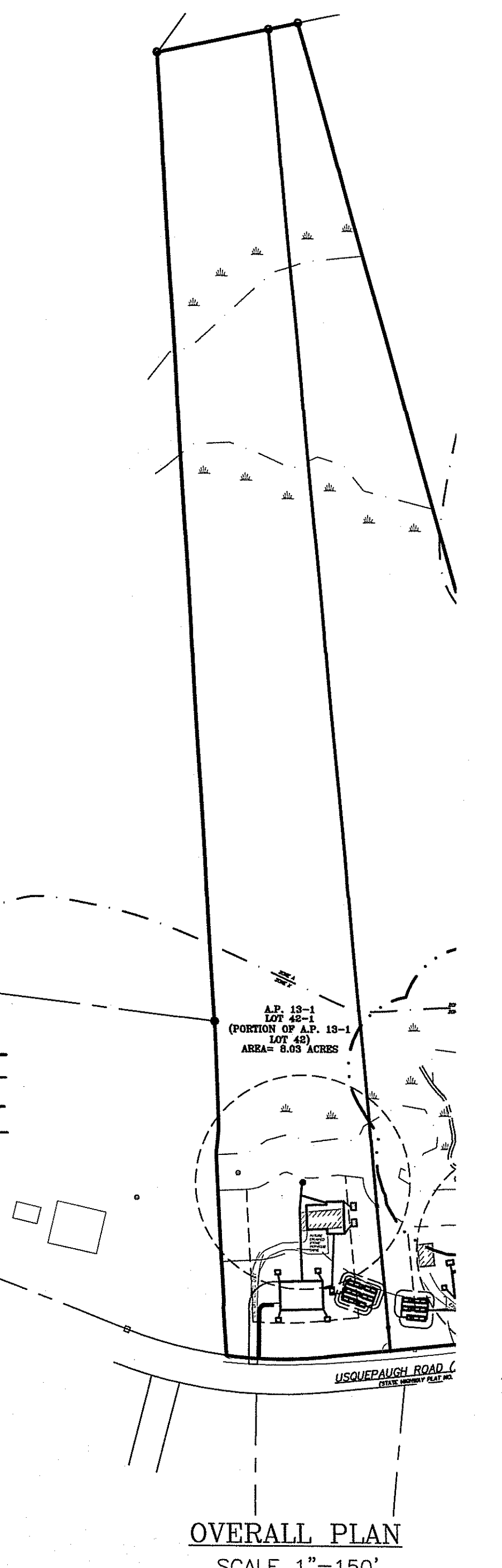
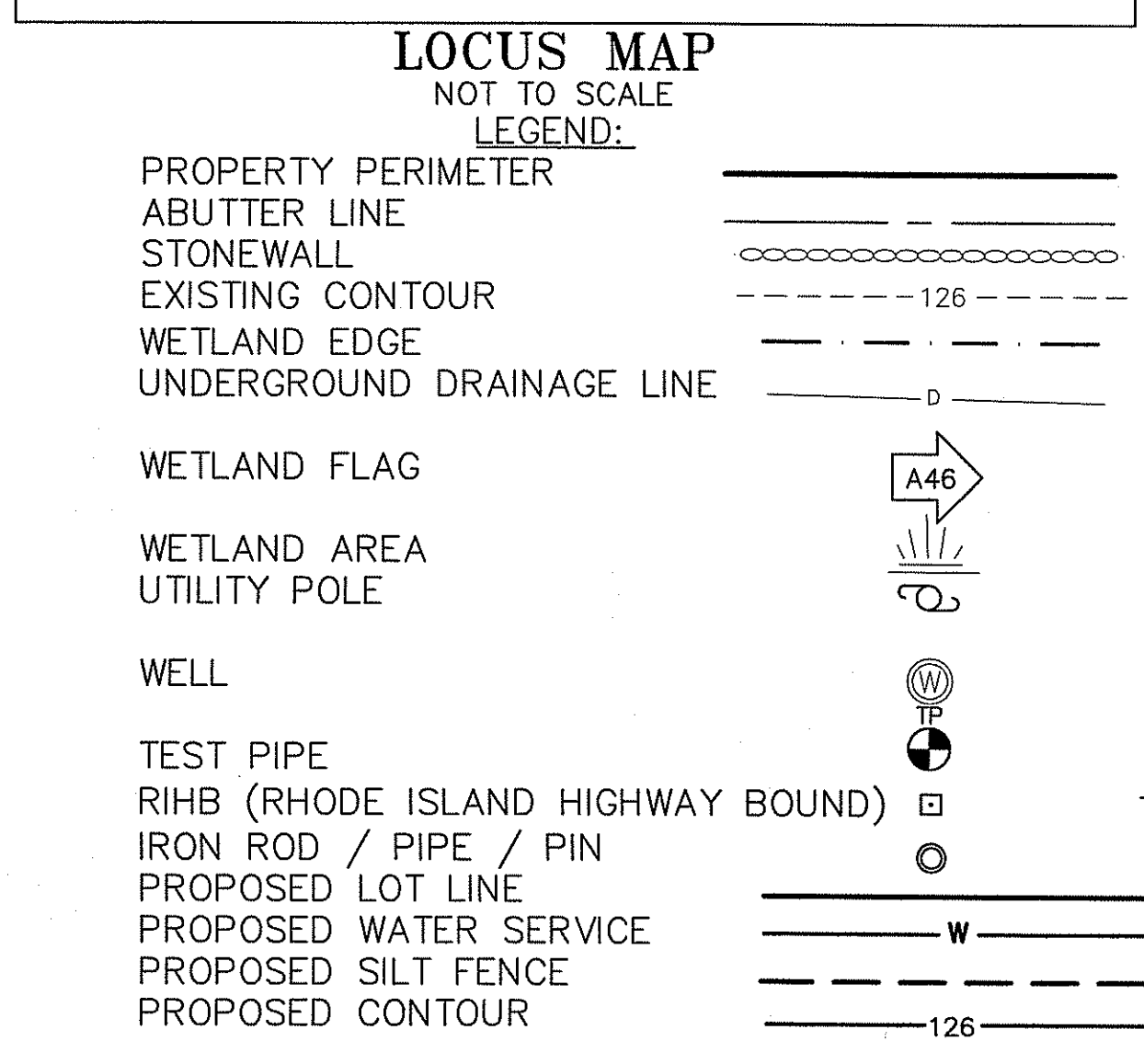
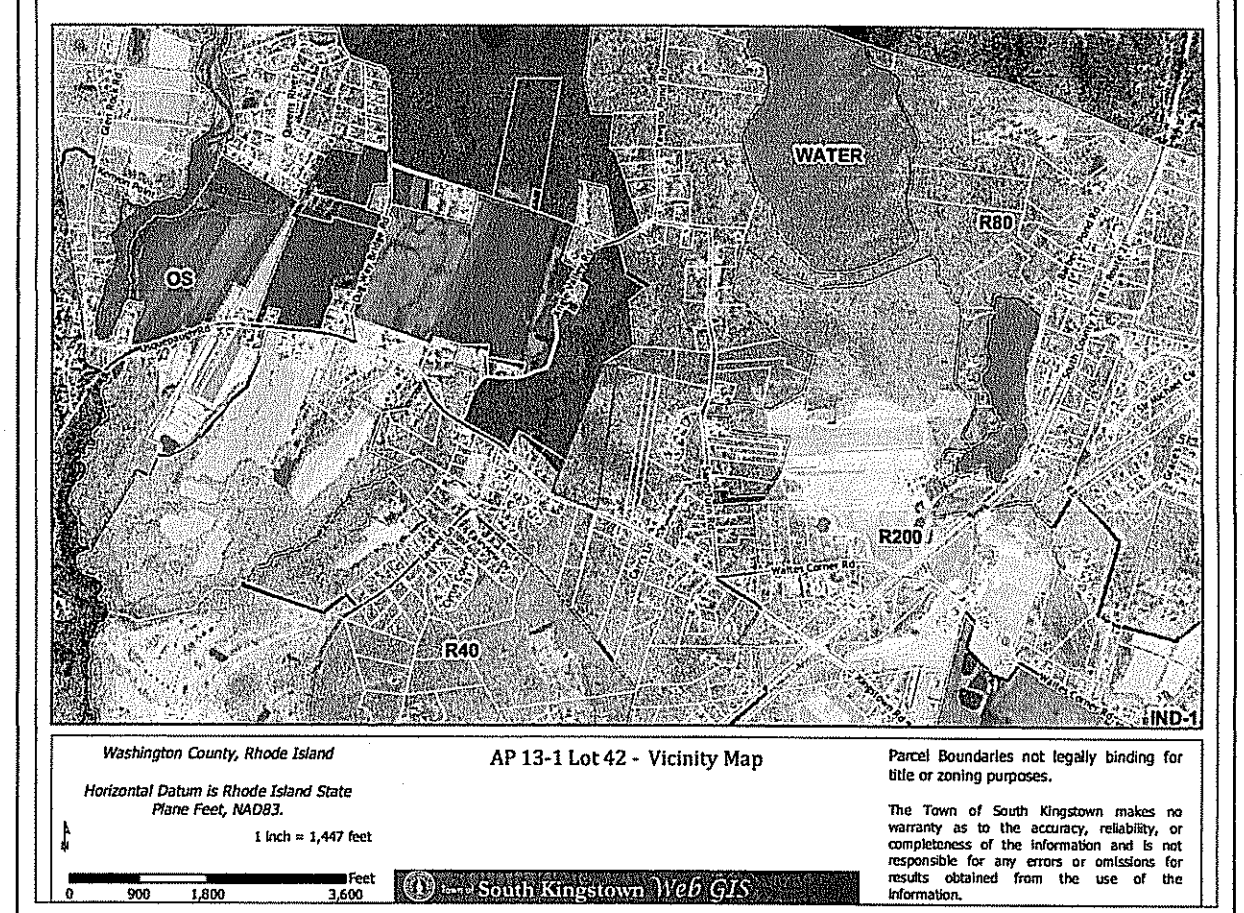


STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
Department of Environmental Management
Office of Water Resources

Site Evaluation Form Application Number: 1832-0266

Property Owner: John Casanova
Property Location: Usquepaugh Road South Kingstown AP 13-1 Lot 42
Date of Test Hole: 3/29/18
Soil Evaluator: Thomas J. Principe, III, P.E.
Weather: Sunny, 90
Soil Class: LUHWASH (LHSS L)
Depth to Groundwater Sample: 240.00 ft. 1.2U
Estimated Seasonal High Water Table: 257' & 254' BELOW U.S.S.
Total Depth of each Test Hole: 1.2U
Depth to Impervious or Limiting Layer:
Comments:

TW #	Horizon	Horizon Boundaries			Soil Color	Soil Description	Ab. S. Con.	Texture	Structure	Consistence	Soil Category
		Depth	Dist	Top							
HTM	30'-0"										
C	0'-68"	c	w	10y/5/6	7.5y/5/8	m,f,d	g, COS	0, SG	Loose	1m	
HTM	24'-0"										
C	0'-84"	c	w	10y/5/6	7.5y/5/8	m,f,d	g, COS	0, SG	Loose	1m	



DESIGN CALCULATIONS

FLOW:
PROPOSED 5 BEDROOMS
5 BEDROOMS X 115 GALLON PER BEDROOM = 575 GALLONS/DAY
SOILS: 4.5' GWT FROM O.G., DESIGN SOIL CATEGORY PER RULE 32.2.2
1M --LOADING RATE = .61 GAL./SF/DAY

SHALLOW CONCRETE CHAMBER SIZING:
575 GAL./DAY / .61 GAL./SF/DAY = 942.62 SF

SHALLOW CONCRETE CHAMBER UNITS PROVIDED (12" STONE):
3 ROWS, 5 UNITS IN 2 ROWS, 4 UNITS IN ROW 3; 14 UNITS TOTAL
6 END UNITS X 78 SF / UNIT = 468 SF,
8 INTERIOR UNITS X 64 SF / UNIT = 512 SF
980 SF > 942.62 SF

