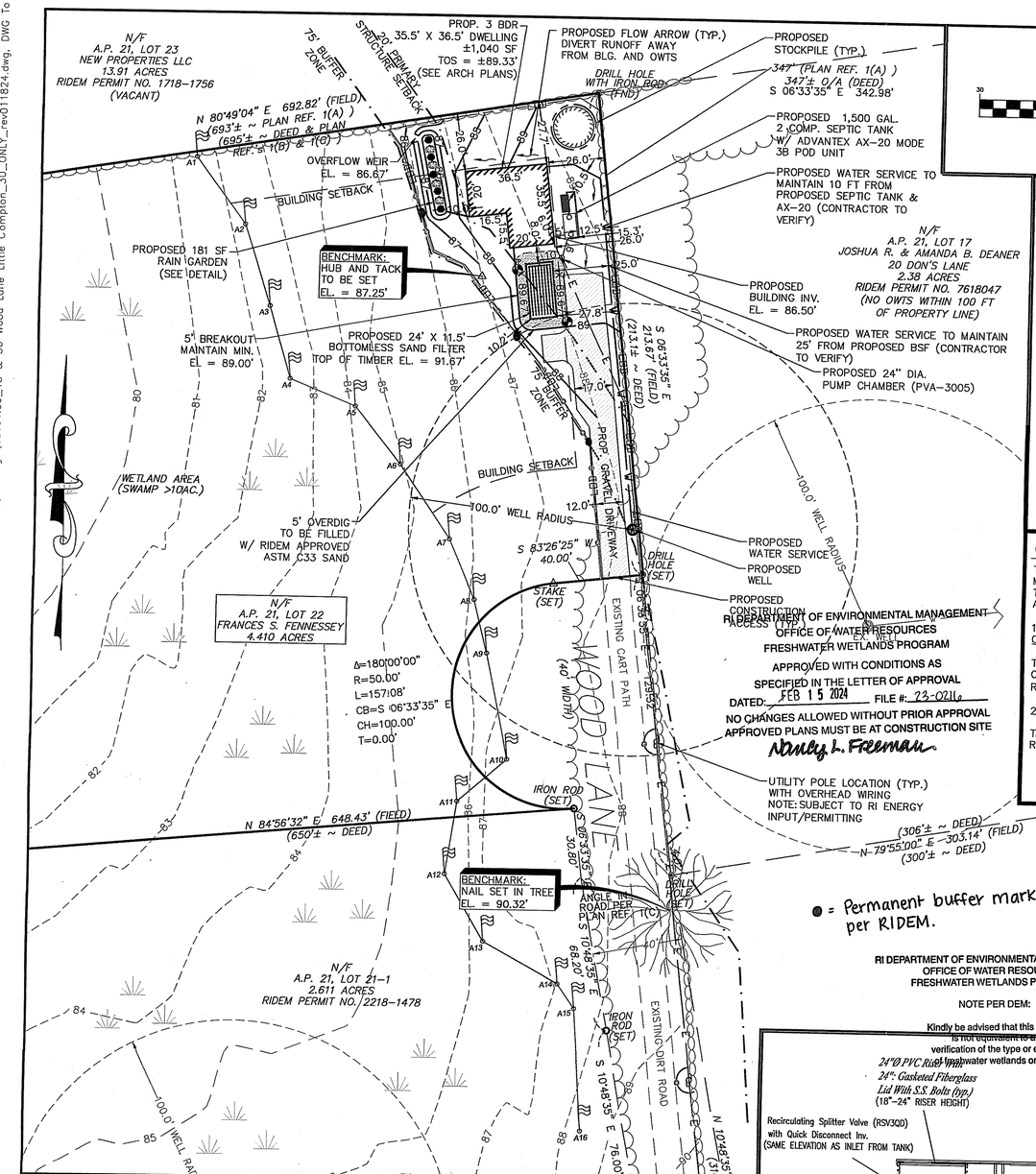


RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS AS
SPECIFIED IN THE LETTER OF APPROVAL
DATED: FEB 15 2024 FILE #: 23-0211
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Nancy L. Freeman

● = Permanent buffer markers per RIDEM.

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM

NOTE PER DEM:

Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site

SYSTEM PLAN
GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

ZONING (R):

		PROPOSED
MIN. LOT AREA	87,120 SF	±265,716 SF
MIN. FRONTAGE/LOT WIDTH	175 FT	197.05 FT
MIN. FRONT YARD	50 FT	>50 FT
MIN. SIDE YARD	25 FT	26.0 FT / 26.0 FT
MIN. REAR YARD	25 FT	>25 FT
MAX. LOT COVERAGE	10%	0.39%
MAX STRUCTURE HEIGHT	30 FT	<30 FT

LOT COVERAGE:

TOTAL AREA OF LOT: ±265,716 SF

PROPOSED DWELLING: ±1,040 SF

LOT COVERAGE: (1,040 / 265,716) x 100 = 0.39%
0.39% < 10% O.K.

ARCHITECT NOTE:

IT IS THE RESPONSIBILITY OF THE ARCHITECT TO FINALIZE SITE LAYOUT & COORDINATE ELEMENTS WITH ENGINEER PRIOR TO CONSTRUCTION. FINAL GRADING & LAYOUT SHALL BE COORDINATED AND VERIFIED THROUGH ARCHITECT DRAWINGS.

PLAN NOTES

1) THE SITE IS LOCATED WITHIN THE RIVER PROTECTION REGION 1
2) THE SITE IS LOCATED WITHIN THE WATSON RESERVOIR DRINKING WATER SUPPLY WATERSHED

OWTS VARIANCE NOTE:

THE FOLLOWING IS A LIST OF ITEMS THAT DOES NOT MEET THE RI DEM RULES AND REGULATIONS DUE TO THE SITE CONSTRAINTS OF THE SUBJECT PROPERTY AND REQUIRE RELIEF:

1.) PER SEC. 6.33.E DEPTH TO GROUNDWATER FROM ORIGINAL GROUND SURFACE

THE SEASONAL HIGH GROUNDWATER TABLE IS 14" FROM O.G. IN THE AREA OF THE OWTS.
RELIEF IS BEING REQUESTED FROM 18" MINIMUM

2.) PER 6.27.F2 INLET AND OUTLET ELEVATIONS

THE SEPTIC TANK OUTLET IS BELOW THE SHGWT.
RELIEF IS BEING REQUESTED

OWTS DRAWING ISSUE:

- ☐ CONCEPT
- ☐ CUSTOMER APPROVAL
- ☒ PERMITTING
- ☐ CONSTRUCTION
- ☐ AS-BUILT
- ☐ OTHER:

THIS PLAN'S SOLE PURPOSE IS INTENDED FOR THE APPLICATION TO RIDEM FOR AN ON-SITE WASTEWATER TREATMENT SYSTEM. THE EXTENT OF ANY BUILDING GRADING/LAYOUT SHOWN HEREIN ARE SPECIFICALLY SHOWN TO ENHANCE THE FUNCTIONALITY OF THE SITE & OWTS. BY NO MEANS SHALL THIS PLAN BE USED FOR CONSTRUCTION OF ANY HOUSE BUILDING/GRADING PURPOSES U.S.O.

