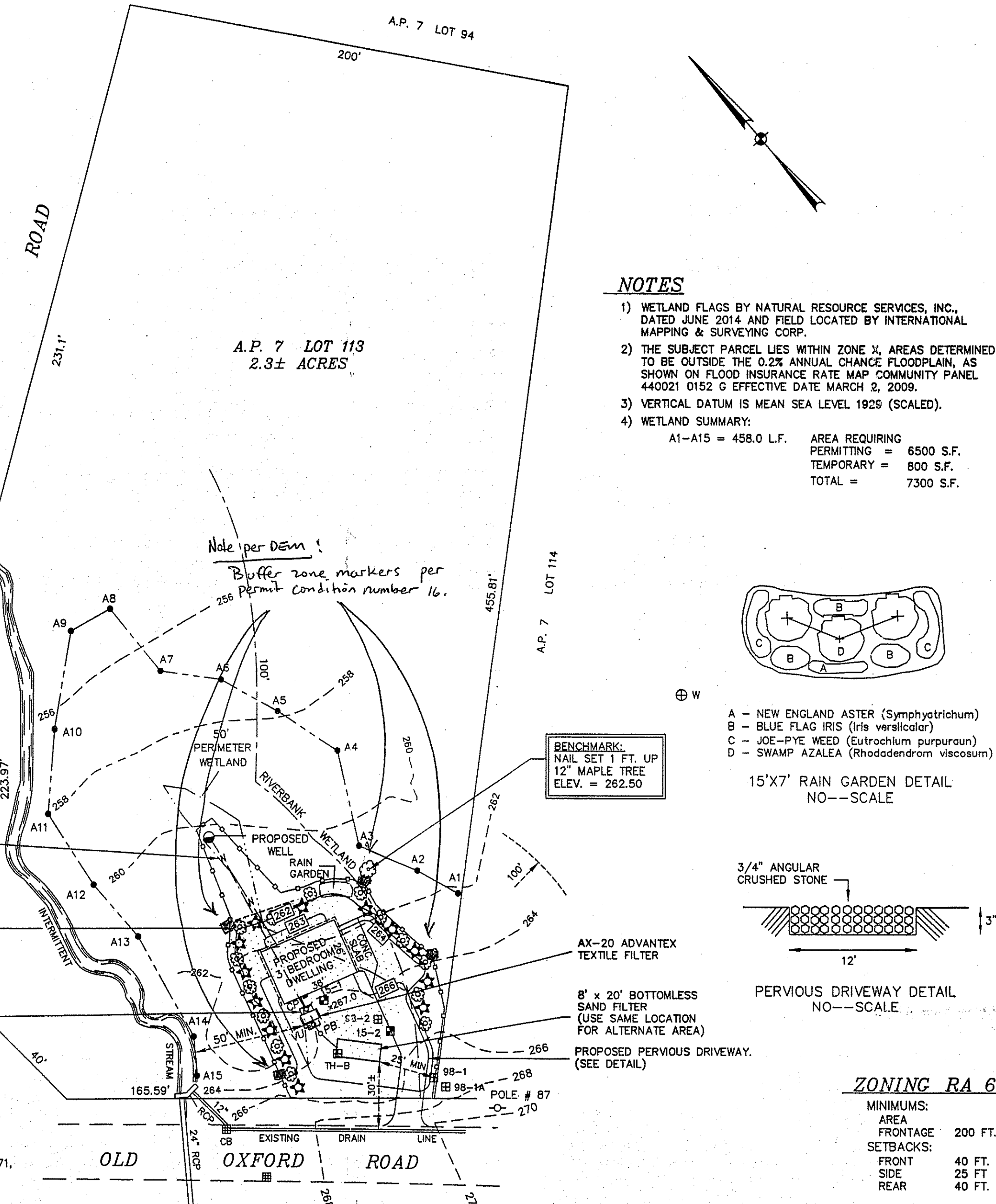


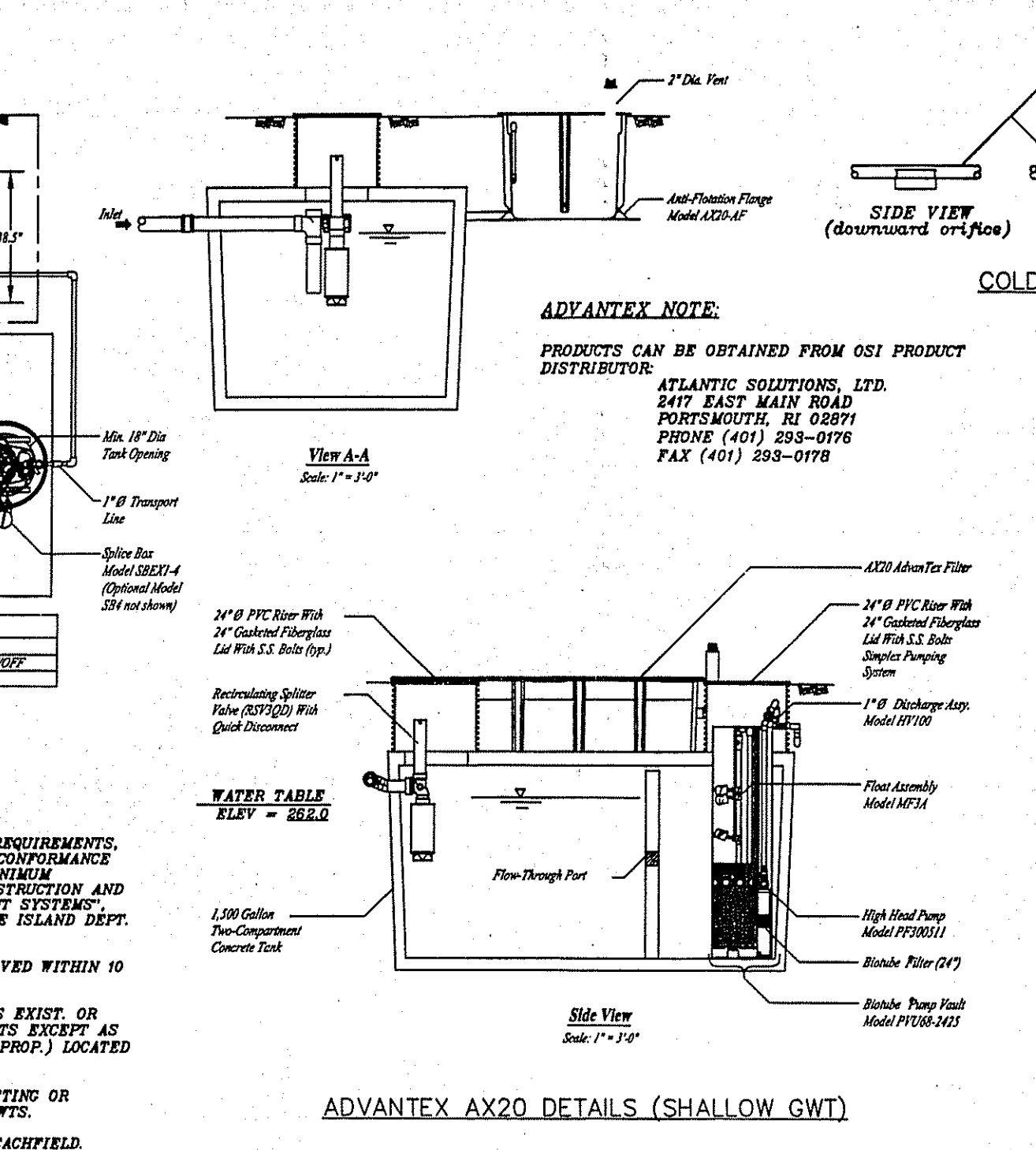
LEGEND:

- EXISTING CONTOUR 250
- PROPOSED CONTOUR 260
- EXISTING WETLAND EDGE WITH FLAG
- 50' PERIMETER WETLAND
- 100' RIVERBANK WETLAND
- PROPOSED RED MAPLE (ACER RUBRUM)
- PROPOSED Highbush BLUEBERRY (VACCINIUM CORYMBOSUM)
- AREA REQUIRING PERMITTING
- PROPOSED SILT FENCE & LIMIT OF DISTURBANCE
- EXISTING SOIL EVALUATION
- TEST HOLE OLD
- EXISTING EDGE OF PAVEMENT
- EXISTING WELL
- TEST HOLE OLD
- CONTROL PANEL
- VENTILATOR UNIT
- PUMP BASIN