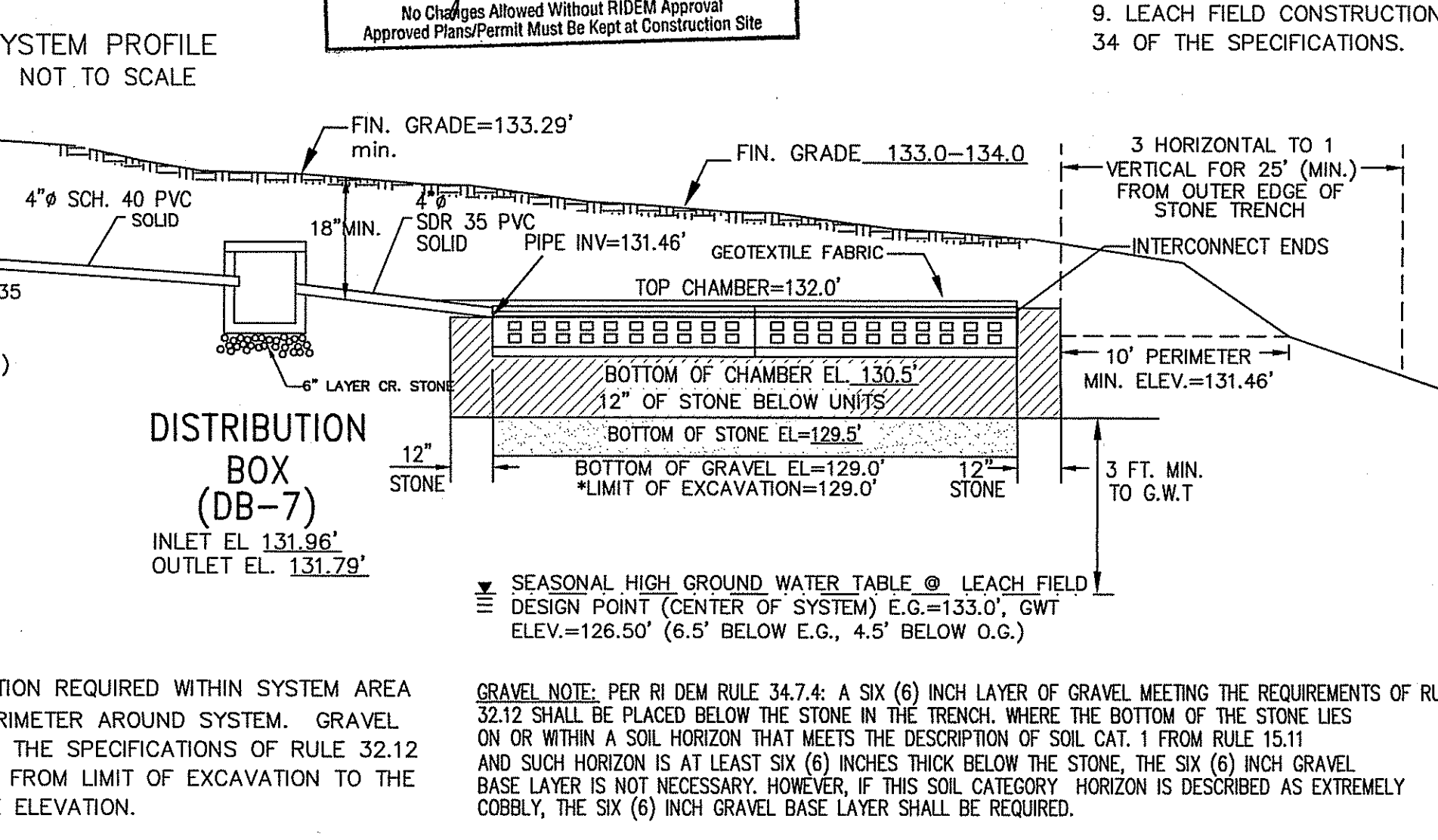
SOIL EVALUATIONS: TH-3 & TH-4
DATE EXCAVATED: 3/29/18 BY THOMAS J. PRINCIPLE, III D-3105

SURVEY & PLAN REFERENCES:

- PRELIMINARY PLAN SUBMISSION FOR "USQUEPAUGH TERRACE" MINOR SUBDIVISION A.P. 13-1 LOT 42 USQUEPAUGH ROAD SOUTH KINGSTOWN, RHODE ISLAND BY PRINCIPLE ENGINEERING, INC. DATED 5/7/18.
- "PLAN OF LAND SHOWING EXISTING CONDITIONS" FOR A.P. 13-1 LOT 42 USQUEPAUGH ROAD SOUTH KINGSTOWN, RHODE ISLAND, PREPARED BY NORTHEAST ENGINEERS & CONSULTANTS, INC., DATED AUG 2015, REVISED 31MAR16.

