

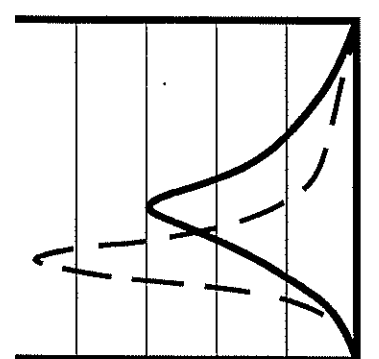
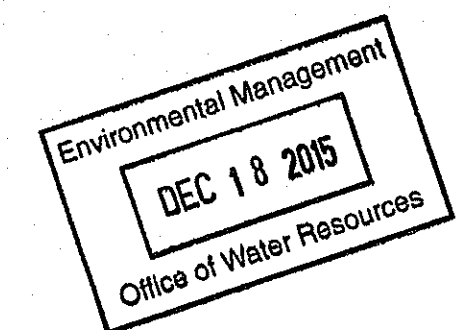
SITE PLANS FOR A PROPOSED

# ANCHOR SUBARU DEALERSHIP

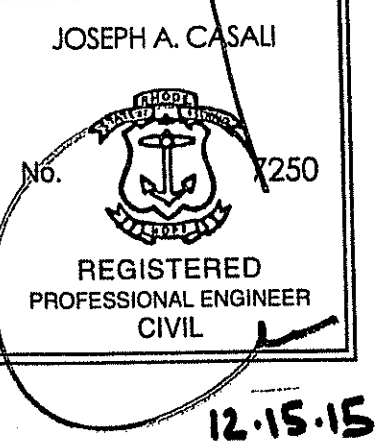


AP 17, LOTS 14, 16, 80, 84, 85, 142, 167, 199 & 231  
NORTH SMITHFIELD, RHODE ISLAND

ZONING DISTRICTS: BH, BH (WITH RESTRICTIONS) & RS



**JCE**  
JOE CASALI ENGINEERING, INC.  
CIVIL, SITE DEVELOPMENT, TRANSPORTATION  
DRAINAGE - 300 POST ROAD, WARWICK, RI 02888  
(401) 944-1300 (401) 944-1313 FAX WWW.JOECASALI.COM



**ANCHOR SUBARU**  
EDDIE DOWLING HIGHWAY  
NORTH SMITHFIELD, RHODE ISLAND  
AP 17, LOTS 14, 16, 80, 84, 85, 142, 167, 199 & 231

**APPROVALS:**

- NORTH SMITHFIELD PLANNING BOARD - MASTER PLAN APPROVAL FOR MAJOR LAND DEVELOPMENT (MAY 1, 2014)
- NORTH SMITHFIELD TOWN COUNCIL - ZONE CHANGE FOR AP 17, LOTS 84, 142 & 199 WITH RESTRICTIONS (JUNE 2, 2014)  
-100' RESIDENTIAL BUFFER TO REMAIN ON LOT 199
- NORTH SMITHFIELD PLANNING BOARD - PRELIMINARY PLAN APPROVAL FOR MAJOR LAND DEVELOPMENT (JANUARY 15, 2015)

**SUBMITTED TO:**

- RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT- PRELIMINARY DETERMINATION WITH DIVISION OF FRESHWATER WETLANDS
- RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT - ONSITE WASTEWATER TREATMENT SYSTEM
- RHODE ISLAND DEPARTMENT OF TRANSPORTATION - PHYSICAL ALTERATION PERMIT APPLICATION

**PROJECT TEAM**

**OWNER/APPLICANT:**  
BENOIT REALTY, LLC  
949 EDDY DOWLING HIGHWAY  
NORTH SMITHFIELD, RI 02896

**ARCHITECT:**  
VISION 3 ARCHITECTS  
225 CHAPMAN STREET  
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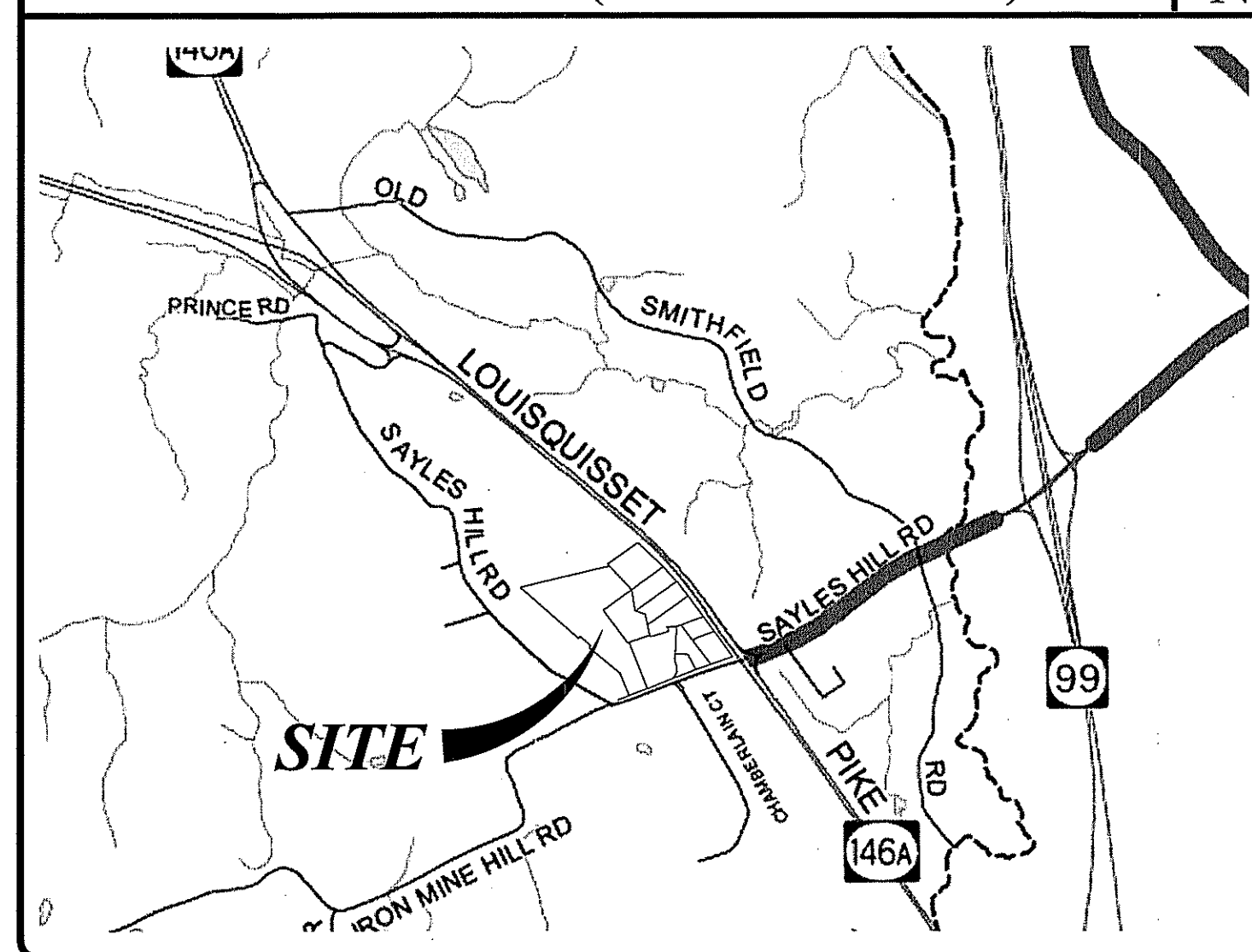
**TRAFFIC ENGINEER:**  
RAB PROFESSIONAL ENGINEERS  
10 ROSS SIMON DRIVE  
CRANSTON, RI 02920  
PHONE: 401-486-8829

**LANDSCAPE ARCHITECT:**  
DIANE C. SOULE & ASSOCIATES, ASLA  
422 FARNUM PIKE  
SMITHFIELD, RI 02917  
PHONE: 401-231-0736

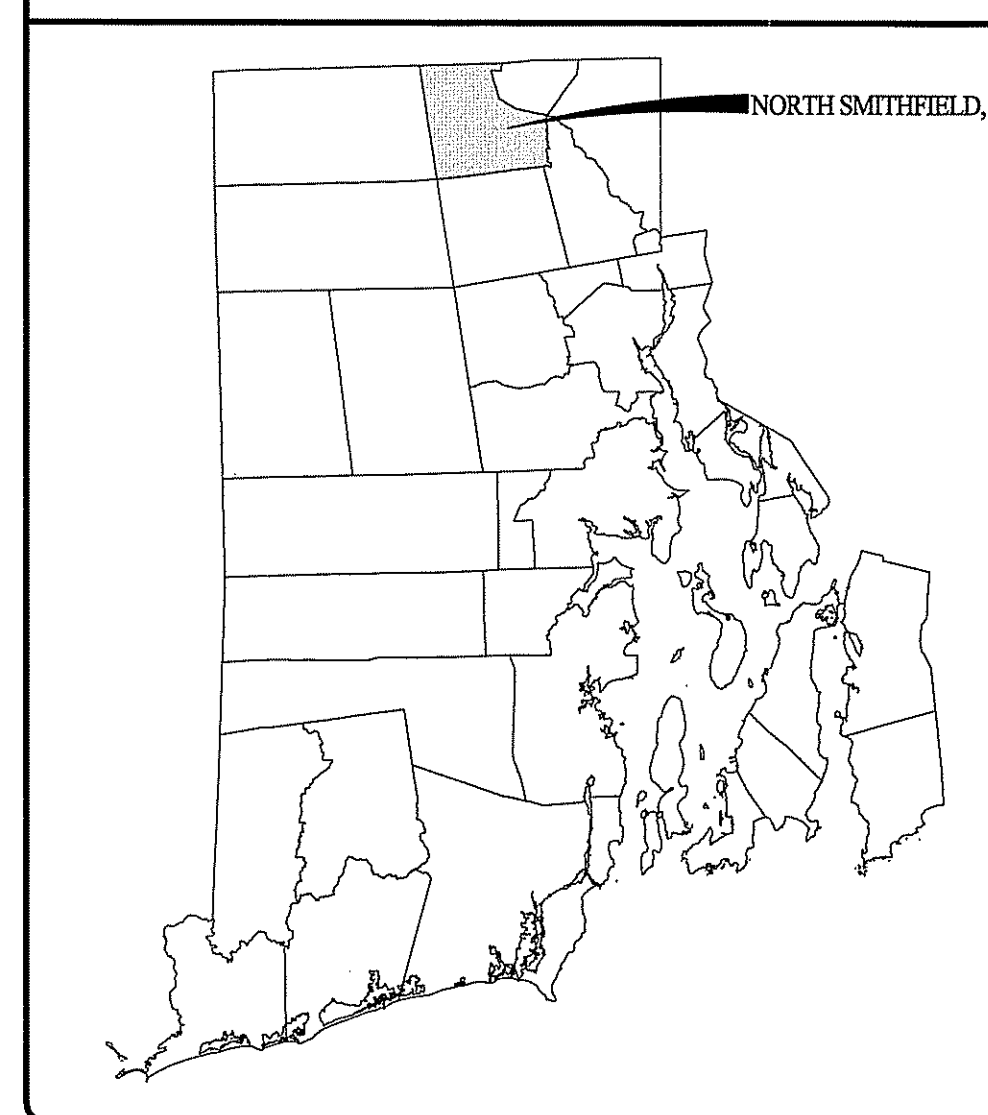
**WETLANDS BIOLOGIST:**  
NATURAL RESOURCE SERVICES, INC.  
180 TINKHAM LANE  
HARRISVILLE, RI 02830  
PHONE: 401-568-7390

**LAND SURVEYOR:**  
INTERNATIONAL MAPPING & SURVEYING, CORP.  
19 INDUSTRIAL DRIVE  
SMITHFIELD, RI  
PHONE: 401-232-2620  
FAX: 401-232-3820

**LOCUS MAP (SCALE: 1" = 2000')**



**STATE WIDE MAP**



**INDEX OF DRAWINGS**

SHEET NO.	PLAN
1	COVER SHEET
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8	RIDOT PAPA PLAN & RIDOT STANDARD DETAILS I
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13	DRAINAGE PROFILES I
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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED JAN 15 2016 FILE # 15-0078  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

**REVISIONS:**

NO.	DATE	DESCRIPTION
1	7/2015	RIDEM Comments
2	12/16/2015	RIDEM Comments

DESIGNED BY: GEC/JH  
DRAWN BY: GEC  
CHECKED BY: JAC  
DATE: NOV. 2014  
PROJECT NO: 03-47h

PRELIMINARY, NOT FOR CONSTRUCTION

**COVER SHEET**

**SHEET 1 OF 14**

Q:\03-47-Ancr N. Nyberg\03-47h-Anchor Subaru\2013 Project\2014 Concepts\ACAD\ANCHOR-PRELIMINARY (RIDEEM PLANSET).dwg Dec. 17, 2015 4:52pm

**GENERAL NOTES:**

- 1. CLASS I PROPERTY LINE SURVEY AND CLASS III TOPOGRAPHIC SURVEY OF AP 17, LOTS 14,16,80,84,85,142,167,199 & 231 COMPLETED BY INTERNATIONAL MAPPING & SURVEYING, 19 INDUSTRIAL DRIVE, SMITHFIELD, RI IN NOVEMBER 2013.
- 2. 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 TOWN WHOSE FACILITIES MIGHT BE AFFECTED BY ANY WORK TO BE PERFORMED BY THE CONTRACTOR ARE NOTIFIED AT LEAST 72 HOURS IN ADVANCE.
- 3. THE SITE IS LOCATED ON THE FLOOD INSURANCE RATE MAP FOR PROVIDENCE COUNTY, MAP NUMBER 44007C0178G, EFFECTIVE MARCH 2, 2009. THE PROPERTY LIES WITHIN ZONE X. ZONE X IS DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.
- 4. SOILS EXISTING ON THE SITE ARE WOODBRIDGE AND UDORTHERTS - URBAN LAND COMPLEX.
- 5. FRESHWATER WETLANDS DELINEATED BY NATURAL RESOURCE SERVICES INC. IN AUGUST 2013 & FEBRUARY 2014.
- 6. THIS SITE IS WITHIN A WELLHEAD PROTECTION AREA.
- 7. THIS SITE IS NOT DESIGNATED AS A NATURAL HERITAGE SITE PER RIDEM.
- 8. THERE ARE NO HISTORIC SITES OR STRUCTURES WITHIN THE PROPERTY.
- 9. THIS SITE DOES NOT CONTAIN ANY HISTORICAL CEMETERIES OR LANDSCAPES.
- 10. THERE ARE NO ARCHAEOLOGICAL SITES WITHIN THE PROPERTY.
- 11. THERE ARE NO SCENIC ROAD CORRIDORS OR STATE DETERMINED SCENIC AREAS ABUTTING THE PROPERTY.

**SITE NOTES:**

- 1. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND LEGALLY DISPOSING (R&D) OF ALL MATERIALS INDICATED ON THE PLANS.
- 2. STOCKPILES OF EARTH MATERIALS SHALL NOT BE LOCATED ADJACENT TO DRAINAGE STRUCTURES.
- 3. ALL DISTURBED AREAS OUTSIDE OF THE PAVED AREAS WILL RECEIVE A MINIMUM OF 6" OF LOAM AND SEED.
- 4. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SURVEY LAYOUT SERVICES FOR THE WORK AND SHALL SUBMIT "AS-BUILT" DRAWINGS OF ALL WORK, WHICH SHALL BE STAMPED AND CERTIFIED BY A RHODE ISLAND REGISTERED PROFESSIONAL LAND SURVEYOR OR A RHODE ISLAND REGISTERED PROFESSIONAL ENGINEER.
- 5. ANY ITEM OF WORK NOT SPECIFICALLY INDICATED ON THE PLANS BUT IS REQUIRED FOR THE COMPLETE CONSTRUCTION OF THE PROJECT WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND INCLUDED IN THE CONTRACT BID PRICE. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING SITE CONDITIONS.
- 6. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR ACTUAL SIZE OF THE PROPOSED BUILDING.
- 7. WHERE NECESSARY TO REMOVE CURBS, CATCH BASINS OR DRAINS TO COMPLETE WORK, THE CONTRACTOR SHALL REPLACE SUCH ITEMS TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
- 8. ANY EXISTING PIPE OR UTILITY DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT NO COST TO THE OWNER OR THE TOWN OF NORTH SMITHFIELD.
- 9. THE CONTRACTOR SHALL RESTORE TO ITS ORIGINAL CONDITION OR REPLACE TREES, SHRUBS, FENCES, SIGNS, GUARDRAILS, DRIVEWAYS, SIDEWALKS AND ANY OTHER OBJECT AFFECTED BY HIS OPERATION.
- 10. THE TOPS OF ALL VALVE BOXES AND CURB BOXES SHALL BE FLUSH WITH GROUND OR PAVEMENT SURFACE LEVEL AND PLUMB, UNLESS OTHERWISE DIRECTED.
- 11. ROADWAYS SHALL BE LEFT PASSABLE AT ALL TIMES. CLOSURE OF ROADWAY IS NOT PERMITTED.
- 12. THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS AT COMPLETION OF EACH DAYS WORK.
- 13. WATER AND SEWER SERVICES SHALL BE MAINTAINED AT ALL TIMES.
- 14. 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.
- 15. REFER TO PLUMBING PLANS FOR CONTINUATION OF ALL UTILITIES WITHIN 5' (FIVE) FEET OF BUILDINGS.
- 16. ALL SITE WORK, INCLUDING BUT NOT LIMITED TO BITUMINOUS PAVEMENT, AGGREGATE MATERIALS, DRAINAGE STRUCTURES, CURBING, SIDEWALK, LANDSCAPING, SAW CUTTING, ETC. SHALL CONFORM TO THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADWAY AND BRIDGE CONSTRUCTION, 2004 EDITION (WITH LATEST ADDENDA) AND THE RIDOT STANDARD DETAILS, 1998 EDITION (WITH LATEST ADDENDA).

**MISCELLANEOUS UTILITY NOTES:**

- 1. PRIOR TO CONSTRUCTION ALL POTENTIAL UTILITY/DRAINAGE CONFLICTS MUST BE IDENTIFIED BY THE CONTRACTOR. ANY MODIFICATIONS TO THE PROPOSED UTILITIES TO AVOID CONFLICTS MUST BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
- 2. THE UTILITY PLAN DOES NOT DEPICT THE NECESSARY ELECTRICAL CONDUIT/WIRING TO SERVICE THE PROPOSED LIGHTING AND SIGNS, WHICH WILL BE PERFORMED BY THE CONTRACTOR FOR NO ADDITIONAL COST.
- 3. OVERHEAD ELECTRIC AND TELEPHONE SERVICES ARE TO BE REMOVED BY THE APPROPRIATE UTILITY COMPANY AND COORDINATED BY THE CONTRACTOR.
- 4. THE CONTRACTOR SHALL AT ALL TIMES PROVIDE A SUFFICIENT NUMBER OF WORKMEN AND GUARDS AS MAY BE NECESSARY TO PROPERLY SAFEGUARD THE PUBLIC FROM THEIR OPERATIONS.
- 5. THE CONTRACTOR SHALL TAKE PRECAUTIONS AGAINST DAMAGING OF PAVING, SIDEWALKS, UTILITIES, OR PRIVATE PROPERTIES AND SHALL PROMPTLY REPAIR AT HIS OWN EXPENSE ANY DAMAGE TO SUCH PAVING, SIDEWALKS, UTILITIES, OR PRIVATE PROPERTIES TO THE SATISFACTION OF THE OWNER OR THE TOWN.
- 6. EXISTING UTILITY FRAMES AND COVERS FOR SANITARY SEWER, WATER, GAS, STORM DRAINAGE AND OTHER UTILITIES SHALL BE ADJUSTED TO GRADE AS REQUIRED IN NEW PAVING AND PAVEMENT OVERLAY AREAS.
- 7. ALL SEWER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT.
- 8. ALL FILL AROUND NEW MANHOLES WILL BE SCREENED WITH NO STONES LARGER THAN A 2-INCH DIAMETER.
- 9. ALL NEW SEWER PIPES AND MANHOLES SHALL BE CLEANED AND TESTED PRIOR TO ACCEPTANCE. GRAVITY SEWER PIPES SHALL BE REQUIRED TO PASS BOTH LOW PRESSURE AIR AND DEFLECTION (I.E., MANDREL) TESTING. LOW PRESSURE SEWER PIPING SHALL BE REQUIRED TO PASS A LOW PRESSURE (I.E., HYDROSTATIC) TEST. SEWER MANHOLES SHALL BE REQUIRED TO PASS A VACUUM TEST.
- 10. A BACKFLOW PREVENTION DEVICE MUST BE INSTALLED AT EACH SEWER SERVICE BUILDING CONNECTION.
- 11. APPLICANT IS REQUIRED TO PROVIDE TWO SETS OF FINAL AS-BUILT PLANS TO SEWER AUTHORITY AND ENGINEERING DEPARTMENT UPON COMPLETION OF CONSTRUCTION. PRIOR TO FINAL ACCEPTANCE. AS-BUILT PLANS SHALL INCLUDE FIELD MEASUREMENTS OF ALL INSTALLED PIPE AND APPURTENANCES, INCLUDING LENGTH, SLOPE, MANHOLE RIMS AND INVERTS, AS WELL AS SWING TIES/MEASUREMENTS TO ALL MANHOLES, SEWER STUBS, AND/OR LATERAL SERVICE CONNECTIONS.
- 12. NO FLOW WILL BE ACCEPTED UNTIL A CERTIFICATE IS ISSUED.
- 13. THE CONTRACTOR SHALL CONFINE HIS CONSTRUCTION OPERATIONS AND ACTIVITIES TO WITHIN THE STREET LINES, EASEMENT AND/OR RIGHT-OF-WAY, AS SHOWN ON THE DRAWINGS.
- 14. ALL AREAS DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT NO EXTRA COST TO THE OWNER. ALL GRASSED AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE LOAMED AND SEED.
- 15. ALL SEWER SERVICE LATERALS (INCL. LOW-PRESSURE SERVICE CONNECTIONS) SHALL BE CAPPED OR PLUGGED. ENDS OF LATERALS SHALL BE MARKED WITH A SIX FOOT LONG NO. 2 STEEL RE-BAR WITH A 6-INCH BY 6-INCH BY 1/4-INCH PLATE WELDED TO THE TOP OF THE BAR. THE PLATE SHALL EXTEND TO 12-INCHES BELOW THE GROUND SURFACE.
- 16. ALL CONSTRUCTION MATERIALS, AS WELL AS ALL MATERIAL SHOP DRAWINGS AND MANUFACTURERS DATA SHEETS SHALL BE REVIEWED AND APPROVED BY THE DESIGN ENGINEER.

**BMP MAINTENANCE SCHEDULE:**

- 1. ALL MAINTENANCE (INCLUDING CLEANING) REQUIRED DURING THE CONSTRUCTION PHASE OF THE PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL INCLUDE:
  - A. MEASURES NEEDED TO ENSURE THE PROPER OPERATION OF THE STORM WATER RUNOFF (DRAINAGE) AND WATER QUALITY CONTROL SYSTEMS TO INCLUDE INSPECTION, CLEANING AND REPAIRS ALL PIPES, INTAKE AND DISCHARGE STRUCTURES, CATCH BASIN SUMPS, AND MANHOLES.
  - B. INSPECTION OF ALL SLOPES, BERMS, AND OTHER CONTROL STRUCTURES FOR STRUCTURAL INTEGRITY/STABILITY AND EVIDENCE OF SOIL EROSION PROCESSES, AND MAINTENANCE OF THESE STRUCTURES IF NECESSARY. INSPECTIONS SHALL BE PERFORMED FOLLOWING ALL RAIN EVENTS OF 1/4 INCH RAINFALL OR MORE IN A 24-HOUR PERIOD, OR EVERY 7 CALENDAR DAYS IF NO RAINFALL EVENT OCCURS.
- 2. UPON COMPLETION OF THE PROJECT CONSTRUCTION, AND PRIOR TO VACATING THE SITE, THE CONTRACTOR SHALL CONDUCT A FINAL INSPECTION AND CLEANING OF THE DRAINAGE SYSTEM AND ALL ASSOCIATED STRUCTURES.
- 3. ALL MAINTENANCE OF THE DRAINAGE SYSTEM SHALL BE THE RESPONSIBILITY OF THE OWNER.
  - A. ANY REQUIRED REPAIR AND REPLACEMENT OF DRAINAGE STRUCTURES OR FACILITIES SHALL BE DONE PROMPTLY TO ENSURE PROPER FUNCTIONING OF THE SYSTEM.
  - B. ALL DESIGN, CLEANING, AND MAINTENANCE OF THE STORM WATER DRAINAGE SYSTEM SHALL FOLLOW THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION MINIMUM STANDARDS, SECTION 212 AND SECTION 708. WHERE APPROPRIATE, PROCEDURES REGARDING THE DRAINAGE DESIGN, AND THE INSPECTION AND MAINTENANCE OF THE STORM WATER DRAINAGE SYSTEM SHALL BE FOLLOWED AS OUTLINED IN THE "RHODE ISLAND STORM WATER DESIGN AND INSTALLATION STANDARDS MANUAL" (RIDEM/RICRMC, 2010).
- 4. STORMWATER BMPs SHALL BE INSPECTED AND MAINTAINED AS FOLLOWS:

**CATCH BASINS**

- INSPECTIONS SHALL BE PERFORMED A MINIMUM OF 2 TIMES PER YEAR (SPRING/FALL). UNITS SHALL BE CLEANED WHENEVER THE DEPTH OF SEDIMENT IS GREATER THAN OR EQUAL TO 2- FEET (LESS THAN 2- FEET FROM THE BOTTOM OF PIPE).
- THE INLET GRATE SHALL NOT BE WELDED TO THE FRAME SO THAT THE SUMP CAN BE EASILY INSPECTED AND MAINTAINED.

**DETENTION BASIN**

- SEDIMENT SHALL BE REMOVED FROM THE BASINS WHEN THE SEDIMENT VOLUME EXCEEDS 10% OF THE TOTAL BASIN VOLUME.
- RIP RAP OUTFLOWS AND OUTLET CONTROL STRUCTURES SHALL BE INSPECTED AFTER EVERY STORM IN THE FIRST 3 MONTHS OF OPERATION TO ENSURE PROPER FUNCTION. THEREAFTER, OUTFALLS SHALL BE INSPECTED AT LEAST ONCE EVERY 6 MONTHS.

**MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:**

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MAINTENANCE AND PROTECTION OF PEDESTRIAN AND VEHICULAR TRAFFIC INCLUDING POLICE PROTECTION. ALL TEMPORARY AND VEHICULAR SIGNS, BARRICADES AND LANE CLOSURES SHALL BE IN CONFORMANCE WITH THE LATEST REVISIONS OF MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- 2. TEMPORARY CONSTRUCTION SIGNS AND ALL APPLICABLE TRAFFIC CONTROL DIVIDES SHALL BE IN PLACE PRIOR TO THE START OF WORK IN ANY AREA OPEN TO TRAFFIC.
- 3. THE PRIVATE VEHICLES OF CONSTRUCTION WORKERS SHALL NOT BE PARKED IN THE STATE OR TOWN RIGHTS-OF-WAY.
- 4. ALL MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL SETUPS, SIGNS CHANNELING DEVICES, ETC. SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, 2009 EDITION WITH LATEST ADDENDA.
- 5. SIGN MOUNTINGS SHALL BE IN ACCORDANCE WITH THE RIDOT SPECIFICATIONS FOR TEMPORARY CONSTRUCTION SIGNS.

**DRAINAGE SYSTEM NOTES:**

- 1. THE PROPOSED DRAINAGE LINES SHALL BE ADS N-12 HDPE PIPE OR AN APPROVED EQUAL, UNLESS OTHERWISE SPECIFIED HERE WITHIN.
- 2. ALL RIM ELEVATIONS SHOWN ARE APPROXIMATE AND ARE TO BE SET FLUSH WITH FINAL GRADES.
- 3. THE DESIGN ENGINEER MUST SUBMIT AN AS BUILT PLAN AND A CERTIFICATION TO THE TOWN ENGINEER THAT THE CONSTRUCTION IS IN COMPLIANCE WITH THE DESIGN PLANS FOR ALL ELEMENTS OF THE STORM OR DRAINAGE SYSTEM PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.
- 4. CATCH BASINS WILL BE OPERABLE ONCE THE BASE COURSE OF PAVEMENT IS CONSTRUCTED.

**SOIL EROSION AND SEDIMENTATION CONTROL NOTES**

- 1. 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.
- 2. ALL CATCH BASINS AND CULVERTS SHALL BE PROTECTED WITH STAKED HAYBALES (R.I. STD. 9.8.0) DURING CONSTRUCTION ACTIVITIES. ALL PROPOSED STORM WATER DISCHARGE AREAS SHALL BE LINED WITH A RIPRAP SPLASH PAD AND PROTECTED WITH STAKED HAYBALE WITH SILT FENCE (R.I. STD. 9.3.0) AND STAKED HAYBALE WITH SILT FENCE SHALL ALSO BE INSTALLED AT ALL EXISTING STORMWATER DISCHARGE LOCATIONS WHERE DISTRIBUTING PIPES, CATCH BASINS, AND MANHOLES ARE TO BE CLEANED AND FLUSHED.
- 3. ALL DISTURBED SLOPES EITHER NEWLY CREATED OR CURRENTLY EXPOSED SHALL BE SEED, PROTECTED AND MAINTAINED BY THE CONTRACTOR. THE CONTRACTOR SHALL REGULARLY CHECK ALL SEEDED AREAS TO ENSURE THAT A GOOD STAND IS MAINTAINED.
- 4. ALL SILT FENCE, 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.
- 5. 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.
- 6. THE SILT FENCE SHALL BE CHECKED BY THE CONTRACTOR ON A WEEKLY BASIS AND AFTER EACH STORM FOR UNDERMINING OR DETERIORATION. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY SILT FENCE AS NEEDED. THE CONTRACTOR SHALL CLEAN THE ACCUMULATED SEDIMENT IF HALF OF THE ORIGINAL HEIGHT OF THE SILT FENCE BECOMES FILLED WITH SEDIMENTS.
- 7. 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 (HAYBALES, SILT FENCE, ETC.) 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.
- 8. 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 2014.
- 9. THE OPERATOR SHOULD INITIATE APPROPRIATE VEGETATIVE PRACTICES ON ALL DISTURBED AREAS AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY OR PERMANENTLY CEASED, UNLESS THE ACTIVITY IS TO RESUME WITHIN TWENTY-ONE (21) DAYS.
- 10. SEDIMENT TRAPS SHALL COLLECT AREAS NO GREATER THAN 5 ACRES IN SIZE AND SHALL HAVE A MINIMUM VOLUME OF 343 CF PER ACRE FOR WHICH 50% OF THE VOLUME RETAINS WATER. SEDIMENT ACCUMULATION SHALL BE REMOVED FROM THE SEDIMENT TRAPS WHEN THE ACCUMULATED SEDIMENT REACHES ONE FOOT IN DEPTH OR IS GREATER THAN 25% OF THE STORAGE VOLUME.

**EXISTING TREE PROTECTION:**

- 1. AT THE START OF CONSTRUCTION ONCE EROSION CONTROL MEASURES ARE IN PLACE AND THE LIMIT OF DISTURBANCE HAS BEEN ESTABLISHED, THE OWNER AND/OR THEIR REPRESENTATIVE SHALL WALK THE SITE WITH THE CONTRACTOR TO DETERMINE WHICH TREES ARE TO BE REMOVED AND WHICH TREES ARE TO REMAIN AND BE PROTECTED.
- 2. ALL TREES WHICH ARE LOCATED WITHIN THE CONSTRUCTION AREA AND ARE DESIGNATED TO REMAIN SHALL BE FLAGGED WITH ORANGE SURVEYORS RIBBON AND LABELED "TO REMAIN" WITH A WEATHERPROOF MARKER.
- 3. DRIP LINE TREE PROTECTION DEVICE FOR EXISTING TREES (RI STANDARD 51.1.1) SHALL BE INSTALLED AROUND THE TREES MARKED TO REMAIN. NO MATERIALS OR VEHICLES SHALL BE STORED WITHIN THE FENCED AREA.
- 4. THE TREES DESIGNATED TO REMAIN SHALL BE EVALUATED BY AN ARBORIST FOR STRUCTURAL INTEGRITY. HAZARDOUS TREE OR LIMBS ARE TO BE REMOVED BY ACCEPTABLE LANDSCAPING PRACTICES.
- 5. ONCE CONSTRUCTION IS COMPLETE, CONTRACTOR SHALL REMOVE ALL FENCING, MOW AND REMOVE UNDERBRUSH.

