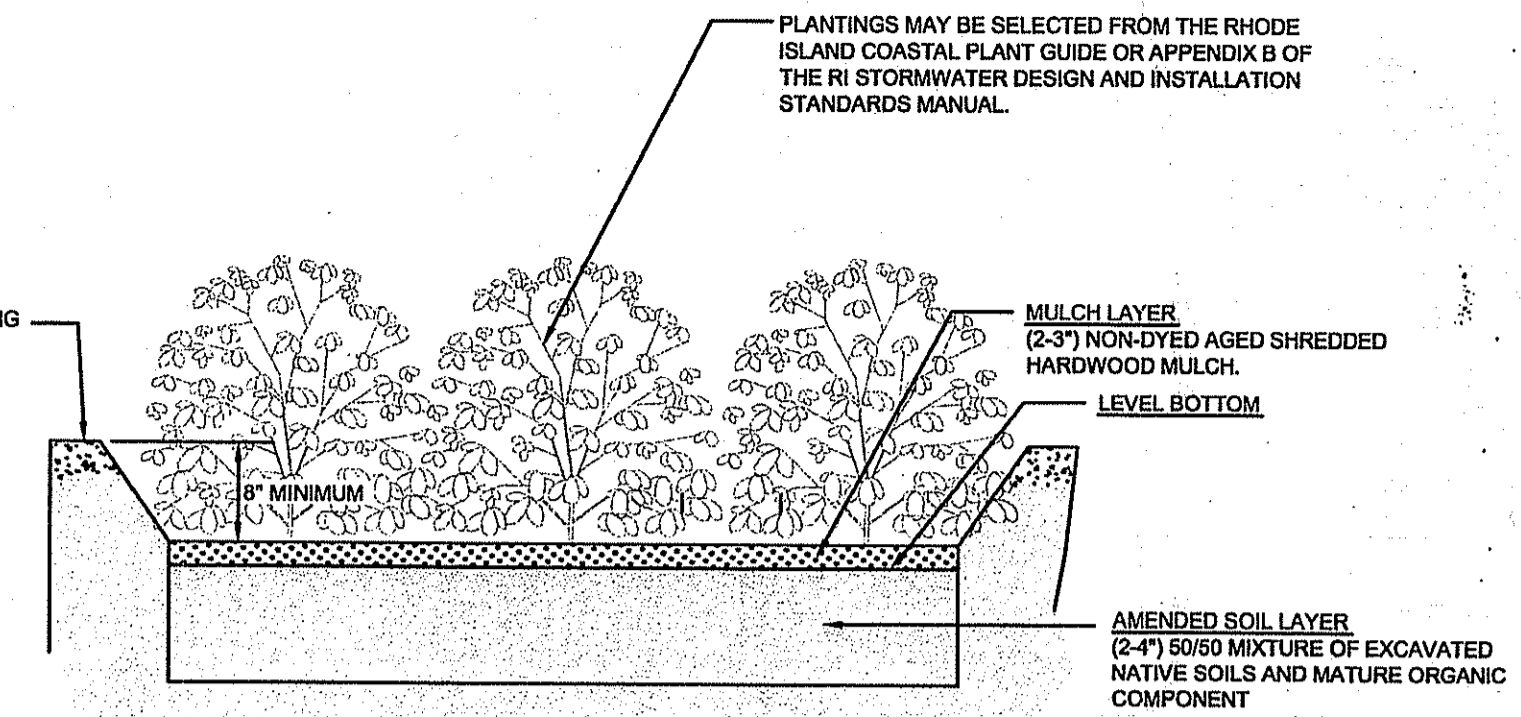
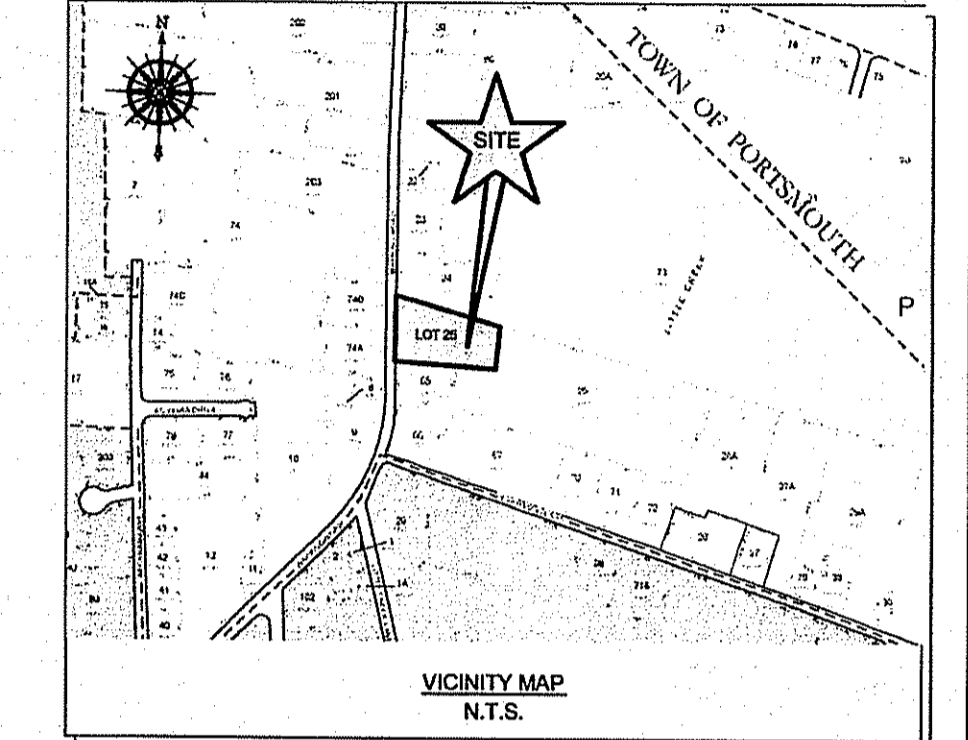


SITE/CIVIL
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RAIN GARDEN CROSS SECTION
SCALE: NOT TO SCALE

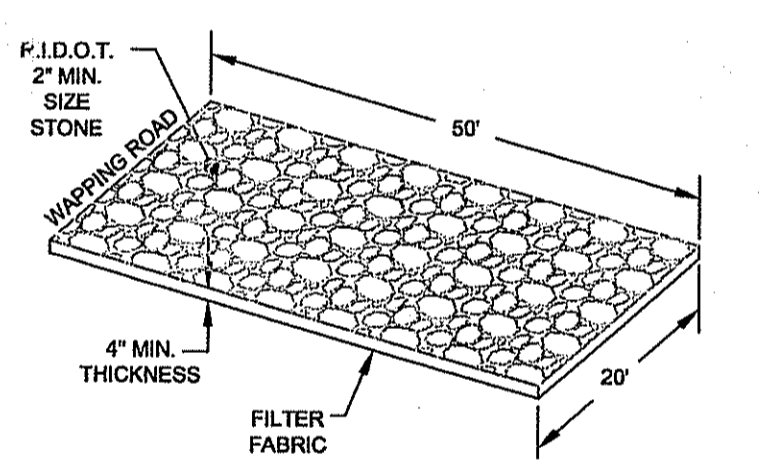
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
OWTS & FRESHWATER WETLANDS
JOINT PERMIT APPROVAL
OWTS: 1419-1359, PWWT: 15-017
APPROVED: [Signature] DATE: 2-5-15
No Changes Allowed Without RIDEM Approval
Approved Plans/Permit Must Be Used at Construction Site

RAIN GARDEN NOTES:

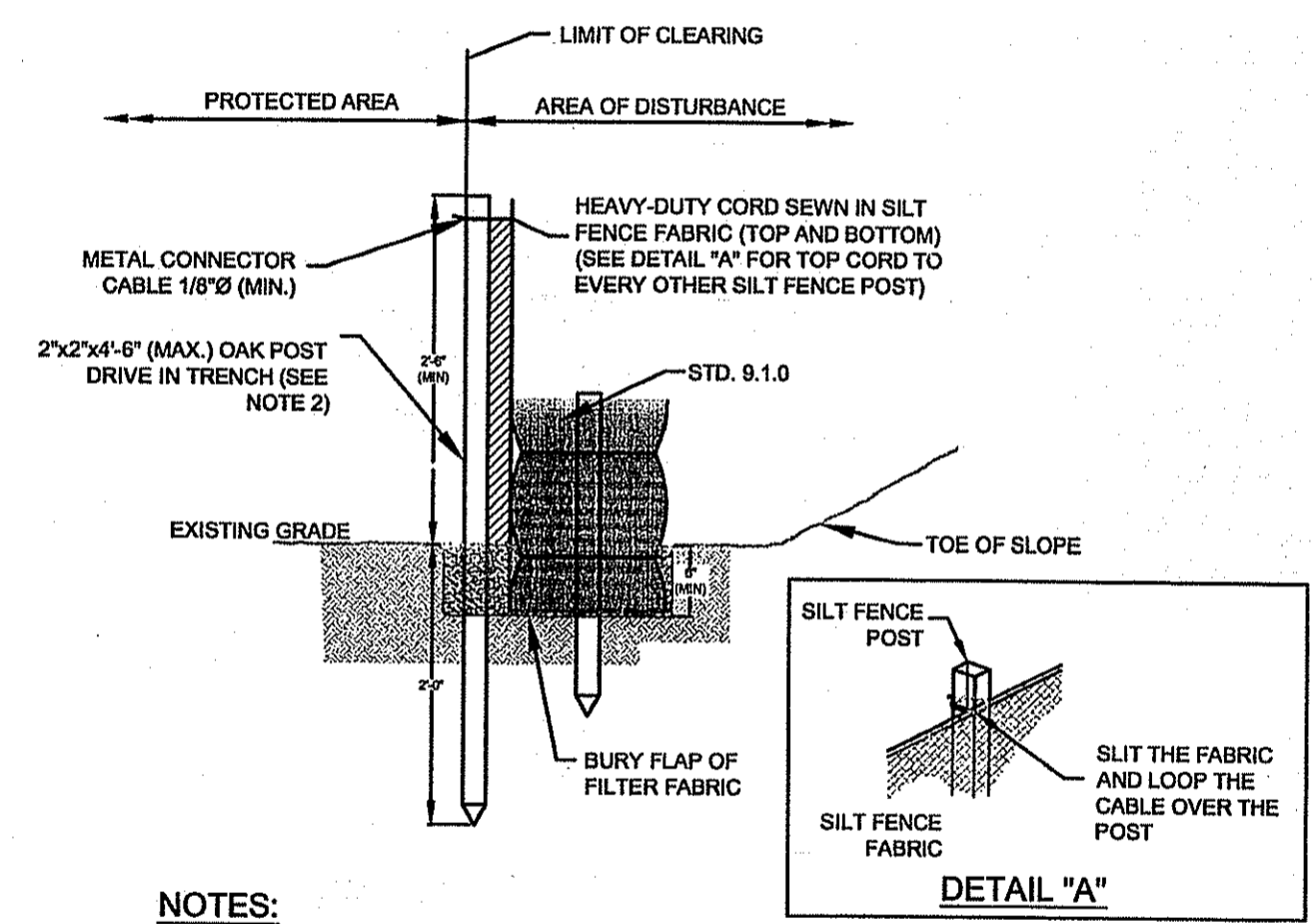
- BE SURE THAT THE SOIL WITHIN THE RAIN GARDEN AREA DOES NOT BECOME COMPACTED BY CONSTRUCTION ACTIVITIES (I.E. HEAVY MACHINERY). IF SOIL BECOMES SEVERELY COMPACTED IT MAY NEED TO BE TILLED AND AMENDED TO MAINTAIN PROPER DRAINAGE.
- RAIN GARDENS SHALL BE INSPECTED FOLLOWING AT LEAST THE FIRST TWO PRECIPITATION EVENTS OF AT LEAST 1.0 INCH TO ENSURE THAT THE SYSTEM IS FUNCTIONING PROPERLY. THEREAFTER, THE RAIN GARDEN SHALL BE MONITORED AND MAINTAINED TO ASSURE PROPER FUNCTIONING, PLANT GROWTH AND SURVIVAL. PLANTS SHALL BE REPLACED ON AN AS-NEEDED BASIS DURING THE GROWING SEASON.
- SILT/SEDIMENT SHALL BE REMOVED FROM THE RAIN GARDEN WHEN THE ACCUMULATION EXCEEDS ONE INCH, OR WHEN WATER POUNDS ON THE SURFACE OF THE RAIN GARDEN FOR MORE THAN 48 HOURS. THE TOP FEW INCHES OF MATERIAL SHALL BE REMOVED AND SHALL BE REPLACED WITH FRESH SOIL MIXTURE AND MULCH.
- PRUNING OR REPLACEMENT OF WOODY VEGETATION SHALL OCCUR WHEN DEAD OR DYING VEGETATION IS OBSERVED.
- SOIL EROSION GULLIES SHALL BE REPAIRED WHEN THEY OCCUR.
- FERTILIZER OR PESTICIDES SHALL NOT BE APPLIED TO PLANTS WITHIN RAIN GARDENS.
- PERENNIAL PLANTS AND GROUND COVERS SHALL BE REPLACED AS NECESSARY TO MAINTAIN AN ADEQUATE VEGETATED GROUND COVER. ANNUAL PLANTS MAY ALSO BE USED TO MAINTAIN GROUND COVER.

Per RIDEM:
Install permanent buffer markers as described in Condition 3.

"Copy of permit and Operation/Maintenance contract must be filed in land evidence records prior to conformance."



CONSTRUCTION ENTRANCE
NOT TO SCALE



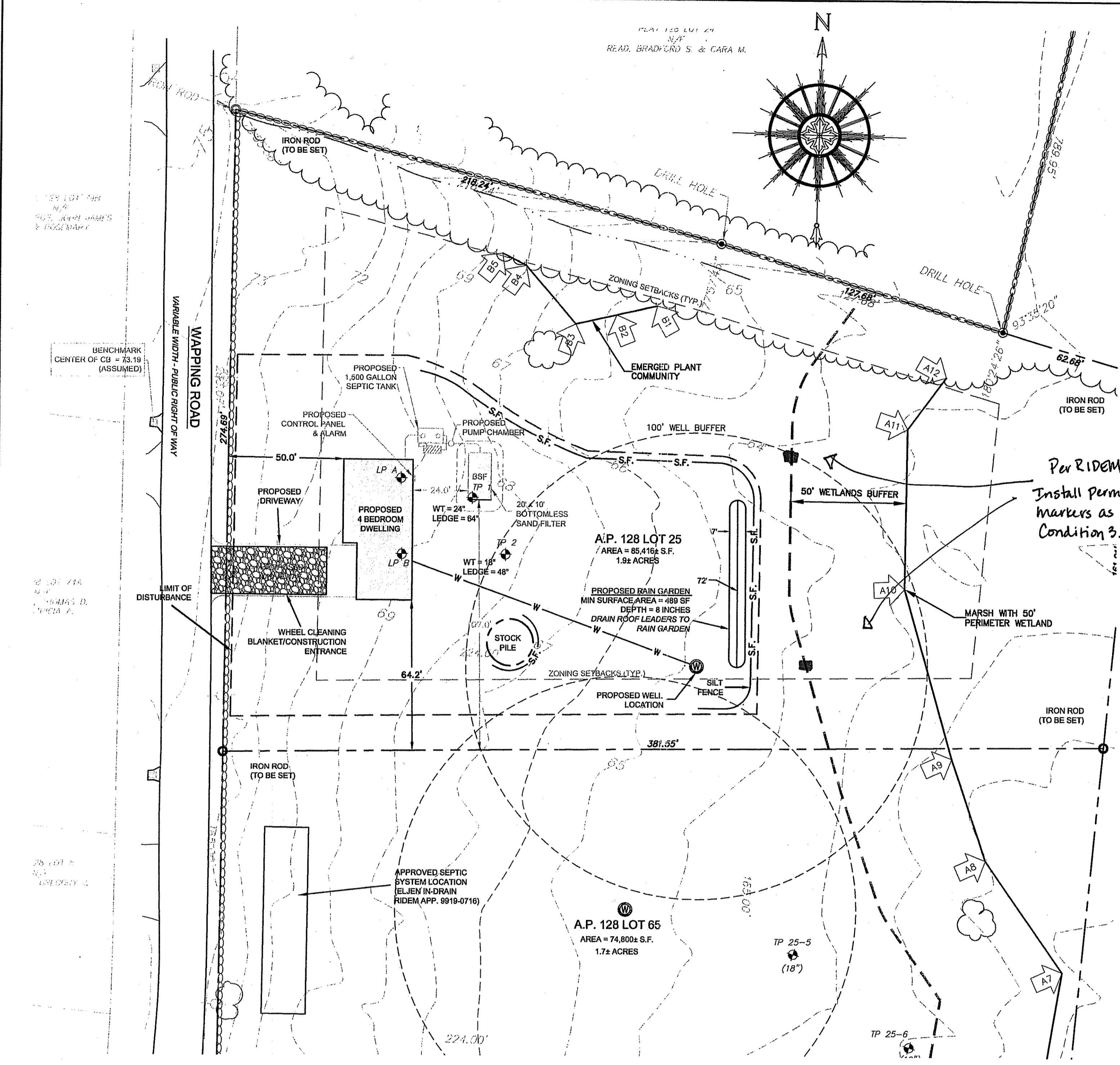
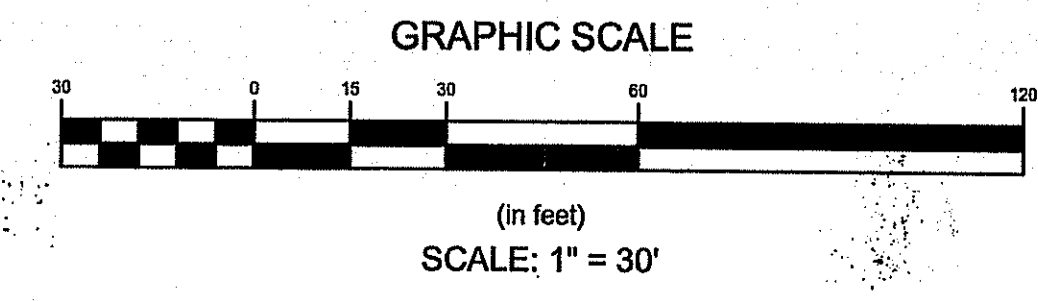
NOTES:

- SHALL BE IN ACCORDANCE WITH SECTION 208 OF THE R.I. STANDARD SPECIFICATIONS.
- STD. 9.1.0 IS INSTALLED "TIGHT" AGAINST SILTY FENCE. THOROUGHLY COMPACT EXCAVATED SOILS BACK INTO TRENCH AFTER INSTALLATION OF EROSION CONTROL DEVICE. SILTY FENCE FABRIC SHALL NOT BE SILTY. STD. 9.1.0 POST SHALL BE DRIVEN THROUGH SILTY FENCE FABRIC. 2"x2"x4" (MAX.) OAK POST FOR SILTY FENCE SHALL BE LOCATED 8'-0" (MAX.) O.C. IN WETLAND AREAS AND 4'-0" (MAX.) O.C. IN WETLAND RAVINE, GULLY OR DROP OFF AREAS AS SHOWN ON PLANS.
- 1"x1"x4'-6" (MIN.) POSTS ARE PERMITTED FOR PREFABRICATED SILTY FENCE.
- SILTY FENCE AND BALED HAY SHALL BE INSTALLED BEFORE ANY GRUBBING OR EARTH EXCAVATION TAKES PLACE.

BALED HAY EROSION CHECK AND SILTY FENCE COMBINED (RIDOT9.3.0)
SCALE: NOT TO SCALE

LEGEND

- EXISTING PROPERTY LINE
- - - ZONING SETBACKS
- EXISTING CONTOURS
- STONEWALL
- WETLANDS
- WETLAND BUFFER
- EXISTING RIVER
- TREE LINE
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED SILTY FENCE & HAYBALE COMBINATION BARRIER
- S.F. S.F.



GENERAL NOTES:

- BASE OF ELEVATIONS ARE NAVD 88.
- TEST HOLES #1 AND #2 WERE PERFORMED ON LOT 25.
- WETLAND EDGE DELINEATED BY NATURAL RESOURCE SERVICES, 9/20/2013.
- ENTIRE SITE IS LOCATED WITHIN THE R-40 ZONING DISTRICT:
MIN. LOT SIZE: 40,000 S.F.
MIN. YARD SETBACKS: FRONT 40', SIDE 30', REAR 60'
MIN. LOT FRONTAGE: 150'

SOIL EROSION & SEDIMENT CONTROL PLANS:

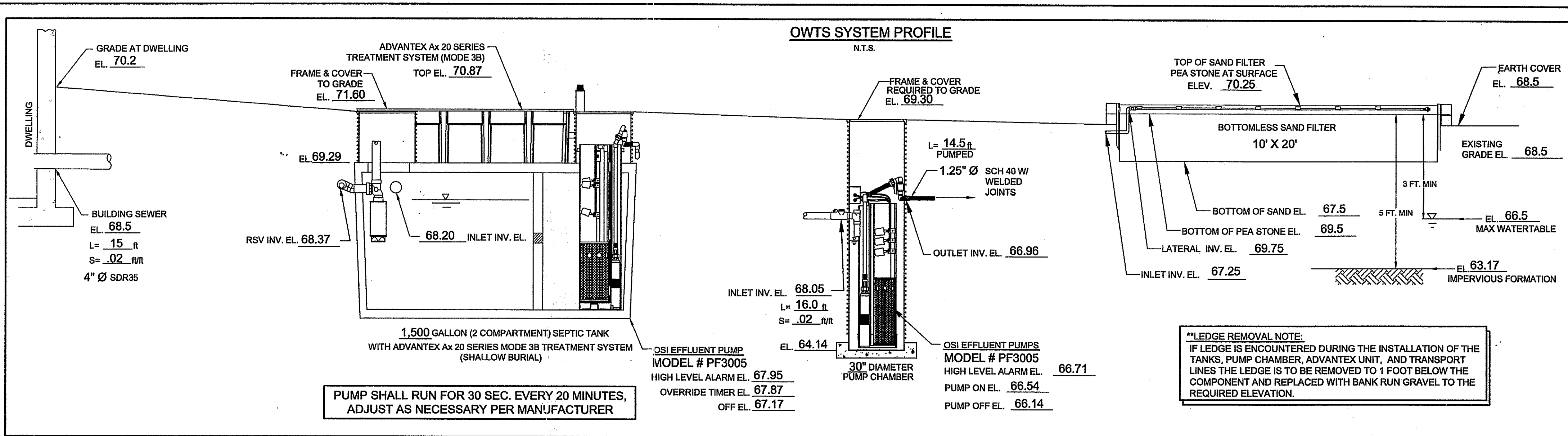
- CONSTRUCTION SEQUENCE:
 - DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE, AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.
 - ESTABLISH PROPERTY LIMITS.
 - INSTALL STONE CONSTRUCTION ENTRANCE.
 - INSTALL SILTY FENCE AS DELINEATED ON PLAN.
 - COMMENCE ROUGH GRADING.
 - BEGIN CONSTRUCTION.
 - CONSTRUCT LANDSCAPE AREAS AND MAINTAIN THE SITE IN ACCORDANCE WITH THE MAINTENANCE NOTES.
- GENERAL NOTES:
 - DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT, WHEN LAND IS EXPOSED DURING DEVELOPMENT. THE EXPOSURE SHOULD BE KEPT TO THE SHORTEST PRACTICAL PERIOD OF TIME.
 - ANY ROUGH GRADED AREAS DURING CONSTRUCTION SHALL BE STABILIZED WITHIN FOURTEEN DAYS IN ACCORDANCE WITH TEMPORARY MEASURES IN THE VEGETATIVE PRACTICE NOTES.
 - AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOP SOIL TO REMOVE VEGETATION, ROOTS, AND ANY OTHER OBJECTIONABLE MATERIAL.
 - ALL FILL SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT SUBSIDENCE, OR OTHER RELATED PROBLEMS.
 - FILL INTENDED TO SUPPORT BUILDING STRUCTURE AND CONDUITS, ETC., SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL CODES AND SPECIFICATIONS.

- ALL FILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 12" IN THICKNESS.
- FILL MATERIAL SHALL BE FREE OF BRUSH, RUBBISH, ROCKS, LUGS, STUMPS, BUILDING DEBRIS, AND OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
- FROZEN, SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIAL SHALL NOT BE INCORPORATED INTO FILLS.
- FILL SHALL NOT BE PLACED ON A FROZEN FOUNDATION SUBGRADE.
- SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
- ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 14 DAYS OF FINISH GRADING IN ACCORDANCE WITH THE VEGETATIVE PRACTICE NOTES.
- REMOVE TEMPORARY EROSION CONTROL MEASURES ONCE UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED.
- STRAW BALES ARE TO BE PLACED AT CONSTRUCTION ENTRANCE DURING NON-WORKING HOURS.
- VEGETATIVE PRACTICE:
 - SLOPES SHALL NOT BE STEEPER THAN 1 VERTICAL TO 3 HORIZONTAL UNLESS OTHERWISE SPECIFIED.
 - A MINIMUM OF 4 INCHES OF LOAM SHALL BE INSTALLED. THE LOAM SHALL BE GRADED TO A SMOOTH CONDITION AND STONES AND OTHER OBJECTS LARGER THAN 2 INCHES SHALL BE REMOVED.
 - LIMESTONE AND FERTILIZER SHALL BE APPLIED TO THE FOLLOWING RATE:
LIMESTONE: 9 TONS/ACRE
FERTILIZER: (10-10-10): 600 LBS/ACRE
 - SEED SHALL BE APPLIED AT THE FOLLOWING RATE:
WINTER RYE: 112 LBS/ACRE
 - STRAW MULCH SHALL BE APPLIED AT THE RATE OF 1.5 TONS/ACRE.