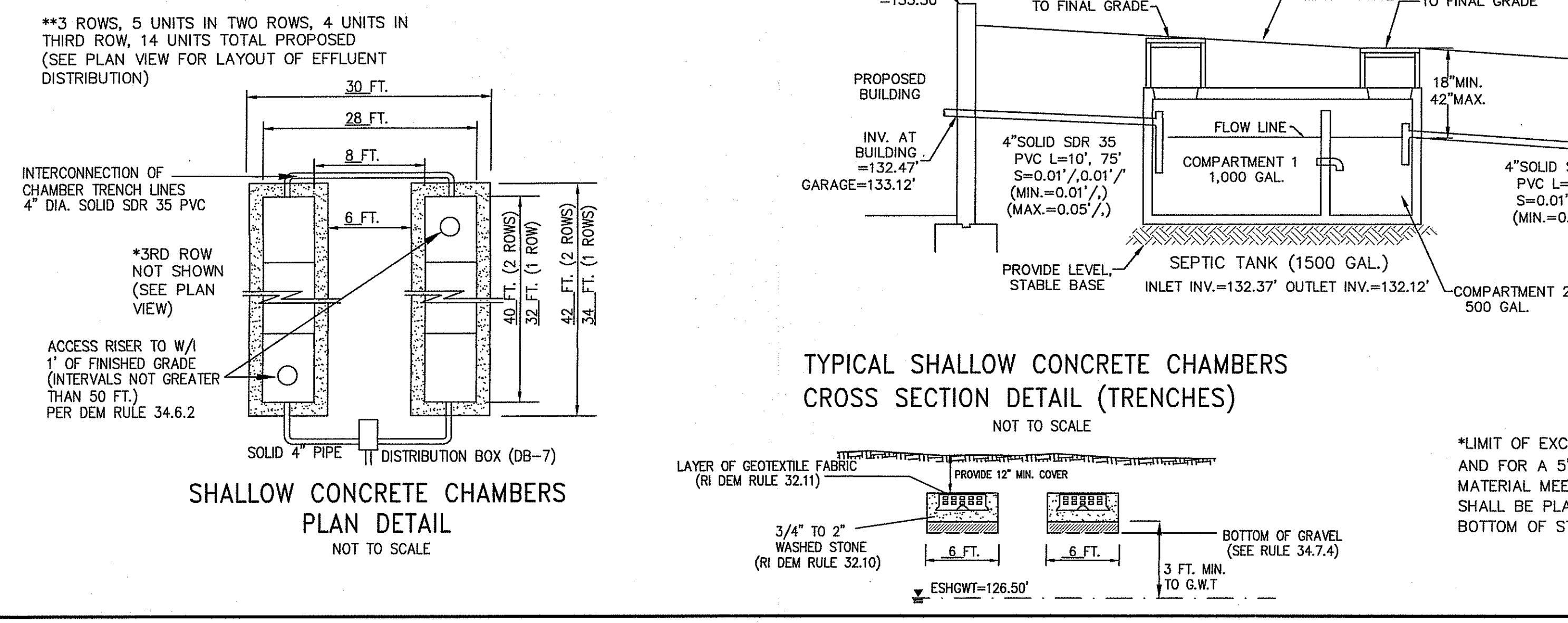
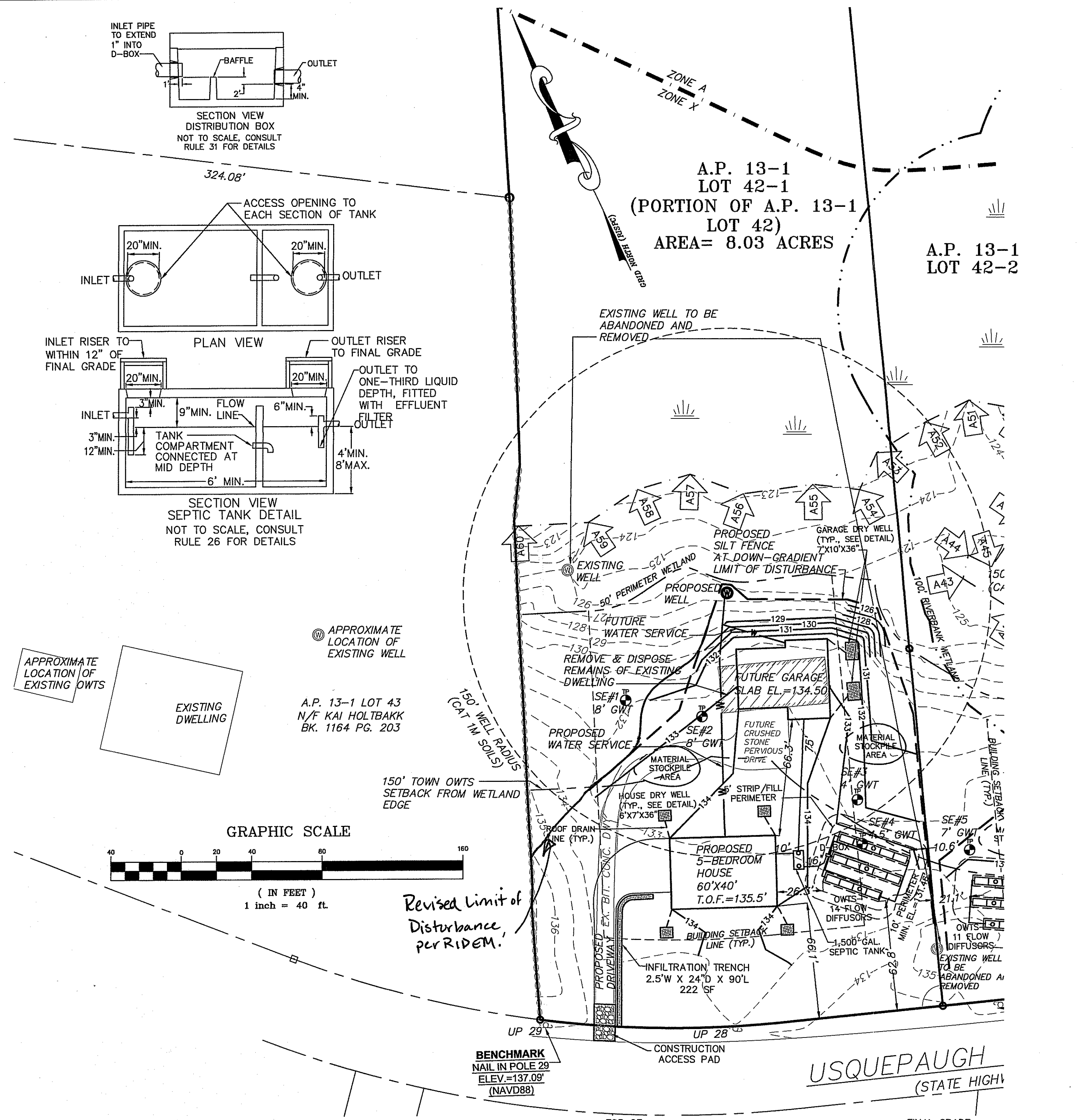
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
OWTS & FRESHWATER WETLANDS
JOINT PERMIT APPROVAL

OWTS# 1832-0806 FWW# 18-0133
APPROVED: [Signature] DATE 7/24/18
No Changes Allowed Without RIDEM Approval
Approved Plans/Permit Must Be Kept at Construction Site



*LIMIT OF EXCAVATION REQUIRED WITHIN SYSTEM AREA AND FOR A 5' PERIMETER AROUND SYSTEM. GRAVEL MATERIAL MEETING THE SPECIFICATIONS OF RULE 32.12 SHALL BE PLACED FROM LIMIT OF EXCAVATION TO THE BOTTOM OF STONE ELEVATION.

