

# KER-ANNA POND

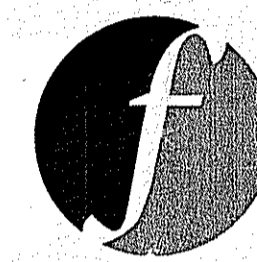
RESERVOIR ROAD · CUMBERLAND · RHODE ISLAND

## DESIGN-BUILD PROJECT

### PERMITTING AND CONSTRUCTION DRAWING SET

REVISED DECEMBER 2014

PREPARED FOR  
**CAMP KER-ANNA**  
500 RESERVOIR ROAD  
CUMBERLAND, RI 02864



PREPARED BY

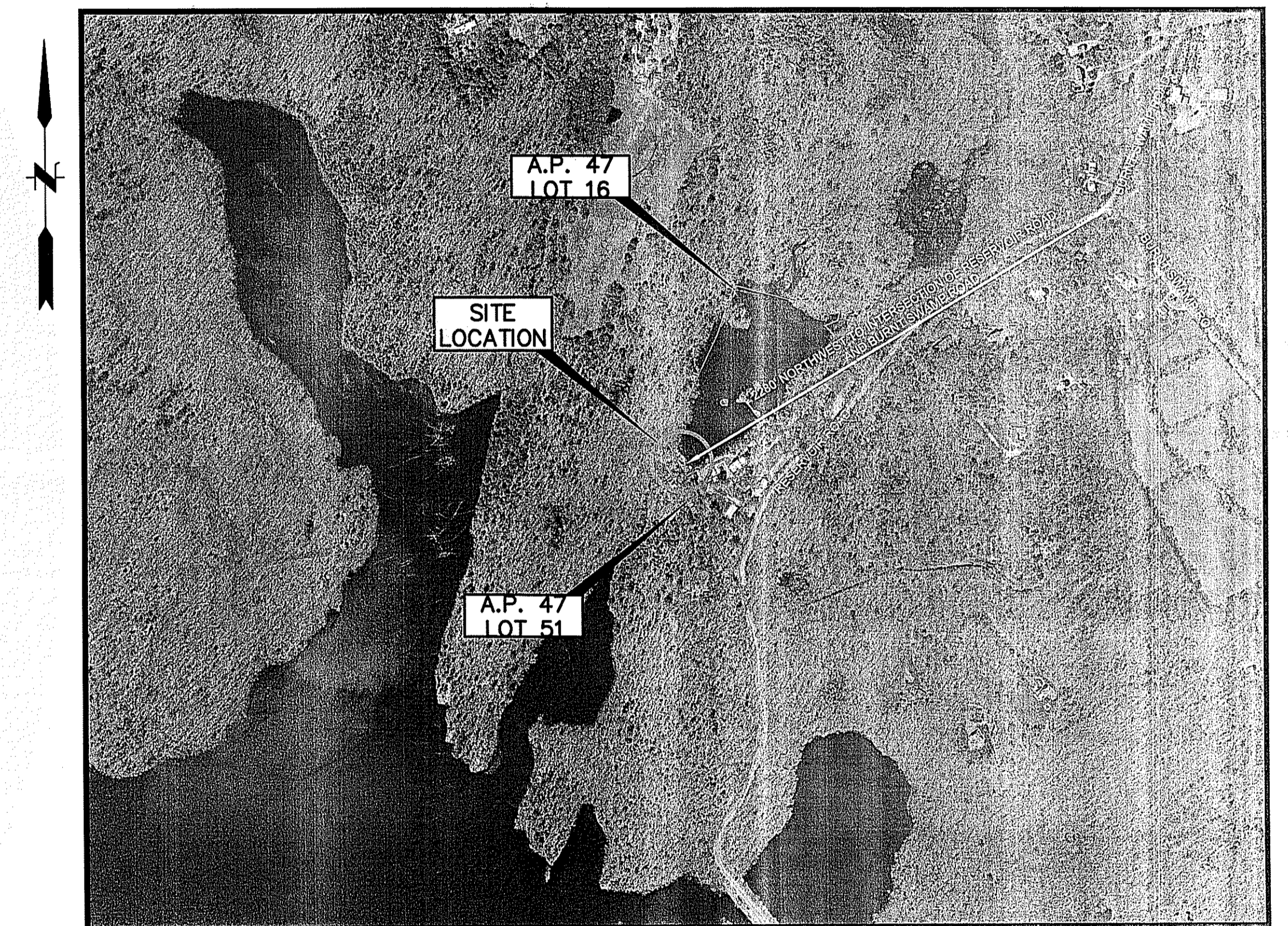
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#### SHEET INDEX

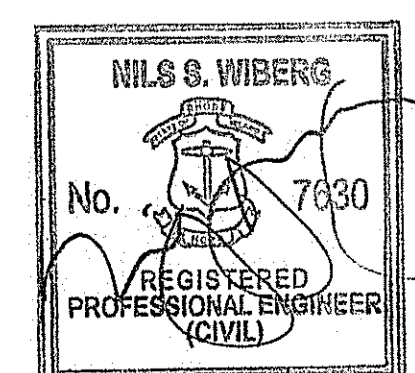
<u>SHEET No.</u>	<u>SHEET TITLE</u>
GI-001	COVER SHEET
CN-001	GENERAL NOTES & LEGEND
CS-101	EXISTING CONDITIONS PLAN
CS-102	PROPOSED SITE PLAN
CX-101	PROPOSED CROSS SECTIONS
CD-501	DETAILS
SA-501 - SA-502	STRUCTURAL DETAILS



**LOCATION MAP**

SCALE: 1" = 500'

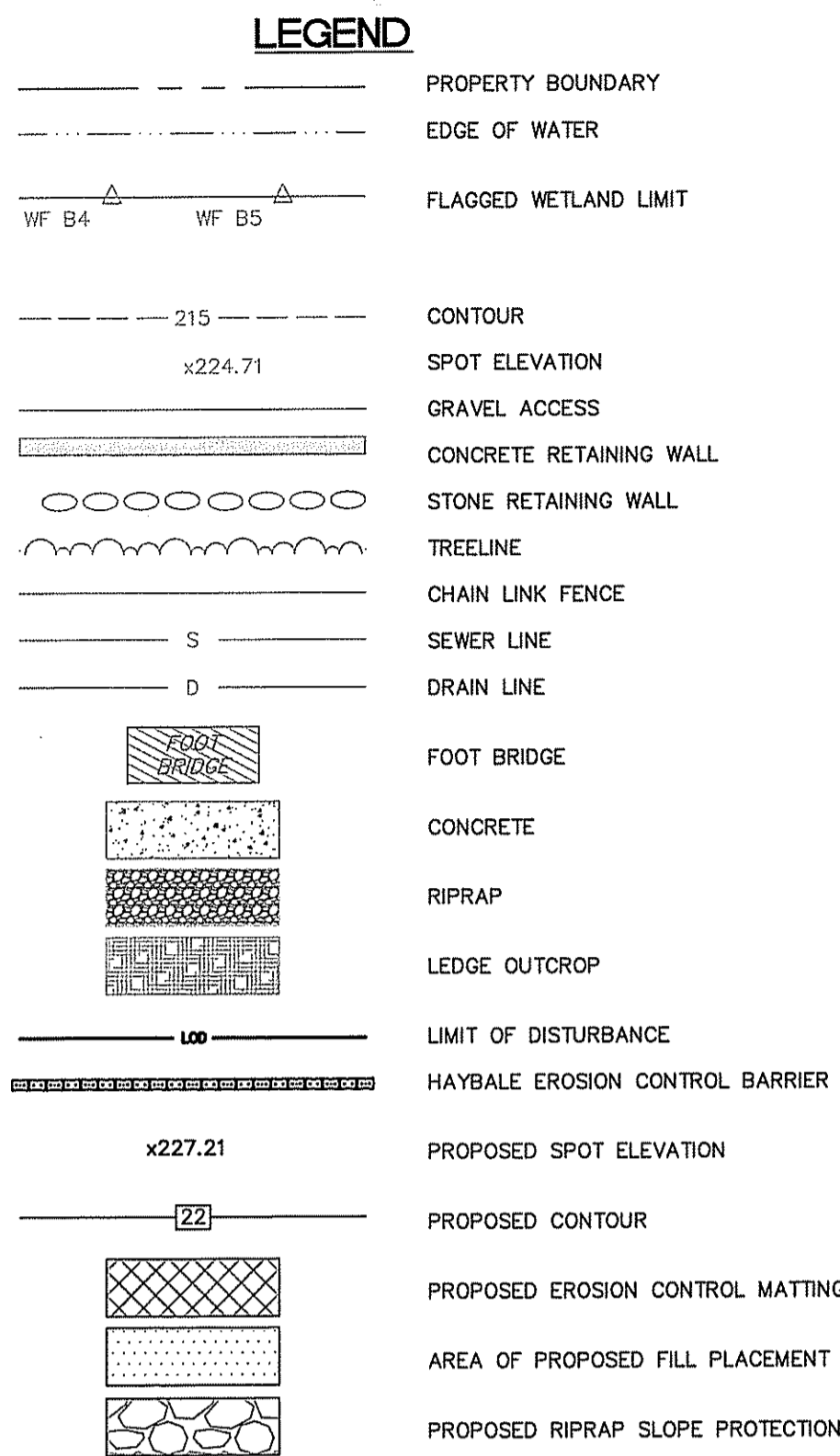
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED JAN 23 2015 PER 14-0190  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE  
*Martin B. Wiest*



PROJ. No.: 20121765.A10  
DATE: DECEMBER 2014

**GI-001**

1 OF 8



**MAP NOTES AND REFERENCES:**

- PROJECT LOCATION AREA: 500 RESERVOIR ROAD CUMBERLAND, RI
- EXISTING SITE CONDITIONS INCLUDING TOPOGRAPHIC CONTOURS AND PROPERTY BOUNDARIES WITHIN THE IMMEDIATE PROJECT AREA ARE BASED UPON A CLASS I/CLASS III ON-GROUND SURVEY PERFORMED BY NATIONAL LAND SURVEYORS ON JANUARY 2014.
- FLOOD ZONE INFORMATION: THE PROJECT IS LOCATED IN FLOOD ZONE 'ZONE A' AS DEPICTED ON FIRM PANEL NUMBER 440070095G THE 100-YEAR BASE FLOOD ELEVATION AT THE SITE IS 228 (NAVOD8).
- ENVIRONMENTAL INFORMATION:
  - SITE DOES NOT CONTAIN ESTIMATED HABITAT OF RARE WILDLIFE PER RIGIS MAPPING OCTOBER 1, 2010
  - WETLAND DELINEATIONS BY NATURAL RESOURCE SERVICES, INC. ON JANUARY 2014 AND FIELD SURVEYED BY NATIONAL LAND SURVEYORS ON JANUARY 2014.

**GENERAL CONSTRUCTION AND COORDINATION REQUIREMENTS**

- VERIFY THE LOCATIONS OF EXISTING STRUCTURES AND THE PROPOSED LAYOUT OF THE PROPOSED FEATURES IN ITS RELATIONSHIP TO THE EXISTING SITE SURVEY. THE CONTRACTOR SHALL ALSO VERIFY ALL DIMENSIONS, SITE CONDITIONS, AND MATERIAL SPECIFICATIONS AND SHALL NOTIFY THE OWNER OF ANY DISCREPANCIES BEFORE COMMENCING OR PROCEEDING WITH THE WORK.
- TAKE FIELD MEASUREMENTS AS REQUIRED TO FIT THE WORK PROPERLY. RECHECK MEASUREMENTS BEFORE CONSTRUCTING EACH WORK ITEM. WHERE PORTIONS OF THE WORK ARE INDICATED TO FIT TO OTHER CONSTRUCTION, VERIFY DIMENSIONS OF OTHER CONSTRUCTION BY FIELD MEASUREMENTS BEFORE FABRICATION. COORDINATE FABRICATION SCHEDULE WITH CONSTRUCTION PROGRESS TO AVOID DELAYING THE WORK.
- VERIFY SPACE REQUIREMENTS AND DIMENSIONS OF ITEMS SHOWN ON DRAWINGS. CHECK THE LOCATION, LEVEL AND GRADE, OF EVERY MAJOR ELEMENT AS THE WORK PROGRESSES.
- ESTABLISH SURVEY AND CONTROL POINTS IN ADDITION TO THOSE INDICATED TO SET LINES, GRADES, AND LEVELS AT EACH STAGE OF CONSTRUCTION. LOCATE THE WORK AND COMPONENTS OF THE WORK ACCURATELY, IN CORRECT ALIGNMENT AND ELEVATION, AS INDICATED.
- COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND RECOMMENDATIONS FOR INSTALLING MATERIALS AND PRODUCTS.
- INSTALL PRODUCTS AT THE TIME AND UNDER CONDITIONS THAT WILL ENSURE THE BEST POSSIBLE RESULTS. MAINTAIN CONDITIONS REQUIRED FOR PRODUCT PERFORMANCE UNTIL SUBSTANTIAL COMPLETION.
- CONDUCT CONSTRUCTION OPERATIONS SO NO PART OF THE WORK IS SUBJECTED TO DAMAGING OPERATIONS OR LOADING IN EXCESS OF THAT EXPECTED DURING NORMAL POST-CONSTRUCTION CONDITIONS.
- PROVIDE ANCHORS AND FASTENERS AS REQUIRED TO ANCHOR EACH COMPONENT SECURELY IN PLACE, ACCURATELY LOCATED AND ALIGNED WITH OTHER PORTIONS OF THE WORK.
- USE PRODUCTS, CLEANERS, AND INSTALLATION MATERIALS THAT ARE NOT CONSIDERED HAZARDOUS.