WATER QUALITY CALCULATIONS	
PARAMETER	VALUE
ROOF AND DRIVEWAY AREA	3,052 SF
WQV	255 CF
PROP. RAIN GARDEN DEPTH	8"
PROP. RAIN GARDEN VOLUME	326 CF

*RAIN GARDEN SIZED IN ACCORDANCE WITH TABLE 8 FOR SILTY SOILS IN THE RIDEM STORMWATER MANAGEMENT GUIDANCE FOR INDIVIDUAL SINGLE-FAMILY RESIDENTIAL LOT DEVELOPMENT

No.	Revision	Date	App.
Designed By:	GES	Drawn by:	DJW
Checked by:		Date:	JUNE 2015
Project Title:			
A.P. 128 LOT 25 WAPPING ROAD MIDDLETOWN, RHODE ISLAND			
Client/Owner:			
MIDDLE CREEK FARM LLC 975 AQUIDNECK AVENUE MIDDLETOWN, RI 02842			
Issued for:			
RIDEM OWTS			
Drawing Title:			
WATER QUALITY & SOIL EROSION AND SEDIMENT CONTROL PLAN			
Drawing Number:		C-3	
Sheet 3 of 3		Project Number: 13172.0	
Survey Index: 13 - 125 - 25		Professional Engineer: [Signature]	
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GENERAL OWTS SYSTEM NOTES:

- 1) ALL BRUSH AND TREES WILL BE CLEARED WITHIN (10') OF THE SYSTEM.
- 2) A MINIMUM ELEVATION OF 67.5' CORRESPONDING TO 2 FEET BELOW THE BOTTOM OF THE PEASTONE, SHOULD BE MAINTAINED WITHIN 5 ft. OF OWTS.
- 3) ALL EXISTING AND PROPOSED PRIVATE WELLS WITHIN 200 ft. OF OWTS ARE SHOWN. ALL PUBLIC WELLS EXISTING OR PROPOSED WITHIN 500' ARE SHOWN.
- 4) NO DRAINS OR WATER LINES ARE KNOWN TO EXIST OR ARE TO BE CONSTRUCTED IN THE PROXIMITY OF THE SYSTEM WITHIN THE DISTANCES SPECIFIED IN RIDEM TABLE 22.1.
- 5) ALL KNOWN OWTS WITHIN 100 FT. OF EXISTING OR PROPOSED WELLS ARE SHOWN.
- 6) THE SYSTEM FOR THE SUBSURFACE DISPOSAL OF SANITARY SEWAGE SHALL CONSTRUCTED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE STATE OF RHODE ISLAND, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, "RULES ESTABLISHING MINIMUM STANDARDS RELATING TO LOCATION, DESIGN, CONSTRUCTION, AND MAINTENANCE OF ONSITE WASTEWATER TREATMENT SYSTEMS."
- 7) THE DESIGN INTENT IS TO MEET THE STATE STANDARDS. SINCE THIS PLAN HAS BEEN CREATED TO GAIN THE NECESSARY PERMITTING, NO CONSTRUCTION INSTALLATIONS HAVE COMMENCED. BECAUSE THIS IS NOT A "RECORD DRAWING OF AS-BUILT CONDITIONS" AND NOTHING HAS BEEN INSTALLED, THE ENGINEER SIGNING AND STAMPING THIS PLAN IS NOT GUARANTEEING THE OPERATION OF THE INSTALLED SEPTIC SYSTEM. UPON THE APPROVED SYSTEM INSTALLATION, THE DESIGN ENGINEER WILL SUPERVISE, VERIFY, AND CERTIFY THAT THE SYSTEM WAS INSTALLED AS SPECIFIED ON THE APPROVED PLAN.
- 8) ALL PUMPED LINES SHALL DRAIN BACK TO PUMP CHAMBER, PROPER COMPACTION AND FORCE MAIN INSTALLATION SHALL BE PERFORMED TO ENSURE THAT NO LOW POINTS FORM BETWEEN PUMP ORIGIN COMPONENT AND DISCHARGE DESTINATION.
- 9) ANTI-FLOATION DEVICES AS PROVIDED BY THE MANUFACTURER SHALL BE USED FOR THE PROPOSED ADVANTEX PCD.
- 10) LAND OWNER MUST MINIMIZE SHADING OF THE BOTTOMLESS SAND FILTER. THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT RECOMMENDS THAT BOTTOMLESS SAND FILTER BE EXPOSED TO THE SUNLIGHT TO PREVENT FREEZING DURING THE WINTER MONTHS.
- 13) TEST HOLES #1 AND #2 WERE PERFORMED 12/3/14.
- 14) WETLAND EDGE DELINEATED BY NATURAL RESOURCE SERVICES, 9/20/2013.

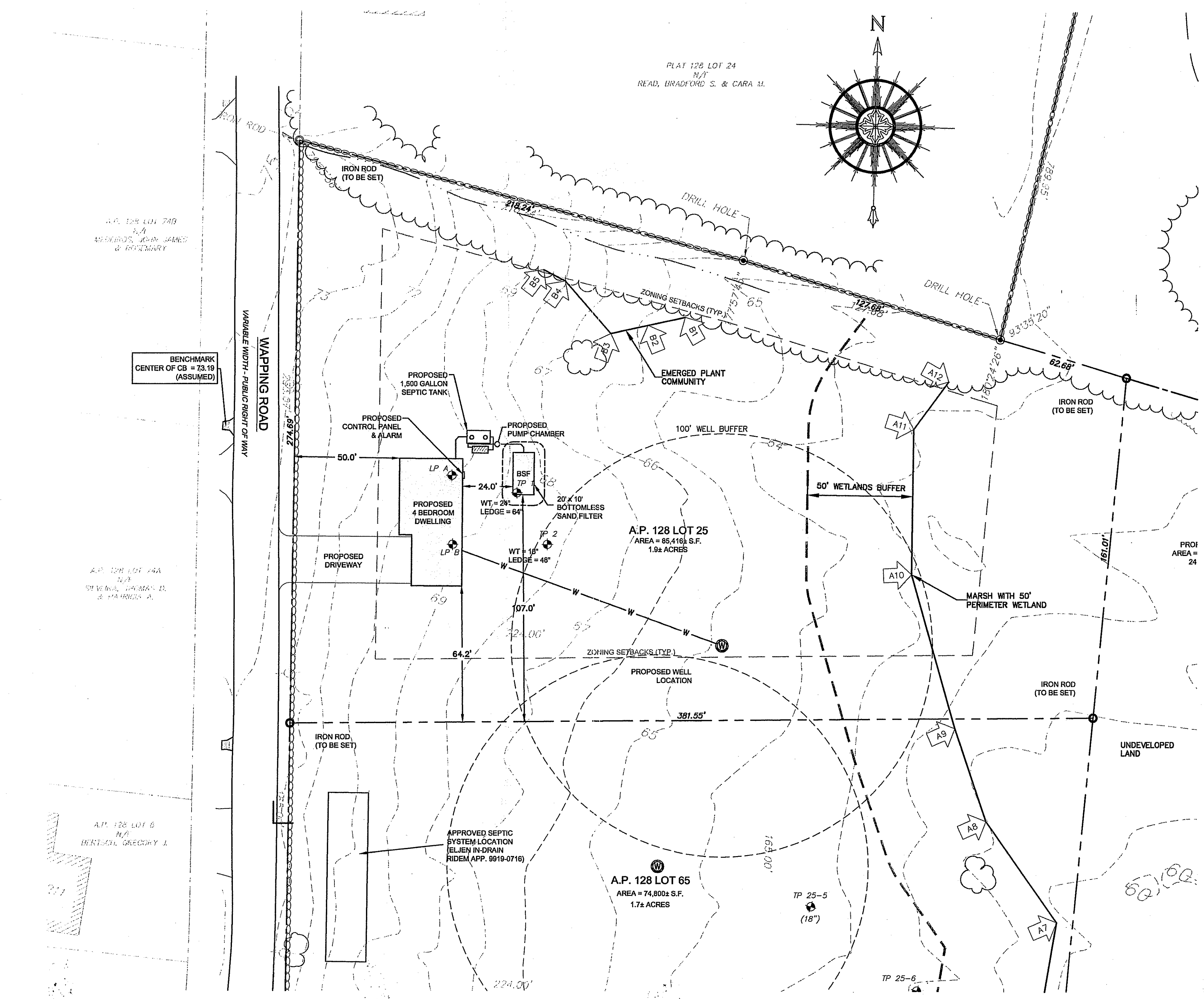
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VICINITY MAP
N.T.S.