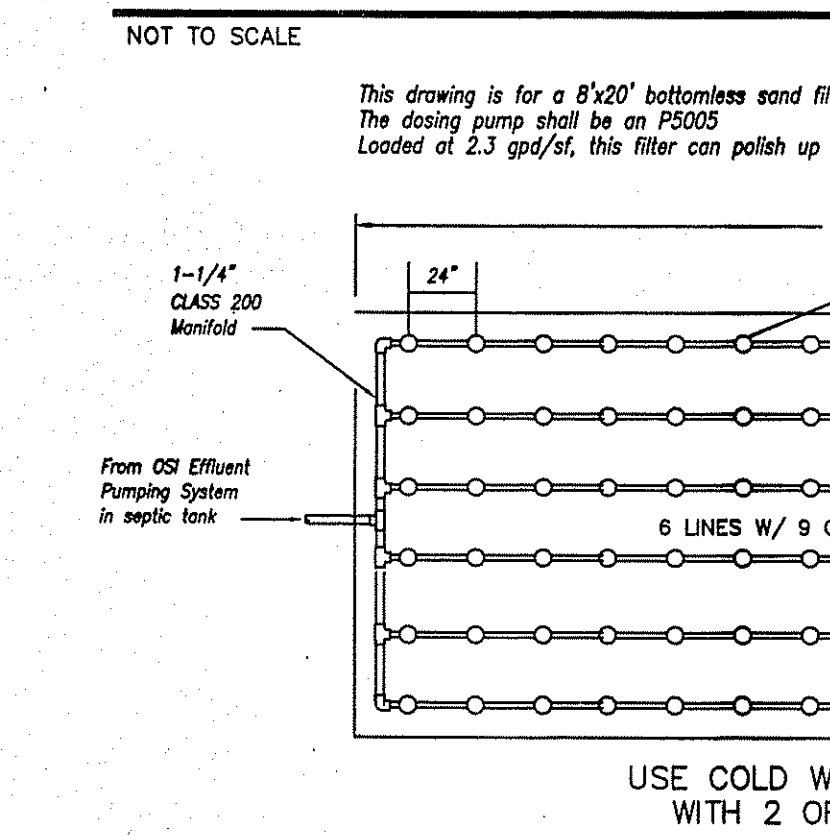


- REFERENCE:**
- SEE RHODE ISLAND STATE HIGHWAY PLAT NO. 1271, SHEET 2 OF 3.
 - SEE DEED BOOK 194, PAGE 175 IN THE TOWN OF NORTH SMITHFIELD, RI.

- OWTS NOTES:**
- ALL DESIGN, CONSTRUCTION, AND MAINTENANCE REQUIREMENTS, WHETHER NOTED HEREON OR NOT, SHALL BE IN CONFORMANCE WITH RULES AND REGULATIONS ESTABLISHING MINIMUM STANDARDS RELATING TO LOCATION, DESIGN, CONSTRUCTION AND MAINTENANCE OF ON-SITE WASTEWATER TREATMENT SYSTEMS, RULES, AND ALL AMENDMENTS, BY THE RHODE ISLAND DEPT. OF ENVIRONMENTAL MANAGEMENT.
 - ALL TREES, STUMPS, AND BRUSH SHALL BE REMOVED WITHIN 10 FEET OF THE SYSTEM.
 - THERE ARE NO KNOWN PRIVATE WELLS OR DRAINS EXIST OR PROPOSED LOCATED WITHIN 300 FEET OF THE OWTS EXCEPT AS SHOWN AND NO KNOWN PUBLIC WELLS (EXIST. & PROP.) LOCATED WITHIN 500 FEET OF THE PROPOSED OWTS.
 - THERE ARE NO KNOWN SUBSURFACE DRAINS, EXISTING OR PROPOSED, WITHIN 60 FEET OF THE PROPOSED OWTS.
 - NO VEHICULAR TRAFFIC IS ALLOWED OVER THE LEACHFIELD.