**EXISTING UTILITY COORDINATION REQUIREMENTS**

- BEFORE BEGINNING SITE WORK, INVESTIGATE AND VERIFY THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES AND OTHER CONSTRUCTION AFFECTING THE WORK. THE CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS AND LOCATE ANY EXISTING UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF NECESSARY. THE EXISTENCE AND/OR LOCATION OF UTILITIES SHOWN ON THESE PLANS MAY BE ONLY APPROXIMATELY CORRECT AND THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN HEREON AND ANY OTHER EXISTING UTILITIES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING, AT ITS OWN EXPENSE, ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.
- CONTACT DIG SAFE (811) AND UTILITY COMPANIES TO LOCATE ALL EXISTING UTILITIES, AT LEAST 72 HOURS PRIOR TO THE START OF CONSTRUCTION. THE LOCATION OF EXISTING UNDERGROUND INFRASTRUCTURE, UTILITIES, CONDUITS AND LINES ARE SHOWN IN AN APPROXIMATE WAY ONLY, MAY NOT BE LIMITED TO THOSE SHOWN HEREIN AND HAVE BEEN RESEARCHED BASED ON THE AVAILABLE UTILITY RECORDS NOTED HEREON. THE CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT RESULT FROM THE CONTRACTOR'S FAILURE TO LOCATE SAID INFRASTRUCTURE AND UTILITIES EXACTLY. IF FIELD CONDITIONS DIFFERS FROM PLAN INFORMATION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY FOR POSSIBLE REDESIGN.
- PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

**CONTROL OF WATER AND PROTECTION OF WORK REQUIREMENTS**

- THE WORK AND SITE SHALL BE PROTECTED AT ALL TIMES UNTIL FINAL ACCEPTANCE BY THE OWNER. CARE SHALL BE EXERCISED WHILE OPERATING EQUIPMENT ON AND ADJACENT TO THE WORK AREA. THE CONTRACTOR SHALL BE RESPONSIBLE TO ASSURE THE UTILIZED EQUIPMENT DOES NOT CAUSE DAMAGE TO THE SPILLWAY STRUCTURE OR OTHER CONSTRUCTED OR EXISTING FEATURES.
- ACCESS TO THE SITE SHALL BE UNDERTAKEN IN SUCH A MANNER THAT THE WORK AND SITE ARE PROTECTED AT ALL TIMES. ACCESS WAYS SHALL BE CONSTRUCTED, MAINTAINED, AND PROTECTED WITH TEMPORARY COFFERDAMS(S), WATER BYPASS CONVEYANCES AND EROSION AND SEDIMENT CONTROLS TO PREVENT DAMAGE FROM EROSION DURING MAJOR STORM EVENTS.
- PLACEMENT AND COMPACTION OF MATERIALS SHALL BE COMPLETED IN SUCH A MANNER THAT WETLAND RESOURCES, THE WORK AND ADJACENT STRUCTURES ARE PROTECTED FROM DAMAGE AT ALL TIMES.
- BACKFILL OPERATIONS SHALL PROCEED TO RAISE THE GROUND SURFACE UNIFORMLY AND SHAPED TO PROVIDE POSITIVE DRAINAGE AT ALL TIMES. CONSTRUCT AND MAINTAIN ON THE SITE, ALL DITCHES AND CHANNELS NECESSARY TO KEEP THE SITE IN A DRY AND WORKABLE CONDITION. WHERE WATER IS FLOWING OR OTHERWISE INFILTRATING INTO AN EXCAVATION, PROVIDE FOR PUMPABLE AND OTHER DRAINAGE FACILITIES, INCLUDING EROSION AND SEDIMENT CONTROLS, TO DIVERT WATER FROM SUCH EXCAVATION.
- TEMPORARY COFFERDAM AND DEWATERING MEASURES TO REMOVE WATER FROM THE WORK AREA SHALL BE INSTALLED, OPERATED, MAINTAINED AND REMOVED IN SUCH MANNERS TO PROTECT WETLAND RESOURCES, THE WORK AND EXISTING FEATURES FROM DAMAGE AT ALL TIMES UNTIL FINAL ACCEPTANCE BY THE OWNER.
- REMOVE WATER TO PREVENT SOFTENING OF FOUNDATION BOTTOMS, UNDERCUTTING OF FOOTINGS AND SOIL CHANGES DETRIMENTAL TO STABILITY OF SUBGRADES, FOUNDATIONS AND STRUCTURES.
- THE TEMPORARY COFFERDAM SYSTEM AND DEWATERING MEASURES MUST BE MAINTAINED TO ALLOW A DRY WORKING CONDITION (NO SEDIMENT PLUME) IN THE WATERCOURSE. PROVIDE AND MAINTAIN PUMPS, DISCHARGE LINES, AND OTHER DEWATERING COMPONENTS NECESSARY TO CONVEY WATER AWAY FROM WORK AREAS. UTILIZE COFFERDAMS WITH OTHER EROSION AND SEDIMENT CONTROLS AS NECESSARY TO MINIMIZE THE POTENTIAL FOR EROSION IN WORK AREAS. SOIL DISTURBANCE WITHIN THE WATERCOURSE MUST TEMPORARILY CEASE IN THE EVENT OF ANY ABNORMALLY HIGH STORMWATER RUNOFF EVENT IF A DRY WORKING CONDITION CANNOT BE MAINTAINED WITH THE USE OF WATER PUMPS OR OTHER MEANS.
- PUMP DISCHARGES SHALL BE MANAGED SUCH THAT THESE DO NOT CAUSE EROSION OF SOILS. FOR EXAMPLE, PUMP INTAKES SHALL BE FLOATED TO MINIMIZE SEDIMENTATION. PUMPED WATER SHALL BE DISCHARGED INTO A DEWATERING AREA WHICH IS SURROUNDED BY A TIGHT ENCLOSURE OF SILT FENCE AND/OR HAY BALES, OR OTHER APPROVED CONTROL DEVICE (E.G., SILT BAG) TO PROPERLY FILTER TURBID WATER PRIOR TO ITS RETURN TO THE WATERCOURSE. THE DISCHARGE OF PUMPED WATER SHALL BE ONTO AN APPROVED ARMORED SURFACE (E.G., RIPRAP APRON) TO AVOID SCOUR OR SUSPENSION OF SOIL AT THE DISCHARGE. WATER SHALL NOT BE DISCHARGED ONTO FILL OR BACKFILL AREAS OR FOUNDATIONS. WATER SHALL ONLY BE ALLOWED TO DISCHARGE DIRECTLY INTO THE WATERCOURSE AFTER EMERGING CLEAR WITHOUT ANY SUSPENDED SEDIMENT OR SILT.
- PROTECT CONSTRUCTED WORK ON THE SITE DURING FLOOD CONDITIONS.
- CONSTRUCT TEMPORARY COFFERDAM(S) AND WATER DIVERSION STRUCTURE(S) OF MATERIALS THAT CAN BE COMPLETELY REMOVED FROM THE RIVER UPON COMPLETION OF CONSTRUCTION. REMOVAL OF THE TEMPORARY COFFERDAM(S) SHALL BE CONDUCTED IN A CONTROLLED MANNER.

**EROSION CONTROL NOTES**

- PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, INSTALL ALL EROSION CONTROL AND SEDIMENT CONTROL DEVICES AS SHOWN ON THE PLAN OR AS REQUIRED BY SITE CONDITIONS. ALL EROSION CONTROL DEVICES WILL BE MAINTAINED THROUGHOUT CONSTRUCTION.
- DISTURBANCE OF SOIL SURFACES IS REGULATED BY STATE LAW. ALL WORK SHALL COMPLY WITH THE FOLLOWING CRITERIA AND OTHER PERMIT CONDITIONS TO PREVENT OR MINIMIZE SOIL EROSION AND SEDIMENTATION TO OFF-SITE AREAS.
- COMPLY WITH THE LATEST EDITION OF THE RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK IN CONSTRUCTING THE EROSION CONTROL AND SEDIMENT CONTROLS INDICATED ON THE PLANS. ALL EROSION CONTROL AND SEDIMENT CONTROL MEASURES OR WORKS AND REHABILITATION MEASURES MUST CONFORM TO OR EXCEED THE SPECIFICATIONS OR STANDARDS SET OUT IN THIS HANDBOOK.
- COMPLETE TIMELY INSTALLATION, INSPECTION, MAINTENANCE, AND/OR REPLACEMENT OF ALL TEMPORARY AND PERMANENT EROSION CONTROL DEVICES SHOWN ON THESE PLANS TO ENSURE PROPER OPERATION THROUGHOUT THE LIFE OF THE PROJECT. MAINTAIN PERMANENT MEASURES UNTIL CONSTRUCTION OF THE PROJECT IS COMPLETED OR UNTIL IT IS ACCEPTED BY THE OWNER. REMOVE EROSION AND SEDIMENTATION CONTROLS AFTER STABLE VEGETATIVE GROWTH IS ESTABLISHED.
- INSPECT EROSION AND SEDIMENT CONTROL DEVICES AT THE END OF EACH WORKING DAY, AFTER EACH STORM EVENT, AND AT LEAST DAILY DURING PROLONGED RAINFALL. CLEAN OUT ACCUMULATED SEDIMENT BEHIND CONTROLS. REPAIR OR REPLACE CONTROLS PROMPTLY AS NEEDED. REMOVE ACCUMULATED SEDIMENT FROM BEHIND PERIMETER CONTROLS IF ONE-HALF OF THE ORIGINAL HEIGHT OF THE BALES/SILT FENCE BECOME FILLED WITH SEDIMENT. DISPOSE OF REMOVED SEDIMENT IN ON-SITE FILL AREAS OR LAWFULLY OFF-SITE.
- TREES AND OTHER EXISTING VEGETATION NOT WITHIN THE LIMITS OF CLEARING SHALL BE PROTECTED FROM DAMAGE. RESTORE DISTURBED AREAS AS CLOSELY AS POSSIBLE. AREAS DAMAGED DURING CONSTRUCTION SHALL BE RE-SEED OR OTHERWISE RESTORED TO THEIR ORIGINAL CONDITION.
- TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED FOR ANY DISTURBED AREAS THAT HAVE NOT YET REACHED FINISHED GRADE AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY CEASED. TEMPORARY VEGETATIVE COVER SHALL CONSIST OF 40% ANNUAL RYEGRASS AND 60% PERENNIAL RYEGRASS FROM APRIL 1 TO NOVEMBER 15 AND WINTER RYEGRASS BETWEEN NOVEMBER 15 AND MARCH 31. SEED AT A RATE OF 75 LBS/ACRE BY HAND.
- PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED TO ALL DISTURBED AREAS THAT HAVE REACHED FINISHED GRADE AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS PERMANENTLY CEASED. RECOMMENDED PERMANENT SEEDING DATES ARE APRIL 15 TO JUNE 15 AND AUGUST 15 TO OCTOBER 15. PERMANENT VEGETATIVE COVER SHALL CONSIST OF WETLAND SEED MIX FREE OF INVASIVE SPECIES AND PLUG PLANTINGS AS SPECIFIED ON THE SITE RESTORATION PLAN. RESPECTIVE PLUG PLANTINGS SHALL BE INSTALLED BASED ON SEASONAL AVAILABILITY AND VIABILITY, AS RECOMMENDED BY THE NURSERY PROVIDING PLANT STOCK. ALL PLANTINGS AND SEED SHALL BE COVERED BY A ONE-YEAR WARRANTY PERIOD; RESEEDING/RE-PLANTING SHALL BE COMPLETED TO ENSURE STABLE VEGETATIVE COVER IS ESTABLISHED OVER ALL DISTURBED AREA.
- IF PERMANENT SEEDING CANNOT BE COMPLETED IMMEDIATELY OR WITHIN THE RECOMMENDED SEEDING DATES, TEMPORARY BIODEGRADABLE EROSION CONTROL BLANKETING (CONTAINING NO PLASTIC COMPONENTS) SHALL BE SPREAD/INSTALLED OVER ALL DISTURBED AREAS TO PROTECT THE SITE UNTIL ARRIVAL OF THE NEXT RECOMMENDED SEEDING PERIOD. MULCHING/BLANKETING SHOULD BE PERFORMED AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY CEASED.
- BLANKETING MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS, TO CHECK FOR RILL EROSION. WHERE EROSION IS OBSERVED, ADDITIONAL MULCH MUST BE APPLIED OR BLANKETING REPAIRED OR REPLACED. INSPECTIONS SHALL TAKE PLACE UNTIL VEGETATION IS THOROUGHLY ESTABLISHED.
- GOOD HOUSEKEEPING: THE PROJECT SITE SHALL PROVIDE FOR THE MINIMIZATION OF EXPOSURE OF CONSTRUCTION DEBRIS TO ADJACENT AREAS BY MEANS OF DISPOSAL AND/OR PROPER SHELTER OR COVER. CONSTRUCTION WASTE MUST BE PROPERLY DISPOSED OF IN ORDER TO AVOID EXPOSURE TO PRECIPITATION AT THE END OF EACH WORKING DAY.
- STORAGE AND DISPOSAL: MATERIALS WHICH COULD BE A POTENTIAL SOURCE OF STORMWATER POLLUTION SUCH AS GASOLINE, DIESEL FUEL, HYDRAULIC OIL, ETC., WILL BE STORED AT THE END OF EACH DAY IN A LOCKED STORAGE TRAILER OR COVERED LOCATION AND TAKEN OFF-SITE AND PROPERLY DISPOSED OF. ALL TYPES OF WASTE GENERATED AT THIS SITE WILL BE DISPOSED OF IN A MANNER CONSISTENT WITH STATE LAW AND/OR REGULATIONS.
- SPILL/LEAK PROTECTION AND RESPONSE: FUEL VEHICLES AND EQUIPMENT AWAY FROM THE WETLAND AND DRAINAGE SYSTEM AND PREVENT CONTAMINATION OF SOIL, GROUNDWATER OR SURFACE WATER FROM SPILLS OR LEAKS. DEPLOY BOOMS AND OTHER CONTAINMENT/CLEANUP MEASURES IN THE EVENT OF A SPILL OR LEAK. NOTIFY LOCAL FIRE DEPT. AND DEP IMMEDIATELY OF ANY SPILLS.
- DEWATERING: DEWATERING SHALL BE IN ACCORDANCE WITH THE RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK. ALL TEMPORARY COFFERDAM DEWATERING MEASURES AND MATERIALS SHALL BE COMPLETELY REMOVED FROM THE SITE.
- TRACKING AND DUST CONTROL: CLEAN ADJACENT ROADS WHERE CONSTRUCTION VEHICLES HAVE TRACKED SEDIMENT FROM THE PROJECT. CONTROL DUST, AND TAKE ALL NECESSARY MEASURES TO ENSURE THAT THE SITE AND ADJACENT ROADS BE MAINTAINED IN A WET- AND DUST-FREE CONDITION AT ALL TIMES THROUGHOUT THE LIFE OF THE CONTRACT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO THE SURROUNDING ROADWAYS MUST BE REMOVED IMMEDIATELY. DUST CONTROL MAY INCLUDE APPLICATION OF CONTROLLED AMOUNTS OF WATER ONTO AFFECTED AREAS OR OTHER CONTROL MEASURES APPROVED BY THE ENGINEER.

