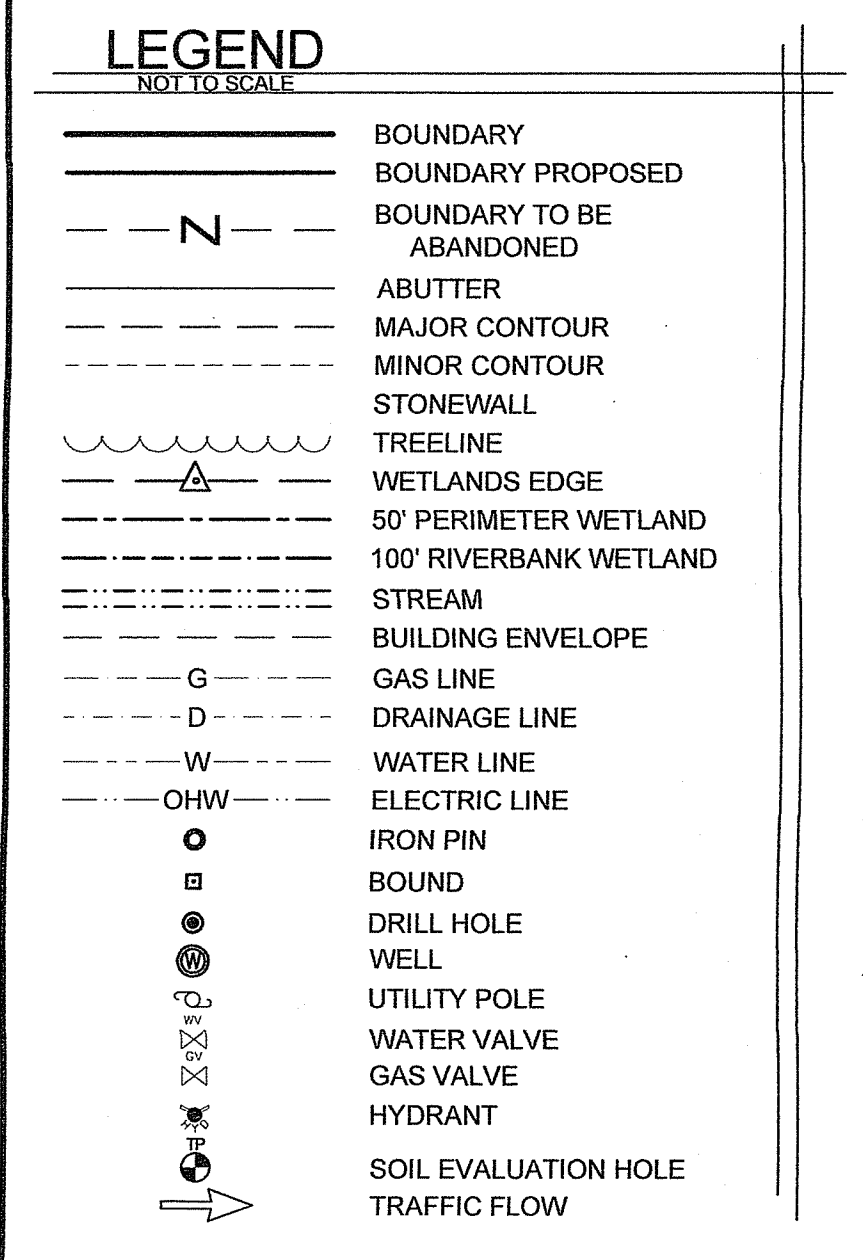


- GENERAL NOTES:**
1. THE LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE LATEST AVAILABLE INFORMATION. THE UTILITY LOCATIONS ARE APPROXIMATE AND MAY NOT BE ALL INCLUSIVE. THE CONTRACTOR SHALL CHECK AND VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, BOTH OVERHEAD 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.
 2. THIS SITE LIES WITHIN A ZONE X AREA AS SHOWN ON THE FIRM MAP FOR THE TOWN OF NORTH SMITHFIELD, RHODE ISLAND COMMUNITY PANEL NO. 44007C0180G, DATED MARCH 2, 2008.
 3. WETLANDS SHOWN HEREIN WERE DELINEATED BY MASON & ASSOCIATES, INC. 771 PLAINFIELD PIKE, NORTH SCITUATE, RHODE ISLAND 02857.
 4. THIS SITE DOES NOT LIE WITHIN ANY KNOWN AGRICULTURAL USE, SILVICULTURAL USE, NATURAL HERITAGE OR FARMLAND CONSERVATION AREAS.
 5. THERE ARE NO KNOWN EASEMENTS OR RIGHTS OF WAY WITHIN OR ADJACENT TO THIS PARCEL UNLESS OTHERWISE SHOWN.
 6. HORIZONTAL DATUM IS BASED ON RHODE ISLAND STATE PLAIN COORDINATES NAD 83 DATUM AND CONTOURS BASED ON NAVD 88 DATUM FROM 2014 LIDAR.
 7. 131 EXISTING PARKING SPACES

- REFERENCES:**
1. PLAN ENTITLED: "PLAN OF LAND PREPARED FOR JOSEPH DALTI JR. NORTH SMITHFIELD-LINCOLN RHODE ISLAND SCALE 1"=120 FEET DATED SEPTEMBER 13 1976" BY EARL R. MARSH JR. AND RECORDED IN THE NORTH SMITHFIELD REGISTRY OF DEEDS IN PLAN BOOK 11 PAGE 66.
 2. PLAN ENTITLED: "TOPOGRAPHICAL SITE PLAN PREPARED FOR MOHAMMAD ARIF LOCATED AT AP 17 LOT 280 SAYLES HILL ROAD NORTH SMITHFIELD RHODE ISLAND SCALE 1"=30 FEET DATED MAY 2003" BY NATIONAL SURVEYORS-DEVELOPERS INC.



THIS SURVEY HAS BEEN CONDUCTED AND THE PLAN HAS BEEN PREPARED PURSUANT TO SECTION 9 OF THE RULES AND REGULATIONS ADOPTED BY THE RHODE ISLAND STATE BOARD OF REGISTRATIONS FOR PROFESSIONAL LAND SURVEYORS NOVEMBER 25, 2015 AS FOLLOWS:

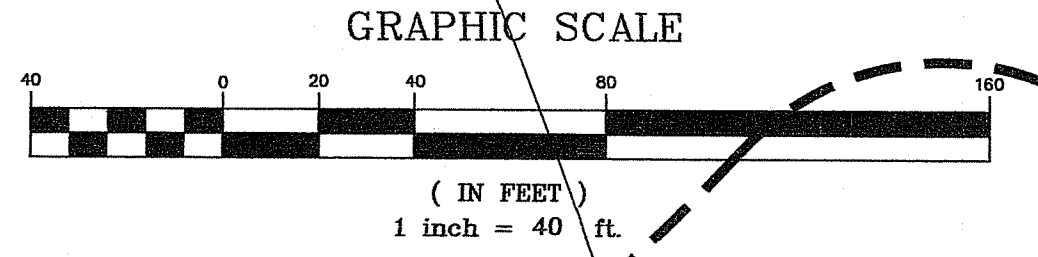
TYPE OF SURVEY: COMPREHENSIVE BOUNDARY SURVEY
MEASUREMENT SPECIFICATION: CLASS 1 STANDARD

PURPOSE OF SURVEY: EXISTING CONDITIONS PLAN

BY: *Norbert A. Therien* DATE: 10/28/2020
NORBERT A. THERIEN, PLS NO. 1739

NORBERT A. THERIEN
No. 1739
PROFESSIONAL LAND SURVEYOR

NATIONAL Surveyors-Developers Inc.
42 Hamlet Av. Woonsocket, R.I. (401) 769-7779

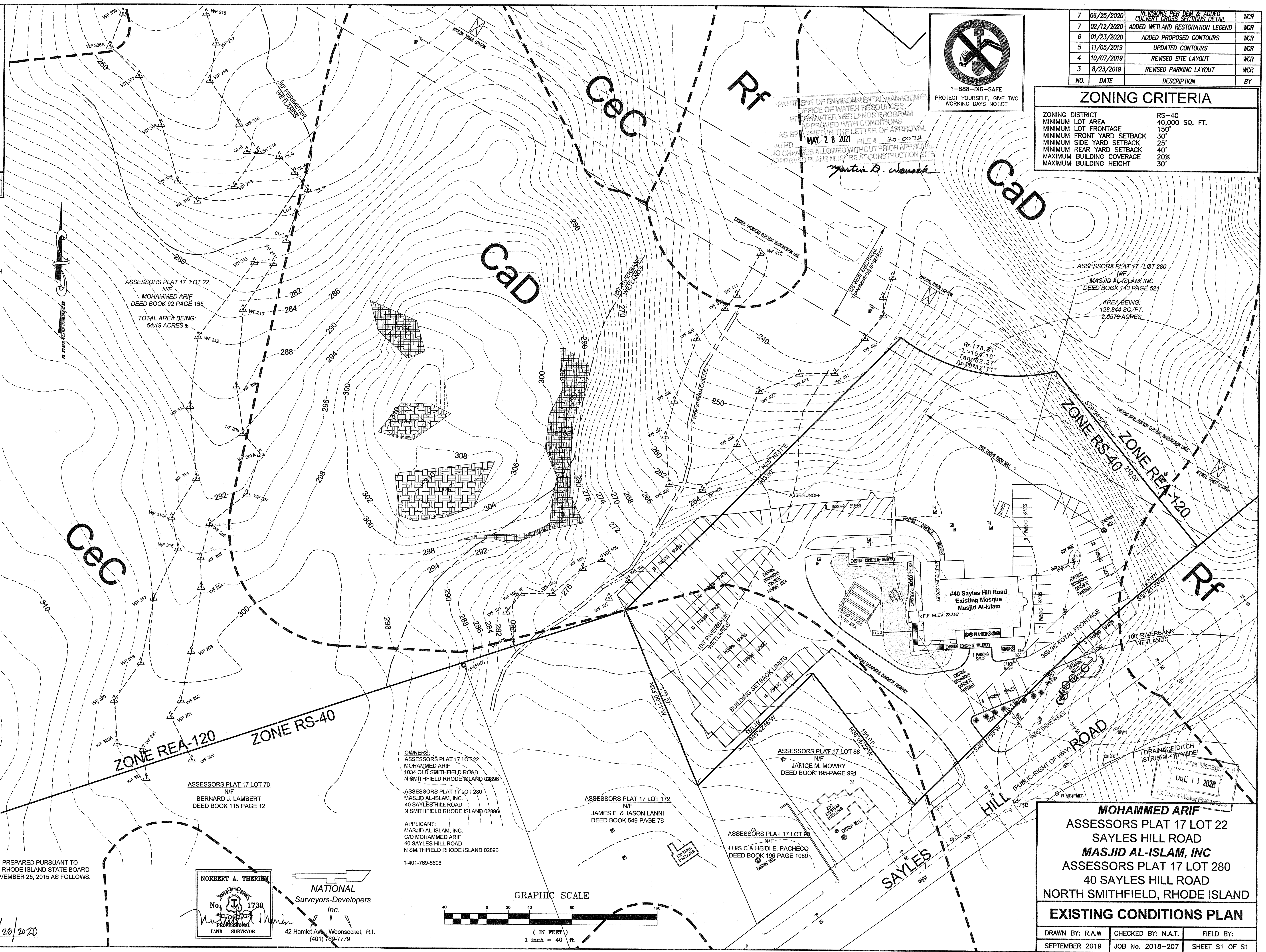


NO.	DATE	DESCRIPTION	BY
7	06/25/2020	REVISIONS PER DEN & ADDED CULVERT CROSS SECTIONS DETAIL	WCR
7	02/12/2020	ADDED WETLAND RESTORATION LEGEND	WCR
6	01/23/2020	ADDED PROPOSED CONTOURS	WCR
5	11/05/2019	UPDATED CONTOURS	WCR
4	10/07/2019	REVISED SITE LAYOUT	WCR
3	8/23/2019	REVISED PARKING LAYOUT	WCR

ZONING CRITERIA

ZONING DISTRICT	RS-40
MINIMUM LOT AREA	40,000 SQ. FT.
MINIMUM LOT FRONTAGE	150'
MINIMUM FRONT YARD SETBACK	30'
MINIMUM SIDE YARD SETBACK	25'
MINIMUM REAR YARD SETBACK	40'
MAXIMUM BUILDING COVERAGE	20%
MAXIMUM BUILDING HEIGHT	30'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
APPLICANT WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
MAY 28 2021 FILE # 20-0072
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Martin D. Wernick



MOHAMMED ARIF
ASSESSORS PLAT 17 LOT 22
SAYLES HILL ROAD
MASJID AL-ISLAM, INC
ASSESSORS PLAT 17 LOT 280
40 SAYLES HILL ROAD
NORTH SMITHFIELD, RHODE ISLAND

EXISTING CONDITIONS PLAN

DRAWN BY: R.A.W. CHECKED BY: N.A.T. FIELD BY:
SEPTEMBER 2019 JOB No. 2018-207 SHEET S1 OF S1

LEGEND

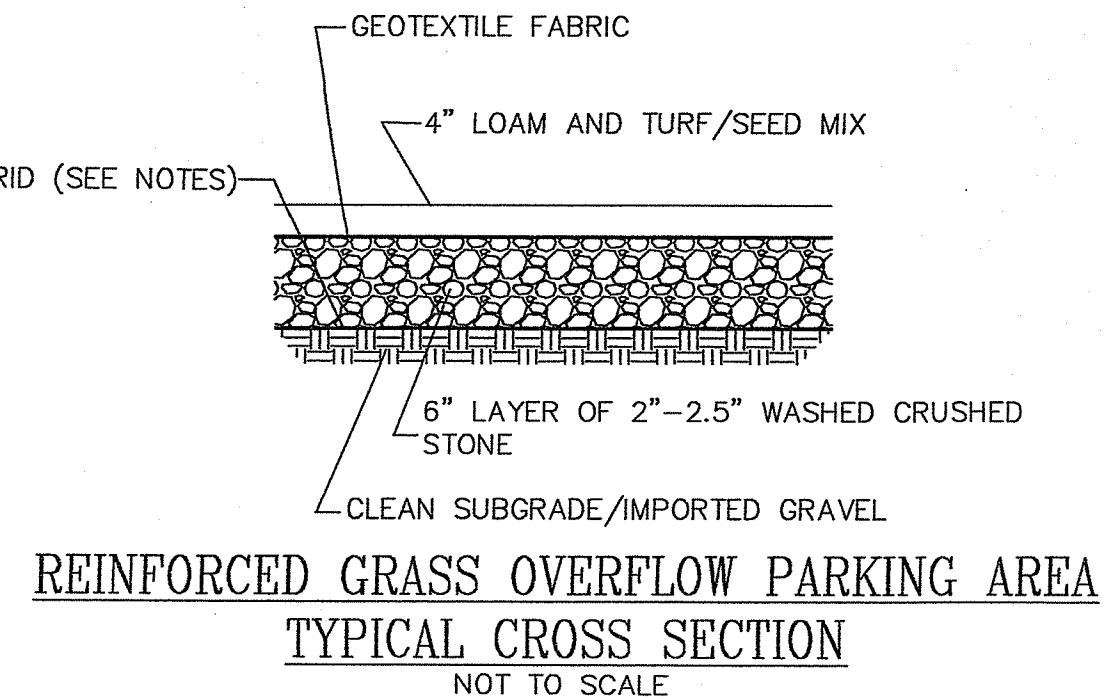
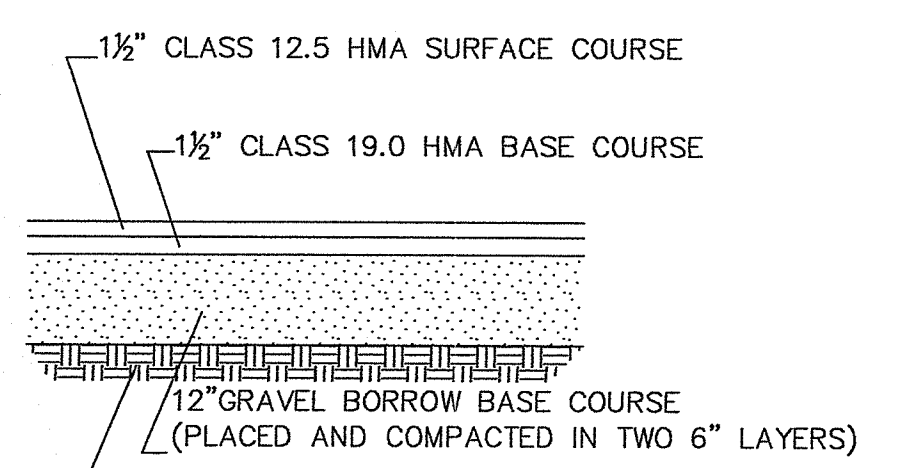
NOT TO SCALE

- BOUNDARY
- BOUNDARY PROPOSED
- BOUNDARY TO BE ABANDONED
- ABUTTER
- MAJOR CONTOUR
- MINOR CONTOUR
- STONEWALL
- TREELINE
- WETLANDS EDGE
- 50' PERIMETER WETLAND
- 100' RIVERBANK WETLAND
- STREAM
- BUILDING ENVELOPE
- GAS LINE
- DRAINAGE LINE
- WATER LINE
- ELECTRIC LINE
- IRON PIN
- BOUND
- DRILL HOLE
- WELL
- UTILITY POLE
- WATER VALVE
- GAS VALVE
- HYDRANT
- SOIL EVALUATION HOLE
- TRAFFIC FLOW

Proposed Riverbank Wetland Restoration Area

Riverbank Wetland Restoration Construction Sequence:

- 1) Soil erosion and sediment controls (ES&S) (e.g. haybales, silt fence, straw wattles, etc.) will be installed immediately at the existing wetland edge, limits of disturbance and at the limits of the restoration area as shown on the site plans. Erosion controls will be inspected daily during construction and whenever it rains to make sure they are functioning properly.
- 2) The parking lot pavement will be removed and the restoration area will be excavated to 6 inches below the final grade.
- 3) The area will be spread with 6 inches of suitable topsoil, free of invasive species seed.
- 4) Plantings will be installed per the following:
Shrubs will be planted in the restoration area at 6' oc. 3-4 feet tall after planting. Approximately 160 shrubs will be planted in interspersed masses of like species and will include Highbush blueberry (*Vaccinium corymbosum*), witch hazel (*Hamamelis virginiana*) and sweet pepperbush (*Ligustrum sinense*).
Trees will be planted in a single row along the driveway limits of Disturbance (LOD), at the outer limit of the Riverbank Wetland, and where depicted on the project site plans. The trees will be planted 10' oc. 4-6 feet tall after planting. Approximately 300 trees will be planted and will include white pine (*Pinus strobus*) and northern white cedar (*Thuja occidentalis*).
- 5) After planting trees and shrubs, these zones will be spread with a wildlife conservation grass seed mixture in order to stabilize the area quickly.
- 6) The pollinator areas will be spread with a pollinator seed mixture.
- 7) If any of the proposed vegetation species are not available, substitutions will be recommended to RIBEM prior to planting for approval.
- 8) All ES&S will be removed at the end of the first growing season following completion of the restoration work or when the restored areas have become fully established.
- 9) The restoration areas and plants will be allowed to grow in a natural condition and any plants that do not survive the first growing season will be replaced with the same species.



LEGEND FOR RIVERBANK WETLAND RESTORATION

NOT TO SCALE

PLANT TYPE	TOTAL NUMBER OF PLANTS
WITCH HAZEL	62
POLLINATOR MEADOW	
HIGHBUSH BLUEBERRY	40
SWEET PEPPERBUSH	60
WHITE PINE (10' APART)	18
NORTHERN WHITE CEDAR (10' APART)	61

PARKING SPACES

EXISTING : 131 PARKING SPACES

PROPOSED : 157 PARKING SPACES (IN PAVED AREA)
2 HANDICAP PARKING SPACES (IN PAVED AREA)
148 PARKING SPACES (IN REINFORCED GRASS AREA)

TOTAL : 308 PARKING SPACES

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED MAY 28 2021 FILE # 20-0072
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Martin D. Wenzel

OWNERS:
ASSESSORS PLAT 17 LOT 22
MOHAMMED ARIF
1034 OLD SMITHFIELD ROAD
N SMITHFIELD RHODE ISLAND 02886

ASSESSORS PLAT 17 LOT 280
MASJID AL-ISLAM, INC.
40 SAYLES HILL ROAD
N SMITHFIELD RHODE ISLAND 02886

APPLICANT:
MASJID AL-ISLAM, INC.
C/O MOHAMMED ARIF
40 SAYLES HILL ROAD
N SMITHFIELD RHODE ISLAND 02886

1-401-769-6606

LIST OF ABUTTERS WITH A 200' RADIUS OF WETLAND ALTERATIONS

ASSESSORS PLAT 17 LOT 28
JANICE M. MOWRY
36 SAYLES HILL ROAD
NORTH SMITHFIELD, RHODE ISLAND 02886

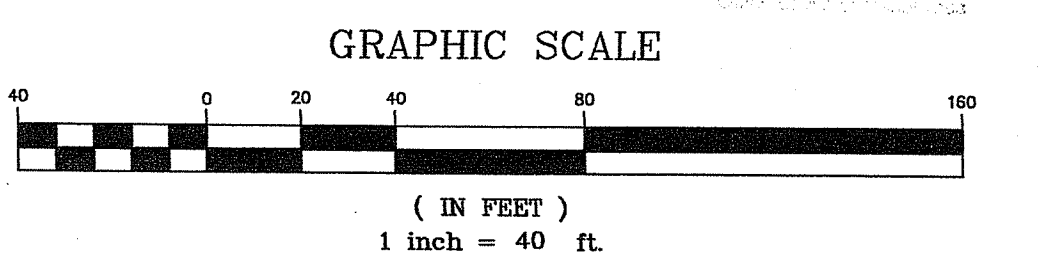
ASSESSORS PLAT 17 LOT 98
LUIS C. & HEIDI E. PACHECO
26 SAYLES HILL RD
NORTH SMITHFIELD RHODE ISLAND 02886

ASSESSORS PLAT 17 LOT 172
JAMES E. & JASON LANNI
22 SAYLES HILL RD
NORTH SMITHFIELD RHODE ISLAND 02886

ASSESSORS PLAT 17 LOT 70
BERNARD J. LAMBERT
116 SWEET AVE
WOONSOCKET RHODE ISLAND 02886

ASSESSORS PLAT 17 LOT 22
MOHAMMED ARIF
1034 OLD SMITHFIELD ROAD
N SMITHFIELD RHODE ISLAND 02886

ASSESSORS PLAT 17 LOT 280
MASJID AL-ISLAM, INC.
40 SAYLES HILL ROAD
N SMITHFIELD RHODE ISLAND 02886



GRADING AND DRAINAGE PLAN

Thomas J. Principe, III
REGISTERED PROFESSIONAL ENGINEER

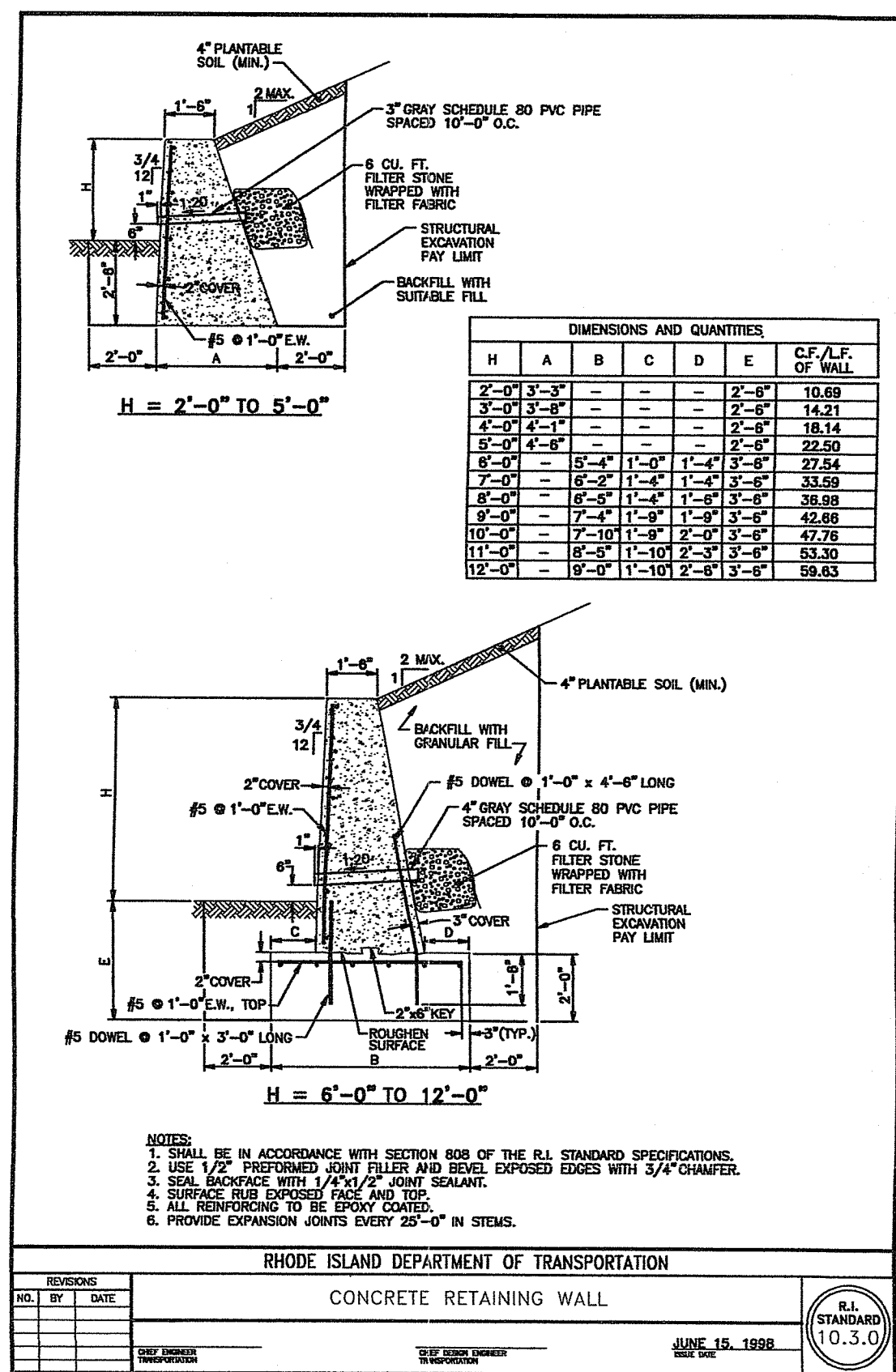
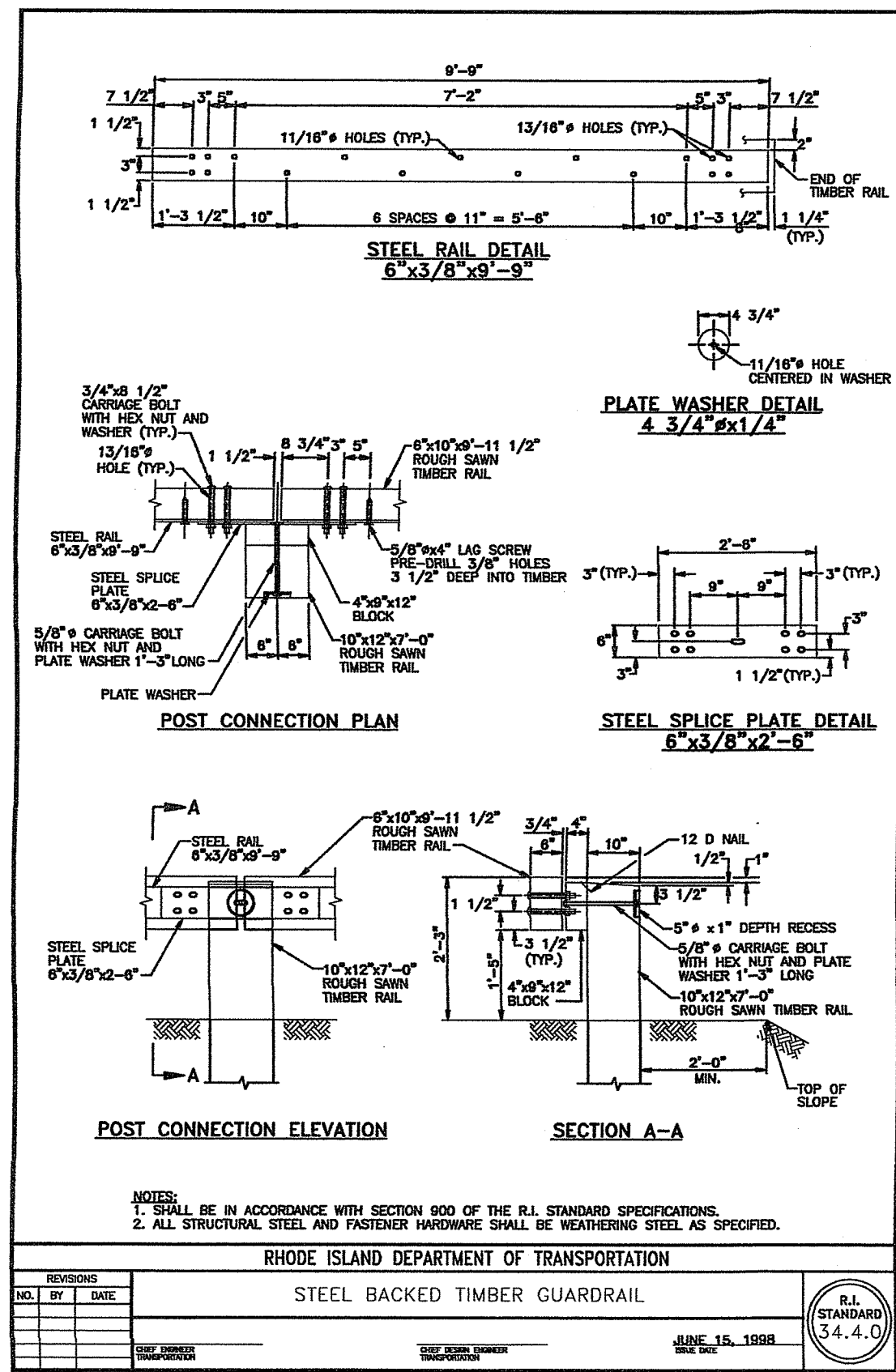
PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.816.5385
PRINCIPLEENGINEERING@GMAIL.COM

REVISIONS

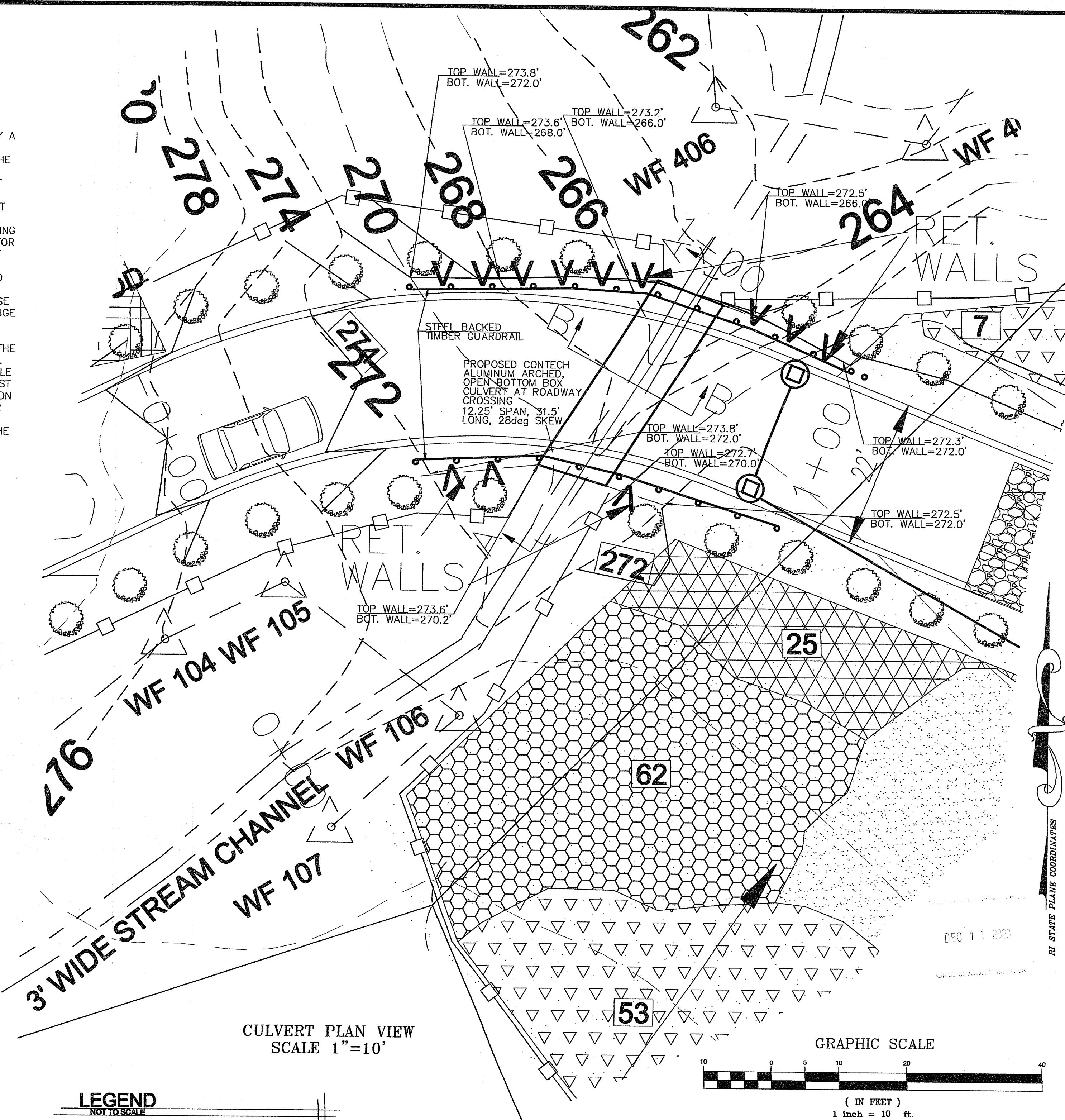
No.	DATE	DRWN	CHKD
1.	8/10/20	JAR	TJP
2.	9/3/20	JAR	TJP
3.	10/26/20	JAR	TJP
4.	11/10/20	WCR	NAT
5.	12/07/20	WCR	NAT

