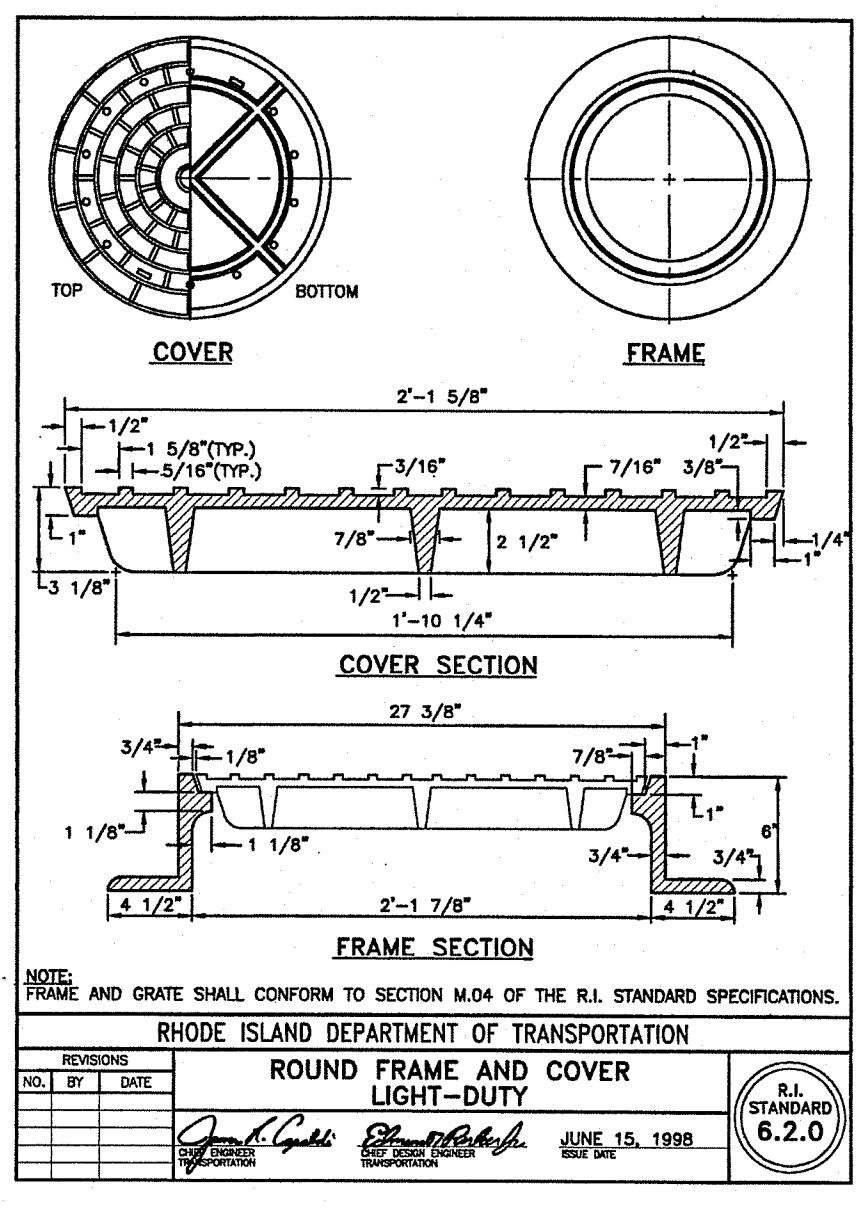
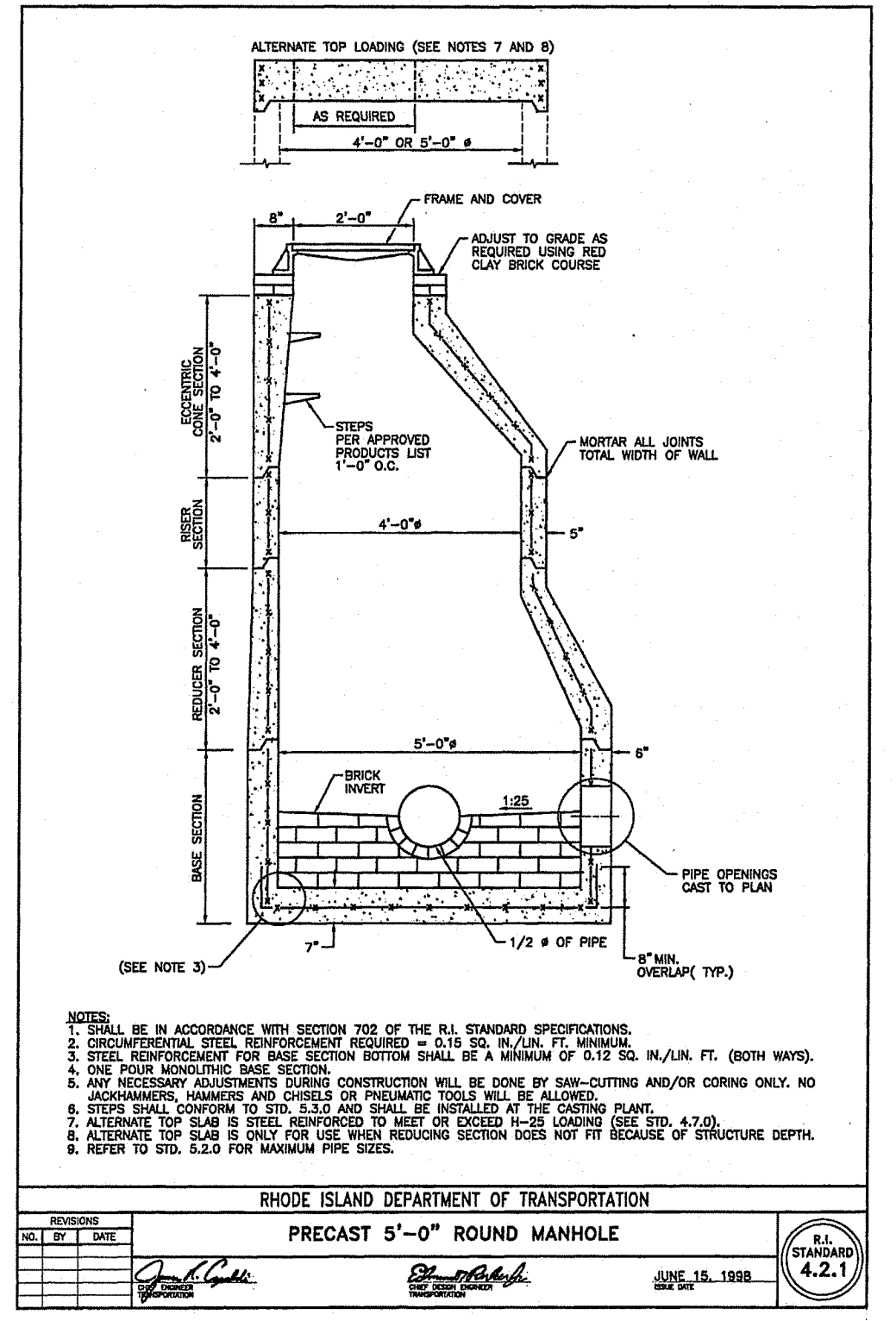