**PROGRESS CLEANING REQUIREMENTS**

- CLEAN PROJECT SITE AND WORK AREAS DAILY, INCLUDING COMMON AREAS. MAINTAIN PROJECT SITE FREE OF WASTE MATERIALS AND DEBRIS. DISPOSE OF MATERIALS LAWFULLY OFF-SITE.
- CLEAN AREAS WHERE WORK IS IN PROGRESS TO THE LEVEL OF CLEANLINESS NECESSARY FOR PROPER EXECUTION OF THE WORK.
  - REMOVE LIQUID SPILLS PROMPTLY.
  - APPLY WATER AS NEEDED TO CONTROL DUST.
- BURYING OR BURNING WASTE MATERIALS ON-SITE WILL NOT BE PERMITTED. WASHING WASTE MATERIALS INTO STORM DRAINS AND WATERWAYS WILL NOT BE PERMITTED.
- DURING HANDLING AND INSTALLATION, CLEAN AND PROTECT CONSTRUCTION IN PROGRESS AND ADJOINING MATERIALS ALREADY IN PLACE. APPLY PROTECTIVE COVERING WHERE REQUIRED TO ENSURE PROTECTION FROM DAMAGE OR DETERIORATION AT SUBSTANTIAL COMPLETION.
- LIMITING EXPOSURES: SUPERVISE CONSTRUCTION OPERATIONS TO ASSURE THAT NO PART OF THE CONSTRUCTION, COMPLETED OR IN PROGRESS, IS SUBJECT TO HARMFUL, DANGEROUS, DAMAGING, OR OTHERWISE DELETERIOUS EXPOSURE DURING THE CONSTRUCTION PERIOD.

**CONCRETE NOTES:**

- ALL CONCRETE WORK SHALL CONFORM TO ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS".
- ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60 AND BE DETAILED IN ACCORDANCE WITH ACI 315 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".
- STEEL REINFORCEMENT SHALL HAVE A MINIMUM CONCRETE COVER AS FOLLOWS:
  - CONCRETE DEPOSITED AGAINST GROUND.....3 IN.
  - ALL OTHER CONCRETE.....2 IN.
- ALL REINFORCING BARS SHALL BE CONTINUOUS UNLESS APPROVED BY THE ENGINEER.
- ALL REINFORCEMENT SHALL BE SECURELY TIED IN ITS PROPOSED LOCATION PRIOR TO AND DURING PLACEMENT OF CONCRETE USING APPROVED ANCHORS, CHAIRS, SPACERS AND THE WIRE AS REQUIRED. BARS SHALL BE CUT IN THE FIELD AS NEEDED TO MEET THE REQUIREMENTS OF THE REPAIR DETAILS.
- WELDED WIRE REINFORCEMENT SHALL CONFORM TO ASTM A496 AND ASTM A497, WITH A MINIMUM YIELD STRENGTH OF 60 KSI AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A641.
- CONCRETE FOR THE REPAIR OF THE SPILLWAY SHALL BE 4,000 PSI, 3/4 IN. 60 CEMENT CONCRETE, AND SHALL CONFORM TO THE MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
- ALL CONCRETE SHALL BE AIR-ENTRAINED.
- SIZES AND LOCATIONS OF ALL REQUIRED EMBEDDED ITEMS SUCH AS ANCHOR BOLTS, PIPING SLEEVES, HOLD DOWN ANCHORS, ETC., SHALL BE COORDINATED BY THE CONTRACTOR.

**STRUCTURAL GENERAL NOTES:**

- THE WORK SHOWN ON THESE DRAWINGS HAS BEEN DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
  - STRUCTURAL REQUIREMENTS OF MASSACHUSETTS STATE BUILDING CODE, INCLUDING THE 2009 INTERNATIONAL BUILDING CODE, EXCEPT AS AMENDED, ALTERED OR DELETED BY THE PROVISIONS IN STATE BUILDING CODE.
- THE STRUCTURAL COMPONENTS HAVE BEEN DESIGNED FOR THE FOLLOWING LOADS:
  - WEIR BOARD AND SUPPORTS:
    - HYDROSTATIC PRESSURE: MAXIMUM = 400 PSF
  - SNOW LOAD:
    - GROUND SNOW LOAD Pg = 35 PSF
    - SNOW EXPOSURE FACTOR Ce = 0.9
    - SNOW LOAD IMPORTANCE FACTOR Is = 1.0
    - THERMAL FACTOR Ct = 1.2
  - LIVE LOAD:
    - LIGHT MANUFACTURING (550 LBS CONCENTRATED) LL = 125 PSF
- ALL STRUCTURAL WORK SHOWN OR SPECIFIED ON THESE DRAWINGS IS SUBJECT TO REVIEW BY THE STRUCTURAL ENGINEER OF RECORD. ASPECTS OF THE WORK FOUND NOT IN CONFORMANCE WITH THE STRUCTURAL DOCUMENTS SHALL BE CORRECTED AS DIRECTED BY THE ENGINEER.
- DIMENSIONS OF EXISTING STRUCTURES SHOWN ON THESE PLANS ARE NOT GUARANTEED. ALL EXISTING DIMENSIONS SHALL BE VERIFIED.
- THE TERM 'BEYOND' USED IN SECTION VIEWS OF STRUCTURAL ELEMENTS INDICATES THAT SAID ELEMENT IS NOT IN THE LINE OF THE SECTION CUT; HOWEVER, IT PROVIDES A GREATER UNDERSTANDING OF THE STRUCTURE.
- MATERIALS USED IN THE CONSTRUCTION OF CONCRETE REPAIRS FOR THIS PROJECT SHALL CONFORM TO THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
- AN APPROVED SET OF PLANS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE.

**STRUCTURAL STEEL NOTES:**

- ALL STRUCTURAL STEEL SHALL BE NEW, CLEAN, AND STRAIGHT AND SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE A.I.S.C. CODE OF STANDARD PRACTICE (ADOPTED MARCH 18, 2005), EXCEPT AS MODIFIED IN THESE NOTES AND THE PROJECT SPECIFICATIONS.
- STRUCTURAL STEEL FABRICATION AND ERECTION SHALL COMPLY WITH THE BUILDING CODE, THE SPECIFICATION, AND THE "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (ADOPTED JUNE 21, 2005)" OF AISC.
- ALL STEEL SHALL CONFORM TO THE FOLLOWING:
  - STEEL BEAMS, ANGLES, PLATES, AND BARS: ASTM A572 - GRADE 50
  - STEEL PIPE (HANDRAIL): ASTM A500 - GRADE B
- ALL WELDING SHALL CONFORM TO THE AMERICAN WELDING SOCIETY, D1.1-92 STRUCTURAL WELDING CODE-STEEL.
- ALL FILLET WELDING SHALL BE A MINIMUM OF 1/4 INCH WELD UNLESS NOTED OTHERWISE ON THE DRAWINGS (SEE THE SPECIFICATION INCLUDED IN THE PROJECT PACKAGE FOR ADDITIONAL REQUIREMENTS).
- ALL FIELD CONNECTIONS SHALL BE BOLTED EXCEPT WHERE WELDING IS SPECIFIED ON THE PLANS. BOLTS SHALL BE AS INDICATED OR PROVIDED IN THESE NOTES.
- PROVIDE HOLES, COPIES, ETC. REQUIRED IN STRUCTURAL STEEL MEMBERS FOR ASSEMBLY. THEY SHALL BE SHOWN ON STRUCTURAL SHOP DRAWINGS AND SHALL BE MADE IN THE SHOP. FIELD BURNING OF HOLES OR CUTS IN STRUCTURAL STEEL MEMBERS WILL NOT BE PERMITTED.
- ALL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123 AFTER FABRICATION.

**BOLT/ANCHOR NOTES:**

- BOLTS SHALL BE TIGHTENED USING TURN OF THE NUT METHOD DESCRIBED IN THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (RCS) "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR ASTM A490 BOLTS"
- ALL BOLTS, WASHERS AND ASSOCIATED HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.
- NUTS SHALL CONFORM TO ASTM A563, GRADE A HEX
- WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844
- ALL ANCHOR BOLT ATTACHMENTS TO EXISTING CONCRETE WALLS SHALL BE HILTI KWIK BOLT 3 GALVANIZED MECHANICAL ANCHORS UNLESS OTHERWISE INDICATED.
  - ANCHOR BOLTS SHALL BE 3/4" KWIK 3 ANCHOR BOLTS WITH A MINIMUM EMBEDMENT OF 3x.
  - BOLT HOLE DIAMETERS AND PREPARATION SHALL BE AS SPECIFIED BY THE MANUFACTURER.
  - ANCHORS SHALL BE TIGHTENED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

**STEEL GRATING NOTES:**

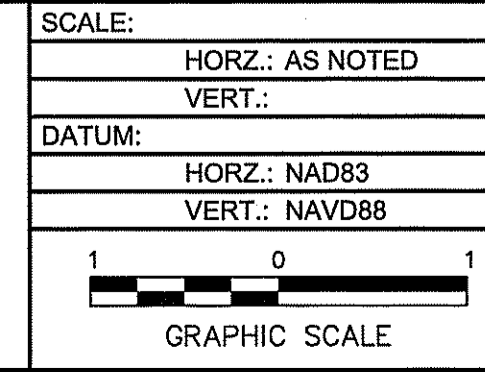
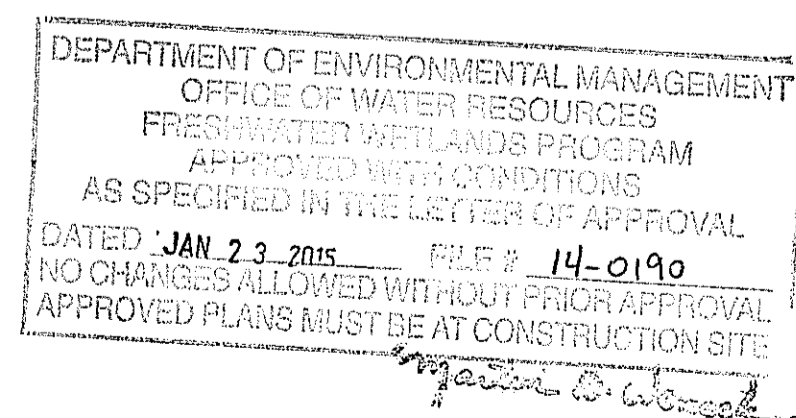
- STEEL GRATING SHALL BE PRESS-LOCKED, HOT DIPPED GALVANIZED GRATES.
- STEEL GRATING SHALL BE 1/2" x 3/4" BAR GRATES (LOAD BARS SPACED AT 1 1/2" O.C.) WITH CROSS BARS SPACED AT 4" O.C.
- THE STEEL GRATE SPECIFIED FOR USE HAS BEEN SELECTED TO HAVE A MAXIMUM DEFLECTION OF LESS THAN 1/4" UNDER A UNIFORM LIVE LOAD OF 125 PSF FOR THE SPANS INDICATED ON THE PLANS.
- SHOP DRAWINGS SHALL INDICATE THE TYPE, SIZE, SHEAR VALUE, AND LAYOUT OF CONNECTORS REQUIRED / RECOMMENDED BY THE MANUFACTURER.
- THE CONTRACTOR SHALL LEVEL THE GRATING SUPPORT BEAM BY PLACING GALVANIZED STEEL SHIMS BELOW THE BEAM BASE PLATES.