LEGEND

PROPERTY LINE	
ABUTTER LINE	
EX. EDGE OF DIRT ROAD	
EX. CONTOUR	85
EX. WELL	W
EX. UTILITY POLE	
EX. TEST PIT	
EX. WETLAND	
EX. MONUMENT	
EX. WETLAND 75' BUFFER ZONE	
EX. VEGETATION	
PROP. WELL	W
PROP. WELL SERVICE LINE	W
PROP. CONTOUR	87
PROP. DRAIN LINE	D
COMPOST FILTER SOCK	
LIMIT OF DISTURBANCE	LOD

BOTTOMLESS SAND FILTER DESIGN CALCULATIONS

FLOW: PROPOSED 3 BEDROOM X 115 GALLON PER BEDROOM = 345 GALLONS/DAY

SOILS: 14" GWT, SOIL CATEGORY 9 SUBSOIL
LOADING RATE FOR TIME DOSED SYSTEM (CAT. 1) = 1.5 GAL./SF/DAY

BOTTOMLESS SAND FILTER SIZING
345 GAL./DAY / 1.5 GAL/SF/DAY = 230 SF

FILTER SIZING (ACCEPTABLE RATIO RANGE 1.5:1 TO 10:1)
USE FILTER 24' X 11.5' = 276 SF (RATIO 2.08:1)
USE 18" BETWEEN LATERALS AND 9" BETWEEN LATERALS AND WALLS
USE 18" BETWEEN ORIFICES

LATERALS [(11.5-1.5)/1.5]+1 = 8 LATERALS
ORIFICES [(24-1.5)/1.5]+1= 16 ORIFICES/LATERAL
16 ORIFICES/LATERAL X 8 LATERALS = 128 ORIFICES TOTAL

(MIN. ORIFICE SPACING: 14"-24") (MIN. LATERAL SPACING: 15"-24")

SOILS:
BY: THOMAS J. PRINCIPE III
NO. D-4075
RIDEM APPLICATION NO. 2218-1477
DATE: 12/14/2022

TH-3:	TH-4:
GWT AT 14"	GWT AT 14"
SEEPING 66"	SEEPING 66"
DEPTH 8 FT	DEPTH 8 FT
CAT. 9 SOILS	CAT. 9 SOILS

SURVEY REFERENCE:

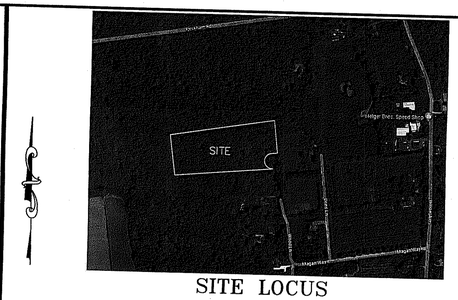
1) PLAN ENTITLED "BOUNDARY & TOPOGRAPHIC SURVEY PLAN"
AP 21, LOTS 16, 21-1 & 22, WOOD LANE & DON'S LANE
LITTLE COMPTON, RHODE ISLAND 02837
FOR THOMAS J. JR. & FRANCES S. FENNESSEY
16 OLD FARM ROAD, LITTLE COMPTON, RHODE ISLAND, 02837
BY WATERMAN ENGINEERING COMPANY
46 SUTTON AVENUE EAST PROVIDENCE, RHODE ISLAND.
TEL. (401)-438-5775
PROJECT NO. 20-030
DATED 08/19/20
MOST RECENTLY REVISED 03/31/23
SCALE: 1"=50'

WETLANDS NOTE:

WETLAND DELINEATED BY BRANDON FANEUF AND LOCATED BY WATERMAN ENGINEERING COMPANY

LIMIT OF DISTURBANCE:

TOTAL AREA OF LIMIT OF DISTURBANCE = ±14,118 SF
10,142 SF < 43,560 SF (1 AC.)



SITE LOCUS
NOT TO SCALE

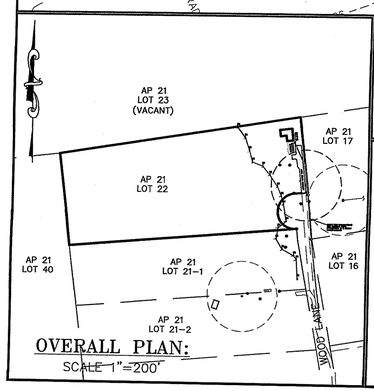
SPECIFICATIONS

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.

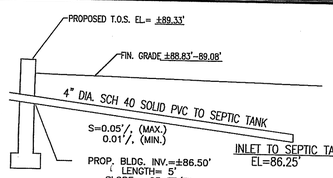
NOTE :
CONTRACTOR TO VERIFY BENCHMARK & EXISTING CONDITIONS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES BETWEEN FIELD AND DESIGN DATA SHOWN HEREON TO BE REPORTED TO THE ENGINEER

DESIGN NOTES

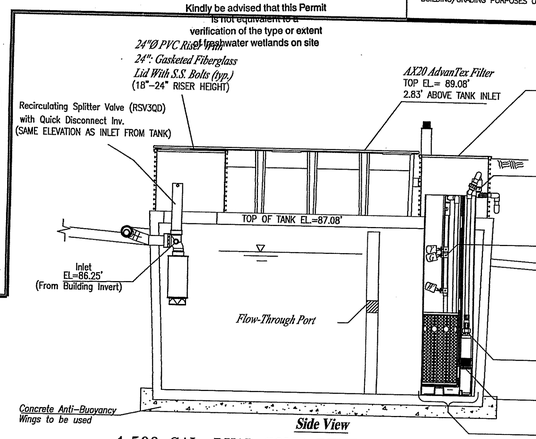
1. UNLESS SPECIFICALLY NOTED, THE PROPOSED OWTS IS NOT WITHIN A WATERSHED OF A PUBLIC WATER SUPPLY OR OTHER CRITICAL RESOURCE AREA.
2. UNLESS OTHERWISE NOTED, THERE ARE NO DRINKING WATER LINES, EXISTING OR PROPOSED WITHIN 50 FEET OF THE PROPOSED OWTS.
3. UNLESS OTHERWISE NOTED, THERE ARE NO POTABLE WATER 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.