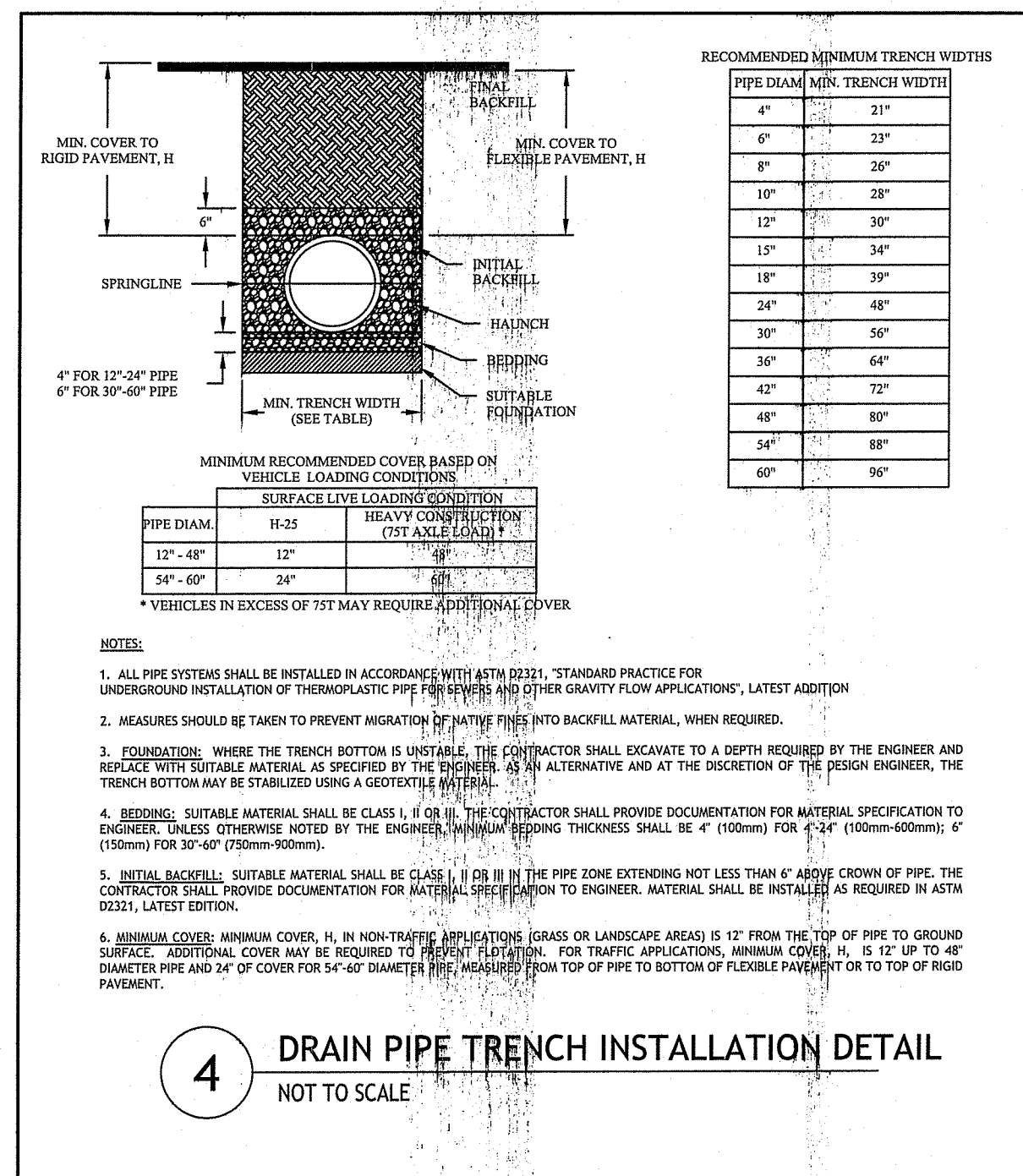