**CONSTRUCTION SEQUENCE AND SCHEDULE:**

IT IS ANTICIPATED THAT WORK WILL BEGIN IN WINTER OR EARLY SPRING OF 2015 PENDING RECEIPT OF RIDEM'S WETLANDS PERMIT.

1. CLEAR SITE AS NEEDED AND INSTALL SOIL EROSION CONTROL DEVICES AND DEWATERING DISCHARGE CONTROL.	1 WEEK
2. INSTALL COFFERDAM AND DEWATER WORK AREA.	1 WEEK
3. COMPLETE EXCAVATION AND INSTALL SHORING AS REQUIRED; EXPOSE EXISTING CONDUIT CHANNEL AND PLACE NEW CONDUIT WITHIN LIMITS OF EXISTING CHANNEL.	2 WEEKS
4. DRILL AND GROUT ANCHORS, PLACE STEEL REINFORCEMENT AND INSTALL FORMWORK FOR CONCRETE PLACEMENT FOR LOW-LEVEL OUTLET AND LEFT SPILLWAY TRAINING WALL/STEPS.	1 WEEK
5. CAST AND CURE CONCRETE AND STRIP FORMS ONCE CURED.	1 WEEK
6. BACKFILL CONDUIT TRENCH WITHIN LIMITS OF EXISTING EMBANKMENTS AND PLACE COMPACTED EMBANKMENT FILL PROPOSED ELEVATIONS WITHIN THE GROUT AREA; PLACE COMPACTED EMBANKMENT FILL WITHIN UPSTREAM SLOPE AND IMPOUNDMENT AREA IN CONJUNCTION WITH TEMPORARY LOWERING OF THE NORMAL POOL TO EL. 224.0. TEMPORARY LOWERING OF THE SURFACE WATER ELEVATION IS TO OCCUR BETWEEN JANUARY 1, 2015 AND APRIL 15, 2015. WASHED GRAVEL (CLEAN CRUSHED STONE) MAY BE UTILIZED IN THE PLACE OF COMPACTED EMBANKMENT FILL IF WORK MUST BE COMPLETED WITH WATER AT NORMAL POOL. CONSTRUCT SCOUR APRON AND RETAINING WALL.	1 WEEK
7. INSTALL WOOD STOP LOGS AND REMOVE COFFERDAM.	2 WEEK
8. PLACE EMBANKMENT SLOPE MATERIALS ON DOWNSTREAM AREA, EXTEND CLOSED CONDUIT TO LIMITS INDICATED, AND CONSTRUCT ENERGY DISSIPATER.	1 WEEK
9. INSTALL GRATING OVER LOW-LEVEL STRUCTURE AND CHAIN LINK FENCE ALONG DOWNSTREAM TOP OF SLOPE.	1 WEEK
10. PLACE TOPSOIL, SEED, AND RESTORE DISTURBED AREAS TO ORIGINAL CONDITION OR BETTER.	1 WEEK

Revised per D5m1



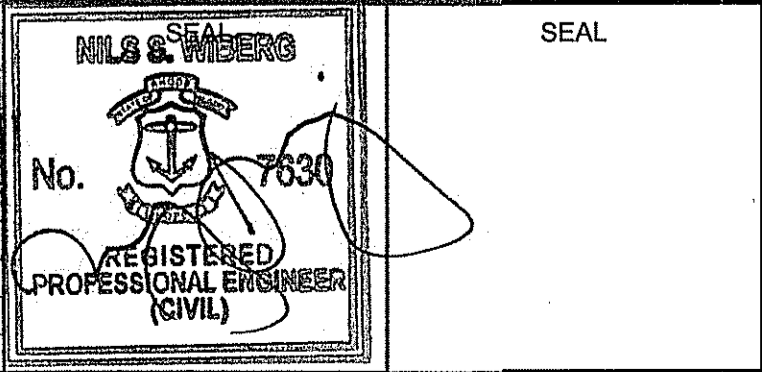
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CAMP KER-ANNA  
GENERAL NOTES & LEGEND  
KER-ANNA POND DAM REPAIR  
RESERVOIR ROAD CUMBERLAND, RHODE ISLAND

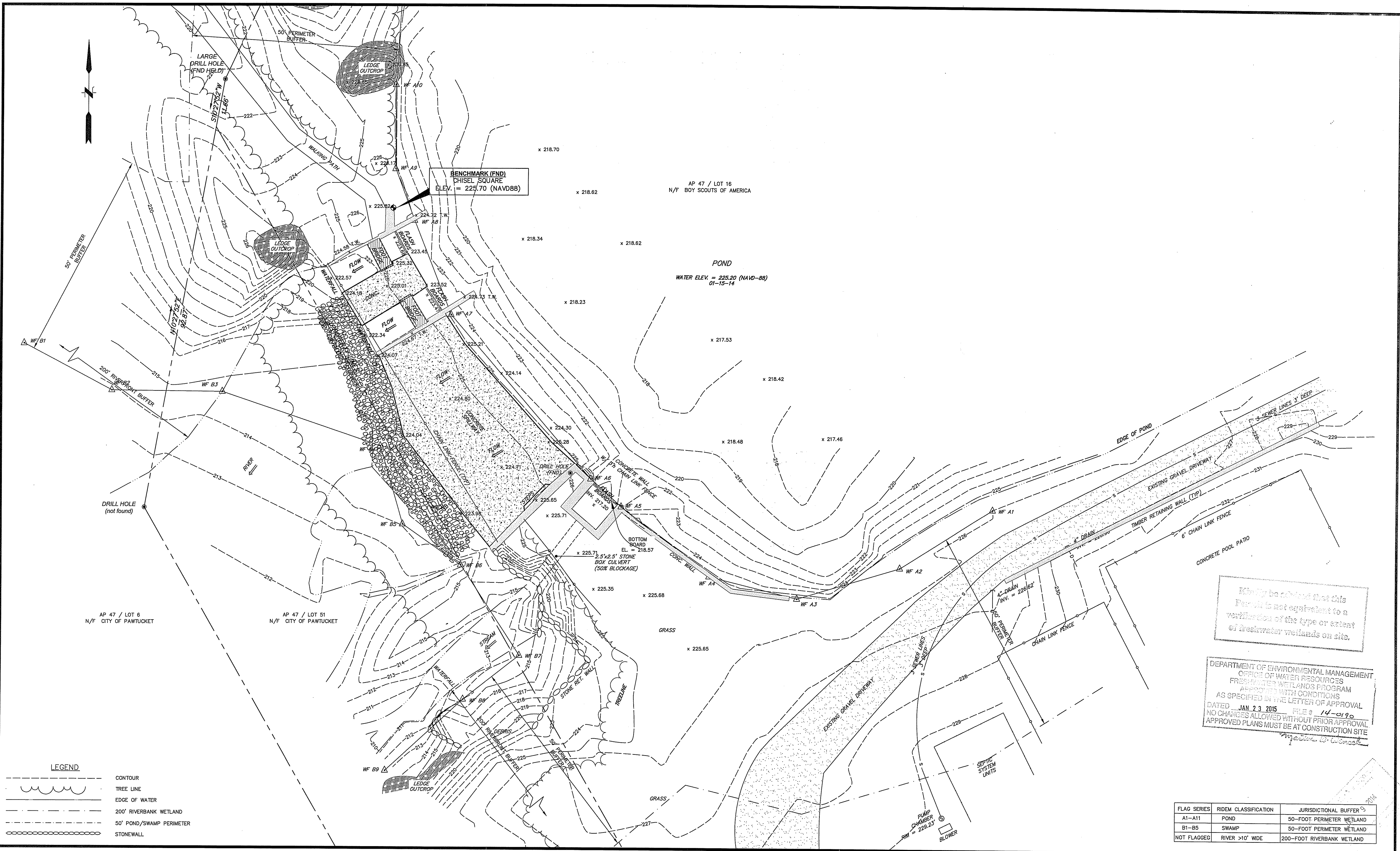
PROJ. No.: 20121765A10  
DATE: DECEMBER 2014  
**CN-001**  
2 OF 8

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No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
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It is to be noted that this Plan is not equivalent to a verification of the type or extent of freshwater wetlands on site.

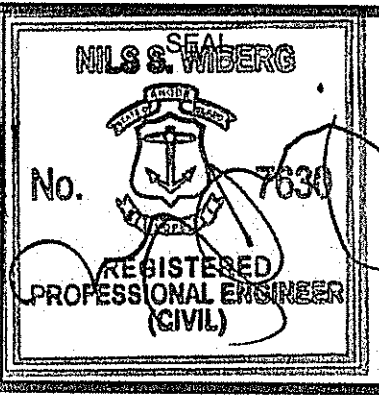
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
 APPROVED WITH CONDITIONS  
 AS SPECIFIED IN THE LETTER OF APPROVAL  
 DATED JAN 23 2015 FILE # 14-0190  
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
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FLAG SERIES	RIDEM CLASSIFICATION	JURISDICTIONAL BUFFER
A1-A11	POND	50-FOOT PERIMETER WETLAND
B1-B5	SWAMP	50-FOOT PERIMETER WETLAND
NOT FLAGGED	RIVER >10' WIDE	200-FOOT RIVERBANK WETLAND

**LEGEND**

	CONTOUR
	TREE LINE
	EDGE OF WATER
	200' RIVERBANK WETLAND
	50' POND/SWAMP PERIMETER
	STONEWALL

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				



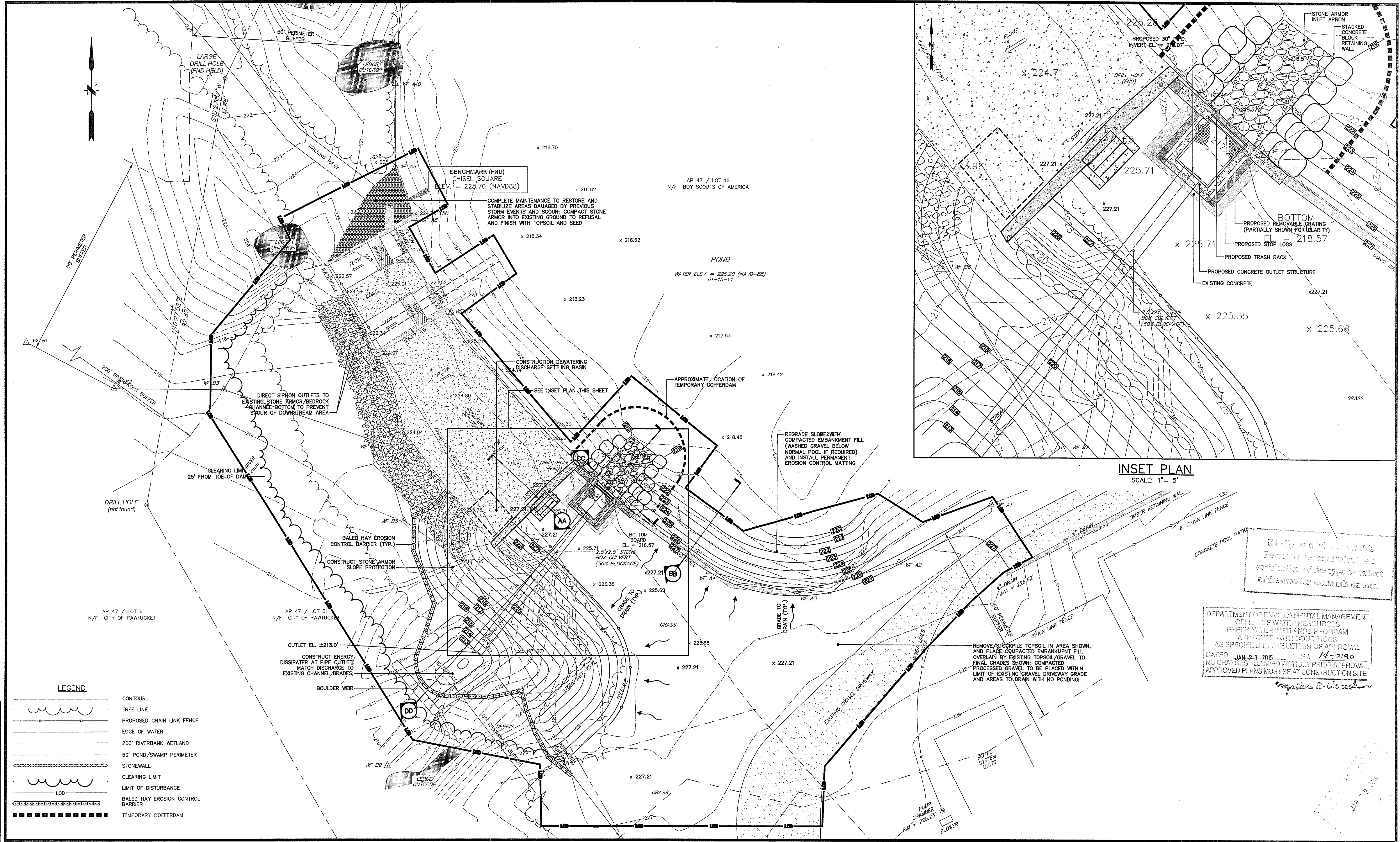
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 DATUM:  
 HORZ: NAD83  
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 GRAPHIC SCALE