**LAYOUT NOTE:**

THE LAYOUT SHOWN REPRESENTS A GRAPHICAL DESIGN, AND PRIOR TO THE CONSTRUCTION, THE CONTRACTOR SHALL ENGAGE A PROFESSIONAL LAND SURVEYOR (PLS) REGISTERED IN THE STATE OF RHODE ISLAND TO SET AND VERIFY ALL LINES AND GRADES. ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS ARE TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY ITEMS FOUND WHICH DO NOT MATCH THE PLANS MUST BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO CONSTRUCTION FOR REVIEW. NO WORK SHALL PROCEED UNTIL AUTHORIZED BY THE ENGINEER.

**SAND FILTER NOTES:**

- 1. SAND FILTERS MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.
  - IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE SAND FILTER AREA AND THE REQUIRED BACKFILL.
  - WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF SAND FILTER AREA IS EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND STORAGE VOLUMES AND IS NOT ACCEPTABLE.
  - COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE. COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE SAND FILTER BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE PERFORMED TO REFRACATURE THE SOIL PROFILE THROUGH THE 12-IN COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
  - WHEN BACKFILLING THE SAND FILTERS, PLACE SOIL IN LIFTS 12IN OR GREATER.
  - DO NOT USE HEAVY EQUIPMENT WITHIN THE SAND FILTER. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND.
  - GRADE SAND FILTER MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.
- 2. THE DESIGN ENGINEER MUST SUBMIT AN AS BUILT PLAN AND A CERTIFICATION TO TOWN ENGINEER THAT THE CONSTRUCTION IS IN COMPLIANCE WITH THE DESIGN PLANS FOR ALL ELEMENTS OF THE STORM OR DRAINAGE SYSTEM PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.

**INSPECTION, MAINTENANCE & REPAIR NOTES:**

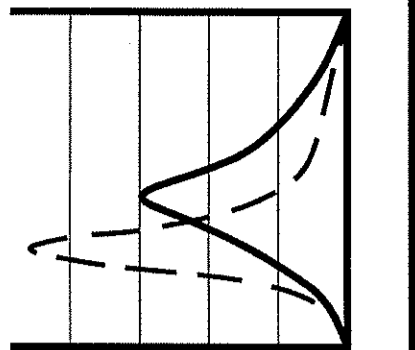
- 1. IT SHALL BE THE RESPONSIBILITY OF THE OWNER OR THEIR APPROVED AGENTS TO INSPECT, MAINTAIN AND REPAIR THE STORMWATER MANAGEMENT SYSTEM AS NECESSARY AND IN ACCORDANCE WITH THE OPERATION AND MAINTENANCE PLAN.
- 2. SAND FILTER FACILITIES SHOULD BE INSPECTED AT LEAST TWICE OR MORE FOLLOWING PRECIPITATION EVENTS OF AT LEAST 1.0 INCH OF RAINFALL THAT THE SYSTEM IS FUNCTIONING PROPERLY DURING THE SIX MONTHS IMMEDIATELY AFTER CONSTRUCTION. THEREAFTER, INSPECTIONS SHOULD BE CONDUCTED ON AN ANNUAL BASIS AND AFTER MAJOR RAIN EVENT WITH MORE THAN 2" OF RAIN.
  - WEEDS AND INVASIVE PLANT SPECIES SHALL BE REMOVED BY HAND.
  - LEAF LITTER AND OTHER DETRITUS SHALL BE REMOVED TWICE PER YEAR.
  - GRASS SHALL BE MOWED TWICE PER YEAR AT A MINIMUM.
  - SAND FILTERS SHALL BE INSPECTED TWICE DURING FOR THE FIRST YEAR AND ANNUALLY THEREAFTER FOR SEDIMENT BUILDUP, SOIL EROSION, VEGETATIVE CONDITIONS, ETC. IF SEDIMENT BUILD-UP IS FOUND, CORE AERATION OR CULTIVATING OF THE FILTER AREAS MAY BE REQUIRED TO ENSURE ADEQUATE FILTRATION.
  - THE PEA GRAVEL DIAPHRAGM SHOULD BE INSPECTED ANNUALLY FOR CLOGGING. SEDIMENT BUILD UP IS A COMMON PROBLEM WHERE RUNOFF LEAVES AN IMPERVIOUS SURFACE AND ENTERS A VEGETATIVE OR EARTHEN SURFACE.
  - THE OVERFLOW WEIR SHOULD BE INSPECTED ANNUALLY TO ENSURE THAT THEY ARE FUNCTIONING.
- 3. STREET SWEEPING SHALL BE PERFORMED AS NEEDED BETWEEN MARCH 15 AND NOVEMBER 30 USING A VACUUM SWEEPER:
  - EARLY SPRING, AFTER SNOW MELT
  - LATE SPRING/EARLY SUMMER
  - LATE SUMMER/EARLY FALL
  - LATE FALL, TO ADDRESS LEAF LITTER
- 4. THE DOCUMENT ENTITLED "STORMWATER OPERATION AND MAINTENANCE PLAN" DATED JANUARY 2015 SHALL BE REFERENCED FOR A COMPLETE AND COMPREHENSIVE PRESENTATION OF THE INSPECTION, MAINTENANCE AND REPAIR RESPONSIBILITIES REGARDING THE SUBJECT PROJECT SITE.

**LEGEND:**

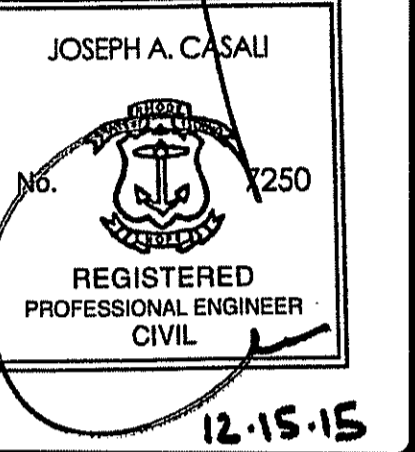
- EXISTING PROPERTY LINE
- ABUTTING PROPERTY LINE
- BUILDING SETBACK LINE
- 163.8x --- EXISTING SPOT ELEVATION
- 100--- EXISTING CONTOUR
- 100--- PROPOSED CONTOUR
- EXISTING STONE WALL
- EXISTING CURB
- PROPOSED CURB
- EXISTING METAL FENCE
- CHAIN LINK FENCE
- D --- PROPOSED DRAIN LINE
- D --- EXISTING DRAIN LINE
- EXISTING DRAINAGE MANHOLE
- PROPOSED DRAINAGE MANHOLE
- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN
- UPPT2 --- EXISTING UTILITY POLE
- PROPOSED UTILITY POLE
- TEL --- EXISTING TELECOM DUCTBANK
- E --- EXISTING ELECTRIC DUCTBANK
- E --- RELOCATED ELECTRIC DUCTBANK
- GAS --- EXISTING GAS LINE
- GAS --- PROPOSED GAS LINE
- GG --- GAS GATE
- W --- EXISTING WATER LINE
- W --- PROPOSED WATER LINE
- WG --- WATER GATE
- PR --- PROPOSED WATER GATE
- S --- EXISTING SEWER LINE
- S --- PROPOSED SEWER LINE
- EXISTING SEWER MANHOLE
- PROPOSED SEWER MANHOLE
- N/F --- NOW OR FORMERLY
- TREE LINE
- HAY BALES
- SILT FENCE
- 100---100--- LIMIT OF DISTURBANCE
- TEST HOLE
- BOLLARD
- CONDUIT
- HYDRANT
- LAMP POLE
- FDC --- FIRE DEPARTMENT CONTROL
- H/C --- EXISTING HANDICAP
- PROPOSED HANDICAP
- EPB --- EMERGENCY PHONE BOX
- EXISTING TREE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
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DATED JAN 15 2016 FILE # 15-0078  
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APPROVED PLANS MUST BE AT CONSTRUCTION SITE

*Signature & Stamp*



**JOE CASALI ENGINEERING, INC.**  
CIVIL - SITE DEVELOPMENT - TRANSPORTATION  
DRAINAGE - WETLANDS - ISDS - TRAFFIC - FLOODPLAIN  
6031944-1300 4019942-13174X WWW.JOECSAL.COM



ANCHOR SUBARU  
EDDIE DOWLING HIGHWAY  
NORTH SMITHFIELD, RHODE ISLAND  
AP 17, LOTS 14, 16, 80, 84, 85, 142, 167, 199 & 231

REVISIONS:

NO.	DATE	DESCRIPTION
1	7/2015	RIDEM Comments
2	12/16/2015	RIDEM Comments

DESIGNED BY: GEC/JH  
DRAWN BY: GEC  
CHECKED BY: JAC  
DATE: NOV. 2014  
PROJECT NO: 03-47h

PRELIMINARY, NOT FOR CONSTRUCTION

**GENERAL NOTES & LEGEND**

**SHEET 2 OF 14**

ZONING CRITERIA	REQUIRED
ZONING DISTRICT	BH
MINIMUM DISTANCE FROM RESIDENTIAL STRUCTURE	25'
MINIMUM FRONT YARD SETBACK	25'
MINIMUM SIDE YARD SETBACK	15'
MINIMUM REAR YARD SETBACK	30'
MAXIMUM BUILDING HEIGHT (MAIN STRUCTURE)	35'
MAXIMUM BUILDING HEIGHT (ACCESSORY STRUCTURE)	20'
MAXIMUM FLOOR AREA RATIO	0.25

\* = EXISTING NON-CONFORMING CONDITION

ZONING CRITERIA	REQUIRED
ZONING DISTRICT	BH WITH RESTRICTIONS
MINIMUM DISTANCE FROM RESIDENTIAL STRUCTURE	25'
MINIMUM FRONT YARD SETBACK	25'
MINIMUM SIDE YARD SETBACK	15'
MINIMUM REAR YARD SETBACK	30'
MAXIMUM BUILDING HEIGHT (MAIN STRUCTURE)	35'
MAXIMUM BUILDING HEIGHT (ACCESSORY STRUCTURE)	20'
MAXIMUM FLOOR AREA RATIO	0.25
RESIDENTIAL BUFFER	100'

\* = EXISTING NON-CONFORMING CONDITION

ZONING CRITERIA	REQUIRED
ZONING DISTRICT	RS
MINIMUM LOT AREA	40,000 SF
MINIMUM LOT FRONTAGE	150'
MINIMUM FRONT YARD SETBACK	30'
MINIMUM SIDE YARD SETBACK	25'
MINIMUM REAR YARD SETBACK	40'
MAXIMUM BUILDING HEIGHT (MAIN STRUCTURE)	30'
MAXIMUM BUILDING HEIGHT (ACCESSORY STRUCTURE)	25'
BUILDING COVERAGE	20%

\* = EXISTING NON-CONFORMING CONDITION

### LEDGE PROBE RESULTS

PROBE #	ELEVATION	DEPTH TO LEDGE
P-201	365.0	359.9
P-202	369.5	362.5
P-203	367.5	358.5
P-204	369.8	364.5
P-205	354.0	351.8
P-206	351.5	346.9
P-207	356.0	351.2
P-208	364.3	359.1
P-209	349.8	344.5
P-210	346.0	340.5
P-211	350.0	345.7
P-212	350.5	344.0

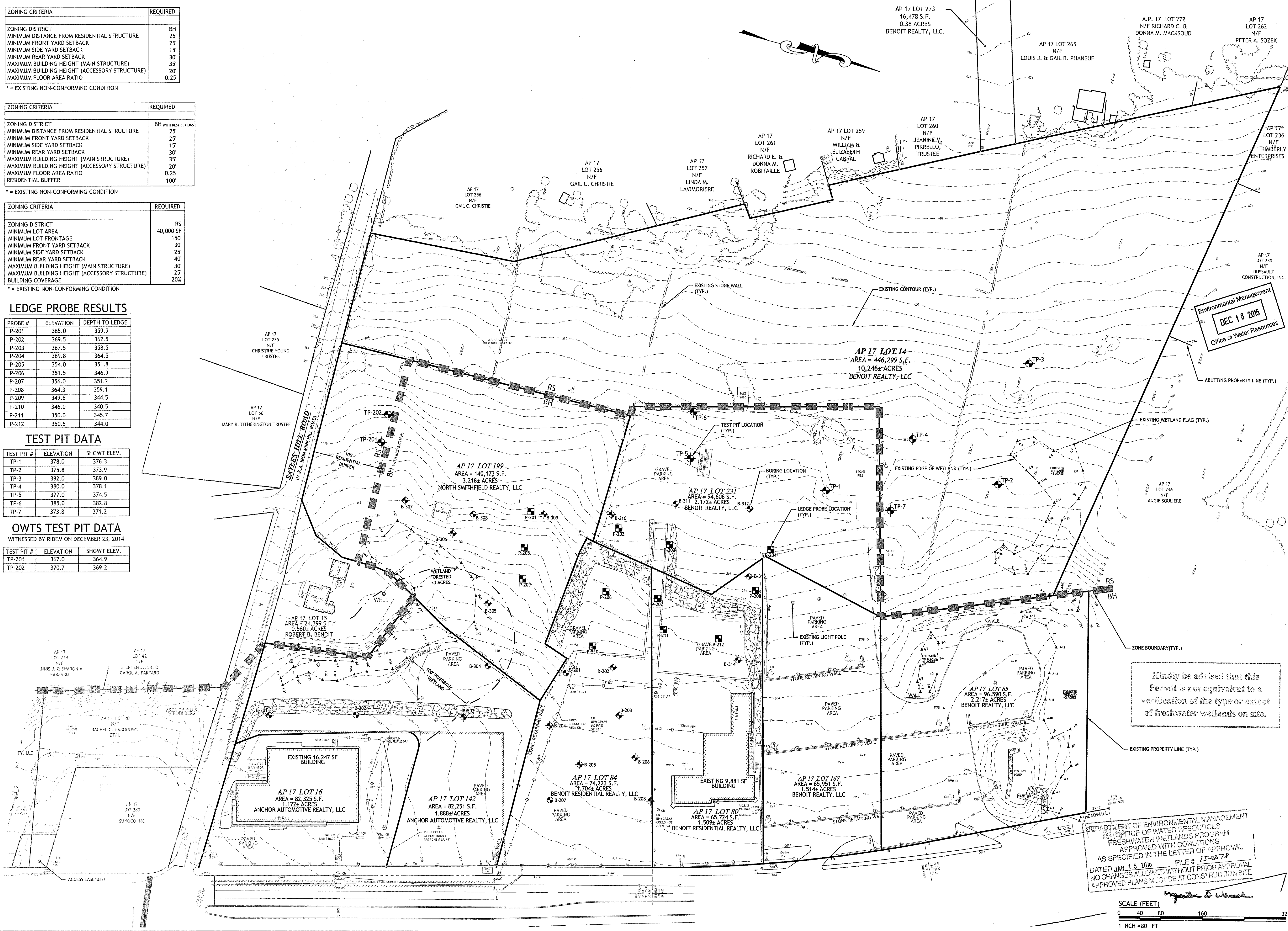
### TEST PIT DATA

TEST PIT #	ELEVATION	SHGWT ELEV.
TP-1	378.0	376.3
TP-2	375.8	373.9
TP-3	392.0	389.0
TP-4	380.0	378.1
TP-5	377.0	374.5
TP-6	385.0	382.8
TP-7	373.8	371.2

### OWTS TEST PIT DATA

WITNESSED BY RIDEM ON DECEMBER 23, 2014

TEST PIT #	ELEVATION	SHGWT ELEV.
TP-201	367.0	364.9
TP-202	370.7	369.2



Environmental Management  
DEC 18 2015  
Office of Water Resources

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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
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SCALE (FEET)  
0 40 80 160 320  
1 INCH = 80 FT

**JCE**  
JOE CASALI ENGINEERING, INC.  
CIVIL - SITE DEVELOPMENT - TRANSPORTATION  
DRAINAGE - WETLANDS - IBDS - TRAFFIC - FLOODPLAIN  
(401) 344-1300 (401) 344-1313 FAX WWW.JCEINC.COM

JOSEPH A. CASALI  
No. 1250  
REGISTERED PROFESSIONAL ENGINEER CIVIL  
12.15.15

# ANCHOR SUBARU

EDDIE DOWLING HIGHWAY  
NORTH SMITHFIELD, RHODE ISLAND  
AP 17, LOTS 14, 16, 80, 84, 85, 142, 167, 199 & 231

REVISIONS:

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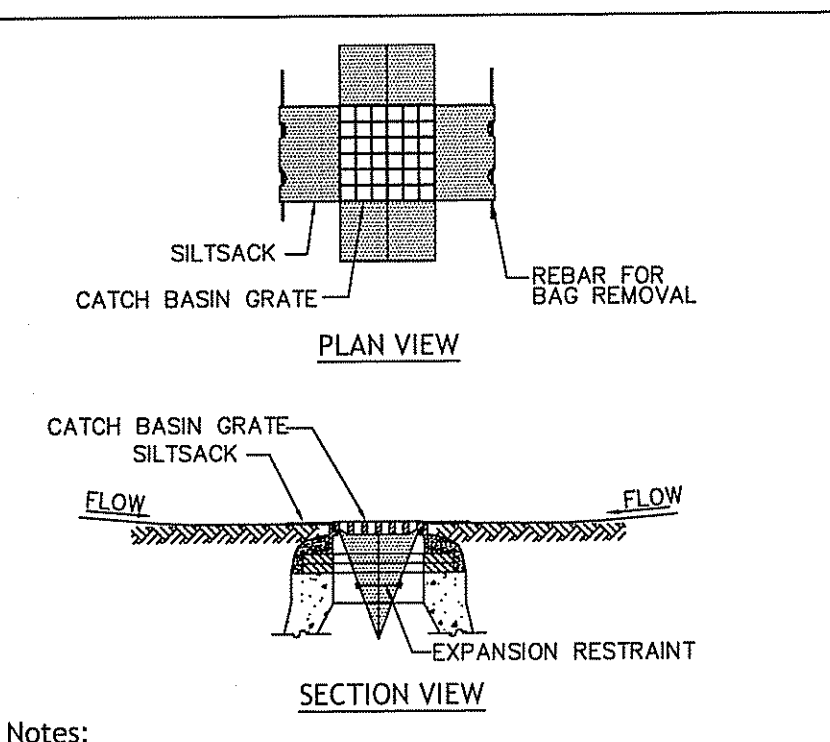
DESIGNED BY: GEC/JH  
DRAWN BY: GEC  
CHECKED BY: JAC  
DATE: NOV. 2014  
PROJECT NO: 03-47h

PRELIMINARY, NOT FOR CONSTRUCTION

**EXISTING CONDITIONS PLAN**

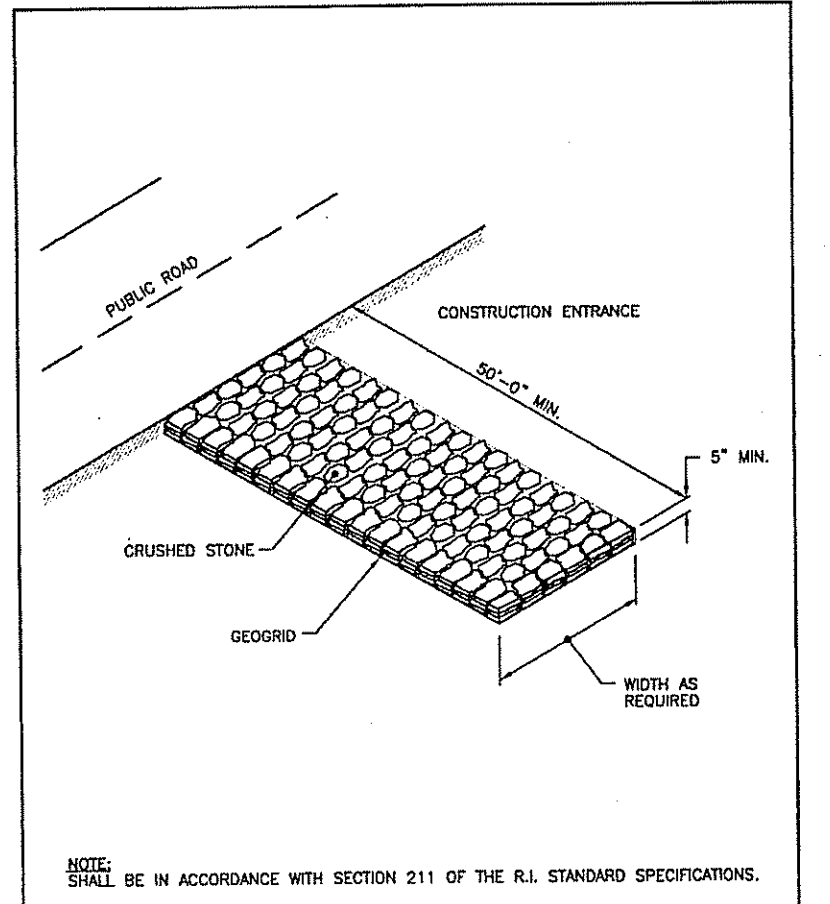
**SHEET 3 OF 14**

D:\03-47h\Anchor Subaru\03-47h-Anchor Subaru\2013 Project\2014 Concept\ANCHOR SUBARU PRELIMINARY (RIDE) PLANSSET1.dwg Date: 17 2015 10:55am



Notes:  
 1. INSTALL SILTSACK IN ALL CATCH BASINS WHERE INDICATED ON THE PLAN BEFORE COMMENCING WORK OR IN PAVED AREAS AFTER BINDER COURSE IS PLACED AND HAY BALES HAVE BEEN REMOVED.  
 2. GRATE TO BE PLACED OVER SILTSACK.  
 3. 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

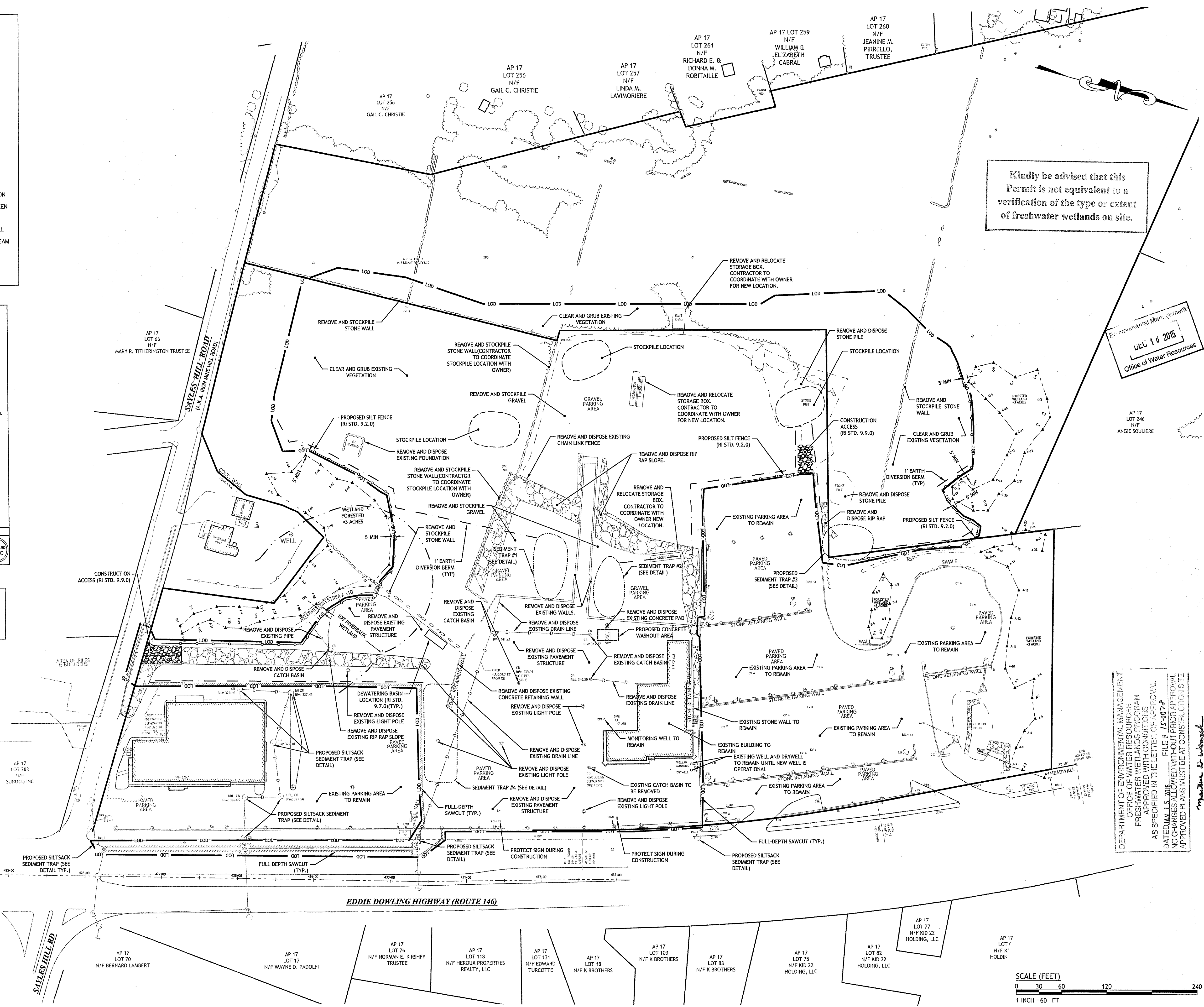
**SILTSACK SEDIMENT TRAP**  
NTS



NOTE: SHALL BE IN ACCORDANCE WITH SECTION 211 OF THE R.I. STANDARD SPECIFICATIONS.

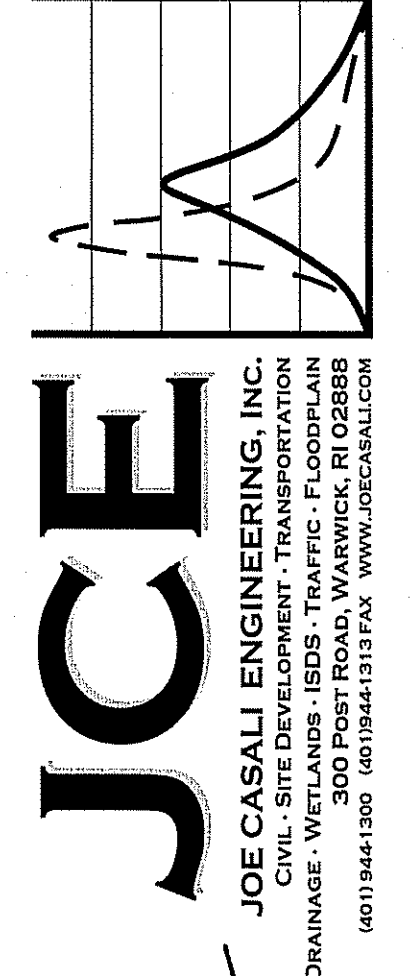
RHODE ISLAND DEPARTMENT OF TRANSPORTATION	
NO.	DATE
CONSTRUCTION ACCESS	
APPROVED BY: [Signature]	
DATE: APR 15, 1998	
R.I. STANDARD SPECIFICATIONS 9.9.0	

NOTE TO CONTRACTOR:  
 CONTRACTOR TO ESTABLISH WESTERN SWALE AS SHOWN ON THE GRADING PLAN AT THE BEGINNING OF THE PROJECT TO DIVERT THE UP-GRADIENT STORMWATER RUNOFF AROUND THE AREA OF CONSTRUCTION.