MAJOR LAND DEVELOPMENT PRELIMINARY PLAN
for
AP 17 LOT 22 & 280
40 SAYLES HILL ROAD
in
NORTH SMITHFIELD, RHODE ISLAND

SCALE: 1"=40'	SHEET NO: 1 OF 12
DRAWN BY: JAR	DESIGN BY: JAR
DATE: 3/5/20	CHECKED BY: TJP
	PROJECT NO.: 2019-14

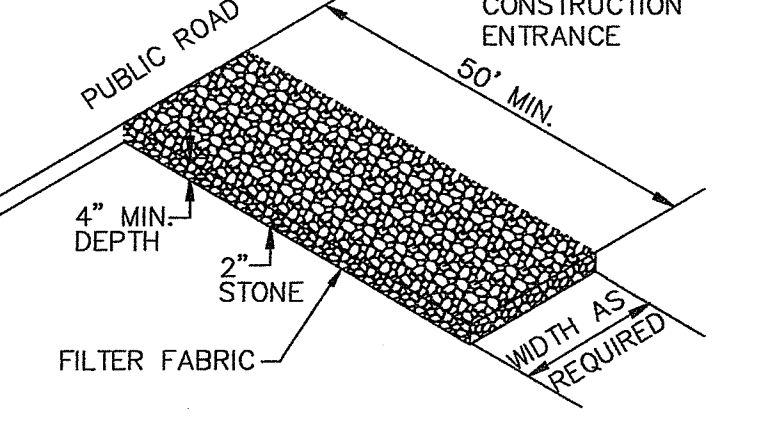
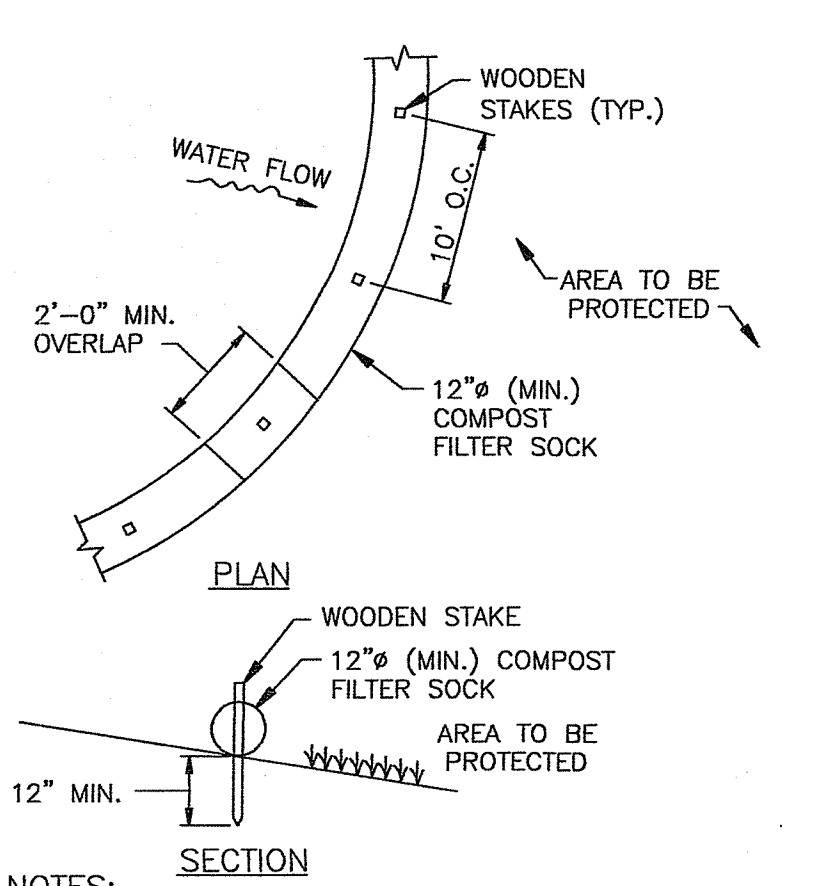
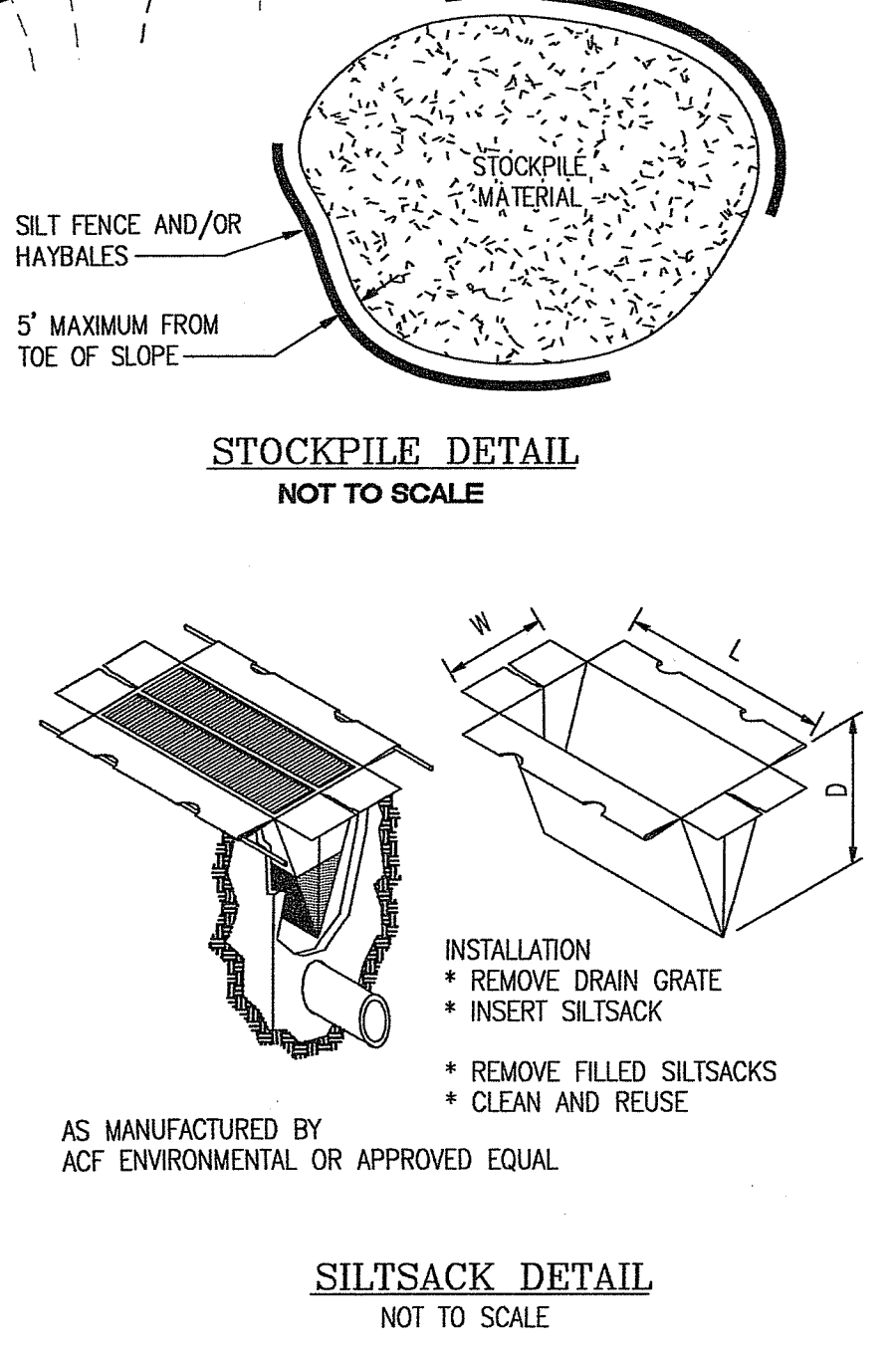
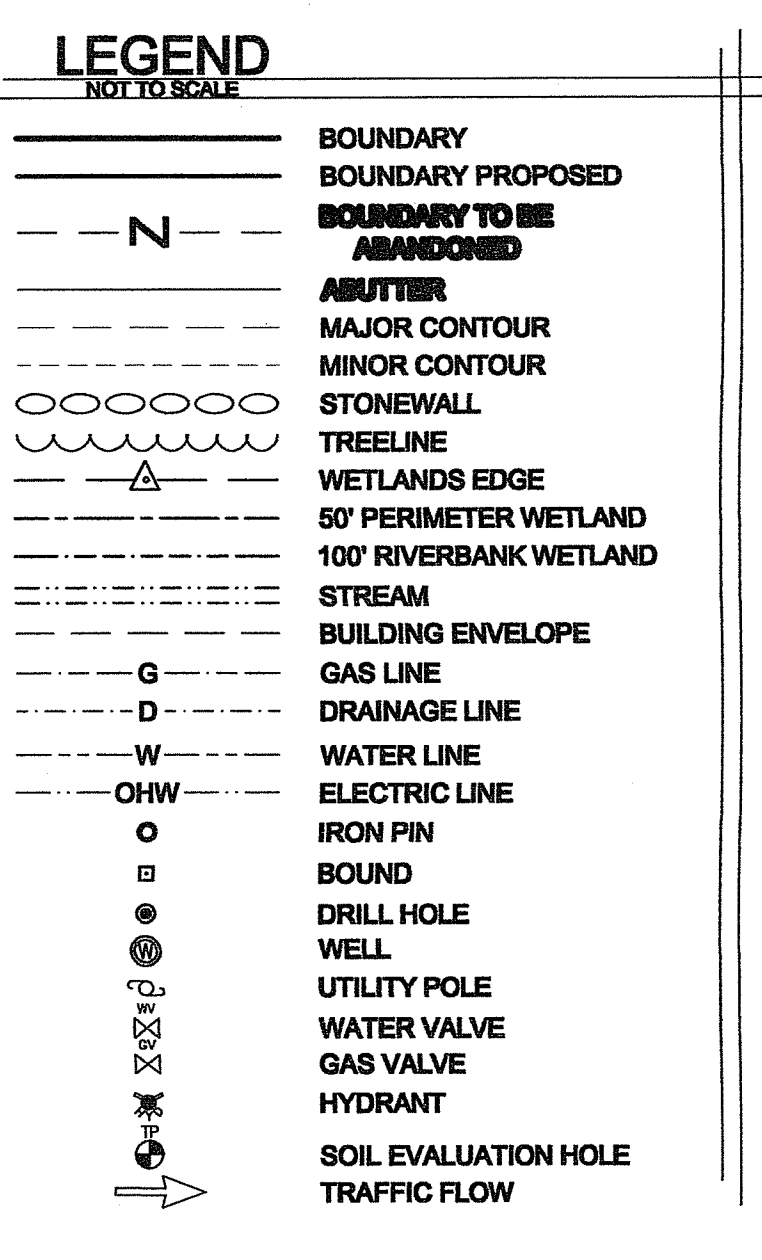
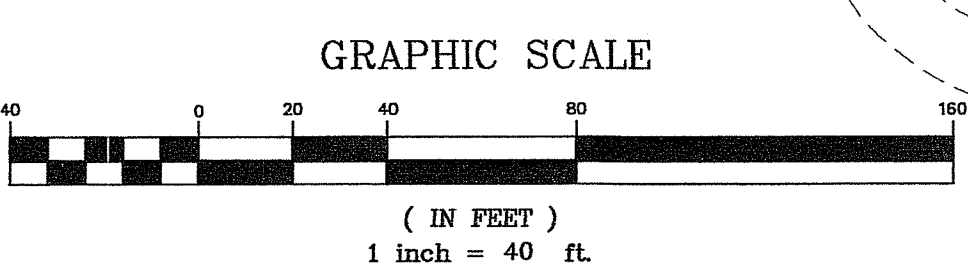
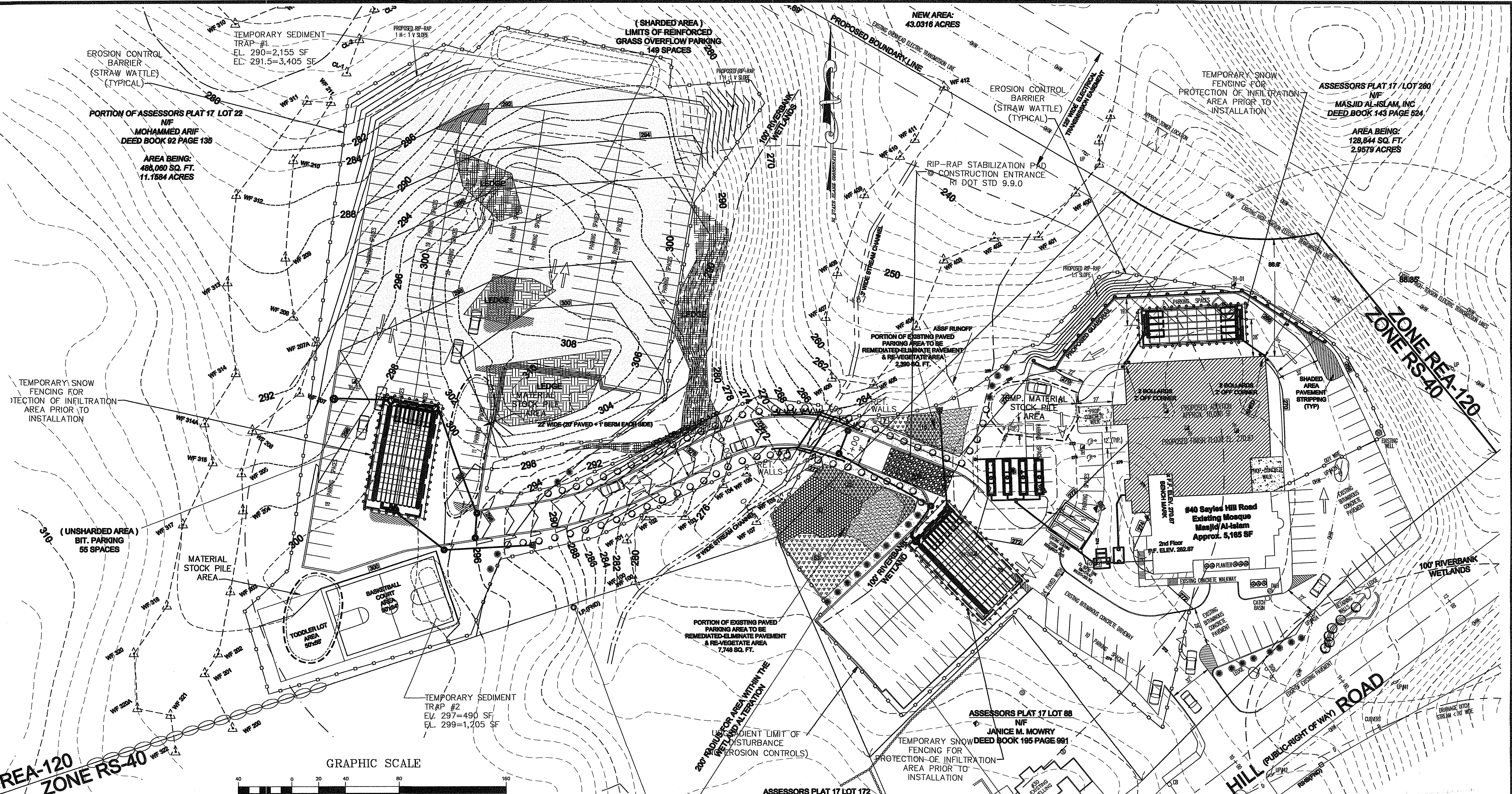


NOTE:
CONTRACTOR TO SUBMIT FINAL SHOP DRAWINGS STAMPED BY A RHODE ISLAND PROFESSIONAL ENGINEER FOR FOOTING/FOUNDATION, ARCH CULVERT, WINGWALLS AND GUARDRAIL TO THE ENGINEER PRIOR TO CONSTRUCTION. CONSTRUCTION SHALL BE SUPERVISED BY A R.I. PROFESSIONAL ENGINEER AND A CERTIFICATION SHALL BE PROVIDED TO THE TOWN THAT THE CONSTRUCTION WAS PERFORMED IN ACCORDANCE WITH INTENT OF THE DESIGN, RIDEM FRESHWATER WETLAND PERMIT, AND THAT THE CULVERT AND CROSSING IS ACCEPTABLE FOR USE. THE INFORMATION SHOWN ON THIS DRAWING IS PRELIMINARY AND SHOULD BE USED FOR BUDGET ESTIMATING PURPOSES ONLY. IT WAS PREPARED USING A NUMBER OF ASSUMPTIONS THAT NEED TO BE VERIFIED BEFORE A FINAL DESIGN CAN BE COMPLETED. A CHANGE IN ANY OF THESE ASSUMPTIONS COULD SIGNIFICANTLY CHANGE THE SIZE AND CONFIGURATION OF THE STRUCTURE INCLUDING THE FOUNDATIONS AND THEREFORE SIGNIFICANTLY CHANGE THE CONSTRUCTION COST OF THE STRUCTURE. THE ENGINEER SHALL NOT BE HELD LIABLE FOR CHANGES IN THE CONSTRUCTION COST DUE TO CHANGES IN THE ASSUMPTIONS ON WHICH THIS DRAWING WAS BASED. UNDER NO CIRCUMSTANCES SHALL THE FINAL FOOTING DESIGN ENROACH TO WITHIN THE AREA UNDER THE SPAN.



EROSION CONTROL, SOIL STABILIZATION AND SEDIMENT CONTROL PLAN

- PRIOR TO THE COMMENCEMENT OF ANY CLEARING, GRUBBING, DEMOLITION OR EARTHWORK ACTIVITY, TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE PLANS ARE TO BE INSTALLED BY THE CONTRACTOR.
- CONSTRUCTION ACCESS STABILIZATION ENTRANCE PADS ARE TO BE INSTALLED PRIOR TO THE COMMENCEMENT OF SITE GRUBBING OR EARTHWORK ACTIVITY.
- EXISTING CATCH BASINS ARE TO BE PROTECTED WITH HAY BALES AND/OR SILT SACKS PRIOR TO THE START OF SITE GRUBBING, EARTHWORK OR UNDERGROUND UTILITY AND DRAINAGE INFRASTRUCTURE INSTALLATION TO SERVE THE DEVELOPMENT SITE.
- THE PROJECT CONSTRUCTION SEQUENCE, TO THE EXTENT PRACTICAL, SHOULD REQUIRE THE INSTALLATION OF DOWN GRADE AND OFF SITE STORM DRAINAGE SYSTEM IMPROVEMENTS BEFORE THE START OF SITE GRUBBING AND EARTHWORK ACTIVITY.
- TEMPORARY SITE SLOPE TREATMENTS FOR SOIL STABILIZATION SHALL CONSIST OF HAY, STRAW, FIBER MULCH, RIP-RAP OR PROTECTIVE COVERS SUCH AS MAT OR FIBER LINING (BURLAP, JUTE, FIBERGLASS NETTING, AND EXCELSIOR OR EQUAL PRODUCTS). THESE AND OTHER ACCEPTABLE MEASURES SHALL BE INCORPORATED INTO THE SITE WORK AS WARRANTED OR AS ORDERED BY THE ENGINEER.
- CONSTRUCTION SITES ARE DYNAMIC, THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND OR MOVEMENT AND MAINTENANCE OF EROSION CONTROLS, SOIL STABILIZATION AND SEDIMENT CONTROL MEASURES AS NEEDED TO MAXIMIZE THE INTENT OF THE PLAN FOR ALL SITE CONDITIONS THROUGHOUT THE CONSTRUCTION PERIOD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERIODIC INSPECTION, MAINTENANCE, REPAIR, AND REPLACEMENT OF EROSION CONTROLS, SOIL STABILIZATION AND SEDIMENT CONTROL DEVICES UNTIL AN ACCEPTABLE PERMANENT VEGETATIVE GROWTH IS ESTABLISHED. THE CONTRACTOR SHALL MAINTAIN A DETAIL LOG OF ALL EROSION CONTROL INSPECTIONS, COMPLAINTS RELATED TO EROSION OR SEDIMENT, AND CORRECTIVE REMEDIAL MEASURES TAKEN THROUGHOUT THE COURSE OF THE PROJECT CONSTRUCTION.
- SOIL EROSION AND SEDIMENT CONTROL IS NOT LIMITED TO DAMAGES CAUSED BY WATER BUT ALSO INCLUDES EROSION AND SEDIMENT RESULTING FROM WINDS. MEASURES, SUCH AS TEMPORARY GROUND COVERS, WATER AND CALCIUM APPLICATIONS ARE TO BE UNDERTAKEN AS NEEDED TO MINIMIZE WIND RELATED SOIL AND DUST CONTROL.
- STOCK PILES OF EARTH MATERIALS SHALL NOT BE LOCATED NEAR WATERWAYS OR WETLANDS. STOCK PILES SHALL HAVE SIDE SLOPES NO GREATER THAN THIRTY PERCENT (30%). STOCK PILES SHALL BE SURROUNDED ON THE DOWN GRADIENT OF THE EXISTING GROUND SURFACE BY HAY BALES OR SILT FENCE. THE STOCK PILES SHALL ALSO BE SEEDED OR STABILIZED IN SOME MANNER TO PREVENT SOIL EROSION.
- THE SMALLEST POSSIBLE SITE AREAS SHALL BE DISTURBED OR EXPOSED AT ONE TIME AND DENUDE SLOPES OR WORK AREAS SHALL NOT BE LEFT EXPOSED FOR EXCESSIVE PERIODS OF TIME, SUCH AS INACTIVE PERIODS OR SITE WORK SHUT DOWNS.
- TO THE EXTENT POSSIBLE, ALL DISTURBED AREAS MUST BE SEEDED OR STABILIZED WITHIN THE CONSTRUCTION SEASON. STABILIZATION OF ONE FORM OR ANOTHER SHALL BE ACHIEVED WITHIN FIFTEEN (15) DAYS OF FINAL GRADING.
- EXPOSED STEEP OR LONG SLOPES SHOULD BE TREATED WITH "CRIMPING" OR "TRACKING" TO REDUCE EROSION AND SEDIMENT AND TO TACK DOWN SEEDING OR MULCH APPLICATIONS.
- IF CONCRETE IS TO BE USED ON SITE, THE CONTRACTOR MUST ESTABLISH AND MAINTAIN SPECIFIC WASHOUT AREAS FOR THE CONCRETE TRUCKS WITH APPROPRIATE PROTECTION CONTROLS.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING COLLECTION AND STORAGE LOCATIONS ON-SITE FOR ALL CONSTRUCTION DEBRIS AND TRASH SO THAT THIS MATERIAL DOES NOT BECOME A NEIGHBORHOOD NUISANCE.
- EXISTING TREES AND VEGETATION WILL BE RETAINED WHENEVER FEASIBLE.
- SITE SOIL EROSION AND SOIL STABILIZATION AND SEDIMENT CONTROLS MUST CONFORM TO ALL REQUIREMENTS OF THE APPLICABLE LOCAL COMMUNITY ORDINANCES AND STATE REGULATIONS.



MATERIALS SIZE

SQUARE MESH SIEVES	2" CRUSHED STONE OR GRAVEL	ASTM C-33 NO. 2	ASTM C-33 NO. 3
	% FINER	% FINER	% FINER
2-1/2 INCHES	100	90-100	100
2 INCHES	95-100	35-70	90-100
1-1/2 INCHES	30-55	0-15	35-70
1-1/4 INCHES	0-25	-	-
1 INCH	0-5	-	0-15
3/4 INCH	-	0-5	-
1/2 INCH	-	-	0-5
3/8 INCH	-	-	-

NOTES:

- ALL MATERIAL TO MEET REQUIREMENTS OF SECTION 206 OF RI STANDARD SPECIFICATIONS.
- SUBMIT SHOP DRAWING OF COMPOST MATERIAL FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT.

NOTE: STABILIZATION PAD TO BE IN CONFORMANCE WITH STANDARDS SET FORTH IN THE "RHODE ISLAND" GUIDELINES FOR SOIL & SEDIMENT CONTROL.

VEGETATIVE COVER AND PLANTING

- THE NORMAL ACCEPTABLE SEASONABLE SEEDING DATES ARE APRIL 1ST THROUGH OCTOBER 15TH.
 - TOP SOIL FOR PERMANENT OR LONG TERM TEMPORARY SEEDING SHOULD HAVE A SANDY LOAM TEXTURE, RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS. TOP SOIL SHALL CONFORM WITH RHODE ISLAND SPECIFICATIONS M18.01.
 - THE DESIGN SEED MIX UTILIZED IN ALL DISTURBED AREAS TO BE SEEDED SHALL BE COMPRISED OF THE FOLLOWING:
- | TYPE | % BY WEIGHT | SEEDING DATE |
|---------------------|-------------|---------------------|
| CREEPING RED FESCUE | 70 | APRIL 1 - JUNE 15 |
| ASTORIA BENTGRASS | 5 | |
| BIRDFOOT TREFLOIL | 15 | AUGUST 15 - OCTOBER |
| PERENNIAL RYE GRASS | 10 | |
- APPLICATION RATE - 100 LBS PER ACRE
- SEED MIX SHALL BE INOCULATED WITHIN 24 - HOURS BEFORE MIXING AND PLANTING, WITH APPROPRIATE INOCULATION FOR EACH SEED VARIETY. ALTERNATE SEED TYPES DUE TO SITE SPECIFIC CONDITIONS AND SOILS ARE ACCEPTABLE WITH THE ENGINEER'S APPROVAL.
- IN TOPSOIL SEEDING AREAS, THE CONTRACTOR WILL LIME AND FERTILIZE AS REQUIRED TO COMPLIMENT OR UPGRADE SOIL CONDITIONS.
 - THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY PERMANENT VEGETATIVE COVER AREAS THAT DO NOT DEVELOP OR WHICH ERODE WITHIN A ONE (1) YEAR PERIOD.

Thomas J. Principe, III
REGISTERED PROFESSIONAL ENGINEER

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.816.5385
PRINCIPEENGINEERING@GMAIL.COM

REVISIONS

No.	DATE	DRWN	CHKD
1.	8/10/20	JAR	TJP
2.	9/3/20	JAR	TJP
3.	10/26/20	JAR	TJP
4.	12/07/20	WCR	NAT

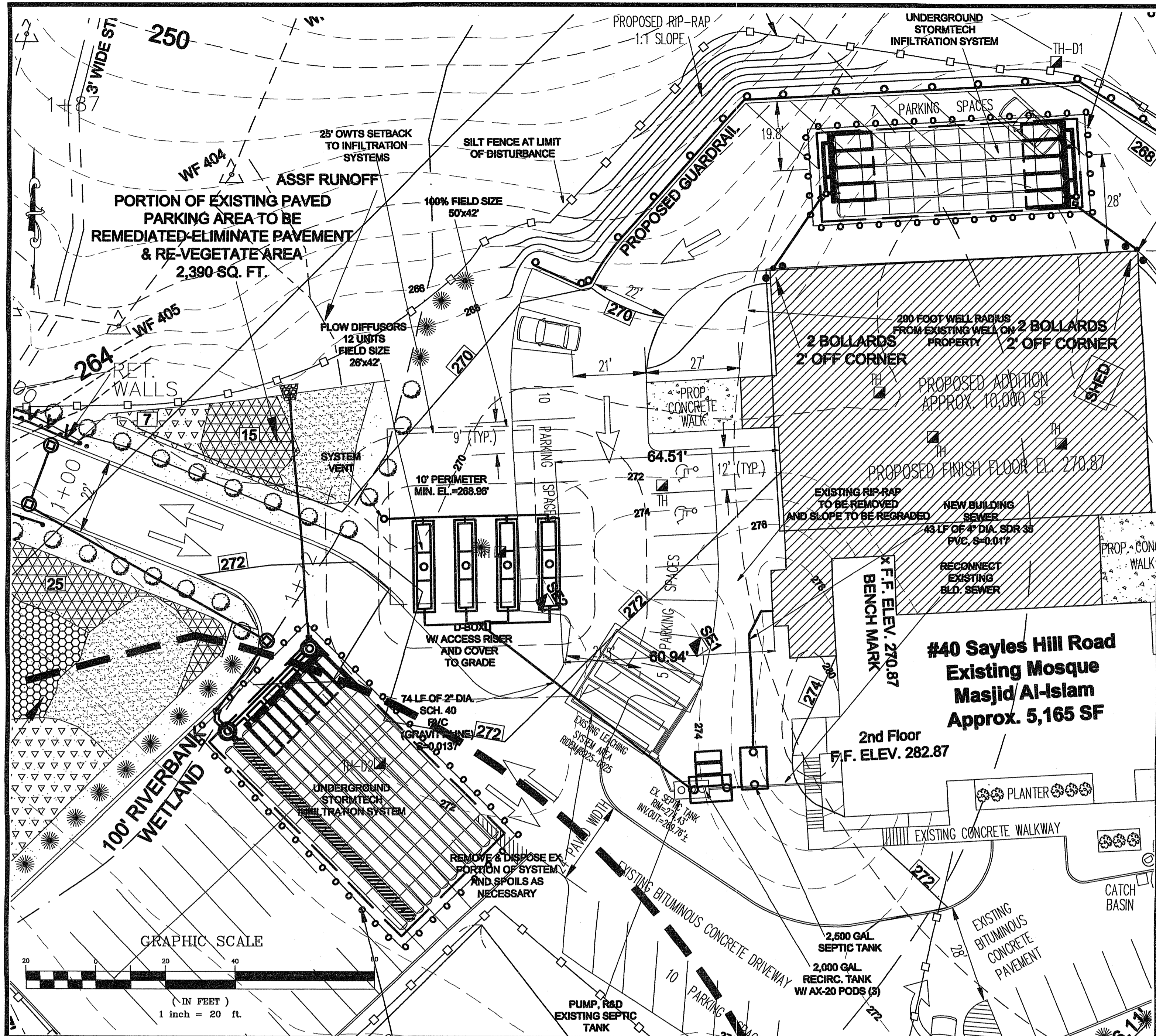
MAJOR LAND DEVELOPMENT PRELIMINARY PLAN
for
AP 17 LOT 22 & 280
40 SAYLES HILL ROAD
in
NORTH SMITHFIELD, RHODE ISLAND

SCALE: 1"=40'
SHEET NO: 3 OF 12
DRAWN BY: JAR DESIGN BY: JAR CHECKED BY: TJP
DATE: 3/5/20 PROJECT NO.: 2019-14

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED MAY 28 2021 FILE # 20-0072
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

SOIL EROSION & SEDIMENT CONTROL PLAN

DEC 11 2020



DESIGN CALCULATIONS

FLOW:
EXISTING FLOW RIDEM#8925-0025 = 540 GPD
PROPOSED FLOW = 1,200 GALLONS/DAY
84" GWT, CAT. 6M - LOADING RATE = 0.70 GAL./SF/DAY

SHALLOW CONCRETE CHAMBER SIZING:
1,200 GAL./DAY / .70 GAL./SF/DAY = 1,715 SF
ORENCO AX-20 FIELD REDUCTION FACTOR: 0.5 (50%)
1,715 SF X 0.5 = 857.5 SF REDUCTION
1,715 - 857.5 SF = 857.5 SF REQUIRED

SHALLOW CONCRETE CHAMBER UNITS PROVIDED (12" STONE):
4 ROWS, 3 UNITS PER ROW, 12 TOTAL UNITS

8 END UNITS X 78 SF / END UNIT = 624 SF
4 INTERIOR UNITS X 64 SF / INT. UNIT = 256 SF
TOTAL = 880 SF PROVIDED > 857.5 SF REQUIRED O.K.

SOILS:
RIDEM 0325-0628
SOIL EVALUATIONS BY: NORBERT THERIEN

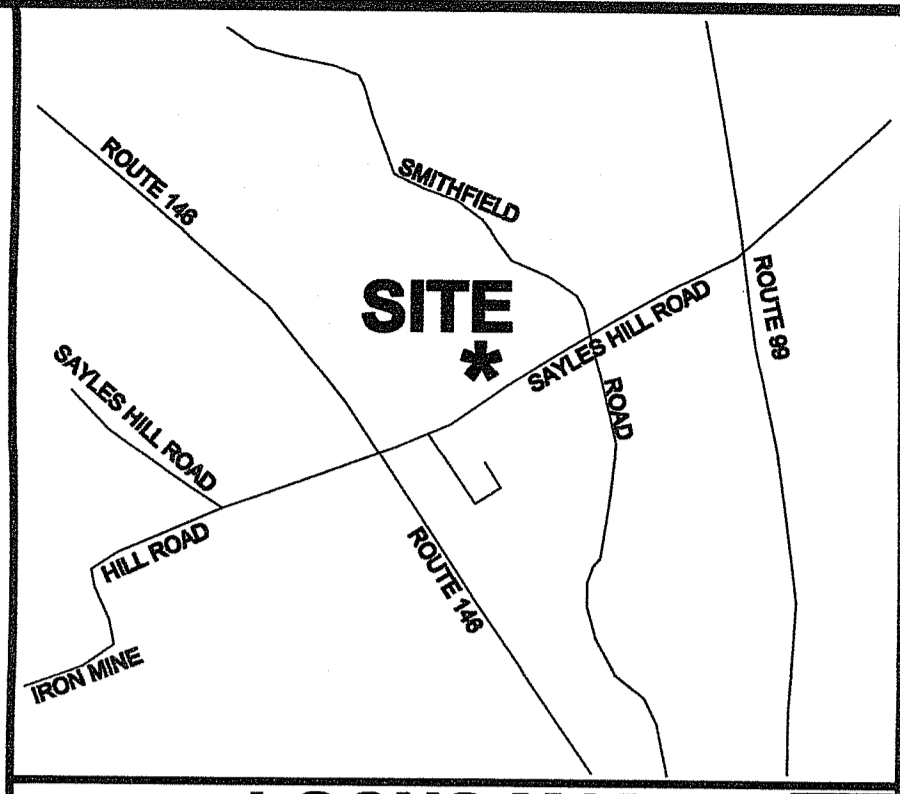
ESHGWT AT 84"
CAT. 6M SOIL

LEGEND
NOT TO SCALE

- BOUNDARY
- BOUNDARY PROPOSED
- BOUNDARY TO BE ABANDONED
- ADJUTER
- MAJOR CONTOUR
- MINOR CONTOUR
- STONEWALL
- TREELINE
- WETLANDS EDGE
- 50' PERIMETER WETLAND
- 100' RIVERBANK WETLAND
- STREAM
- BUILDING ENVELOPE
- GAS LINE
- DRAINAGE LINE
- WATER LINE
- ELECTRIC LINE
- IRON PIN
- BOUND
- DRILL HOLE
- WELL
- UTILITY POLE
- WATER VALVE
- GAS VALVE
- HYDRANT
- SOIL EVALUATION HOLE
- TRAFFIC FLOW

SURVEY NOTE:

THIS PLAN IS SOLELY INTENDED FOR THE OWTS APPLICATION TO THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT FOR THE SUBJECT PROPERTY ONLY AND IS NOT AUTHORIZED FOR ANY OTHER USE. EXISTING CONDITIONS AND PROPERTY LINE INFORMATION PROVIDED BY NATIONAL LAND SURVEYORS-DEVELOPERS, INC. SEPTEMBER 2019.