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
No. 9107
REGISTERED PROFESSIONAL ENGINEER

PRINCIPLE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401-816-5385
ESTABLISHED IN 1981

REVISIONS

No.	DATE	DRWN	CHKD
1.	7/12/18	JAR	TJP

ON-SITE WASTEWATER TREATMENT SYSTEM PLAN & SOIL EROSION AND SEDIMENT CONTROL PLAN
for
A.P. 13-1 LOT 42-1
PORTION OF AP 13-1 LOT 42
USQUEPAUGH ROAD
in
SOUTH KINGSTOWN, RHODE ISLAND

SCALE: AS NOTED SHEET NO: 1 of 2
DRAWN BY: JAR DESIGN BY: JAR CHECKED BY: TJP
DATE: 5/14/18 PROJECT NO.: LD 44

EROSION CONTROL, SOIL STABILIZATION AND SEDIMENT CONTROL PLAN

1. 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.
2. CONSTRUCTION ACCESS STABILIZATION ENTRANCE PADS ARE TO BE INSTALLED PRIOR TO THE COMMENCEMENT OF SITE GRUBBING OR EARTHWORK ACTIVITY.
3. EXISTING CATCH BASINS ARE TO BE PROTECTED WITH HAY BALES AND/OR SILT SACS PRIOR TO THE START OF SITE GRUBBING, EARTHWORK OR UNDERGROUND UTILITY AND DRAINAGE INFRASTRUCTURE INSTALLATION TO SERVE THE DEVELOPMENT SITE.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.
11. 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.
12. 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.
13. 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.
14. 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.
15. EXISTING TREES AND VEGETATION WILL BE RETAINED WHENEVER FEASIBLE.
16. SITE SOIL EROSION AND SOIL STABILIZATION AND SEDIMENT CONTROLS MUST CONFORM TO ALL REQUIREMENTS OF THE APPLICABLE LOCAL COMMUNITY ORDINANCES AND STATE REGULATIONS.

VEGETATIVE COVER AND PLANTING

1. THE NORMAL ACCEPTABLE SEASONABLE SEEDING DATES ARE APRIL 1ST THROUGH OCTOBER 15TH.
2. 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.
3. THE DESIGN SEED MIX UTILIZED IN ALL DISTURBED AREAS TO BE SEEDED SHALL BE COMPRISED OF THE FOLLOWING:

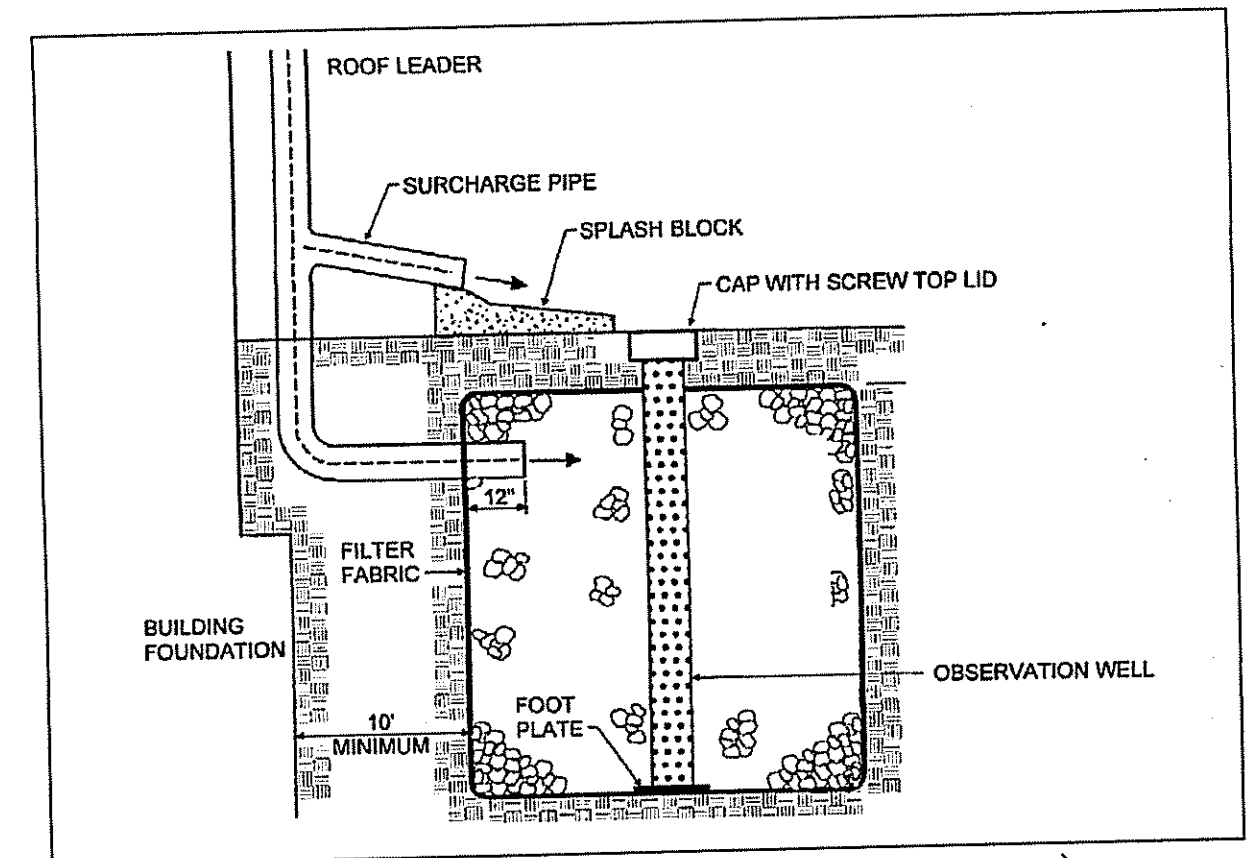
TYPE	% BY WEIGHT	SEEDING DATE
CREeping RED FESCUE	70	APRIL 1 - JUNE 15
ASTORIA BENTGRASS	5	
BIRDFOOT TREFOIL	15	AUG. 15 - OCT. 15
PERENNIAL RYE GRASS	10	

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.

4. IN TOPSOIL SEEDING AREAS, THE CONTRACTOR WILL LIME AND FERTILIZE AS REQUIRED TO COMPLIMENT OR UPGRADE SOIL CONDITIONS.
5. 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.

GENERAL NOTES:

1. FLOOD ZONE X IN AREA OF CONSTRUCTION BASED ON FIRM PANEL.
2. ALL CONSTRUCTION WILL BE UNDERTAKEN IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE TOWN OF SOUTH KINGSTOWN.
3. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO MAINTAIN THE INTEGRITY OF ALL EXISTING UTILITIES, STRUCTURES, AND ABUTTING PROPERTIES. THE COST OF ANY REPAIR OR REPLACEMENT OF DAMAGED ITEMS SHALL BE BORNE BY THE CONTRACTOR.
4. IF CEMENT CONCRETE MIX TRUCKS ARE TO BE WASHED OUT ON SITE, THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING A WASH OUT AREA WITH APPROPRIATE PROTECTION CONTROLS.
5. 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.