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Environmental Management  
 JUL 10 2015  
 Office of Water Resources



JOSEPH A. CASALI  
 No. 7250  
 REGISTERED PROFESSIONAL ENGINEER CIVIL  
 12-15-15

**ANCHOR SUBARU**  
 EDDIE DOWLING HIGHWAY  
 NORTH SMITHFIELD, RHODE ISLAND  
 AP 17, LOTS 14, 16, 80, 84, 85, 142, 167, 199 & 231

REVISIONS:

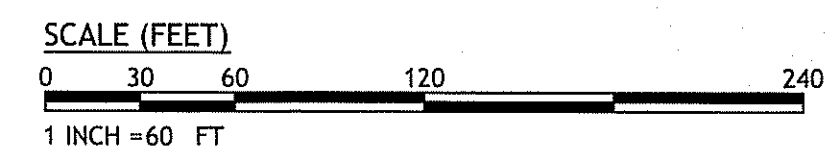
NO.	DATE	DESCRIPTION
1	7/20/15	RIDEM Comments
2	12/16/2015	RIDEM Comments

DESIGNED BY: GEC/JH  
 DRAWN BY: GEC  
 CHECKED BY: JAC  
 DATE: NOV. 2014  
 PROJECT NO: 03-47h

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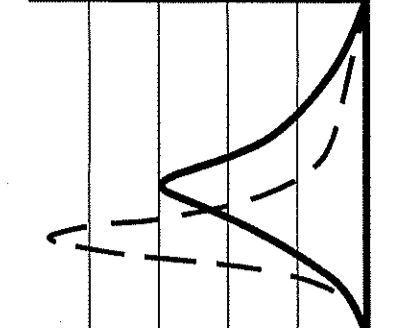
**SITE PREPARATION PLAN**

**SHEET 4 OF 14**



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
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03-03-07-016-c-01-07h-Anchor Subaru 2014 Conceptual/Preliminary (Project Plans) 03-47h-101.dwg Doc: 12/15/2015 10:10am



**JCE**  
 JOE CASALI ENGINEERING, INC.  
 CIVIL - SITE DEVELOPMENT - TRANSPORTATION  
 DRAINAGE - WETLANDS - ISDS - TRAFFIC - FLOODPLAIN  
 (601)944-1300 (601)944-1313 FAX WWW.JCEONLINE.COM

JOSEPH A. CASALI  
 No. 1250  
 REGISTERED  
 PROFESSIONAL ENGINEER  
 CIVIL  
 12-15-15

Environmental Management  
 DEC 18 2015  
 Office of Water Resources

**ANCHOR SUBARU**  
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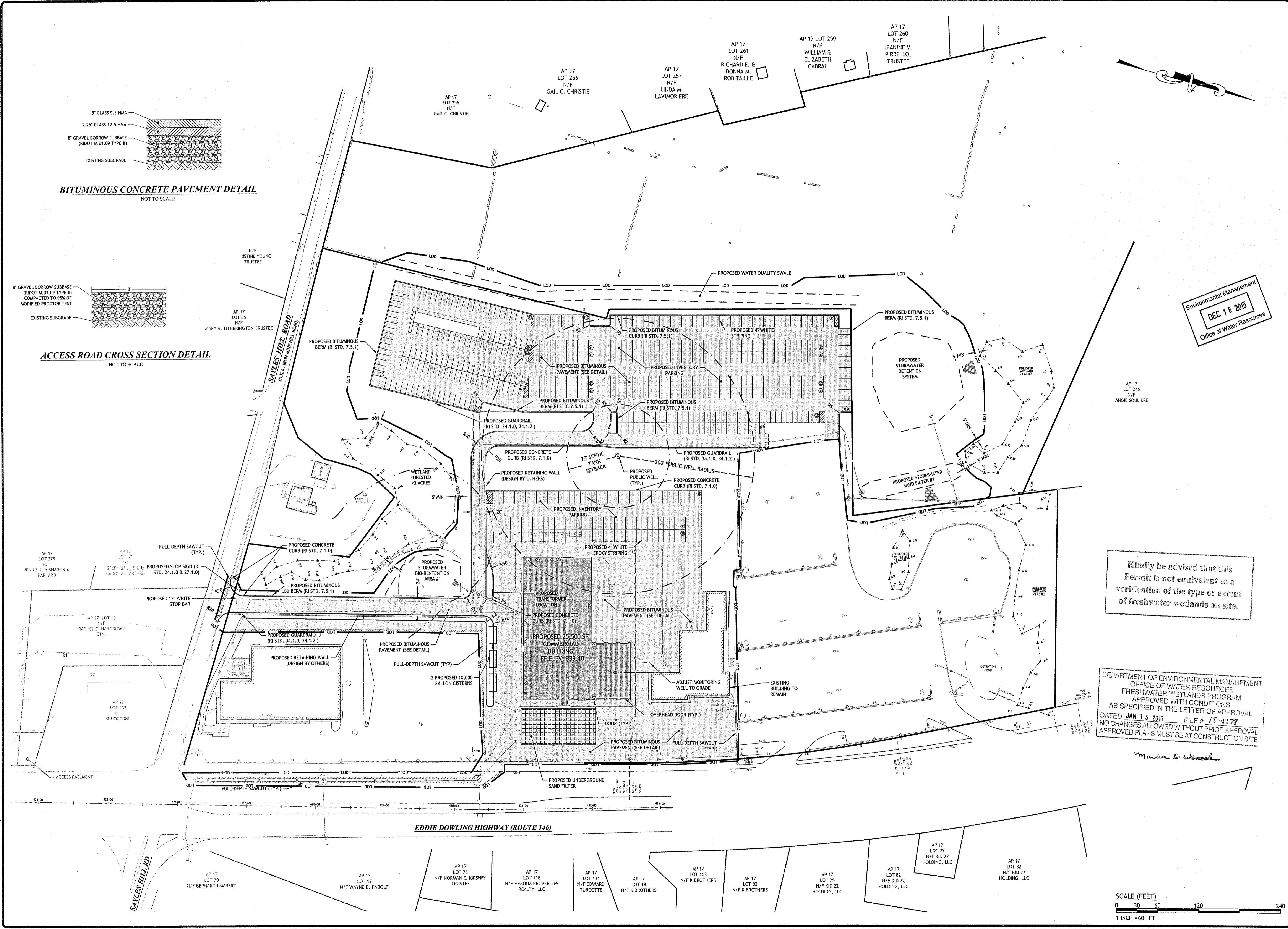
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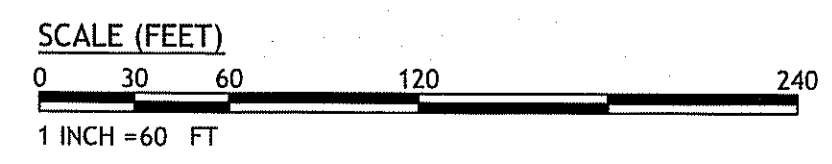
PRELIMINARY, NOT FOR CONSTRUCTION

**SITE PLAN**  
**SHEET 5 OF 14**

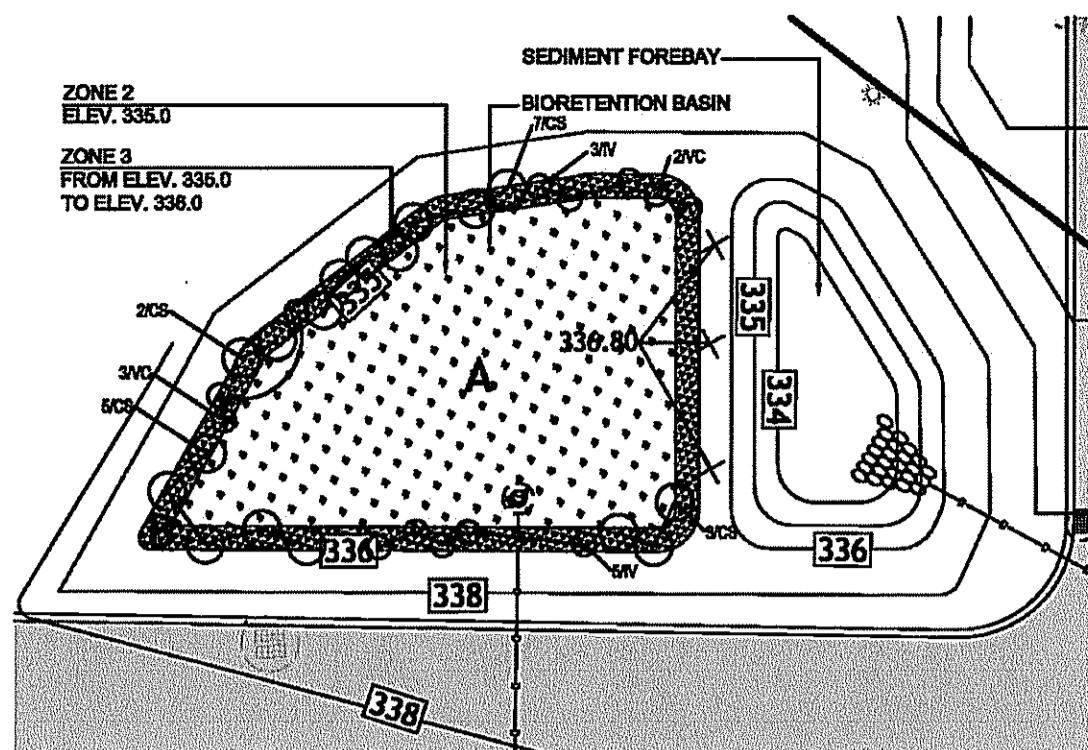


**BITUMINOUS CONCRETE PAVEMENT DETAIL**  
 NOT TO SCALE

**ACCESS ROAD CROSS SECTION DETAIL**  
 NOT TO SCALE



02:03:47 Date: 11/16/2015 File: Anchor Subaru 2015 Project: 03-47h Location: Smithfield, RI Project: 03-47h Preliminary: (RIDE) (LAW) Date: 11/16/2015 10:12am

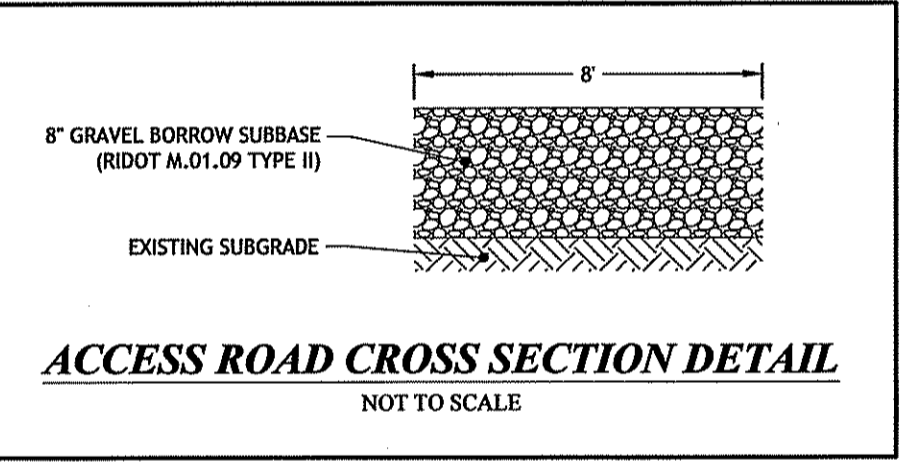


**DRAINAGE STRUCTURE PLANTING NOTES**  
 1. Seed Sediment Forebay with New England Erosion Control/Restoration Mix For Detention Basins and Moist Sites.  
 2. Seed side slopes with New England Conservation/Wildlife Mix.  
 3. See Plan for Bioretention plantings.

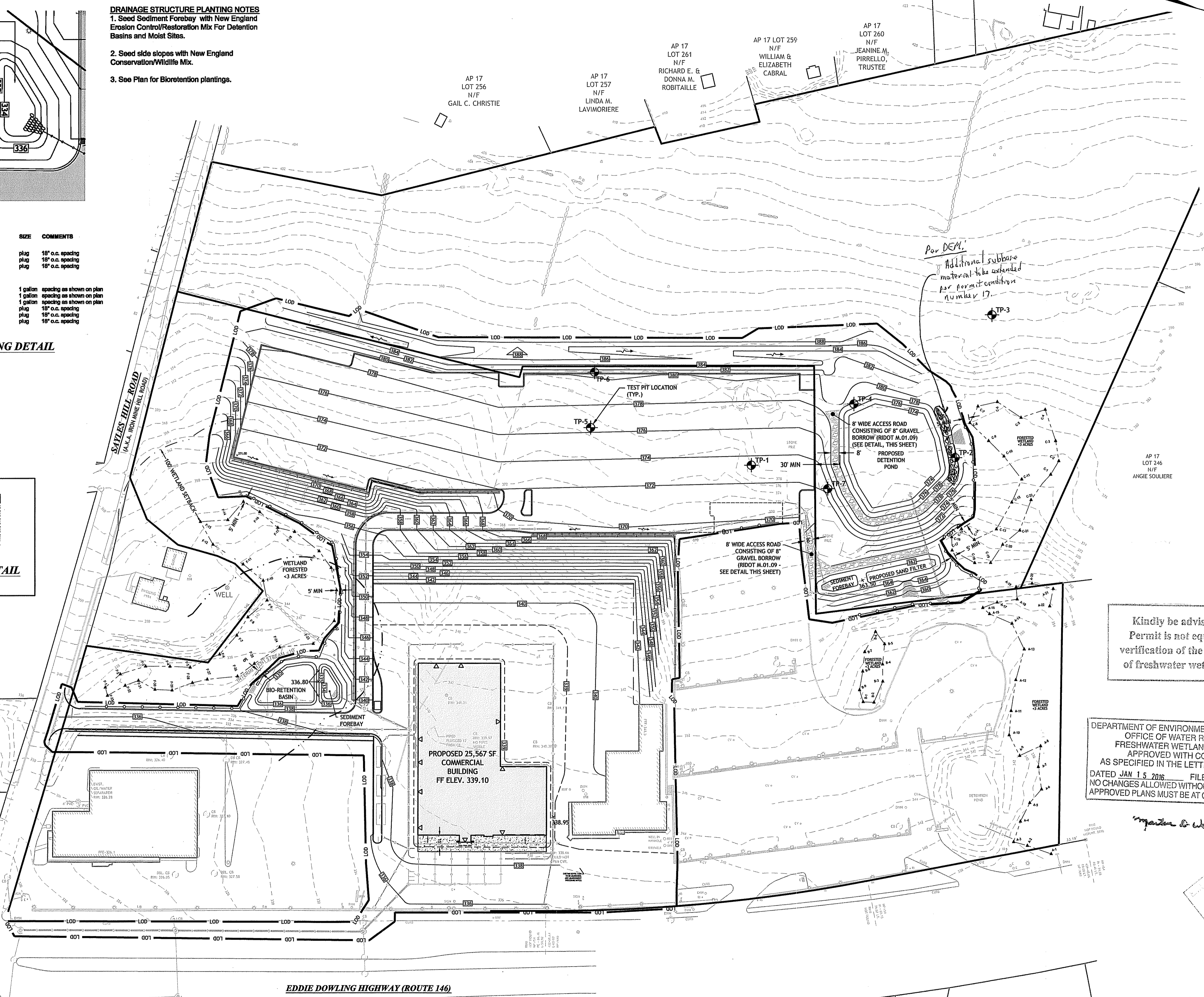
**BIO-RETENTION BASIN PLANTING SCHEDULE**

ZONE	BOTANICAL NAME	COMMON NAME	SIZE	COMMENTS
<b>ZONE 2</b>				
315	Iris versicolor	Blueflag Iris	plug	18" o.c. spacing
315	Scirpus cyperinus	Wool Grass	plug	18" o.c. spacing
315	Pontedericia cordata	Pickerelweed	plug	18" o.c. spacing
<b>ZONE 3</b>				
VC	Vaccinium corymbosum	Highbush Blueberry	1 gallon	spacing as shown on plan
IV	Ilex verticillata	Winterberry	1 gallon	spacing as shown on plan
CS	Cornus sericea	Red-osier Dogwood	1 gallon	spacing as shown on plan
92	Verbena hastata	Blue Vervain	plug	18" o.c. spacing
92	Juncus effusus	Soft Rush	plug	18" o.c. spacing
92	Eupatorium maculatum	Joe-pye Weed	plug	18" o.c. spacing

**BIO-RETENTION POND PLANTING DETAIL**  
 NOT TO SCALE



**ACCESS ROAD CROSS SECTION DETAIL**  
 NOT TO SCALE



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JAN 15 2016



Q:\03-47-Marc N. Nyberg\03-47-Anchor Subaru\2014 Concepts\Submissions\2016-01-15 RIDEM RTC\ANCHOR SUBARU [CONSTRUCTION DOCUMENTS].dwg Jan 13, 2016 9:30am

**JCE**  
 JOE CASALI ENGINEERING, INC.  
 300 POST ROAD, WARWICK, RI 02888  
 (401) 944-1300 (401) 944-1313 FAX WWW.JCEONLINE.COM

JOSEPH A. CASALI  
 No. 7250  
 REGISTERED PROFESSIONAL ENGINEER  
 CIVIL

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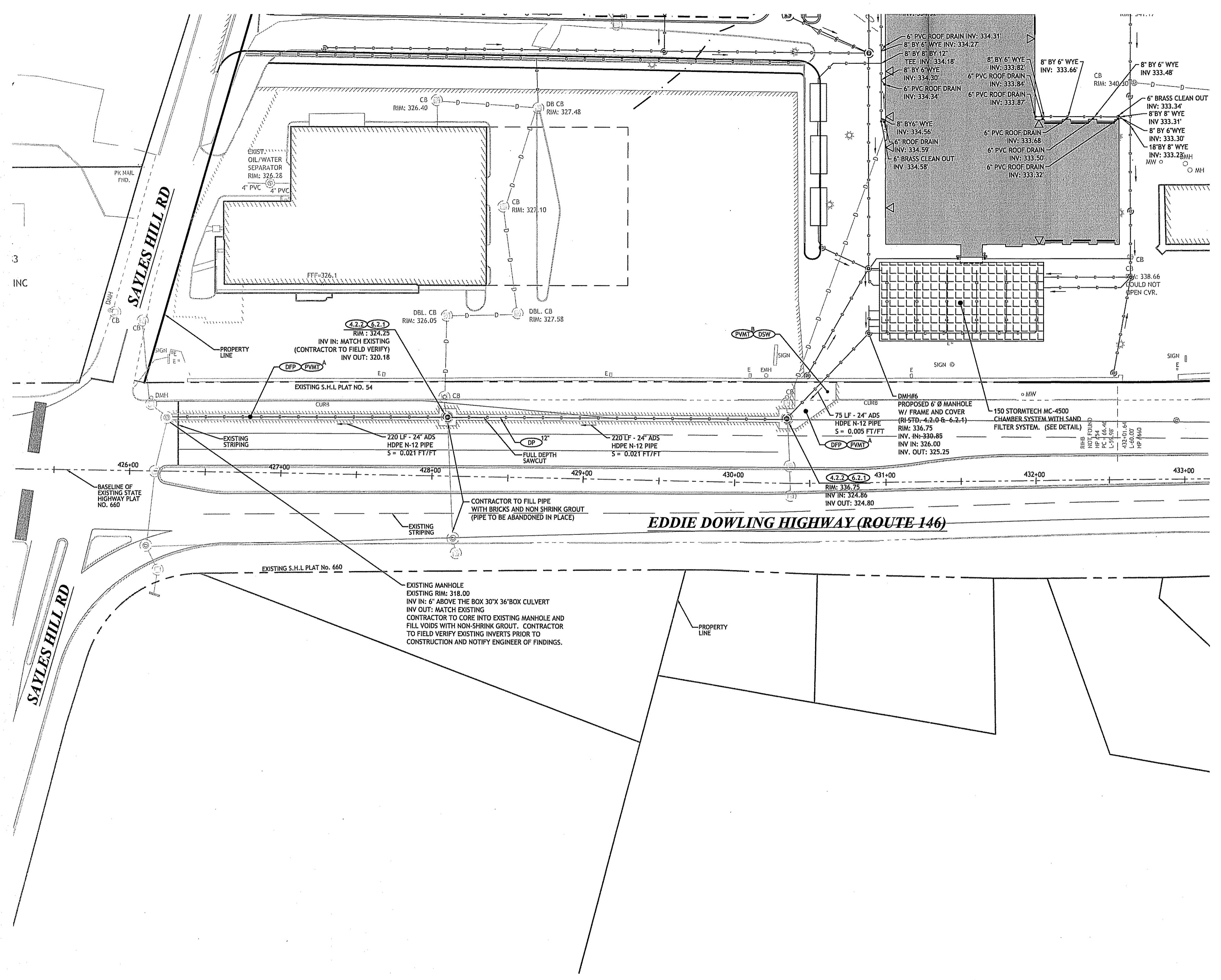
DESIGNED BY: GEC/JH  
 DRAWN BY: GEC  
 CHECKED BY: JAC  
 DATE: NOV. 2014  
 PROJECT NO: 03-47H

ISSUED FOR CONSTRUCTION

**GRADING PLAN**

**SHEET 6 OF 14**





RIDOT PHYSICAL ALTERATION PERMIT PLAN  
SCALE: 1"=40'

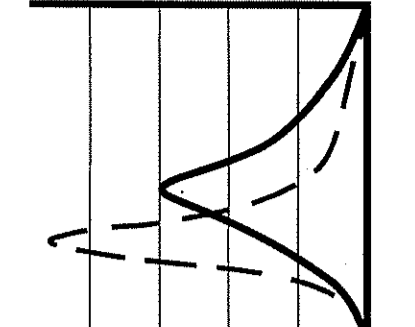
RHODE ISLAND STANDARDS

- 4.2.2 PRECAST 6'-0" ROUND MANHOLE
- 6.2.1 HEAVY DUTY ROUND FRAME & COVER
- DFP REMOVE & DISPOSE FLEXIBLE PAVEMENT
- DP REMOVE & DISPOSE PIPE
- DSW REMOVE & DISPOSE SIDEWALK
- PVMT<sup>A</sup> PROPOSED PAVEMENT STRUCTURE  
MATCH IN-KIND OR TO A MINIMUM:  
2" BITUMINOUS SURFACE HMA CLASS 9.5  
3" BITUMINOUS BASE HMA CLASS 12.5  
12" GRAVEL BERROW
- PVMT<sup>B</sup> EXISTING PAVEMENT STRUCTURE  
MATCH IN-KIND OR TO A MINIMUM:  
1 1/2" BITUMINOUS SURFACE HMA CLASS 9.5  
2 1/2" BITUMINOUS BASE HMA CLASS 12.5  
8" GRAVEL BERROW

NOTES:

1. ALL WORK WITHIN THE STATE'S RIGHT-OF-WAY WILL CONFORM TO RIDOT'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2004 EDITION INCLUDING ALL REVISIONS AND STANDARD DETAILS, JUNE 15, 2008 AS AMENDED BY REVISION.
2. UTILITY WORK SHOWN AS REFERENCE. THIS WORK NEEDS TO BE PERMITTED THROUGH A PHYSICAL UTILITY PERMIT (PUP) WITH RIDOT'S DIVISION OF MAINTENANCE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MAINTENANCE AND PROTECTION OF PEDESTRIAN AND VEHICULAR TRAFFIC INCLUDING POLICE PROTECTION. ALL TEMPORARY AND VEHICULAR SIGNS, BARRICADES AND LANE CLOSURES SHALL BE IN CONFORMANCE WITH THE LATEST REVISIONS OF MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

Environmental Management  
DEC 18 2015  
Office of Water Resources



**JOE CASALI ENGINEERING, INC.**  
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JOSEPH A. CASALI  
REGISTERED PROFESSIONAL ENGINEER  
CIVIL  
12.15.15