OVERALL PLAN:
SCALE 1"=200'

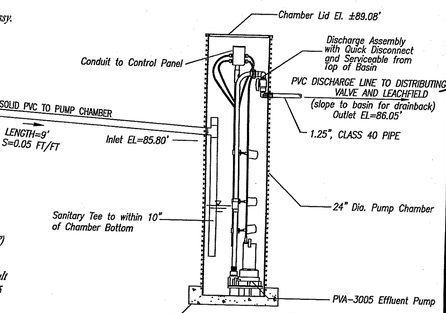


BUILDING DETAIL
NOT TO SCALE



1,500 GAL. DUAL COMPARTMENT SEPTIC TANK
JOLLEY PRE-CAST MONOLITHIC TANK W/ ANTI-BUOYANCY WINGS
(SEE DETAIL SHEET 2 of 2)

SYSTEM PROFILE
NOT TO SCALE



PUMP BASIN
(SEE DETAIL SHEET 2 of 2)

Thomas J. Principe, III
No. 9107
REGISTERED PROFESSIONAL ENGINEER

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
27 SAKONNET RIDGE DRIVE
TIVERTON, RI 02878
401.816.5385
www.PrincipeCompany.com
ESTABLISHED IN 1981

REVISIONS

No.	DATE	DRWN	CHKD
1.	01/22/24	KAB	TJP

RIDEM ON-SITE WASTEWATER TREATMENT SYSTEM PLAN
for
AP 21 LOT 22
30 WOOD LANE
in
LITTLE COMPTON, RHODE ISLAND

RI Environmental Management
JAN 25 2024
Office of Water Resources

SCALE: 1" = 30'	SHEET NO: 1 of 3	
DRAWN BY: NEC	DESIGN BY: NEC	CHECKED BY: TJP
DATE: 06/21/23	PROJECT NO.: 22101.00	

C:\Users\admin\Principe Engineering Dropbox_OWTS DESIGNS\2022 OWTS JOBS\22101.00_18 & 30 Wood Lane_Little Compton_Jon Ibbotson- Brendan Fennessey- Warrens Point Beach Club\Drawings\22101.00_18 & 30 Wood Lane Little Compton_30_ONLY_rev011824.dwg, DWG To PDF.pc

ADVANTEX TREATMENT SYSTEM- AX MODE 3B GENERAL NOTES:

1. VENDOR INFORMATION: TECHNICAL INFORMATION OR VENDOR MAY SERVICE MAY BE OBTAINED FORM THE FOLLOWING: ORENCO SYSTEMS, 814 AIRTAY AVENUE SUTERSVILLE, PA 92474 TEL. 1-800-848-5843 FAX. 541-459-2884, OR WASTEWATER TECHNOLOGIES, INC. 70 VERMONT AVE., WARWICK, RI 02886 TEL.1-401-737-7810 FAX. 1-401-737-4521.

2. THE TREATMENT SYSTEM PROVIDED (ADVANTEX TREATMENT SYSTEM – AX SERIES) MEETS THE REQUIREMENTS OF A CATEGORY I 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.

3. ALL SEPTIC TANKS AND PUMP CHAMBERS FOR THE ADVANTEX TREATMENT SYSTEM SHALL BE WATERTIGHT AND SHALL BE CONSTRUCTED OF CONCRETE OR FIBERGLASS. THE PLACING OF FIBERGLASS RISERS ABOVE FINISHED GRADE AT INLET AND OUTLET PIPES TO CONCRETE CHAMBERS SHALL HAVE FLEXIBLE RUBBER SEALS SUPPLIED BY STAINLESS STEEL BANDS TO FORM A WATERTIGHT CONNECTION. WATERTIGHT RUBBER GROMMETS SHALL BE USED AT INLET AND OUTLET PIPES TO PLASTIC OR FIBERGLASS PUMP CHAMBERS/BASINS.

4. THE PUMP CHAMBER SPECIFIED AFTER THE TREATMENT SYSTEM DISCHARGING TO THE BSF SHALL PROVIDE MINIMUM STORAGE VOLUME EQUAL TO THE DESIGN VOLUME BUSED 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.

5. A LICENSED ELECTRICIAN SHALL INSTALL ALL ELECTRICAL COMPONENTS WIRING, CIRCUITS, CONTROL & ALARM PANELS, AND ELECTRONIC CONTROL PANELS PER STATE/NATIONAL ELECTRIC CODE REQUIREMENTS.

6. 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 ONCE PER HOUR. THE ENGINEER SHALL VERIFY THAT THE INSTALLER HAS SET THE PUMP TIMER AND PUMP CHAMBER FLOAT SWITCHES AT THE TIME OF SYSTEM START UP. THE INSTALLER WILL BE REQUIRED TO MEET THE DESIGNER AND OWNER AT THE SITE TO ADJUST THE SYSTEM AS REQUIRED. SYSTEM PERFORMANCE REQUIRES THAT THE PROGRAMMABLE TIMER IS RESET, AS NEEDED, AND ADJUSTED FOR ACTUAL FIELD CONDITIONS FOR THE SYSTEM.

7. THE INSTALLER SHALL PROVIDE A HIGH LEVEL WATER ALARM, PUMP, AND FLOAT SWITCH(S) SET TO OVERRIDE THE PROGRAMMABLE TIMER AND THE EVENT TIMER MALFUNCTIONS OR PERMANENT EXCESSIVE WATER USE. A LOW LEVEL WATER REDUNDANT OFF SHALL ALSO BE PROVIDED – REFER TO SEPTIC TANK AND PUMP BASIN DETAILS THIS SHEET.

8. 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.

9. 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 STRUCTURE FOR EASE OF SERVICE. IF THE SYSTEM IS SEASONAL, 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.

10. INSTALLATION OF THE ADVANTEX TREATMENT SYSTEM SHALL BE PERFORMED IN ACCORDANCE WITH THE ADVANTEX TREATMENT SYSTEM INSTALLATION GUIDE.

11. 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 ORDER TO ACHIEVE THE REQUIRED SLOPE ON THE FILTRATE RETURN LINE. REFER TO INSTALLATION GUIDELINES FOR SPECIAL LENGTH REQUIREMENTS.

12. RISER TANK ADAPTERS AND ACCESS RISERS SHALL BE CONSTRUCTED TO BE WATERTIGHT. CARE SHALL BE TAKEN TO PREVENT RISER TO CONCRETE-RISER ADAPTER JOINT LEAKAGE. THE RISER-ADAPTER JOINTS SHALL ALSO BE SEALED BETWEEN THE ADAPTER AND RISER JOINT WITH CONTINUOUS FILLET OF SEALANT. THE INSTALLER SHALL ATTACH RISERS TO TANKS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND SAFETY GUIDELINES.

13. 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 PIPE.

14. THE ENTIRE VENTILATION FAN ASSEMBLY (VFA) MUST BE INSTALLED ABOVE THE SEASONAL HIGH GROUNDWATER LEVEL. AIR INTAKE LINE SHOULD BE SUPPORTED TOWARDS THE VFA SO THAT ANY CONDENSING WATER WILL DRAIN THROUGH THE DISCHARGE LINE. NO 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.

15. THE HIGH-HEAD PUMP AND RESIDUAL HEADS RUNS FROM THE ADVANTEX FILTER POD WITH THE TWO COMPARTMENT SEPTIC TANK SHALL BE INSTALLED PER THE INSTALLATION GUIDELINES DOCUMENT AND MANUFACTURER'S SPECIFICATIONS.

16. CONTROL PANELS, ELECTRICAL JUNCTION BOXES, AND WIRING RUNS SHALL BE INSTALLED BY A LICENSED ELECTRICIAN.

17. PUMP'S 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.

18. 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 TREATMENT SYSTEM OPERATION MAINTENANCE (O&M) REQUIREMENTS:

1. 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.

2. 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.

3. 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) OR VENDOR TO ENTER INTO A 3-YEAR SERVICE CONTRACT BY AN ORENCO AUTHORIZED SERVICE PROVIDER, AS SPELLED OUT IN THE SALES CONTRACT.