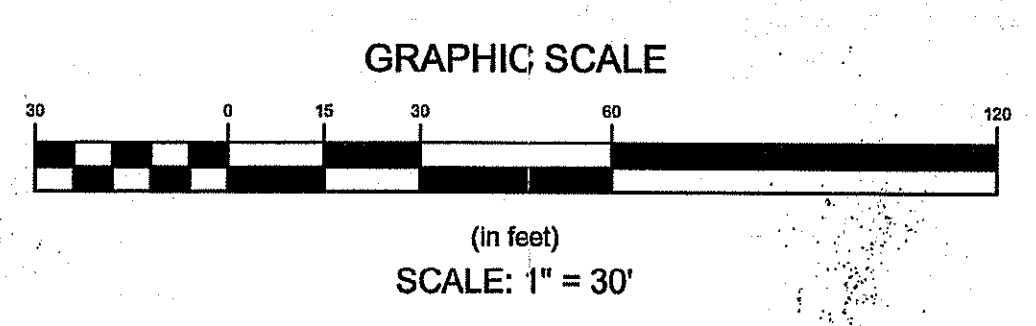
SOIL EVALUATION DATA

TP#	1	DEPTH (Inches)	HORIZON BOUNDARIES		SOIL COLORS		RE-DOX FEATURES	RE-DOX DESCRIPTION	TEXTURE	STRUCTURE	CONSISTENCE	SOIL CATEGORY
			DIST	TOPO	MATRIX	MOISTURE						
Ap	0-9	a	s	10YR 2/2	--	--	--	sil	1Fgr	vFr	5	
Bw1	9-25	g	s	10YR 4/4	--	--	--	sil	1Fsbk	vFr	5	
Bw2	25-40	a	w	2.5Y 5/4	10YR 5/8	2.5Y 6/1	m,c,p c,c,p	sil	1Fsbk	vFr	5	
C	40-64	a	w	5Y 4/2	5YR 3/4	--	m,f,p	vgsi	Ø-m	Fr	6m	
R	@ 64	--	--	--	--	--	--	--	--	--	--	

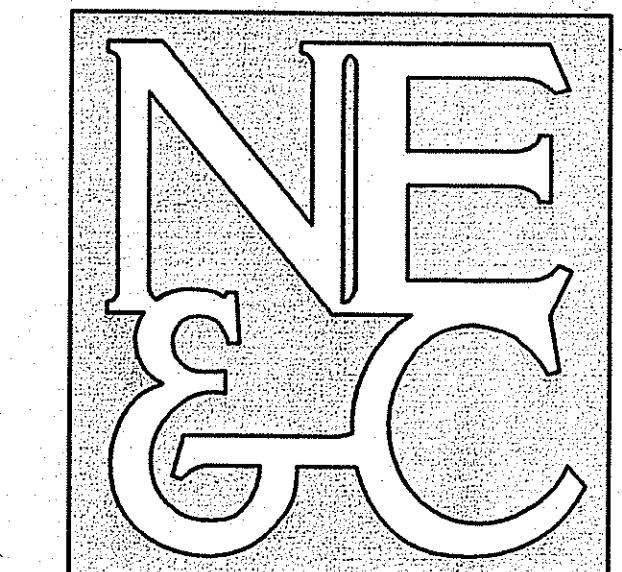
DESIGN COMPUTATION

DESIGN SOIL CATEGORY	DESIGN APP. RATE	SEEPAGE SYSTEM: ADVANTEX AX 20 WITH A BOTTOMLESS SAND FILTER
CATEGORY 6m	2.3 GAL/SF/DAY	APPLICATION RATE 2.3 GAL/SF/DAY
APPROVED & DESIGN WATER TABLE:		
TH 1 - WT 24"		
TH 1 - LEDGE 64"		
SEWAGE FLOW:		
4 BEDROOM x 15 g/day = 460 g/day		
SEPTIC TANK:		
CAPACITY PROVIDED: 1,500 GALLONS		
TOTAL LEACHING AREA: 200 SF		
LEACHING AREA PROVIDED: 200 SF		
NUMBER OF LATERALS: 5		
NO. OF ORIFICES PER LATERAL: 12		
LENGTH OF SAND FILTER: 20 FT		
WIDTH OF SAND FILTER: 10 FT		

- ### LEGEND
- EXISTING PROPERTY LINE
 - - - ZONING SETBACKS
 - EXISTING CONTOURS
 - STONEWALL
 - WETLANDS
 - WETLAND BUFFER
 - EXISTING RIVER
 - TREE LINE

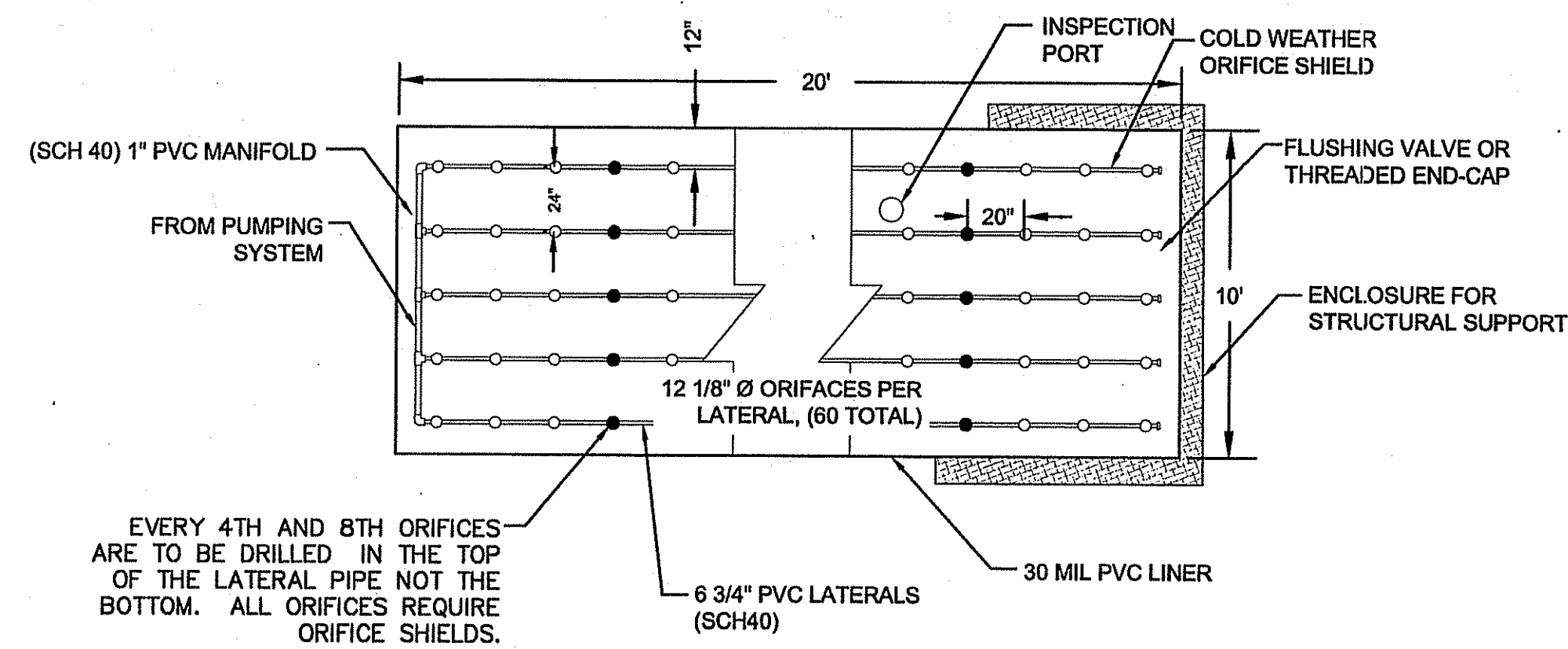


No.	Revision	Date	App.
Designed By:	GES	Drawn by:	DJW
Checked by:		Date:	JUNE 2015
Project Title:			
A.P. 128 LOT 25			
WAPPING ROAD MIDDLETOWN, RHODE ISLAND			
Client/Owner:			
975 AQUIDNECK AVENUE MIDDLETOWN, RI 02842			
Issued for:			
RIDEM OWTS			
Drawing Title:			
PROPOSED OWTS			
DESIGN			
Drawing Number:			
C-1			
Sheet 1 of 3			
Project Number:			
13172.0			
Survey Index:			
13 - 128 - 25			
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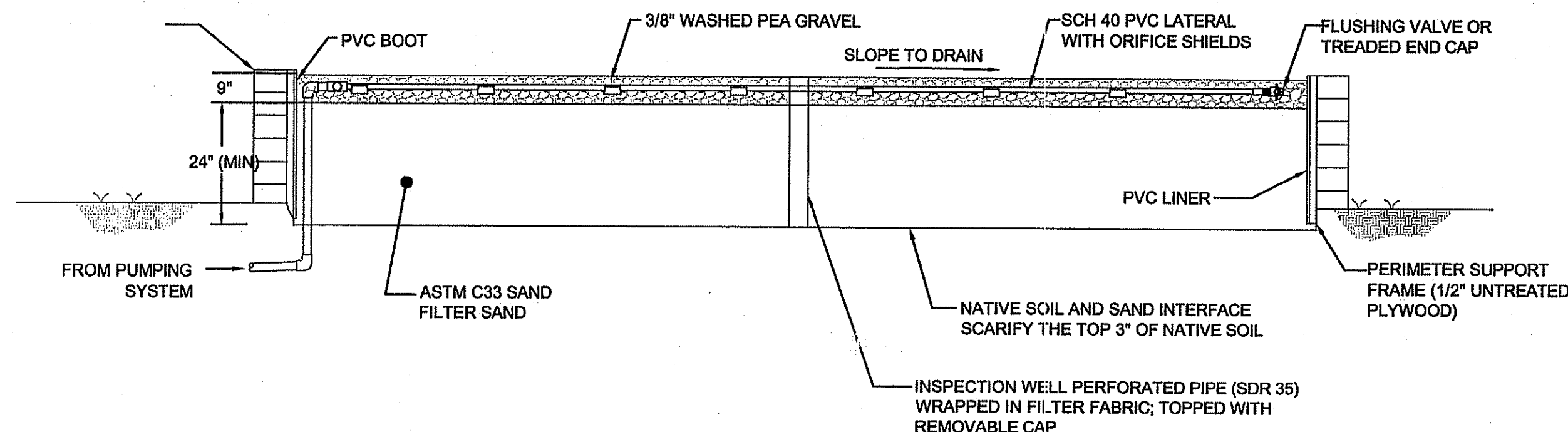