8'x20' Bottomless Sand Filter



USE COLD WEATHER ORIFICE ONLY WITH 2 ORIFICE UP PER LINE

BOTTOMLESS SAND FILTER (BSF) CONSTRUCTION NOTES:

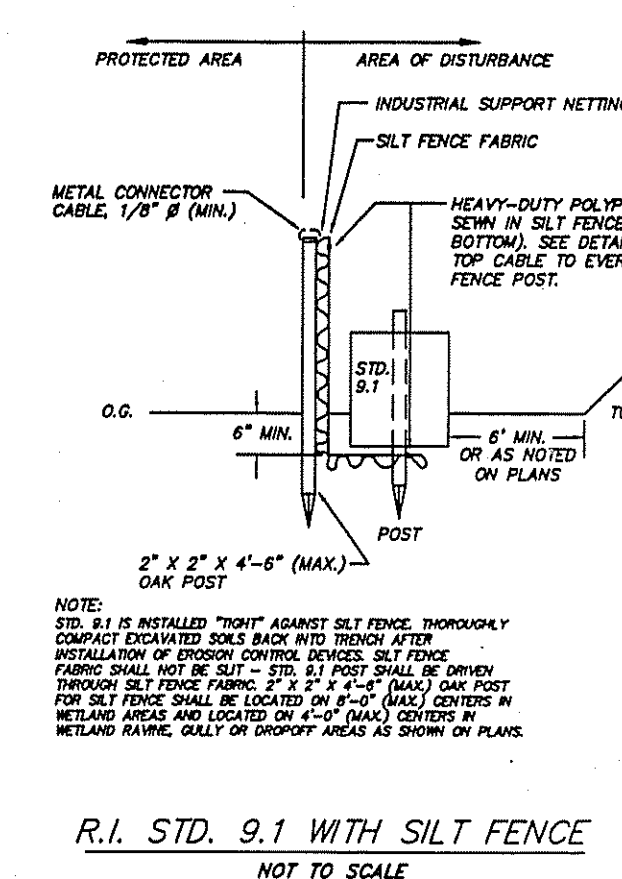
- THE PROPOSED BOTTOMLESS SAND FILTER (BSF) SHALL BE STAKED OUT AND PROTECTED PRIOR TO ANY SITE PREPARATION ACTIVITIES. DURING THE SAND FILTER CONSTRUCTION, MINIMAL BACKFILLING ON BOTTOM AND SIDES SHALL BE MAINTAINED TO PREVENT SOIL COLLAPSE.
- SOD, VEGETATION AND DEAD OR DECAYING ORGANIC LITTER SHALL BE REMOVED FROM THE AREA PLANNED FOR THE BSF INSTALLATION. TWELVE (12) INCHES OF THE NATIVE SOIL SHALL BE SCARIFIED AND MIXED WITH 12 INCHES OF SAND MEDIA. PERIMETER STAPLING AND EXCAVATION OF SOIL 12" BENEATH THE NATIVE SOIL/FILTER SAND INTERFACE IS PROHIBITED.
- A PERIMETER SUPPORT FRAME OF PLYWOOD AND 2x4 CONSTRUCTION IS USED TO HOLD THE LINER IN PLACE DURING INSTALLATION. TREATED WOOD IS NOT NECESSARY. DURING CONSTRUCTION OF THE SAND FILTER, IT IS IMPORTANT THAT SAND IS PLACED EVENLY OVER THE SOIL AND THE SUPPORT FRAME. ALL NAILS OR STAPLES USED MUST HAVE THEIR SHARPS POINTED AWAY FROM THE LINER.
- A PERMANENT TOP FRAME STRUCTURE (SUCH AS DECK RESISTANT LANDSCAPE TIMBERS) MUST BE PROVIDED ON ANY PORTION OF A BSF THAT IS INSTALLED ABOVE GRADE. BELOW GRADE USE OF TIMBERS IS PROHIBITED TO PREVENT SOIL COLLAPSE AFTER TIMBERS HAVE ROTTED.
- MAINTAIN CONSTANT ELEVATION FOR 5 FEET MINIMUM PERIMETER AROUND BSF.
- THE 30 MIL POLY LINER IS UNFOLDED FROM THE CENTER OF THE EXCAVATION AND DRAPED OVER THE TOP EDGES OF THE PERIMETER SUPPORT FRAME. CARE MUST BE TAKEN TO ENSURE THAT THE LINER IS IN FULL CONTACT WITH SIDES AND THAT NO BRIDGING OCCURS.
- FILTER SAND IS PLACED AND COMPACTED WHILE IT IS DAMP. IF THE SAND IS NOT DAMP, IT WILL NOT COMPACT. THE SAND SETTLING MAY CAUSE DISLOCATION AND BREAKAGE OF THE DISTRIBUTION LATERALS. THE SAND SURFACE MUST BE FLAT. SEE THE APPROPRIATE SAND GRADATION TABLE FOR SPECIFICATIONS.
- THREE INCHES OF 3/8" INCH PEA STONE IS PLACED ON TOP OF THE COMPACTED SAND, DISTURBING THE SAND AS LITTLE AS POSSIBLE. SEE PEA STONE SPECS. AFTER THE LATERALS ARE INSTALLED AND PRESSURE TEST IS COMPLETED, PLACE PEA STONE OVER ALL UPPER ORIFICE SHIELDS TO PROVIDE 3 INCHES DEPTH OF PEA STONE OVER ALL UPPER ORIFICE SHIELDS. PEA STONE SHOULD BE PLACED BETWEEN THE SAND AND OVERLAYING PEA STONE.
- THE LINER'S PVC BOOT PERMITS A WATER TIGHT PENETRATION OF THE LINER FOR THE TRANSPORT PIPE DELIVERING EFFLUENT TO THE SAND FILTER'S DISTRIBUTION SYSTEM. IN THE EVENT THE GROUND WATER REACHES THAT ELEVATION, THE BOOT WILL PREVENT INFILTRATION. THE MANUFACTURER'S GUIDE MUST BE FOLLOWED EXACTLY WHEN INSTALLING THE PVC BOOTS.