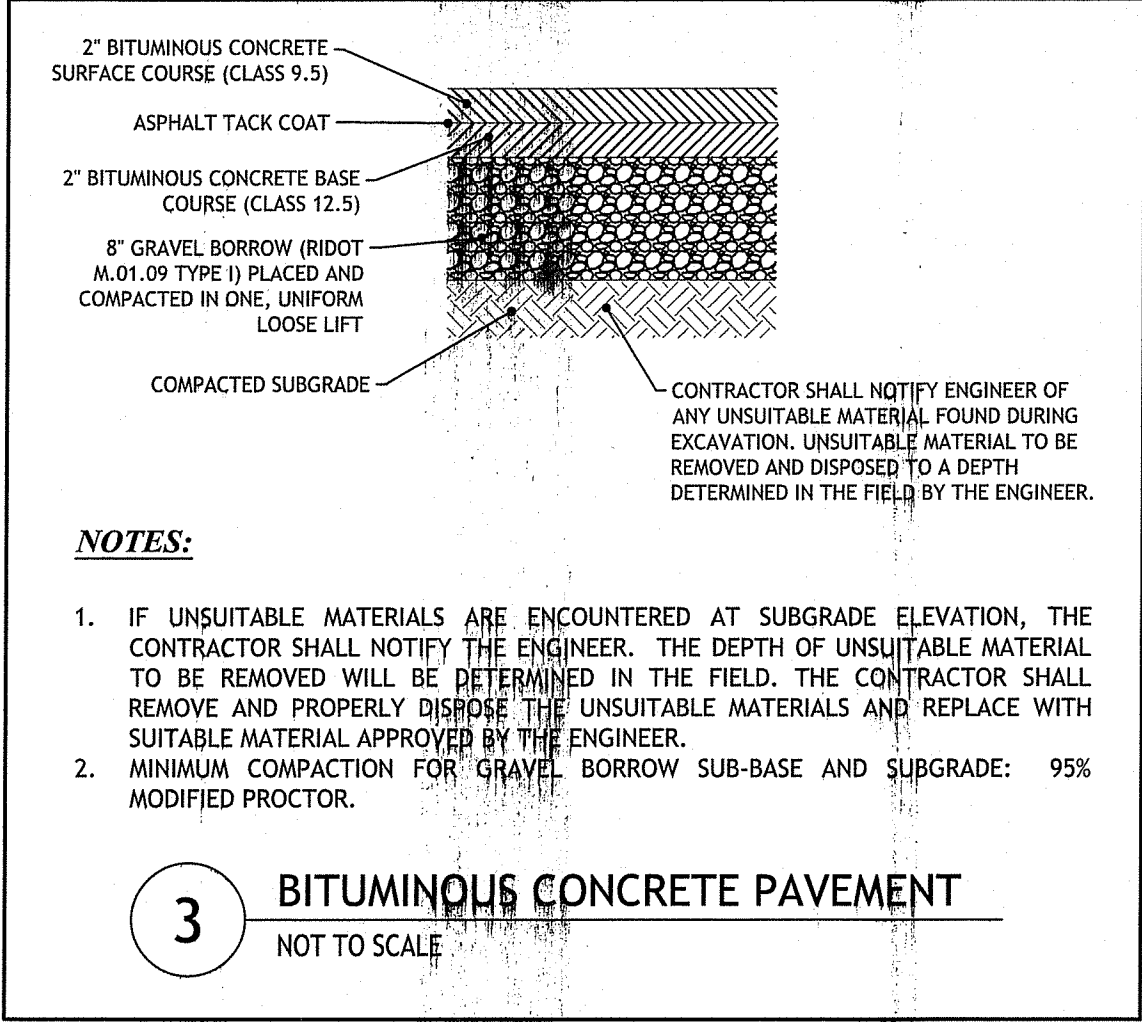
ISSUED FOR PERMIT  
NOT FOR CONSTRUCTION