**ANCHOR SUBARU**  
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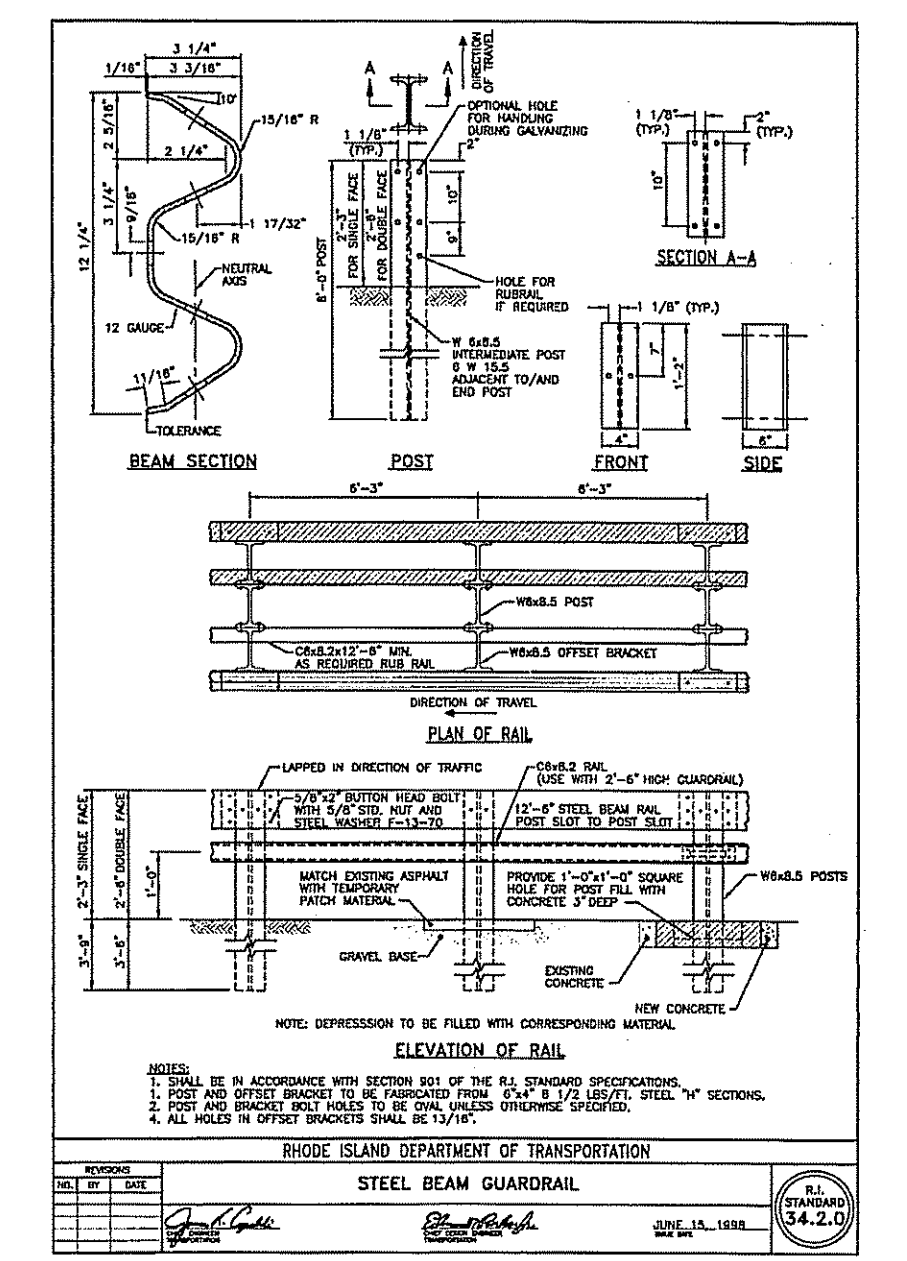
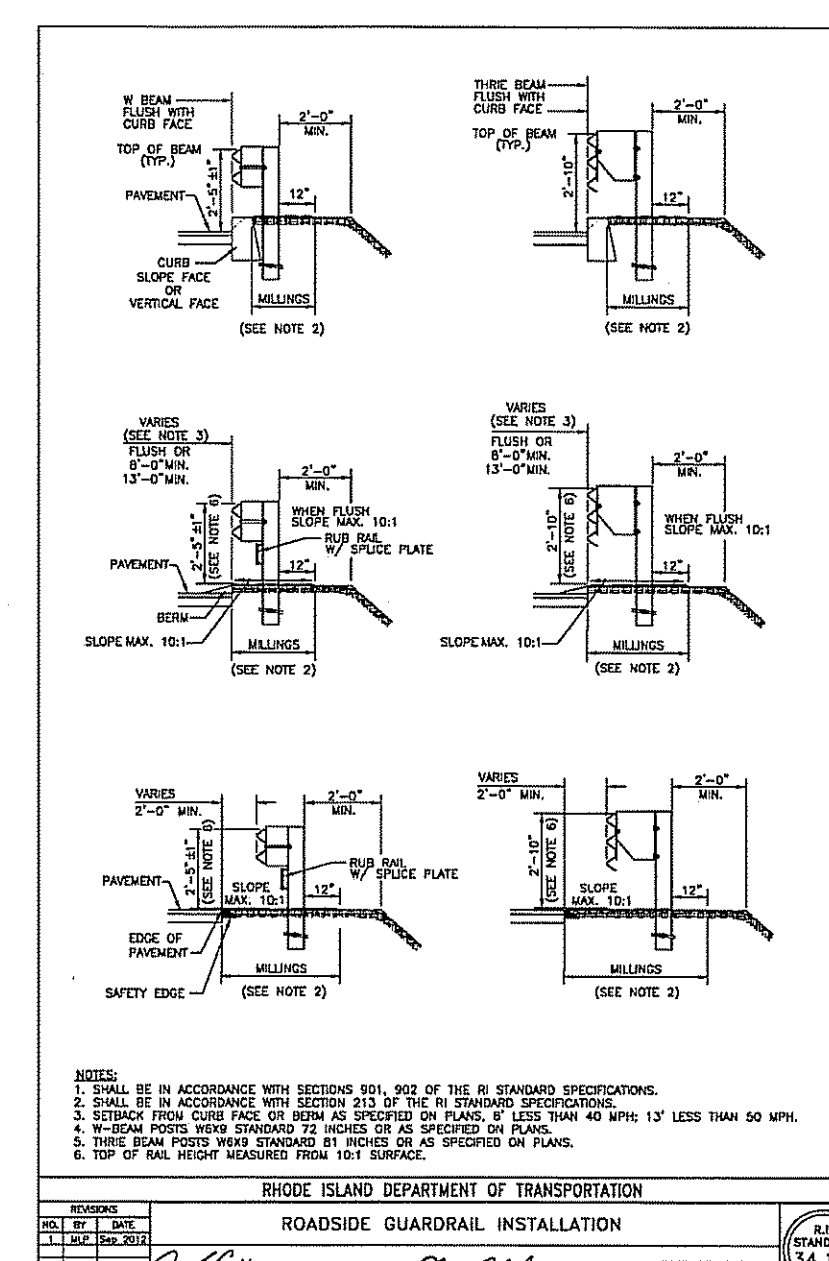
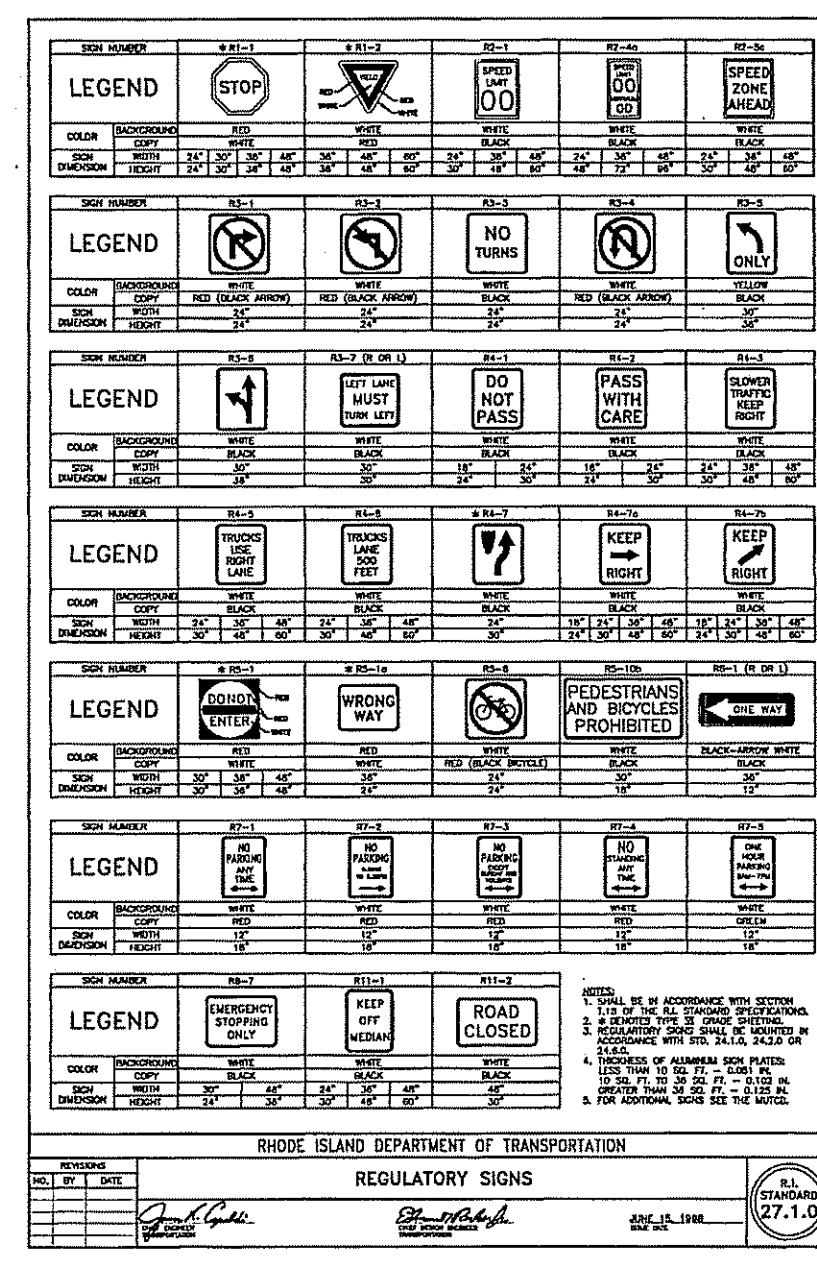
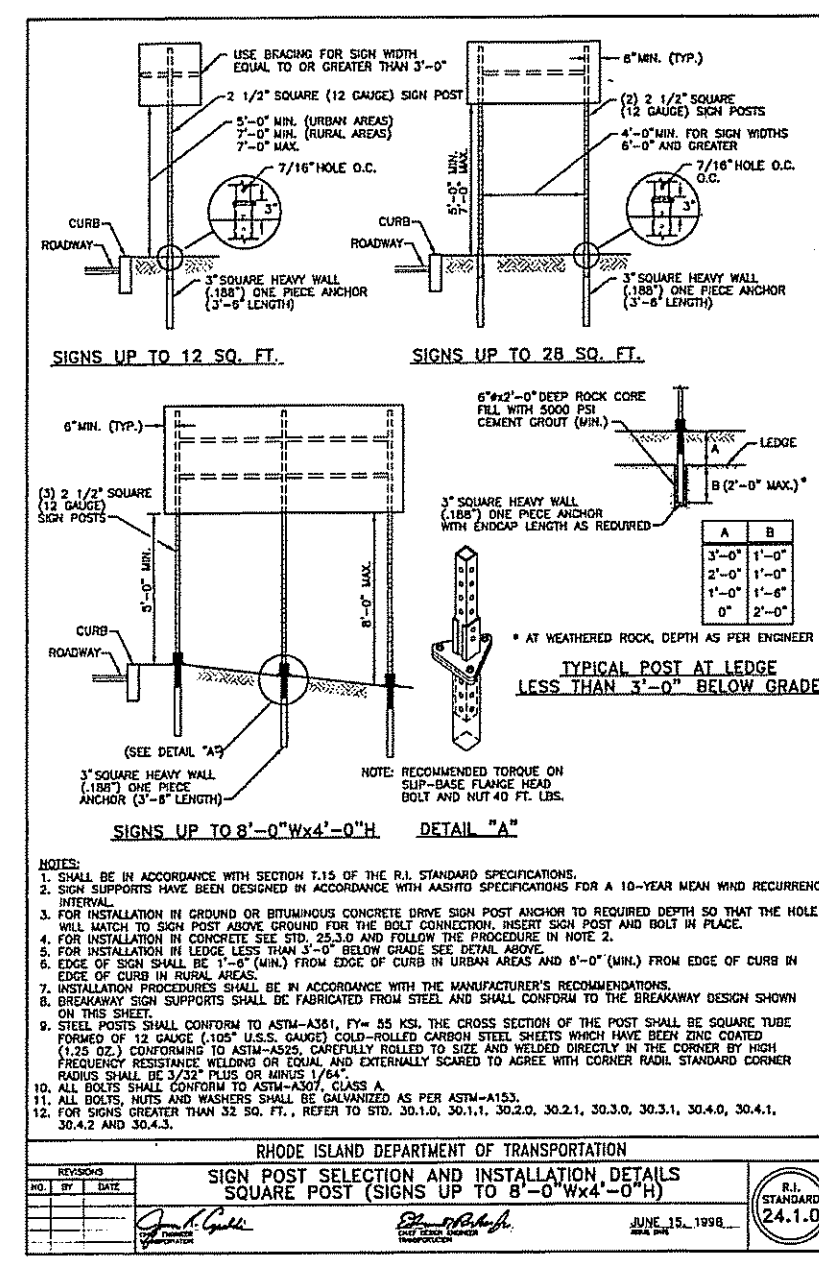
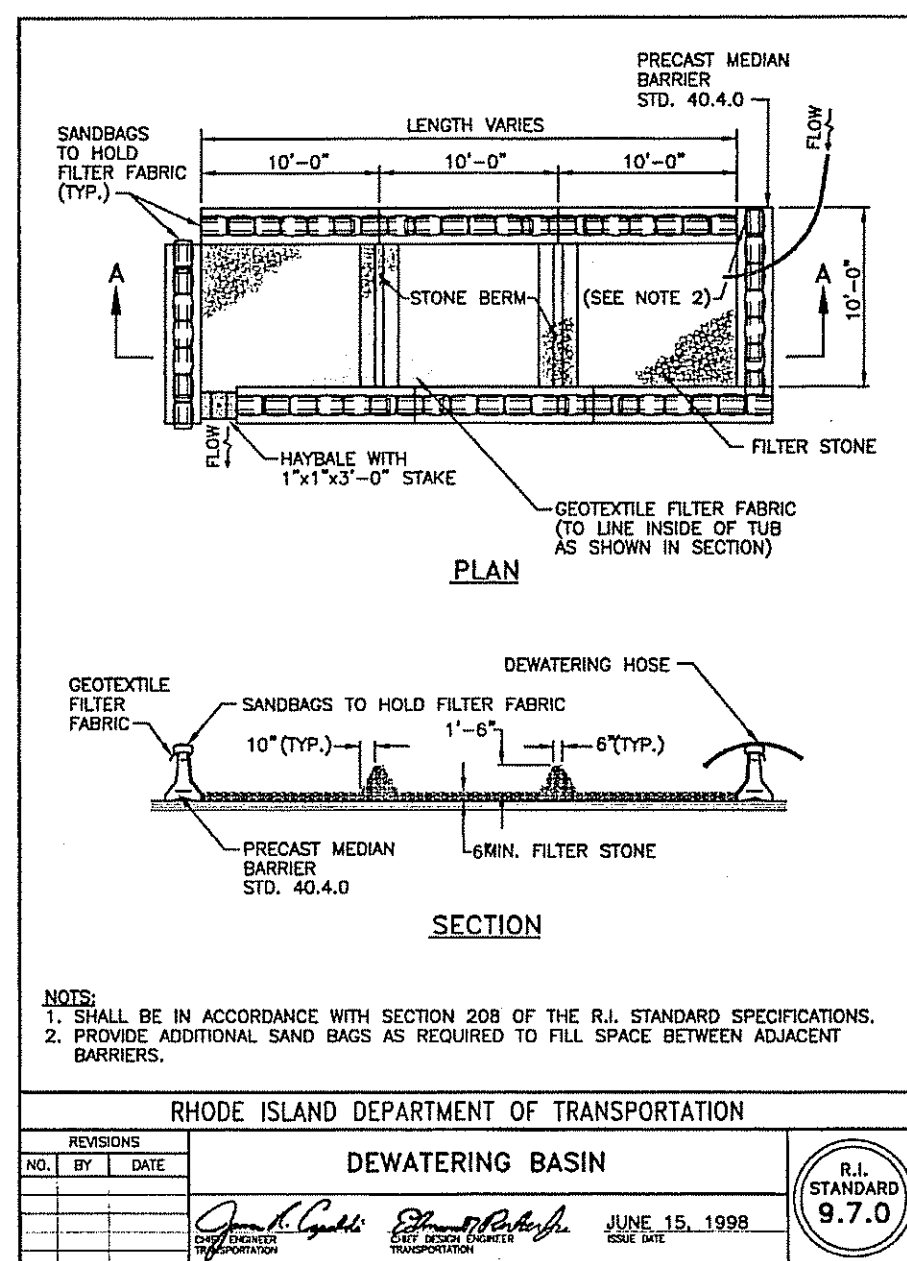
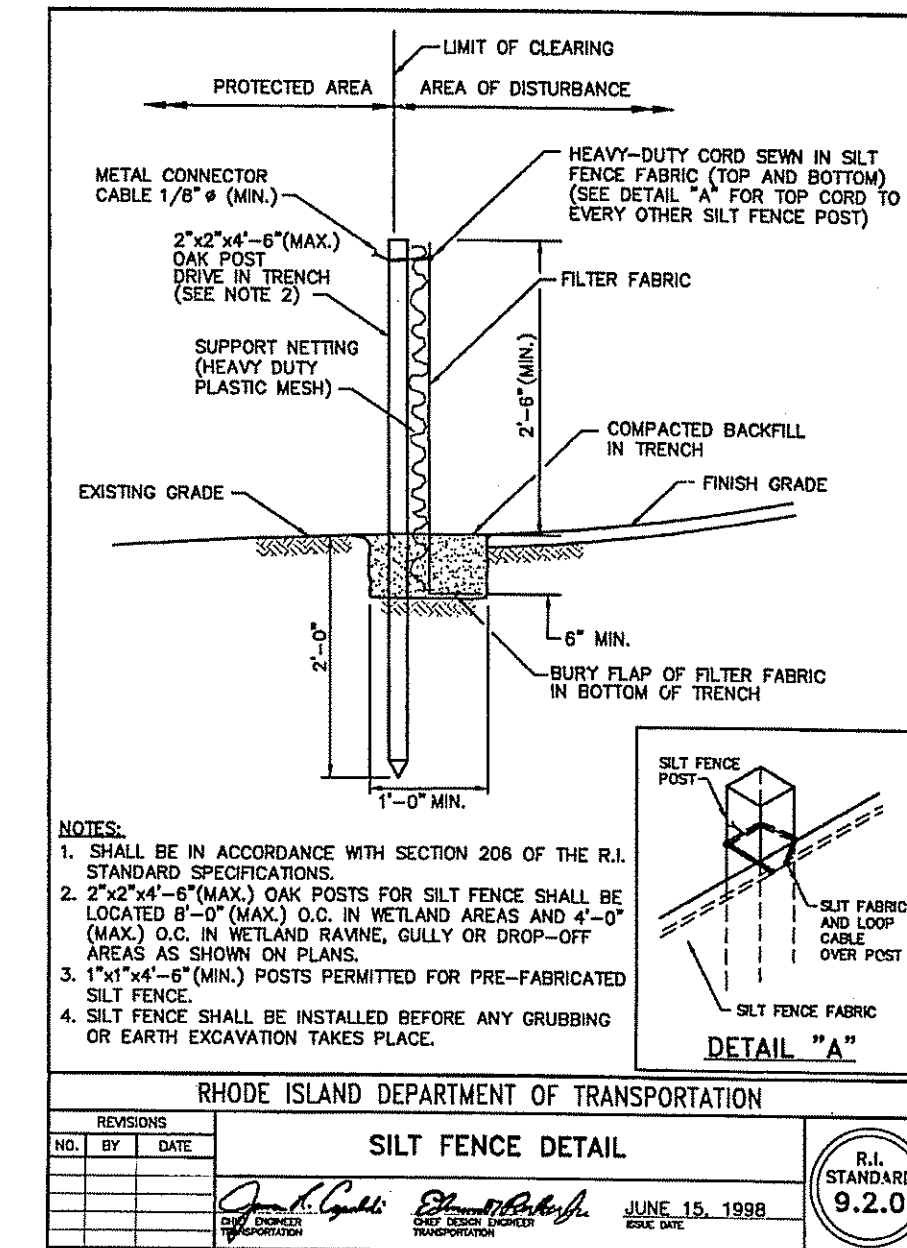
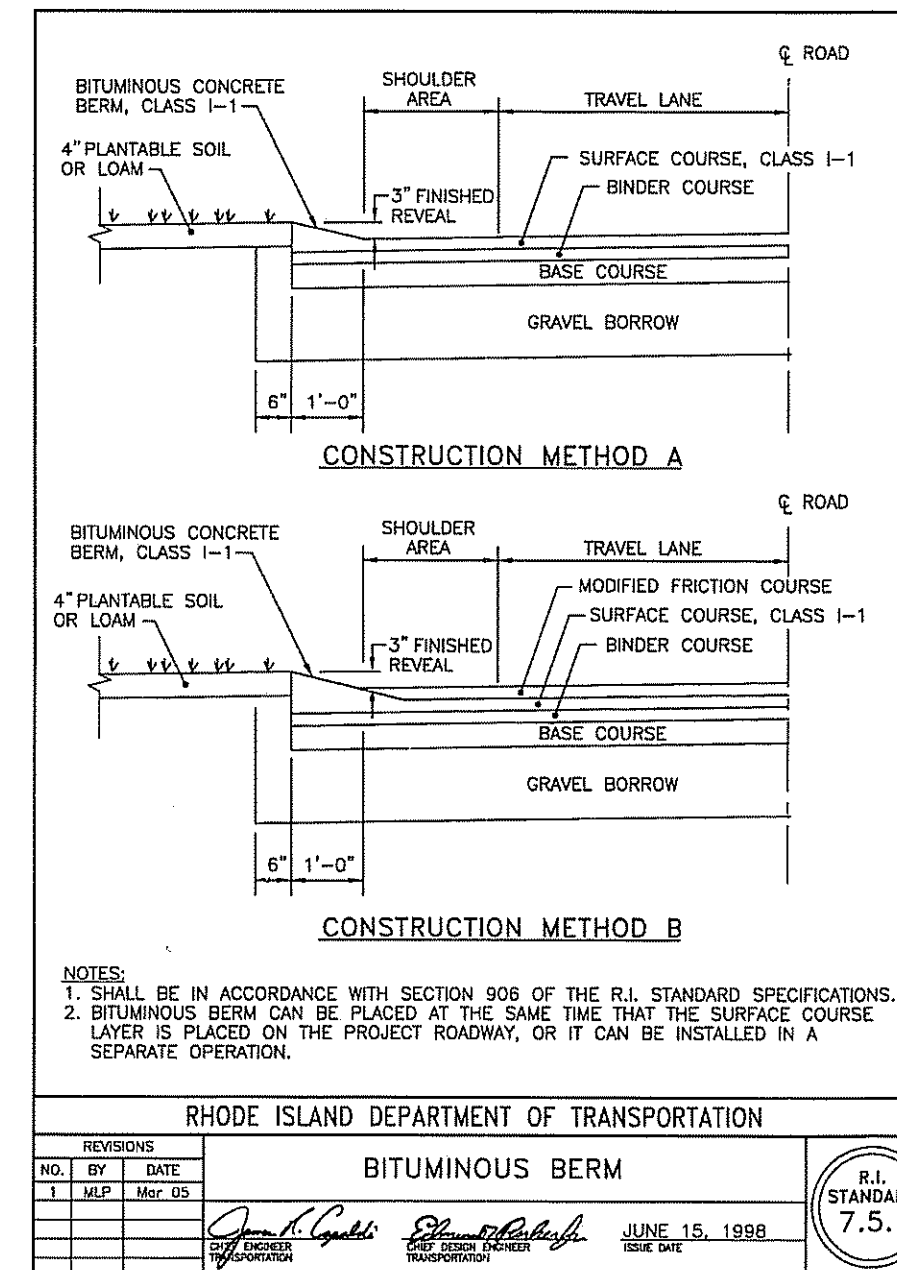
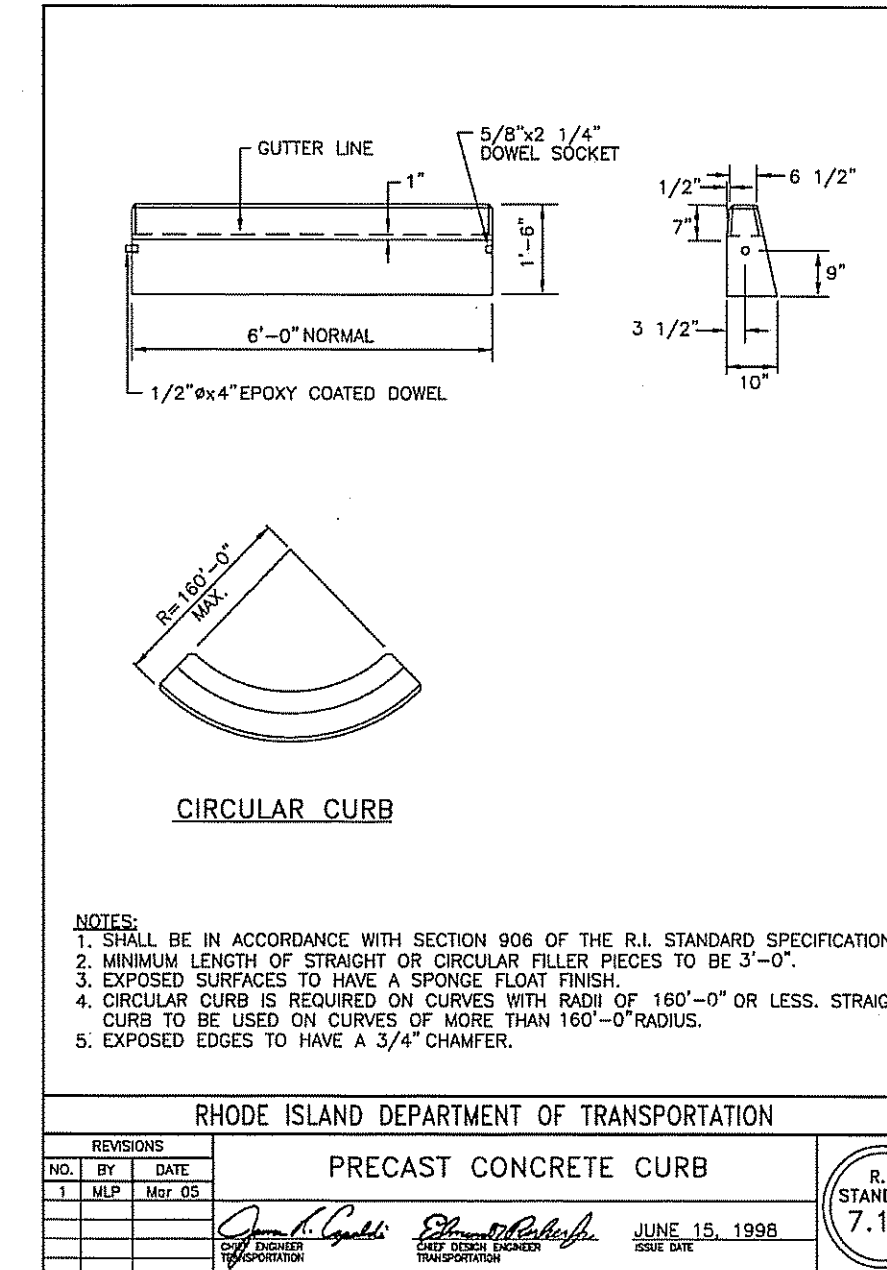
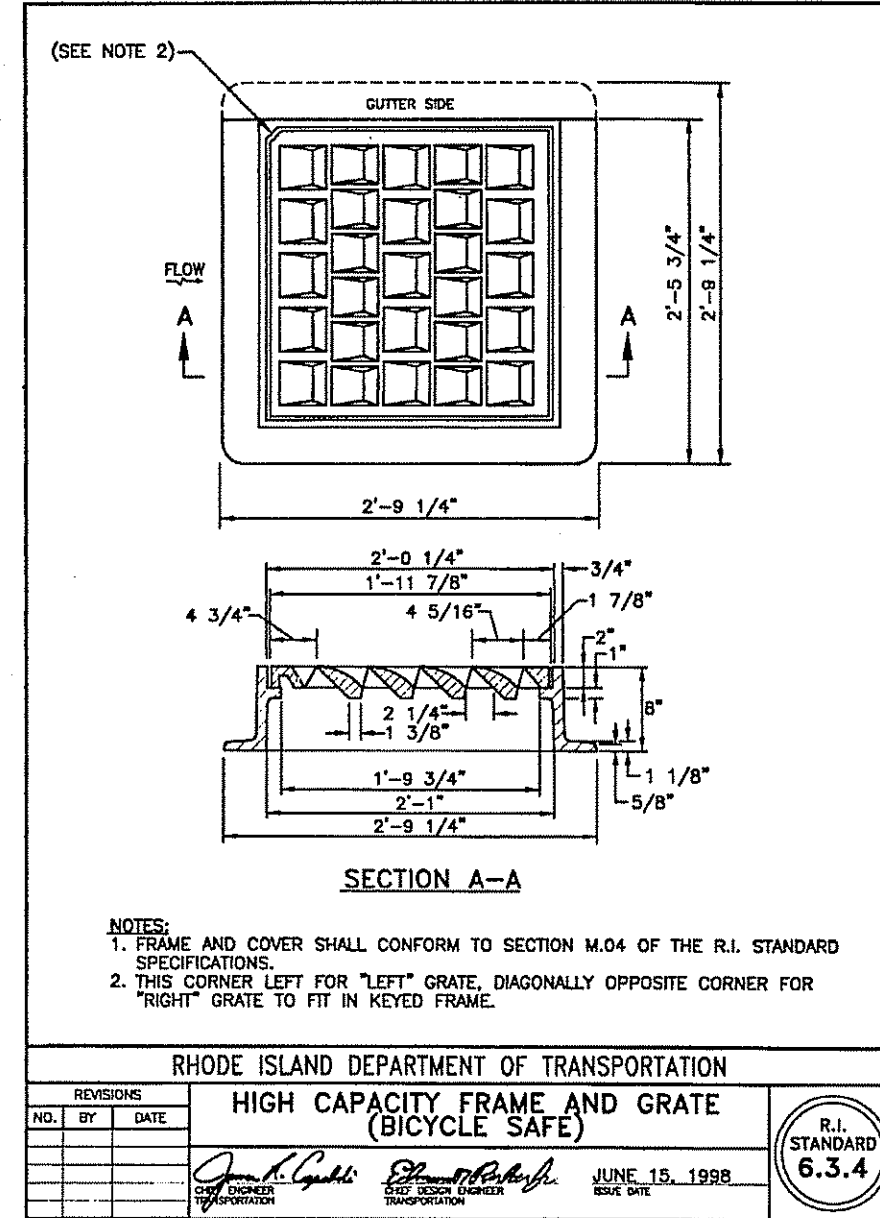
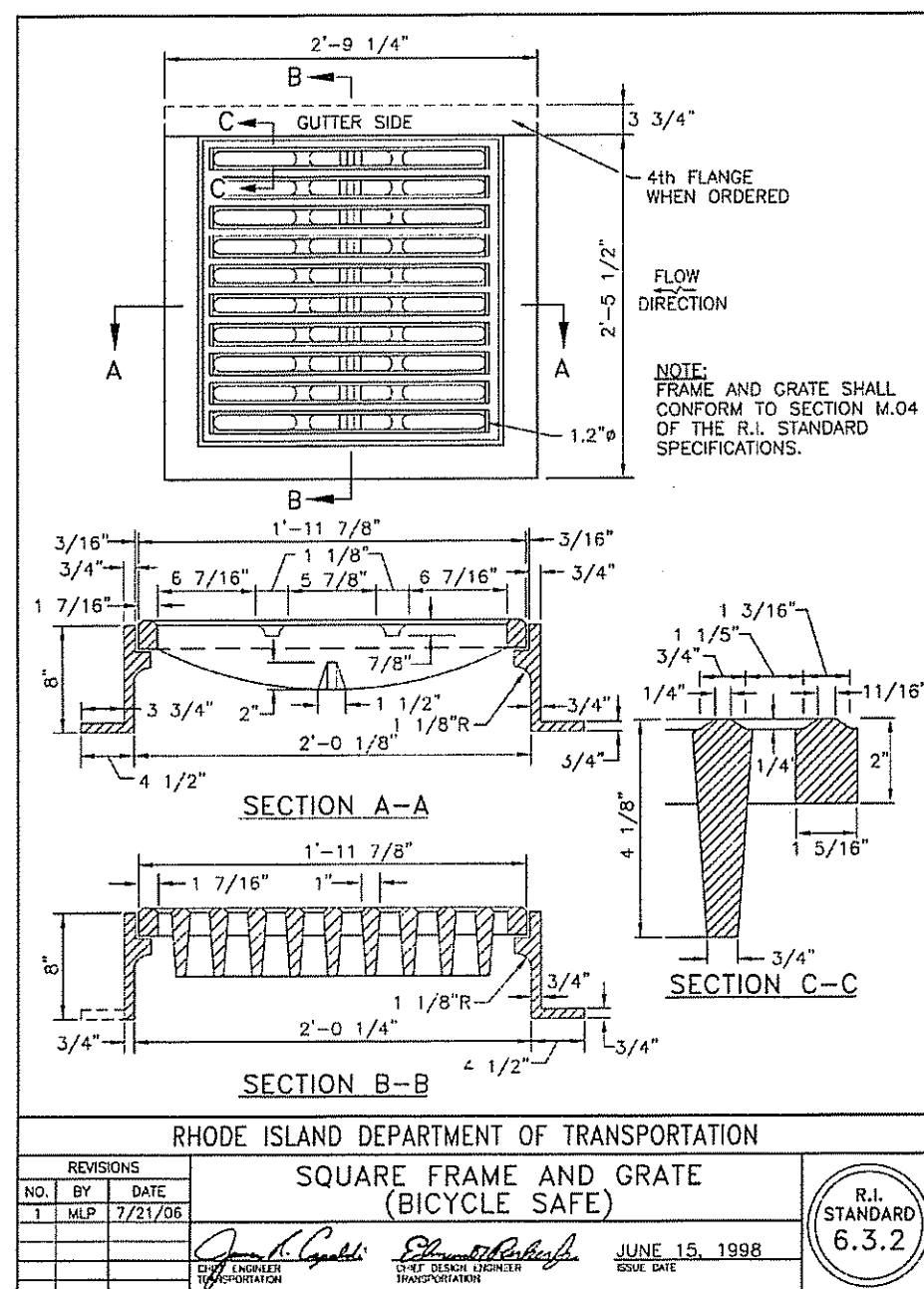
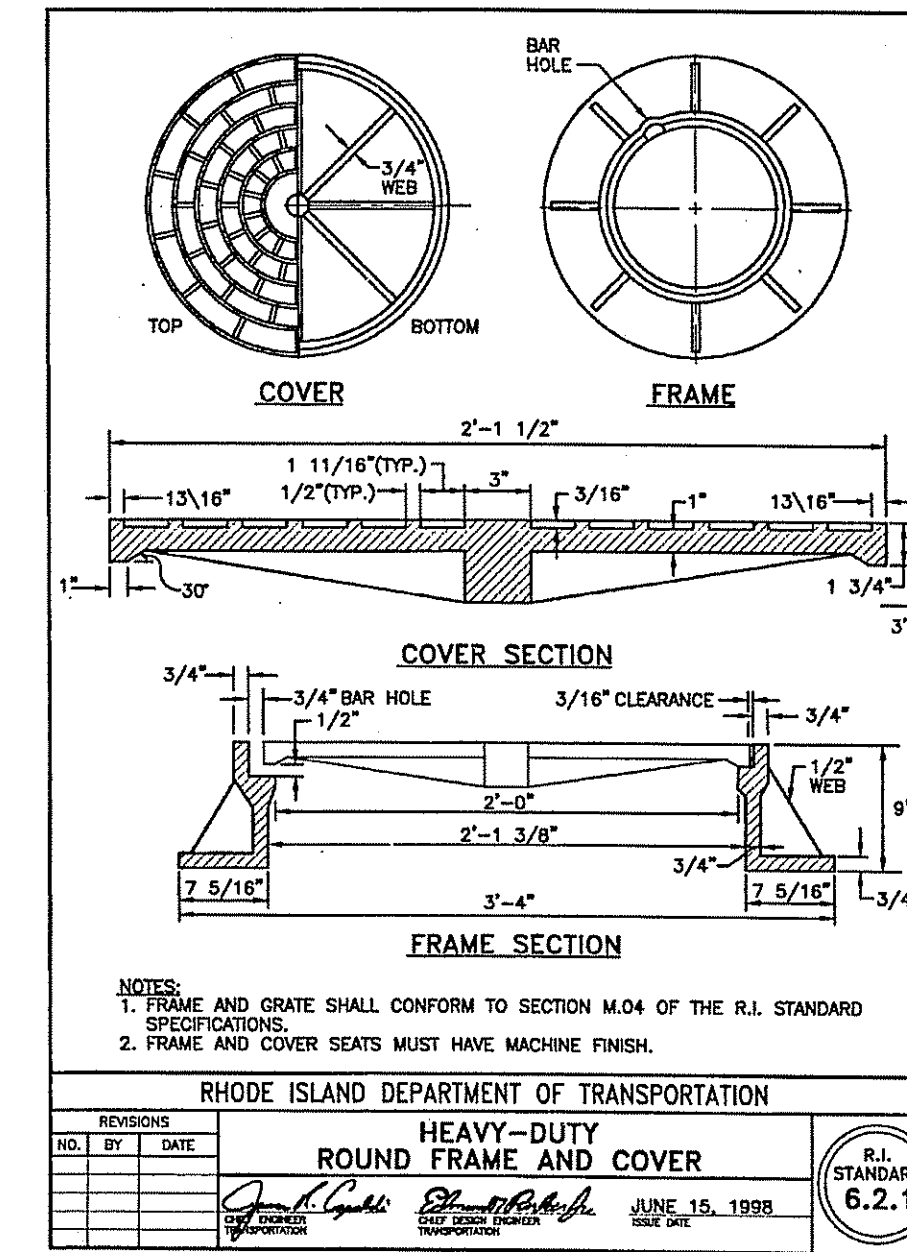
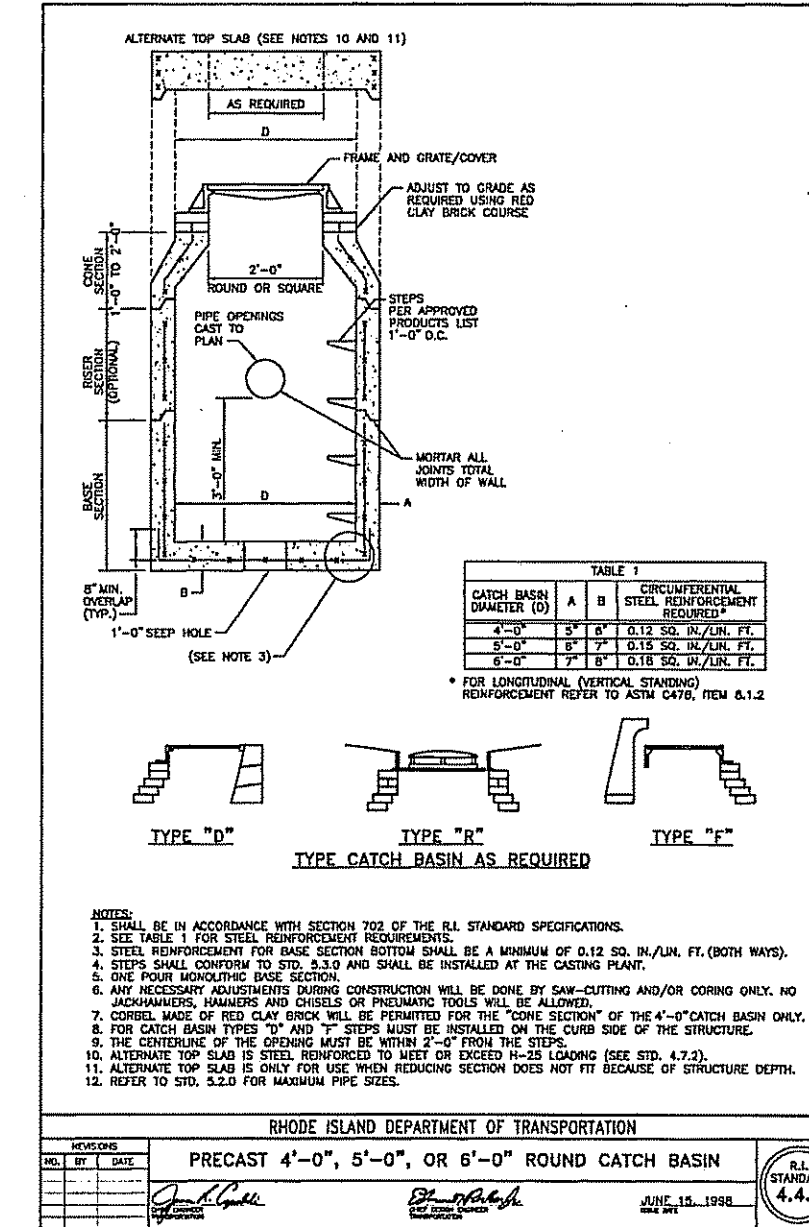
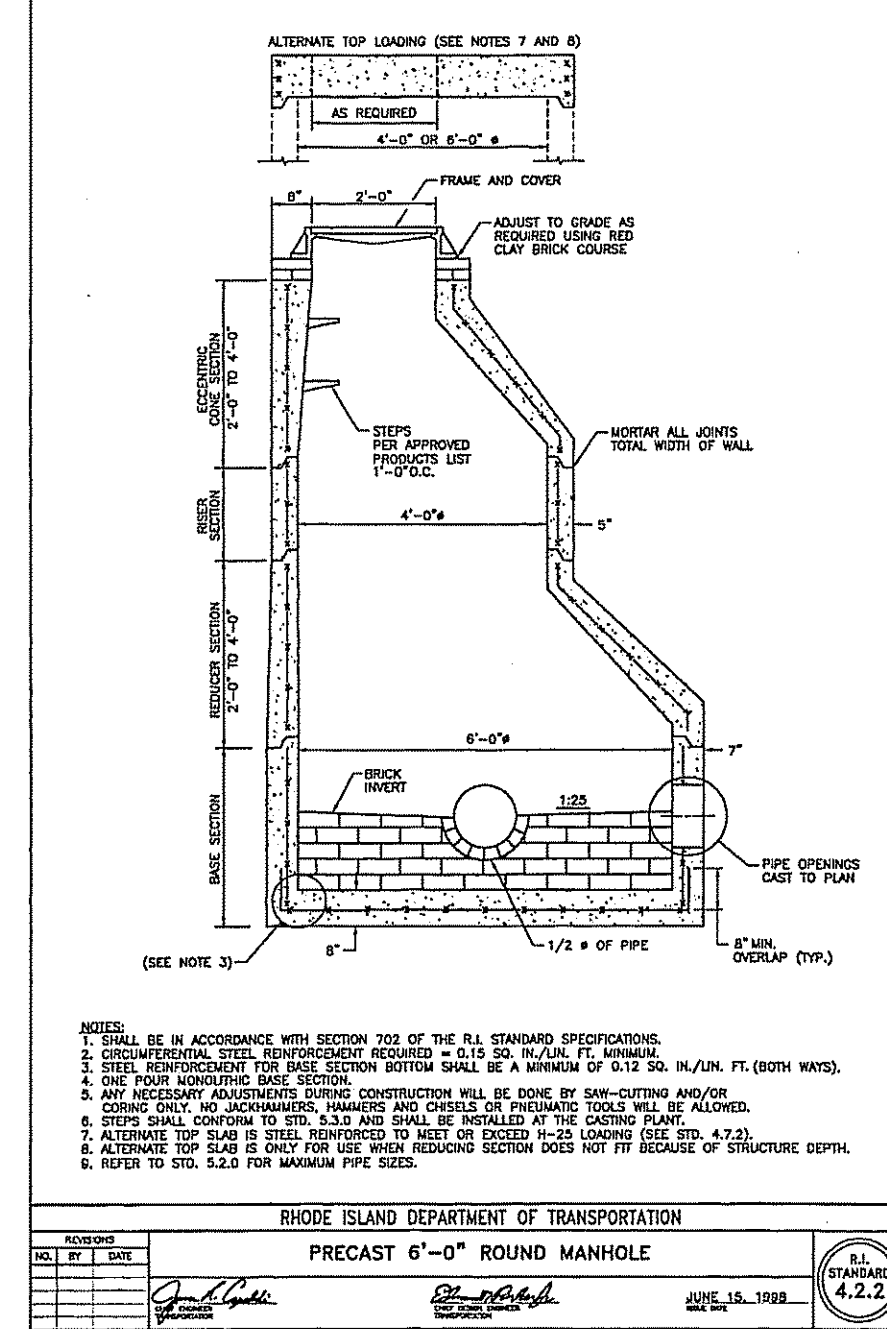
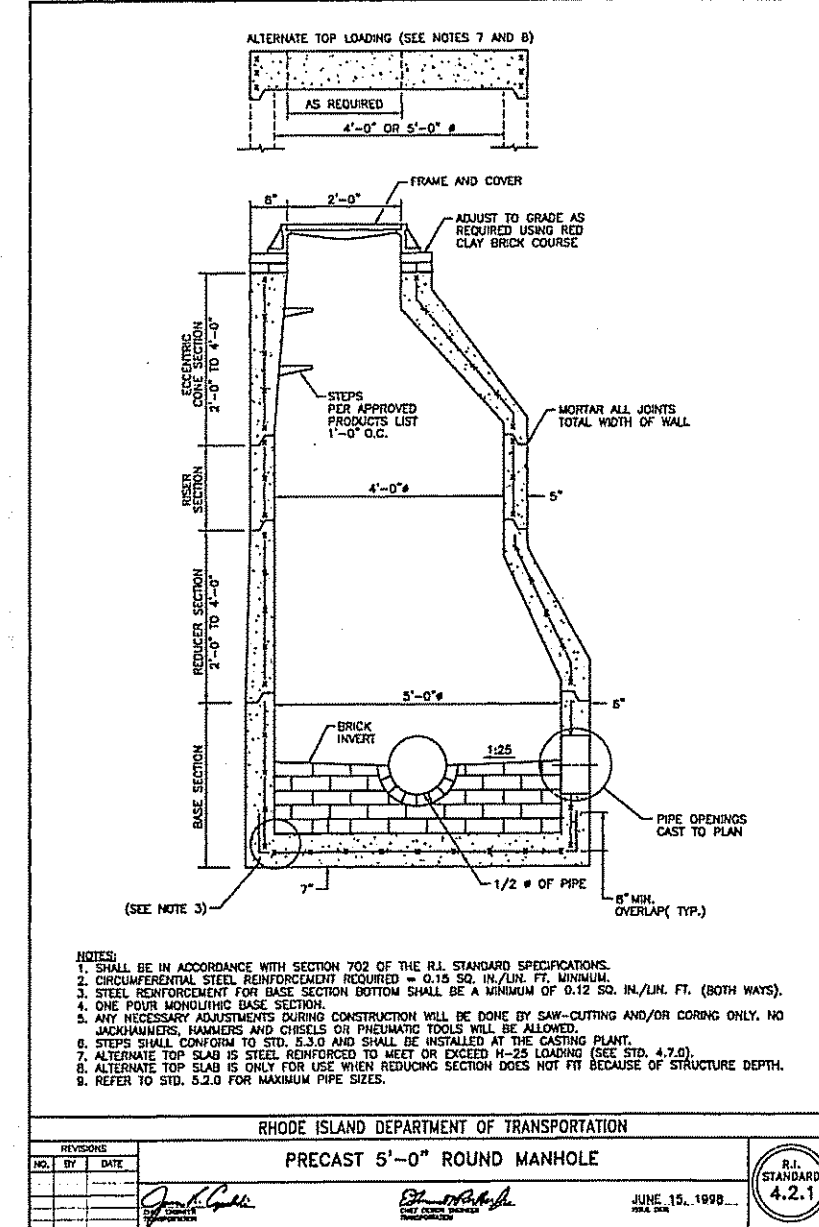
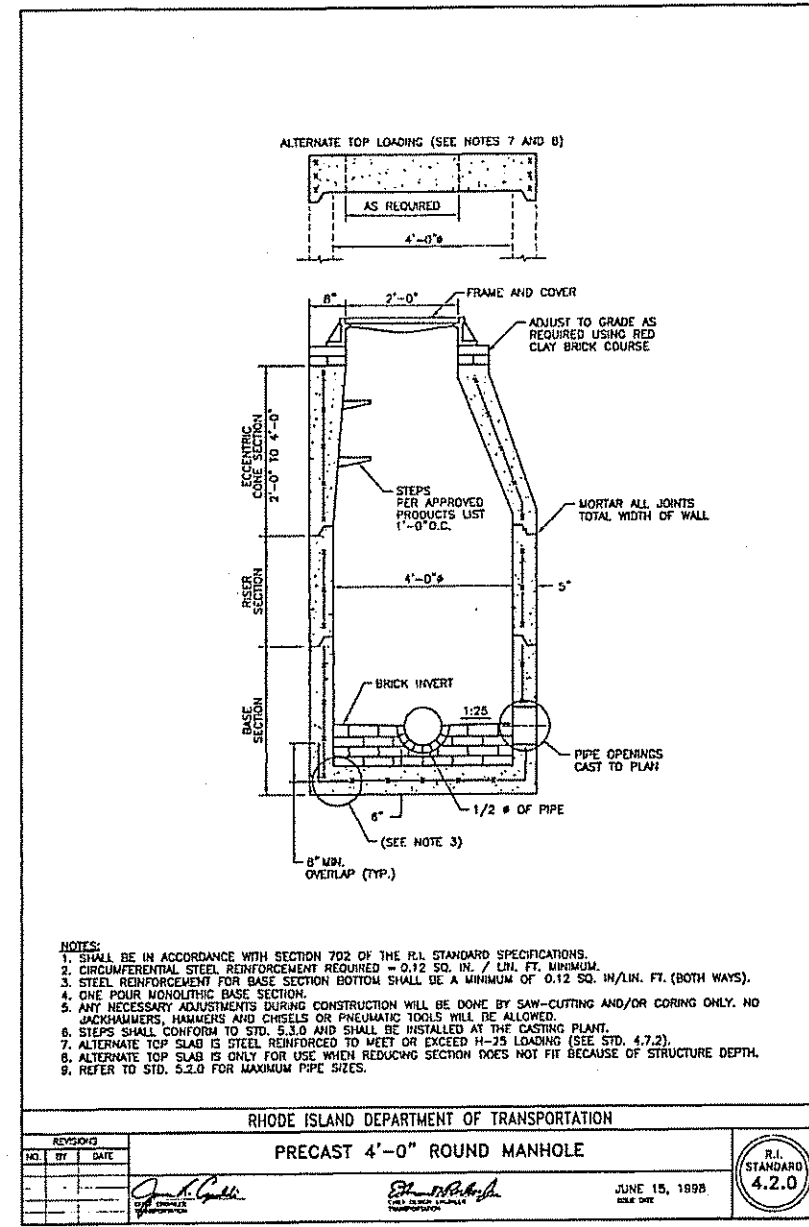
**RIDOT PAPA PLAN**