4. THE INSTALLER SHALL PROVIDE THE OWNER(S) WITH PUMP WARRANTY INFORMATION – TYPICALLY 5 YEARS FOR THE BSF PUMPS.

5. 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.

6. MEASUREMENT OF SOLIDS ACCUMULATION SHOULD BE PERFORMED SO THAT THE PROCESSING TANK (SEPTIC TANK) PUMPING RECOMMENDATIONS CAN BE GIVEN TO THE OWNER(S). A REMOVAL RECOMMENDATION 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.

7. TEXTILE FILTER MEDIA (AX) WITHIN THE RECALCULATING FILTER POD SHALL BE CLEANED/REPLACED AS NECESSARY IN A&M MANUAL AND MANUFACTURER'S RECOMMENDATIONS.

8. ALL EFFLUENT PUMP(S) SHALL BE HOISED OUT ON A YEARLY BASIS, OR WHENEVER SEPTIC TANKS AND PUMP CHAMBERS ARE PUMPED. WHENEVER OPERATING HOURS EXCEED DESIGN FLOWS OR REQUIRE MORE FREQUENT PUMPING, FILTER CLEANING. IF THE SUBMERGED PUMP VALVES ARE 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 BACK INTO THE SEPTIC TANK. ALL THE SAME MATERIAL HOISED OFF OF FILTERS, PUMPS AND VAULTS SHOULD BE PLACED INTO THE INLET END OF THE SEPTIC TANK, ACCESSIBLE THROUGH THE INLET ACCESS RISER/MANHOLE.

9. ALL TANKS AND BASINS SHALL BE VISUALLY INSPECTED FOR WATER-TIGHTNESS AND STRUCTURAL SOUNDNESS WHEN MAINTENANCE IS PROFORMED.

BOTTOMLESS SAND FILTER GENERAL NOTES

1. THE BOTTOMLESS SAND FILTER (BSF) SHALL BE INSTALLED BY A QUALIFIED LICENSED INSTALLER. THE INSTALLER SHALL BE FAMILIAR WITH THE REQUIREMENTS AND INFORMATION OF THE "GUIDELINES FOR THE DESIGNER AND USE OF BOTTOMLESS SAND FILTER", REFERRED TO AS THE SAND FILTER GUIDANCE DOCUMENT ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (DEM) ISSUED NOVEMBER 2001.

2. THE DESIGNER SHALL BE GIVEN ADEQUATE NOTIFICATION FROM THE INSTALLER TO PROVIDE PROPER INSPECTION OF THE BSF CONSTRUCTION. SYSTEM: 30 MIL PVC LINER MEMBRANE, ASTM C-33 SAND MEDIA MATERIALS, SYSTEM PIPING, AND COARSE PEASTONE GRAVEL MEDIA.

3. PRIOR TO DELIVERY OF SAND AND PEASTONE GRAVEL MEDIA MATERIALS, THE INSTALLER SHALL PROVIDE THE DESIGNER WITH INFORMATION ON THE MATERIALS TO BE DELIVERED TO ASSURE THAT THE MATERIALS MEET THE REQUIRED GRADATION AND SPECIFICATIONS. THE SAND FILTER MEDIA MATERIALS SHALL MEET THE REQUIREMENTS OF THE GRADATION SPECIFICATIONS SHOWN ON THIS DETAIL SHEET WHICH CONFORMS TO FIGURE 9 OF THE DEM GUIDANCE DOCUMENT. MEDIA WITHIN THE STRUCTURAL ENCLOSURE AND ASTM C-33 SAND MEDIA MUST MEET THE REQUIREMENTS OF ASTM C-33 SAND WITH AN EFFECTIVE SIZE (D10) OF 0.3MM AND UNIFORMITY COEFFICIENT (D60/D10) OF 3.0 TO 4.0. THE MAXIMUM ALLOWABLE FINES PASSING THROUGH #200 SIEVE SHALL BE 1%. THE DESIGNER AND/OR PROPERTY OWNER SHALL HAVE THE RIGHT TO REQUEST SIEVE ANALYSIS TESTS OF SAND FILTER MATERIALS WHICH MAY BE USED TO MEET THE ASTM C-33 SPECIFICATIONS. SIEVE ANALYSIS REQUIREMENT SHALL MEET THE REQUIREMENTS OF ASTM D-136 AND ASTM C-117. THE METHOD SPECIFIED IN SOIL SURVEY LABORATORY METHODS OF CLASSIFYING SOIL SAMPLES, SOIL SURVEY INVESTIGATION REPORT #1 U.S. DEPARTMENT OF AGRICULTURE, 1964.

4. THE BOTTOMLESS SAND FILTER (BSF) MUST BE USED IN CONJUNCTION WITH THE REQUIRED ADVANCED TREATMENT SYSTEM TO ACHIEVE THE REQUIRED EFFLUENT LIMITS.

5. THE PREPARED BOTTOM OF BED EXCAVATION OF THE BSF SHALL BE INSPECTED BY THE DESIGNER PRIOR TO CONSTRUCTION OF THE STRUCTURAL ENCLOSURE AND PLACEMENT OF SAND FILTER MEDIA MATERIALS.

6. THE LANDSCAPE AREA IMMEDIATELY ADJACENT TO THE BSF SYSTEM SHALL BE PROTECTED FROM HEAVY VEHICLE TRAFFIC AND EXCESSIVE WEIGHT LOADS BEFORE, DURING AND POST-CONSTRUCTION. THE SITE CONTRACTOR WITH DIRECTION OF THE DESIGNER SHALL PROVIDE TEMPORARY BARRIERS TO PREVENT VEHICLE TRAFFIC OFF THE TRACTORED AREA, WHERE REQUIRED ON THE SITE PLAN. THE INSTALLER SHALL REMOVE THE TEMPORARY BARRIERS, FENCING OR WALLS TO PROTECT THE BSF AFTER SYSTEM CONSTRUCTION IS COMPLETED.

7. THE FINISHED GRADE OF ANY BOTTOMLESS SAND FILTER SHALL BA A MINIMUM OF 6 INCHES ABOVE THE ELEVATION OF THE SURROUNDING FINISHED GRADE. THE SURFACE TRIM FROM PLANTS PRIOR TO THE BSF FILTER AREA. LANDSCAPING TIMBERS SHALL BE PRESSURE TREATED AND SHALL BE SECURED IN SPACE OR SECURED TO THE STRUCTURE TO PREVENT THE TIMBERS FROM SHIFTING OR ANY OTHER MOVEMENT. CONCRETE LANDSCAPING BLOCKS, SUCH AS VERSA-LOK RETAINING WALL BLOCKS, MAY BE SUBSTITUTED FOR THE TIMBERS. THE SELECTED BLOCK UNITS SHALL BE INSTALLED PER MANUFACTURE'S SPECIFICATIONS AND CONSTRUCTION METHODS.

8. THE LAND SURFACE ELEVATION AT THE EXISTING GRADE/SAND FILTER MEDIA INTERFACE (ELEV. 96.20') SHALL BE MAINTAINED FOR A DISTANCE OF 10-FEET FROM THE EDGES OF THE SAND MEDIA. SEE DETAIL SHEET 2 OF 2. LAND SURFACE REGRADING ADJOINING THIS 9-FOOT PERIMETER MUST MAINTAIN A MINIMUM OF 3:1 SLOPE DOWN GRADIENT.