- THE 1/8" INCH DIAMETER ORIFICES SHOULD BE DRILLED WITH A DRILL PRESS OR DRILL GUIDE USING A NEW 1/8" INCH DRILL BIT AND SHOULD NOT HAVE ANY VISIBLE BURRS. ALL PVC JOINTS SHOULD BE GLUED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
- ORIFICE SHIELDS ARE PLACED ON THE LATERALS TO PREVENT THE PEA GRAVEL FROM BLOCKING THE FLOW OUT OF THE ORIFICES AND TO OBTAIN BETTER EFFLUENT DISTRIBUTION OVER THE SAND. COLD WEATHER ORIFICE SHIELDS SHOULD BE USED IN COLD WEATHER CLIMATES TO PREVENT THE FREEZING OF THE LATERALS.
- AS PART OF THE COLD WEATHER REQUIREMENT, TWO (2) OF THE ORIFICES IN EACH DISTRIBUTION LATERAL MUST BE DRILLED UPWARD AND THE REST ARE DRILLED POINTING DOWNWARD. UP-POINTING ORIFICES SHALL BE LOCATED AT POINTS APPROXIMATELY 1/8" AND 1/2" ALONG THE LENGTH OF EACH DISTRIBUTION LATERAL. INSTALL COLD WEATHER ORIFICE SHIELDS AT ALL ORIFICES (UPWARD AND DOWNWARD POINTING).
- THE ELECTRICAL SPICE BOX MUST BE UL OR CSA LISTED AND CORROSION-PROOF WITH THE PROPER NUMBER OF CORSD GAGES INSTALLED. HEAT SHRINKING OR WATER TIGHT WIRE NUTS MUST BE USED ON THE INDIVIDUAL WIRE SPICES. WITHIN THE BOX TO ENSURE THE INTEGRITY OF THE SPICES IF THE BOX BECOMES FLOODED, SUFFICIENT LENGTH OF WIRES MUST BE PROVIDED IN THE BOX TO ALLOW FOR FUTURE REPAIRS.
- THE CONDUIT SEAL MUST BE UL OR CSA LISTED AND MUST BE INSTALLED USING PROPER CONDUIT SEALANT AS RECOMMENDED BY THE MANUFACTURER. SILICONE IS NOT ALLOWED. THE SEAL PREVENTS WATER FROM DRAINING INTO THE SPICE BOX AND GASES FROM ESCAPING THE TANK.
- THE ELECTRICAL CONDUIT MUST BE UL OR CSA LISTED. THERE ARE ELECTRICAL CODE RULES RESTRICTING THE NUMBER OF BENDS BETWEEN PANS AND JUNCTION BOXES. REFER TO NEC SECTION 347-14.
- INSTALL LED INSULATION ON ALL LIDS TO PREVENT FREEZING.
- THE CLASS 200 TRANSPORT PIPE SHALL BE ALLOWED TO DRAIN BACK COMPLETELY TO PUMP CHAMBER. MAXIMIZE PITCH OF TRANSPORT PIPE TO ACHIEVE BACKFLOW AND PROVIDE FURTHER FREEZE PROTECTION AS CONDITIONS WARRANT.
- IN AREAS WHERE THE BSF MAY BE ACCESSIBLE TO CHILDREN, THE PEA STONE SURFACE MAY BE COVERED WITH A BROAD WEAVE FILTER FABRIC AND AN ADDITIONAL LAYER OF PEA STONE OR LARGER GRADE STONE, NO GREATER THAN 3" IN THICKNESS TO DISCOURAGE PHYSICAL INTERFERENCE TO OR CONTACT WITH THE TREATMENT ZONE.
- PROVIDE A PERMANENT 10' MINIMUM BUFFER BETWEEN BSF AND ANY TREES OR SHRUBS.