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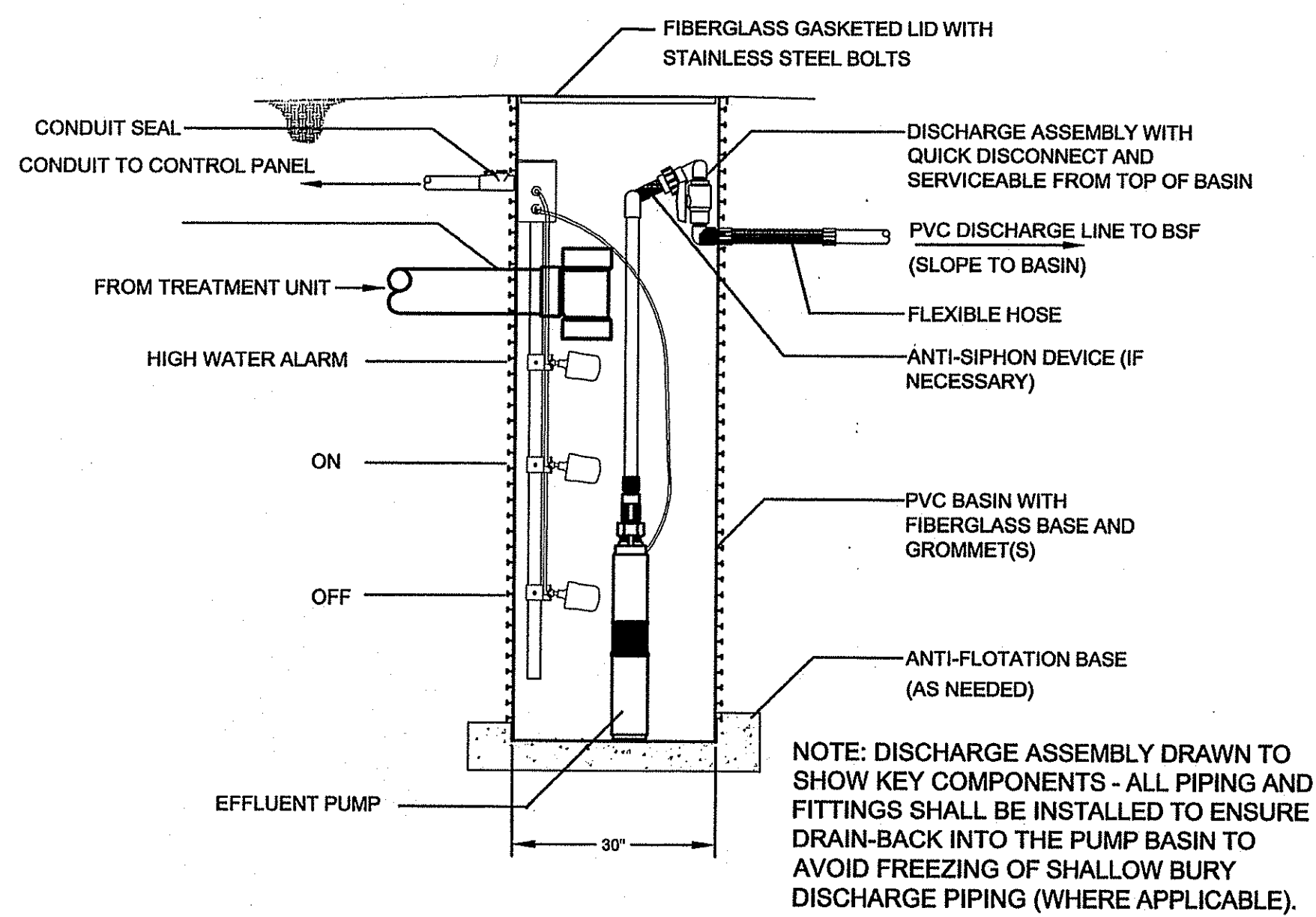
- 1 SITE/CIVIL
- LAND PLANNING
- WATERFRONT
- SURVEYING
- GEOTECHNICAL
- ENVIRONMENTAL
- TRANSPORTATION
- STRUCTURAL
- MATERIALS TESTING



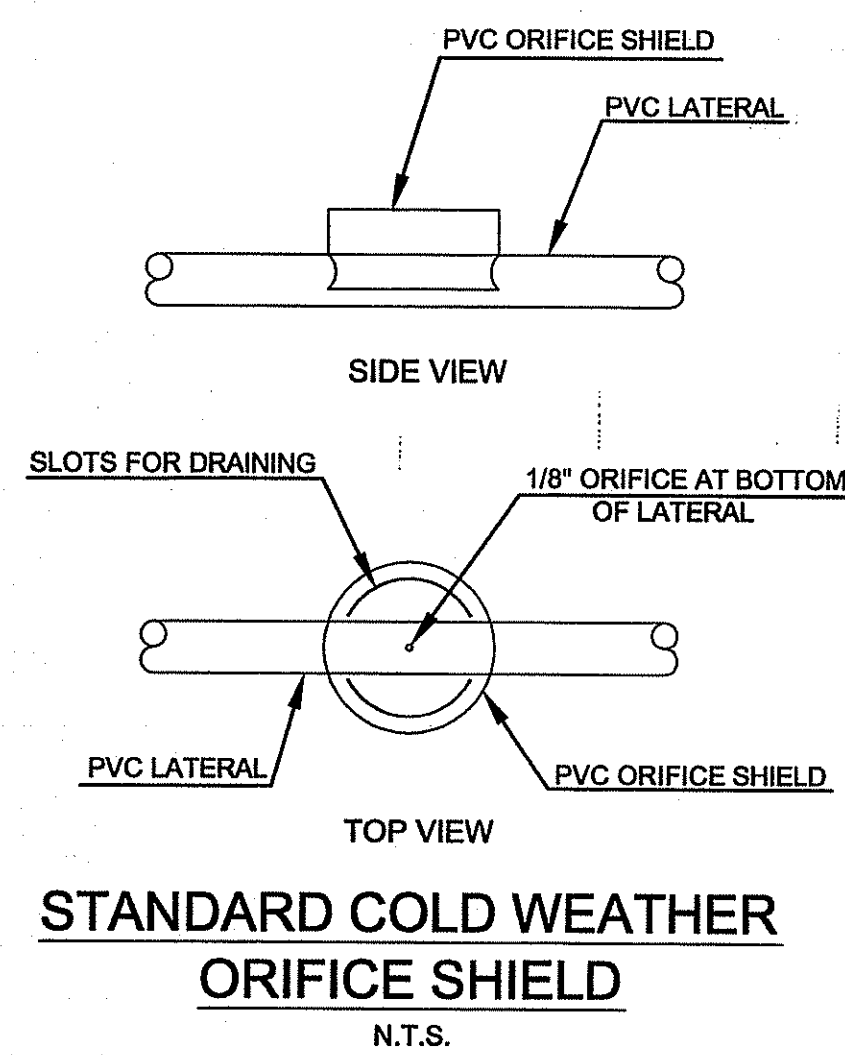
BOTTOMLESS SAND FILTER
 N.T.S.