**SHEET 8 OF 14**

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
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DATED JAN 15 2016 FILE # 15-0078  
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APPROVED PLANS MUST BE AT CONSTRUCTION SITE

*Joseph A. Casali*

D:\3047\Anchor Subaru\03-47h\_Anchor Subaru\2015\Project\2015-Concept\1\ACAD\DWG\PROP\PRELIMINARY (RIDEEM PLAN)SET.dwg Doc: 17, 2015, 1:01:58pm



Environmental Management  
DEC 18 2015  
Office of Water Resources

**JOE**  
JOE CASALI ENGINEERING, INC.  
CIVIL, SITE DEVELOPMENT, TRANSPORTATION  
DRAINAGE, WETLANDS, ISDS, TRAFFIC, FLOODPLAIN  
(601) 944-1300, 601-944-1301 FAX, WWW.JOEENGINEERING.COM

JOSEPH A. CASALI  
No. 1250  
REGISTERED PROFESSIONAL ENGINEER  
CIVIL  
12.15.15

**ANCHOR SUBARU**  
EDDIE DOWLING HIGHWAY  
NORTH SMITHFIELD, RHODE ISLAND  
AP 17, LOTS 14, 16, 80, 84, 85, 142, 167, 199 & 231

REVISIONS:  
NO. DATE DESCRIPTION  
1 7/2015 RIDEM Comments  
2 12/16/2015 RIDEM Comments

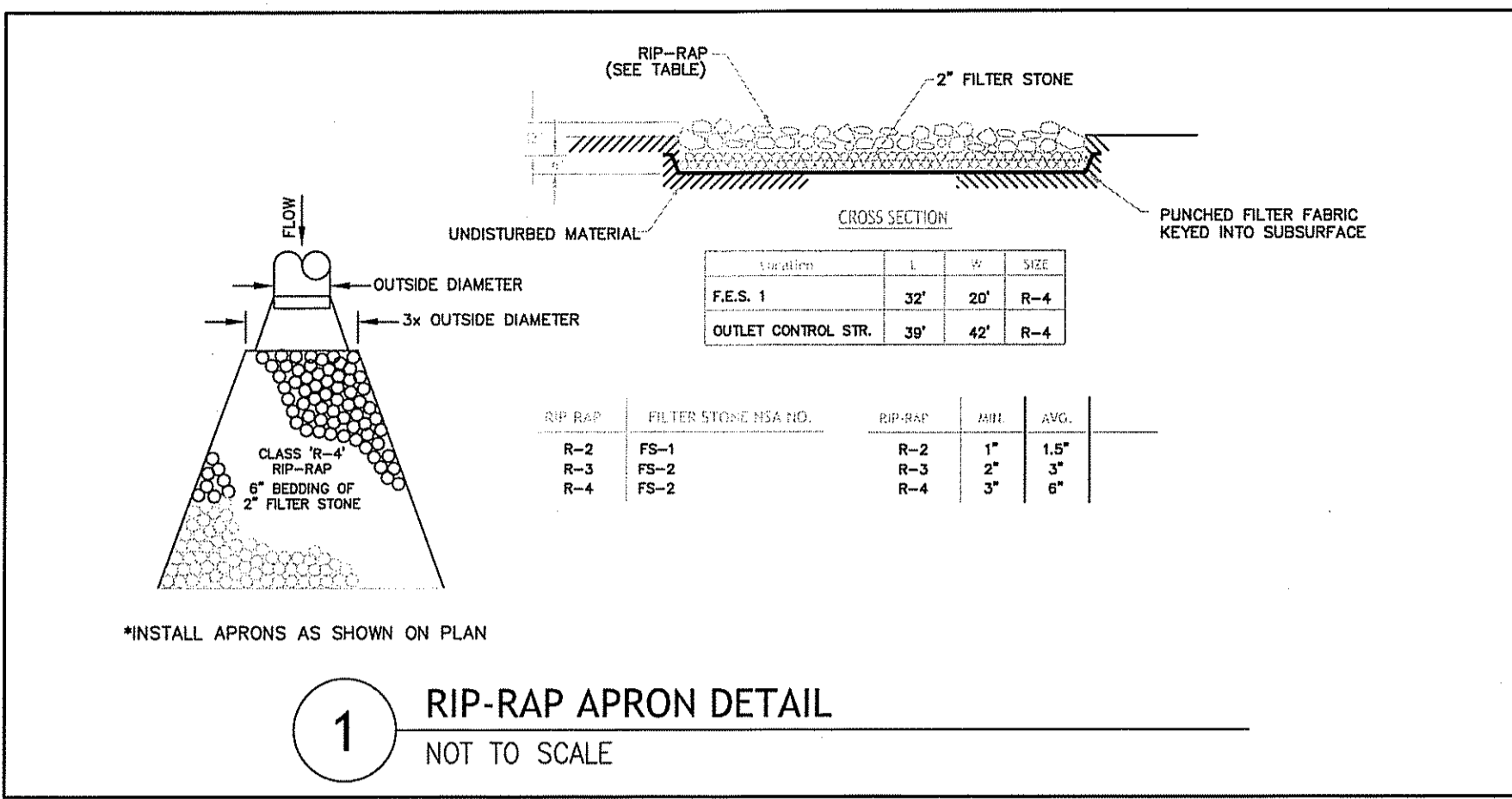
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CHECKED BY: JAC  
DATE: NOV. 2014  
PROJECT NO: 03-478

PRELIMINARY, NOT FOR CONSTRUCTION

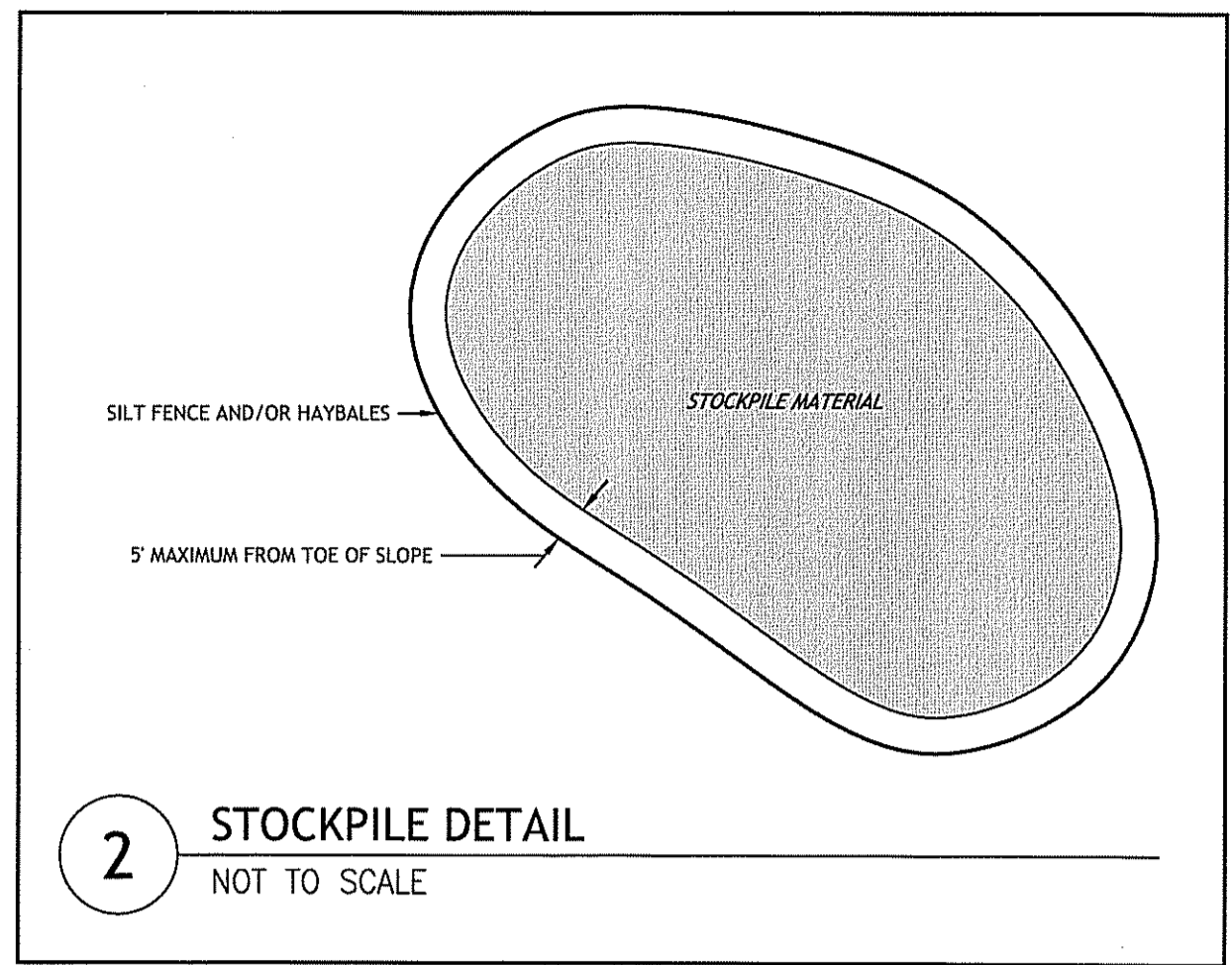
**RIDOT STANDARD DETAILS**

SHEET 9 OF 14

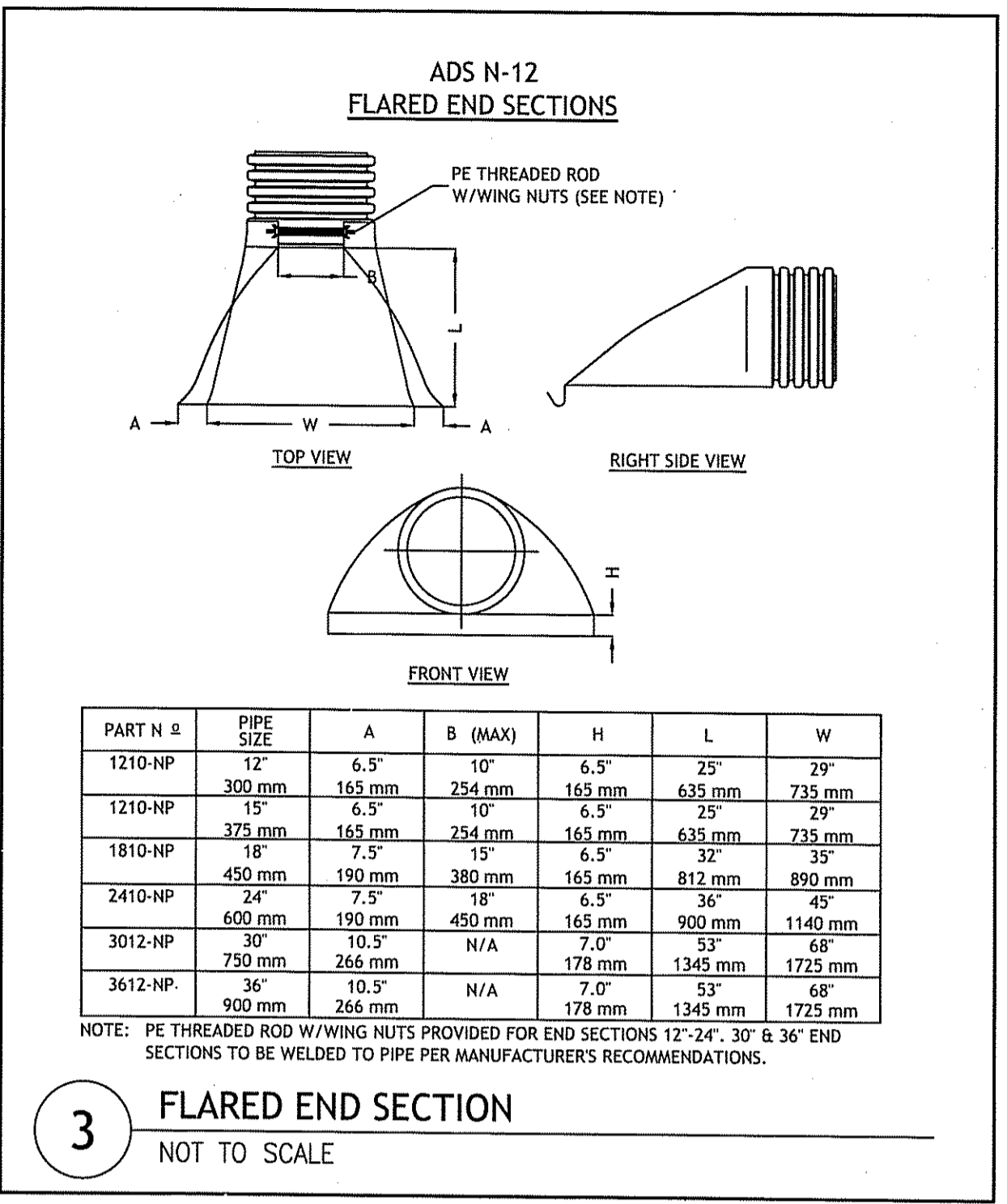
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**1** RIP-RAP APRON DETAIL  
NOT TO SCALE

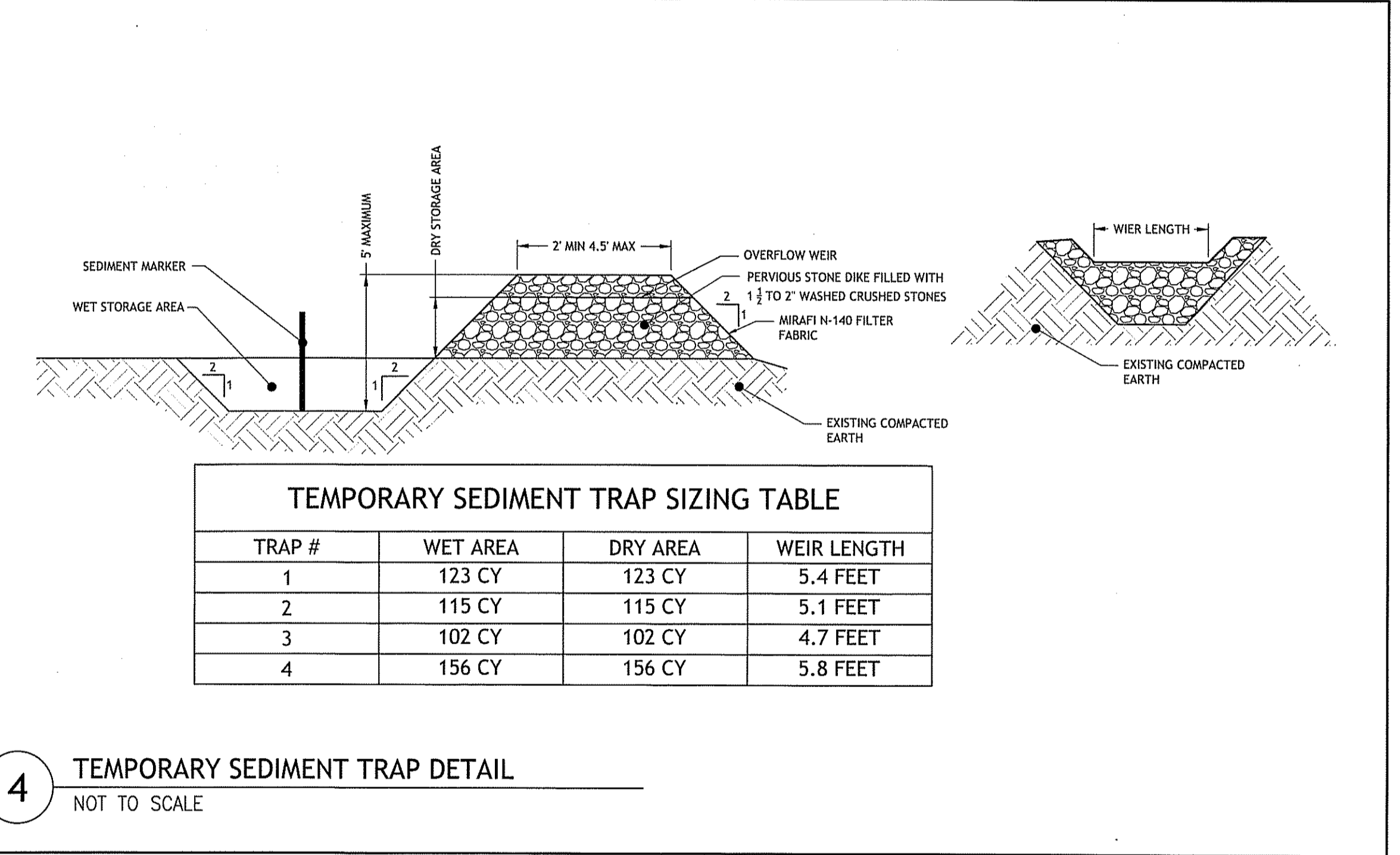
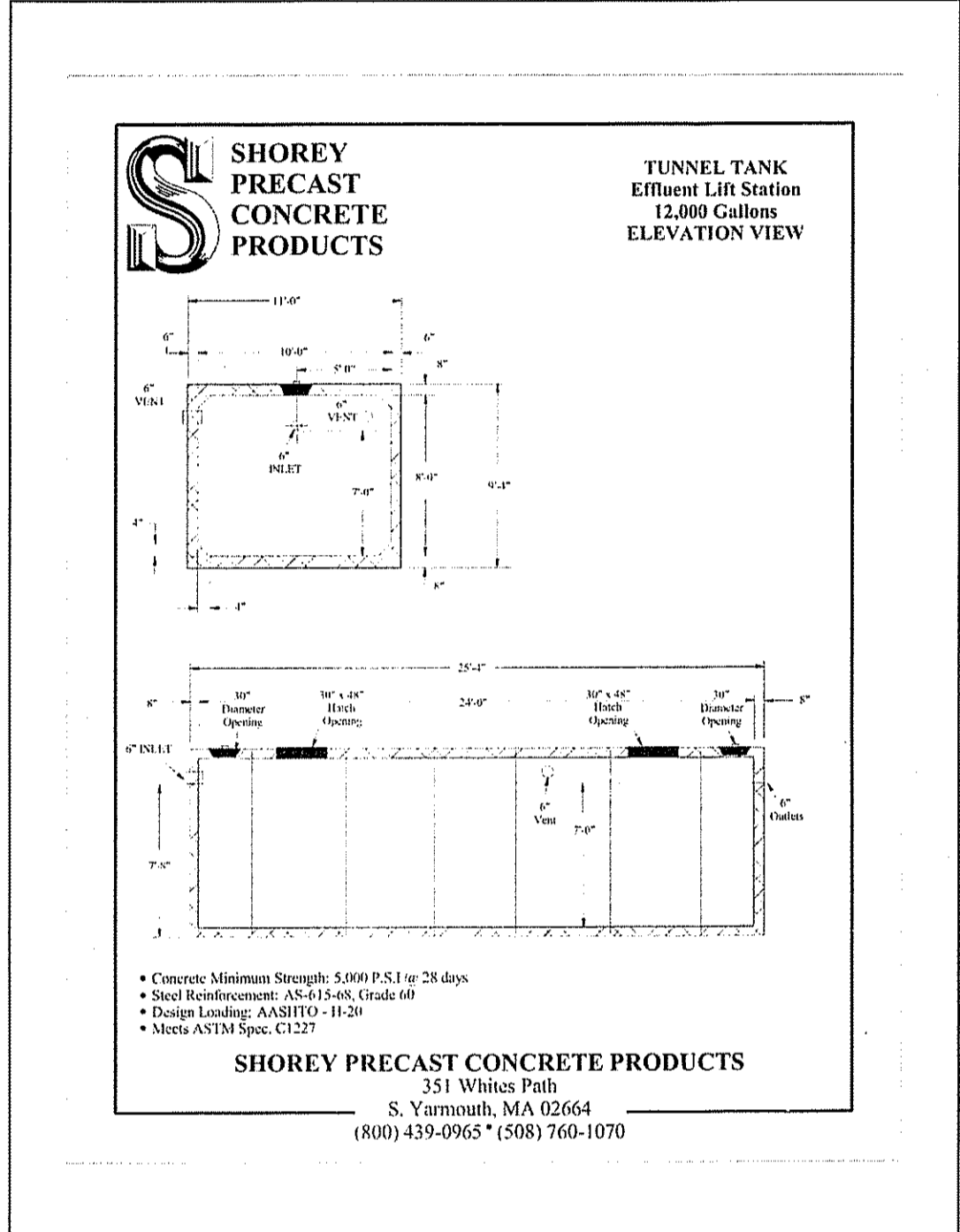


**2** STOCKPILE DETAIL  
NOT TO SCALE



**3** FLARED END SECTION  
NOT TO SCALE

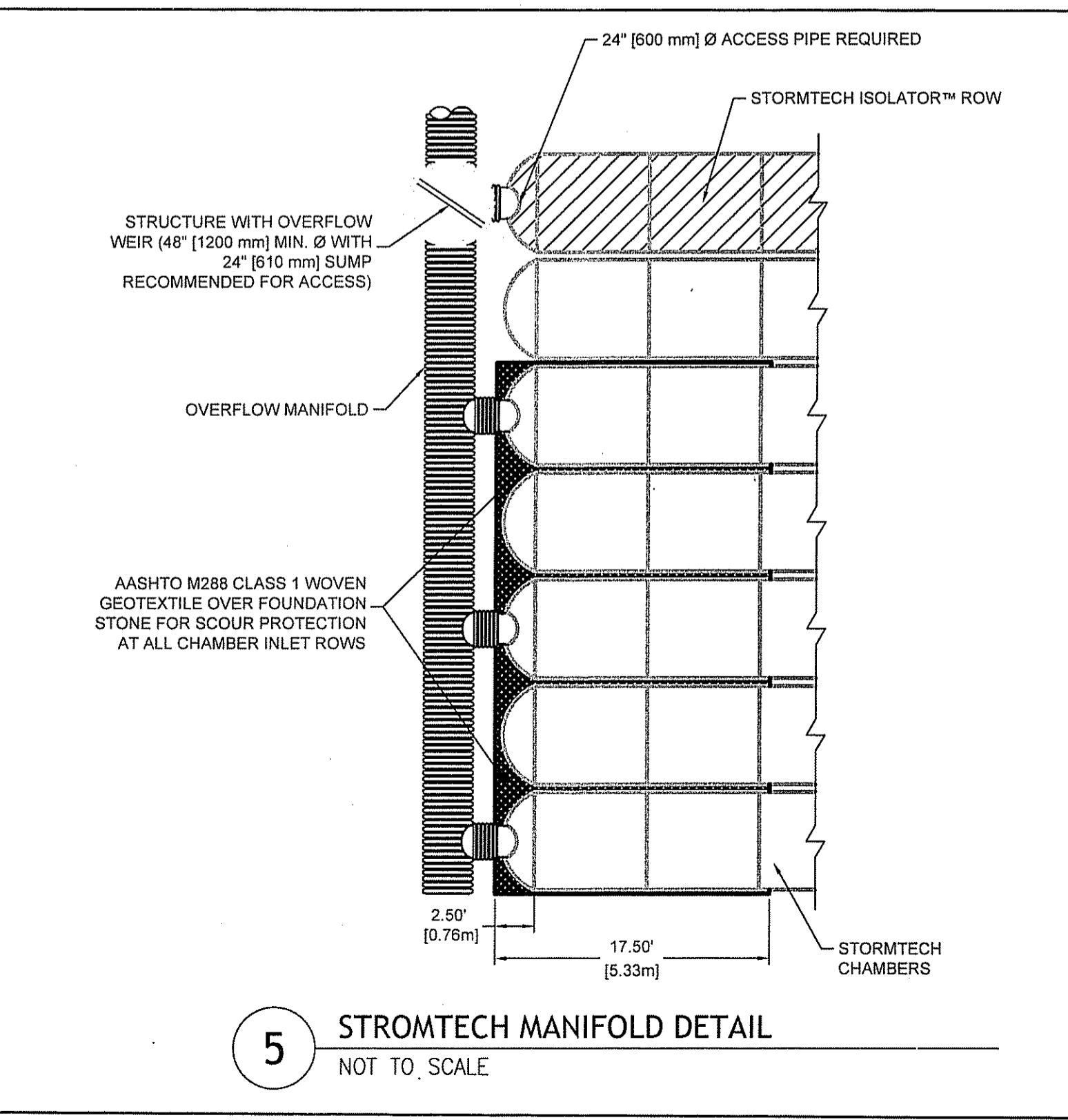
Environmental Management  
**DEC 18 2015**  
Office of Water Resources