SITE CONTRACTOR NOTES:

- THE CONTRACTOR SHALL VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL CONTACT DIG-SAFE AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
- INSTALL ALL EROSION CONTROLS AS DEPICTED PRIOR TO CLEARING & GROOMING.

GENERAL NOTES:

- THE OWTS INSTALLER SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL MEASURES DEPICTED ON THIS PLAN.
- THE INSTALLER SHALL NOTIFY THIS DESIGNER 48 HOURS PRIOR TO THE START OF CONSTRUCTION.
- THE DESIGNER SHALL BE CONTACTED IF ANY DISCREPANCIES ARE FOUND IN THE FIELD.
- THE INSTALLER SHALL CONTACT THE DESIGNER AT LEAST 24 HOURS IN ADVANCE FOR BOTTOM AND COVER INSPECTIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR DEWATERING DURING EXCAVATION OF ALL COMPONENTS OF THE OWTS.



R.I. STD. 9.1 WITH SILT FENCE NOT TO SCALE

SOIL DATA

SOIL EVALUATION 15-1
25" WATER TABLE
TEST HOLE EXCAVATED ON 6/17/15
(SEE REPORT #9825-1297)

01	1'-0"
A	0'-0" - 1' w 10y3/3 sl lgr vfr 3
Bw1	1'-0" - 2' w 10y5/6 sl lgr vfr 3
Bw2	2'-0" - 3' w 2.5y6/8 sl lsk vfr 3 (redox) 10y5/8 m3p con & depl
Bc	3'-0" - 3' w 2.5y6/8 sl lsk vfr 3
C	3'-0" - 3' w 5y7/3 gbls Om fr

SOIL EVALUATION 15-2
25" WATER TABLE
TEST HOLE EXCAVATED ON 6/17/15
(SEE REPORT #9825-1297)

Htm	6'-0"
A	0'-0" - 1' w 10y3/3 sl lgr vfr 3
Bw1	1'-0" - 2' w 10y5/6 sl lgr vfr 3
Bw2	2'-0" - 3' w 2.5y6/8 sl lsk vfr 3 (redox) 10y5/8 m3p con & depl
Bc	3'-0" - 3' w 2.5y6/8 sl lsk vfr 3
C	3'-0" - 3' w 5y7/3 gbls Om fr