9. THE DESIGNER WILL AID IN THE STAKEOUT OF THE PROTECTED BSF AREA PRIOR TO ANY SITE PREPARATION ACTIVITIES.

10. A MINIMUM BUFFER OF TEN (10) FEET SHOULD BE MAINTAINED BETWEEN BSFS AND NEIGHBORING TREES AND SHRUBS. AT LOCATIONS WHERE A 10-FOOT BUFFER IS NOT MAINTAINED FROM EXISTING TREES AND SHRUBS AND PRIOR TO SCHEDULING THE BSF SYSTEM, THEN A ROOT BARRIER FABRIC SHALL BE PLACED BETWEEN THE TREES AND THE FILTER.

11. PUMPS SPECIFIED AFTER THE ADVANCED TREATMENT SYSTEM SHALL BE SIZED TO PROVIDE A MINIMUM OF TWO (2) FEET OF HEAD (i.e. 86 FEET OF HEAD). THE DESIGNER SHALL PROVIDE A PUMP CURVE DIAGRAM HAS BEEN PROVIDED ON SHEET 2 OF 2. THE INSTALLER CAN ONLY SUBSTITUTE PUMPS WITH THE DESIGNER'S WRITTEN APPROVAL. PRIOR TO PUMP INSTALLATION, THE DESIGNER WILL BE PRESENT TO VERIFY DISTAL END PRESSURES WITH THE INSTALLER AFTER CONSTRUCTION OF THE BSF.

12. EFFLUENT TRANSPORT LINES FROM THE PUMP TO THE BSF SHALL BE CLASS 200 MINIMUM PIPE OF SIZE SPECIFIED ON THE ATTACHED SHEETS. THE TRANSPORT LINE SHALL BE SLOPED BACK TO THE PUMP CHAMBER/BASIN OR ONTO THE BSF TO CLEAR THE LINE AFTER EACH DOSE. CHECK VALVES SHALL NOT BE INSTALLED IN THE PRESSURE TRANSPORT LINE. DRAIN VALVES SHALL BE INSTALLED AT LOW POINTS IN TRANSPORT LINES. LINES TO BE DRAINED. THE INSTALLER WILL BE REQUIRED TO INSTALL TRANSPORT LINES WITH 2-FOOT MINIMUM BURIAL DEPTH.

13. WALLS OF THE BSF ENCLOSURE SHALL BE LINED WITH A 30 MIL PVC LINER WITH ALL BOOTS, LATCHES, REPAIRS, AND SEAMS WELDED. THE SAND FINISHED PHYSICAL PROTECTION OF THE LINER MATERIALS AT PENETRATIONS THROUGH THE SAND FINISHED WALLS SHALL BE DONE WITH A PVC BOOT ATTACHMENT GLUED TO THE LINER WITH THE APPROPRIATE RESIDENT SEALER. DESIGNER WILL INSPECT PVC LINER AND PENETRATIONS PRIOR TO BACKFILLING WITH SAND/PEASTONE FILTER MATERIALS. BELOW GRADE LINER WALLS SHALL BE CONSTRUCTED OF MARINE GRADE OR PRESSURED TREATED PLYWOOD (or equivalent) AND 2x4 SUPPORTS. ABOVE GRADE TEMPORARY TOP FRAME STRUCTURE SHALL BE PROVIDED ON ANY PORTION OF THE BSF ABOVE FINISH GRADE.

14. THE DISTRIBUTION MANIFOLD PIPING AND DISTRIBUTION PIPING SHALL CONFORM TO THE SIZES, MATERIALS AND PRESSURE CLASSIFICATION SPECIFICATIONS AS INDICATED IN THE DETAILS OF THIS SHEET. INDIVIDUAL LATERALS SHALL BE NO LONGER THAN 50 FEET IN LENGTH. A SERIES OF 1/8 INCH DIAMETER HOLES (ORIFICES) SHALL BE PRESENT ALONG THE BOTTOM OF THE LATERALS AS INDICATED ON THE DETAILS OF THIS SHEET. THE LATERALS SHALL BE INSTALLED WITH ALL ORIFICE HOLES POINTING DOWN (6 o'clock position) COVERED BY ORIFICE SHIELDS (USUALLY REFERRED TO AS COLD WEATHER ORIFICE SHIELDS). LATERALS SHALL BE DESIGNED AND INSTALLED ON-SITE SPACINGS NOTED ON THE DETAILS OF THIS SHEET. EACH DISTRIBUTION LATERAL WITHIN THE BSF SHALL BE EQUIPPED WITH A TEE WYE OR A TEE-WYE END CAP AT ITS FIRST END. AN INSPECTION WELL SHALL BE INSTALLED AT THE APPROXIMATE CENTER OF THE BSF AND SHALL EXTEND DOWN TO THE SAND AND NATIVE SOIL INTERFACE. THE INSPECTION WELL SHALL BE MADE OF 4-INCH DIAMETER PERFORATED OR SLOTTED PVC (SDR 35 MINIMUM) WRAPPED IN FILTER FABRIC AND TOPPED WITH REMOVABLE TOP AT FINISH GRADE.

15. SOD, VEGETATION, OR DEAD OR DECAYING ORGANIC LITTER SHALL BE REMOVED FROM THE BSF AREA. THREE (3) INCHES OF THE NATIVE SOIL MATERIAL SHALL BE SCARIFIED AND MIXED WITH 3 INCHES OF SAND MEDIA. NOTE: PERIMETER STRIPPING AND EXCAVATION OF SOIL BENEATH THE NATIVE SOIL/FILTER SAND INTERFACE IS PROHIBITED.

16. ALL EQUIPMENT USED BY THE INSTALLER TO PLACE SAND AND PEASTONE MATERIALS INTO THE BSF SHALL BE FREE OF MUD OR SILT FINES PRIOR TO LOADING. THE SAND FILTER MEDIA SHALL BE PLACED IN LEVEL REFIL (9) INCH LIFTS, AND THOROUGHLY WATERED AND WALTER-TAMPED. DURING INSTALLATION TO PROMOTE EVEN SETTLING. OVER WETTING THE SAND SHALL BE AVOIDED TO ENSURE THAT PARTICLE STRATIFICATION DOES NOT OCCUR. THE INSTALLER SHALL "WALK DOWN" THE EDGES OF THE FILTER TO MAKE SURE THE SAND MEDIA IS TIGHT ALONG THE FILTER PERIMETER AND NO VOIDS EXIST. THE PVC LINERS SHALL BE PROTECTED DURING THESE OPERATIONS TO AVOID TEARING OR STRETCHING OF THE LINER.

17. IMMEDIATELY AFTER INSTALLATION OF THE BSF, THE HEAD OR "SQUIRT HEIGHT" OF THE DISTRIBUTION LATERALS SHALL BE DETERMINED. RECORDED IN THE MAINTENANCE RECORD LOG, AND LEFT ON SITE. THE MINIMUM DISTAL END PRESSURES SHALL BE 2-FEET OF HEAD.