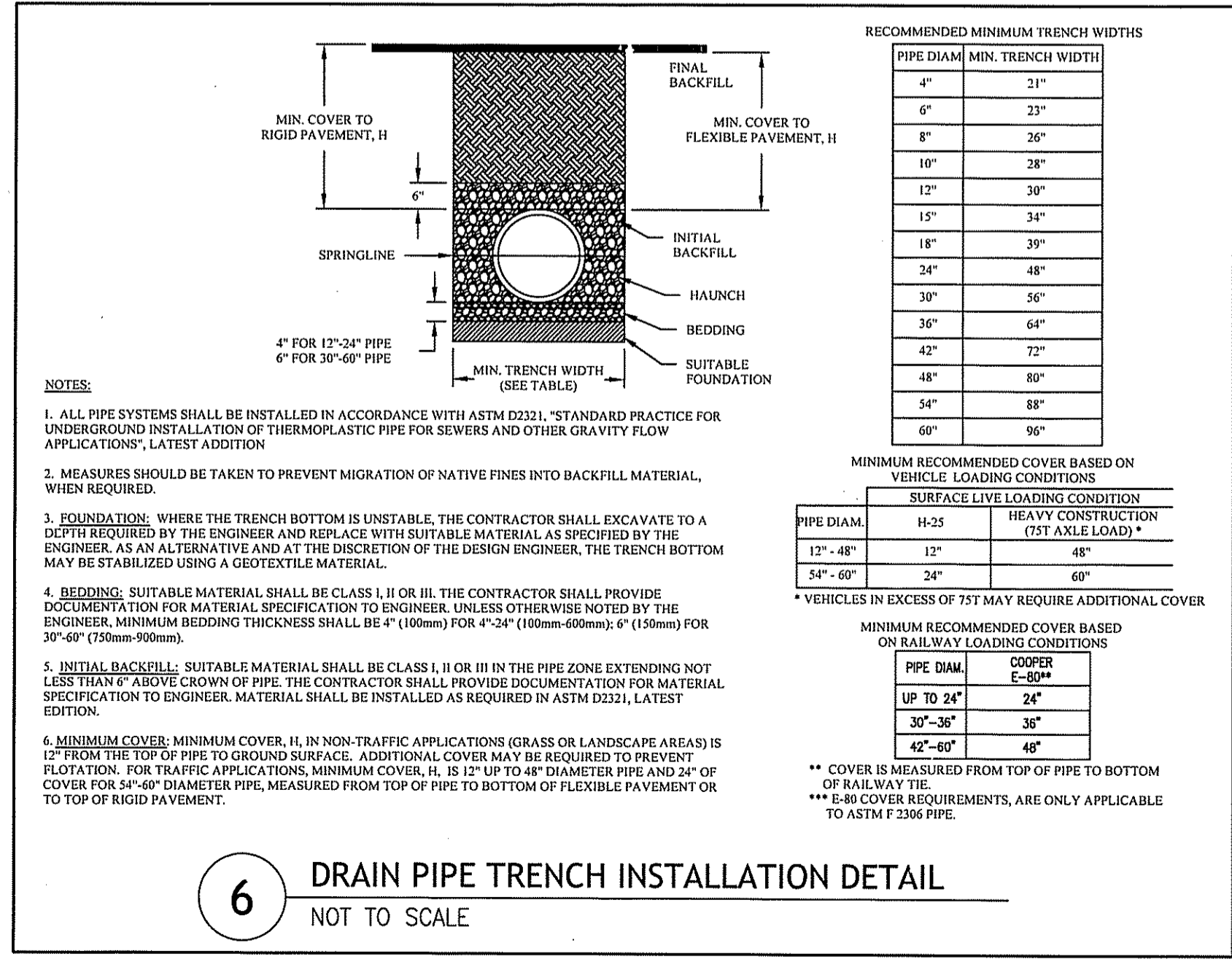
**TEMPORARY SEDIMENT TRAP SIZING TABLE**

TRAP #	WET AREA	DRY AREA	WEIR LENGTH
1	123 CY	123 CY	5.4 FEET
2	115 CY	115 CY	5.1 FEET
3	102 CY	102 CY	4.7 FEET
4	156 CY	156 CY	5.8 FEET

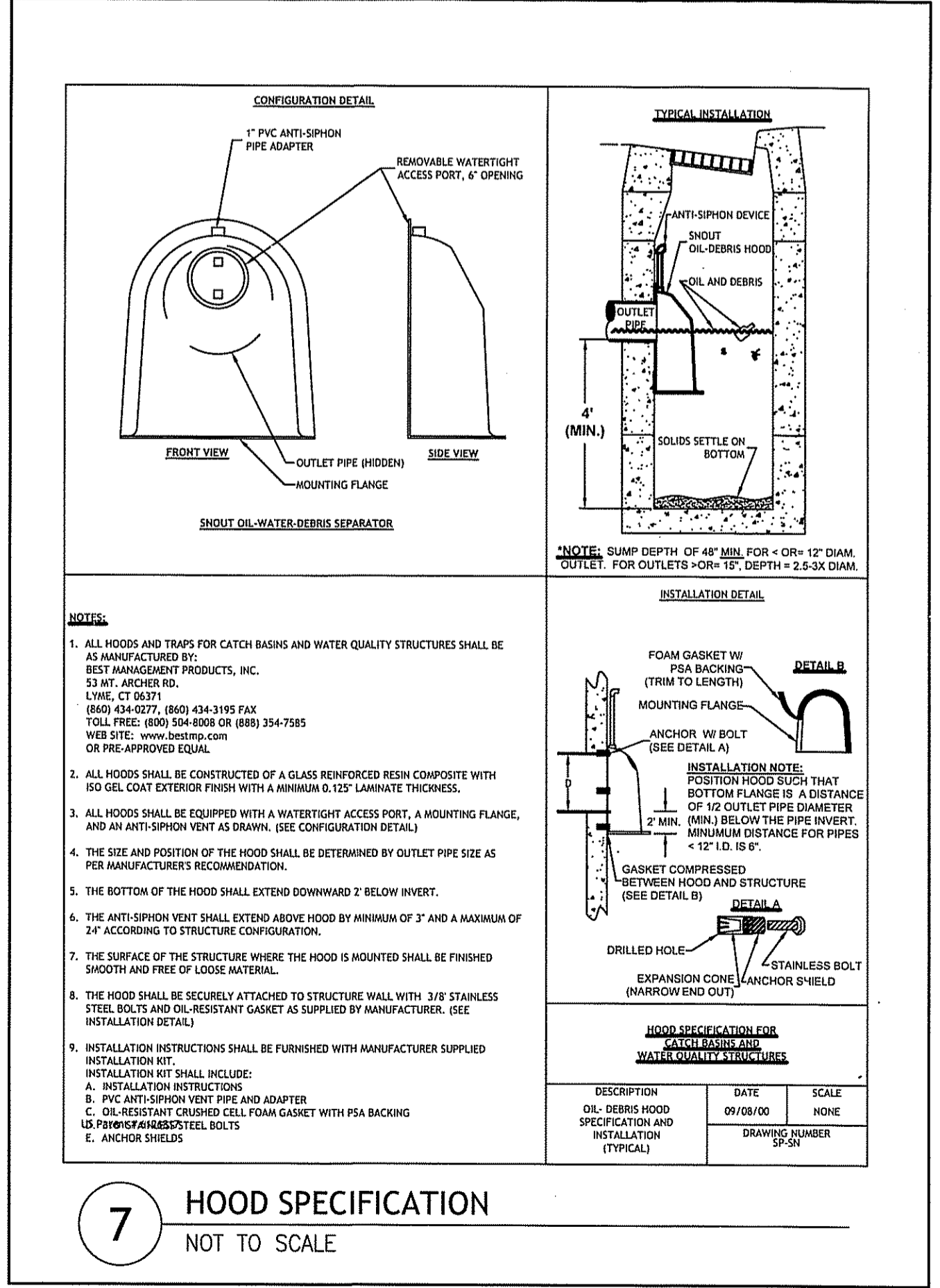
**4** TEMPORARY SEDIMENT TRAP DETAIL  
NOT TO SCALE



**5** STROMTECH MANIFOLD DETAIL  
NOT TO SCALE

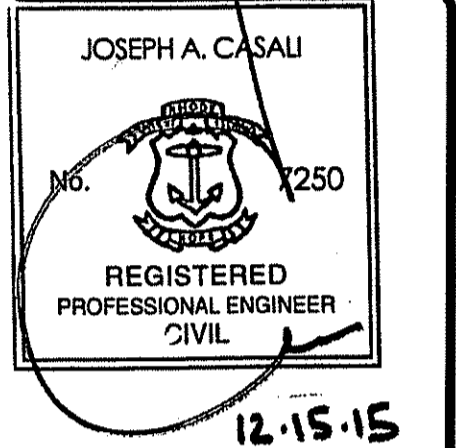
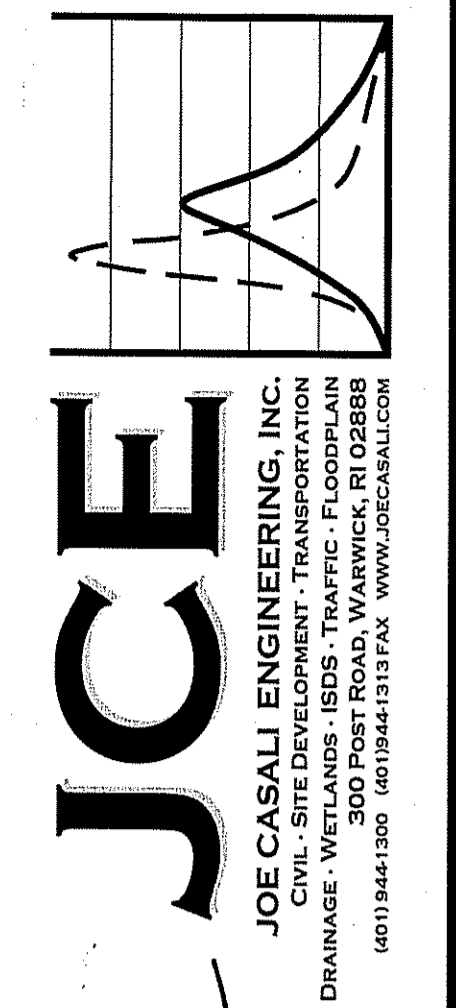


**6** DRAIN PIPE TRENCH INSTALLATION DETAIL  
NOT TO SCALE



**7** HOOD SPECIFICATION  
NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
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AP 17, LOTS 14, 16, 80, 84, 85, 142, 167, 199 & 231

REVISIONS:

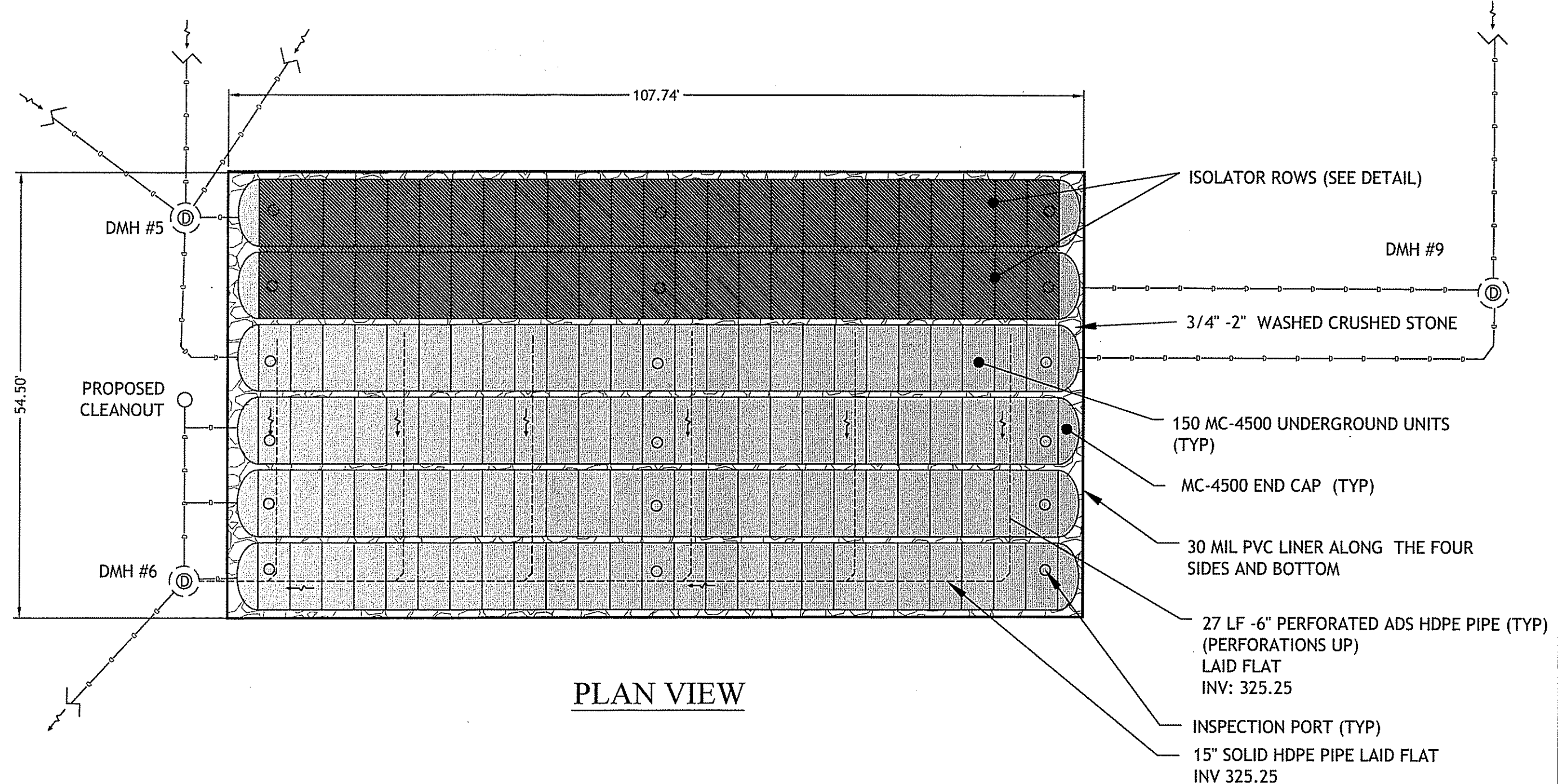
NO.	DATE	DESCRIPTION
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2	12/16/2015	RIDEM Comments

DESIGNED BY: GEC/JH  
DRAWN BY: GEC  
CHECKED BY: JAC  
DATE: NOV 2014  
PROJECT NO: 03-47h

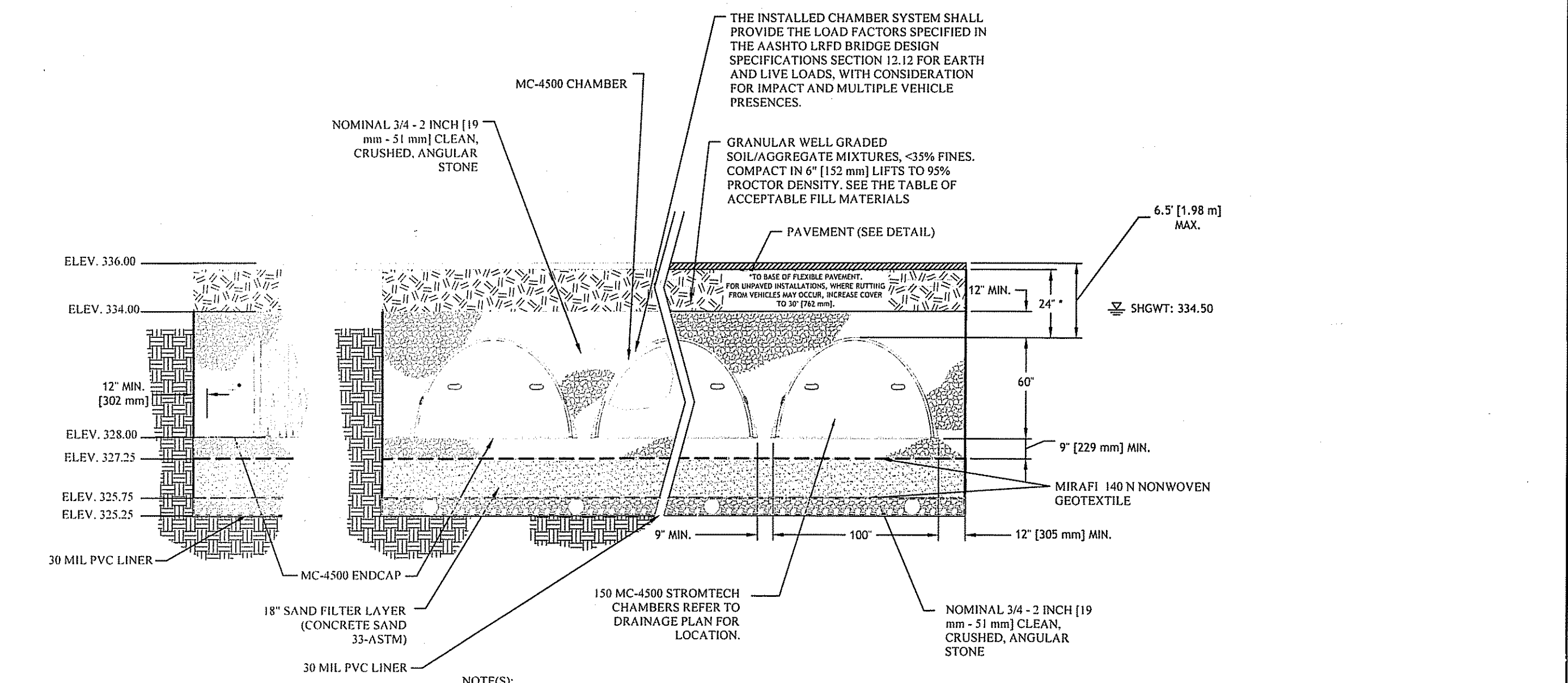
PRELIMINARY, NOT FOR CONSTRUCTION

**DRAINAGE DETAILS I**

**SHEET 10 OF 14**

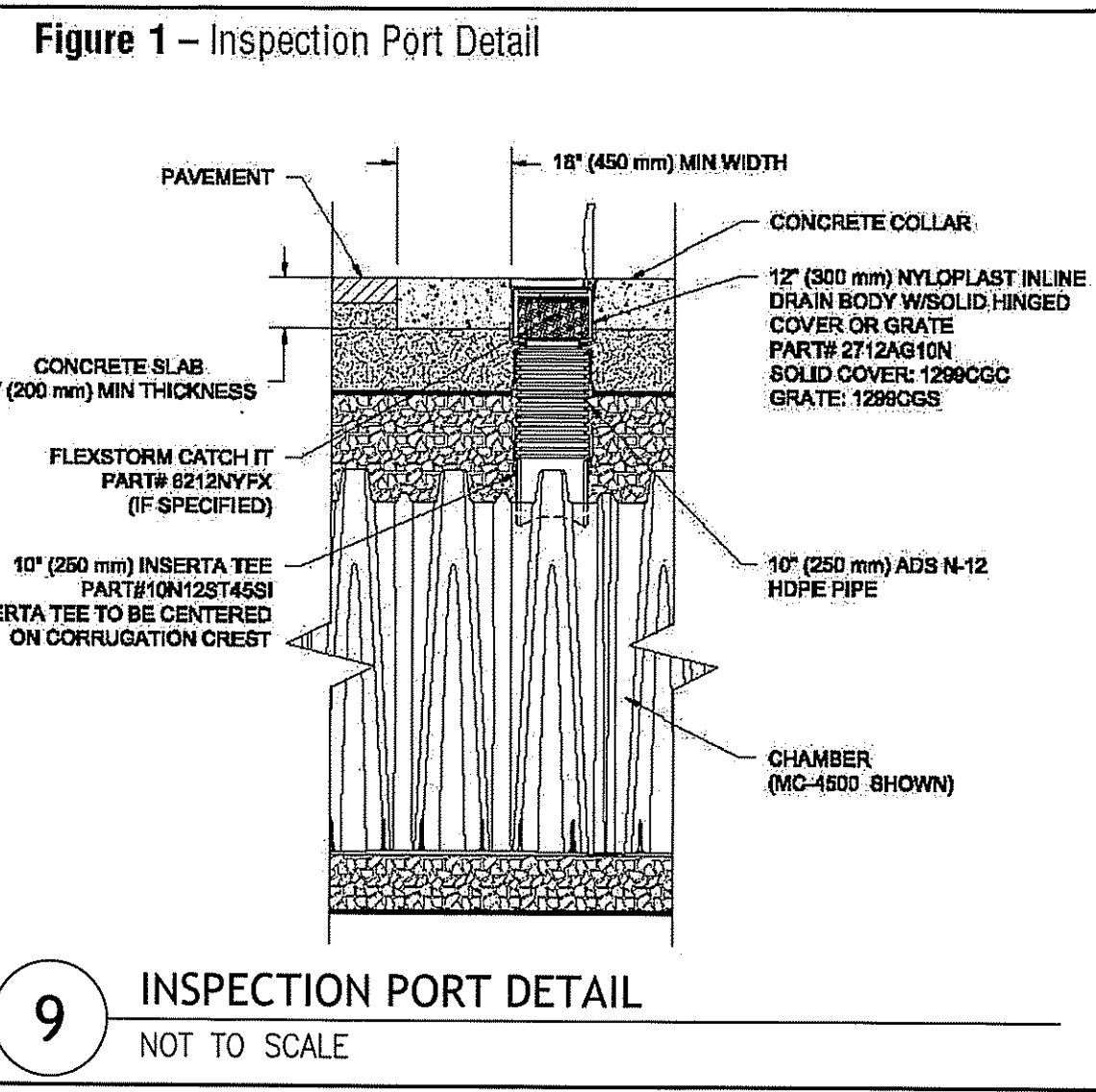


PLAN VIEW

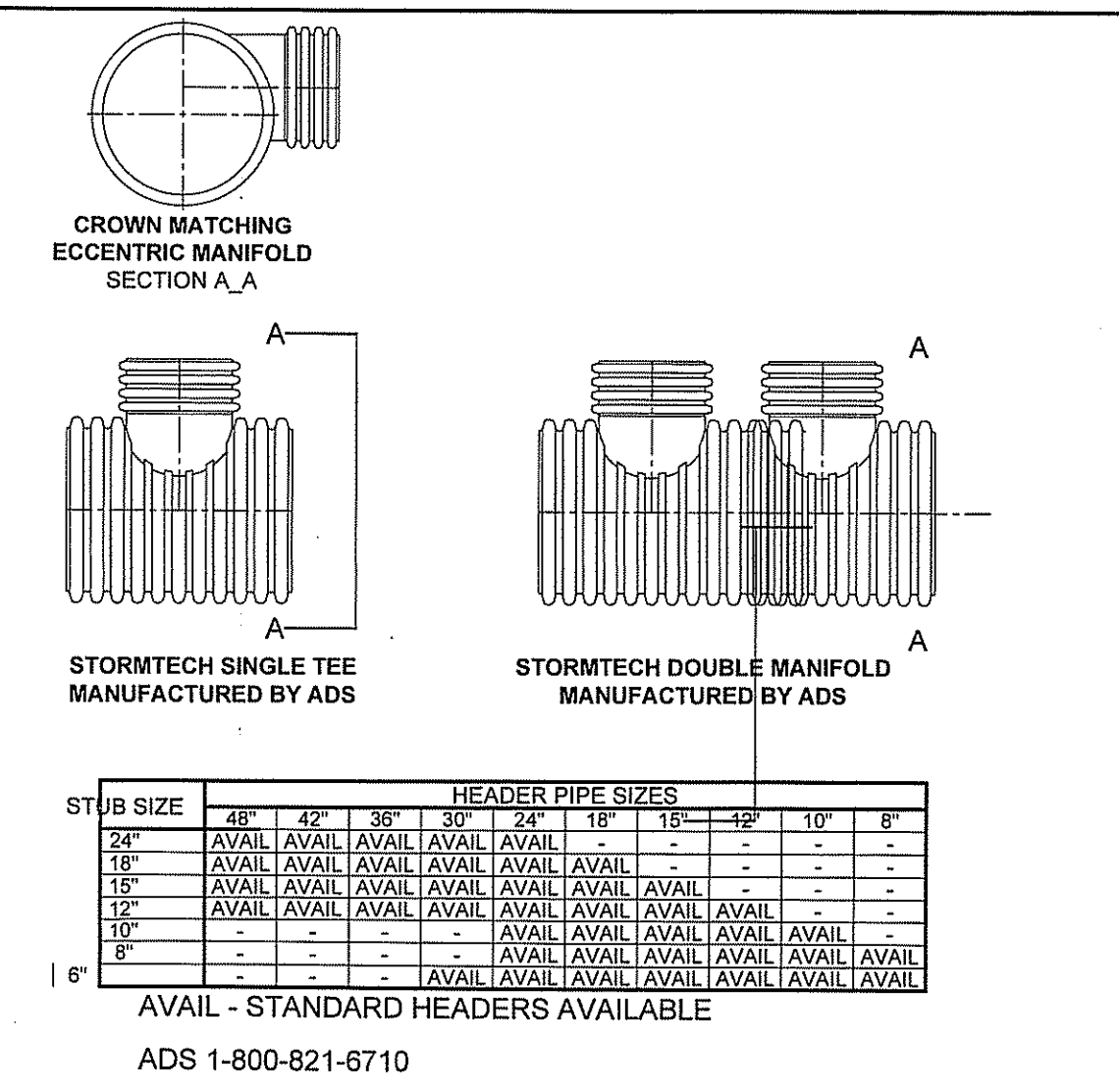


ELEVATION VIEW

8 UNDERGROUND WATER QUALITY SYSTEM DETAIL  
NOT TO SCALE



9 INSPECTION PORT DETAIL  
NOT TO SCALE

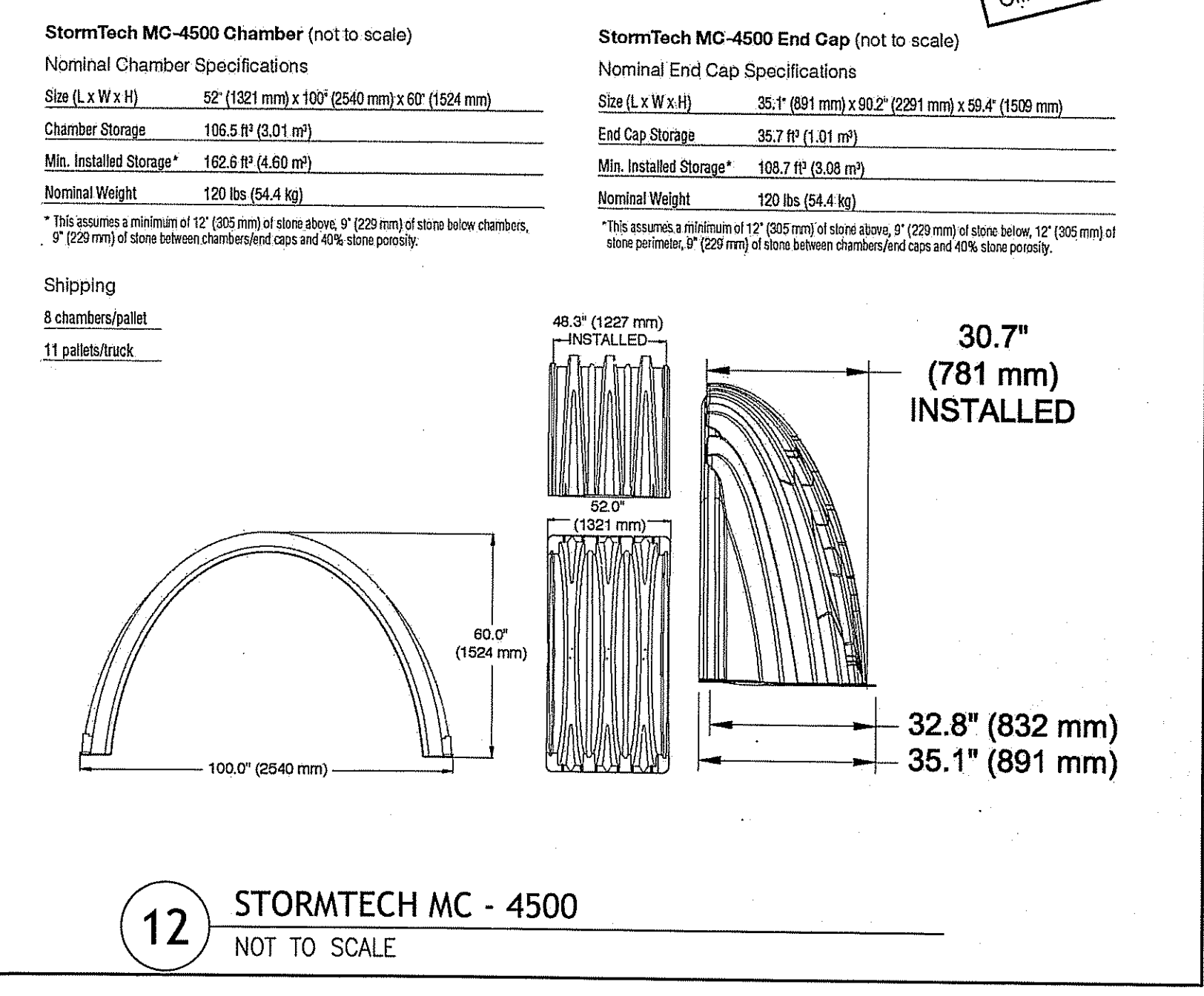


11 STORMTECH MANIFOLD DETAIL  
NOT TO SCALE

Table 1 - Acceptable Fill Materials

Material Label	Description	AASHTO M35 Designation	Compaction Density Requirement
Final Fill	Fill Material for layer 'D' starts from the top of the 'C' layer to the bottom of flexible pavement or unpaved finished grade above. Note that the pavement subbase may be part of the 'D' layer.	N/A	Prepare per site design engineer's plans. Paved installations may have stringent material and preparation requirements.
Initial Fill	Fill Material for layer 'C' starts from the top of the embedment stone ('B' layer) to 24" (600 mm) above the top of the chamber. Note that pavement subbase may be part of the 'C' layer.	AASHTO M145 A-1, A-2-4, A-3 or AASHTO M431 3, 357, 4, 467, 5, 56, 57, 67, 68, 7, 76, 8, 89, 9, 10	Begin compaction after 24" (600 mm) of material over the chamber is reached. Compact additional layers in 12" (300 mm) max lifts to a min. 95% Proctor density for well-graded material and 95% relative density for processed aggregate materials.
Embedment Stone	Clean, crushed, angular stone	AASHTO M431 3, 4	No compaction required.
Foundation Stone	Clean, crushed, angular stone	AASHTO M431 3, 4	Place and compact in 9" (230 mm) max lifts using two full coverages with a vibratory compactor.