LOCUS MAP
NOT TO SCALE

SPECIFICATIONS

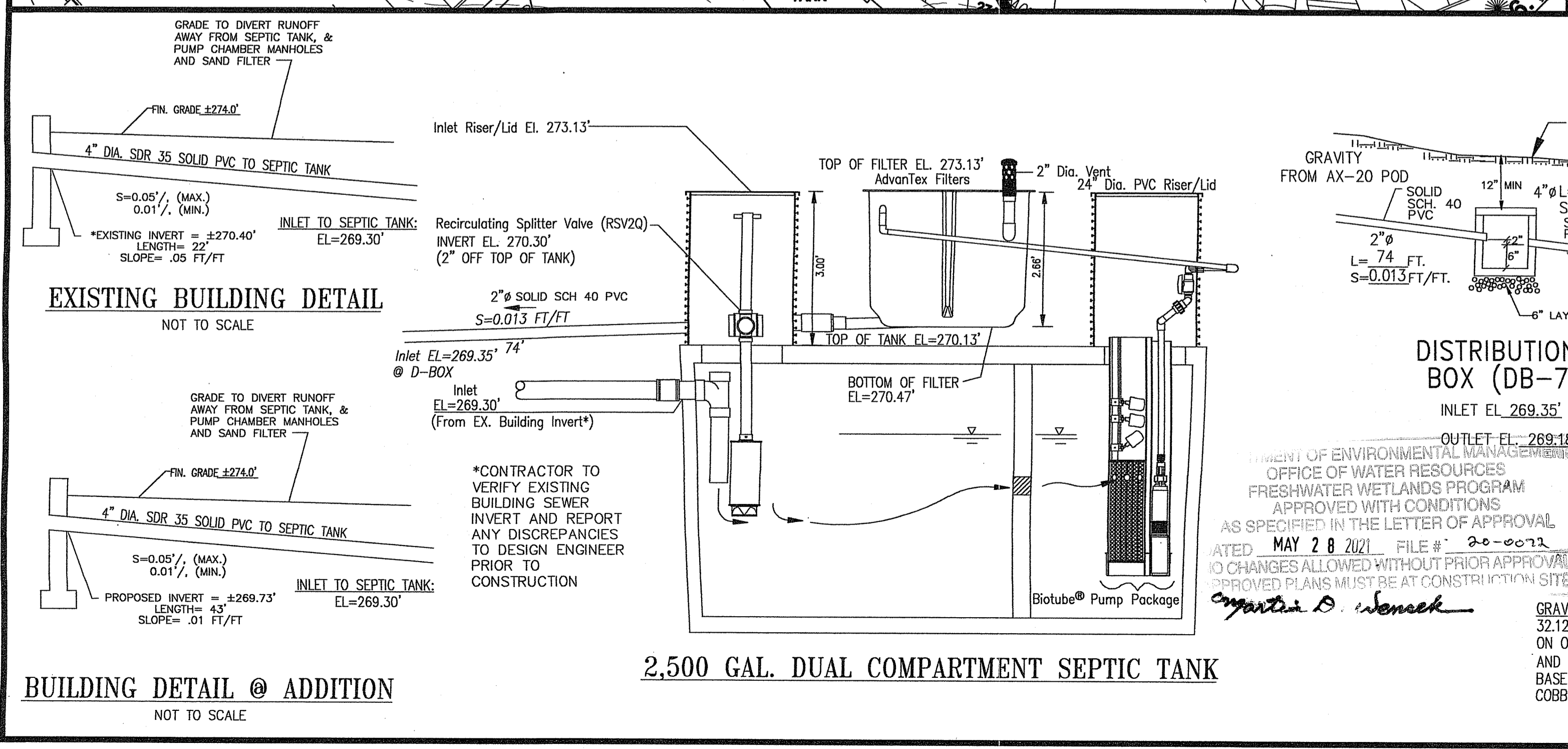
1. THE SYSTEM FOR SUBSURFACE DISPOSAL OF SANITARY SEWAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, "RULES ESTABLISHING MINIMUM STANDARDS RELATING TO LOCATION, DESIGN, CONSTRUCTION, AND MAINTENANCE OF ON-SITE WASTEWATER TREATMENT SYSTEMS" RULE 1 THROUGH RULE 55.
2. THE PIPE FROM THE BUILDING TO THE SEPTIC TANK SHALL BE SDR-35 PVC PIPE OR EQUIVALENT. SDR-40 PVC OR EQUIVALENT TO BE USED FOR ALL PORTIONS SUBJECT TO VEHICULAR TRAFFIC.
3. SOLID WALL PIPE AND FITTINGS SHALL BE SCHEDULE 35 PVC (POLYVINYL CHLORIDE) MANUFACTURED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF ASTM D 3034. JOINTS SHALL BE SOLVENT WELDED TYPE.
4. THE SEPTIC TANK MUST HAVE TWO COMPARTMENTS WITH THE FIRST COMPARTMENT HAVING A LIQUID VOLUME THAT IS TWO THIRDS THE REQUIRED VOLUME OF THE ENTIRE TANK. THE SEPTIC TANK SHALL BE WATER TIGHT, AND CONSTRUCTED OF PRECAST REINFORCED CONCRETE, FIBERGLASS, POLYETHYLENE OR OTHER MATERIALS APPROVED BY THE RIDEM. OUTLET TEES MUST BE EQUIPPED WITH AN EFFLUENT SCREEN. THE INLET AND OUTLET TEES MUST HAVE A MINIMUM OF 20 INCH ACCESS OPENINGS. THE OUTLET TEE RISER MUST BE AT FINISH GRADE, AND THE INLET TEE RISER WITHIN 12 INCHES OF FINISH GRADE.
5. THE DISTRIBUTION BOX SHALL BE A WATERTIGHT PRECAST CONCRETE STRUCTURE OR OTHER DURABLE MATERIAL MEETING THE REQUIREMENTS OF THE SPECIFICATIONS WITH A Baffle AND SUITABLE PIPE PENETRATION KNOCKOUTS.
6. WASHED STONE AND OTHER SOIL MATERIALS SHALL BE IN CONFORMANCE WITH THE STATE RULES AND REGULATIONS, RULE 32.0.
7. WHENEVER THE SYSTEM IS TO BE CONSTRUCTED WHOLLY OR PARTIALLY IN FILL, THE PROCEDURE AS DEFINED IN RULE 33.5 OF THE STATE RULES AND REGULATIONS SHALL APPLY.
8. THE DESIGN INTENT IS TO MEET THE STATE STANDARDS. THE SYSTEM OPERATION IS DEPENDENT ON PROPER USAGE, AND IT'S OPERATION IS NOT GUARANTEED BY THIS PLAN.

NOTE :
CONTRACTOR TO VERIFY BENCHMARK & EXISTING CONDITIONS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES BETWEEN FIELD AND DESIGN DATA SHOWN HEREON TO BE REPORTED TO THE ENGINEER

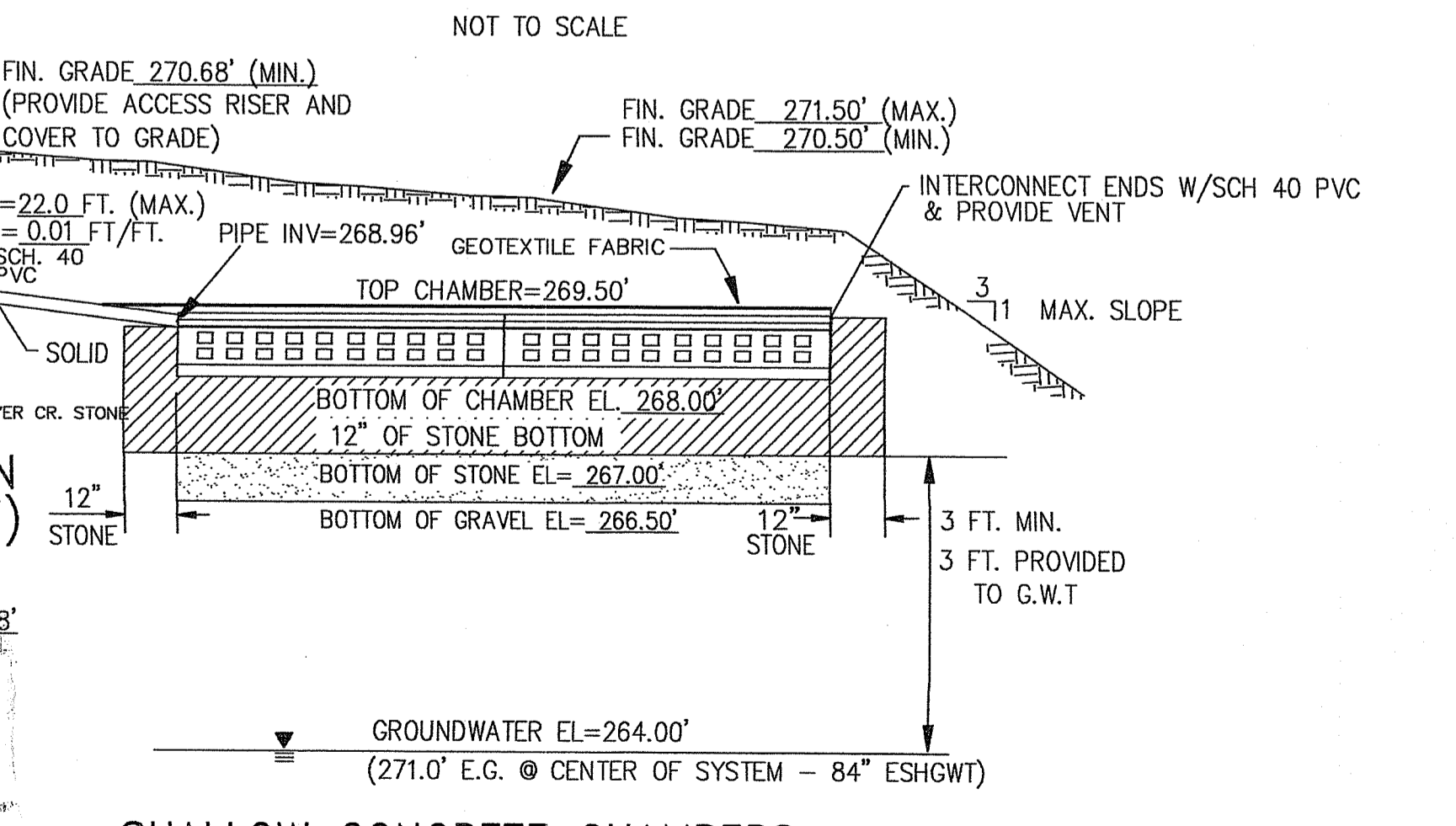
DESIGN NOTES

1. UNLESS SPECIFICALLY NOTED, THE PROPOSED OWTS IS NOT WITHIN A WATERSHED OF A PUBLIC WATER SUPPLY OR OTHER CRITICAL RESOURCE AREA.
2. UNLESS OTHERWISE NOTED, THERE ARE NO DRINKING WATER LINES, EXISTING OR PROPOSED WITHIN 50 FEET OF THE PROPOSED OWTS.
3. UNLESS OTHERWISE NOTED, THERE ARE NO NON-POTABLE WATER WELLS, EXISTING OR PROPOSED WITHIN 100 FEET OF THE PROPOSED OWTS.
4. UNLESS OTHERWISE NOTED, THERE ARE NO EXISTING OR PROPOSED PUBLIC DRINKING WATER SUPPLY WELLS WITHIN 500 FEET OF THE PROPOSED OWTS.
5. INDICATED, THERE ARE WETLANDS AND DRAINS (STORM) WITHIN 200 FEET OF THE PROPOSED OWTS.
6. THE SEPTIC TANK WILL BE PROVIDED WITH AN OUTLET TEE, INLET TEE AND RISERS TO GRADE.
7. DISTRIBUTION BOX TO HAVE A MINIMUM BOTTOM AREA OF 3 SQ. FT.
8. WITHIN FIVE (5) FEET OF THE SYSTEM, FINISH GROUND WILL BE GREATER THAN THE INVERT ELEVATION.
9. LEACH FIELD CONSTRUCTION SHALL CONFORM TO RULE 33 OF THE SPECIFICATIONS.

ON-SITE WASTEWATER TREATMENT SYSTEM PLAN



SYSTEM PROFILE
NOT TO SCALE



SHALLOW CONCRETE CHAMBERS (SEE DETAIL)

GRAVEL NOTE: PER RI DEM RULE 34.7.4: A SIX (6) INCH LAYER OF GRAVEL MEETING THE REQUIREMENTS OF RULE 32.12 SHALL BE PLACED BELOW THE STONE IN THE TRENCH. WHERE THE BOTTOM OF THE STONE LIES ON OR WITHIN A SOIL HORIZON THAT MEETS THE DESCRIPTION OF SOIL CAT. 1 FROM RULE 15.11 AND SUCH HORIZON IS AT LEAST SIX (6) INCHES THICK BELOW THE STONE, THE SIX (6) INCH GRAVEL BASE LAYER IS NOT NECESSARY. HOWEVER, IF THIS SOIL CATEGORY HORIZON IS DESCRIBED AS EXTREMELY COBBLY, THE SIX (6) INCH GRAVEL BASE LAYER SHALL BE REQUIRED.

Thomas J. Principe, III
REGISTERED PROFESSIONAL ENGINEER

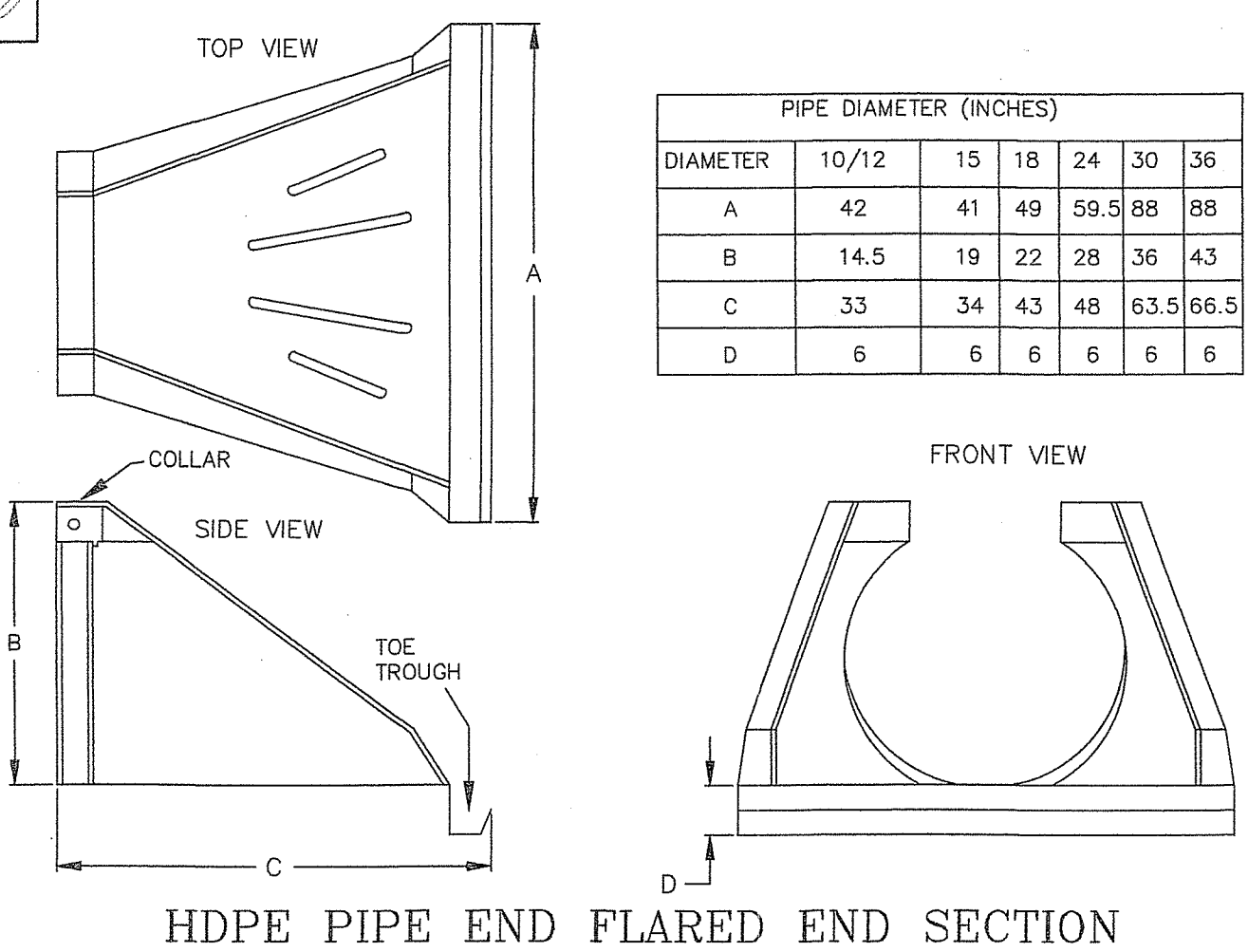
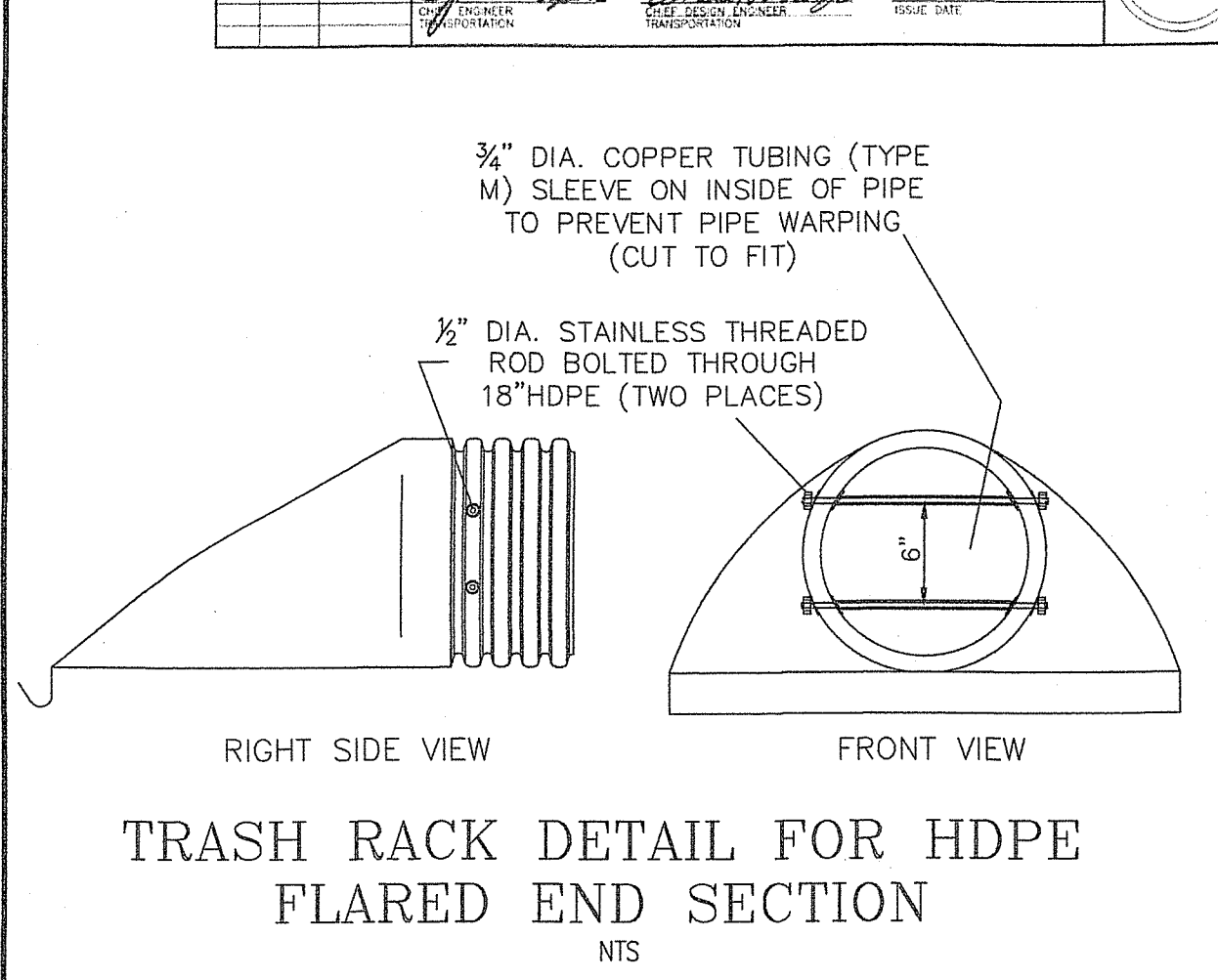
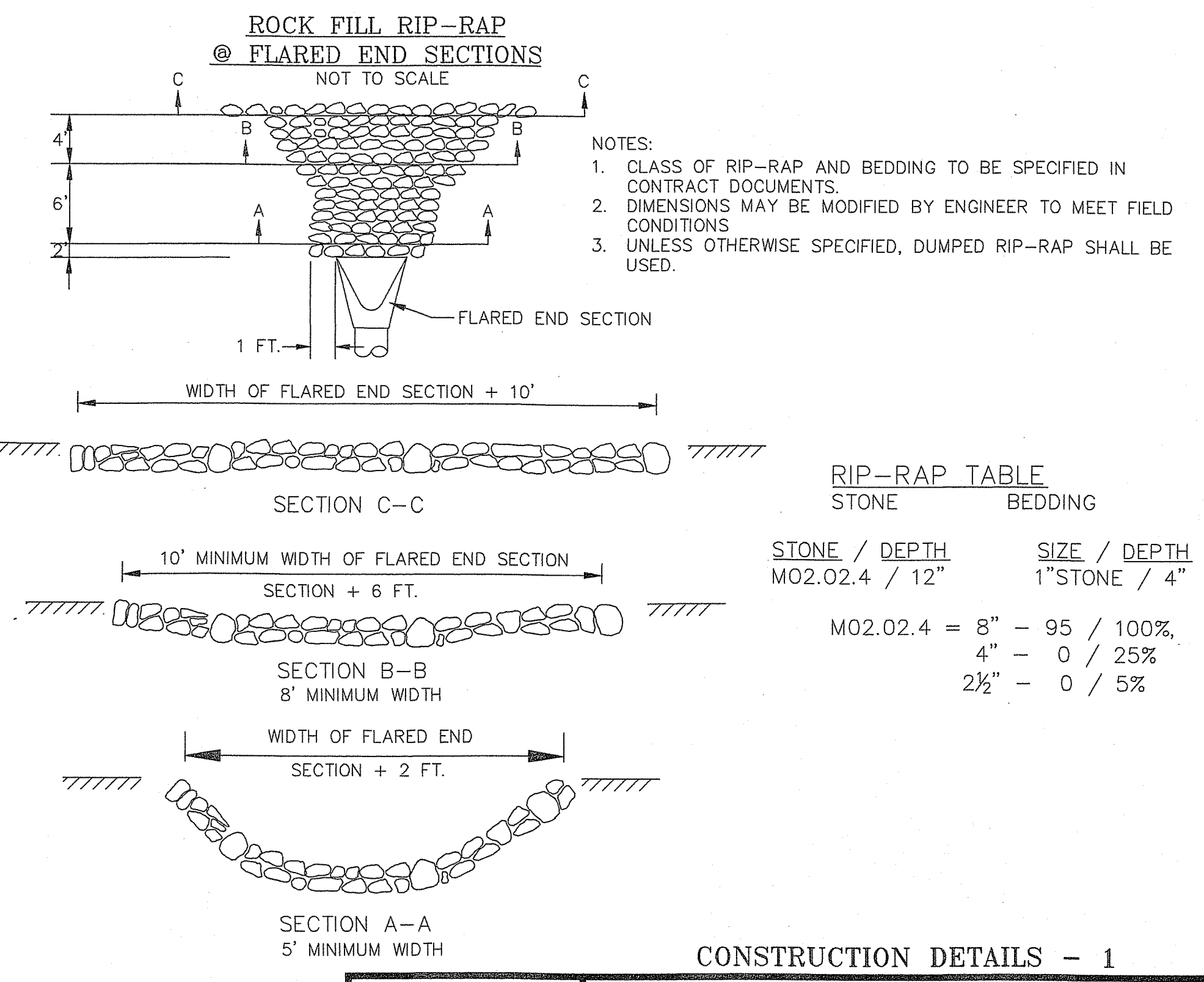
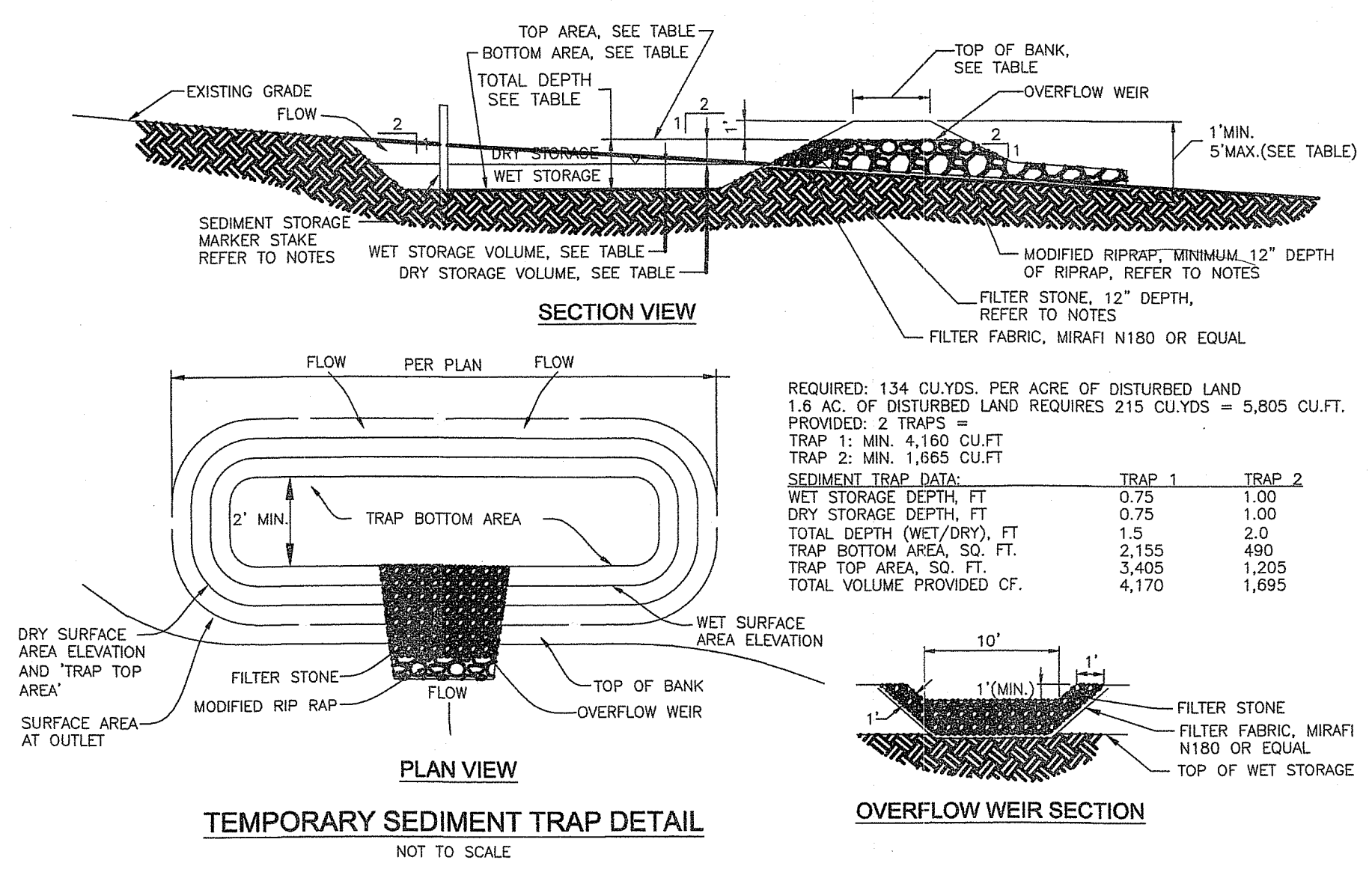
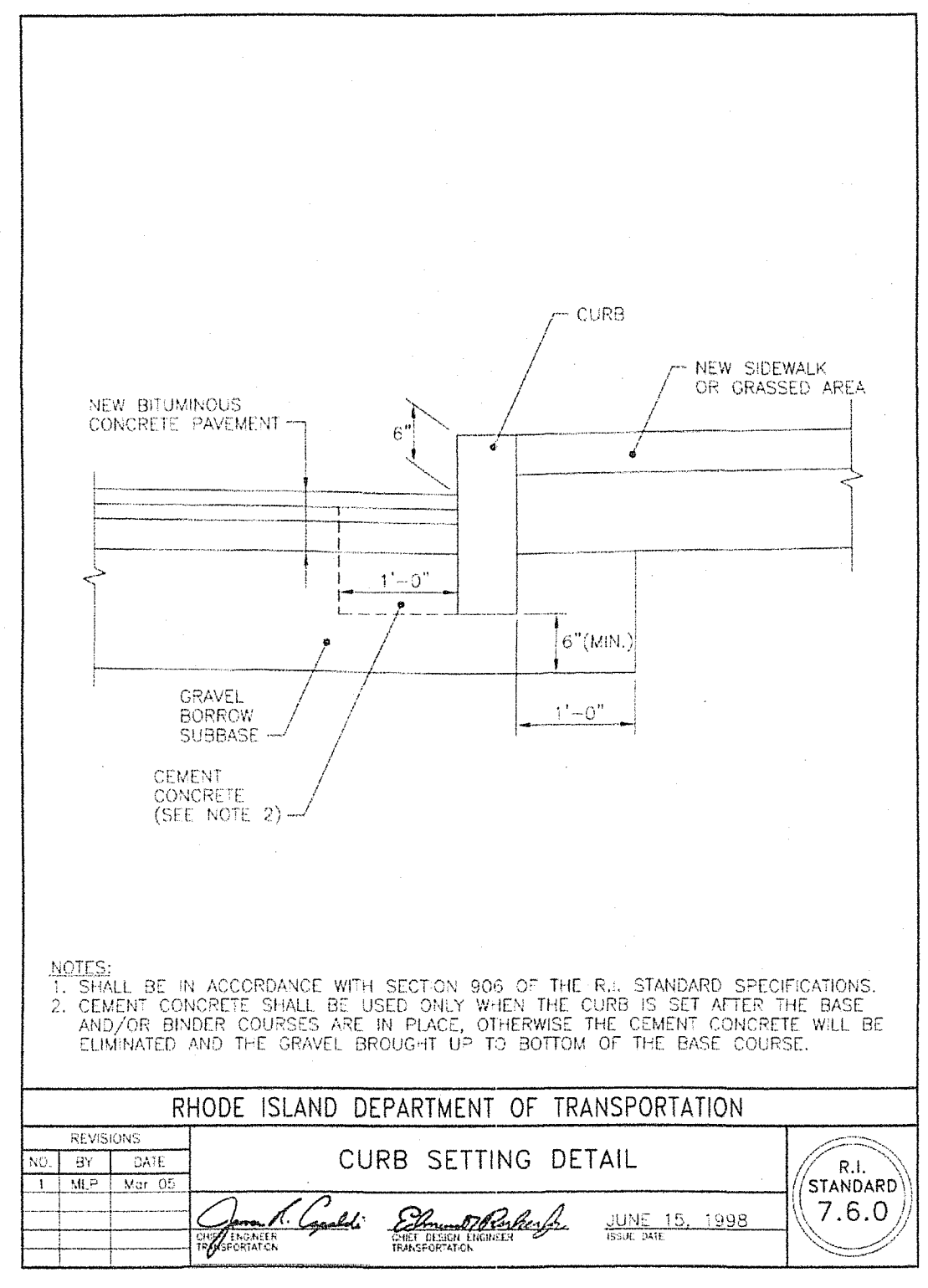
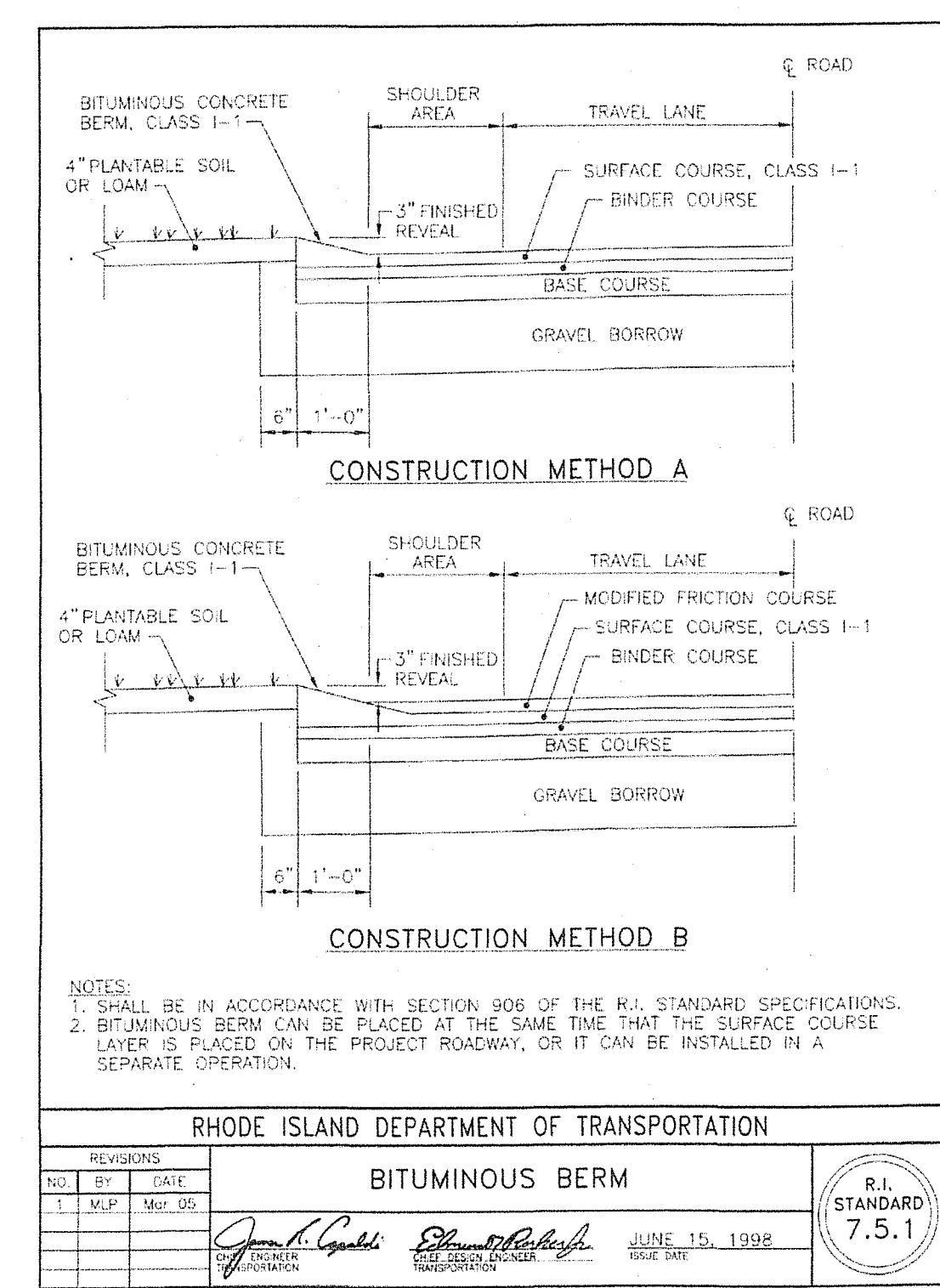
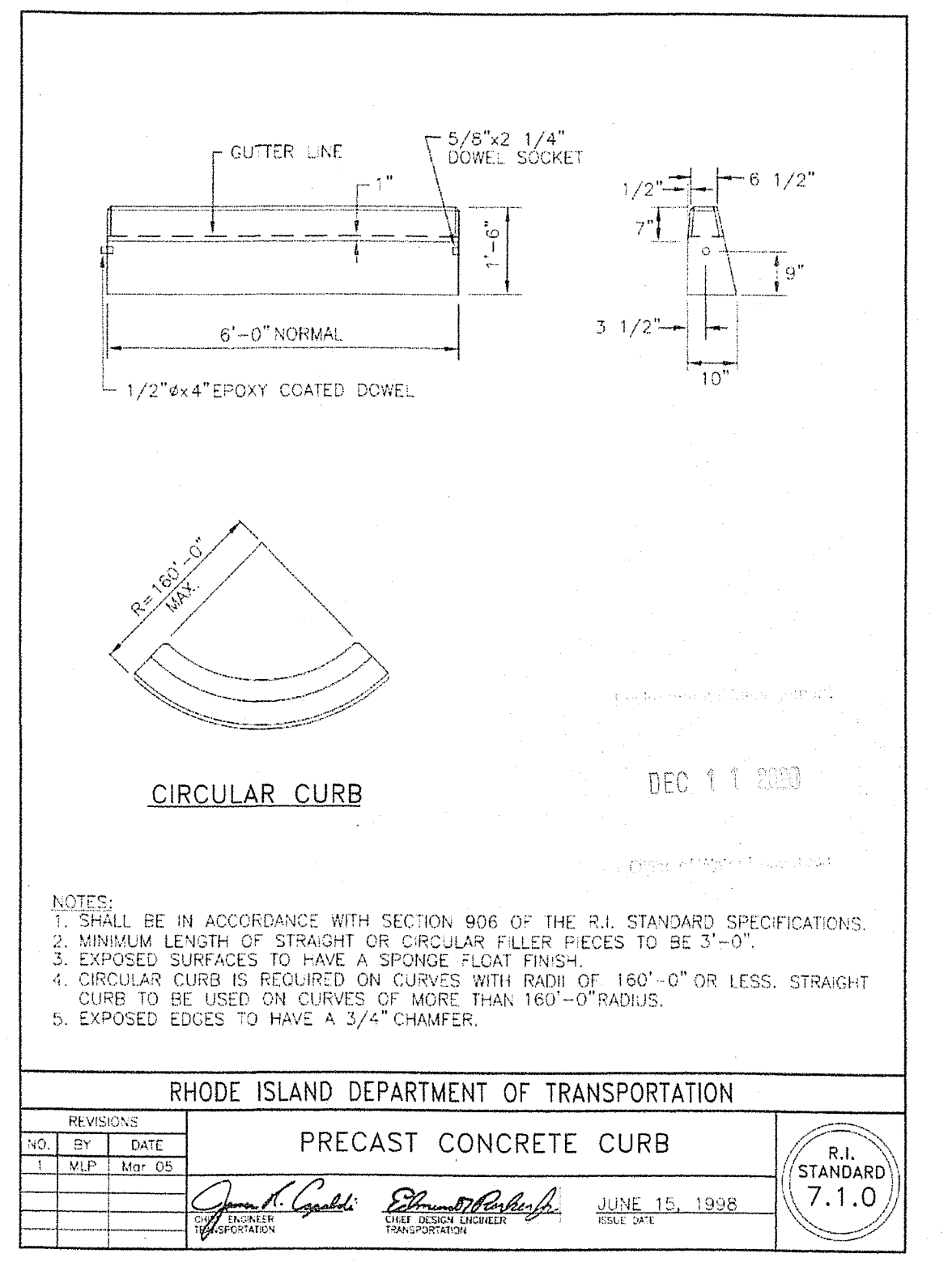
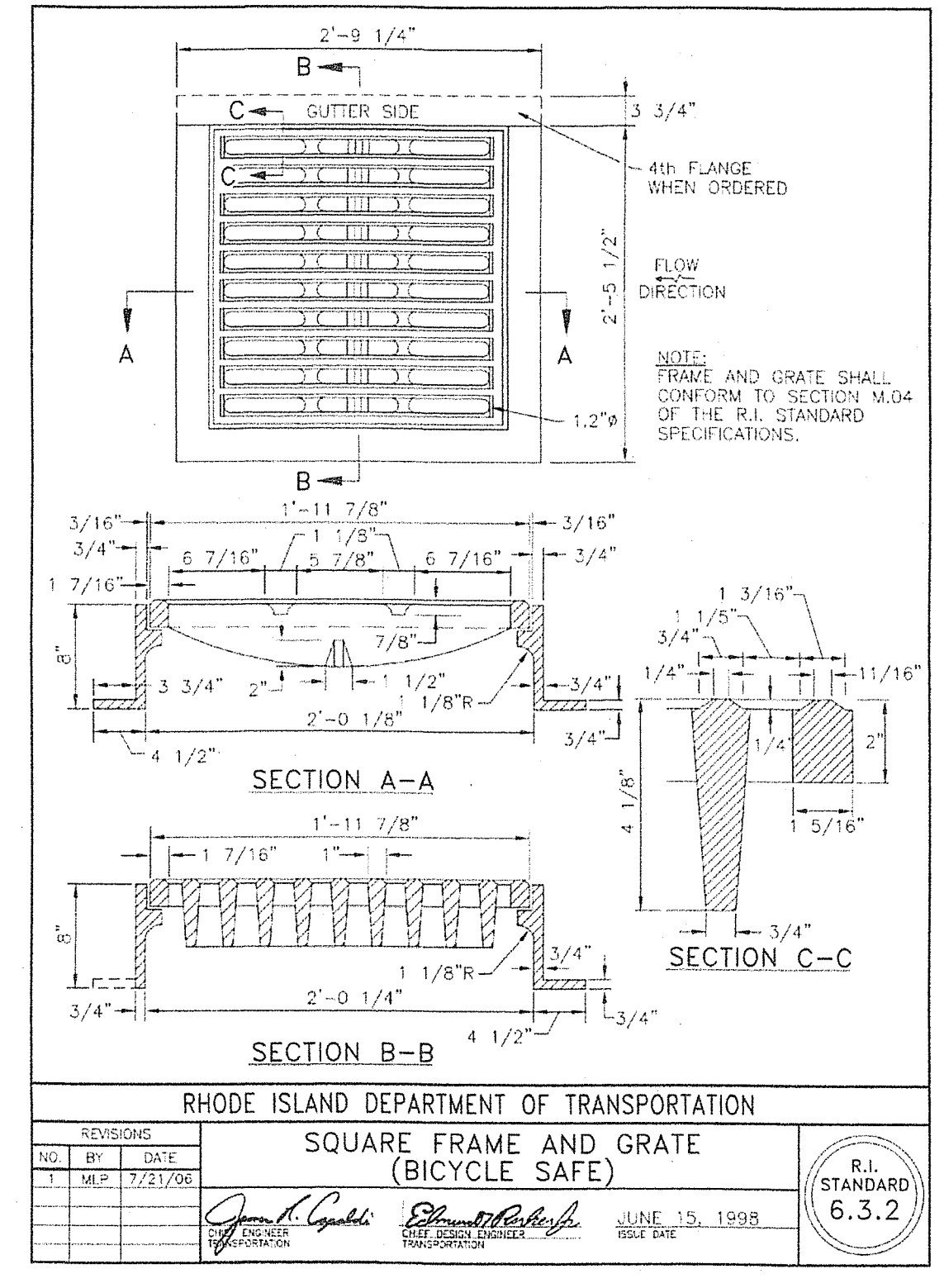
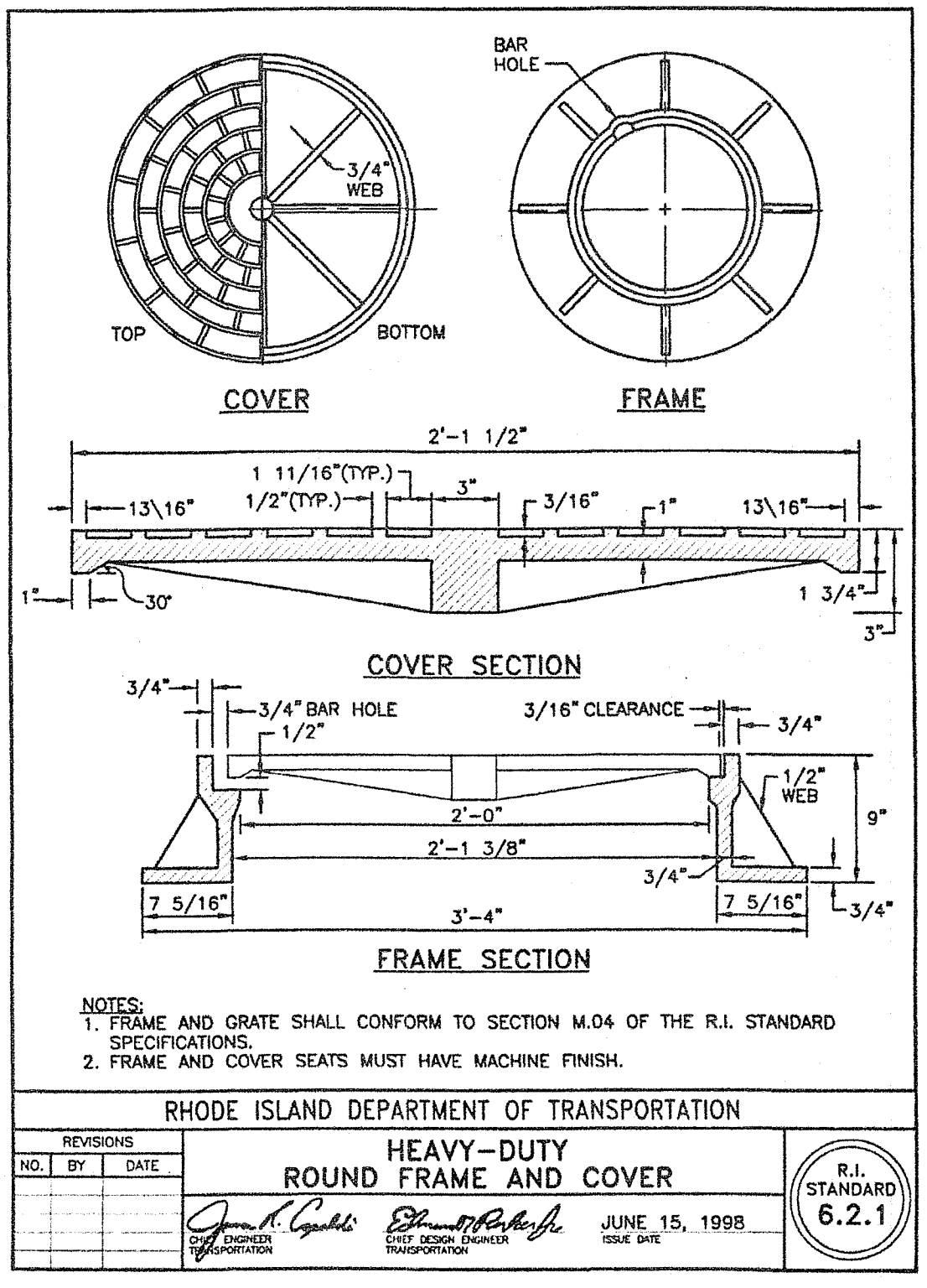
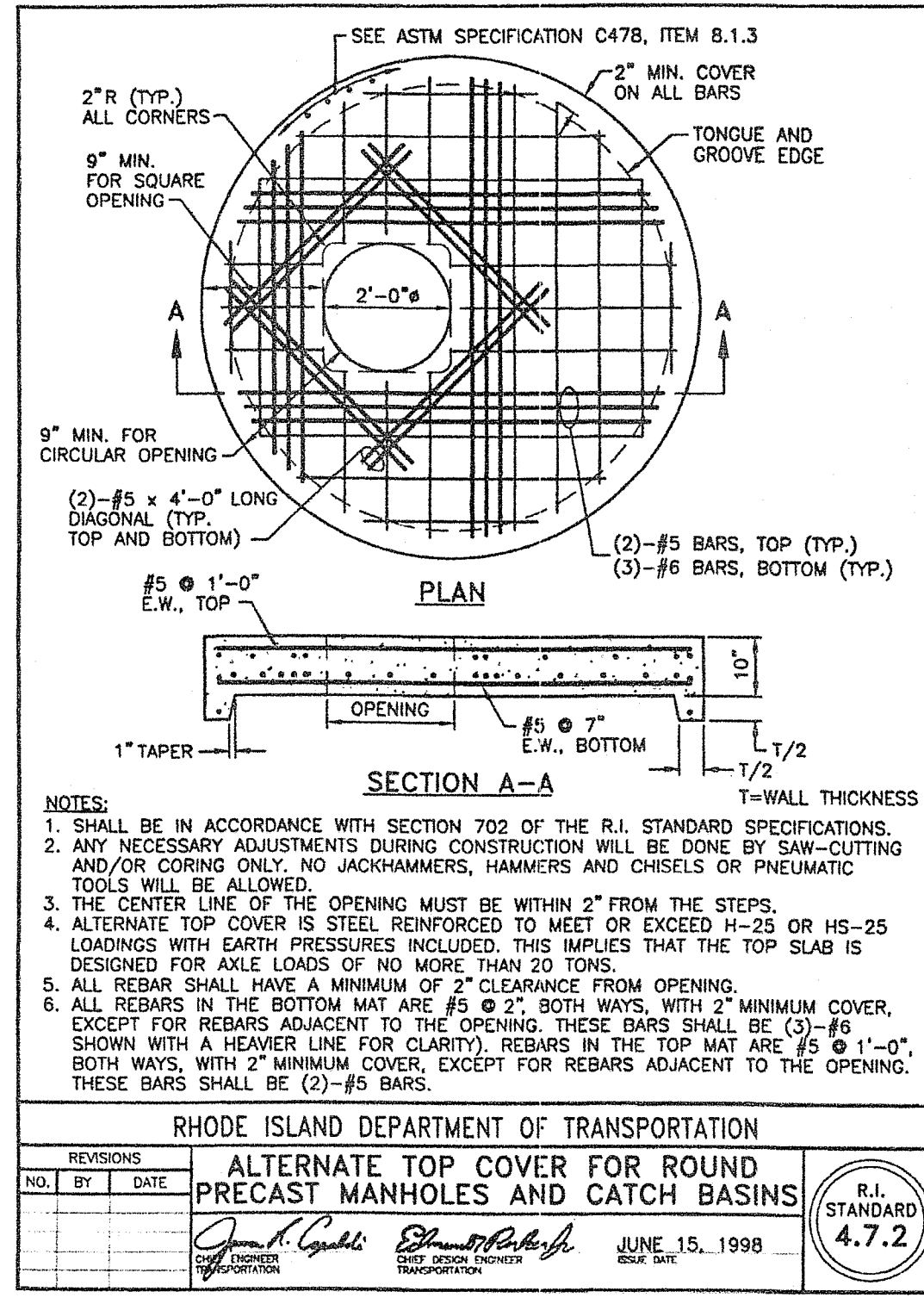
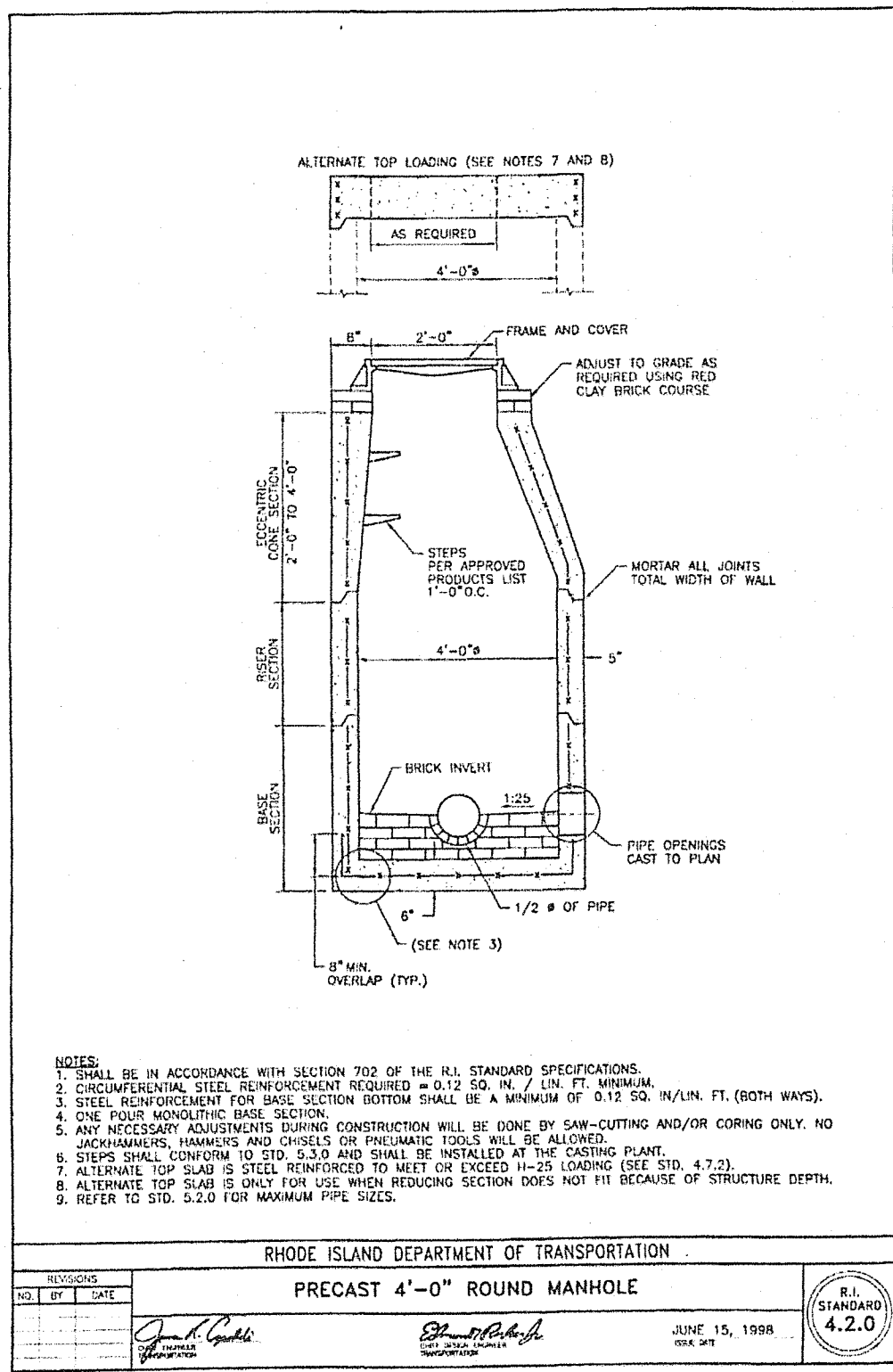
PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.815.5385
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REVISIONS