18. DURING OPERATIONAL AND MAINTENANCE VISITS, READINGS FORM ELAPSED RUN TIME METERS, EVENT COUNTERS, WATER METERS AND DISTAL END PRESSURES SHALL BE RECORDED ON THE DATA CARDS (USUALLY STORED IN THE ELECTRICAL CONTROL PANEL). ALSO, AT EACH SITE VISIT, A SAMPLE OF THE BSF EFFLUENT SHOULD BE COLLECTED AT THE PUMP CHAMBER OR LATERAL AND THE BSF TO VISUALLY CHECK THE CLARITY ACHIEVED BY THE ADVANCED TREATMENT UNIT. THE SAMPLE SHOULD BE CLEAR OF FINES AND/OR ORGANIC MATTER AND BE RELATIVELY FREE OF SEPTIC ODORS. SAMPLES DEVIATING FROM THE "TYPICAL" CLARITY WILL INDICATE THE NEED TO MAINTENANCE OR SYSTEM SETTINGS NEED TO BE MODIFIED.

19. IMPORTANT NOTE: IF FIBREGLASS OR POLYETHYLENE TANKS ARE USED, IT IS IMPORTANT TO MONITOR GROUNDWATER LEVELS BEFORE PUMPING SEPTAGE OR TO SCHEDULE PUMPING OF TANKS LATE SUMMER OR EARLY FALL TO AVOID TANKS FLOATING. PUMPING OF CONCRETE TANKS DURING PERIODS OF HIGH GROUNDWATER MAY ALSO CAUSE TANK FLOTATION. FLOTATION PROBLEMS CAN BE ALSO EXPERIENCED IF TANKS CLOSE TO TIDAL ZONES, WHERE GROUNDWATER LEVELS MAY FLUCTUATE DAILY DUE TO TIDAL INFLUENCE. ALL TANKS SHALL BE FILLED WITH TAP WATER IMMEDIATELY AFTER SEPTAGE PUMPING IS COMPLETED.

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 INVESTIGATION PROCEDURES, AND DWS 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.

BOTTOMLESS SAND FILTER (BSF) OPERATION OPERATION & MAINTENANCE (O&H) REQUIREMENTS:

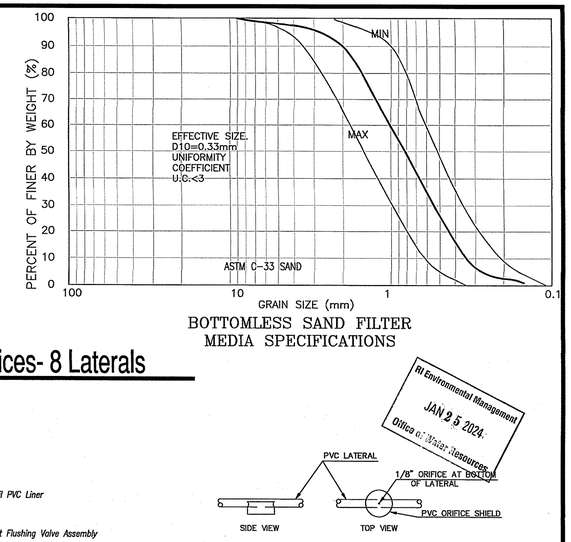
1. WARNING–BEFORE DOING ANY WORK ON EITHER THE WIRING TO THE LEVEL CONTROL FLOATS AND PUMPS IN THE VAULT TANKS, OR ON THE CONTROL PANEL, PULL THE FUSE AND/OR SWITCH ALL THE CIRCUIT BREAKERS SERVING THE CONTROL PANEL TO THE "OFF" POSITION. DO NOT ENTER A CONFINED SPACE WITHOUT USING PROPER EQUIPMENT AND FOLLOWING STANDARD CONFINED SPACE SAFETY PRECAUTIONS.

2. REMOVE ACCUMULATED SOLIDS IN LATERALS, FIRST OPEN THE LATERAL END BALL VALVE OR THREADED END CAP. ENGAGE THE PUMP AND FLUSH OUT ANY SOLIDS. A SOLIDS BRUSH (SIZED APPROPRIATELY FOR THE LATERAL) ATTACHED TO A FLUSHING WAND MAY BE USED TO ENGAGE AND DRAG THE SOLIDS TO THE ORIFICES WITH THE BOTTLE BRUSH REMOVED THE PUMP SHOULD AGAIN BE MANUALLY ENGAGED AND EACH LATERAL LINE FLUSHED OUT THROUGH THE LATERAL END ONTO THE PEASTONE. PARTICULARLY DIRTY OR MAINTENANCE-NEGLECTED LATERALS SHOULD BE FLUSHED DIRECTLY INTO A BUCKET BY USING A CAMPER'S HOSE BIB OR DWELLING WATER SUPPLY IS USED SERVICE PROVIDER SHALL DESIGN A PROPER BACKFLOW PREVENTION DEVICE TO PREVENT CROSS CONTAMINATION. A BSF IN CONTINUOUS USE WILL REQUIRE LATER FLUSHING/BOTTLE BRUSH TREATMENT ONCE A YEAR ON AVERAGE. BSF'S OPERATING ABOVE THEIR DAILY DESIGN FLOWS MAY REQUIRE MORE FREQUENT LATERAL FLUSHING. SEASONALLY-USED BSF'S MAY NOT REQUIRE YEARLY MORE FLUSHING BUT THEIR LATERAL HEAD (PRESSURE) SHOULD BE CHECKED ONE PER YEAR, AND MAINTENANCE PERFORMED AND NEEDED.

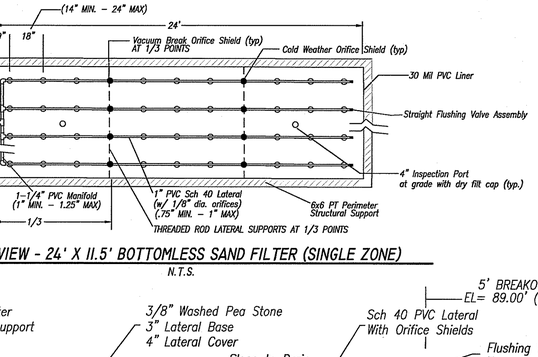
3. THE PEASTONE SURFACE SHALL BE KEPT FREE OF DEBRIS WEEDS, AND GRASSES. THE SURFACE SHALL BE KEPT FREE OF WEEDS. TO REMOVE ANY DEBRIS WEEDS AND GRASSES SHALL BE REMOVED BY HAND WHEN THEY FIRST APPEAR.

4. ONCE A YEAR ALL ELECTRICAL COMPONENTS SHOULD BE CHECKED FOR FUNCTION. ALL FLOAT SWITCHES SHOULD BE ACTIVATED AND TIMERS SHOULD BE CHECKED AGAINST THEIR DESIGNED SETTINGS. ALL FLOAT SWITCHES SHOULD BE HOSED DOWN TO PREVENT SCUM ACCUMULATION. ALL WIRING SHALL BE NEATLY BUNDLED AND PLACED OUT OF THE OPERATING PATH OF THE FLOAT SWITCHES.