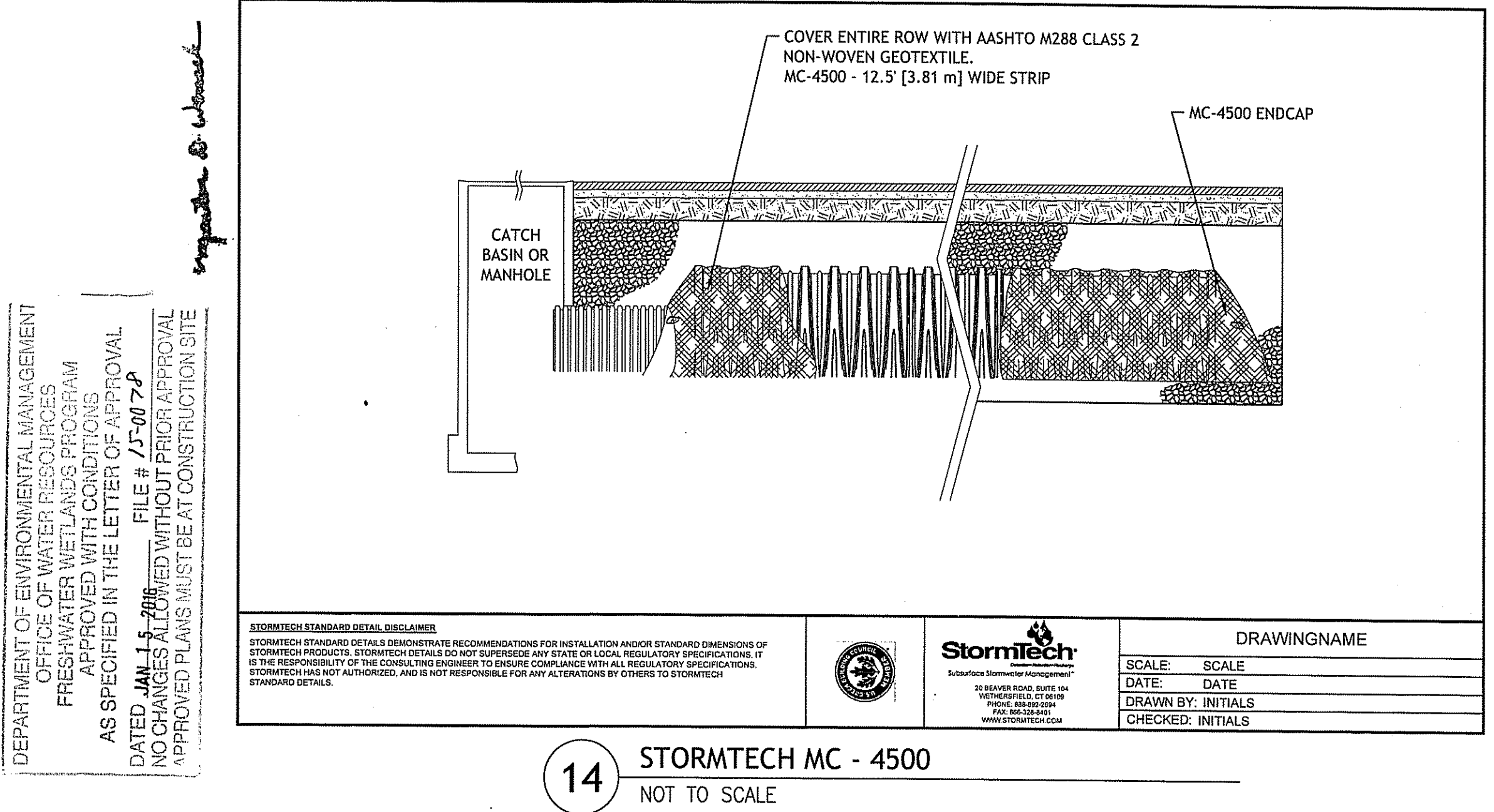
10 ACCEPTABLE FILL MATERIALS  
NOT TO SCALE



12 STORMTECH MC - 4500  
NOT TO SCALE

- STORMTECH GENERAL NOTES:**
- STORMTECH LLC ("STORMTECH") REQUIRES INSTALLING CONTRACTORS TO USE AND UNDERSTAND STORMTECH'S LATEST INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION.
  - OUR TECHNICAL SERVICES DEPARTMENT OFFERS INSTALLATION CONSULTATIONS TO INSTALLING CONTRACTORS. CONTACT OUR TECHNICAL SERVICES REPRESENTATIVE AT LEAST 30 DAYS PRIOR TO SYSTEM INSTALLATION TO ARRANGE A PRE-INSTALLATION CONSULTATION. OUR REPRESENTATIVES CAN THEN ANSWER QUESTIONS OR ADDRESS COMMENTS ON THE STORMTECH CHAMBER SYSTEM AND INFORM THE INSTALLING CONTRACTOR OF THE MINIMUM INSTALLATION REQUIREMENTS BEFORE BEGINNING THE SYSTEM'S CONSTRUCTION. CALL 1-888-892-2694 TO SPEAK TO A TECHNICAL SERVICE REPRESENTATIVE OR VISIT WWW.STORMTECH.COM TO RECEIVE A COPY OF OUR INSTALLATION INSTRUCTIONS.
  - STORMTECH'S REQUIREMENTS FOR SYSTEMS WITH PAVEMENT DESIGN (ASPHALT, CONCRETE PAVERS, ETC.): MINIMUM COVER IS 18 INCHES NOT INCLUDING PAVEMENT; MAXIMUM COVER IS 96 INCHES INCLUDING PAVEMENT. FOR INSTALLATIONS THAT DO NOT INCLUDE PAVEMENT, WHERE RUTTING FROM VEHICLES MAY OCCUR, MINIMUM REQUIRED COVER IS 24 INCHES, MAXIMUM COVER IS 96 INCHES.
  - THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE DESIGN ENGINEER.
  - AASHTO M288 CLASS 2 NON-WOVEN GEOTEXTILE (FILTER FABRIC) MUST BE USED AS INDICATED IN THE PROJECT PLANS.
  - STONE PLACEMENT BETWEEN CHAMBERS ROWS AND AROUND PERIMETER MUST FOLLOW INSTRUCTIONS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
  - BACKFILLING OVER THE CHAMBERS MUST FOLLOW REQUIREMENTS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
  - THE CONTRACTOR MUST REFER TO STORMTECH'S INSTALLATION INSTRUCTIONS FOR A TABLE OF ACCEPTABLE VEHICLE LOADS AT VARIOUS DEPTHS OF COVER. THIS INFORMATION IS ALSO AVAILABLE AT STORMTECH'S WEBSITE: WWW.STORMTECH.COM. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING VEHICLES THAT EXCEED STORMTECH'S REQUIREMENTS FROM TRAVELING ACROSS OR PARKING OVER THE STORMTECH SYSTEM. TEMPORARY FENCING, WARNING TAPE AND APPROPRIATELY LOCATED SIGNS ARE COMMONLY USED TO PREVENT UNAUTHORIZED VEHICLES FROM ENTERING SENSITIVE CONSTRUCTION AREAS.
  - THE CONTRACTOR MUST APPLY EROSION AND SEDIMENT CONTROL MEASURES TO PROTECT THE STORMTECH SYSTEM DURING ALL PHASES OF SITE CONSTRUCTION PER LOCAL CODES AND DESIGN ENGINEER'S SPECIFICATIONS.
  - STORMTECH PRODUCT WARRANTY IS LIMITED. SEE CURRENT PRODUCT WARRANTY FOR DETAILS. TO ACQUIRE A COPY CALL STORMTECH AT 1-888-892-2694 OR VISIT WWW.STORMTECH.COM.
- STORMTECH CHAMBER SPECIFICATIONS**
- CHAMBERS SHALL BE STORMTECH MC-4500 OR APPROVED EQUIV.
  - CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418-05, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
  - CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS.
  - THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12 ARE MET FOR: LONG-DURATION DEAD LOADS AND SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
  - ONLY CHAMBERS THAT ARE APPROVED BY THE ENGINEER WILL BE ALLOWED. THE CONTRACTOR SHALL SUBMIT (3 SETS) OF THE FOLLOWING TO THE ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
    - A STRUCTURAL EVALUATION BY A REGISTERED STRUCTURAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12 ARE MET. THE 50-YEAR CREEP MODULUS DATA SPECIFIED IN ASTM 2418-05 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
    - A CERTIFICATION BY THE MANUFACTURER THAT THE CHAMBERS ARE IN ACCORDANCE WITH ASTM F2418-05.
  - CHAMBERS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.
  - ALL DESIGN SPECIFICATIONS FOR CHAMBERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S LATEST DESIGN MANUAL.
  - THE INSTALLATION OF CHAMBERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S LATEST INSTALLATION INSTRUCTIONS.

13 STORMTECH GENERAL NOTES  
NOT TO SCALE



14 STORMTECH MC - 4500  
NOT TO SCALE

**JCE**  
JOSEPH A. CASALI  
CIVIL ENGINEERING, INC.  
CIVIL SITE DEVELOPMENT, TRANSPORTATION  
DRAINAGE, WETLANDS, EIDS, TRAFFIC, FLOODPLAIN  
300 POST ROAD, WARWICK, RI 02888  
(401) 944-1500 (office) (401) 944-1501 (cell) www.jceinc.com

JOSEPH A. CASALI  
No. 1250  
REGISTERED PROFESSIONAL ENGINEER  
CIVIL  
12-15-15

**ANCHOR SUBARU**  
EDDIE DOWLING HIGHWAY  
NORTH SMITHFIELD, RHODE ISLAND  
AP 17, LOTS 14, 16, 80, 84, 85, 142, 167, 199 & 231

REVISIONS:

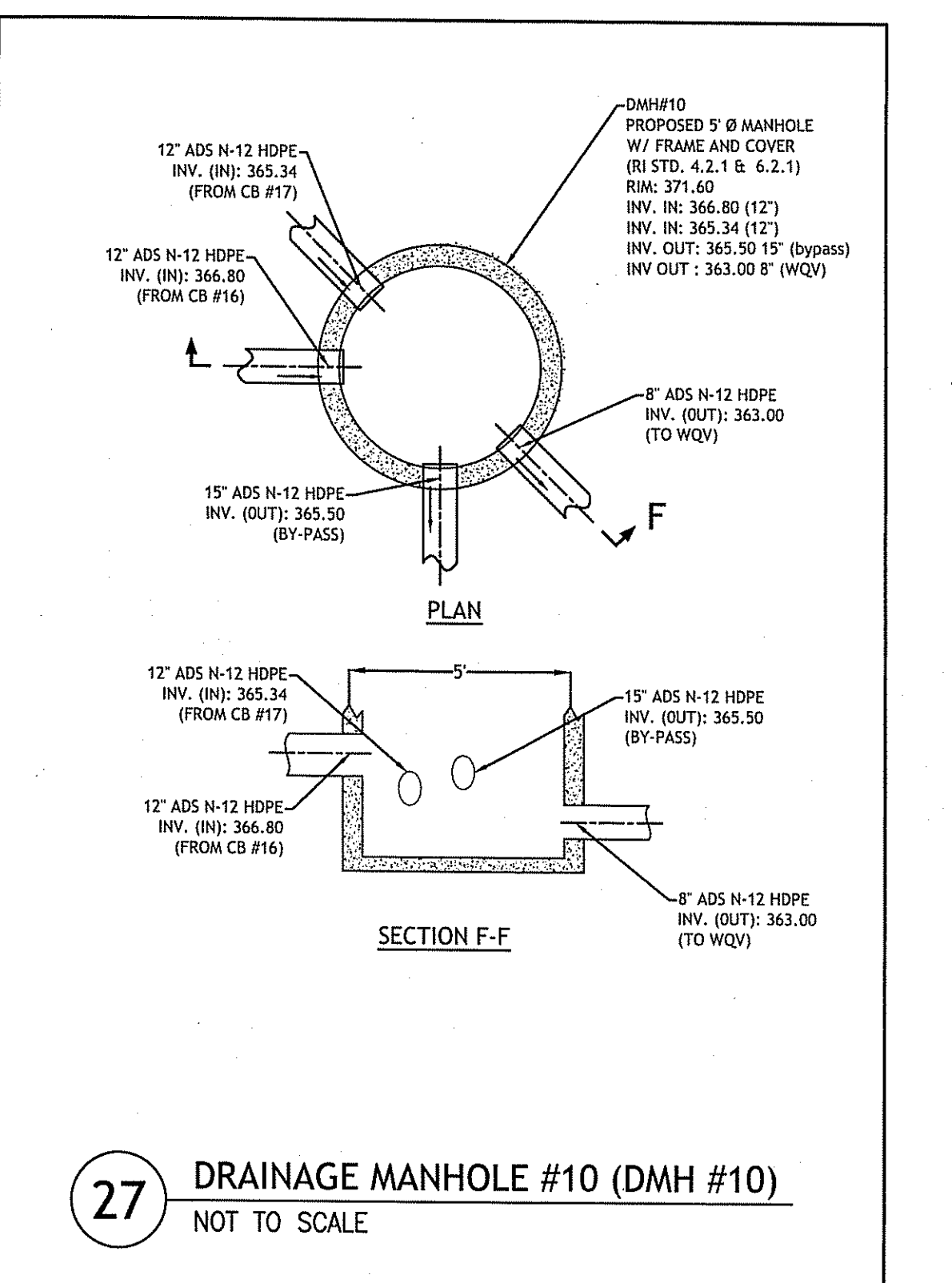
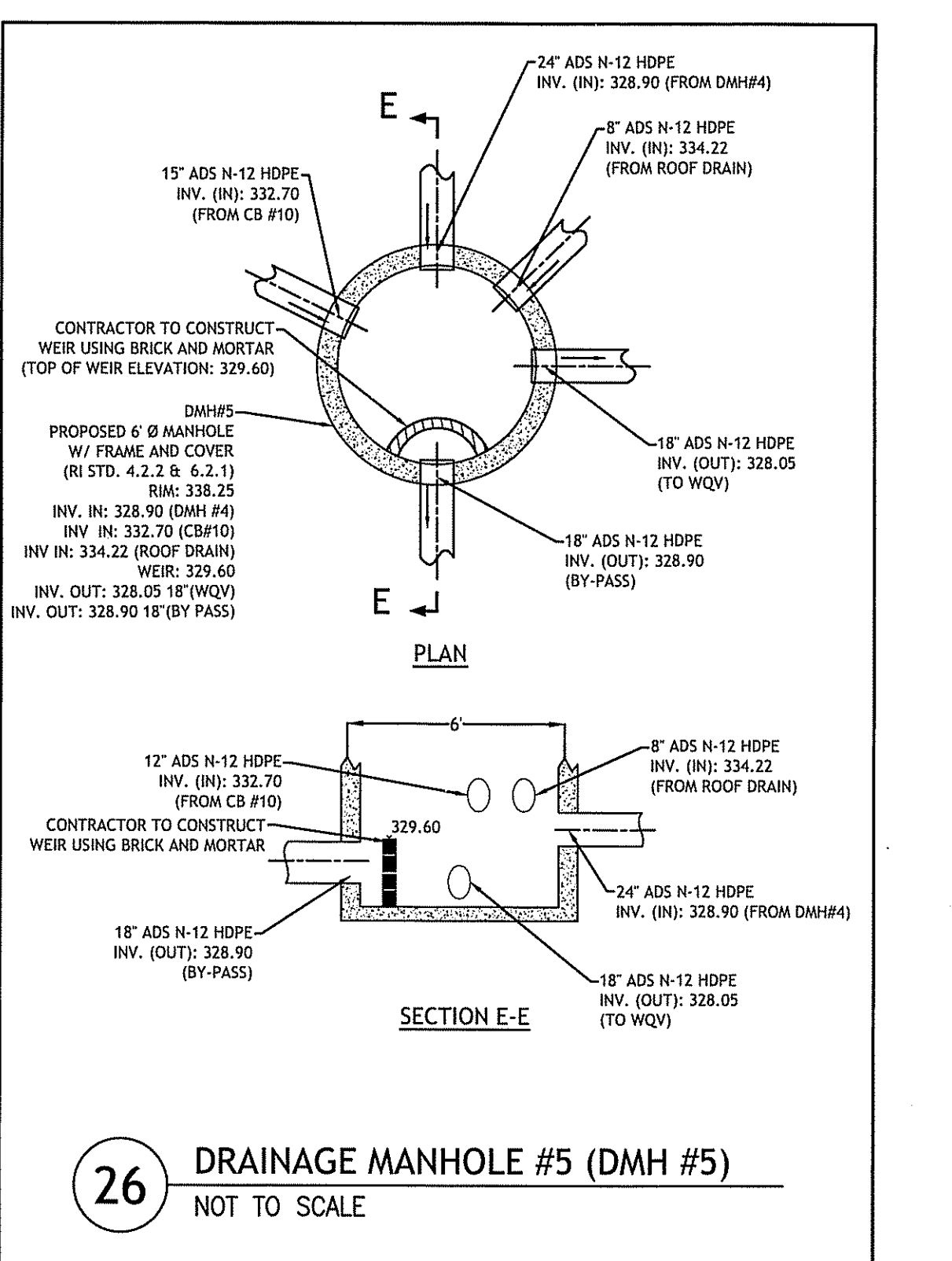
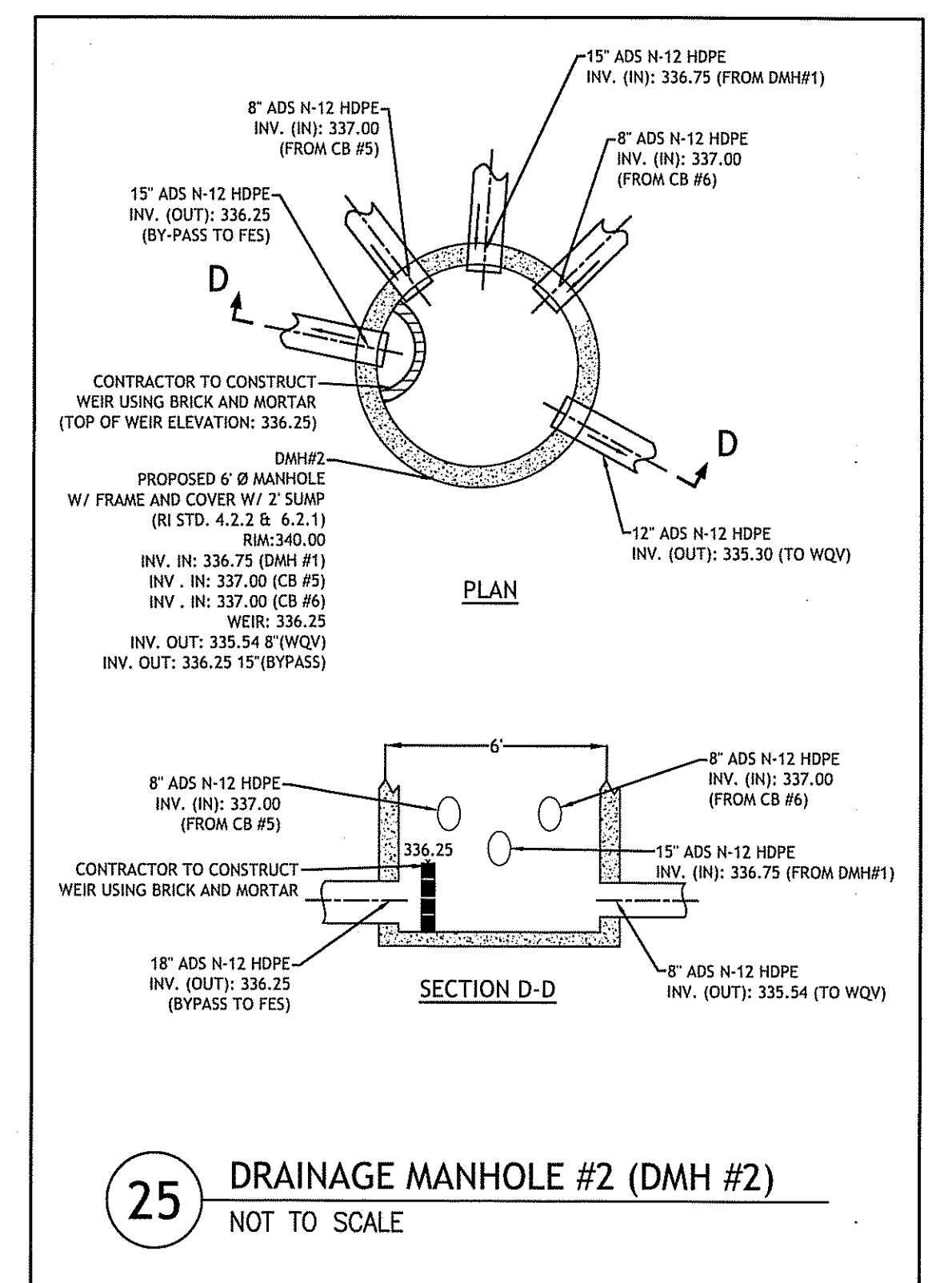
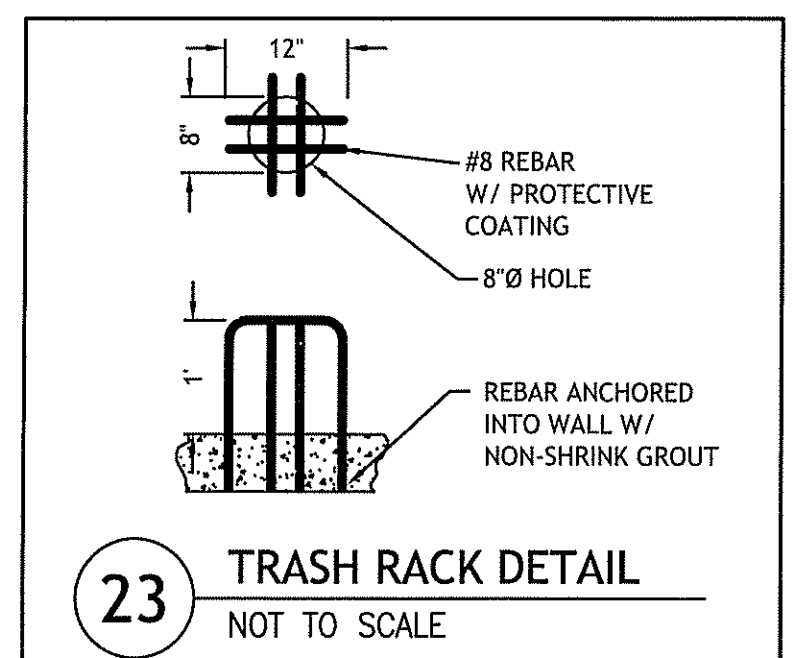
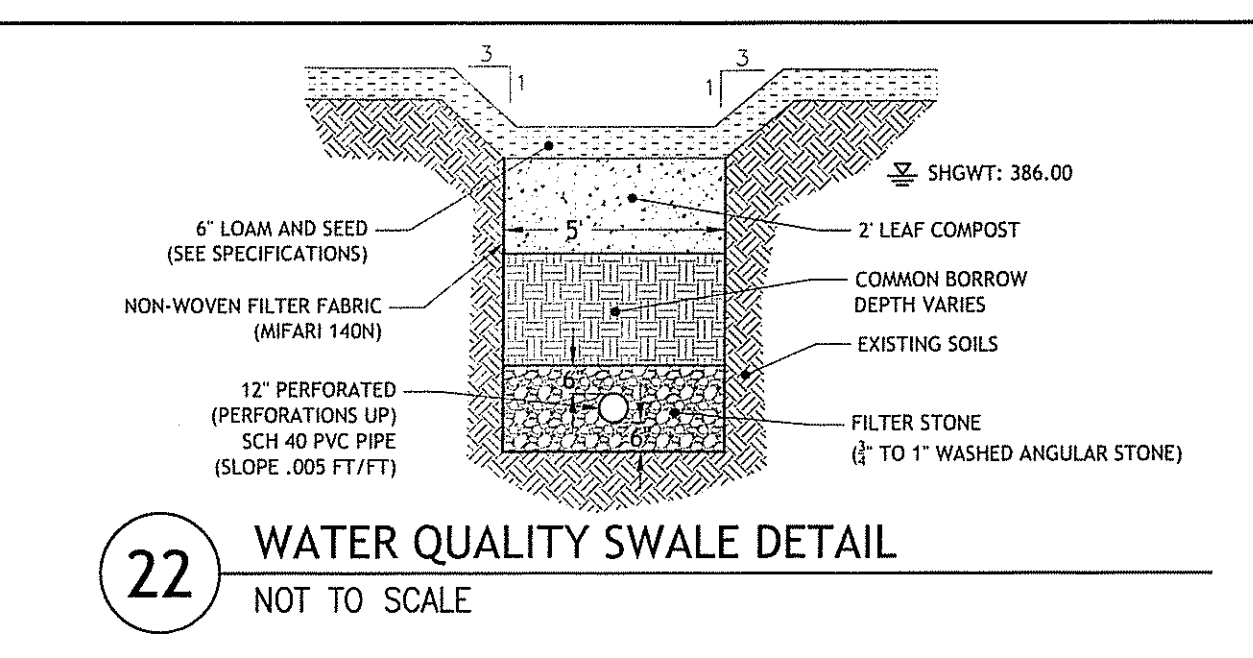
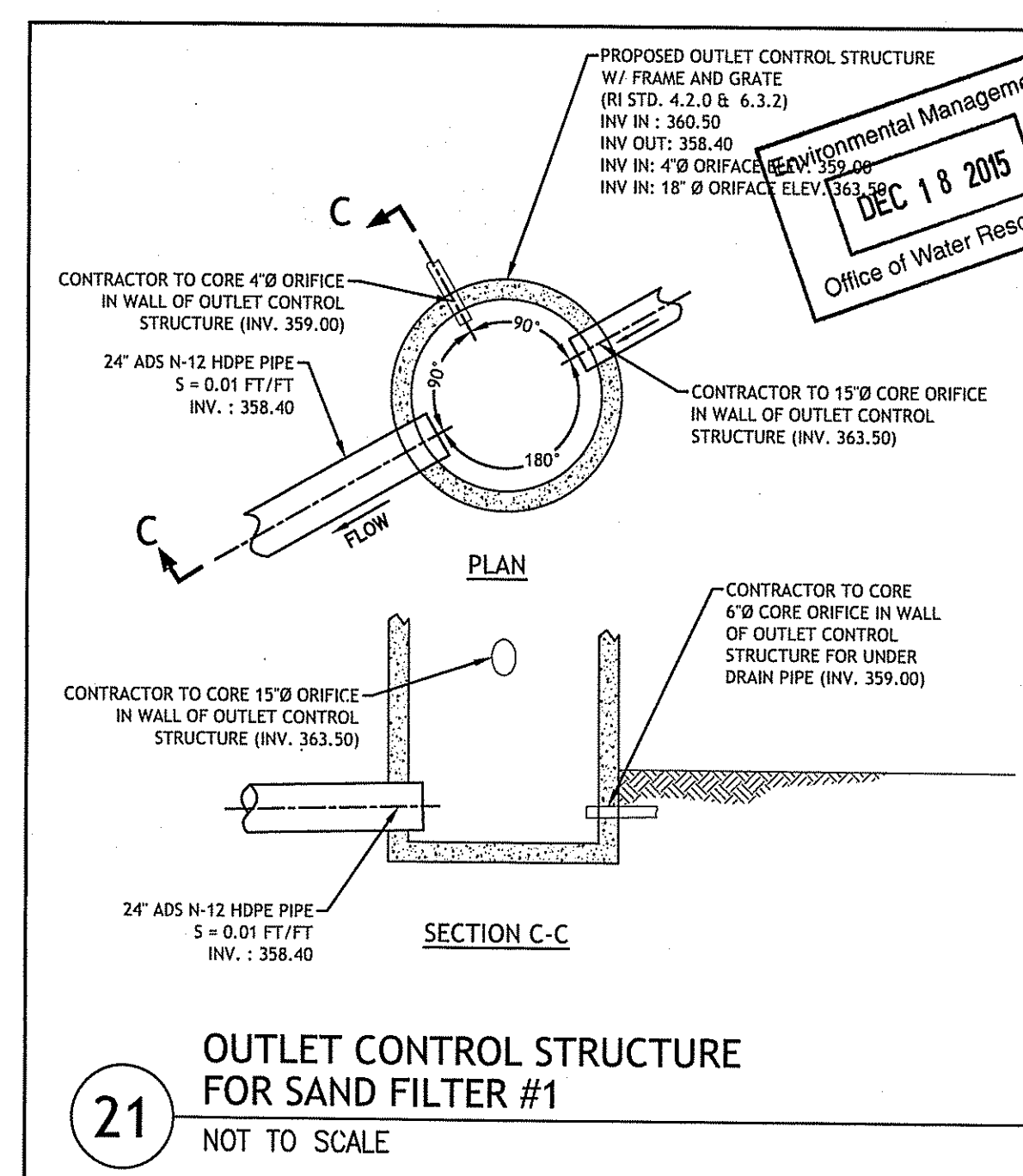
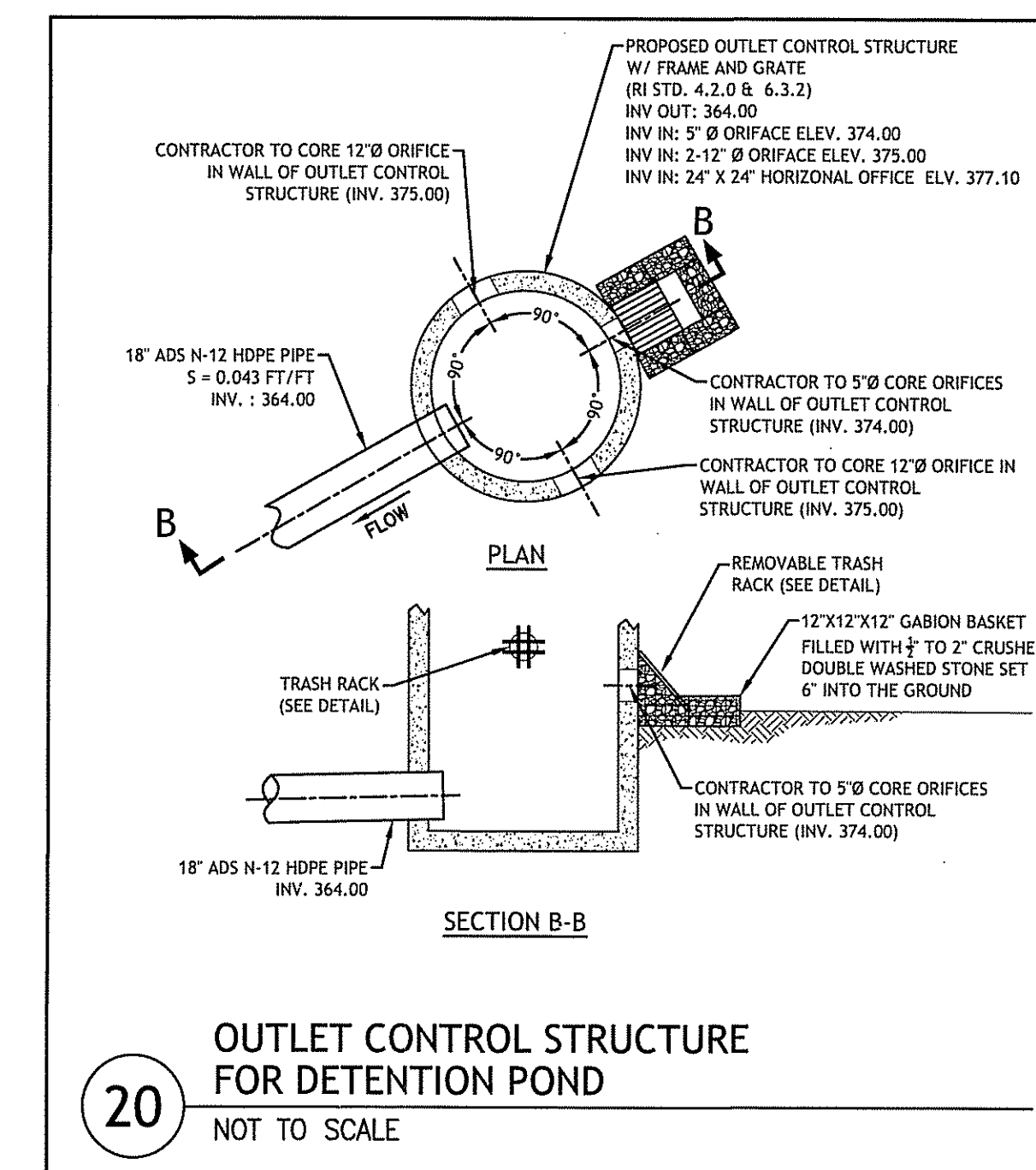
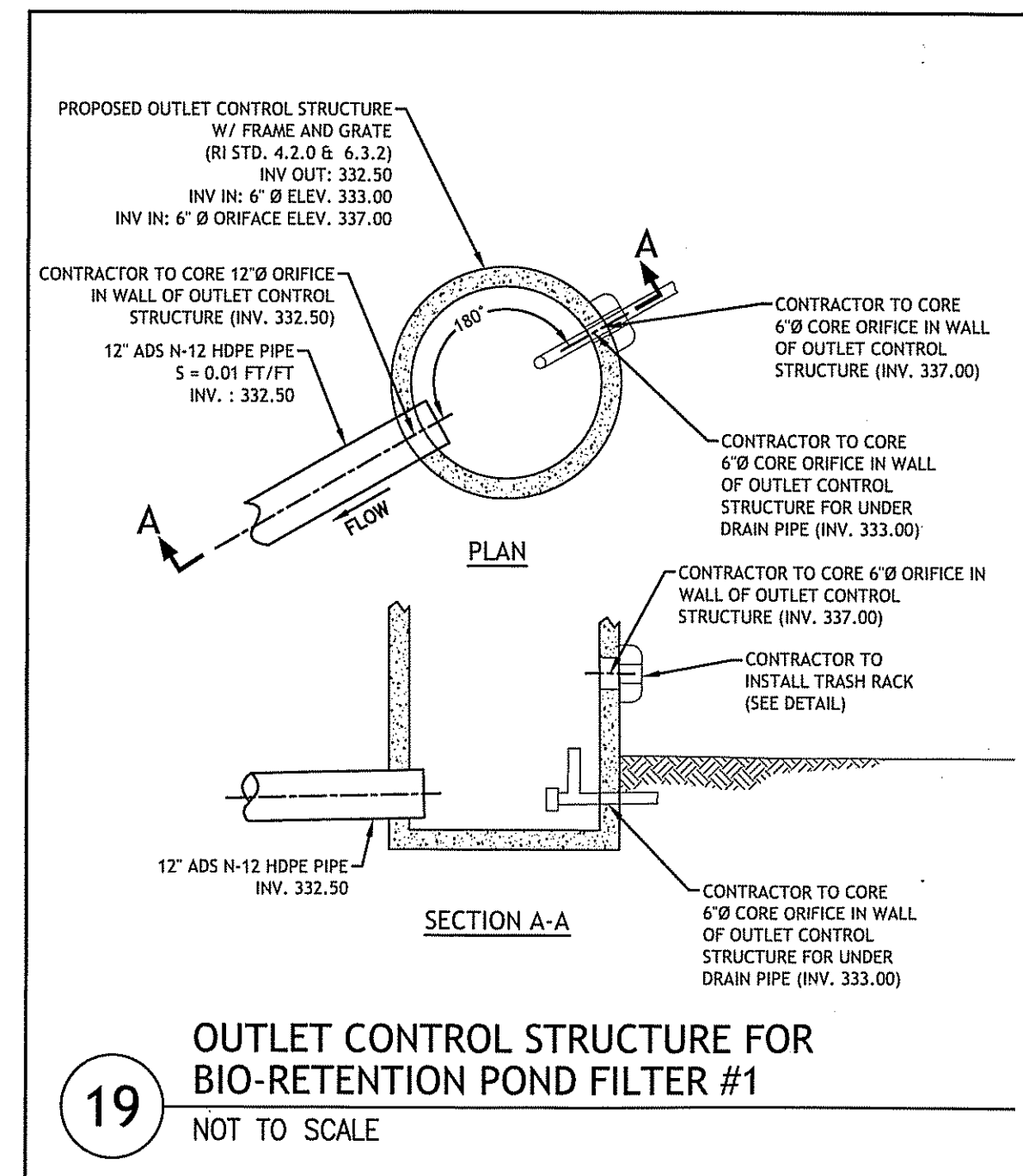
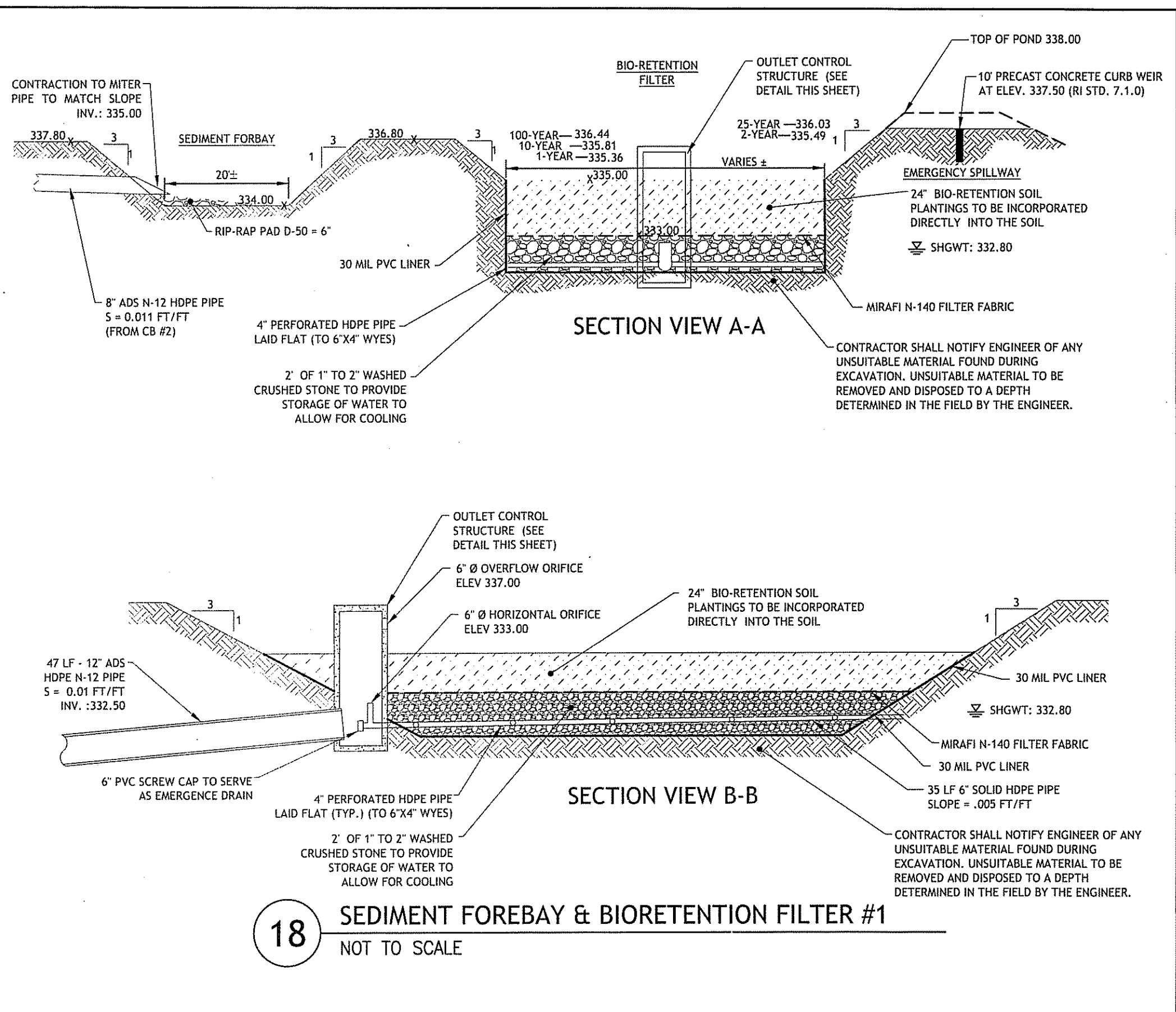
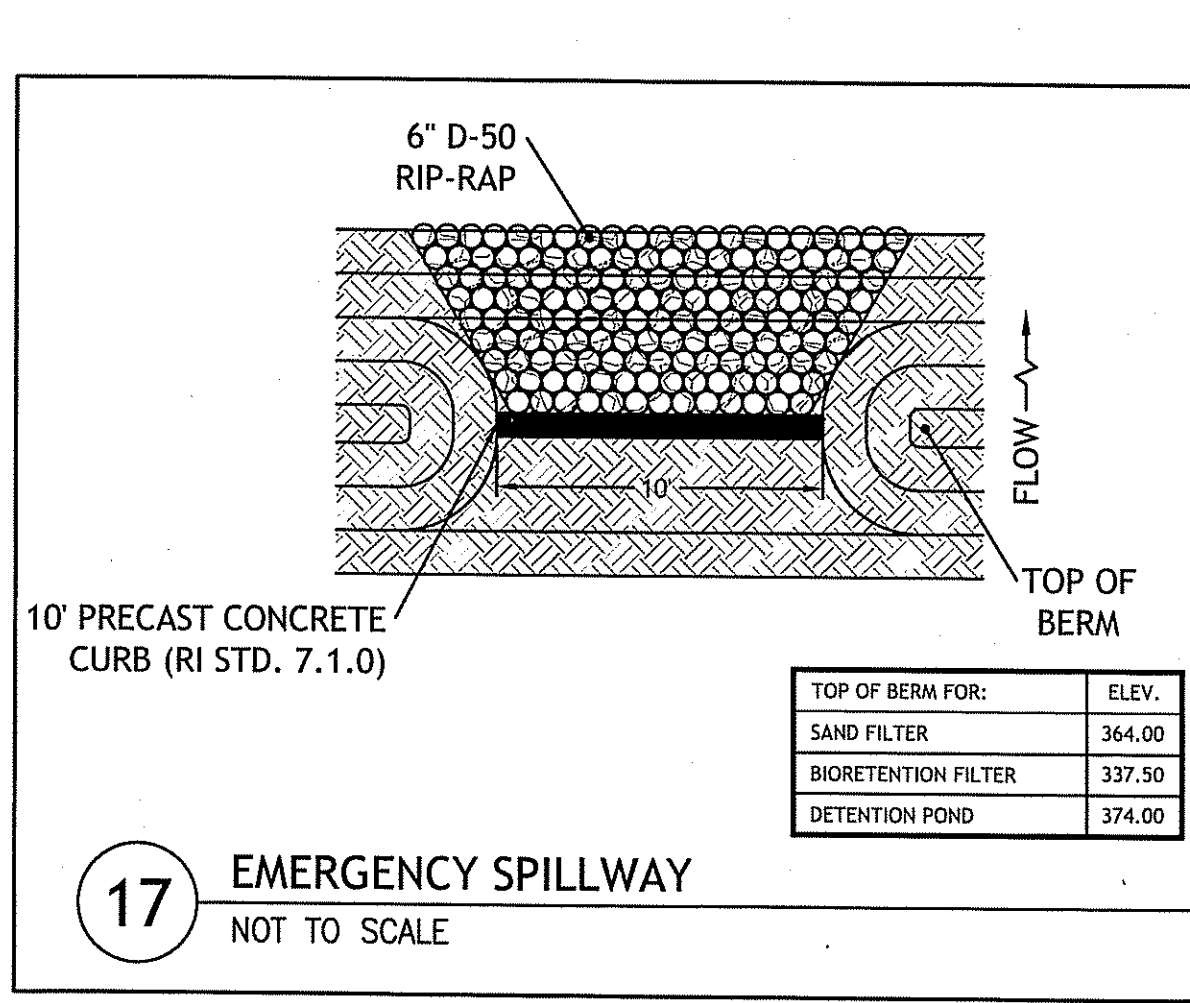
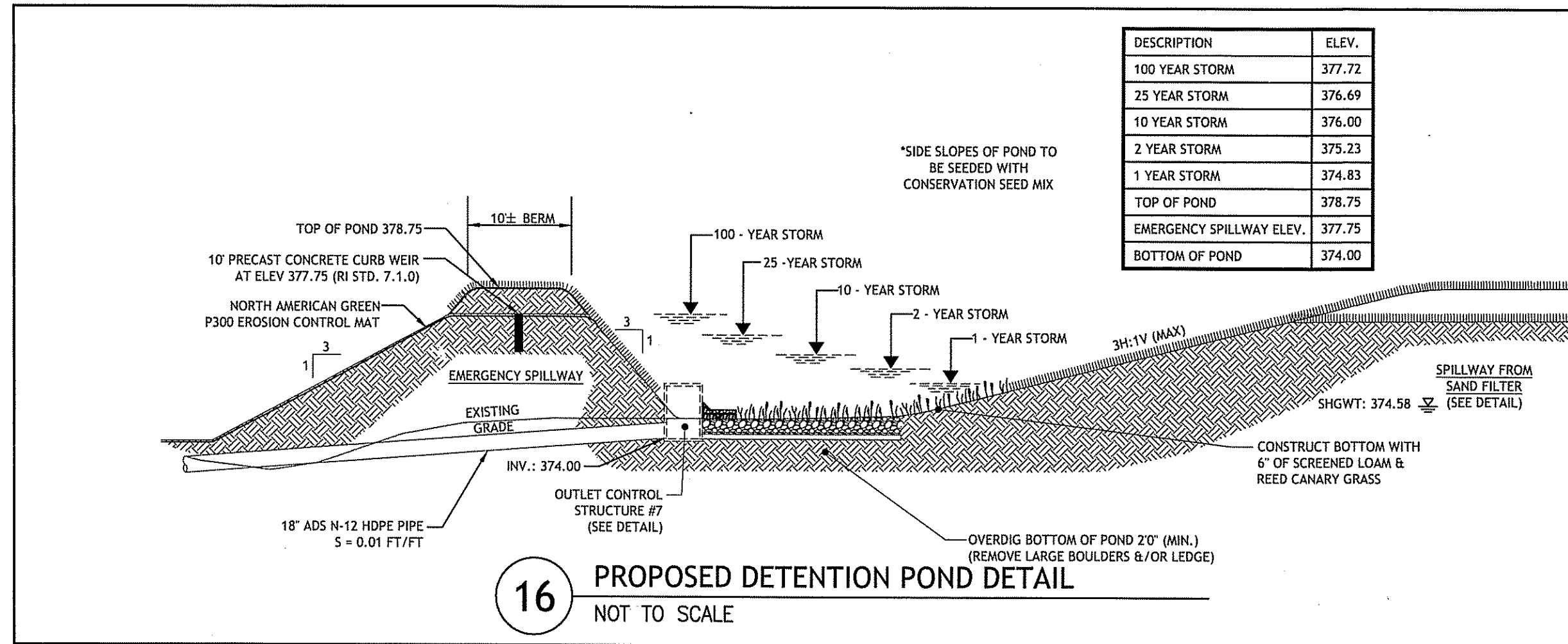
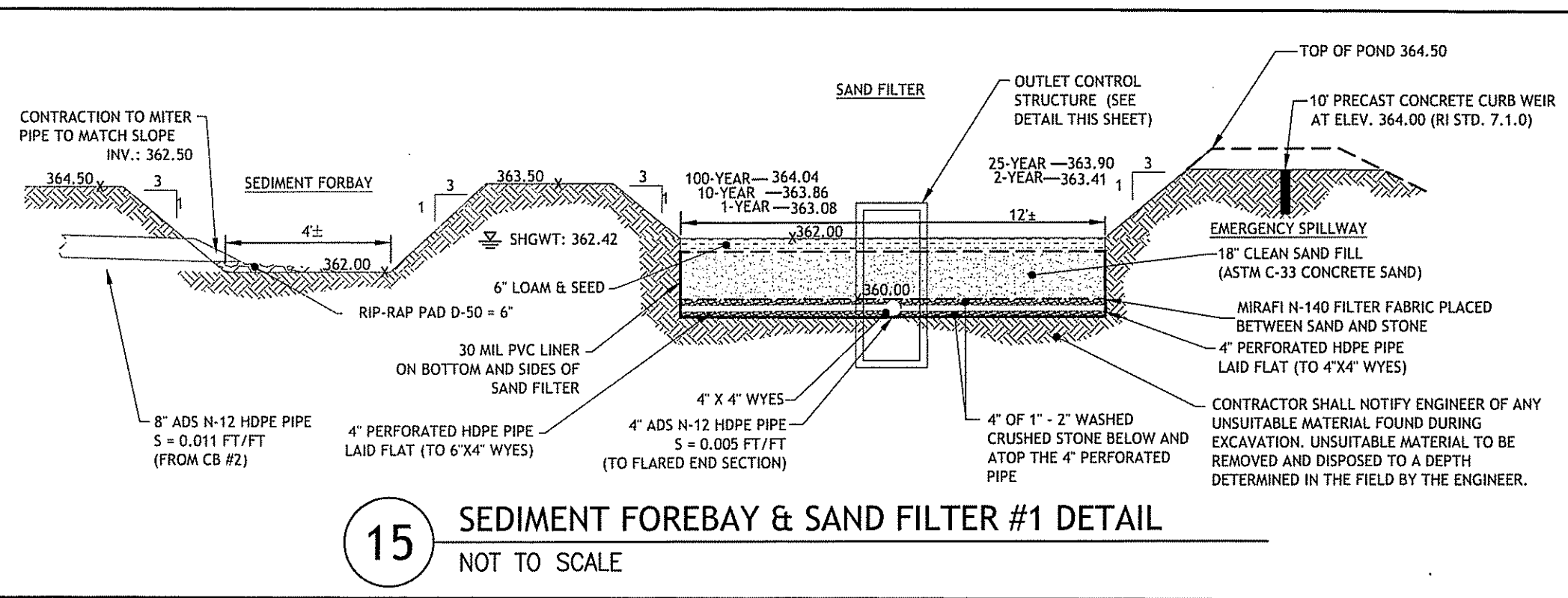
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2	12/16/2015	RIDEM Comments