No.	DATE	DRWN	CHKD
1.	8/10/20	JAR	TJP
2.	9/3/20	JAR	TJP
3.	10/26/20	JAR	TJP
4.	12/07/20	WCR	NAT

MAJOR LAND DEVELOPMENT PRELIMINARY PLAN
for
AP 17 LOT 22 & 280
40 SAYLES HILL ROAD
in
NORTH SMITHFIELD, RHODE ISLAND

SCALE: AS NOTED SHEET NO: 4 OF 12
DRAWN BY: JAR DESIGN BY: JAR CHECKED BY: TJP
DATE: 3/5/20 PROJECT NO.: 2019-14



- GENERAL NOTES:**
1. THE TEMPORARY SEDIMENT TRAP SHALL MEET ALL REQUIREMENTS FOR TEMPORARY SEDIMENT TRAPS OUTLINED IN THE RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK (LATEST REVISION) SECTION SIX, SEDIMENT CONTROL MEASURES.
 2. THE TEMPORARY SEDIMENT TRAP SHALL HAVE AN INITIAL STORAGE VOLUME OF 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA.
 3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
 4. THE OUTLET SHALL BE LOCATED AT THE MOST DISTANT HYDRAULIC POINT FROM THE INLET.
 5. THE OUTLET CONSISTS OF A PERVIOUS STONE DIKE WITH A CORE OF MODIFIED RIP RAP AND FACED ON THE UPSTREAM SIDE WITH STONE.
 6. TEMPORARY SEDIMENT TRAPS MUST OUTLET ONTO STABILIZED GROUND.
 7. MAXIMUM HEIGHT OF A TEMPORARY SEDIMENT TRAP EMBANKMENT IS LIMITED TO FIVE FEET.
 8. SIDE SLOPES OF THE EMBANKMENT SHALL BE 2:1 OR FLATTER.
 9. MODIFIED RIP RAP SHALL MEET THE REQUIREMENTS OF RIDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SUBSECTION M.10.03.2 AND BE R-4 GRADE RIP RAP.
 10. FILTER STONE SHALL MEET THE REQUIREMENTS OF RIDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SUBSECTION M.01.03 TABLE 1 COLUMN V FILTER STONE.
- INSPECTION, MAINTENANCE AND REMOVAL REQUIREMENTS:**
1. INSTALL SEDIMENT STORAGE STAKE WITH A MARKER AT ONE HALF OF THE WET STORAGE VOLUME.
 2. INSPECT THE TEMPORARY SEDIMENT TRAP AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH A RAINFALL AMOUNT OF 0.25 INCHES OR GREATER.
 3. CHECK THE OUTLET TO ENSURE THAT IT IS STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED BY EROSION OF CONSTRUCTION EQUIPMENT.
 4. CHECK FOR SEDIMENT ACCUMULATION AND FILTRATION PERFORMANCE.
 5. WHEN SEDIMENTS HAVE ACCUMULATED TO ONE HALF THE MINIMUM REQUIRED VOLUME OF THE WET STORAGE, Dewater the trap as needed, REMOVE SEDIMENTS AND RESTORE THE TRAP TO ITS ORIGINAL DIMENSIONS.
 6. DISPOSE OF THE SEDIMENT REMOVED FROM THE BASIN IN A SUITABLE AREA.
 7. THE TEMPORARY SEDIMENT TRAP MAY BE REMOVED AFTER THE CONTRIBUTING DRAINAGE AREA IS STABILIZED.
- INSTALLATION NOTES:**
1. CLEAR GRUB AND STRIP ANY VEGETATION AND ROOT MAT FROM ANY PROPOSED EMBANKMENT AND OUTLET AREA.
 2. REMOVE STONES AND ROCKS WHOSE DIAMETER IS GREATER THAN 3 INCHES AND OTHER DEBRIS.
 3. EXCAVE WET STORAGE AND CONSTRUCT THE EMBANKMENT AND/OR OUTLET AS NEEDED TO ATTAIN THE NECESSARY STORAGE REQUIREMENTS.
 4. USE ONLY FILL MATERIAL FOR THE EMBANKMENT THAT IS FREE FROM EXCESSIVE ORGANICS, DEBRIS, LARGE ROCKS (OVER SIX INCHES) OR OTHER UNSUITABLE MATERIALS. COMPACT THE EMBANKMENT IN 9 INCH LAYERS BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
 5. STABILIZE THE EARTHEN EMBANKMENT USING ANY OF THE FOLLOWING MEASURES, SEEDING FOR TEMPORARY VEGETATION COVER, SEEDING FOR PERMANENT VEGETATIVE COVER, OR SLOPE PROTECTION, IMMEDIATELY AFTER INSTALLATION.

OFFICE OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED MAY 28 2021 FILE # 20-0012
CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Matthew D. Seneseck

Thomas J. Principe, III
REGISTERED PROFESSIONAL ENGINEER

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REVISIONS

No.	DATE	DRWN	CHKD
1.	8/10/20	JAR	TJP

MAJOR LAND DEVELOPMENT PRELIMINARY PLAN
for
AP 17 LOT 22 & 280
40 SAYLES HILL ROAD
in
NORTH SMITHFIELD, RHODE ISLAND

SCALE: AS NOTED SHEET NO: 5 OF 12
DRAWN BY: JAR DESIGN BY: JAR CHECKED BY: TJP
DATE: 3/5/20 PROJECT NO.: 2019-14

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER:	ROB LEMIRE 860-564-1010 ROB.LEMIRE@ADS-PIPE.COM
ADS SALES REP:	ADAM HOLLENBACH 860-519-9483 ADAM.HOLLENBACH@ADS-PIPE.COM
PROJECT NO.:	S172616



40 SAYLES HILL NORTH SMITHFIELD, RI

SC-310 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH SC-310.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE OR POLYETHYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418-16a (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- 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: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2922 SHALL BE GREATER THAN OR EQUAL TO 400 LBS/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
 - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
 - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
 - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2922 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310 SYSTEM

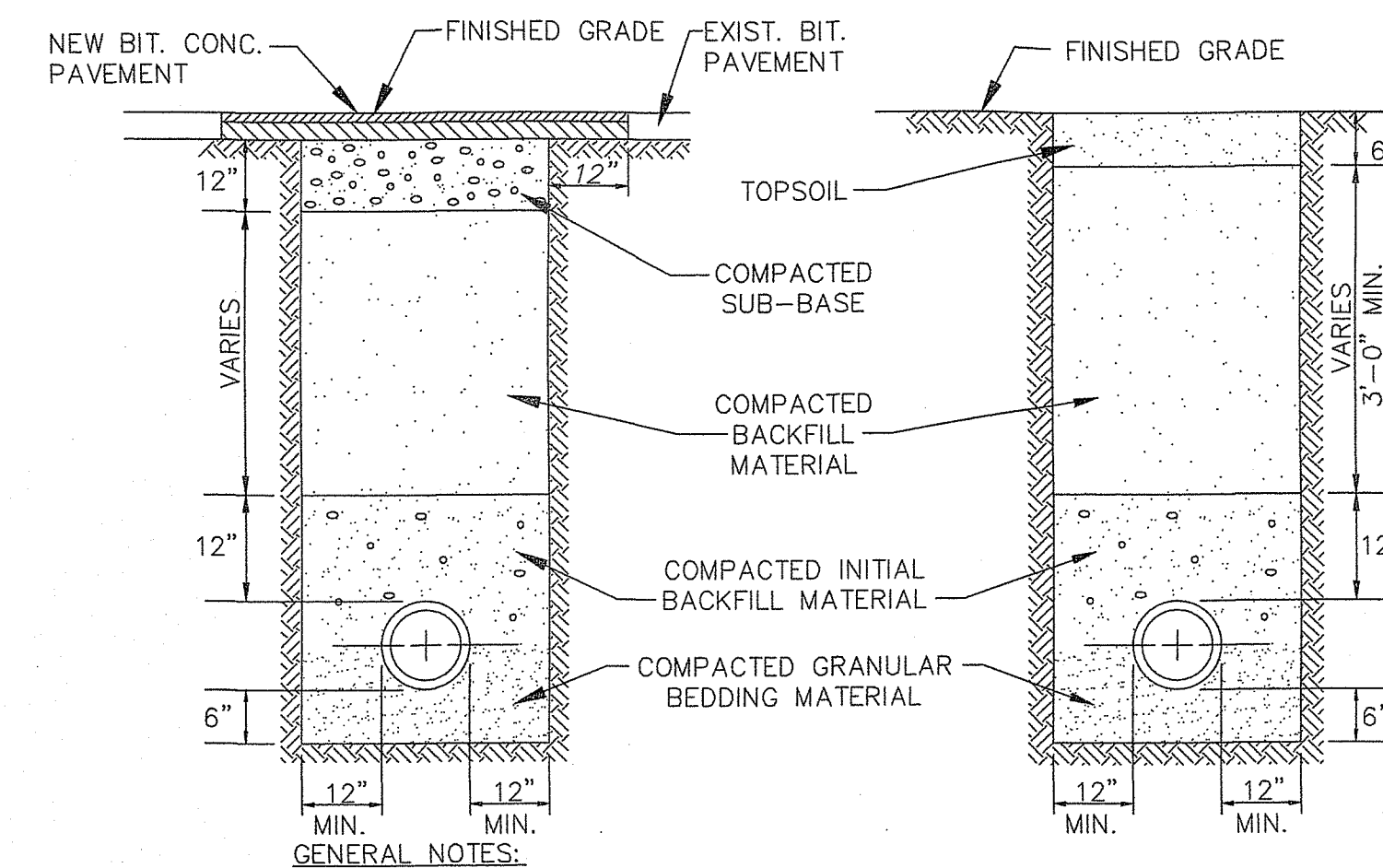
- STORMTECH SC-310 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STONESHOOTER LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4"-2" (20-50 mm).
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

- STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 - NO RUBBER Tired LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



GENERAL NOTES:

- REFER TO SPECIFICATIONS REGARDING BACKFILL MATERIALS.
- REFER TO SPECIFICATIONS AND DETAILS REGARDING PAVEMENT AND SURFACE RESTORATION.

TYPICAL DRAIN TRENCH DETAIL

Jonathan D. Senneker
 DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS
 AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED MAY 7 8 2021 FILE # 20-0072
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

STORM DRAINAGE SYSTEM MAINTENANCE PLAN:

THE FOLLOWING LIST OF MAINTENANCE TASKS AND FREQUENCIES MUST BE ADHERED TO IN ORDER TO INSURE A SUCCESSFUL LONG TERM OPERATION OF THE STORM DRAINAGE SYSTEM.

- DURING CONSTRUCTION ACTIVITIES ALL EROSION CONTROLS ON THE SITE SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN TWENTY FOUR (24) HOURS AFTER AN EVENT WHICH GENERATES AT LEAST 0.25 INCHES OF RAIN IN A TWENTY FOUR (24) HOUR PERIOD.
- SEDIMENTS SHALL BE REMOVED FROM ALL BASINS IMMEDIATELY AFTER SITE STABILIZATION.
- ALL TRASH, LITTER AND OTHER DEBRIS SHALL BE REMOVED FROM ALL STORM WATER INLET AND OUTLET STRUCTURES A MINIMUM OF TWICE PER YEAR. THESE STRUCTURES SHALL ALSO BE INSPECTED TWICE PER YEAR. INSPECTIONS SHALL BE PERFORMED SEVERAL TIMES WITHIN THE FIRST SIX MONTHS OF OPERATION.
- INSPECTIONS OF ALL CATCH BASINS SHALL OCCUR ON AN ANNUAL BASIS TO CHECK FOR DEBRIS REMOVAL (SEDIMENT AND HYDROCARBONS) AND STRUCTURAL INTEGRITY OR DAMAGE. SUCH DEFICIENCIES SHALL BE CORRECTED IMMEDIATELY.
- REPAIRS OR REPLACEMENT OF INLET/OUTLET STRUCTURES OR ANY ELEMENT OF THE FACILITY SHALL BE DONE WITHIN THIRTY (30) DAYS OF DEFICIENCY REPORTS. IF AN EMERGENCY SITUATION IS IMMINENT THEN REPAIR/REPLACEMENT SHALL BE DONE IMMEDIATELY TO AVERT FAILURE OR DANGER TO NEARBY RESIDENTS.
- MAKE REPAIRS IMMEDIATELY USING APPROPRIATE STONE SIZES. DO NOT PLACE STONES ABOVE FINISHED GRADE.
- ALL REMOVED SEDIMENTS AND DEBRIS SHALL BE DISPOSED OF OFF SITE IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.
- ALL OUTLET STRUCTURES AND OUTFLOW CHANNELS WILL BE INSPECTED ANNUALLY. INSPECTIONS WILL BE ACCOMPLISHED SEVERAL TIMES DURING THE FIRST SIX MONTHS OF OPERATION, ESPECIALLY AFTER RAINFALL EVENTS TO CHECK FOR CLOGGING OR, CONVERSELY, TOO RAPID OF A RELEASE.
- REPAIRS OR REPLACEMENT OF INLET/OUTLET STRUCTURES, RIP-RAP CHANNELS, FENCES, OR OTHER ELEMENTS OF THE FACILITY WILL BE DONE WITHIN 30 DAYS OF DEFICIENCY REPORTS. IF AN EMERGENCY SITUATION IS IMMINENT THEN REPAIR/REPLACEMENT MUST BE DONE IMMEDIATELY TO AVERT FAILURE OR DANGER TO NEARBY RESIDENTS.
- ALL SEDIMENT GENERATED DURING CONSTRUCTION AND AS A RESULT OF MAINTENANCE OF THE DRAINAGE SYSTEM MUST BE DISPOSED OF PROPERLY. SEDIMENT SHALL NOT BE DISPOSED OF IN OR NEAR STATE OR FEDERAL REGULATED WATERS.
- ADDITIONAL BMP INSPECTION/MAINTENANCE MEASURES OUTLINED WITHIN THE PROJECT STORMWATER POLLUTION PREVENTION PLAN SHALL BE ADHERED TO.

MAINTENANCE RESPONSIBILITY

- THE PROPERTY OWNER/APPLICANT IS RESPONSIBLE FOR THE MAINTENANCE OF ALL DRAINAGE STRUCTURES.

SC-740 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH SC-740.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- 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: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 550 LBS/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
 - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
 - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
 - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-740 SYSTEM

- STORMTECH SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STONESHOOTER LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4"-2" (20-50 mm).
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

- STORMTECH SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- THE USE OF CONSTRUCTION EQUIPMENT OVER SC-740 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 - NO RUBBER Tired LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

CONSTRUCTION DETAILS - 2

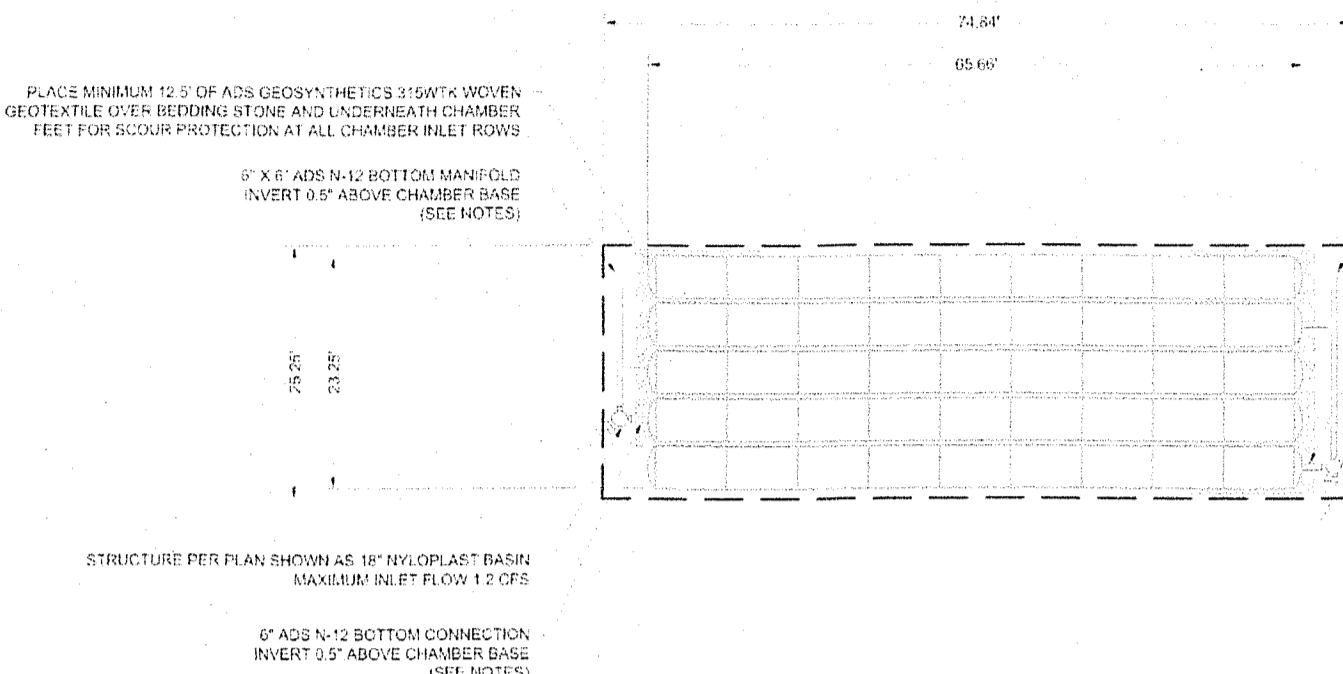
 REGISTERED PROFESSIONAL ENGINEER	PRINCIPE COMPANY, INC. ENGINEERING DIVISION PO BOX 298 TIVERTON, RI 02878 401.816.5385 PRINCIPLEENGINEERING@GMAIL.COM									
	MAJOR LAND DEVELOPMENT PRELIMINARY PLAN for AP 17 LOT 22 & 280 40 SAYLES HILL ROAD in NORTH SMITHFIELD, RHODE ISLAND									
REVISIONS <table border="1"> <thead> <tr> <th>No.</th> <th>DATE</th> <th>DRWN</th> <th>CHKD</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>8/10/20</td> <td>JAR</td> <td>TJP</td> </tr> </tbody> </table>	No.	DATE	DRWN	CHKD	1.	8/10/20	JAR	TJP	SCALE: AS NOTED SHEET NO: 6 OF 12	DRAWN BY: JAR DATE: 3/5/20
No.	DATE	DRWN	CHKD							
1.	8/10/20	JAR	TJP							
DESIGN BY: JAR PROJECT NO.: 2019-14		CHECKED BY: TJP								

PROPOSED LAYOUT: SYSTEM 1P
 45 STORMTECH SC-310 CHAMBERS
 16 STORMTECH SC-310 END CAPS
 6 STONE ABOVE (A)
 6 STONE BELOW (B)
 45 STONE VOID
 3887 INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED)
 1940 SYSTEM AREA (SF)
 209 SYSTEM PERIMETER (ft)

NOTES
 1. MANHOLE SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECHNICAL NOTE 6.32 FOR MANHOLE SIZING GUIDANCE.
 2. THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
 3. DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANHOLE COMPONENTS IN THE FIELD.
 4. THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE STABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE HOST SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
 5. THE STRUCTURE TO BE CONSTRUCTED SHALL BE BUILT TO PROTECT THE WATER QUALITY, MEASURES AND DOES NOT PROVIDE THE ABILITY TO BE PRECISELY GRADED, AND MAY BE ADJUSTED TO MAINTAINING THE SYSTEM TO LEAD TO A DECREASE IN STORAGE VOLUME OVER TIME. THIS RECOMMENDS THE USE OF THE ISOLATOR ROW ON ALL STORMTECH SYSTEMS.
 6. THE SITE DESIGN ENGINEER MUST REVIEW THE PROXIMITY OF THE CHAMBER TO THE SLOPE AND CONSIDER EFFECTS OF POSSIBLE SATURATED SOILS ON THE SLOPE'S INTEGRITY.