**f**  
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 PROVIDENCE, RI 02908  
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CAMP KER-ANNA  
 EXISTING CONDITIONS PLAN  
 KER-ANNA POND DAM REPAIR  
 RESERVOIR ROAD  
 CUMBERLAND, RHODE ISLAND

PROJ. No: 20121765.A10  
 DATE: DECEMBER 2014  
**CS-101**  
 3 OF 8



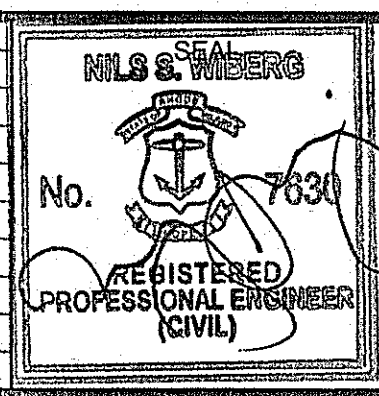
**LEGEND**

	CONTOUR
	TREE LINE
	PROPOSED CHAIN LINK FENCE
	EDGE OF WATER
	200' RIVERBANK WETLAND
	50' POND/SWAMP PERIMETER
	STONEWALL
	CLEARING LIMIT
	LIMIT OF DISTURBANCE
	BALED HAY EROSION CONTROL BARRIER
	TEMPORARY COFFERDAM

It should be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
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No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
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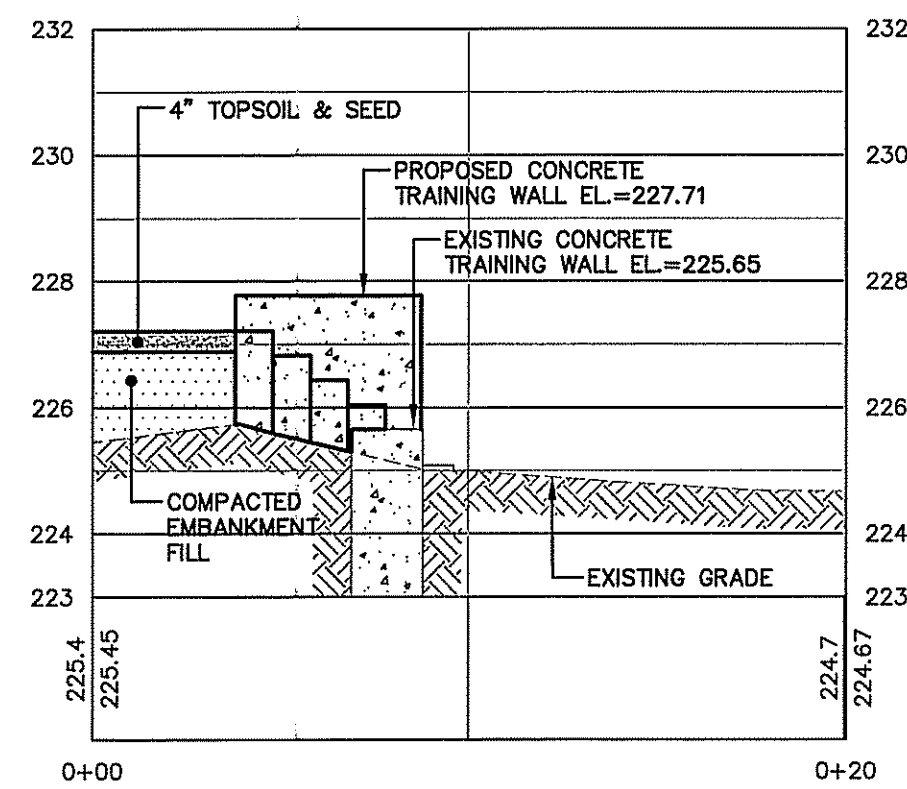
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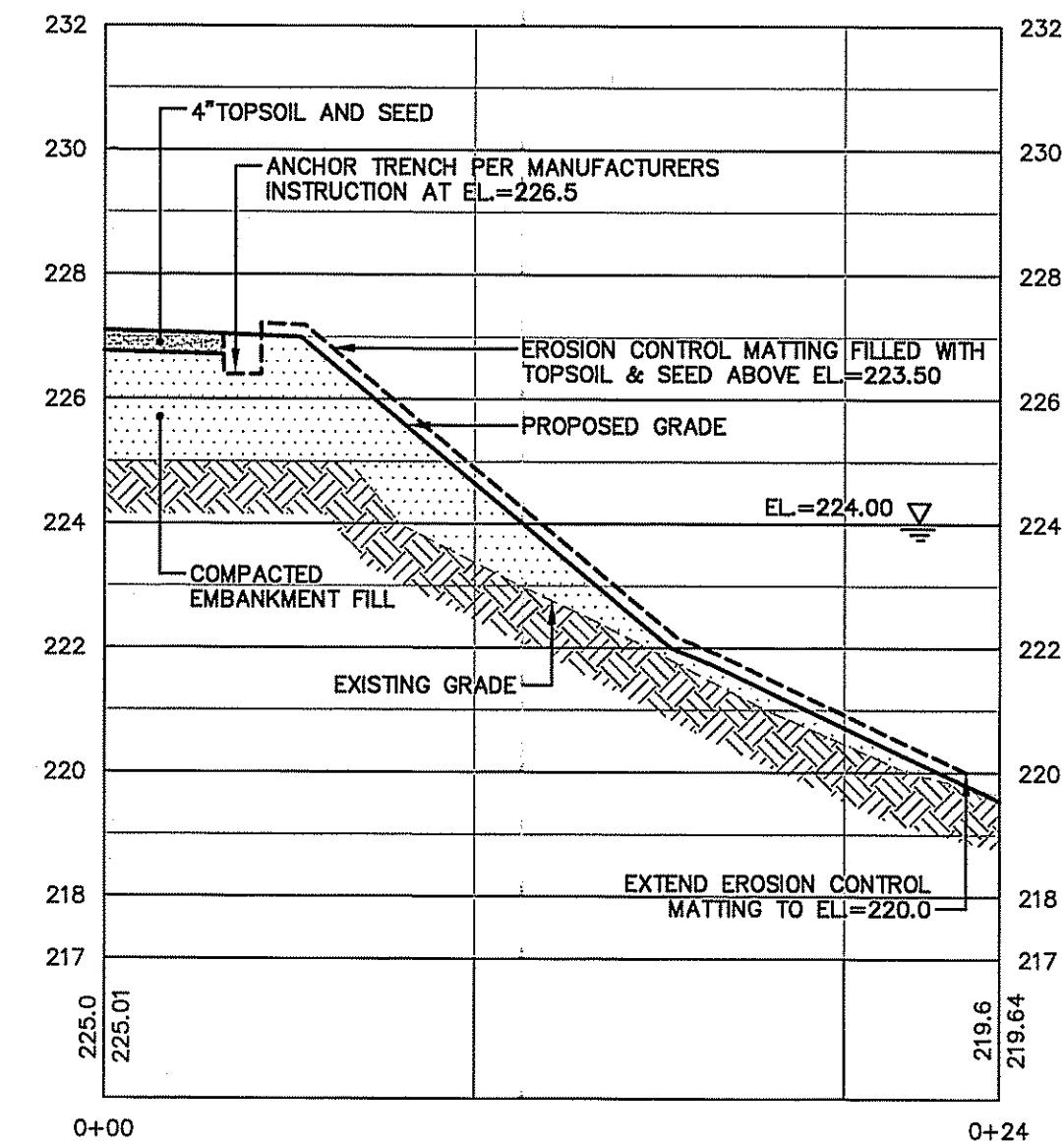
CAMP KER-ANNA  
 PROPOSED SITE PLAN  
 KER-ANNA POND DAM REPAIR  
 RESERVOIR ROAD  
 CUMBERLAND, RHODE ISLAND

PROJ. No.: 20121765.A10  
 DATE: DECEMBER 2014  
**CS-102**  
 4 OF 8

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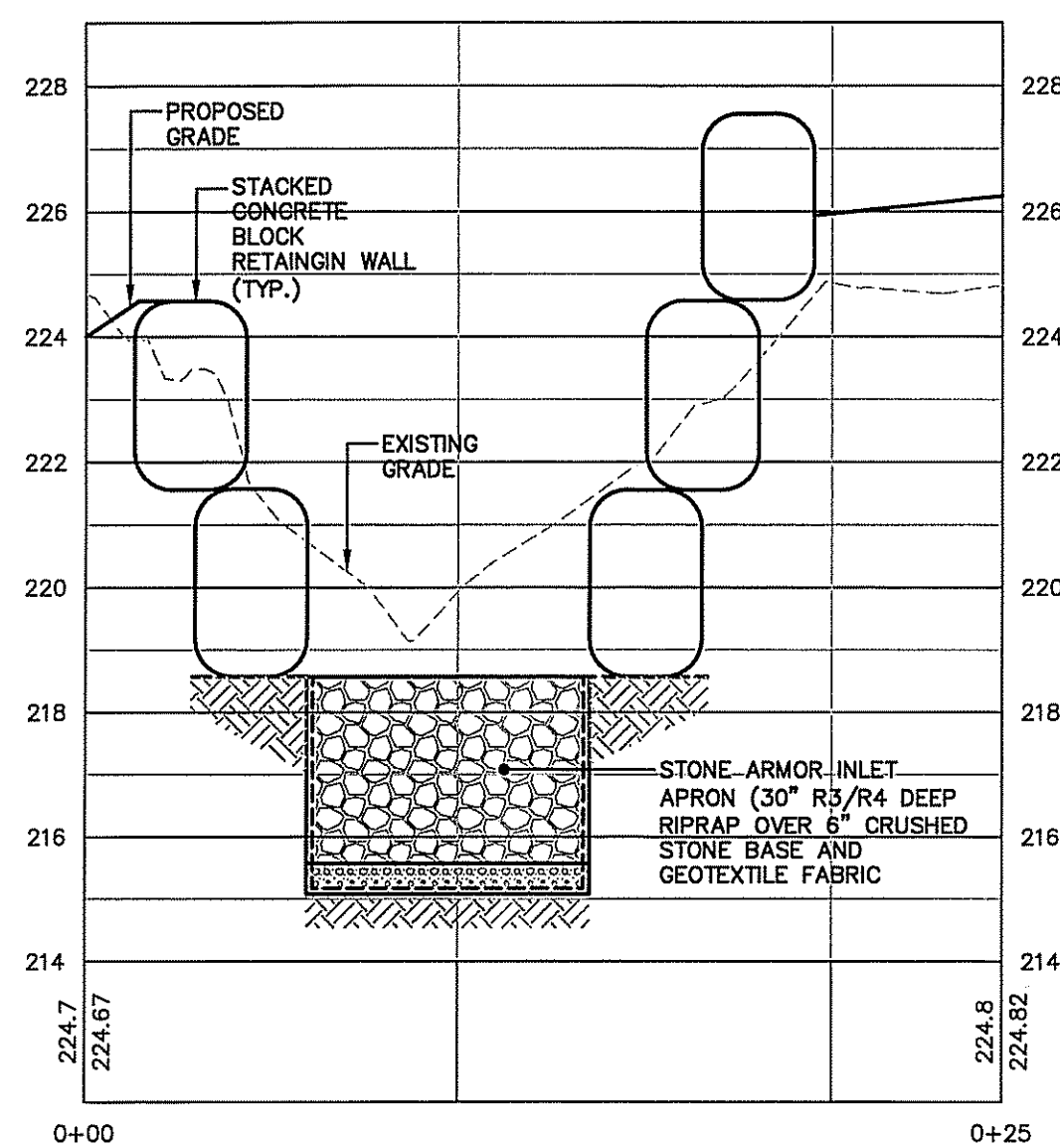