DESIGN CRITERIA

- PEAK FLOW = 3 BEDROOMS @ 115 GALLONS PER DAY / BEDROOM = 345 GPD
- SYSTEM LOADING RATE USE 2.3 GAL/SF/DAY LOADING RATE
- SIZE A BOTTOMLESS SAND FILTER:
 - 345 GPD / 2.3 GAL/SF/DAY = 150 SF.
 - USE A 20' X 8' BOTTOMLESS SAND FILTER

INVERT SCHEDULE

DESIGN G.W.T. BSF/TANK	EL. 262.00	BOTTOM OF CHAMBER	EL. 260.00
OUT OF DWELLING	EL. 264.10	REDUNDANT OFF	EL. 261.60
SEPTIC TANK IN	EL. 264.00		
TOP OF SEPTIC TANK	EL. 264.84	PUMP ON	EL. 262.00
R.S.V. TO PUMP CHAMBER	EL. 264.00	HIGH WATER ALARM	EL. 262.50
AX20 FILTER PUMP INLET	EL. 265.20		
TOP OF ADVANTEX FILTER	EL. 266.70		
PUMP CHAMBER INLET	EL. 262.70		
PUMP CHAMBER OUT	EL. 263.70		
BOTTOM OF SAND	EL. 263.75		
BOTTOM OF PEA GRAVEL	EL. 265.75	HIGH WATER ALARM	EL. 264.00
FLUSHING VALVE	EL. 266.00	TOP OF RISR CHASE	EL. 263.90
BSF MANIFOLD	EL. 266.00		
TOP OF PEA GRAVEL	EL. 266.50	NORMAL LOW LIQUID LEVEL	EL. 263.13
		LOW WATER ALARM/REDUNDANT OFF	EL. 263.60

B.S.F. Demand Dosing

64 ORIFICE * 0.24 GAL PER ORIFICE = 12.96 GALLONS
16 LF 2" TRANSPORT LINE VOLUME = 2.6 GALLONS
TOTAL DOSED = 15.56 GALLONS PER DOSE
PUMP BASIN DRAWDOWN:
15.56 GAL PER DOSE / 2 GAL PER INCH = 7.8" = 0.65'
DESIGN CHECK:
345 GAL PER DAY / 15.56 GAL PER DOSE = 22 DOSE PER DAY

Advanced Civil Design, Inc.

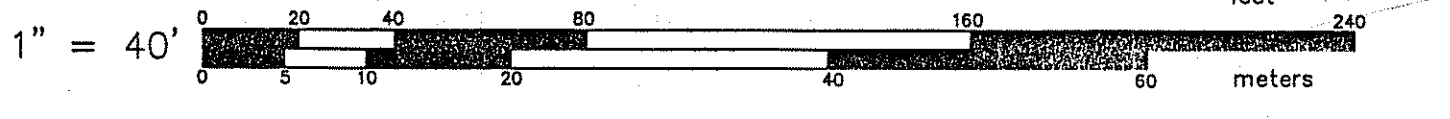
SITE/CIVIL ENGINEERS
7 COUNTRYSIDE LANE
SCITUATE, RI 02857
PH: (401) 644-8656

CERTIFICATION:

ANTHONY E. MUSCATELLI
REGISTERED PROFESSIONAL LAND SURVEYOR
No. 6572

NICHOLAS J. PIAMPURRO
REGISTERED PROFESSIONAL ENGINEER
No. 6572

DATE: 2-16-16



INTERNATIONAL MAPPING & SURVEYING CORP.
LAND SURVEYING CIVIL ENGINEERING PHOTOGRAMMETRIC MAPPING
19 INDUSTRIAL DRIVE, SMITHFIELD, R.I. 02917 (401) 232-2620

ON-SITE WASTEWATER TREATMENT SYSTEM
PROPOSED BOTTOMLESS SAND FILTER
for WILLIAM C. QUIGLEY
on OLD OXFORD ROAD & POUND HILL ROAD
in NORTH SMITHFIELD
A.P. 7 LOT 113

REVISONS	DATE	NO.
DEM COMMENTS	2/16/15	1
DRAWN BY	P.A.K./K.R.R.	
CKD. BY	N.J.P.	
APPRD. BY	A.E.M.	
DATE	11/17/15	
SCALE	1"=40'	
SHEET	1 OF 1	
DWG.NO.	030103-IS	