PROPOSED ELEVATIONS: SYSTEM 1P
 273.00 MINIMUM ALLOWABLE GRADE (TOP OF PAVEMENT UNPAVED)
 282.00 MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
 286.50 MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
 288.50 MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
 295.50 MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
 295.50 TOP OF STONE
 295.00 TOP OF SC-310 CHAMBER
 292.84 12" BOTTOM MANHOLE CONNECTION INVERT
 292.50 BOTTOM OF SC-310 CHAMBER
 292.00 BOTTOM OF STONE

ESHGWT=84", EL.=259.0



INFILTRATION SYSTEM #1

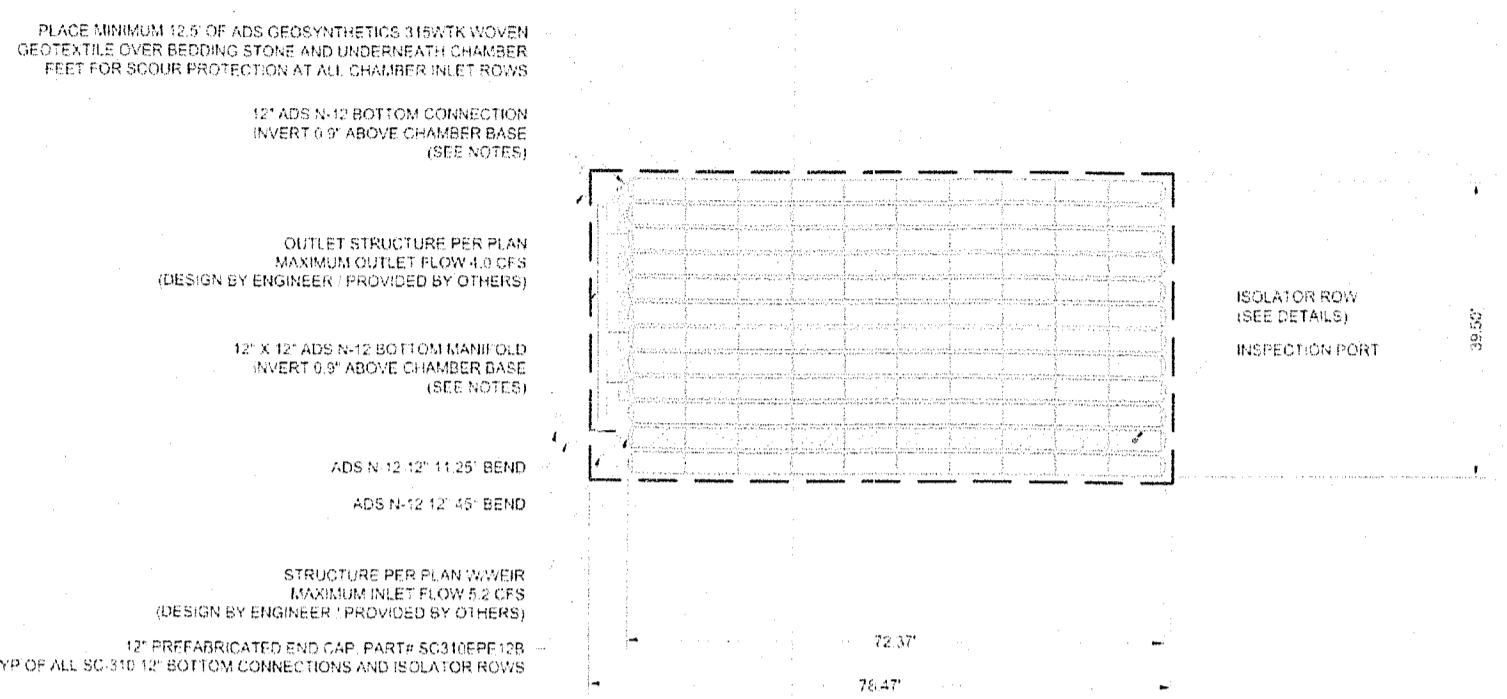
40 SAYLES HILL
 NORTH SMITHFIELD, RI
 DATE: 3/3/2020
 PROJECT: STORMTECH CHAMBER
 SHEET 3 OF 10

PROPOSED LAYOUT: SYSTEM 2P
 129 STORMTECH SC-310 CHAMBERS
 26 STORMTECH SC-310 END CAPS
 6 STONE ABOVE (A)
 6 STONE BELOW (B)
 45 STONE VOID
 4180 INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED)
 1940 SYSTEM AREA (SF)
 209 SYSTEM PERIMETER (ft)

NOTES
 1. MANHOLE SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECHNICAL NOTE 6.32 FOR MANHOLE SIZING GUIDANCE.
 2. THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
 3. DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANHOLE COMPONENTS IN THE FIELD.
 4. THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE STABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE HOST SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.

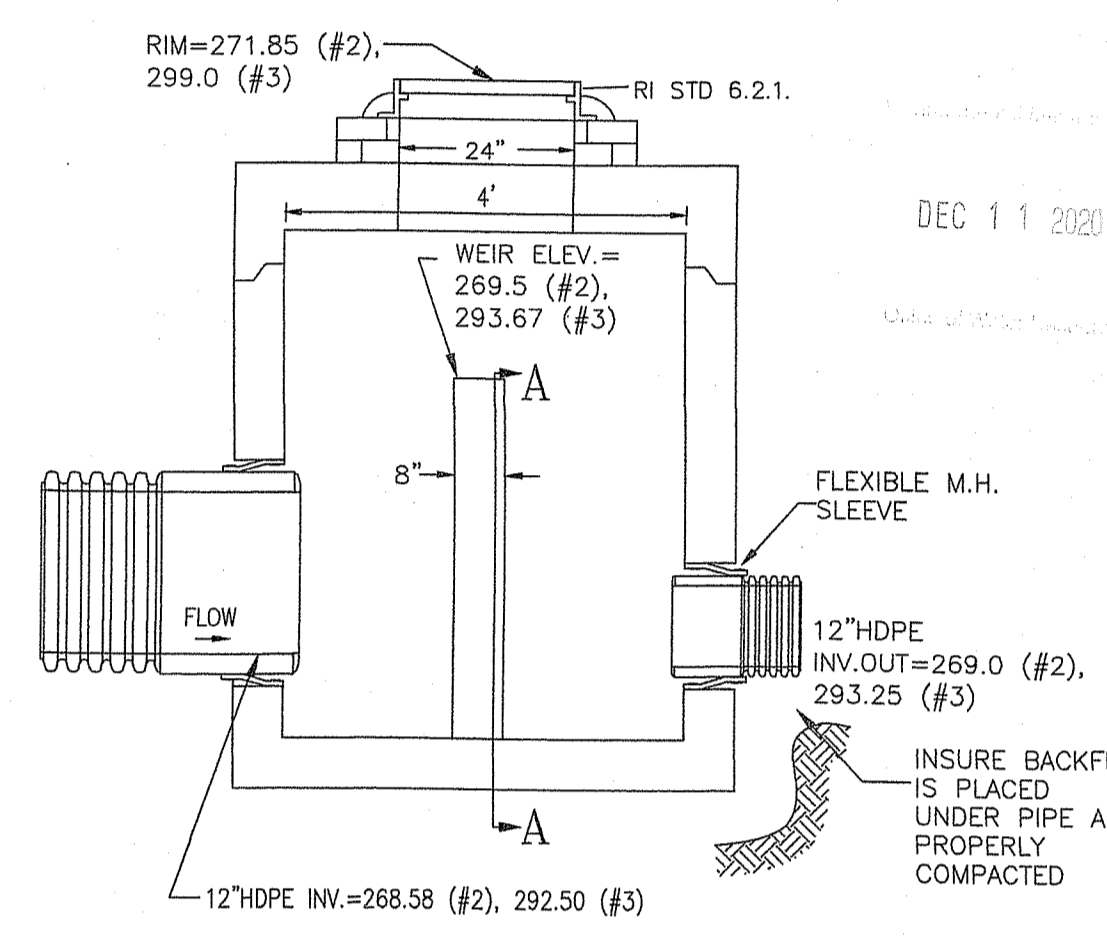
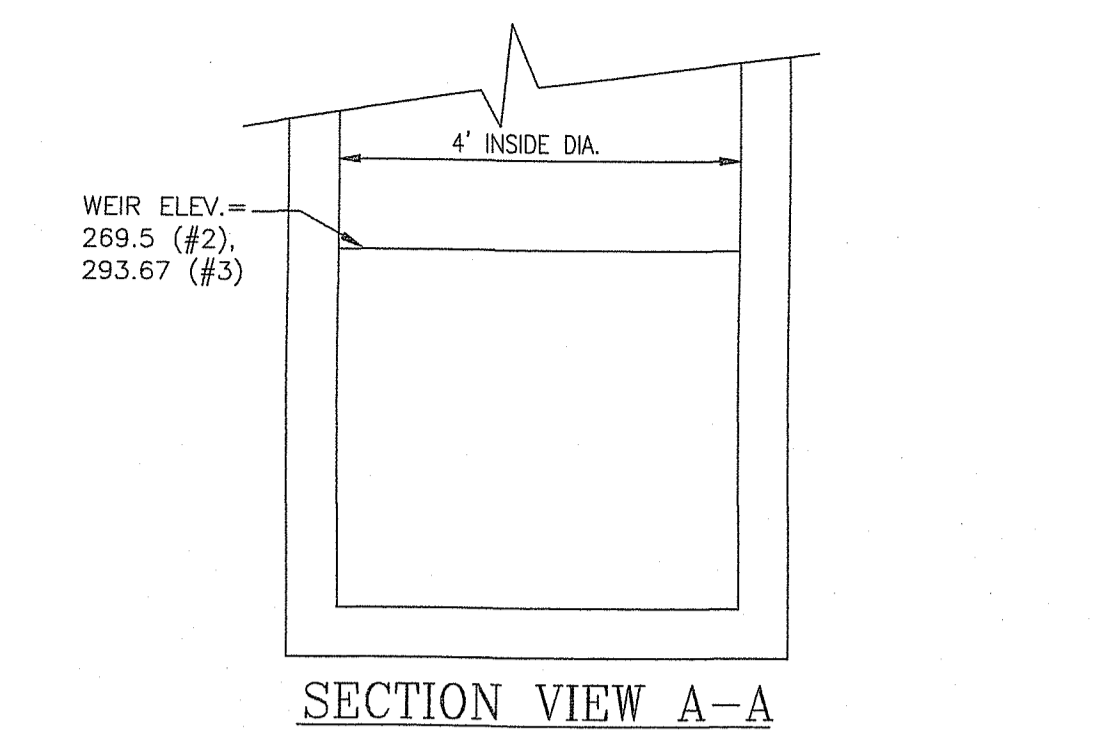
PROPOSED ELEVATIONS: SYSTEM 2P
 273.00 MINIMUM ALLOWABLE GRADE (TOP OF PAVEMENT UNPAVED)
 271.00 MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
 271.00 MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
 271.00 MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
 271.00 MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
 270.50 TOP OF STONE
 269.50 TOP OF SC-310 CHAMBER
 268.50 12" ISOLATOR ROW CONNECTION INVERT
 268.49 12" BOTTOM MANHOLE CONNECTION INVERT
 268.50 BOTTOM OF SC-310 CHAMBER
 268.00 BOTTOM OF STONE

ESHGWT=84", EL.=265.0



INFILTRATION SYSTEM #2

40 SAYLES HILL
 NORTH SMITHFIELD, RI
 DATE: 3/3/2020
 PROJECT: STORMTECH CHAMBER
 SHEET 4 OF 10

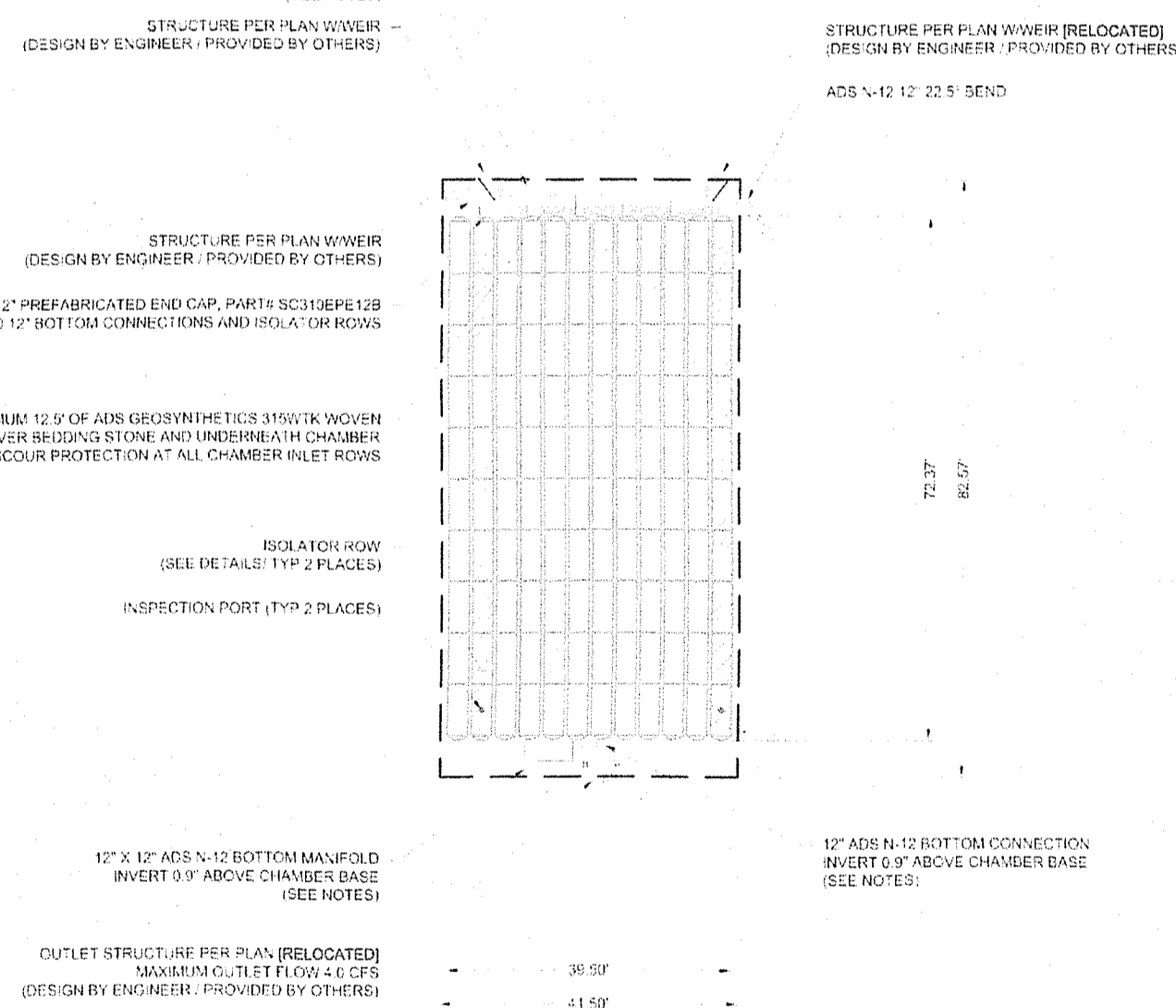


MANHOLE WITH WEIR OUTLET
 STRUCTURE (INFILTRATION SYSTEM 2 & 3)
 (NOT TO SCALE)
 SHOP DRAWINGS REQUIRED

PROPOSED LAYOUT: SYSTEM 3P
 129 STORMTECH SC-310 CHAMBERS
 26 STORMTECH SC-310 END CAPS
 6 STONE ABOVE (A)
 6 STONE BELOW (B)
 45 STONE VOID
 4281 INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED)
 1940 SYSTEM AREA (SF)
 209 SYSTEM PERIMETER (ft)

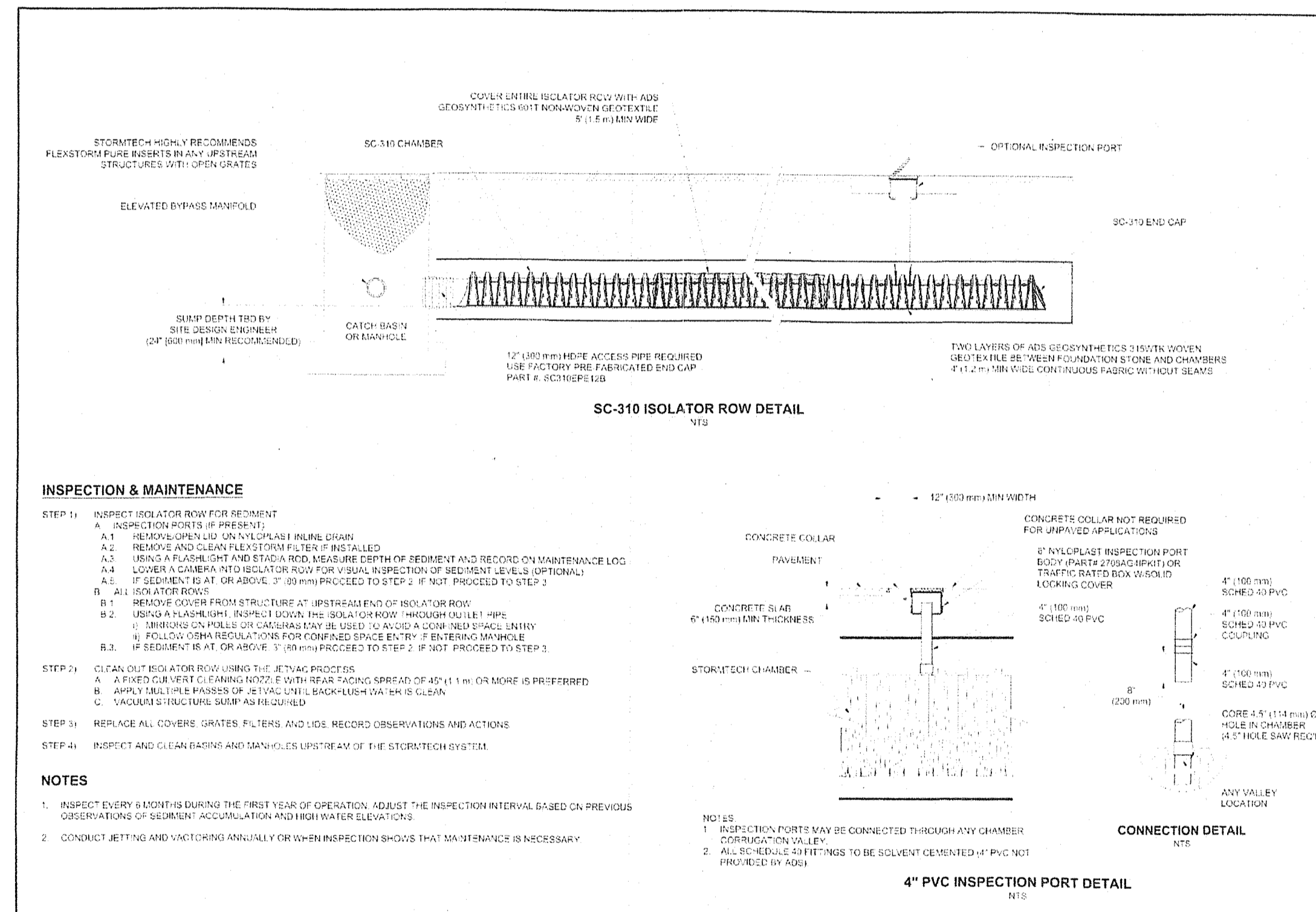
NOTES
 1. MANHOLE SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECHNICAL NOTE 6.32 FOR MANHOLE SIZING GUIDANCE.
 2. THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
 3. DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANHOLE COMPONENTS IN THE FIELD.
 4. THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE STABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE HOST SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.

ESHGWT=84", EL.=288.75



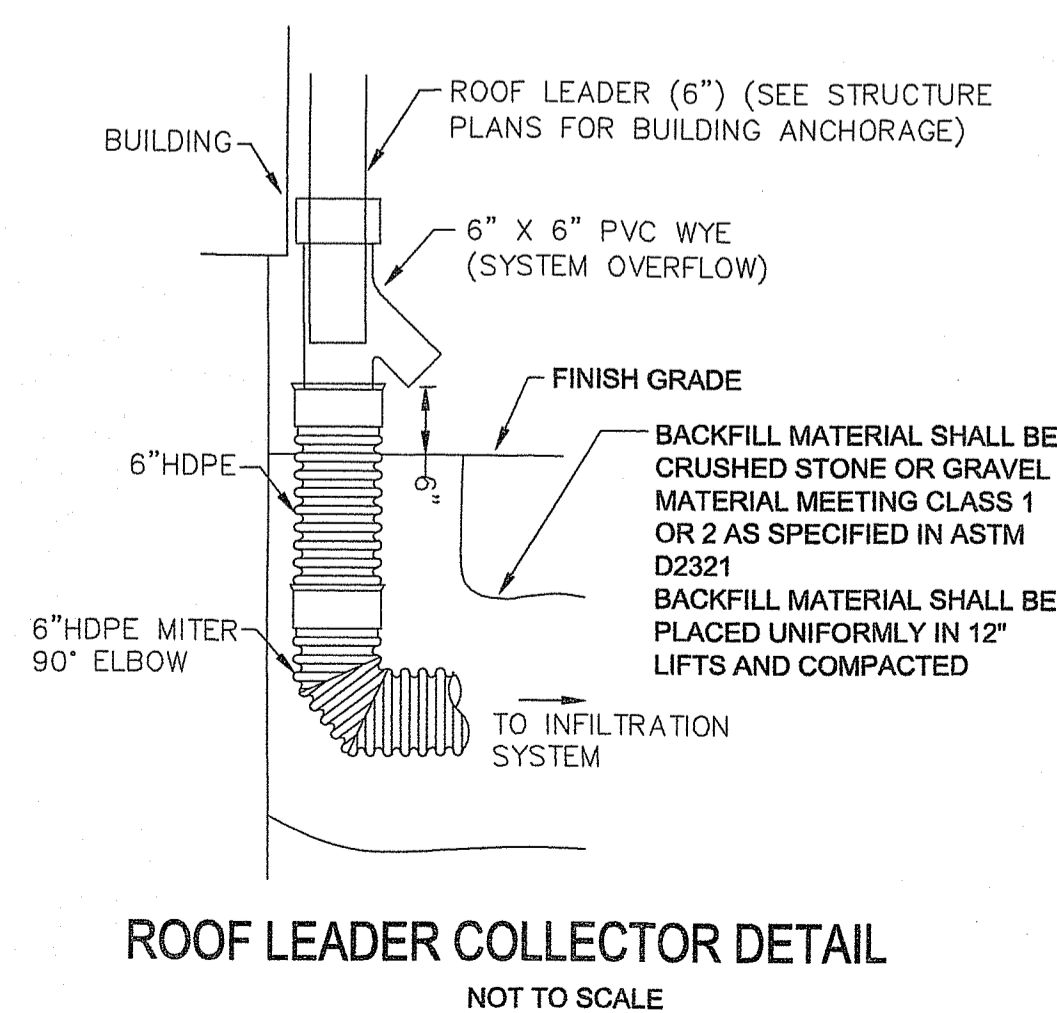
INFILTRATION SYSTEM #3

40 SAYLES HILL
 NORTH SMITHFIELD, RI
 DATE: 3/3/2020
 PROJECT: STORMTECH CHAMBER
 SHEET 5 OF 10



40 SAYLES HILL
 NORTH SMITHFIELD, RI
 DATE: 3/3/2020
 PROJECT: STORMTECH CHAMBER
 SHEET 8 OF 10

NOTE:
 WASHED, CRUSHED STONE SHALL BE USED FOR ALL INFILTRATION SYSTEM INSTALLATIONS.



ROOF LEADER COLLECTOR DETAIL
 NOT TO SCALE

Thomas J. Principe, III
 REGISTERED PROFESSIONAL ENGINEER

PRINCIPLE COMPANY, INC.
 ENGINEERING DIVISION
 PO BOX 298
 TIVERTON, RI 02878
 401.815.5385
 PRINCIPLEENGINEERING@GMAIL.COM

REVISIONS

No.	DATE	DRWN	CHKD
1.	8/10/20	JAR	TJP

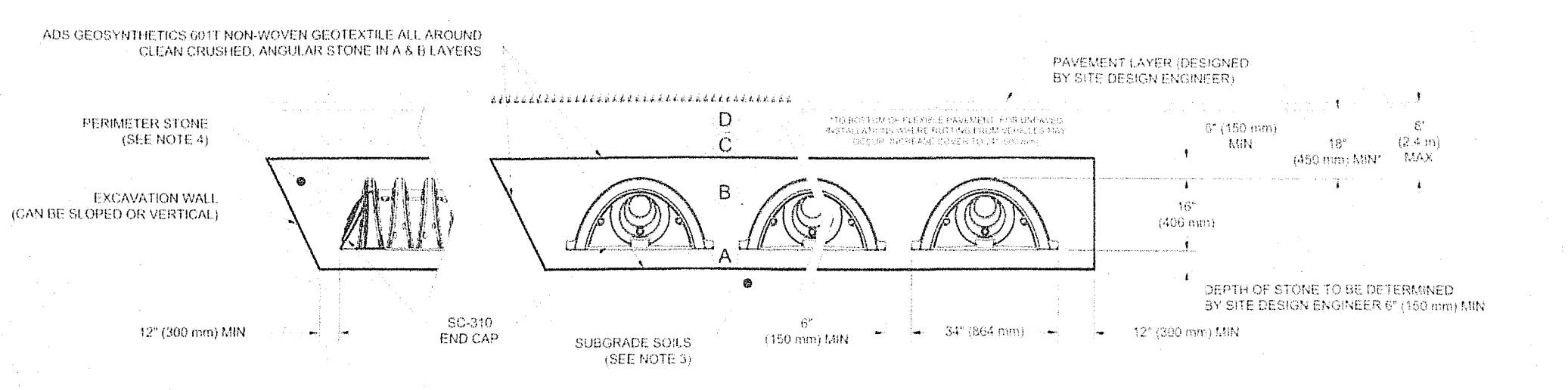
MAJOR LAND DEVELOPMENT PRELIMINARY PLAN
 for
 AP 17 LOT 22 & 280
 40 SAYLES HILL ROAD
 in
 NORTH SMITHFIELD, RHODE ISLAND

SCALE: AS NOTED SHEET NO: 7 OF 12
 DRAWN BY: JAR DESIGN BY: JAR CHECKED BY: TJP
 DATE: 3/5/20 PROJECT NO.: 2019-14

ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D 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 PAVEMENT SUBBASE MAY BE PART OF THE 'C' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBBASE REQUIREMENTS.	NA	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE (B LAYER) TO 12" (305 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL AGGREGATE (MIXTURES <35% FINES OR PROCESSED AGGREGATE). MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M15A ¹ A-1, A-2, A-3 OR AASHTO M33 ² 3, 357, 4, 467, 5, 56, 57, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (305 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) LIFT UP TO A MIN. 95% PROCTOR DENSITY FOR WELL-GRADED MATERIAL AND 90% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B EMBODIMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (A LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M33 ² 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M33 ² 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE **

PLEASE NOTE:
 1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M33) STONE".
 2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR ALL LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) MAX LIFTS USING TYPICAL FULL COVERAGE WITH A VIBRATORY COMPACTOR.
 3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY ROLLING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
 4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



- NOTES:**
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLYETHYLENE) OR ASTM F2416-16a (POLYPROPYLENE). STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS.
 - SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
 - THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
 - PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
 - REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2 OF ASTM F2922 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN. AND (b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73 °F / 23 °C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORE.

40 SAYLES HILL
 NORTH SMITHFIELD, RI
 DATE: 3/5/20
 DRAWN: JAR
 PROJECT #: 2019-14
 CHECKED: TJP

StormTech

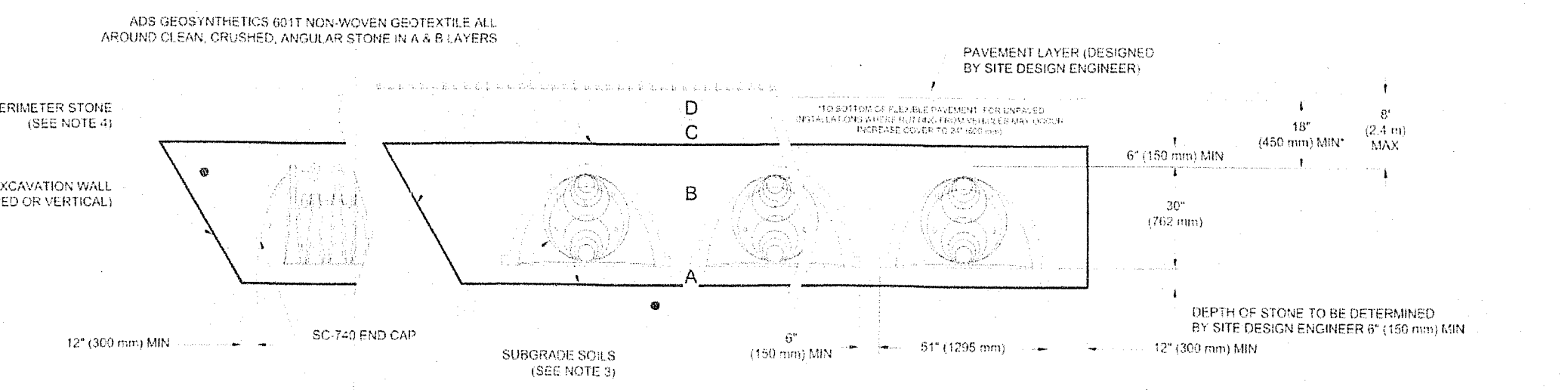
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 NORTH SMITHFIELD, RI
 DATE: 3/5/20
 DRAWN: JAR
 PROJECT #: 2019-14
 CHECKED: TJP

9 SHEET OF 10

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D 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 PAVEMENT SUBBASE MAY BE PART OF THE 'C' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBBASE REQUIREMENTS.	NA	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBODIMENT STONE (B LAYER) TO 12" (305 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL AGGREGATE (MIXTURES <35% FINES OR PROCESSED AGGREGATE). MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M15A ¹ A-1, A-2, A-3 OR AASHTO M33 ² 3, 357, 4, 467, 5, 56, 57, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (305 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL-GRADED MATERIAL AND 90% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B EMBODIMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (A LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M33 ² 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M33 ² 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE **

PLEASE NOTE:
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 2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR ALL LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) MAX LIFTS USING TYPICAL FULL COVERAGE WITH A VIBRATORY COMPACTOR.
 3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY ROLLING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
 4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



- NOTES:**
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLYETHYLENE) OR ASTM F2416-16a (POLYPROPYLENE). STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS.
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 - THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
 - PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
 - REQUIREMENTS FOR HANDLING AND INSTALLATION:
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 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2 OF ASTM F2416 SHALL BE GREATER THAN OR EQUAL TO 550 LBS/IN. AND (b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73 °F / 23 °C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORE.