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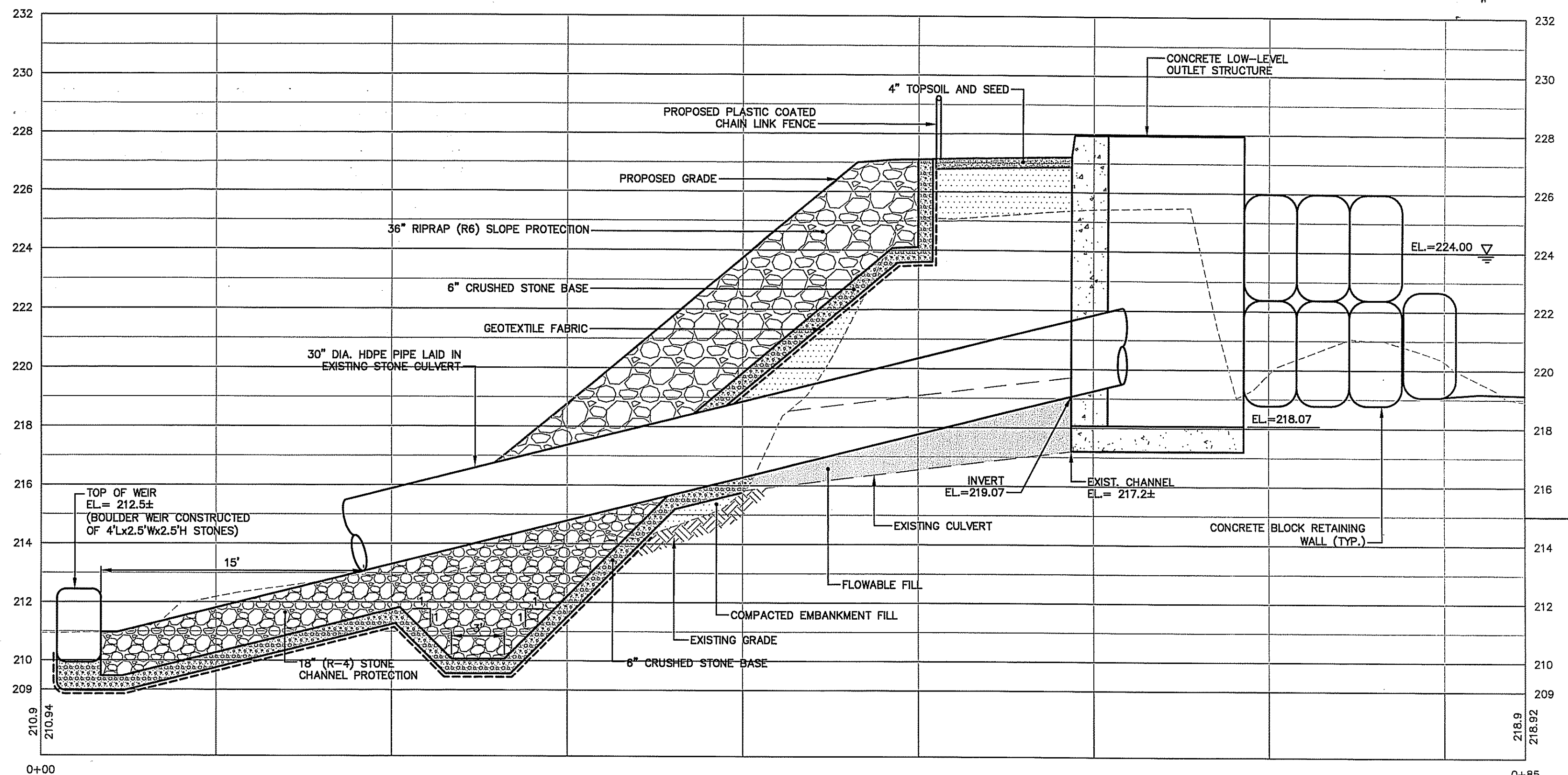


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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
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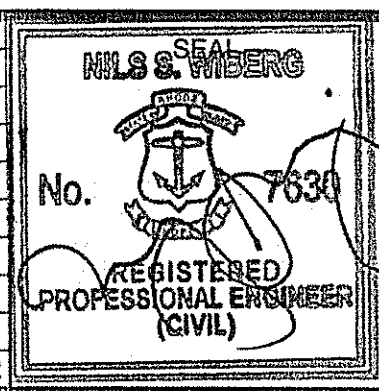
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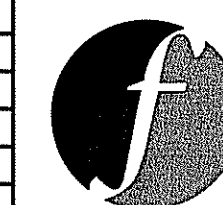
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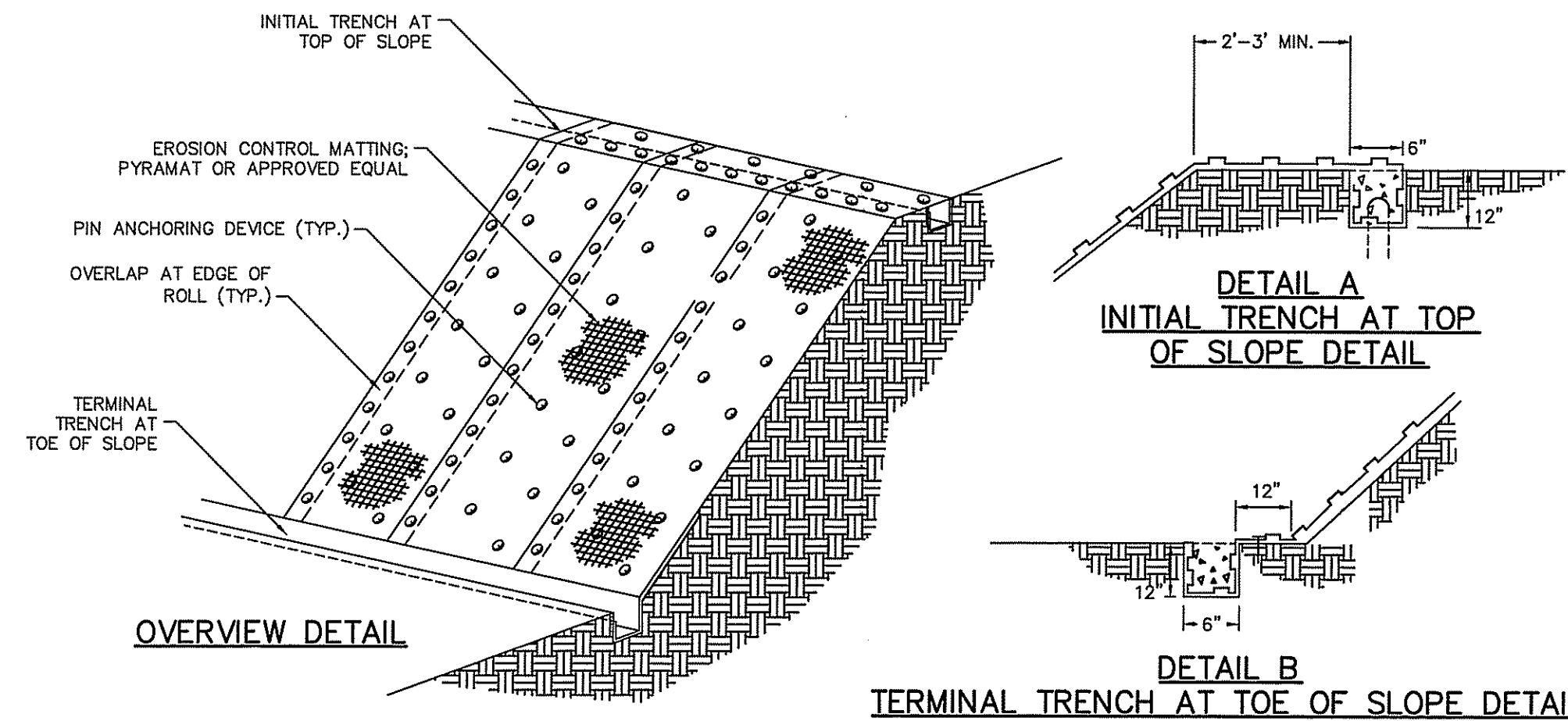
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CAMP KER-ANNA  
PROPOSED CROSS SECTION  
KER-ANNA POND DAM REPAIR  
RESERVOIR ROAD  
CUMBERLAND, RHODE ISLAND

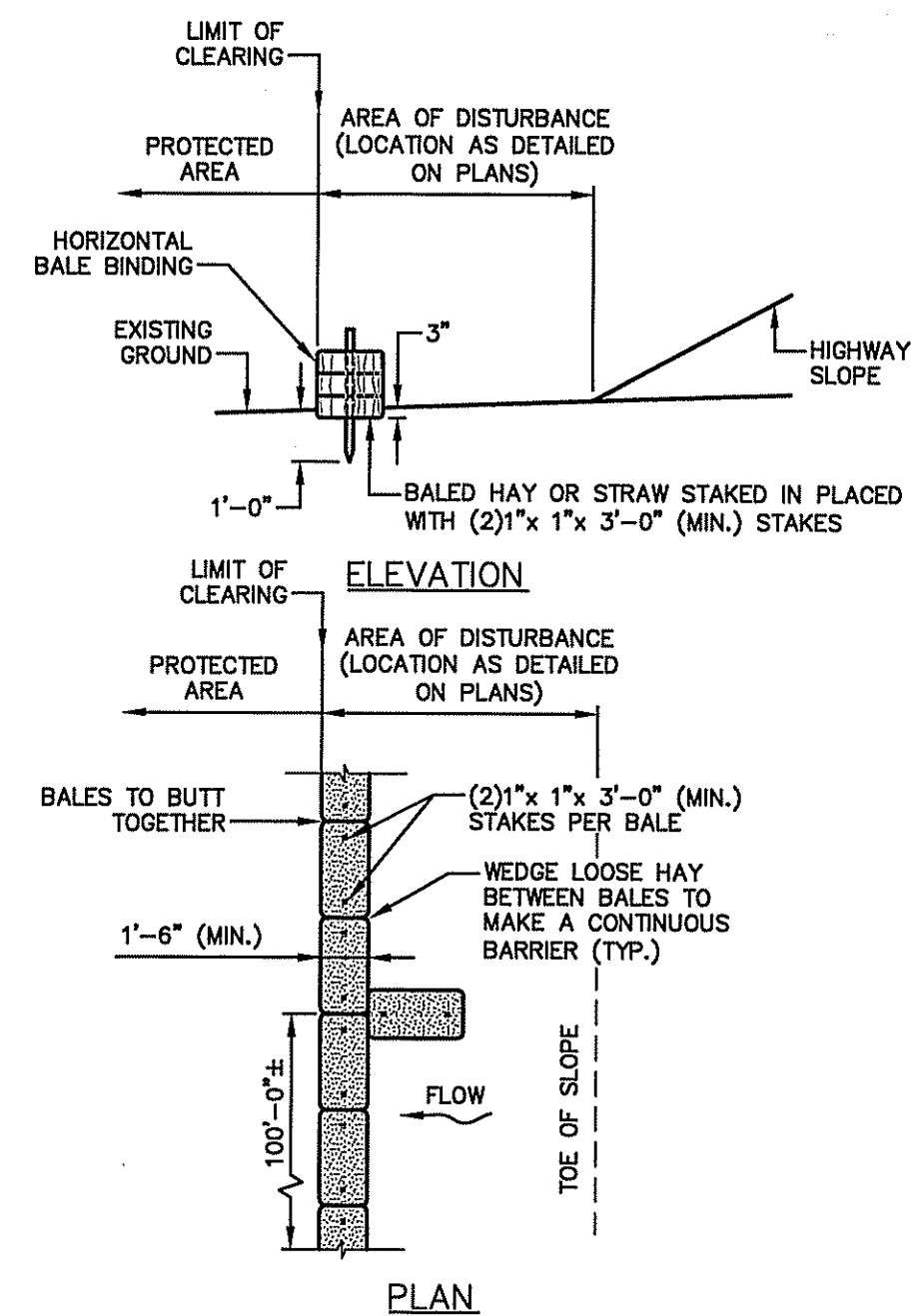
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DATE: DECEMBER 2014  
**CX-101**  
5 OF 8