24' X 11.5 (276 S.F.) Bottomless Sand Filter - Single Zone - 128 Orifices- 8 Laterals



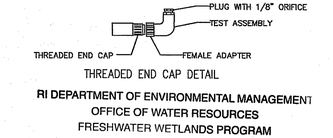
BOTTOMLESS SAND FILTER MEDIA SPECIFICATIONS



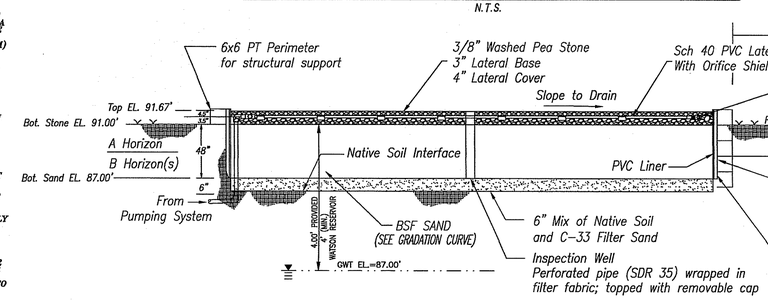
TOP VIEW - 24' X 11.5' BOTTOMLESS SAND FILTER (SINGLE ZONE)
N.T.S.

COLD WEATHER ORIFICE SHIELD DETAIL
N.T.S.

NOTE: FORTH AND TWELFTH TO LAST ORIFICE ARE DRILLED IN TOP OF LATERAL FOR VACUUM BREAK AND MANIFOLD DRAINBACK



THREADED END CAP DETAIL



PROFILE VIEW - 24' X 11.5' BOTTOMLESS SAND FILTER (SINGLE ZONE)
N.T.S.

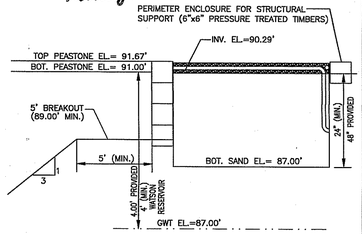
RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM

NOTE PER DEM:

Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site

RI Environmental Management
JAN 25 2024
Office of Water Resources

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
DATED: FEB 15 2024 FILE #: 23-0211o
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Nancy L. Freeman



BOTTOMLESS SAND FILTER PROFILE
NOT TO SCALE

Electrical Control Panel

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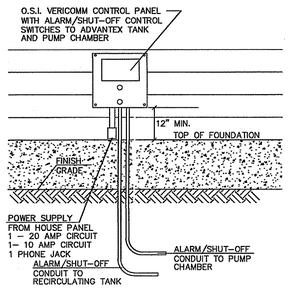


AdvanTex AX20 Mode 3B w/ Concrete Tank (Shallow Burial)

with High Head Pump Chamber

No Scale

DISCHARGE PUMP FLOAT SETTING CALC

EROSION CONTROL & SOIL STABILIZATION PROGRAM

1. DENUDED SLOPES SHALL NOT BE UNATTENDED OR EXPOSED FOR EXCESSIVE PERIODS OF TIME SUCH AS THE INACTIVE WINTER SEASON.
2. ALL DISTURBED SLOPES, EITHER NEWLY CREATED OR EXPOSED PRIOR TO OCTOBER 15, SHALL BE SEEDED OR PROTECTED BY THAT DATE, FOR ANY WORK COMPLETED DURING EACH CONSTRUCTION YEAR.
3. THE TOPSOIL SHALL HAVE A SANDY LOAM TEXTURE RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS AND SHALL CONFORM WITH R.I. STD SPECIFICATION M 18.
4. THE SEED MIX SHALL BE INOCULATED WITHIN 24 HOURS, BEFORE MIXING AND PLANTING, WITH APPROPRIATE INOCOLUM FOR EACH VARIETY.
5. THE DESIGN MIX SHALL BE COMPRISED OF THE FOLLOWING PERMANENT SEEDING MIXTURES:

   A. MOWED AREA (ALL FLATS OR SLOPES LESS THAN 3:1)

MIXTURE:	% BY WEIGHT:
RED FESCUE	75
KENTUCKY BLUEGRASS	15
COLONIAL BENTGRASS	5
PERENNIAL RYEGRASS	5
TOTAL:	100 lbs/Ac.

   B. UNMOWED AREA OR INFREQUENTLY MOSED (ALL SLOPES GREATER THAN 3:1)

MIXTURE:	% BY WEIGHT:
RED FESCUE	75
COLONIAL BENTGRASS	5
PERENNIAL RYEGRASS	5
BIRDSFOOT TREFOIL	15
TOTAL:	100 lbs/Ac.

6. TEMPORARY TREATMENTS SHALL CONSIST OF A HAY, STRAW, OR FIBER MULCH OR PROTECTIVE COVERS SUCH AS A MAT OR FIBER LINING (BURLAP, JUTE, FIBERGLASS NETTING, EXCELSIOR BLANKETS) THEY SHALL BE INCORPORATED INTO THE WORK AS WARRANTED OR AS ORDERED BY THE ENGINEER.
7. HAY OR STRAW APPLICATIONS SHOULD BE IN THE AMOUNT OF 3,000 – 4,000 lbs/Ac.
8. ALL HAYBALES OR TEMPORARY PROTECTION SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED. IF NEEDED, TEMPORARY SEEDING CAN HELP MINIMIZE THE EROSION. A TEMPORARY SEEDING GUIDE MUST BE INCLUDED AS A REFERENCE. THE FOLLOWING SPECIES ARE RECOMMENDED:

MIXTURE:	lbs./1,000 S.F.
ANNUAL RYEGRASS	1.0 – 1.5
PERENNIAL RYEGRASS	1.0 – 1.5
SUDAN GRASS	0.7 – 1.0
MILLET	0.7 – 1.0
WINTER RYE	3.0
OATS	0.5 – 5.0
WEEPING COVER GRASS	0.5 – 5.0

9. THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR AND HE SHALL DO SO AT NO ADDITIONAL EXPENSE.
10. ALL FILL SHALL BE THOROUGHLY COMPACTED UPON PLACEMENT IN STRICT CONFORMANCE WITH THE R.I.D.P.W. STD SPECIFICATIONS SECTION 202.
11. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 15 DAYS OF FINAL GRADING.
12. STOCKPILES OF TOPSOIL SHALL NOT BE LOCATED NEAR WATERWAYS, THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 30% AND STOCKPILES SHALL ALSO BE SEEDED AND/OR STABILIZED.
13. ON BOTH STEEP AND LONG SLOPES CONSIDERATION SHALL BE GIVEN TO "CRIMPING" OR "TRACKING" TO TACK DOWN MULCH APPLICATIONS.
14. REFERENCE THE SEDIMENTATION CONTROL PROGRAM AND ORDER OF PROCEDURE FOR PROPER COORDINATION
15. THE DRAINAGE SYSTEM SHALL RECEIVE ONE FINAL CLEANING PRIOR TO ACCEPTANCE TO THE OVERALL PROJECT BY THE OWNER SEDIMENTS SHALL BE DISPOSED OF IN A PROPER MANNER.