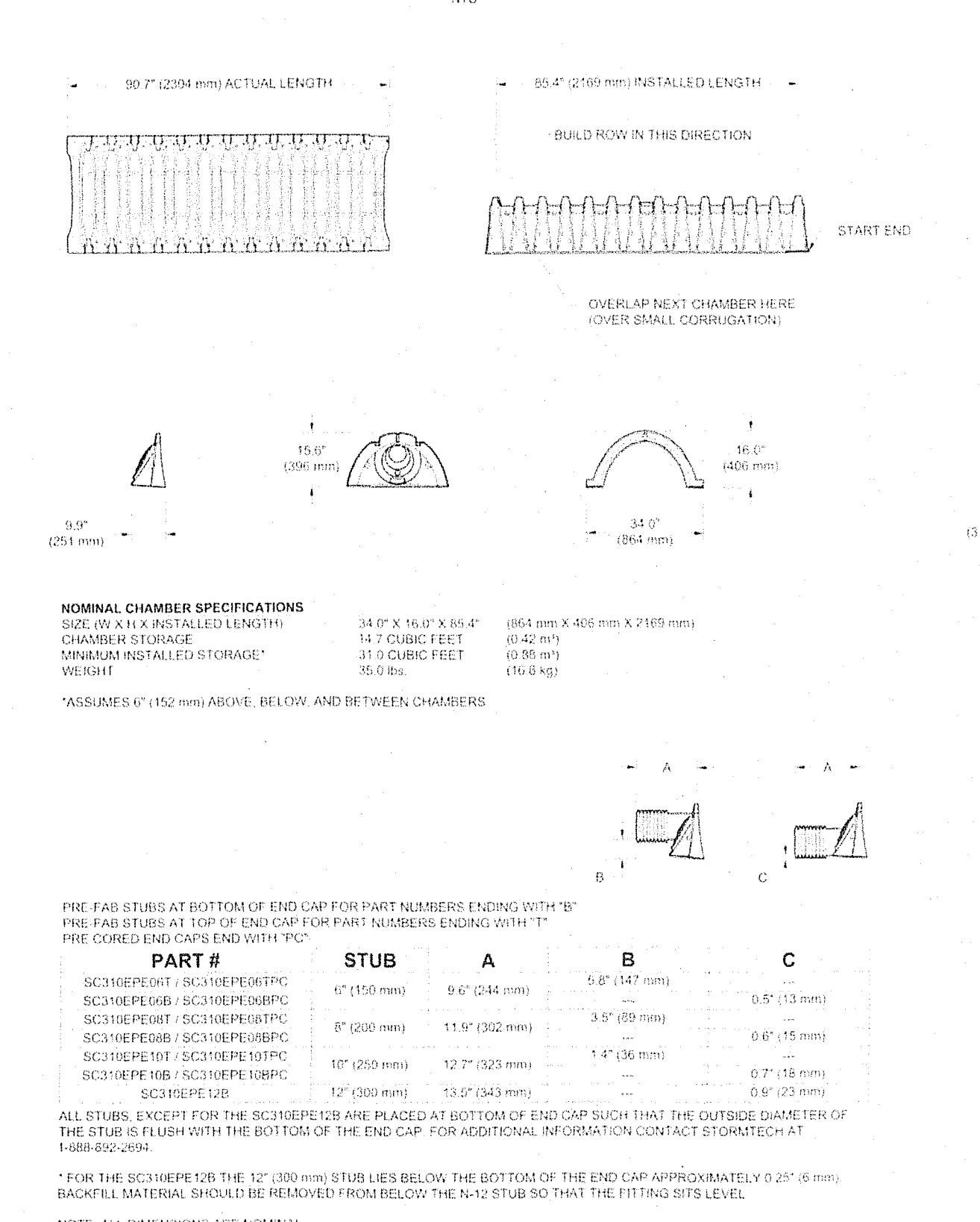
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 NORTH SMITHFIELD, RI
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 DRAWN: JAR
 PROJECT #: 2019-14
 CHECKED: TJP

StormTech

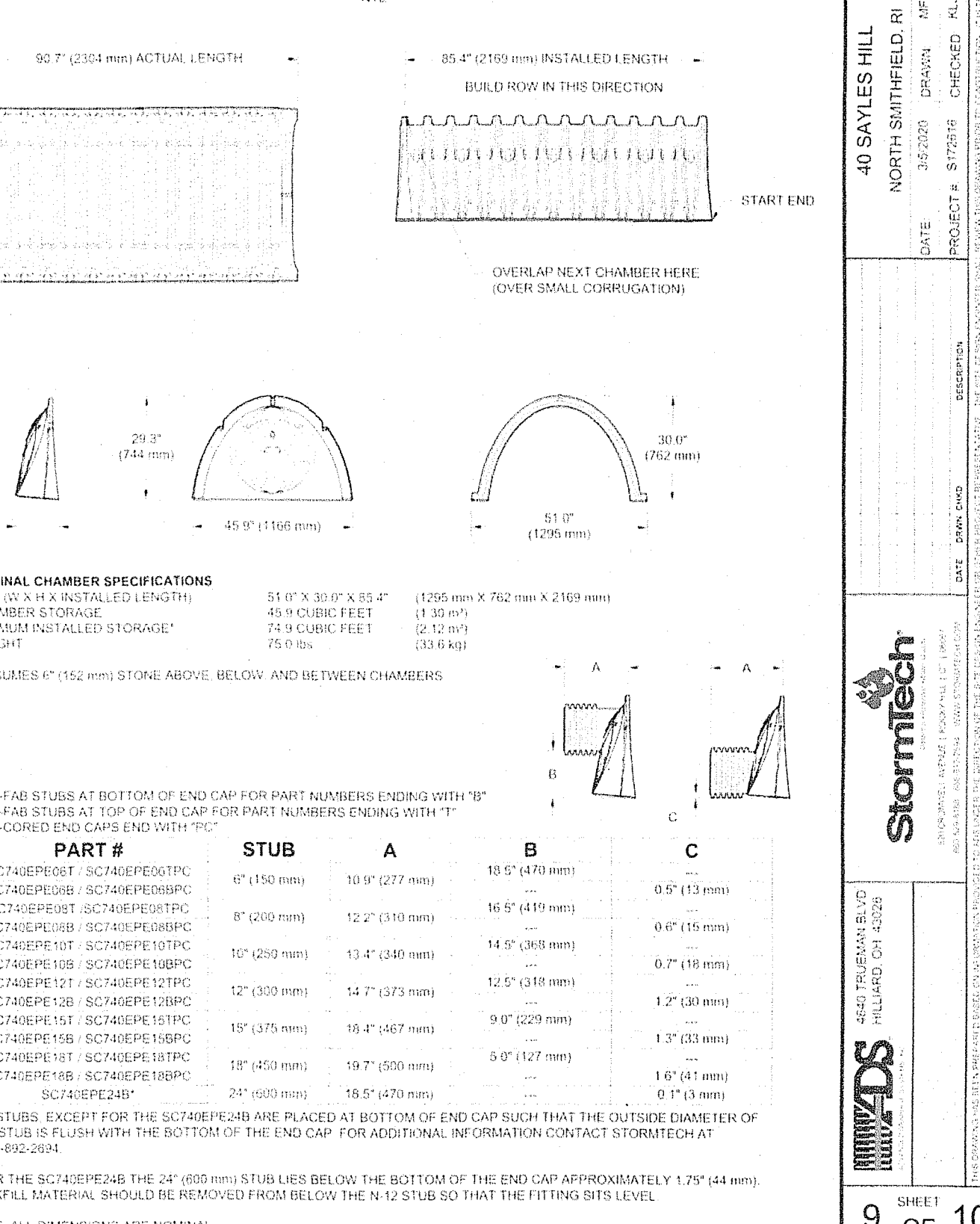
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 NORTH SMITHFIELD, RI
 DATE: 3/5/20
 DRAWN: JAR
 PROJECT #: 2019-14
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6 SHEET OF 10

SC-310 TECHNICAL SPECIFICATION



SC-740 TECHNICAL SPECIFICATION



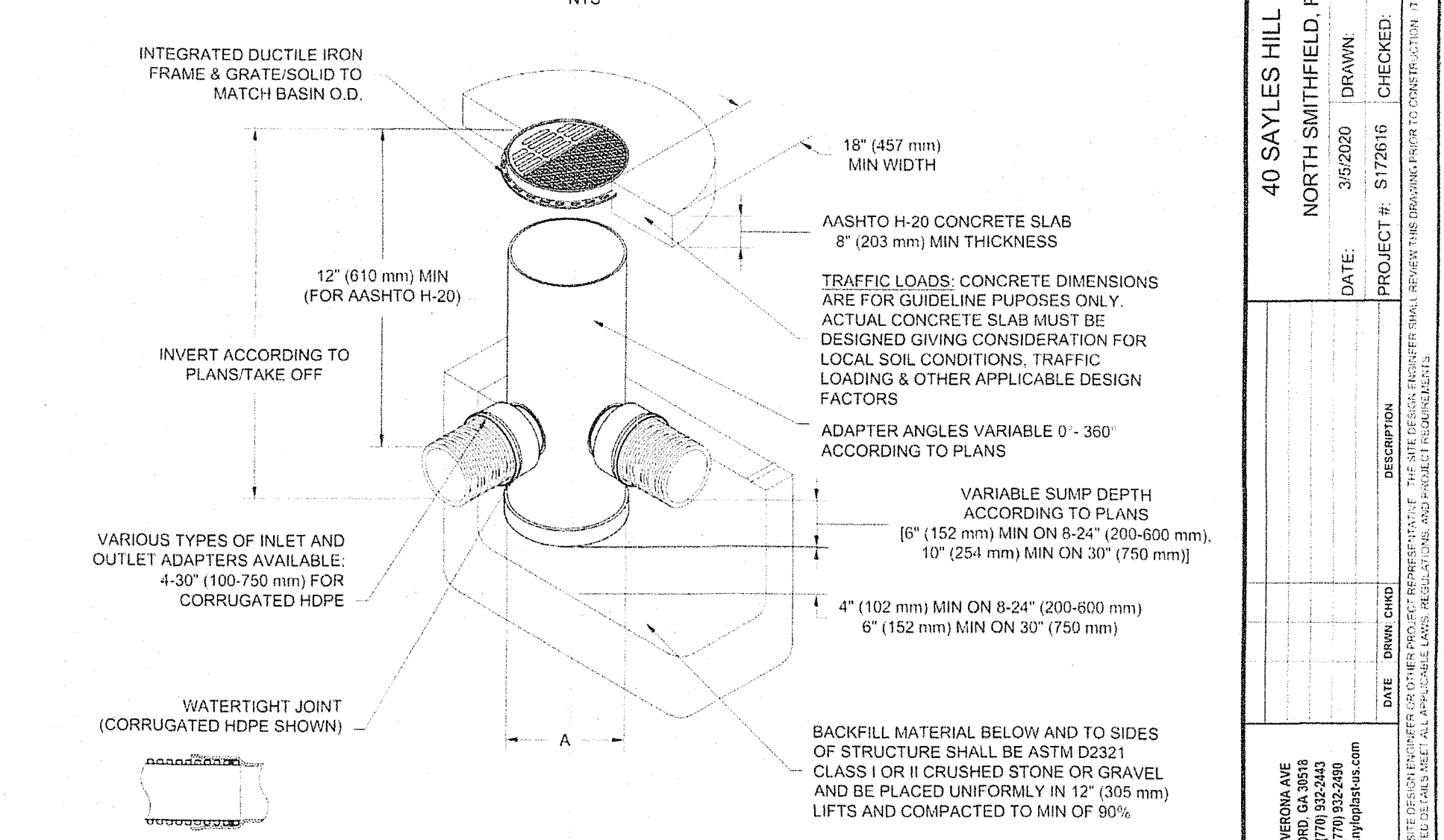
40 SAYLES HILL
 NORTH SMITHFIELD, RI
 DATE: 3/5/20
 DRAWN: JAR
 PROJECT #: 2019-14
 CHECKED: TJP

StormTech

40 SAYLES HILL
 NORTH SMITHFIELD, RI
 DATE: 3/5/20
 DRAWN: JAR
 PROJECT #: 2019-14
 CHECKED: TJP

9 SHEET OF 10

NYLOPLAST DRAIN BASIN



- NOTES:**
- 8-30" (200-750 mm) GRATES/SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
 - 12-30" (300-750 mm) FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS.
 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC.
 - FOR COMPLETE DESIGN AND PRODUCT INFORMATION: WWW.NYLOPLAST-US.COM
 - TO ORDER CALL: 800-821-6710

A	PART #	GRATE/SOLID COVER OPTIONS
8" (200 mm)	2808AG	PEDESTRIAN LIGHT DUTY STANDARD LIGHT DUTY SOLID LIGHT DUTY
10" (250 mm)	2810AG	PEDESTRIAN LIGHT DUTY STANDARD LIGHT DUTY SOLID LIGHT DUTY
12" (300 mm)	2812AG	PEDESTRIAN AASHTO H-10 STANDARD AASHTO H-20 SOLID AASHTO H-20
15" (375 mm)	2815AG	PEDESTRIAN AASHTO H-10 STANDARD AASHTO H-20 SOLID AASHTO H-20
18" (450 mm)	2818AG	PEDESTRIAN AASHTO H-10 STANDARD AASHTO H-20 SOLID AASHTO H-20
24" (600 mm)	2824AG	PEDESTRIAN AASHTO H-10 STANDARD AASHTO H-20 SOLID AASHTO H-20
30" (750 mm)	2830AG	PEDESTRIAN AASHTO H-20 STANDARD AASHTO H-20 SOLID AASHTO H-20

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10 SHEET OF 10

Thomas J. Principe, III
 REGISTERED PROFESSIONAL ENGINEER

PRINCIPE ENGINEERING COMPANY
 ESTABLISHED IN 1981

PRINCIPE ENGINEERING COMPANY, INC.
 ENGINEERING DIVISION
 PO BOX 298
 TIVERTON, RI 02878
 401.816.5385
 PRINCIPEENGINEERING@GMAIL.COM

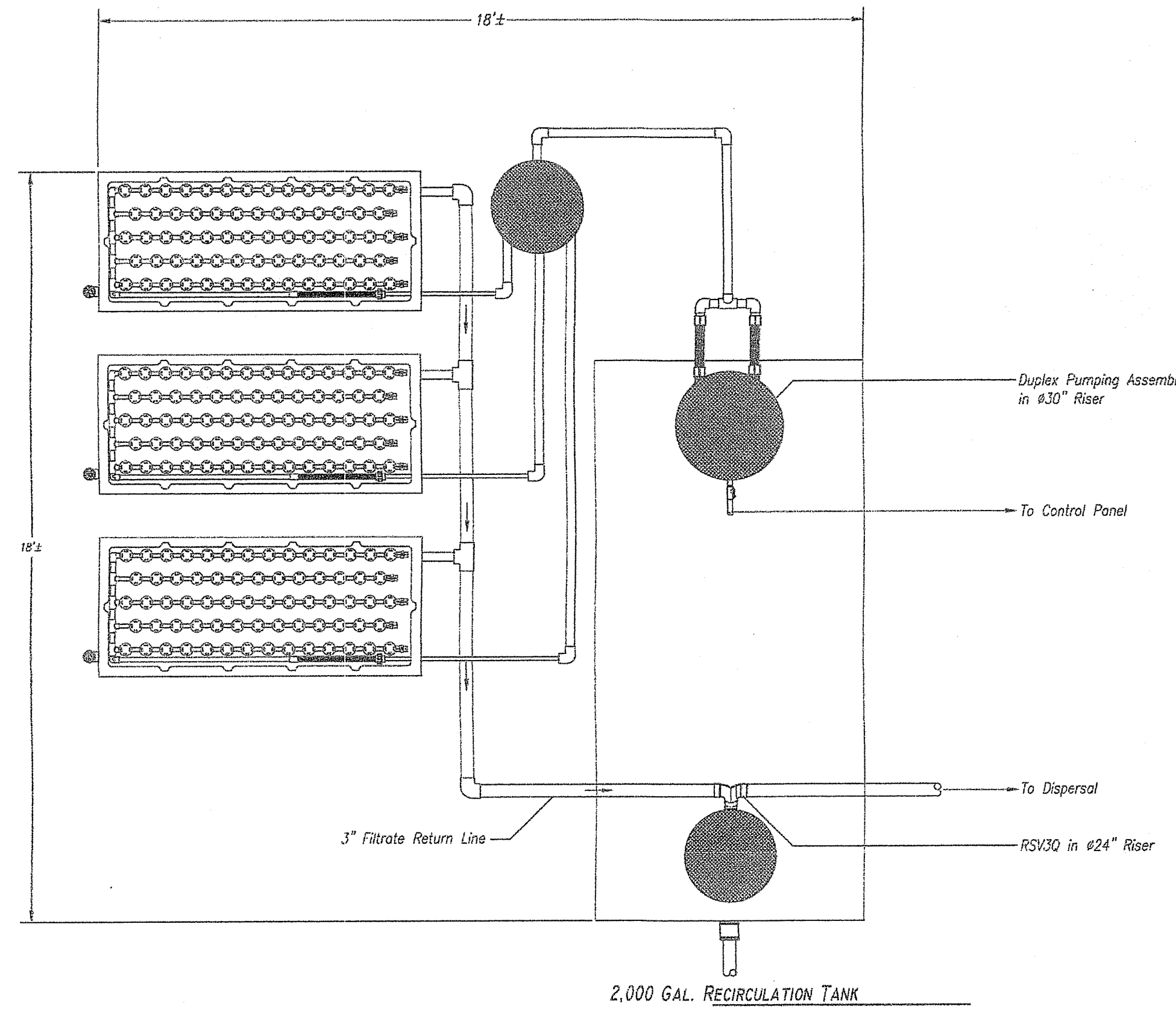
MAJOR LAND DEVELOPMENT PRELIMINARY PLAN
 for
 AP 17 LOT 22 & 280
 40 SAYLES HILL ROAD
 in
 NORTH SMITHFIELD, RHODE ISLAND

SCALE: AS NOTED SHEET NO: 8 OF 12
 DRAWN BY: JAR DESIGN BY: JAR CHECKED BY: TJP
 DATE: 3/5/20 PROJECT NO: 2019-14

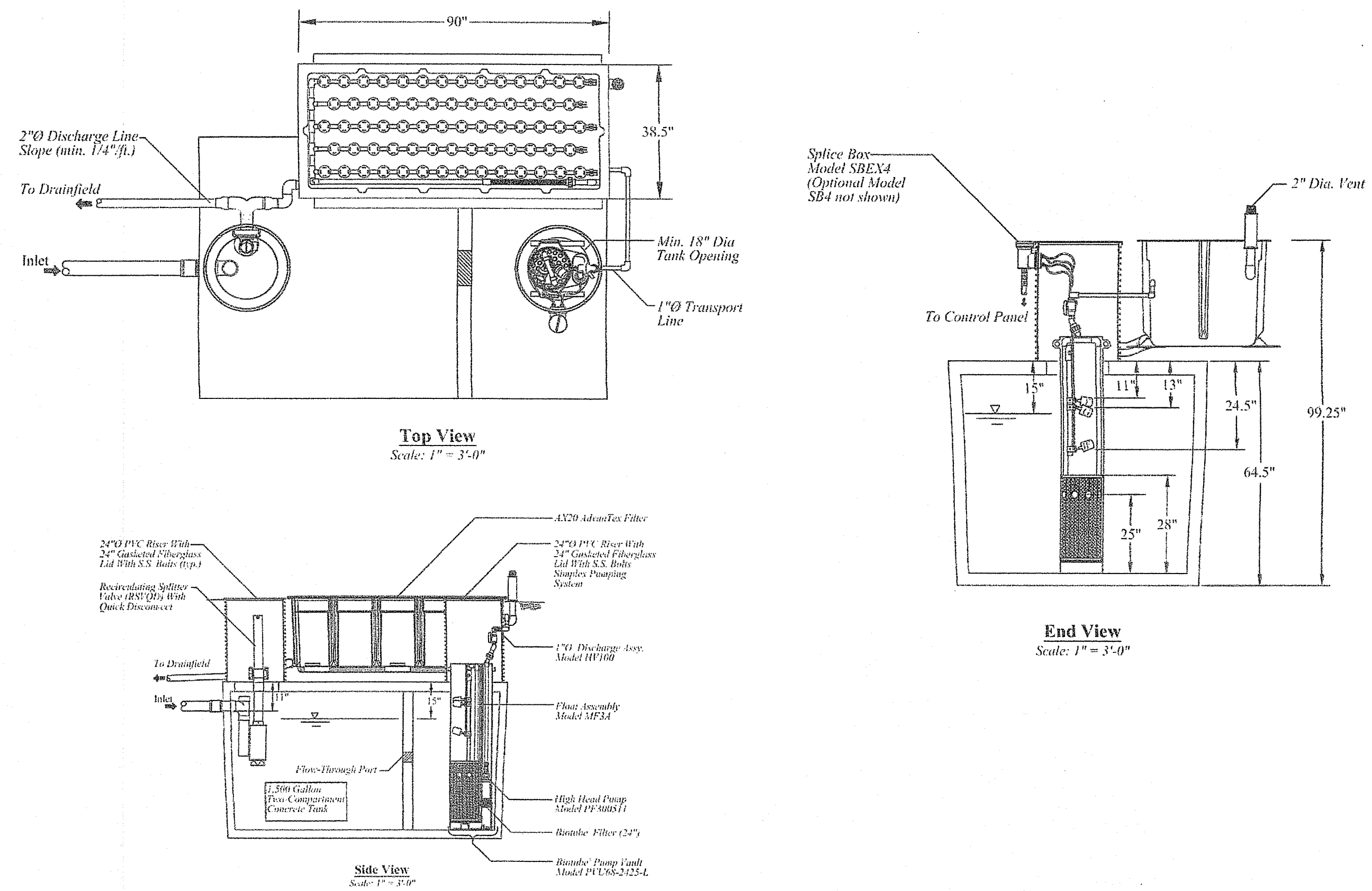
ADVANTEX TREATMENT SYSTEM- AX MODE 3a GENERAL NOTES:

AdvanTex® - AX20 System for Q_{pd} = 2,000 gpd

- VENDOR INFORMATION: TECHNICAL INFORMATION OR VENDOR MAY SERVICE MAY BE OBTAINED FROM THE FOLLOWING ORENCO SYSTEMS, INC. 614 AIRWAY AVENUE SUTHERLINE, OR 97479 TEL. 1-800-348-9843 FAX. 1-541-459-2884, OR WASTEWATER TECHNOLOGIES, INC. 70 VERMONT AVE., WARWICK, RI 02888 TEL.1-401-737-7810 FAX. 1-401-737-4521.
- THE TREATMENT SYSTEM PROVIDED (ADVANTEX TREATMENT SYSTEM - AX SERIES) MEETS THE REQUIREMENTS OF A CATEGORY 1 SYSTEM: ADVANCED TREATMENT UNIT THAT IS TIMED DOSED AND HAS BEEN CLASSIFIED BY RIDEM AS MEETING EFFLUENT STANDARDS LESS THAN OR EQUAL TO 20 mg/l FOR THE BOD5 AND TSS; AND FOG OF LESS THAN OR EQUAL TO 5 mg/l.
- ALL SEPTIC TANKS AND PUMP CHAMBERS FOR THE ADVANTEX TREATMENT SYSTEM SHALL BE WATER-TIGHT CONSTRUCTION AND SHALL BE PROVIDED WITH WATER-TIGHT PLASTIC OR FIBERGLASS RISERS ABOVE FINISHED GRADE. ALL INLET AND OUTLET PIPES TO CONCRETE CHAMBERS SHALL HAVE FLEXIBLE RUBBER SEALS SECURED BY STAINLESS STEEL BANDS TO FORM A WATER-TIGHT CONNECTION. WATER-TIGHT RUBBER GROMMETS SHALL BE USED AT INLET AND OUTLET PIPES TO PLASTIC OR FIBERGLASS PUMP CHAMBERS/BASINS.
- THE PUMP CHAMBER SPECIFIED AFTER THE TREATMENT SYSTEM DISCHARGING TO THE BSF SHALL PROVIDE A MINIMUM STORAGE VOLUME EQUAL TO THE DESIGN VOLUME DOSED INTO THE BSF DURING ONE PUMP RUN TIME AS INDICATED ON THIS SHEET. PUMP CHAMBERS FOR SEASONALLY-USED SYSTEMS SHALL BE INCREASED IN CAPACITY BY A MINIMUM OF THIRTY (30) PERCENT. REFER TO PUMP CHAMBER DIMENSIONAL SIZING THIS SHEET.
- A LICENSED ELECTRICIAN SHALL INSTALL ALL ELECTRICAL COMPONENTS WIRING, CIRCUITS, CONTROL & ALARM PANELS, AND ELECTRONIC CONTROL PANELS PER STATE/NATIONAL ELECTRIC CODE REQUIREMENTS.
- THE ADVANTEX TREATMENT SYSTEM SHALL INCLUDE A PROGRAMMABLE TIMER TO PROVIDE SMALL DOSES OF TREATMENT EFFLUENT TO THE BSF THROUGHOUT THE DAY. THE TYPICAL SYSTEM DESIGN DOSE WILL OCCUR 1 TO 2 DOSE PER HOUR. THE DESIGNER SHALL VERIFY THAT INSTALLER HAS FIELD-SET THE TIMER AND PUMP CHAMBER FLOAT SWITCHES AT THE TIME OF SYSTEM START UP. THE INSTALLER WILL BE REQUIRED TO MEET THE DESIGNER TWO TO FOUR WEEKS AFTER SUFFICIENT USE HAS OCCURRED OF THE SYSTEM TO ENSURE THAT THE PROGRAMMABLE TIMER IS RESET, AS NEEDED, AND ADJUSTED FOR ACTUAL FLOW CONDITIONS FOR THE SYSTEM.
- THE INSTALLER SHALL PROVIDE A HIGH LEVEL WATER ALARM, PUMP, AND FLOAT SWITCH(S) SET TO OVERRIDE THE PROGRAMMABLE TIMER IN THE EVENT OF TIMER MALFUNCTIONS OF TEMPORARY EXCESSIVE WATER USE, A LOW LEVEL WATER REDUNDANT OFF SHALL ALSO BE PROVIDED - REFER TO SEPTIC TANK AND PUMP BASIN DETAILS THIS SHEET.
- AN IMPULSE COUNTER SHALL BE PROVIDED ON THE TIMER OVERRIDE OR HIGH WATER ALARM FLOAT (WHICHEVER IS APPLICABLE BASED ON ESTIMATED FLOW CONDITIONS) FOR THE ADVANTEX TREATMENT SYSTEM AND PUMP CHAMBER/ BASIN PUMPS.
- PUMP CONTROL PANELS SHALL BE PROVIDED WITH AN ELAPSED TIME RUN METER AND A DOSING EVENT COUNTER (PUMP IMPULSE COUNTER) FOR EACH PUMP IN THE SYSTEM. THE ELAPSED TIME RUN METER AND DOSING EVENT COUNTER SHALL BE NON-RESETTABLE. PUMP CONTROL PANELS SHALL BE MOUNTED ON AN EXTERIOR WALL OF THE OF THE STRUCTURE FOR EASE OF SERVICE OF THE SYSTEM. IT IS RECOMMENDED THAT THE PANEL BOX(ES) BE PLACED IN A MANNER WITHIN VIEW OF THE SYSTEM LOCATION OF POSSIBLE TO HELP FACILITATE OPERATION AND MAINTENANCE.
- INSTALLATION OF THE ADVANTEX TREATMENT SYSTEM SHALL BE PERFORMED IN ACCORDANCE WITH THE ADVANTEX TREATMENT SYSTEM INSTALLATION GUIDE.
- IF THE ADVANTEX-AX FILTER IS PLACED OVER THE TOP OF THE TANK, A MINIMUM 5" THICK LAYER OF COMPACTED SOIL OR SAND MUST BE PLACED ON TOP OF THE TANK IN ORDER TO ACHIEVE THE REQUIRED SLOPE ON THE FILTRATE RETURN LINE. REFER TO INSTALLATION GUIDELINES FOR SPECIAL LENGTH REQUIREMENTS.
- RISER TANK ADAPTERS AND ACCESS RISERS SHALL BE CONSTRUCTED TO BE WATER-TIGHT. CARE SHALL BE TAKEN TO ORIENT RISERS TO CORRECT POSITIONS BEFORE REQUIRED ADHESIVE CURES. RISER-ADAPTER JOINTS SHALL ALSO BE SEALED BETWEEN THE ADAPTER AND RISER JOINT WITH A CONTINUOUS FILLET OF ADHESIVE SEALER. INSTALLER SHALL WATER TEST TANK AND RISER CONNECTIONS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND SAFETY GUIDELINES.
- INSTALLATION OF THE RECIRCULATING SPLITTER VALVE SHALL BE INSTALLED WITHIN THE RISER OVER THE SEPTIC TANK'S INLET AND MUST BE INSTALLED SO AS NOT TO INTERFERE WITH THE INLET TEE.
- THE ENTIRE VENTILATION FAN ASSEMBLY (VFA) MUST BE INSTALLED ABOVE THE SEASONAL HIGH GROUNDWATER LEVEL AIR INTAKE LINE SHOULD BE SLOPED TOWARDS THE VFA SO THAT ANY CONDENSING WATER WILL DRAIN THROUGH THE DUCKBILL IN THE VFA AND NOT ACCUMULATE IN THE LINE. AIR INTAKE SHOULD BE MOUNTED AT A LOCATION WHICH REDUCES POSSIBLE DAMAGE FORM OUTDOOR ACTIVITIES. AIR INTAKE PIPING SHALL BE LESS THAN 40' IN LENGTH. CONSULT ORENCO FOR LONGER DISTANCES.
- THE HIGH-HEAD PUMP AND RESPECTIVE FLOAT LEVELS FOR THE ADVANTEX FILTER POD WITH THE TWO COMPARTMENT SEPTIC TANK SHALL BE INSTALLED PER THE INSTALLATION GUIDELINES DOCUMENT AND MANUFACTURER'S SPECIFICATIONS.
- CONTROL PANEL, ELECTRICAL JUNCTION BOXES, AND WIRING RUNS SHALL BE INSTALLED BY A LICENSED ELECTRICIAN.
- PUMPS AND FLOAT LEVELS SHALL BE MANUALLY AND AUTOMATICALLY TESTED. DESIGNER SHALL BE PRESENT DURING TESTING OF SYSTEM COMPONENTS. MANUAL AND AUTOMATIC TESTING SHALL BE PERFORMED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.
- WHENEVER AN ALARM CONDITION OCCURS, THE RED LIGHT ON THE FRONT OF THE ALARM PANEL WILL COME ON, ALONG WITH THE AUDIBLE HORN. THE AUDIBLE PORTION OF ALL ALARMS CAN BE SILENCED BY PUSHING THE ILLUMINATED LIGHT.



AdvanTex® AX20 Mode 3A

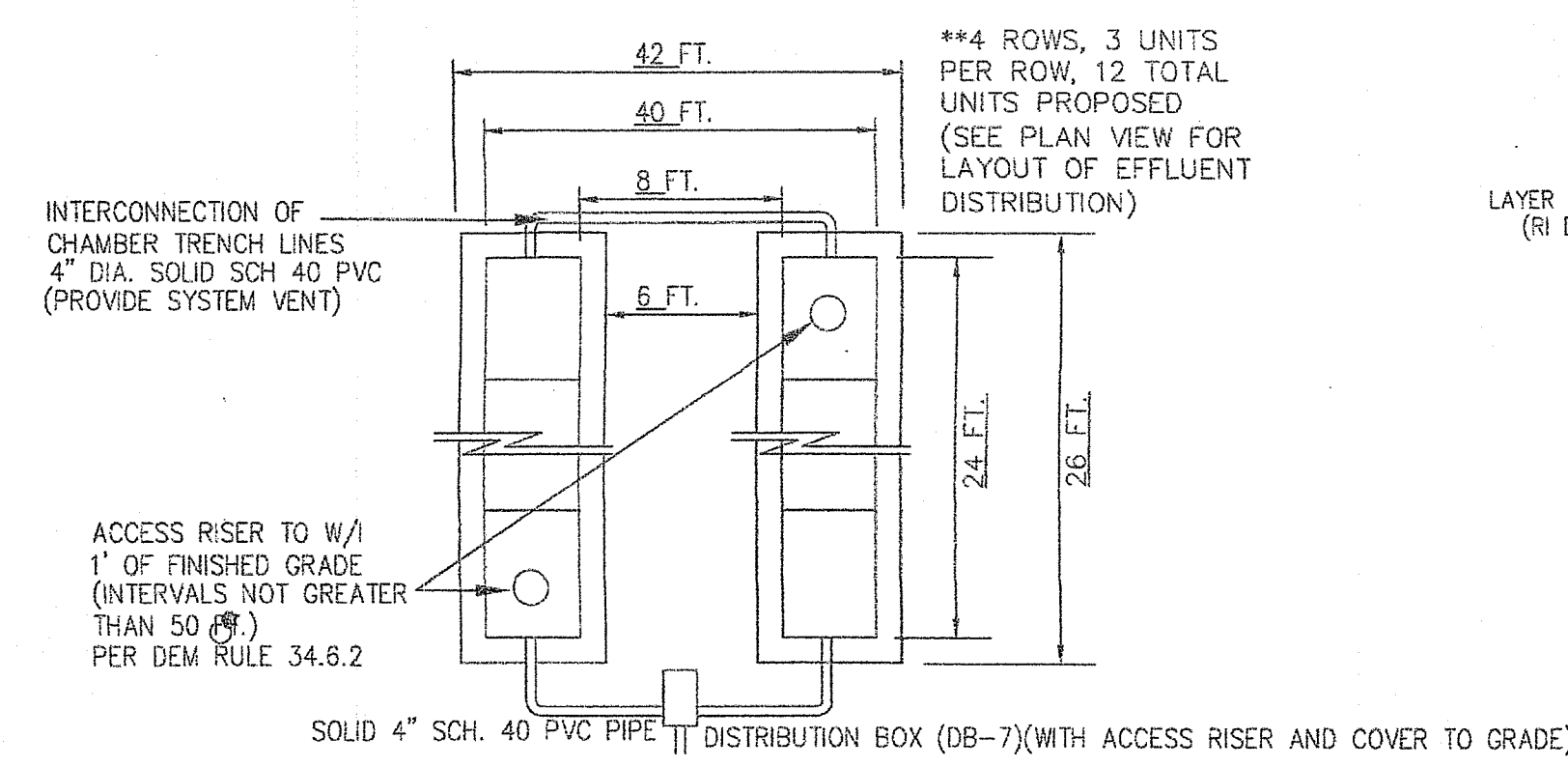


ADVANTEX TREATMENT SYSTEM OPERATION MAINTENANCE (O&M) REQUIREMENTS:

- WARNING - BEFORE DOING ANY WORK ON EITHER THE WIRING TO THE LEVEL CONTROL FLOATS AND PUMPS IN THE VAULT, TANKS, OR ON THE CONTROL PANEL, PULL THE FUSE AND/OR SWITCH ALL THE CIRCUIT BREAKERS SERVING THE CONTROL PANEL TO THE "OFF" POSITION. DO NOT ENTER A CONFINED SPACE WITHOUT USING PROPER EQUIPMENT AND FOLLOWING STANDARD CONFINED SPACE SAFETY PRECAUTIONS.
- THE INSTALLER AND SYSTEM SERVICE PROVIDER SHALL BE FAMILIAR WITH THE ADVANTEX TREATMENT SYSTEM O&M MANUAL REQUIREMENTS AND PROCEDURES FOR THE SYSTEM TO BE INSTALLED.
- THE OWNER(S) SHALL BE PROVIDED WITH A 3-YEAR LIMITED WARRANTY FOR THE ADVANTEX TREATMENT SYSTEM FROM ORENCO SYSTEMS, INC. OR A LICENSED VENDOR. THIS WARRANTY REQUIRES THE OWNER(S) OF THE SYSTEM TO OBTAIN A 3-YEAR SERVICE CONTRACT BY AN ORENCO AUTHORIZED SERVICE PROVIDER, AS SPELLED OUT IN THE SALES CONTRACT.
- THE INSTALLER SHALL PROVIDE THE OWNER(S) WITH PUMP WARRANTY INFORMATION - TYPICALLY 5 YEARS ON THE OS3 PUMPS.
- REGULAR INSPECTION AND MAINTENANCE OF THE ADVANTEX TREATMENT SYSTEM COMPONENTS SHALL BE PERFORMED THREE (3) MONTHS AFTER SYSTEM START-UP AND THEN EVERY 12 MONTHS THEREAFTER, OR MORE FREQUENTLY IF NECESSARY. PUMP OPERATIONS, CONTROL PANELS, PUMP ALARMS AND TIMER SETTINGS SHALL BE TESTED IN ACCORDANCE WITH THE O&M MANUAL REQUIREMENTS. ALL OUTLINED SAFETY PRECAUTIONS SHALL BE TAKEN DURING TESTING AND SERVICING THE SYSTEM.
- MEASUREMENT OF SOLIDS ACCUMULATION SHOULD BE PERFORMED SO THAT THE PROCESSING TANK (SEPTIC TANK) PUMPING RECOMMENDATIONS CAN BE GIVEN TO THE OWNER(S). A RECOMMENDATIONS FOR PUMPING SHALL BE MADE WHEN THE BOTTOM OF THE SCUM LAYER IS WITHIN 3" OF THE FLOW-THROUGH PORTS OF THE PUMP VAULT (2nd TANK COMPARTMENT) OR THEN THERE IS AN ACCUMULATION OF SLUDGE WITHIN 6" BELOW THE FLOW-THROUGH PORTS.
- TEXTILE FILTER MEDIA (AX) WITHIN THE RECIRCULATING FILTER POD SHALL BE CLEANED/REPLACED AS NECESSARY IN ACCORDANCE WITH THE ADVANTEX O&M MANUAL AND MANUFACTURER'S RECOMMENDATIONS.
- ALL EFFLUENT FILTER(S) SHALL BE HOSED OFF ON A YEARLY BASIS, AN WHENEVER SEPTIC TANKS AND PUMP BASINS ARE PUMPED. SYSTEMS OPERATING ABOVE THEIR DESIGN FLOWS MAY REQUIRE MORE FREQUENT EFFLUENT FILTER CLEANING. IF THE SCREENED PUMP VAULT IS REMOVED, THE CLEANED VAULT SHOULD BE FILLED WITH CLEAN WATER FROM A GARDEN HOSE OR CLEAN POTABLE WATER SUPPLY BY THE SERVICE PROVIDER AS THE PUMP VAULT IS LOWERED BY INTO THE SEPTIC TANK. ALL SLIME MATERIAL HOSED OFF OF FILTERS, PUMPS AND VAULTS SHOULD BE PLACED INTO THE INLET END OF THE SEPTIC TANK, ACCESSIBLE THROUGH THE INLET ACCESS RISER/MANHOLE.
- ALL TANKS AND BASINS SHALL BE VISUALLY INSPECTED FOR WATER-TIGHTNESS AND STRUCTURAL SOUNDNESS WHEN MAINTENANCE IS PROFORMED.