**NOTES:**

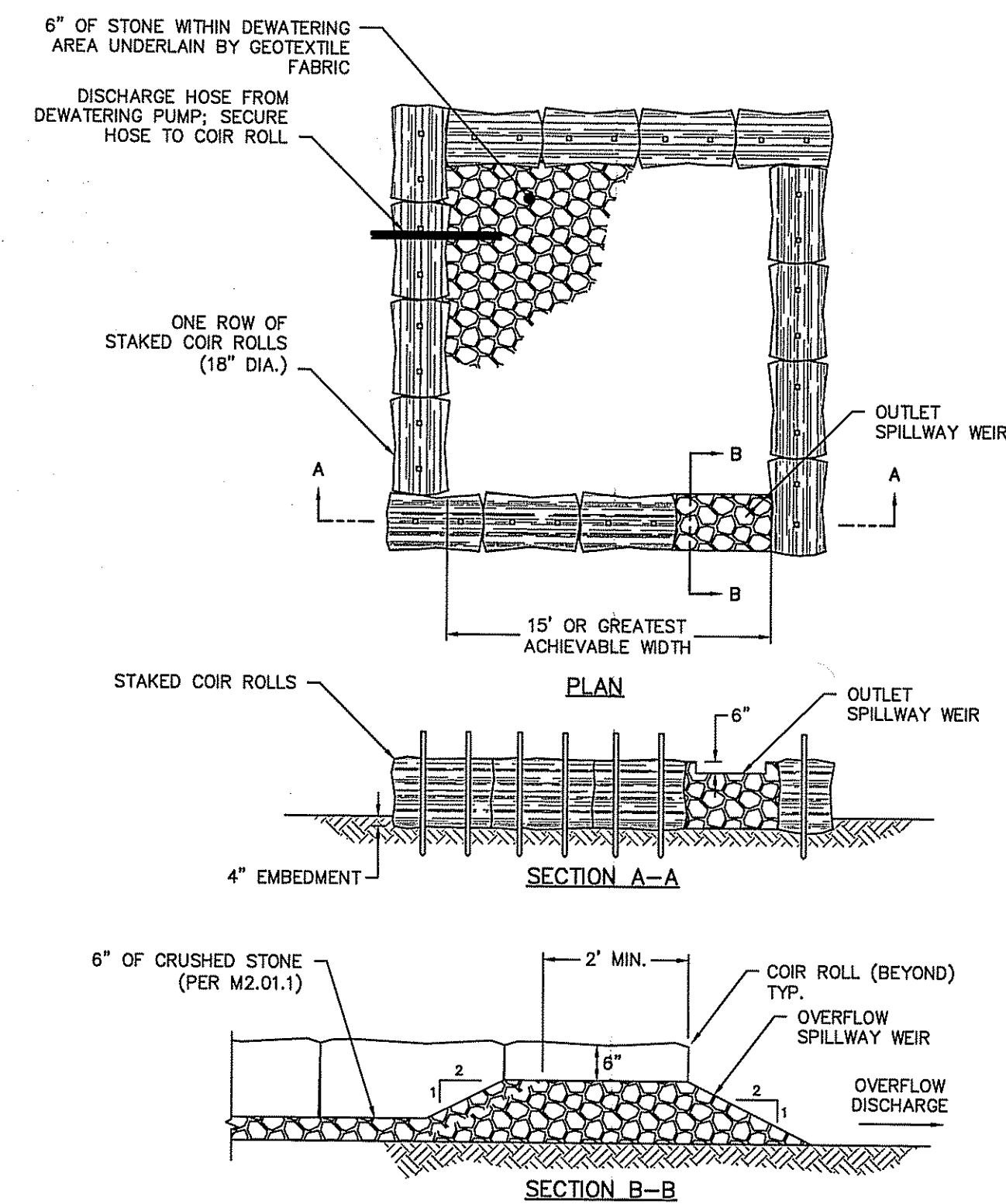
- GENERAL**
1. NYLON NET MESH BACKING WILL NOT BE ACCEPTABLE FOR EROSION CONTROL BLANKET.
- SITE PREPARATION**
1. GRADE AND COMPACT AREA OF EROSION CONTROL BLANKET INSTALLATION AS DIRECTED AND APPROVED BY ENGINEER.
  2. PREPARE SEEDBED BY LOOSENING THE TOP FEW INCHES OF DISTURBED SOIL.
  3. INCORPORATE AMENDMENTS SUCH AS LIME AND FERTILIZER AND/OR WET THE SOIL, IF NEEDED.
- SEEDING**
1. APPLY SEED TO SOIL SURFACE BEFORE INSTALLING BLANKET. ALL DISTURBED AREAS SHALL BE RESEEDED.
  2. SEE DAM REPAIR AND RESTORATION PLAN FOR SEED TYPES AND APPLICATION RATES.
- INSTALLATION ON SOIL SLOPES**
1. EXCAVATE A LONGITUDINAL ANCHOR TRENCH 2-3 FT OVER CREST OF SLOPE IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
  2. INSTALL TOP END OF BLANKET INTO TRENCH AND SECURE TO BOTTOM OF TRENCH USING GROUND ANCHORING DEVICES SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
  3. BACKFILL AND COMPACT SOIL INTO TRENCH.
  4. UNROLL BLANKET DOWN SLOPE.
  5. OVERLAPS OF ADJACENT ROLLS SHALL MEET MINIMUM RECOMMENDED DIMENSION OF OVERLAP (AS SPECIFIED BY MANUFACTURER) AND BLANKET SHALL BE ANCHORED ACCORDINGLY ALONG THE OVERLAP. SECURE EROSION CONTROL BLANKETING USING GROUND ANCHORING DEVICES AT THE APPROPRIATE FREQUENCY AND PATTERN AS RECOMMENDED BY MANUFACTURER.
  6. UNROLL BLANKET IN A MANNER TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT PULL BLANKET TAUT. SECURE BLANKET TO GROUND SURFACE USING ANCHORING DEVICES. EXCAVATE AN ANCHOR TRENCH AT TOE OF SLOPE PER MANUFACTURER'S RECOMMENDATIONS OR AS DIRECTED IN FIELD BY ENGINEER.
  7. INSTALL BOTTOM END OF BLANKET INTO TRENCH AND SECURE TO BOTTOM OF TRENCH USING GROUND ANCHORING DEVICES SPACED ACCORDINGLY; BACKFILL AND COMPACT SOIL IN TRENCH.
- GROUND ANCHORING DEVICES AND ANCHOR PATTERN**
1. U-SHAPED WIRE STAPLES OR METAL GEOTEXTILE PINS CAN BE USED TO ANCHOR BLANKET TO THE GROUND SURFACE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. WIRE STAPLES SHOULD BE A MINIMUM THICKNESS OF 8 GAUGE (4.3 MM). METAL PINS SHOULD BE AT LEAST 0.20 IN (5 MM) DIAMETER STEEL WITH A 1 1/2 IN (38 MM) STEEL WASHER AT THE HEAD OF THE PIN. WIRE STAPLES AND METAL PINS SHOULD BE DRIVEN FLUSH TO THE SOIL SURFACE.
  2. ANCHORS SHALL BE INSTALLED IN PATTERN AS RECOMMENDED BY MANUFACTURER.

**PERMANENT EROSION CONTROL MATTING**  
NOT TO SCALE



- NOTES:**
1. AT APPROXIMATE 100'-0" INTERVALS A BALE OF HAY IS TO BUTT PERPENDICULARLY.

**BALED HAY EROSION CHECK**  
(R.I. STD. 9.1.0)  
NOT TO SCALE

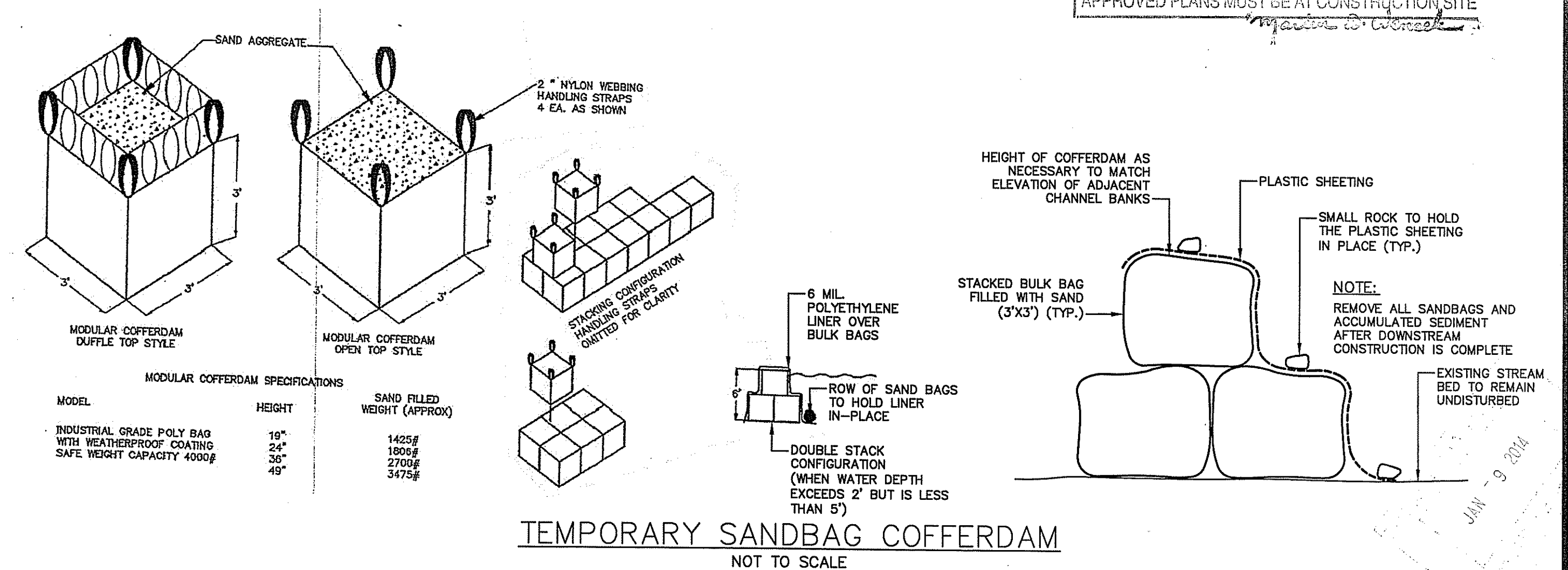


- NOTES:**
1. COIR ROLLS AND NOT HAYBALES SHALL BE UTILIZED.
  2. STONE SHALL CONSIST OF 1-1/2 INCH STONE CONFORMING TO SUBSECTION M2.01.1 OF THE STANDARD SPECIFICATIONS.
  3. FILTER FABRIC SHALL CONFORM TO A TYPE I FABRIC AS INCLUDED WITHIN SECTION M9.50.0 OF THE STANDARD SPECIFICATIONS.

**CONSTRUCTION DEWATERING DISCHARGE SETTLING BASIN**  
NOT TO SCALE

**NOTES:**

1. INSTALL SANDBAGS UPSTREAM OF THE LOW-LEVEL OUTLET STRUCTURE TO A HEIGHT APPROXIMATELY EVEN WITH THE EMBANKMENT CREST. IF NECESSARY, INSTALL AN IMPERMEABLE PLASTIC LINER ON THE FACE OF THE SANDBAGS TO MINIMIZE LEAKAGE AS SHOWN ON THE DETAIL.
2. IF SETTLEMENT OF THE SANDBAGS OCCURS SUCH THAT THERE IS LESS THAN ONE FOOT OF SEPARATION BETWEEN WATER SURFACE ELEVATION AND TOP OF SANDBAG, RESULTING UNDER NORMAL FLOW CONDITIONS, INSTALL ADDITIONAL SANDBAGS AS INDICATED ON THE DETAIL.
3. ONCE A DEWATERED CONDITION WITHIN THE LOW-LEVEL OUTLET STRUCTURE HAS BEEN ACHIEVED, PUSH ASIDE SEDIMENT TO ALLOW FOR A CLEAN WORKING AREA AND BEGIN REPAIRS TO THE LOW-LEVEL OUTLET STRUCTURE AS INDICATED ON PLANS.
4. IF A SMALL PUMP IS NECESSARY TO MAINTAIN A DEWATERED CONDITION, INSTALL PUMP WITHIN DEWATERED AREA AND DISCHARGE TO THE CONSTRUCTION DEWATERINGDISCHARGE SETTLING BASIN.
5. UPON COMPLETION OF LOW-LEVEL OUTLET STRUCTURE REPAIRS, INSPECT DEWATERED AREA WITHIN IMPOUNDMENT FOR DEBRIS/MATERIALS ASSOCIATED WITH RECONSTRUCTION OR REPAIRS AND DISPOSE OF SUCH MATERIALS LEGALLY OFF-SITE.
6. RESTORE POND BOTTOM TO ORIGINAL GRADES AND CONDITION PRIOR TO REMOVING COFFERDAM AND PUSH SEDIMENT BACK TO ORIGINAL LOCATION.



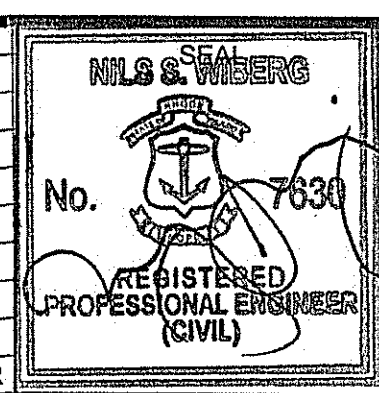
**TEMPORARY SANDBAG COFFERDAM**  
NOT TO SCALE