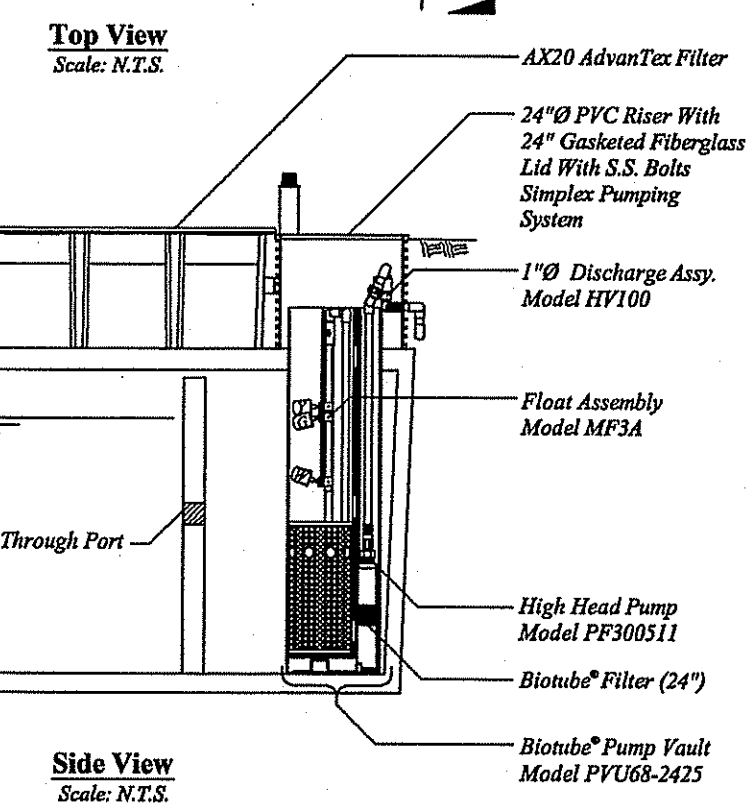
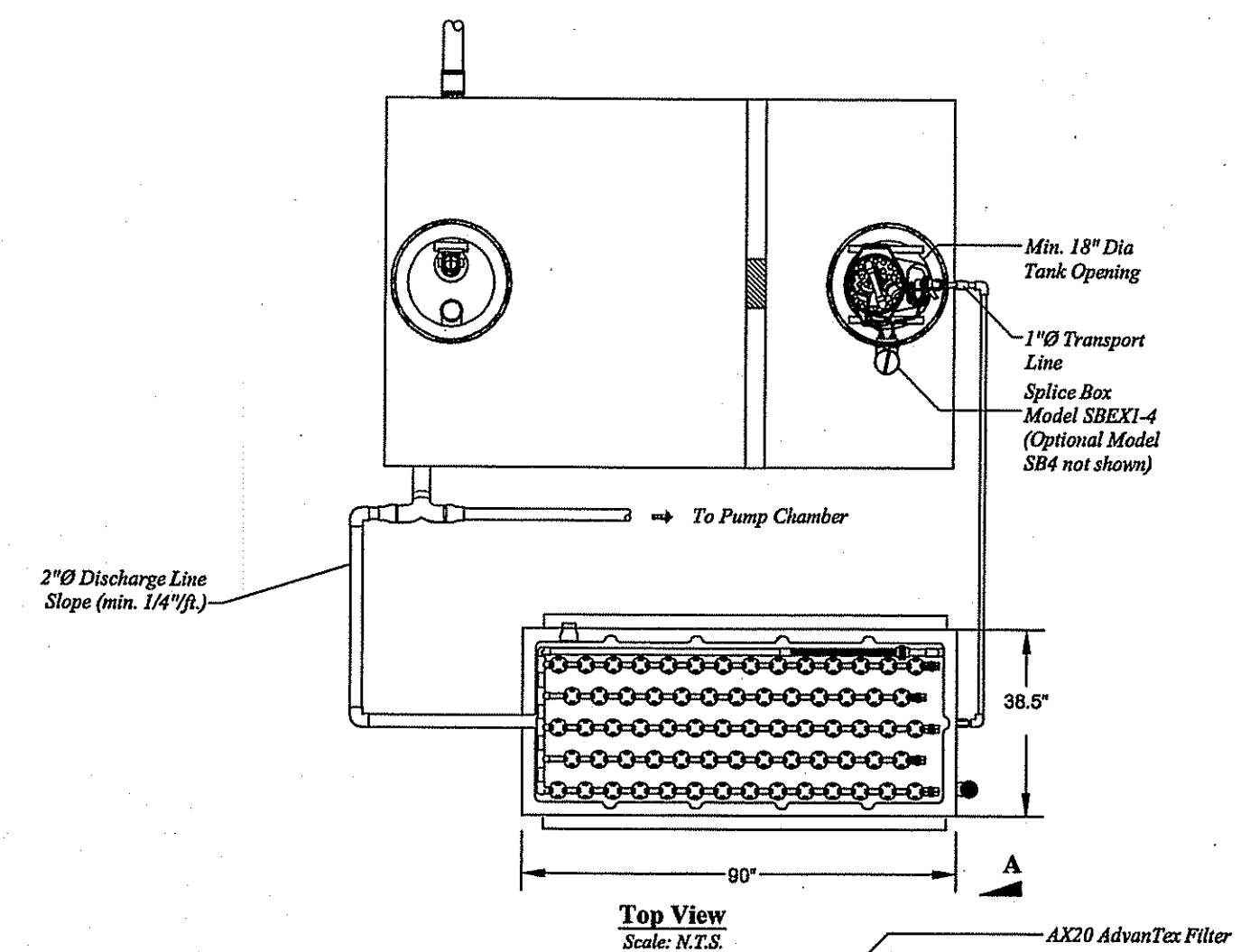
TYPICAL BOTTOMLESS SAND FILTER (CROSS SECTION)
 N.T.S.



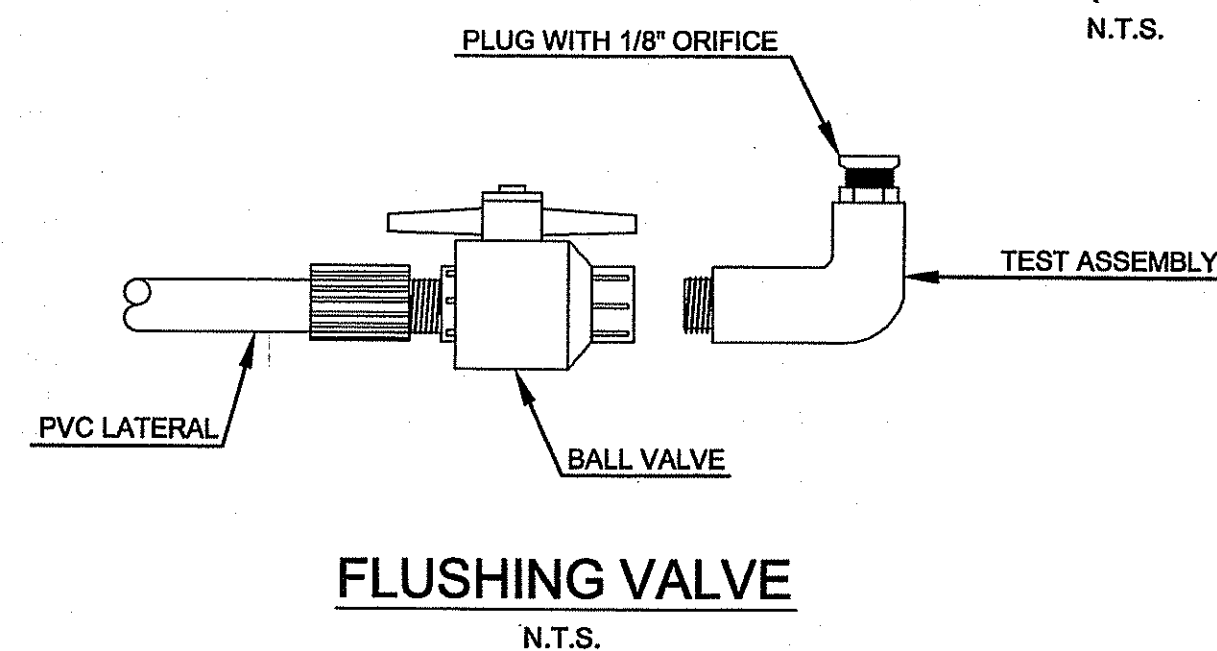
TYPICAL PUMP CHAMBER WITH HIGH HEAD PUMP
 N.T.S.



STANDARD COLD WEATHER ORIFICE SHIELD
 N.T.S.

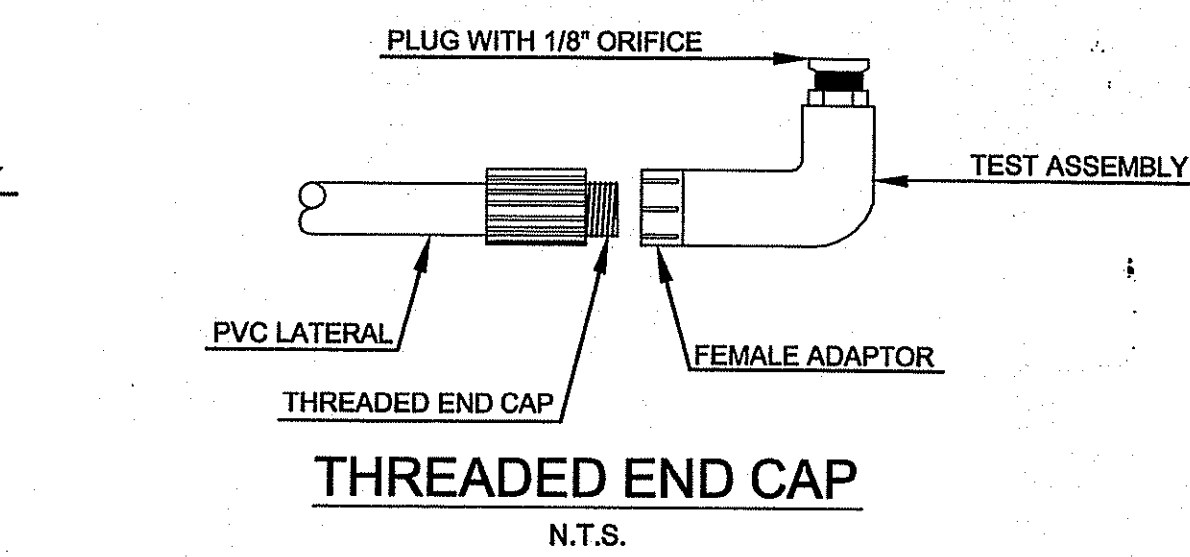


ADVANTEX TREATMENT SYSTEM AX20 MODE 3B (SHALLOW BURIAL)
 N.T.S.