DESIGNED BY: GEC/JH  
DRAWN BY: GEC  
CHECKED BY: JAC  
DATE: NOV. 2014  
PROJECT NO: 03-47h

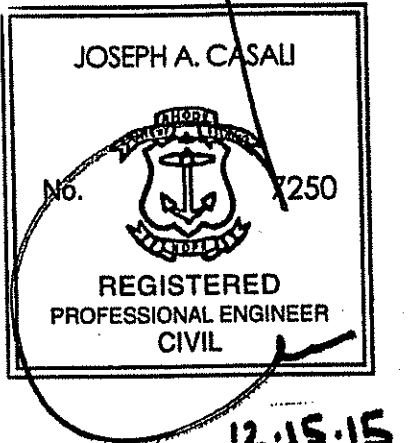
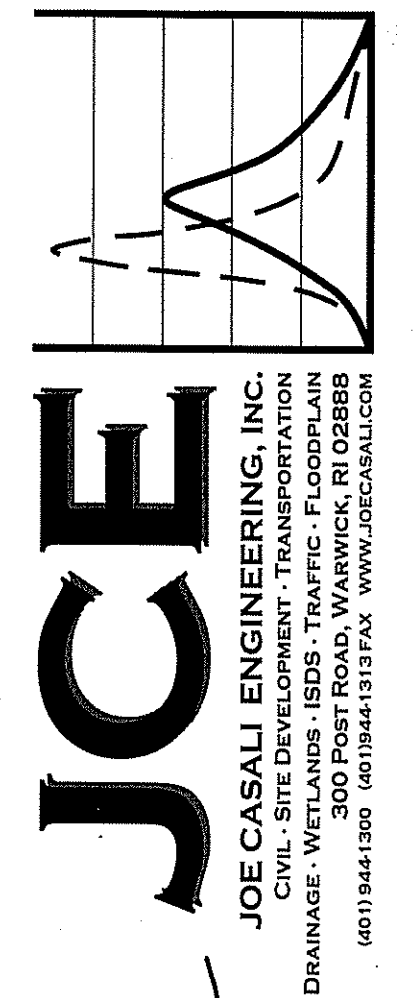
PRELIMINARY, NOT FOR CONSTRUCTION

**DETAILS II**

**SHEET 11 OF 14**



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
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AP 17, LOTS 14, 16, 80, 84, 85, 142, 167, 199 & 231

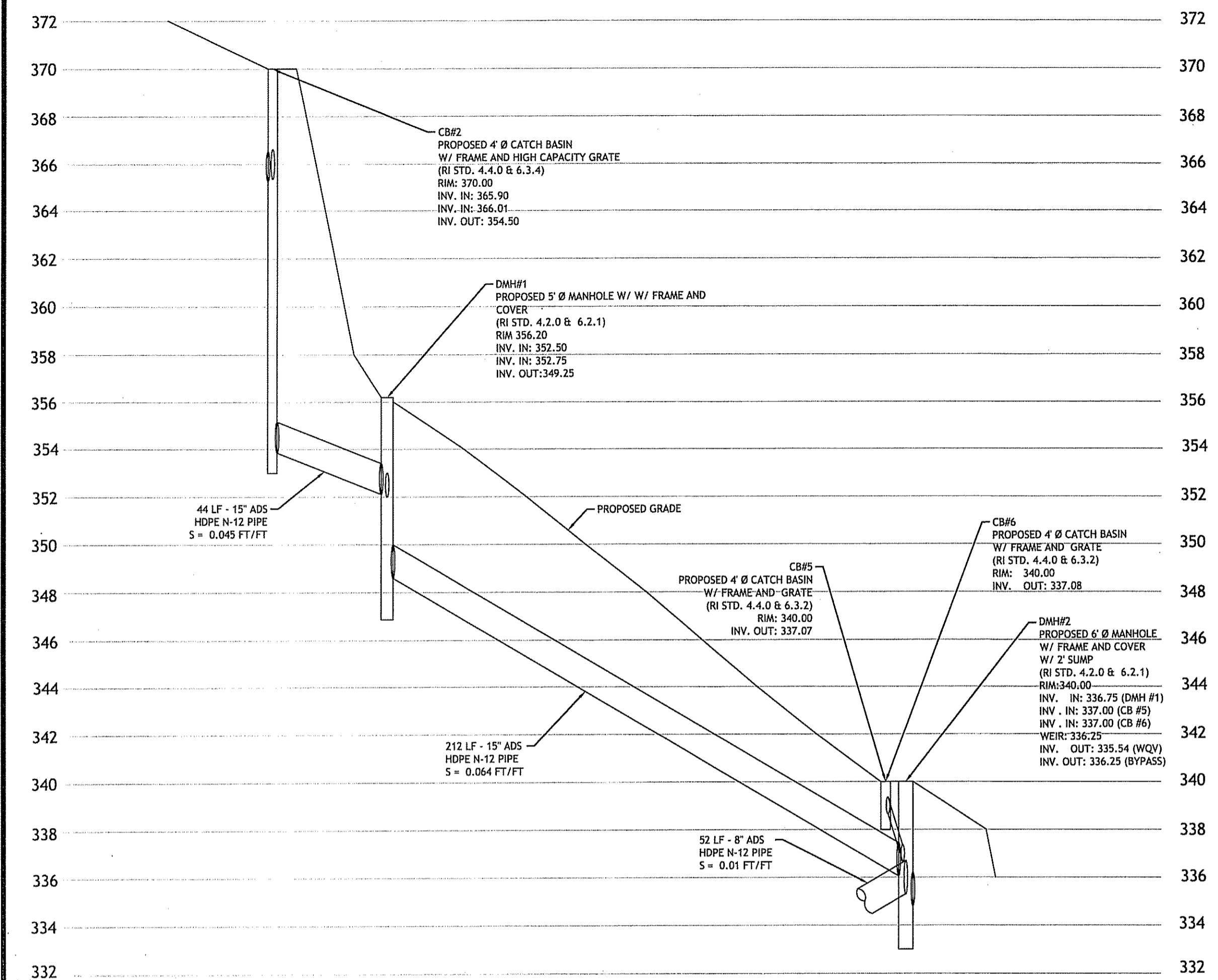
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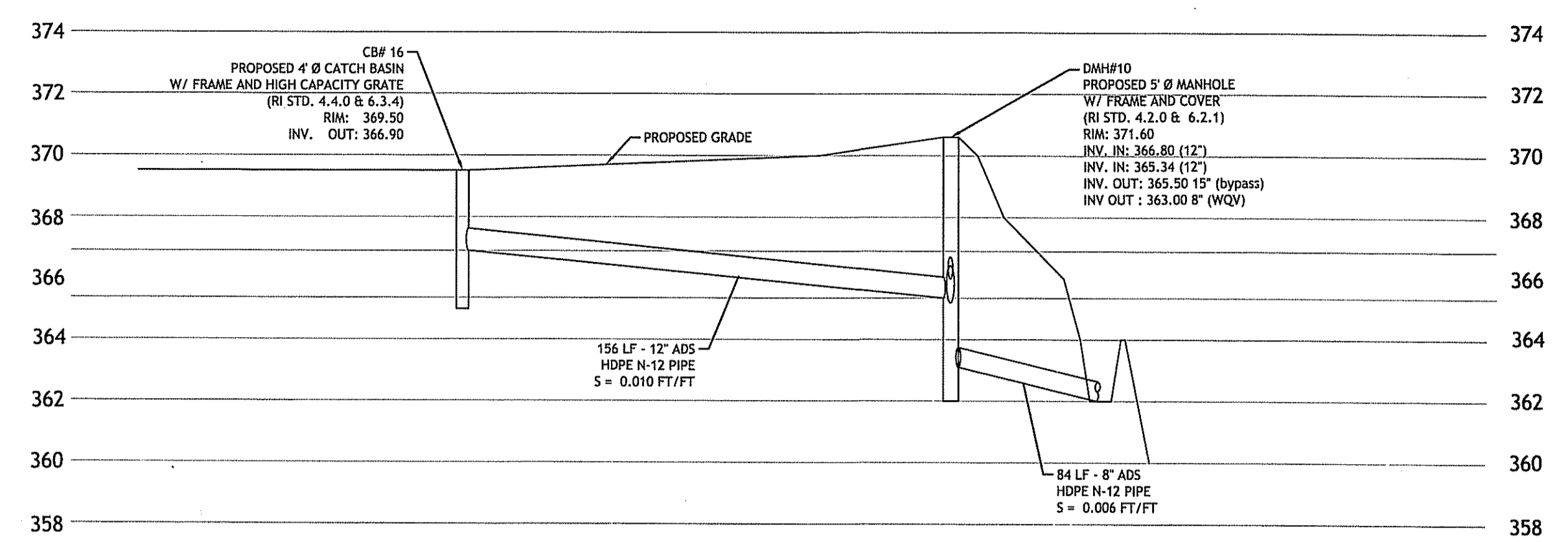
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DRAWN BY: GEC  
CHECKED BY: JAC  
DATE: NOV. 2014  
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PRELIMINARY, NOT FOR CONSTRUCTION

**DETAILS III**

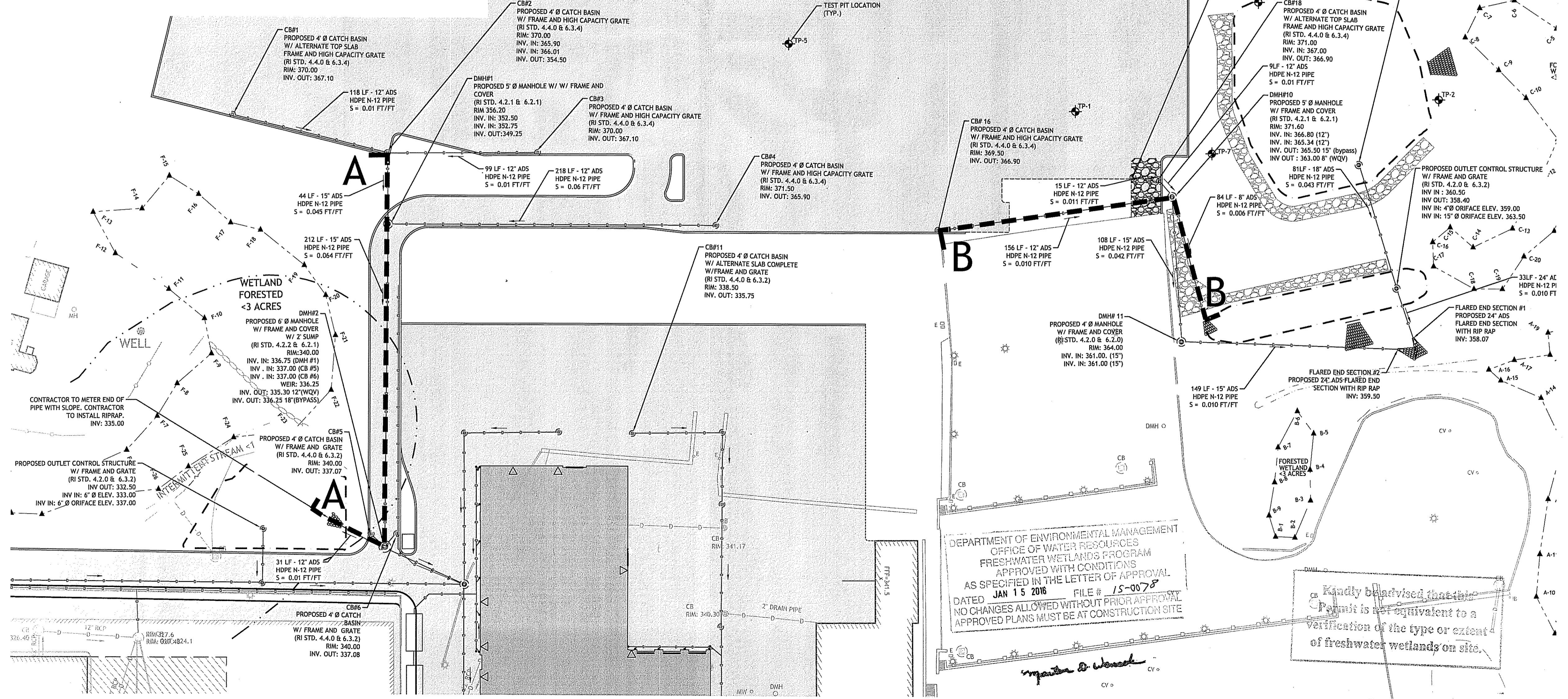


DRAINAGE PROFILE A-A  
HORIZONTAL SCALE: 1" = 40'  
VERTICAL SCALE: 1" = 4'



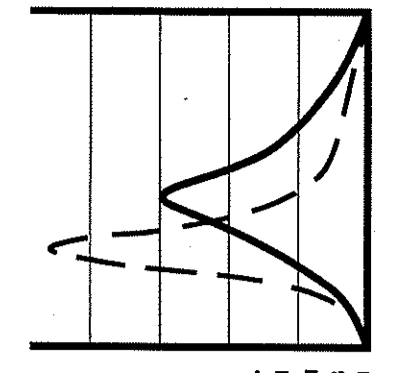
DRAINAGE PROFILE B-B  
HORIZONTAL SCALE: 1" = 40'  
VERTICAL SCALE: 1" = 4'

Environmental Management  
DEC 18 2015  
Office of Water Resources



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
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Kandy advised that this  
permit is not equivalent to a  
verification of the type or extent  
of freshwater wetlands on site.



**JOCE**  
JOE CASALI ENGINEERING, INC.  
CIVIL, SITE DEVELOPMENT, TRANSPORTATION  
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(601) 944-1200 (601) 944-1317 FAX WWW.JOCE.COM

JOSEPH A. CASALI  
No. 1250  
REGISTERED  
PROFESSIONAL ENGINEER  
CIVIL  
12.15.15

**ANCHOR SUBARU**  
EDDIE DOWLING HIGHWAY  
NORTH SMITHFIELD, RHODE ISLAND  
AP 17, LOTS 14, 16, 80, 84, 85, 142, 167, 199 & 231

REVISIONS:

NO.	DATE	DESCRIPTION
1	7/2015	RIDEM Comments
2	12/16/2015	RIDEM Comments

DESIGNED BY: GEC/JH  
DRAWN BY: GEC  
CHECKED BY: JAC  
DATE: NOV. 2014  
PROJECT NO: 03-47b

PRELIMINARY, NOT FOR CONSTRUCTION

**DRAINAGE PROFILES I**

**SHEET 13 OF 14**