TYPICAL DRYWELL (NOT TO SCALE)

DRYWELL CALCULATIONS:

RI STORMWATER MANAGEMENT GUIDANCE FOR INDIVIDUAL SINGLE-FAMILY RESIDENTIAL LOT DEVELOPMENT:

PRIMARY DWELLING - TOTAL ROOF SURFACE AREA=2,400 S.F. SANDS, LOAMY SANDS AND SANDY LOAMS

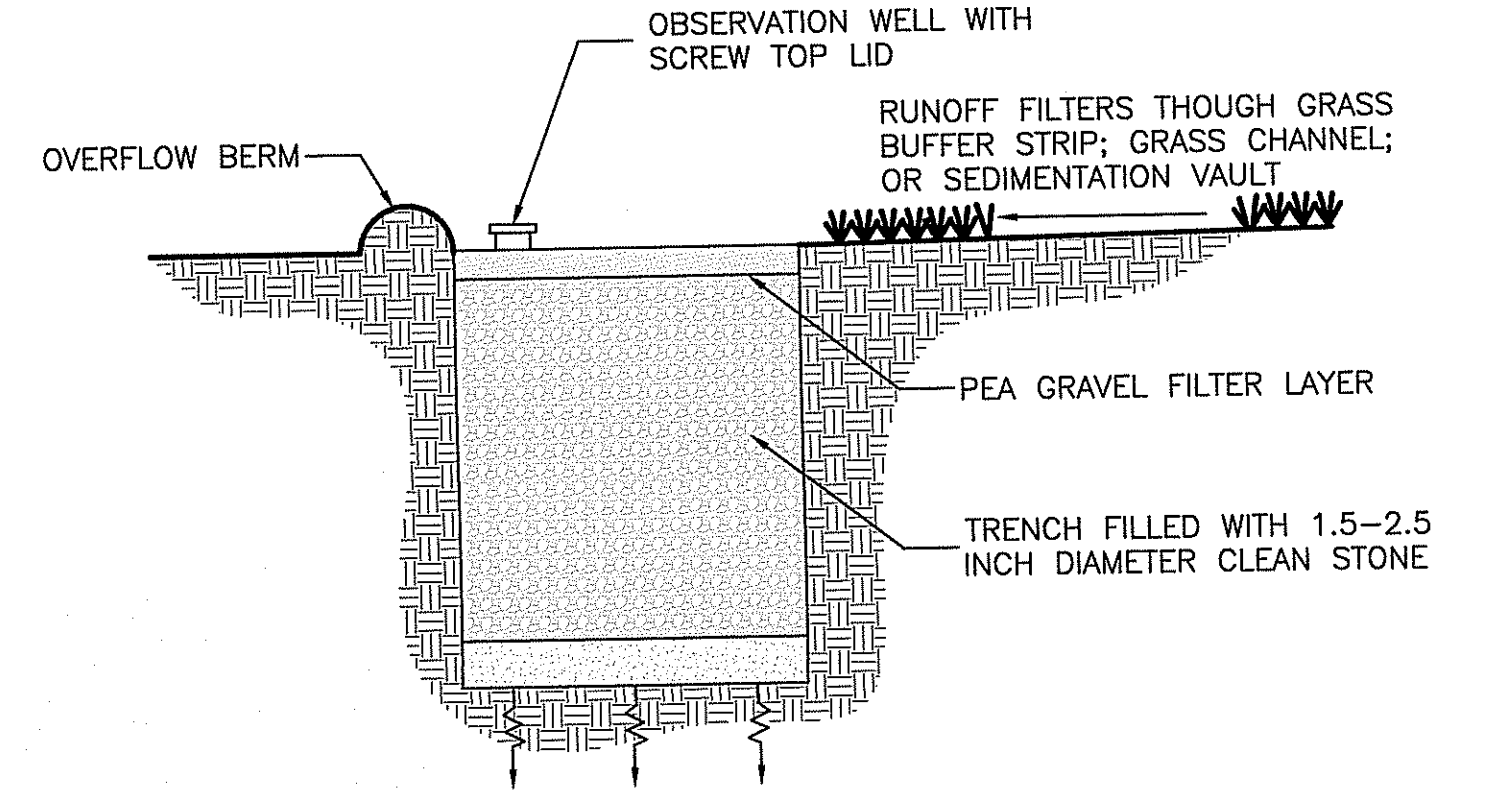
FOUR (4) DRYWELL LOCATIONS, 600 SF OF ROOF TO EACH 36" DEEP DRYWELL = 41 S.F. USE 7'x6' SURFACE AREA FOR EACH DRY WELL

FUTURE GARAGE - TOTAL ROOF SURFACE AREA=2,030 S.F. SANDS, LOAMY SANDS AND SANDY LOAMS

TWO (2) DRYWELL LOCATIONS, 1,015 SF OF ROOF TO EACH 36" DEEP DRYWELL = 70 S.F. USE 7'x10' SURFACE AREA FOR EACH DRY WELL

DRYWELL & INFILTRATION TRENCH MAINTENANCE:

- 1) INSPECT ANNUALLY AND REPAIR IF NECESSARY TO ENSURE PROPER DRAINAGE.
- 2) ACCUMULATED SEDIMENT AND DEBRIS SHALL BE REMOVED FROM DRY WELL AREA ANNUALLY.



TYPICAL INFILTRATION TRENCH CROSS SECTION NOT TO SCALE

INFILTRATION TRENCH CALCULATIONS:

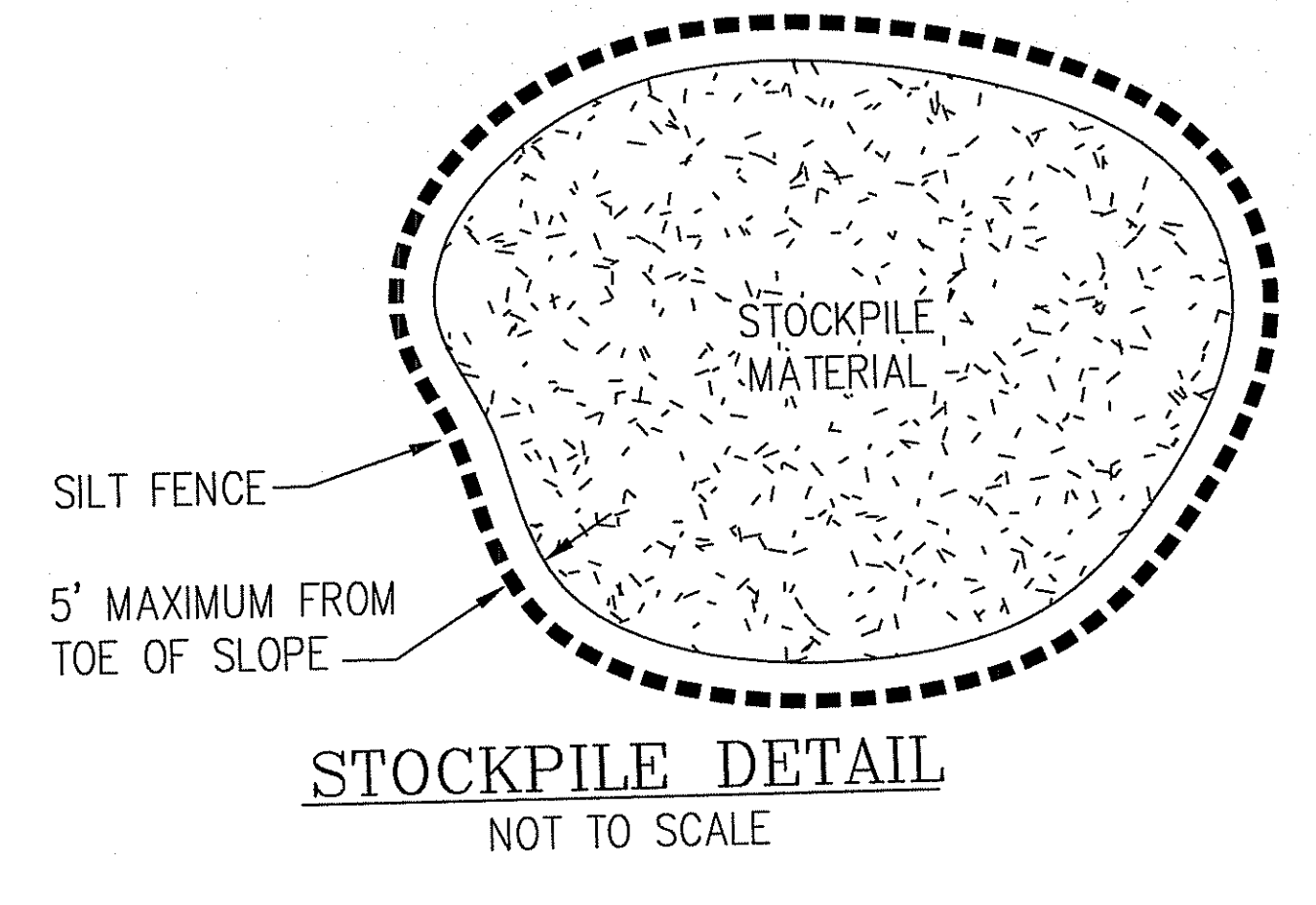
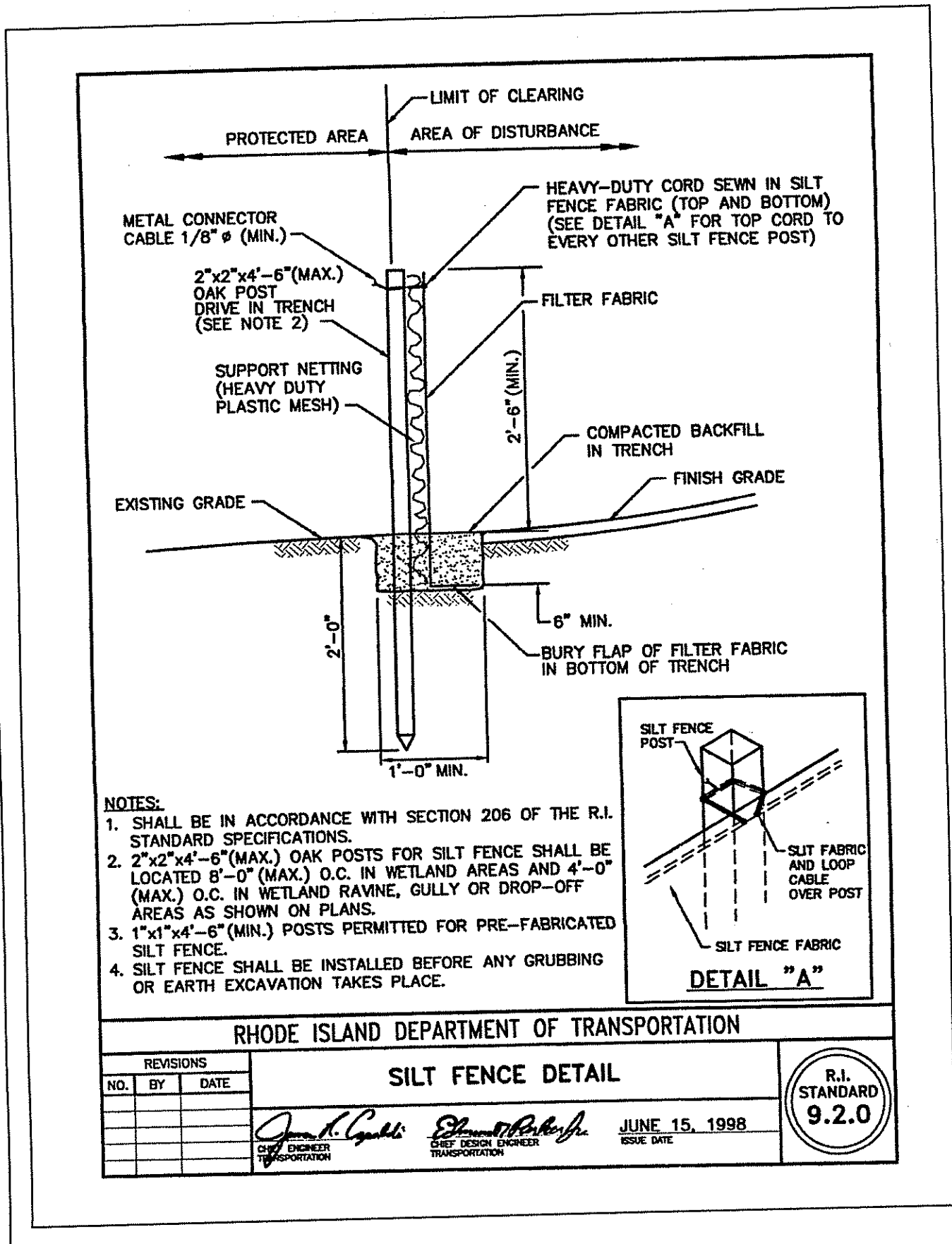
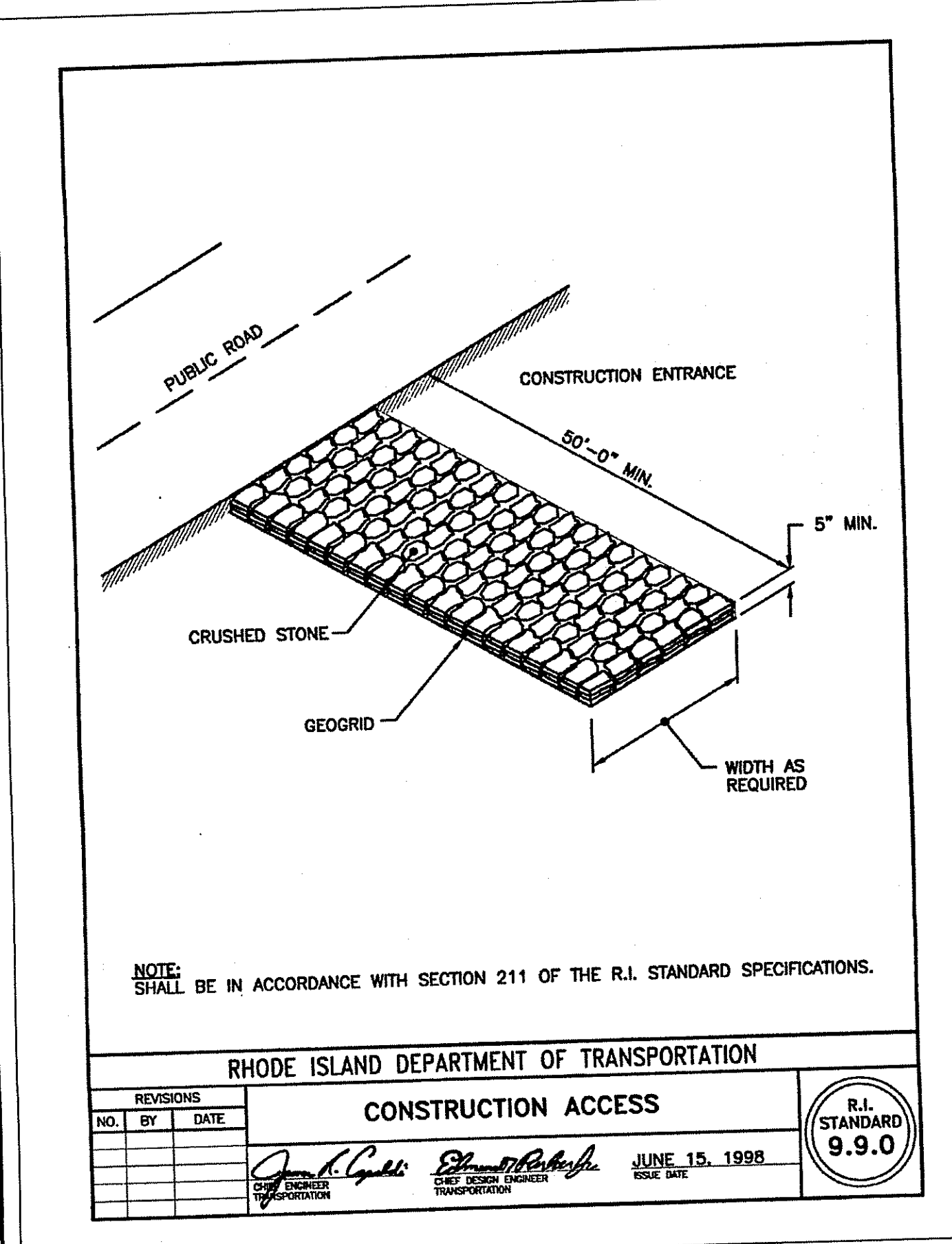
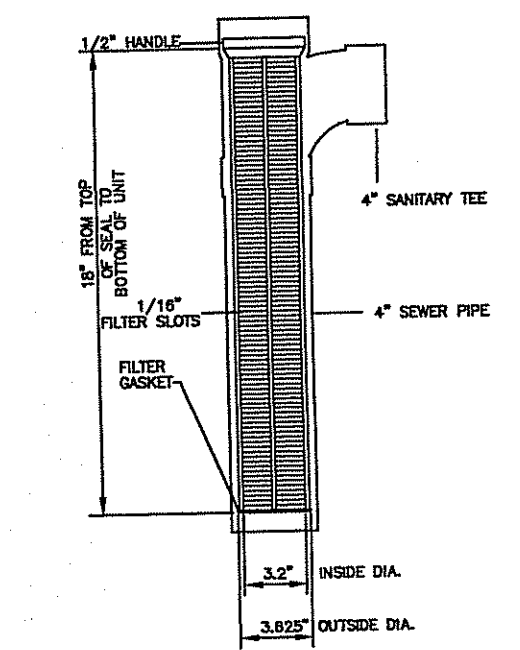
RI STORMWATER MANAGEMENT GUIDANCE FOR INDIVIDUAL SINGLE-FAMILY RESIDENTIAL LOT DEVELOPMENT:

TOTAL DRIVEWAY SURFACE AREA=2,109 S.F. BASED ON SANDY SOILS (SANDS, LOAMY SANDS, AND SANDY LOAMS) 2,109 S.F. AT 24" DEEP TRENCH = 202.5 S.F. WIDTH OF DRIVEWAY INFILTRATION TRENCH= 2.5 FT. REQUIRED LENGTH = 81 LF.

OWTS 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

ZABEL A1800 RESIDENTIAL SEPTIC TANK EFFLUENT FILTER SPECIFICATION



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 401-265-1090

ON-SITE WASTEWATER TREATMENT SYSTEM PLAN & SOIL EROSION AND SEDIMENT CONTROL PLAN

for
 A.P. 13-1 LOT 42-1
 PORTION OF AP 13-1 LOT 42
 USQUEPAUGH ROAD
 in
 SOUTH KINGSTOWN, RHODE ISLAND

SCALE: AS NOTED

DRAWN BY: JAR DESIGN BY: JAR CHECKED BY: TJP

DATE: 5/14/18

SHEET NO: 2 of 2

PROJECT NO.: LD 44