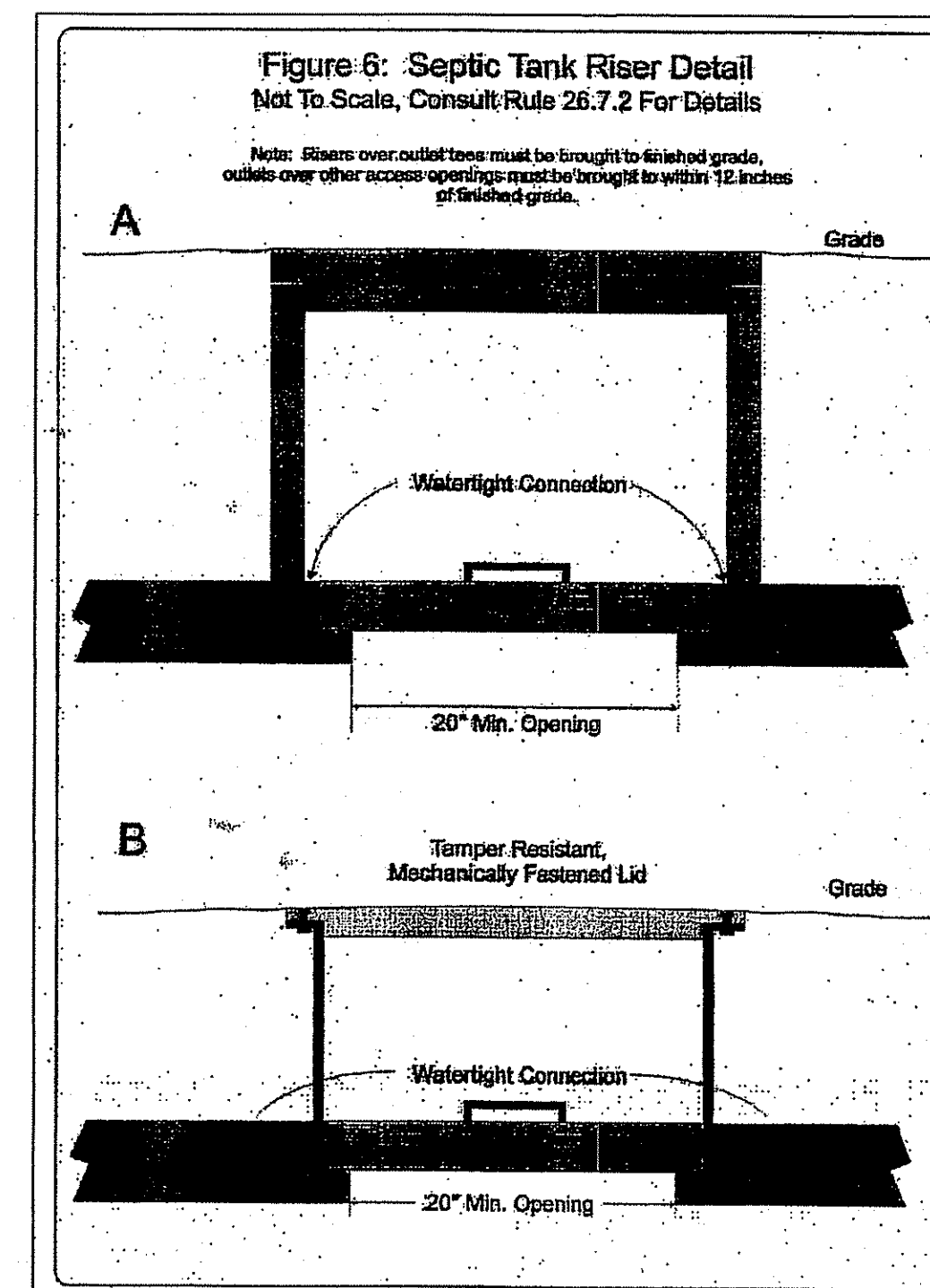


FLUSHING VALVE
 N.T.S.

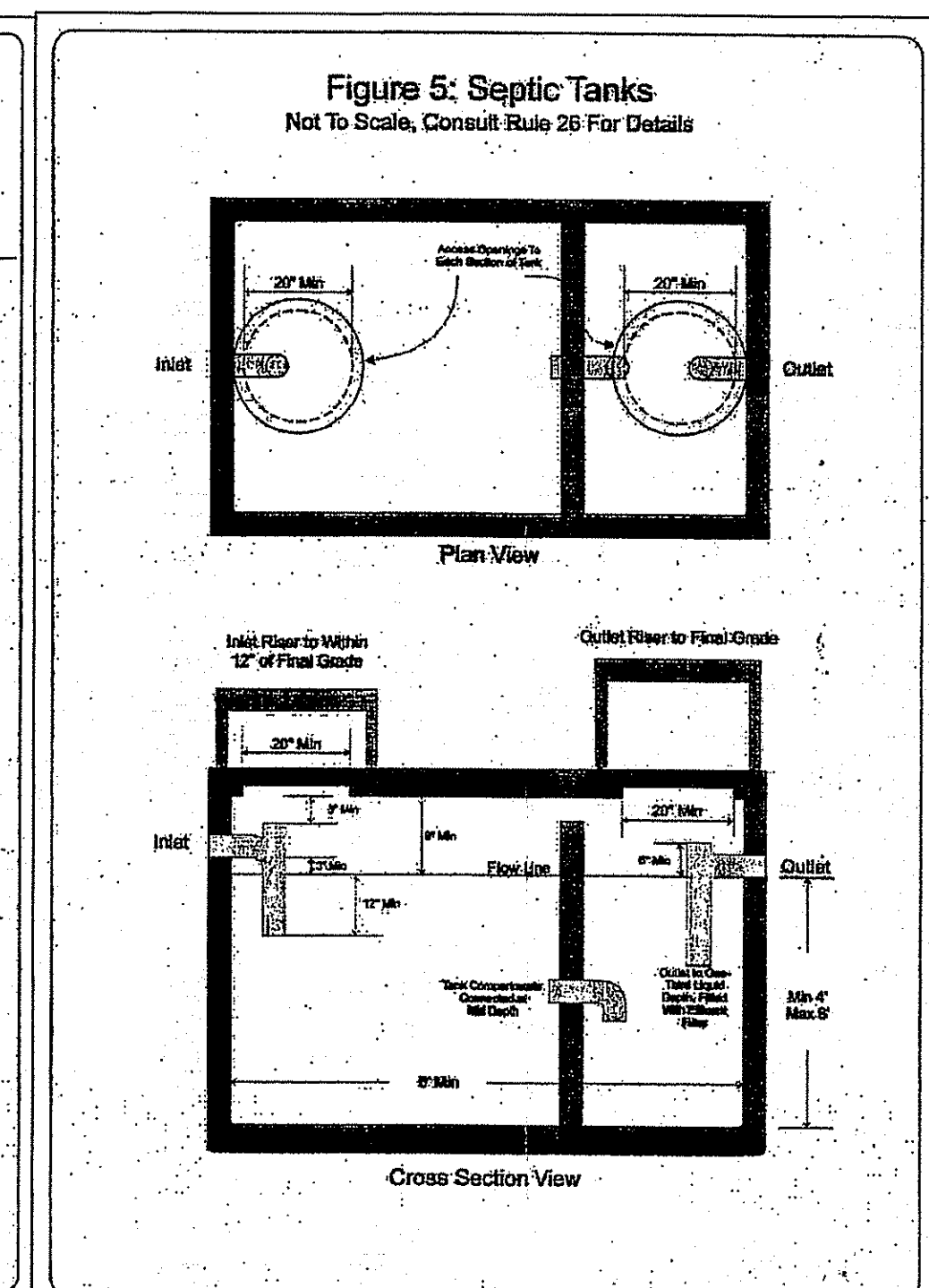
Float Functions	
Y	High Level Alarm
G	Override Timer ON/OFF
W	LLARO



THREADED END CAP
 N.T.S.



SEPTIC TANK DETAIL
 N.T.S.



No.	Revision	Date	App.
Designed By:	GES	Drawn by:	DJW
Scale:	N.T.S.	Date:	JUNE 2015
Project Title:			
A.P. 128 LOT 25 WAPPING ROAD MIDDLETOWN, RHODE ISLAND			
Client/Owner:			
MIDDLE CREEK FARM LLC 975 AQUIDNECK AVENUE MIDDLETOWN, RI 02842			
Issued for:			
RIDEM OWTS			
Drawing Title:			
OWTS DETAILS			
Drawing Number:		C-2	
Sheet 2 of 3		Project Number: 13172.0	
Survey Index: 13 - 128 - 25		REGISTERED PROFESSIONAL ENGINEER CIVIL	
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