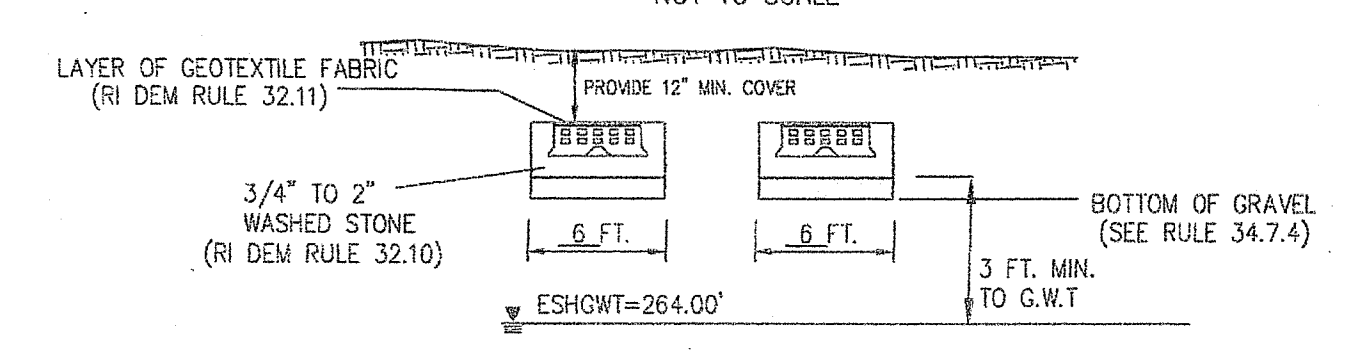
SYSTEM INSTALLER AND PROPERTY OWNER NOTE

THE ONSITE WASTEWATER TREATMENT SYSTEM (OWTS) AND PROPOSED IMPROVEMENTS ON THIS PLAN SHALL BE STAKED BY A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF RHODE ISLAND. THE SYSTEM INSPECTION THROUGHOUT THE ENTIRE INSTALLATION SHALL BE THE RESPONSIBILITY OF THE PREPARER OF THIS PLAN AND OR HIS AUTHORIZED REPRESENTATIVE, THE INSTALLATION SHALL BE AS PER TO LOCATION, DESIGN, CONSTRUCTION AND MAINTENANCE OF ONSITE WASTEWATER TREATMENT SYSTEMS" AS ENFORCED UNDER CURRENT RIDEM DIVISION OF GROUNDWATER AND OWTS SECTION PROCEDURES AND POLICIES. PRIOR TO THE START OF ANY CONSTRUCTION, AND WITH A MINIMUM 48 HOURS NOTICE AS TO THE DATE OF THE START OF CONSTRUCTION, THE INSTALLER SHALL NOTIFY THE SYSTEM DESIGNER.

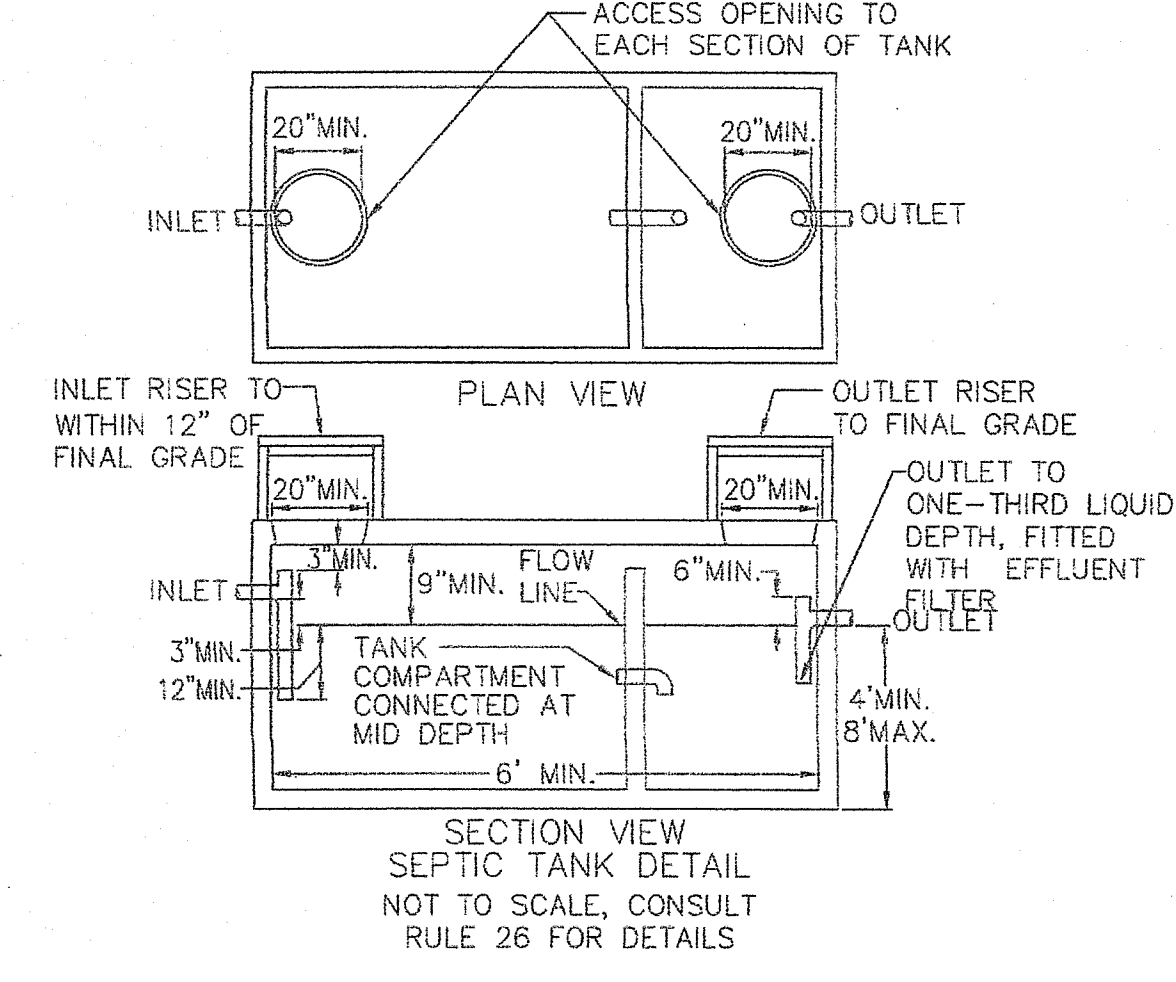
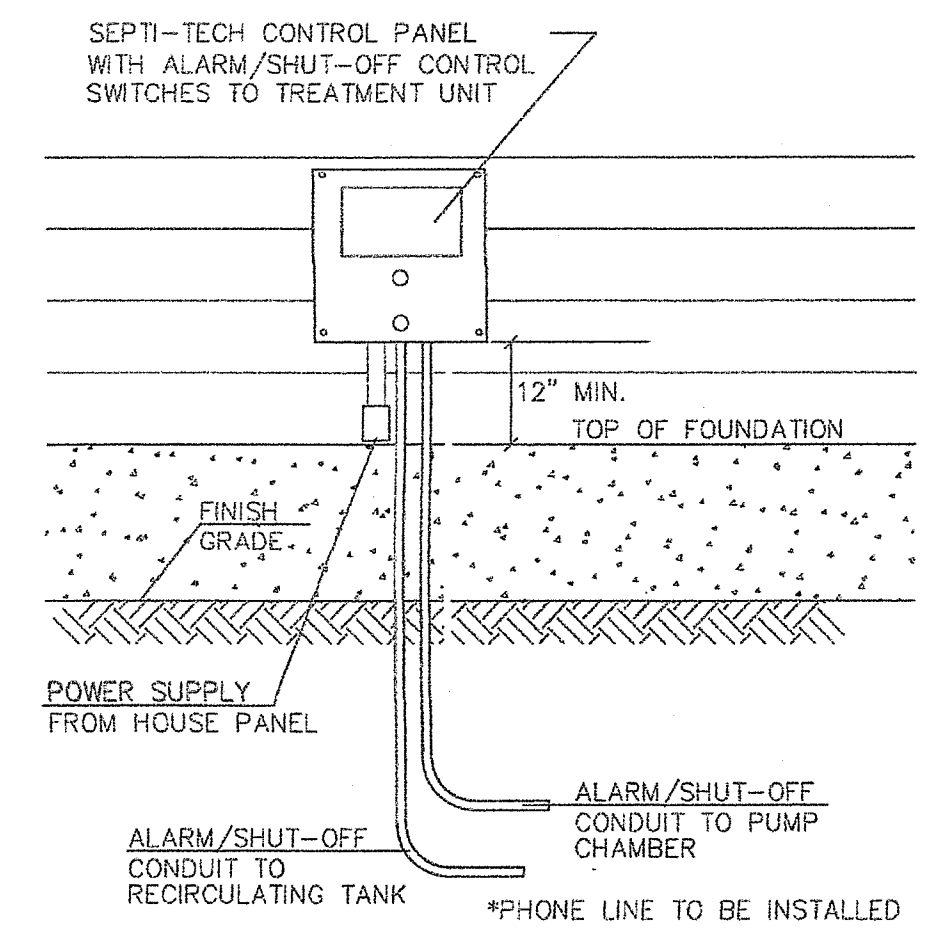


SHALLOW CONCRETE CHAMBERS PLAN DETAIL
NOT TO SCALE

TYPICAL SHALLOW CONCRETE CHAMBERS CROSS SECTION DETAIL (TRENCHES)
NOT TO SCALE



Electrical Control Panel
NOT TO SCALE

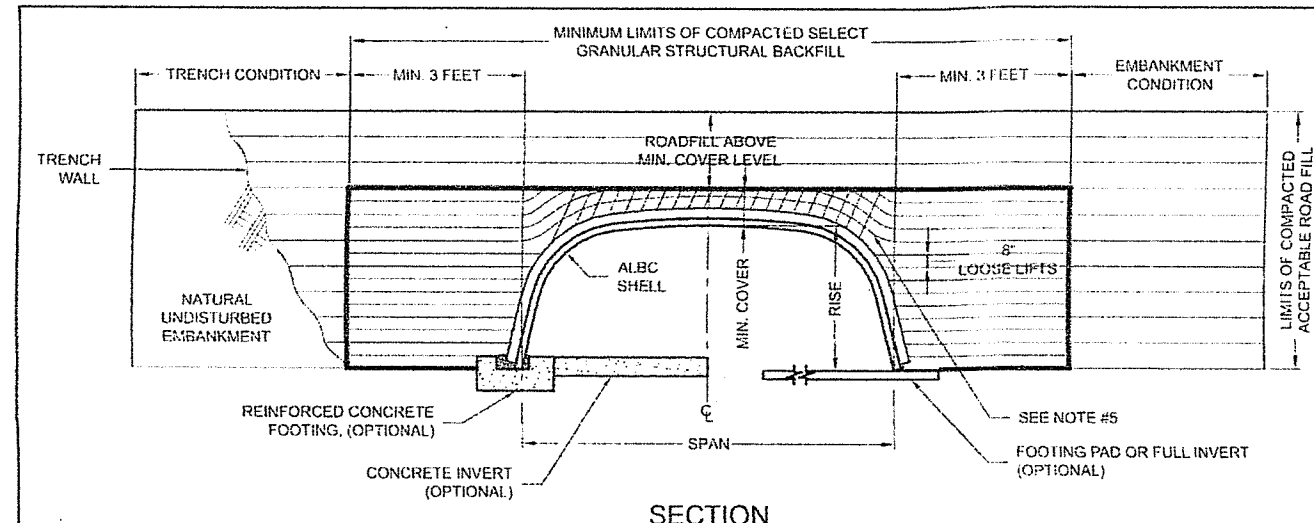


SECTION VIEW SEPTIC TANK DETAIL
NOT TO SCALE, CONSULT RULE 26 FOR DETAILS

Martin D. Wenzel
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED MAY 2 8 2021 FILE # 20-0073
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

CONSTRUCTION DETAILS - 5

<p>PRINCIPE COMPANY, INC. ENGINEERING DIVISION PO BOX 298 TIVERTON, RI 02878 401.818.5385 PRINCIPEENGINEERING@GMAIL.COM</p>	
<p>MAJOR LAND DEVELOPMENT PRELIMINARY PLAN for AP 17 LOT 22 & 280 40 SAYLES HILL ROAD in NORTH SMITHFIELD, RHODE ISLAND</p>	
<p>SCALE: AS NOTED</p>	<p>SHEET NO: 9 OF 12</p>
<p>DRAWN BY: JAR</p>	<p>DESIGN BY: JAR</p>
<p>DATE: 3/5/20</p>	<p>CHECKED BY: TJP</p>
<p>PROJECT NO.: 2019-14</p>	



SECTION

ADDITIONAL SELECT GRANULAR STRUCTURAL BACKFILL NOTES:

SATISFACTORY BACKFILL MATERIAL, PROPER PLACEMENT, AND COMPACTION ARE KEY FACTORS IN OBTAINING MAXIMUM STRUCTURAL STABILITY.

THE BACKFILL MATERIAL SHOULD BE FREE OF ROCKS, FRESH LIMBS AND FOREIGN MATERIAL THAT COULD CAUSE HARM SPOTS OR DECOMPOSE TO CREATE VOID BACKFILL MATERIAL SHOULD BE WELL GRADED OR AS NEARLY AS POSSIBLE. THE REQUIREMENTS OF ASTM D 1557 FOR SOIL CLASSIFICATION A-1, A-2, A-3, A-4, A-5, AND A-6 SHOULD BE MET.

IF THE STRUCTURAL PLATE BACKFILL GROUP CLASSIFICATION FALLS ON THE RIGHT SIDE OF THE STRUCTURAL PLATE BACKFILL GROUP CLASSIFICATION, THE PERCENTAGE OF SILT ON FINES SANDS IN THE NATURAL SOIL SUGGESTS THE USE OF A WELL GRADED GRANULAR BACKFILL MATERIAL. TO PREVENT SOIL MIGRATION IN THE PROPOSED BACKFILL, A WELL GRADED MATERIAL, NON-WOVEN GEOTEXTILE FILTER FABRIC, SHALL BE PLACED BETWEEN THE SOIL BACKFILL AND THE STRUCTURAL PLATE.

LOADING BACKFILL OVER EXISTING STRUCTURES SHOULD BE DONE CAREFULLY TO AVOID THE STRUCTURE AS ALL PROGRESSES BEHIND THE CROWN AND TO THE FUTURE. LOADS OF THE PROPOSED BACKFILL SHOULD BE CARRIED TO THE STRUCTURE CONVEYANCE TO BE INCREASED TO HANDLE TEMPORARY CONSTRUCTION LOADS (BRIDGE STAKE-OUT).

- INITIAL LIFTS OVER THE CROWN OF STRUCTURE AS INDICATED BY SHADDED AREA TO BE COMPACTED TO REQUIRED DENSITY WITH HAND OPERATED EQUIPMENT OR WITH LIGHTWEIGHT-LIFT OR LIGHTER EQUIPMENT.
1. ALL SELECT GRANULAR BACKFILL TO BE PLACED IN BRIDGES SHOWN IN THIS SET OF DRAWINGS TO BE COMPACTED TO THE REQUIRED DENSITY.
 2. COMPACT ALL SELECT GRANULAR BACKFILL TO THE REQUIRED DENSITY WITH HAND OPERATED EQUIPMENT OR WITH LIGHTWEIGHT-LIFT OR LIGHTER EQUIPMENT.
 3. PROTECT ALL EXISTING UTILITIES FROM DAMAGE BY THE PROPOSED BACKFILL.
 4. PROTECT ALL EXISTING UTILITIES FROM DAMAGE BY THE PROPOSED BACKFILL.
 5. PROTECT ALL EXISTING UTILITIES FROM DAMAGE BY THE PROPOSED BACKFILL.

GROUP CLASSIFICATION	A-1-A	A-1-B	A-2-A	A-2-B	A-3	A-4	A-5	A-6
Max. 10% Fines	50 max.	50 max.	50 max.	50 max.	50 max.	50 max.	50 max.	50 max.
Max. 20% Fines	15 max.	15 max.	15 max.	15 max.	15 max.	15 max.	15 max.	15 max.
Max. 40% Fines	15 max.	15 max.	15 max.	15 max.	15 max.	15 max.	15 max.	15 max.
Max. 60% Fines	15 max.	15 max.	15 max.	15 max.	15 max.	15 max.	15 max.	15 max.
Max. 80% Fines	15 max.	15 max.	15 max.	15 max.	15 max.	15 max.	15 max.	15 max.
Max. 100% Fines	15 max.	15 max.	15 max.	15 max.	15 max.	15 max.	15 max.	15 max.

STRUCTURAL PLATE BACKFILL GROUP CLASSIFICATION REFERENCE AASHTO M 145

GROUP CLASSIFICATION A-1-A A-1-B A-2-A A-2-B A-3 A-4 A-5 A-6

Soil Analysis Report Pending

Max. 10% Fines 50 max. 50 max. 50 max. 50 max. 50 max. 50 max. 50 max. 50 max.

Max. 20% Fines 15 max. 15 max. 15 max. 15 max. 15 max. 15 max. 15 max. 15 max.

Max. 40% Fines 15 max. 15 max. 15 max. 15 max. 15 max. 15 max. 15 max. 15 max.

Max. 60% Fines 15 max. 15 max. 15 max. 15 max. 15 max. 15 max. 15 max. 15 max.

Max. 80% Fines 15 max. 15 max. 15 max. 15 max. 15 max. 15 max. 15 max. 15 max.

Max. 100% Fines 15 max. 15 max. 15 max. 15 max. 15 max. 15 max. 15 max. 15 max.

Liquid Limits 40 max. 40 max. 40 max. 40 max. 40 max. 40 max. 40 max. 40 max.

Plasticity Index 6 max. 6 max. 6 max. 6 max. 6 max. 6 max. 6 max. 6 max.

Usual Materials Stone Fragment, Gravel and Sand Silty or Clayey Gravel and Sand Coarse Sand

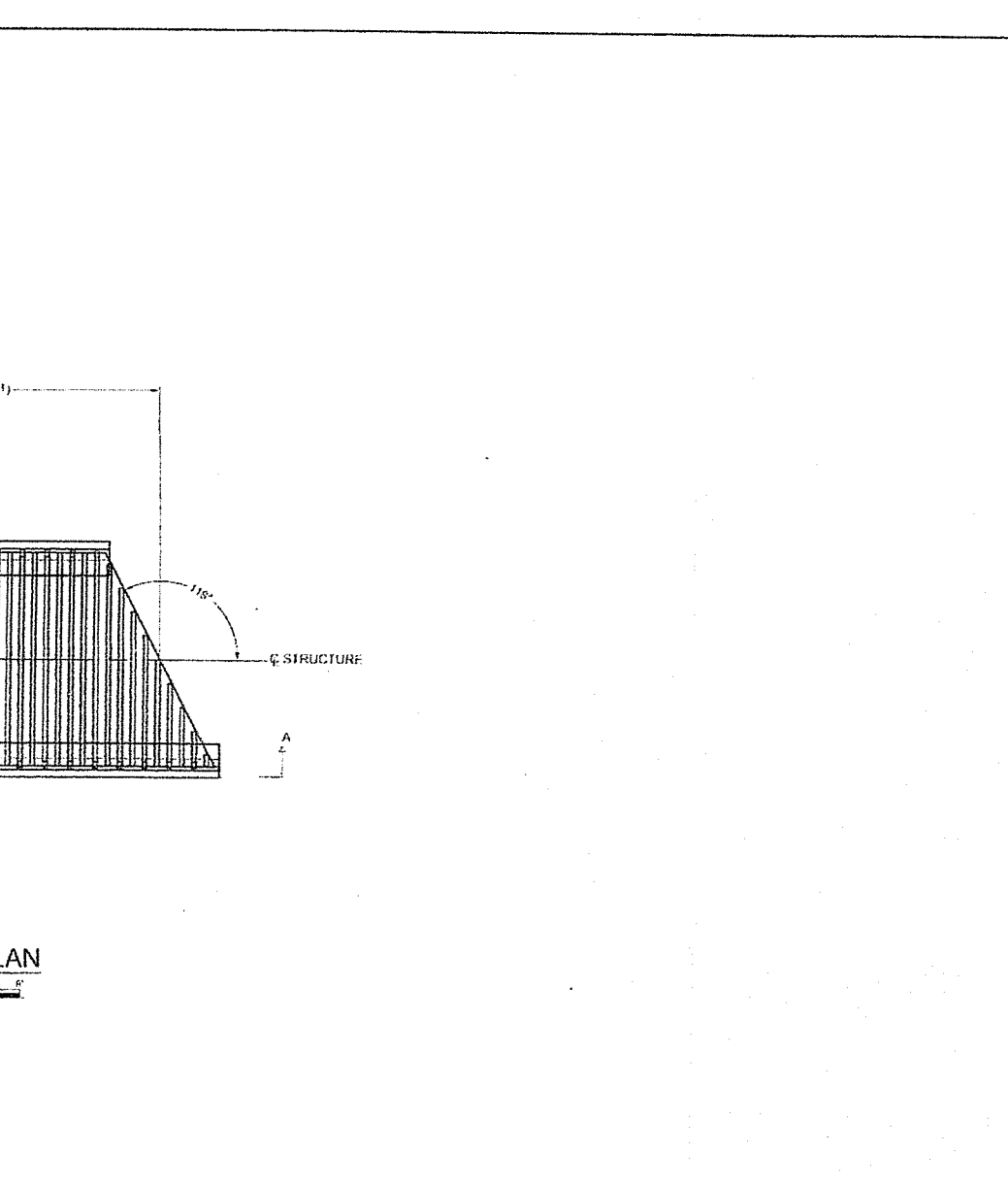
Modified from M 145

Flow back tests, wet/dry tests, stream equipped sands, etc., combining the, rounded particles and gradation checked by AASHTO M 145 as A-3 materials shall not be used.

Reference the soil analysis report of AASHTO M 145 Standard Practice for Classification of Soils for Engineering Purposes Unified Soil Classification System, for comparable soil groups.

- 1.0 STANDARDS AND REFERENCES
- 1.1 STANDARDS: All standards refer to the current ASTM/AASHTO edition unless otherwise noted.
 - 1.1.1 AASHTO Manual Standard Specification for Concrete Reinforced with Steel Bars (AASHTO Designation M 318).
 - 1.1.2 AASHTO Standard Specification for Highway Bridges - Section 10 Division 1 - Concrete (AASHTO Designation M 318).
 - 1.1.3 AASHTO Standard Specification for Highway Bridges - Section 10 Division 2 - Concrete (AASHTO Designation M 318).
 - 1.1.4 AASHTO Standard Specification for Highway Bridges - Section 10 Division 3 - Concrete (AASHTO Designation M 318).
 - 1.1.5 AASHTO Standard Specification for Highway Bridges - Section 10 Division 4 - Concrete (AASHTO Designation M 318).
 - 1.1.6 AASHTO Standard Specification for Highway Bridges - Section 10 Division 5 - Concrete (AASHTO Designation M 318).
 - 1.1.7 AASHTO Standard Specification for Highway Bridges - Section 10 Division 6 - Concrete (AASHTO Designation M 318).
 - 1.1.8 AASHTO Standard Specification for Highway Bridges - Section 10 Division 7 - Concrete (AASHTO Designation M 318).
 - 1.1.9 AASHTO Standard Specification for Highway Bridges - Section 10 Division 8 - Concrete (AASHTO Designation M 318).
 - 1.1.10 AASHTO Standard Specification for Highway Bridges - Section 10 Division 9 - Concrete (AASHTO Designation M 318).
 - 1.1.11 AASHTO Standard Specification for Highway Bridges - Section 10 Division 10 - Concrete (AASHTO Designation M 318).
 - 1.1.12 AASHTO Standard Specification for Highway Bridges - Section 10 Division 11 - Concrete (AASHTO Designation M 318).
 - 1.1.13 AASHTO Standard Specification for Highway Bridges - Section 10 Division 12 - Concrete (AASHTO Designation M 318).
 - 1.1.14 AASHTO Standard Specification for Highway Bridges - Section 10 Division 13 - Concrete (AASHTO Designation M 318).
 - 1.1.15 AASHTO Standard Specification for Highway Bridges - Section 10 Division 14 - Concrete (AASHTO Designation M 318).
 - 1.1.16 AASHTO Standard Specification for Highway Bridges - Section 10 Division 15 - Concrete (AASHTO Designation M 318).
 - 1.1.17 AASHTO Standard Specification for Highway Bridges - Section 10 Division 16 - Concrete (AASHTO Designation M 318).
 - 1.1.18 AASHTO Standard Specification for Highway Bridges - Section 10 Division 17 - Concrete (AASHTO Designation M 318).
 - 1.1.19 AASHTO Standard Specification for Highway Bridges - Section 10 Division 18 - Concrete (AASHTO Designation M 318).
 - 1.1.20 AASHTO Standard Specification for Highway Bridges - Section 10 Division 19 - Concrete (AASHTO Designation M 318).
 - 1.1.21 AASHTO Standard Specification for Highway Bridges - Section 10 Division 20 - Concrete (AASHTO Designation M 318).
 - 1.1.22 AASHTO Standard Specification for Highway Bridges - Section 10 Division 21 - Concrete (AASHTO Designation M 318).
 - 1.1.23 AASHTO Standard Specification for Highway Bridges - Section 10 Division 22 - Concrete (AASHTO Designation M 318).
 - 1.1.24 AASHTO Standard Specification for Highway Bridges - Section 10 Division 23 - Concrete (AASHTO Designation M 318).
 - 1.1.25 AASHTO Standard Specification for Highway Bridges - Section 10 Division 24 - Concrete (AASHTO Designation M 318).
 - 1.1.26 AASHTO Standard Specification for Highway Bridges - Section 10 Division 25 - Concrete (AASHTO Designation M 318).
 - 1.1.27 AASHTO Standard Specification for Highway Bridges - Section 10 Division 26 - Concrete (AASHTO Designation M 318).
 - 1.1.28 AASHTO Standard Specification for Highway Bridges - Section 10 Division 27 - Concrete (AASHTO Designation M 318).
 - 1.1.29 AASHTO Standard Specification for Highway Bridges - Section 10 Division 28 - Concrete (AASHTO Designation M 318).
 - 1.1.30 AASHTO Standard Specification for Highway Bridges - Section 10 Division 29 - Concrete (AASHTO Designation M 318).
 - 1.1.31 AASHTO Standard Specification for Highway Bridges - Section 10 Division 30 - Concrete (AASHTO Designation M 318).
 - 1.1.32 AASHTO Standard Specification for Highway Bridges - Section 10 Division 31 - Concrete (AASHTO Designation M 318).
 - 1.1.33 AASHTO Standard Specification for Highway Bridges - Section 10 Division 32 - Concrete (AASHTO Designation M 318).
 - 1.1.34 AASHTO Standard Specification for Highway Bridges - Section 10 Division 33 - Concrete (AASHTO Designation M 318).
 - 1.1.35 AASHTO Standard Specification for Highway Bridges - Section 10 Division 34 - Concrete (AASHTO Designation M 318).
 - 1.1.36 AASHTO Standard Specification for Highway Bridges - Section 10 Division 35 - Concrete (AASHTO Designation M 318).
 - 1.1.37 AASHTO Standard Specification for Highway Bridges - Section 10 Division 36 - Concrete (AASHTO Designation M 318).
 - 1.1.38 AASHTO Standard Specification for Highway Bridges - Section 10 Division 37 - Concrete (AASHTO Designation M 318).
 - 1.1.39 AASHTO Standard Specification for Highway Bridges - Section 10 Division 38 - Concrete (AASHTO Designation M 318).
 - 1.1.40 AASHTO Standard Specification for Highway Bridges - Section 10 Division 39 - Concrete (AASHTO Designation M 318).
 - 1.1.41 AASHTO Standard Specification for Highway Bridges - Section 10 Division 40 - Concrete (AASHTO Designation M 318).
 - 1.1.42 AASHTO Standard Specification for Highway Bridges - Section 10 Division 41 - Concrete (AASHTO Designation M 318).
 - 1.1.43 AASHTO Standard Specification for Highway Bridges - Section 10 Division 42 - Concrete (AASHTO Designation M 318).
 - 1.1.44 AASHTO Standard Specification for Highway Bridges - Section 10 Division 43 - Concrete (AASHTO Designation M 318).
 - 1.1.45 AASHTO Standard Specification for Highway Bridges - Section 10 Division 44 - Concrete (AASHTO Designation M 318).
 - 1.1.46 AASHTO Standard Specification for Highway Bridges - Section 10 Division 45 - Concrete (AASHTO Designation M 318).
 - 1.1.47 AASHTO Standard Specification for Highway Bridges - Section 10 Division 46 - Concrete (AASHTO Designation M 318).
 - 1.1.48 AASHTO Standard Specification for Highway Bridges - Section 10 Division 47 - Concrete (AASHTO Designation M 318).
 - 1.1.49 AASHTO Standard Specification for Highway Bridges - Section 10 Division 48 - Concrete (AASHTO Designation M 318).
 - 1.1.50 AASHTO Standard Specification for Highway Bridges - Section 10 Division 49 - Concrete (AASHTO Designation M 318).
 - 1.1.51 AASHTO Standard Specification for Highway Bridges - Section 10 Division 50 - Concrete (AASHTO Designation M 318).
 - 1.1.52 AASHTO Standard Specification for Highway Bridges - Section 10 Division 51 - Concrete (AASHTO Designation M 318).
 - 1.1.53 AASHTO Standard Specification for Highway Bridges - Section 10 Division 52 - Concrete (AASHTO Designation M 318).
 - 1.1.54 AASHTO Standard Specification for Highway Bridges - Section 10 Division 53 - Concrete (AASHTO Designation M 318).
 - 1.1.55 AASHTO Standard Specification for Highway Bridges - Section 10 Division 54 - Concrete (AASHTO Designation M 318).
 - 1.1.56 AASHTO Standard Specification for Highway Bridges - Section 10 Division 55 - Concrete (AASHTO Designation M 318).
 - 1.1.57 AASHTO Standard Specification for Highway Bridges - Section 10 Division 56 - Concrete (AASHTO Designation M 318).
 - 1.1.58 AASHTO Standard Specification for Highway Bridges - Section 10 Division 57 - Concrete (AASHTO Designation M 318).
 - 1.1.59 AASHTO Standard Specification for Highway Bridges - Section 10 Division 58 - Concrete (AASHTO Designation M 318).
 - 1.1.60 AASHTO Standard Specification for Highway Bridges - Section 10 Division 59 - Concrete (AASHTO Designation M 318).
 - 1.1.61 AASHTO Standard Specification for Highway Bridges - Section 10 Division 60 - Concrete (AASHTO Designation M 318).
 - 1.1.62 AASHTO Standard Specification for Highway Bridges - Section 10 Division 61 - Concrete (AASHTO Designation M 318).
 - 1.1.63 AASHTO Standard Specification for Highway Bridges - Section 10 Division 62 - Concrete (AASHTO Designation M 318).
 - 1.1.64 AASHTO Standard Specification for Highway Bridges - Section 10 Division 63 - Concrete (AASHTO Designation M 318).
 - 1.1.65 AASHTO Standard Specification for Highway Bridges - Section 10 Division 64 - Concrete (AASHTO Designation M 318).
 - 1.1.66 AASHTO Standard Specification for Highway Bridges - Section 10 Division 65 - Concrete (AASHTO Designation M 318).
 - 1.1.67 AASHTO Standard Specification for Highway Bridges - Section 10 Division 66 - Concrete (AASHTO Designation M 318).
 - 1.1.68 AASHTO Standard Specification for Highway Bridges - Section 10 Division 67 - Concrete (AASHTO Designation M 318).
 - 1.1.69 AASHTO Standard Specification for Highway Bridges - Section 10 Division 68 - Concrete (AASHTO Designation M 318).
 - 1.1.70 AASHTO Standard Specification for Highway Bridges - Section 10 Division 69 - Concrete (AASHTO Designation M 318).
 - 1.1.71 AASHTO Standard Specification for Highway Bridges - Section 10 Division 70 - Concrete (AASHTO Designation M 318).
 - 1.1.72 AASHTO Standard Specification for Highway Bridges - Section 10 Division 71 - Concrete (AASHTO Designation M 318).
 - 1.1.73 AASHTO Standard Specification for Highway Bridges - Section 10 Division 72 - Concrete (AASHTO Designation M 318).
 - 1.1.74 AASHTO Standard Specification for Highway Bridges - Section 10 Division 73 - Concrete (AASHTO Designation M 318).
 - 1.1.75 AASHTO Standard Specification for Highway Bridges - Section 10 Division 74 - Concrete (AASHTO Designation M 318).
 - 1.1.76 AASHTO Standard Specification for Highway Bridges - Section 10 Division 75 - Concrete (AASHTO Designation M 318).
 - 1.1.77 AASHTO Standard Specification for Highway Bridges - Section 10 Division 76 - Concrete (AASHTO Designation M 318).
 - 1.1.78 AASHTO Standard Specification for Highway Bridges - Section 10 Division 77 - Concrete (AASHTO Designation M 318).
 - 1.1.79 AASHTO Standard Specification for Highway Bridges - Section 10 Division 78 - Concrete (AASHTO Designation M 318).
 - 1.1.80 AASHTO Standard Specification for Highway Bridges - Section 10 Division 79 - Concrete (AASHTO Designation M 318).
 - 1.1.81 AASHTO Standard Specification for Highway Bridges - Section 10 Division 80 - Concrete (AASHTO Designation M 318).
 - 1.1.82 AASHTO Standard Specification for Highway Bridges - Section 10 Division 81 - Concrete (AASHTO Designation M 318).
 - 1.1.83 AASHTO Standard Specification for Highway Bridges - Section 10 Division 82 - Concrete (AASHTO Designation M 318).
 - 1.1.84 AASHTO Standard Specification for Highway Bridges - Section 10 Division 83 - Concrete (AASHTO Designation M 318).
 - 1.1.85 AASHTO Standard Specification for Highway Bridges - Section 10 Division 84 - Concrete (AASHTO Designation M 318).
 - 1.1.86 AASHTO Standard Specification for Highway Bridges - Section 10 Division 85 - Concrete (AASHTO Designation M 318).
 - 1.1.87 AASHTO Standard Specification for Highway Bridges - Section 10 Division 86 - Concrete (AASHTO Designation M 318).
 - 1.1.88 AASHTO Standard Specification for Highway Bridges - Section 10 Division 87 - Concrete (AASHTO Designation M 318).
 - 1.1.89 AASHTO Standard Specification for Highway Bridges - Section 10 Division 88 - Concrete (AASHTO Designation M 318).
 - 1.1.90 AASHTO Standard Specification for Highway Bridges - Section 10 Division 89 - Concrete (AASHTO Designation M 318).
 - 1.1.91 AASHTO Standard Specification for Highway Bridges - Section 10 Division 90 - Concrete (AASHTO Designation M 318).
 - 1.1.92 AASHTO Standard Specification for Highway Bridges - Section 10 Division 91 - Concrete (AASHTO Designation M 318).
 - 1.1.93 AASHTO Standard Specification for Highway Bridges - Section 10 Division 92 - Concrete (AASHTO Designation M 318).
 - 1.1.94 AASHTO Standard Specification for Highway Bridges - Section 10 Division 93 - Concrete (AASHTO Designation M 318).
 - 1.1.95 AASHTO Standard Specification for Highway Bridges - Section 10 Division 94 - Concrete (AASHTO Designation M 318).
 - 1.1.96 AASHTO Standard Specification for Highway Bridges - Section 10 Division 95 - Concrete (AASHTO Designation M 318).
 - 1.1.97 AASHTO Standard Specification for Highway Bridges - Section 10 Division 96 - Concrete (AASHTO Designation M 318).
 - 1.1.98 AASHTO Standard Specification for Highway Bridges - Section 10 Division 97 - Concrete (AASHTO Designation M 318).
 - 1.1.99 AASHTO Standard Specification for Highway Bridges - Section 10 Division 98 - Concrete (AASHTO Designation M 318).
 - 1.1.100 AASHTO Standard Specification for Highway Bridges - Section 10 Division 99 - Concrete (AASHTO Designation M 318).
 - 1.1.101 AASHTO Standard Specification for Highway Bridges - Section 10 Division 100 - Concrete (AASHTO Designation M 318).