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DATED JAN 23 2015 FILE # 14-0190  
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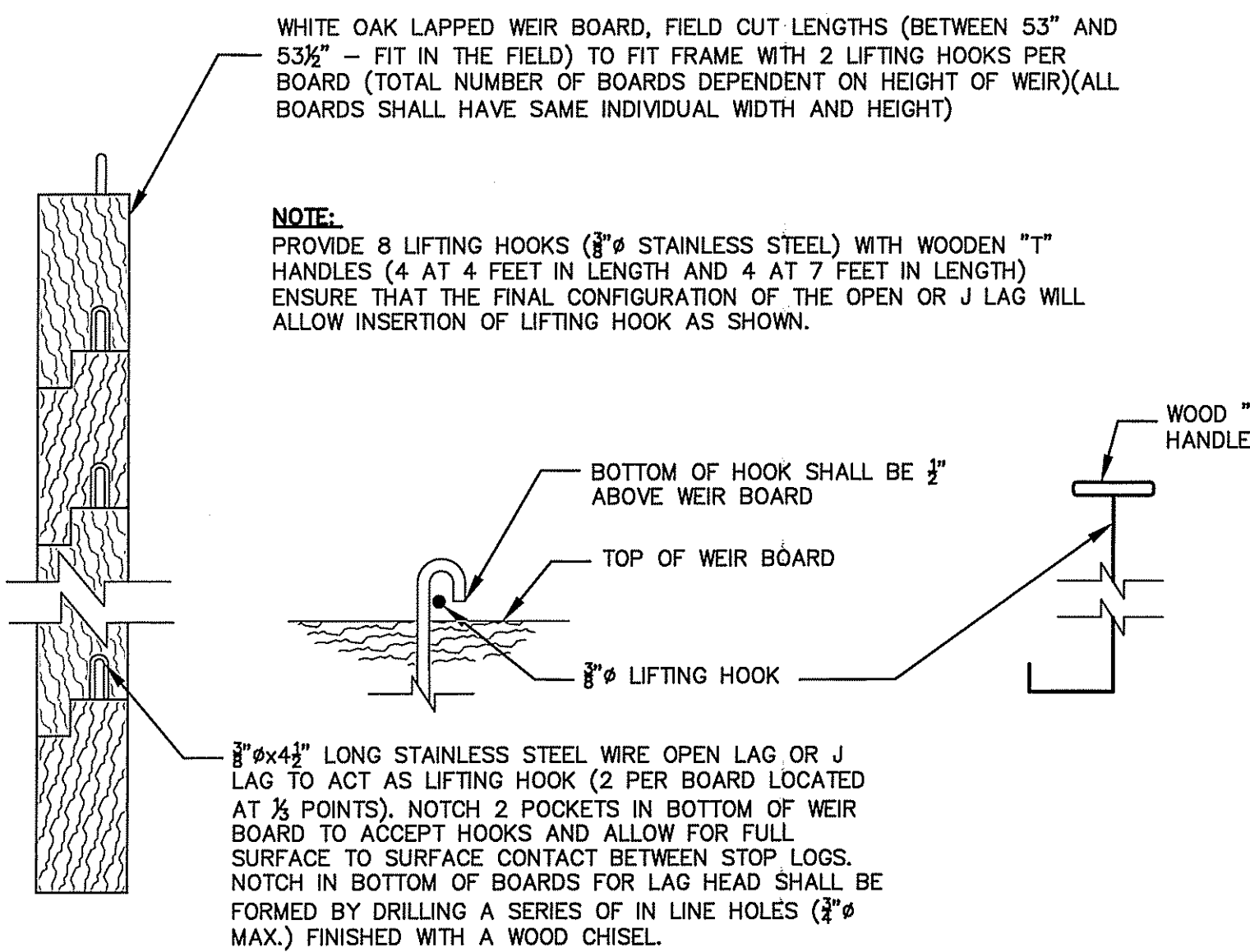


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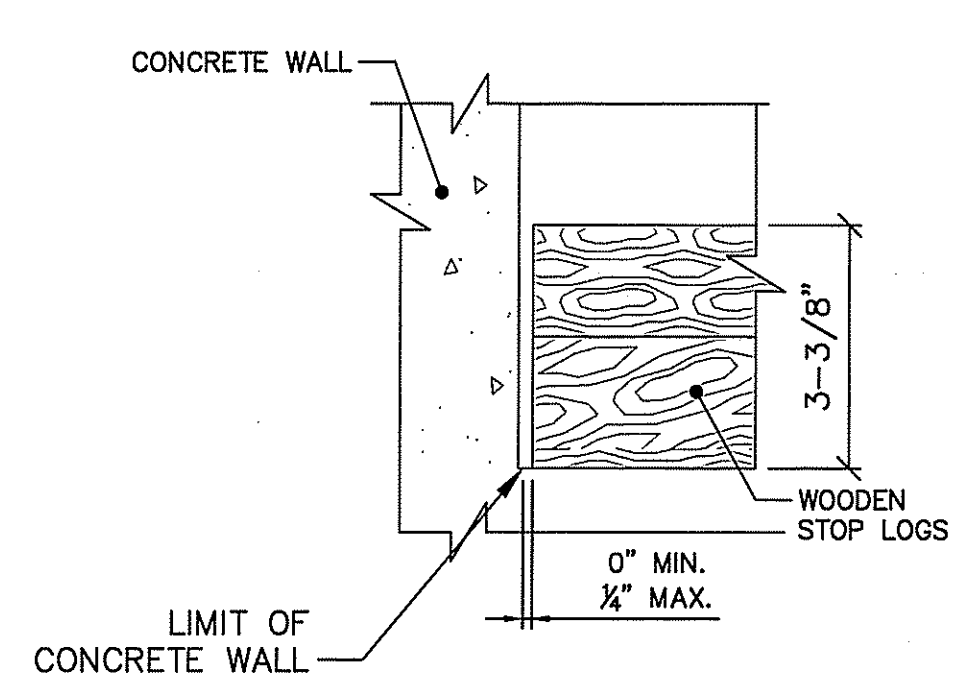
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CAMP KER-ANNA  
CONSTRUCTION DETAILS  
KER-ANNA POND DAM REPAIR  
RESERVOIR ROAD  
CUMBERLAND, RHODE ISLAND

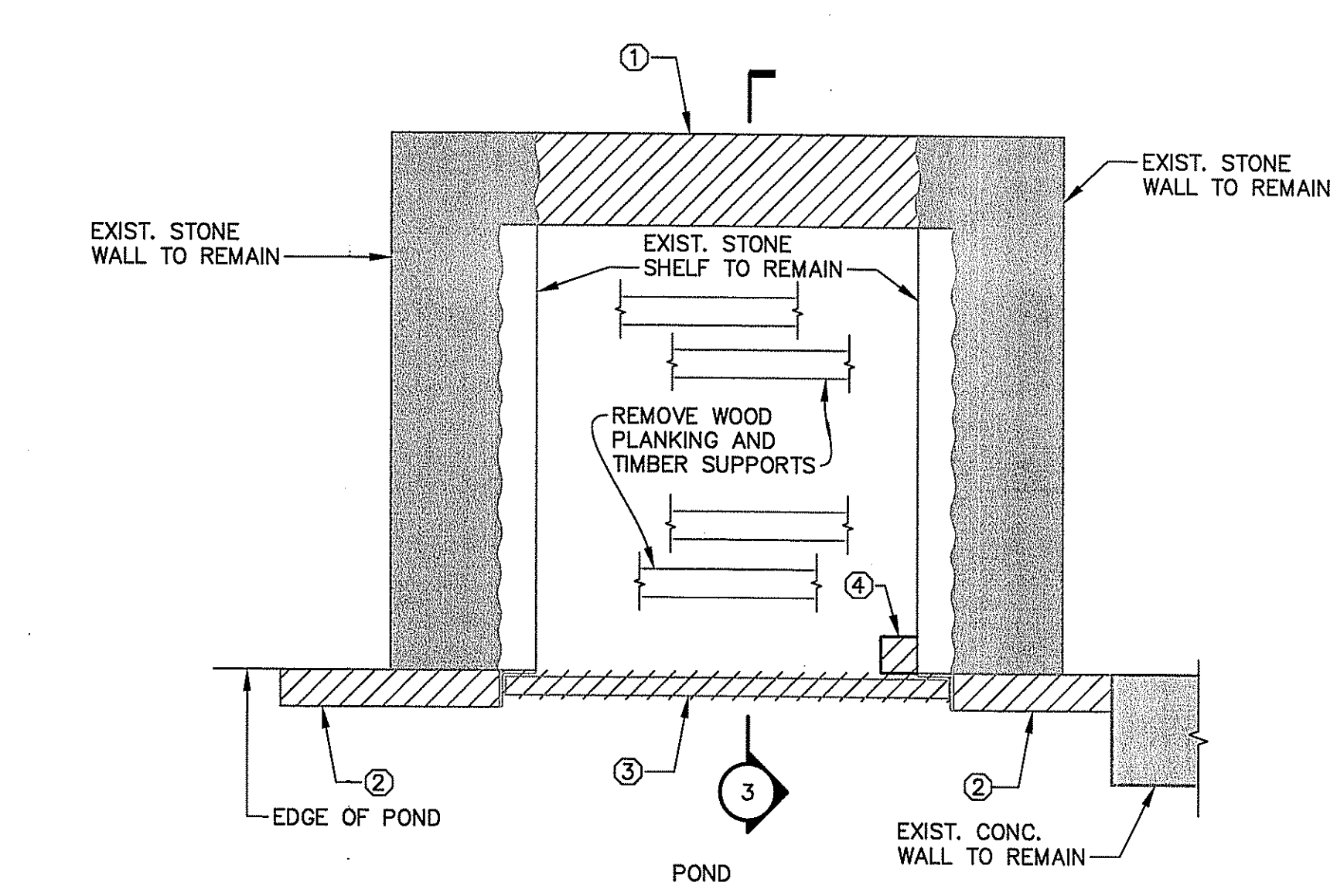
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6 OF 8



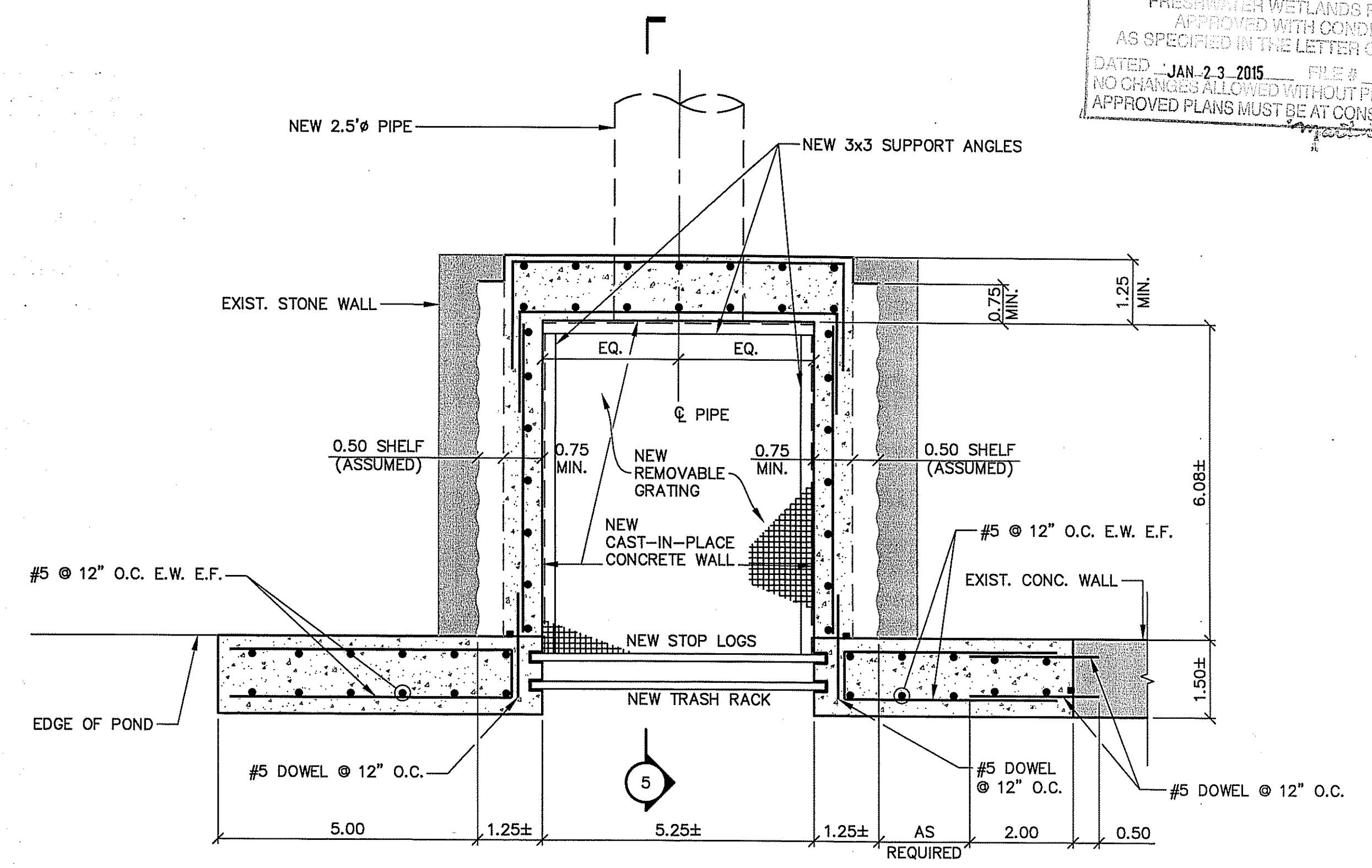
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**1 INLET STRUCTURE PLAN VIEW - DEMOLITION**  
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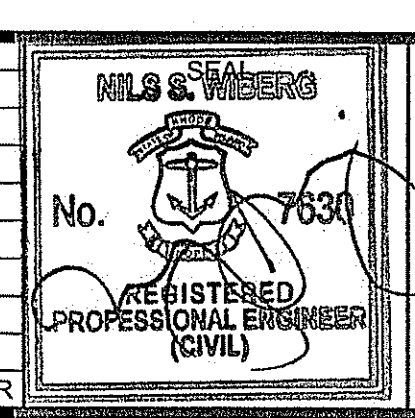
**2 INLET STRUCTURE PLAN VIEW - PROPOSED**  
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1.				



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CAMP KER-ANNA  
 STRUCTURAL DETAILS  
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 RESERVOIR ROAD CUMBERLAND, RHODE ISLAND

PROJ. No.: 20121765.A10  
 DATE: DECEMBER 2014  
**SA-501**  
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