**EXISTING CONDITIONS & SITE PREP. PLAN**

**SHEET 1 OF 2**

LOCATION OF EXISTING UTILITIES SHOWN ARE FROM GATE LOCATION AND EXISTING DOCUMENTATION AND MAY NOT BE ACCURATE. EXACT LOCATION TO BE DONE BY THE APPROVED UTILITY COMPANY OR MUNICIPALITY PRIOR TO ANY EXCAVATION. CALL AT 952-5477 4-866-866-5477 (4-866-344-7233)

Q:\08-49 Town of North Smithfield\08-49ae 819 Pound Hill Road Culvert\Culvert\ACAD\819 Pound Hill Rd Culvert (PERMIT SET R1).dwg Mar 11, 2025 11:23am



**JCE**  
JOE CASALI ENGINEERING, INC.  
CIVIL SITE DEVELOPMENT - TRANSPORTATION  
300 POST ROAD, WARWICK, RI 02888  
401.944.1300 (401)944.1313 FAX WWW.JCEONLINE.COM

JOSEPH A. CASALI  
7250  
REGISTERED PROFESSIONAL ENGINEER  
CIVIL  
03/10/2025

**EMERGENCY CULVERT REPLACEMENT**  
**TOWN OF NORTH SMITHFIELD**  
**DEPARTMENT OF PUBLIC WORKS**  
819 POUND HILL ROAD  
NORTH SMITHFIELD, RHODE ISLAND

**REVISIONS:**

NO.	DATE	DESCRIPTION
1	3/14/25	RIDEM RTC

DESIGNED BY: DRD  
DRAWN BY: MCG/SJ  
CHECKED BY: JAC  
DATE: JAN. 2025  
PROJECT NO: 08-49ae

ISSUED FOR PERMIT  
NOT FOR CONSTRUCTION

**GRADING & DRAINAGE PLAN**  
**SHEET 2 OF 2**

Q:\08-49 Town of North Smithfield\08-49ae 819 Pound Hill Rd Culvert\ACAD\819 Pound Hill Rd Culvert [PERMIT SET] R1.dwg, Mar. 11, 2025 11:25am