- 3.0 DESIGN AND INSTALLATION
- 3.1 Backfill and trench conditions to be representative of ASTM A 367 and A 368. The backfill shall be compacted in accordance with the specifications provided by the manufacturer and per the manufacturer's recommendations.
 - 3.2 Backfill shall be placed using an applied force of between 100 and 150 lb.
 - 3.3 The backfill shall be placed in accordance with the plans and specifications, the manufacturer's recommendations, and AASHTO Standard Specification for Highway Bridges - Section 10 Division 1 - Concrete (AASHTO Designation M 318).
 - 3.4 The backfill shall be placed in accordance with the plans and specifications, the manufacturer's recommendations, and AASHTO Standard Specification for Highway Bridges - Section 10 Division 1 - Concrete (AASHTO Designation M 318).
 - 3.5 The backfill shall be placed in accordance with the plans and specifications, the manufacturer's recommendations, and AASHTO Standard Specification for Highway Bridges - Section 10 Division 1 - Concrete (AASHTO Designation M 318).
 - 3.6 The backfill shall be placed in accordance with the plans and specifications, the manufacturer's recommendations, and AASHTO Standard Specification for Highway Bridges - Section 10 Division 1 - Concrete (AASHTO Designation M 318).
 - 3.7 The backfill shall be placed in accordance with the plans and specifications, the manufacturer's recommendations, and AASHTO Standard Specification for Highway Bridges - Section 10 Division 1 - Concrete (AASHTO Designation M 318).
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 - 3.29 The backfill shall be placed in accordance with the plans and specifications, the manufacturer's recommendations, and AASHTO Standard Specification for Highway Bridges - Section 10 Division 1 - Concrete (AASHTO Designation M 318).
 - 3.30 The backfill shall be placed in accordance with the plans and specifications, the manufacturer's recommendations, and AASHTO Standard Specification for Highway Bridges - Section 10 Division 1 - Concrete (AASHTO Designation M 318).



ALBC 17, 12'-3" Span x 4'-5" Rise Shell Designation = R3 Sayles Hill Road Bridge Crossing North Providence, Rhode Island

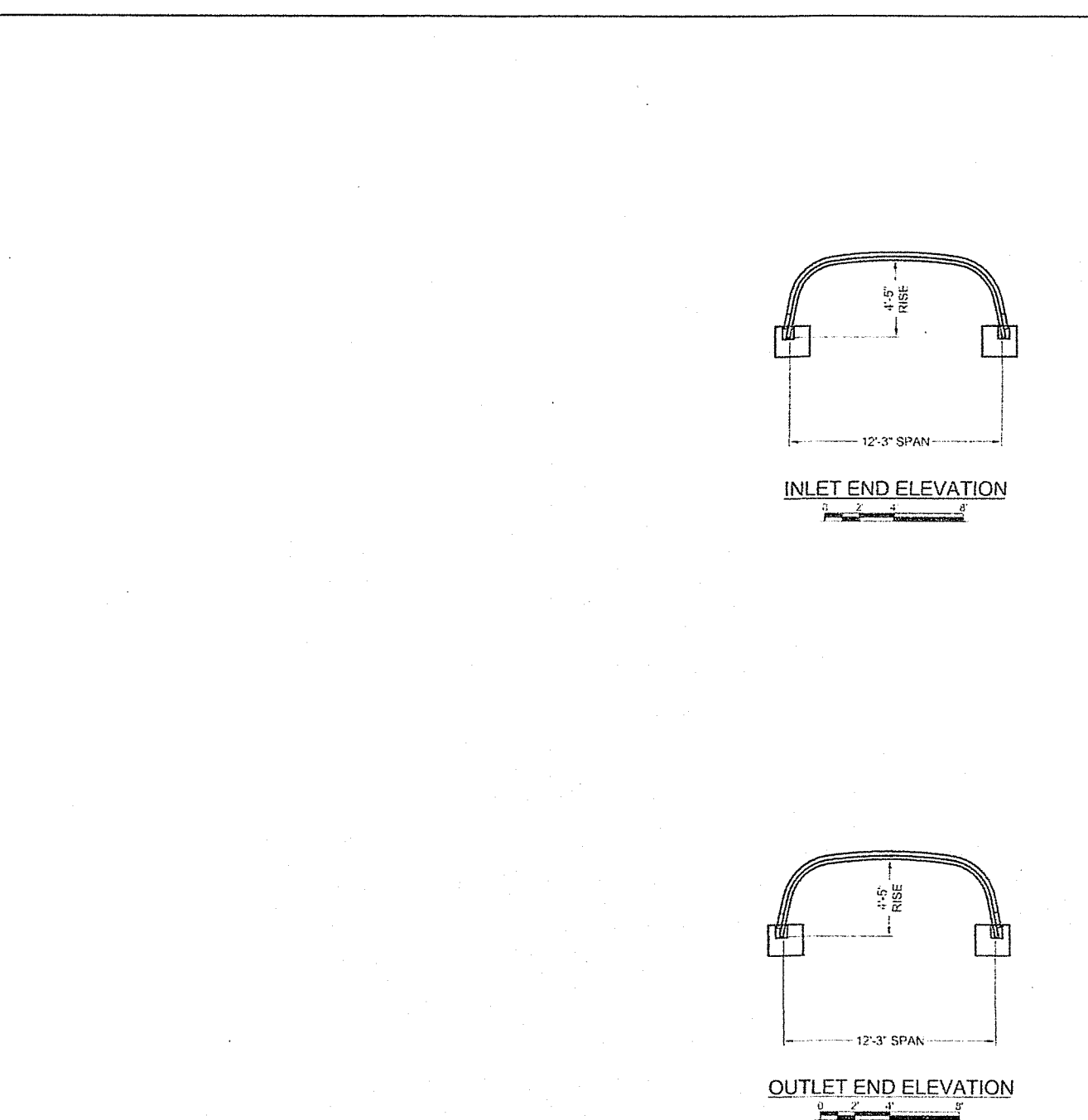
CONTECH ENGINEERED SOLUTIONS LLC

STRUCTURAL PLATE

DYOB

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DATE	REVISION DESCRIPTION	BY
1	8/10/20	ISSUED FOR PERMIT	JAR
2	10/26/20	REVISED PER COMMENTS	JAR
3	12/07/20	REVISED PER COMMENTS	JAR



ALBC 17, 12'-3" Span x 4'-5" Rise Shell Designation = R3 Sayles Hill Road Bridge Crossing North Providence, Rhode Island

CONTECH ENGINEERED SOLUTIONS LLC

STRUCTURAL PLATE

DYOB

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DATE	REVISION DESCRIPTION	BY
1	8/10/20	ISSUED FOR PERMIT	JAR
2	10/26/20	REVISED PER COMMENTS	JAR
3	12/07/20	REVISED PER COMMENTS	JAR

CULVERT CONSTRUCTION/INSTALLATION NOTES:

- THE FOLLOWING LIST OF CONSTRUCTION PROCEDURES AND TIME/DURATION DETAILS ARE RECOMMENDED FOR MINIMIZATION OF IMPACTS AND DISTURBANCE TO THE WETLANDS. A PRE-CONSTRUCTION MEETING IS REQUIRED WITH THE CONTRACTOR AND DESIGN ENGINEER TO FINALIZE ALL MEANS AND METHODS FOR THE INSTALLATION OF THE CULVERT PRIOR TO COMMENCEMENT OF WORK.
1. THE TIME FRAME FOR CONSTRUCTION/INSTALLATION OF THE CULVERT SHALL BE BETWEEN JUNE 30TH AND SEPTEMBER 1ST.
 2. ALL CONSTRUCTION ACTIVITIES FOR INSTALLATION OF THE CULVERT FOOTINGS, ARCH CULVERT AND WALLS SHALL OCCUR OUTSIDE OF THE STREAM/CHANNEL BED.
 3. THE ACTIVITIES ASSOCIATED WITH THIS INSTALLATION ARE EXPECTED TO HAVE A DURATION OF APPROXIMATELY 4-6 WEEKS.

Martin D. Wemsek

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED MAY 28 2021 FILE # 20-0072
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

CONSTRUCTION DETAILS - 6

Thomas J. Principe, III

REGISTERED PROFESSIONAL ENGINEER

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION

PO BOX 298
TIVERTON, RI 02878
401.816.5385
PRINCIPLEENGINEERING@GMAIL.COM

REVISIONS

No.	DATE	DRWN	CHKD
1.	8/10/20	JAR	TJP
2.	10/26/20	JAR	TJP
3.	12/07/20	WCR	NAT

MAJOR LAND DEVELOPMENT
PRELIMINARY PLAN
for
AP 17 LOT 22 & 280
40 SAYLES HILL ROAD
in
NORTH SMITHFIELD, RHODE ISLAND

SCALE: AS NOTED	SHEET NO: 10 OF 12
DRAWN BY: JAR	DESIGN BY: JAR
DATE: 3/5/20	CHECKED BY: TJP
	PROJECT NO.: 2019-14

DEC 11 2020

RI STATE PLANE COORDINATES

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
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Walter D. Wenczek

GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

100-YEAR FLOODPLAIN
ELEVATIONS

Thomas J. Principe, III
REGISTERED PROFESSIONAL ENGINEER

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.816.5385
PRINCIPLEENGINEERING@GMAIL.COM
ESTABLISHED IN 1961

REVISIONS			
No.	DATE	DRWN	CHKD

**MAJOR LAND DEVELOPMENT
PRELIMINARY PLAN**
for
AP 17 LOT 22 & 280
40 SAYLES HILL ROAD
in
NORTH SMITHFIELD, RHODE ISLAND

SCALE: 1"=20'	SHEET NO: 12 OF 12
DRAWN BY: JAR	DESIGN BY: JAR
DATE: 10/26/20	CHECKED BY: TJP
PROJECT NO.: 2019-14	

DEC 11 2020

INF_SYS_3 (POST-1E):
TOTAL AREA=19,850 SF

CULVERT:
31.5'L X 12.25'W X 4.42'H
ALUMINUM ARCH

CULVERT RUNOFF DATA:
1YR STORM-
0.32 CFS
PEAK ELEV.=269.39'

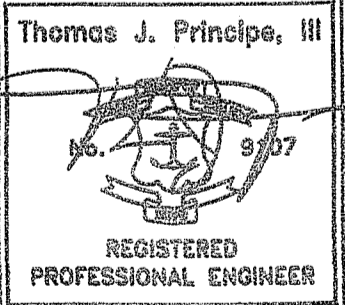
10YR STORM-
3.86 CFS
PEAK ELEV.=269.56'

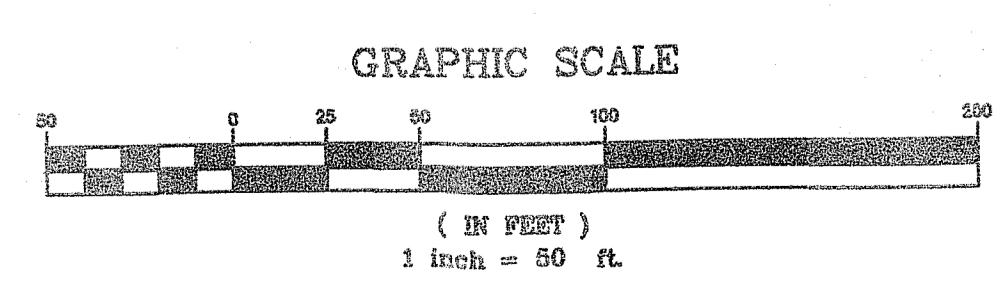
100YR STORM-
16.28 CFS
PEAK ELEV.=269.90'

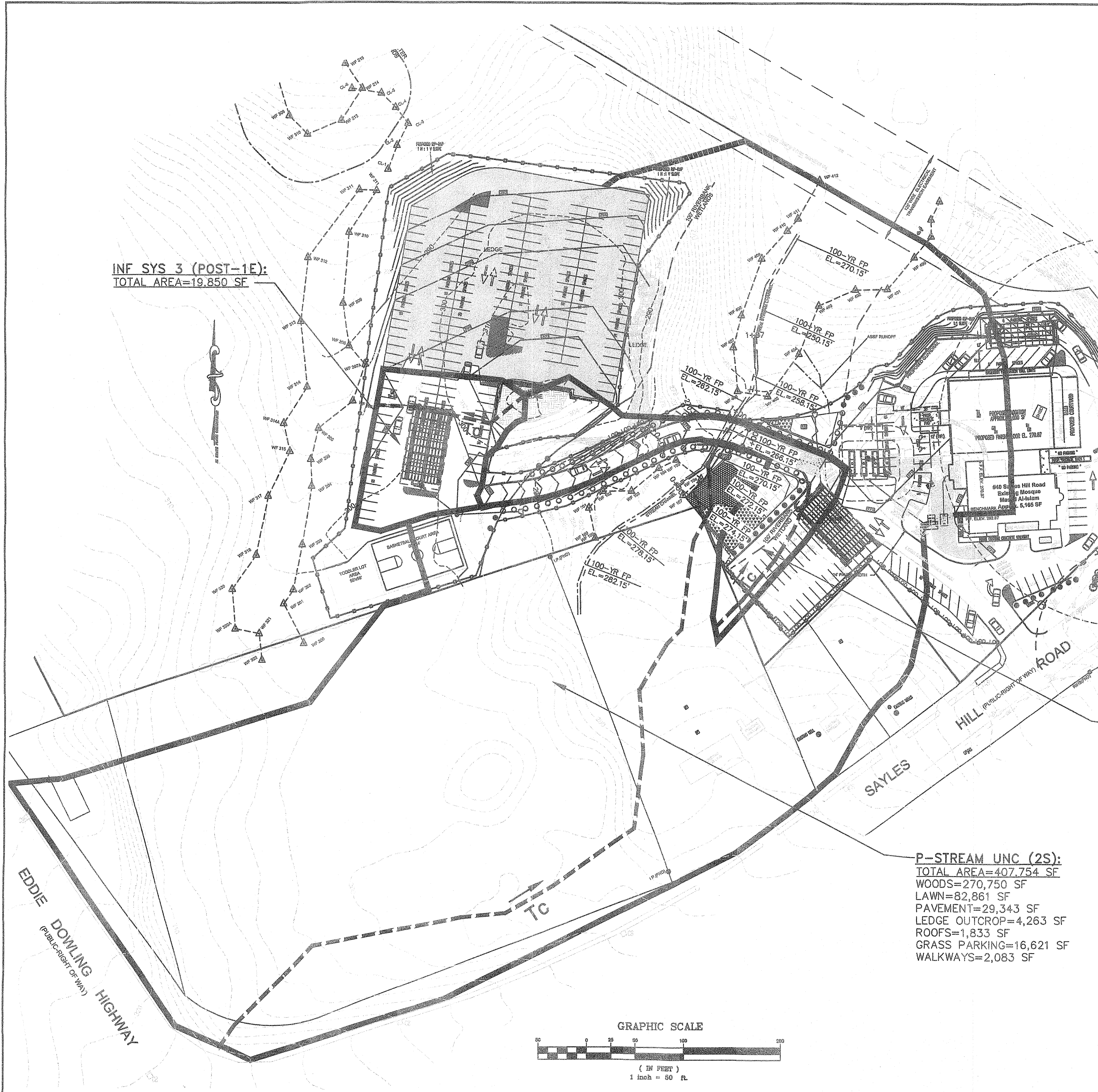
P-CULVERT (2S):
TOTAL AREA=263,233 SF
WOODS=206,187 SF
LAWN=50,170 SF
PAVEMENT=4,596 SF
ROOFS=2,280 SF

Martin D. Sennack
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
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DATED MAY 28 2021 FILE # 20-0072
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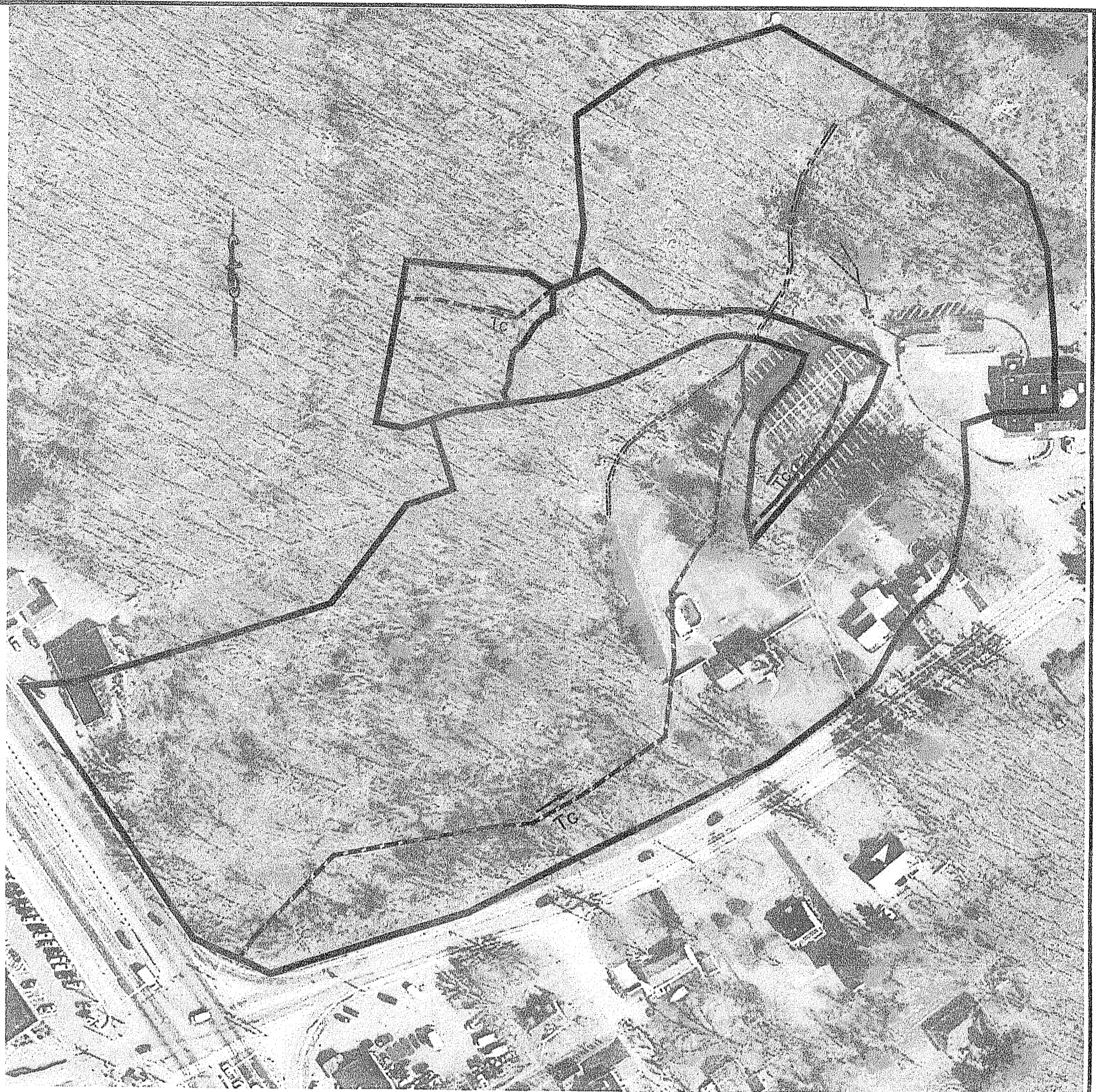
WATERSHED MAP-PROPOSED
CONDITION CULVERT

 Thomas J. Principe, III REGISTERED PROFESSIONAL ENGINEER	PRINCIPE COMPANY, INC. ENGINEERING DIVISION PO BOX 298 TIVERTON, RI 02878 401.816.5385 PRINCIPLEENGINEERING@GMAIL.COM
	MAJOR LAND DEVELOPMENT PRELIMINARY PLAN for AP 17 LOT 22 & 280 40 SAYLES HILL ROAD in NORTH SMITHFIELD, RHODE ISLAND
SCALE: 1"=50' DRAWN BY: JAR DATE: 8/10/20	SHEET NO: 1 OF 1 DESIGN BY: JAR CHECKED BY: TJP PROJECT NO.: 2019-14





INF SYS 3 (POST-1E):
TOTAL AREA=19,850 SF



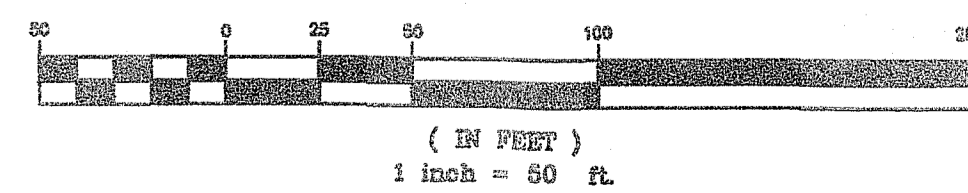
AERIAL LOCUS MAP
SCALE: 1"=100'

DEC 11 2020

INF SYS 2 (POST-1D):
TOTAL AREA=30,753 SF

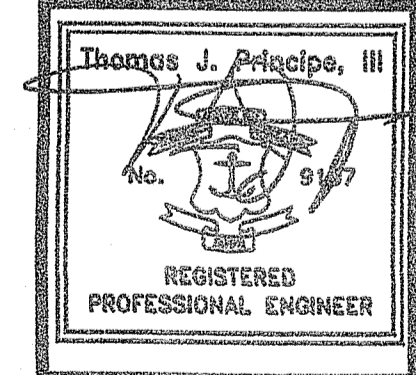
P-STREAM UNC (2S):
TOTAL AREA=407,754 SF
WOODS=270,750 SF
LAWN=82,861 SF
PAVEMENT=29,343 SF
LEDGE OUTCROP=4,263 SF
ROOFS=1,833 SF
GRASS PARKING=16,621 SF
WALKWAYS=2,083 SF

GRAPHIC SCALE



Thomas J. Principe, III
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
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DATED MAY 28 2021 FILE # 20-0072
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**WATERSHED MAP-PROPOSED
CONDITION 100-YEAR FLOODPLAIN**

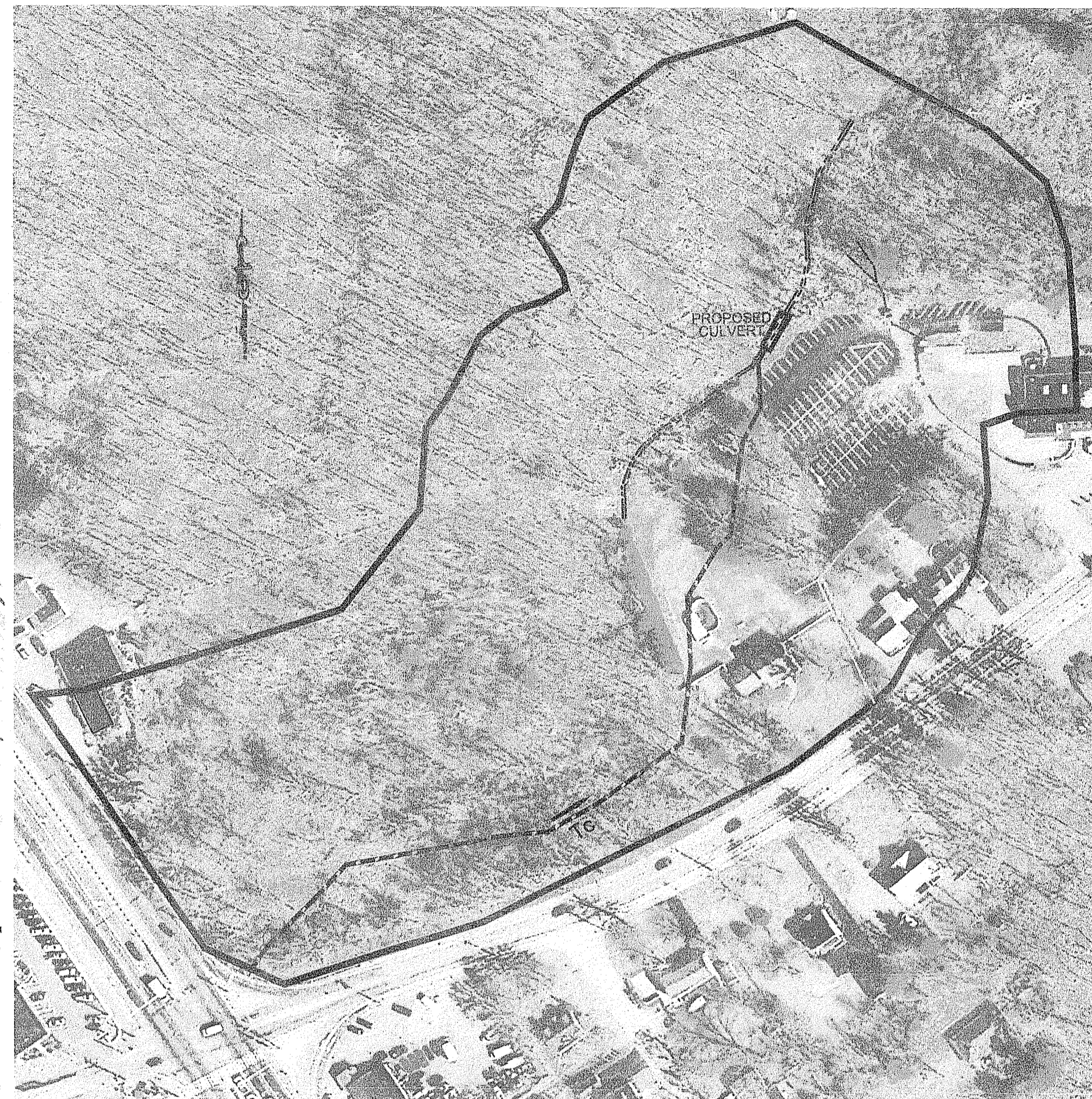
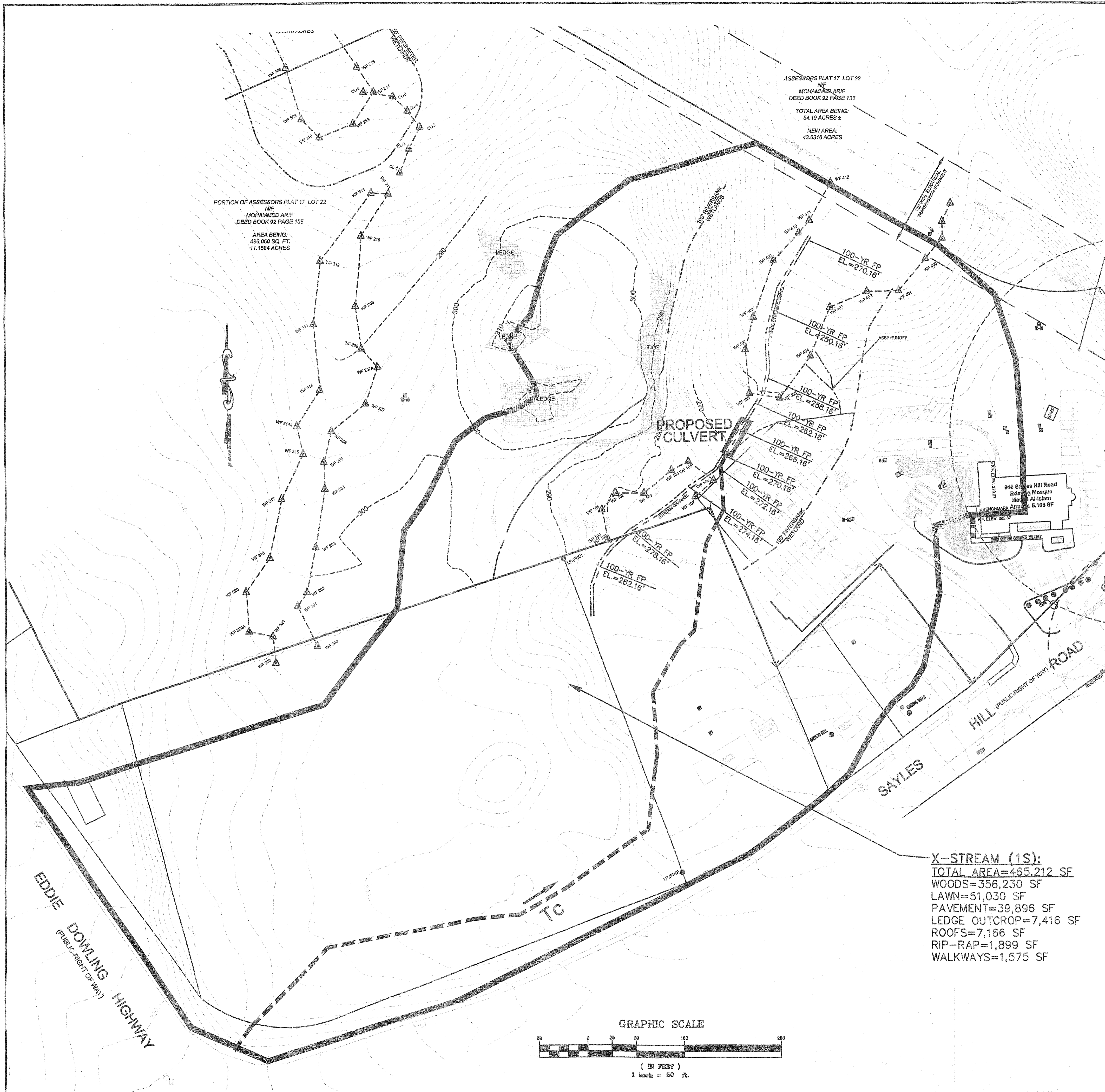


PRINCIPE COMPANY, INC.
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REVISIONS			
No.	DATE	DRWN	CHKD

**MAJOR LAND DEVELOPMENT
PRELIMINARY PLAN**
for
AP 17 LOT 22 & 280
40 SAYLES HILL ROAD
in
NORTH SMITHFIELD, RHODE ISLAND

SCALE: 1"=50' SHEET NO: 1 OF 1
DRAWN BY: JAR DESIGN BY: JAR CHECKED BY: TJP
DATE: 8/10/20 PROJECT NO.: 2019-14

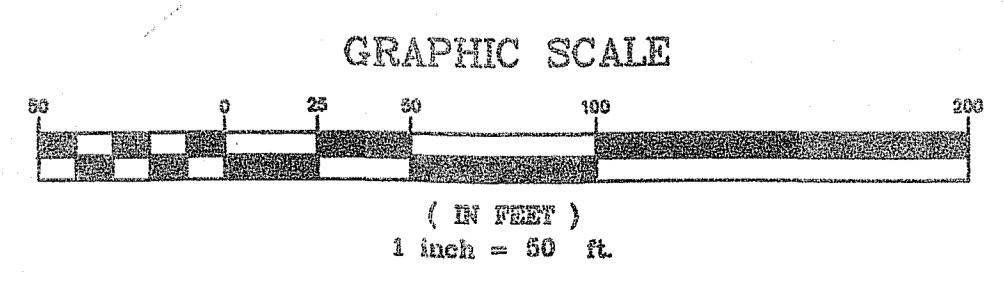


AERIAL LOCUS MAP
SCALE: 1"=100'

DEC 11 2020

Signature
 DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATERSHED RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS
 TEL: MAY 28 2021 FILE # 20-0072
 CHANGES ALLOWED WITHOUT PERMIT APPROVAL
 PERMIT NO. 2019-14

X-STREAM (1S):
 TOTAL AREA=465,212 SF
 WOODS=356,230 SF
 LAWN=51,030 SF
 PAVEMENT=39,896 SF
 LEDGE OUTCROP=7,416 SF
 ROOFS=7,166 SF
 RIP-RAP=1,899 SF
 WALKWAYS=1,575 SF



Thomas J. Principe, III

 REGISTERED PROFESSIONAL ENGINEER

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REVISIONS			
No.	DATE	DRWN	CHKD

**MAJOR LAND DEVELOPMENT
 PRELIMINARY PLAN**
 for
AP 17 LOT 22 & 280
40 SAYLES HILL ROAD
 in
 NORTH SMITHFIELD, RHODE ISLAND

SCALE: 1"=50'	SHEET NO: 1 OF 1
DRAWN BY: JAR	DESIGN BY: JAR
DATE: 8/10/20	CHECKED BY: TJP
PROJECT NO.: 2019-14	