ORDER OF PROCEDURE:

1. PRIOR TO ANY CLEARING AND GRUBBING OR ANY ROUGH GRADING, TEMPORARY HAYBALES AND SANDBAGS SHALL BE PLACED OUTSIDE THE LIMITS OF CONSTRUCTION AS PER THE PLANS (I.E. ALONG ROADWAYS, STREAM BANKS, CRITICAL AREAS, ETC.).
2. ALL EROSION AND SEDIMENTATION CONTROL STRUCTURES SHALL BE PERIODICALLY MAINTAINED AS PER THE RESPECTIVE PROGRAMS FOR TEMPORARY CONTROL.
3. IF WORK PROGRESS IS TO BE INTERRUPTED AT ANY TIME, REFERENCE EROSION AND SEDIMENTATION PROGRAMS FOR TEMPORARY CONTROL.
4. TEMPORARY HAYBALES AND SANDBAGS ALONG AND AT THE ENDS OF ROADWAYS MAY ALSO BE REMOVED AFTER FINAL SOIL STABILIZATION HAS BEEN ACHIEVED AND APPROVED.
5. HAYBALES LOCATED AT DRAINAGE OUTLETS MUST REMAIN UNTIL SUCH TIME THAT A DESIRABLE STAND OF GRASS OR COVER HAS BEEN ESTABLISHED AND THE PROJECT RECEIVES A FAVORABLE APPROVAL FOR FINAL ACCEPTANCE FROM THE ENGINEER.

SEDIMENTATION CONTROL PROGRAM:

1. RIP RAP SPLASH PADS SHALL BE INSTALLED AT THE OUTLETS FOR ALL CULVERTS DISCHARGING INTO A WATERWAY.
2. EXTREME CARE SHALL BE EXERCISED SO AS TO PREVENT ANY UNSUITABLE MATERIAL ENTERING THE WETLANDS.
3. ALL DISTURBED AREAS SUBJECT TO EROSIVE TENDENCIES WHETHER THEY BE NEWLY FILLED OR EXCAVATED SHALL BE SEEDED AND PROTECTED WITH A FIBER MULCH.
4. DURING CONSTRUCTION, THE CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUNOFF FLOW DURING STORMS AND PERIODS OF RAINFALL.
5. SEDIMENTATION CONTROL DEVICES SHALL BE INSPECTED CLOSELY AND MAINTAINED PROMPTLY AFTER EACH RAINFALL.
6. CARE SHOULD BE TAKEN SO AS NOT TO PLACE "REMOVED SEDIMENTS" WITHIN THE PATH OF EXISTING, NEWLY CREATED (BOTH TEMPORARY AND PERMANENT) OR PROPOSED WATERCOURSES OR THOSE AREAS SUBJECTED TO STORM WATER FLOW.
7. ADDITIONAL HAYBALES OR SANDBAGS SHALL BE LOCATED AS CONDITIONS WARRANT.
8. ALL SEDIMENTS SHALL BE REMOVED FROM THE DRAINAGE AND DETENTION FACILITIES AS SCHEDULED FOR EACH FACILITY (SEE DETENTION BASIN MAINTENANCE, THIS SHEET).
9. REFERENCE THE "R.I. SOIL EROSION AND SEDIMENT CONTROL HANDBOOK" PREPARED BY THE U.S. DEPT. OF AGRICULTURE, SOIL CONSERVATION SERVICE, 1989, AS A GUIDE.

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	
ASTORIA BENTGRASS	5	APRIL 1 – JUNE 15
BIRDFOOT TREFOIL	15	AUGUST 15 – OCTOBER 15
PERENNIAL RYE GRASS	10	

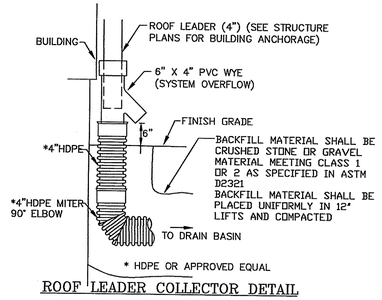
APPLICATION RATE – 100 LBS PER ACRE

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. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO FAMILIARIZE HIMSELF WITH ANY APPLICABLE LOCAL, STATE AND FEDERAL LAWS GOVERNING HIS INTENDED ACTIVITIES. OSHA REGULATIONS ARE APPLICABLE OF PROJECT SITE CONSTRUCTION ACTIVITIES.
2. ALL CONSTRUCTION WILL BE UNDERTAKEN IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE TOWN.
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 THE MUNICIPALITY REQUIRES A PROJECT PRE–CONSTRUCTION CONFERENCE, THE PROJECT DEVELOPER AND THE PROJECT CONTRACTOR WILL ATTEND AND WILL PROVIDE ALL REQUESTED MATERIALS PRIOR TO COMMENCING ANY WORK.
5. 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.
6. 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.



ROOF LEADER COLLECTOR DETAIL
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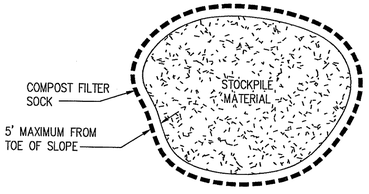

STOCKPILE DETAIL
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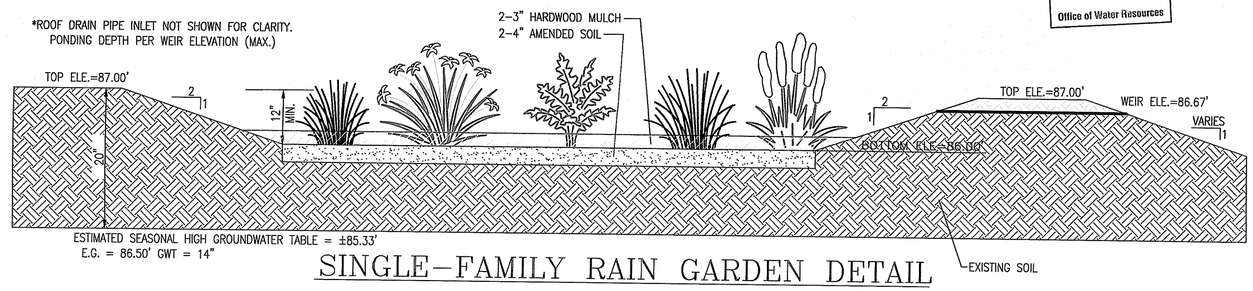
JAN 25 2024
Office of Water Resources



SINGLE–FAMILY RAIN GARDEN DETAIL
NOT TO SCALE

NOTES:
(1) MULCH SHALL CONSIST OF NON–DYED, AGED AND SHREDDED HARDWOOD MULCH.
(2) AMENDED SOIL SHALL CONSIST OF A 50 MIX OF EXCAVATED NATIVE SOIL AND MATURE ORGANIC COMPOST.
(3) RAIN GARDEN AREA TO BE PROTECTED FROM CONSTRUCTION TO PREVENT COMPACTION AND SURROUNDED BY COMPOST FILTER SOCK UNTIL UPSLOPE AREAS ARE STABILIZED.
(4) DESIGN AND INSTALLATION GUIDELINES SHALL CONFORM TO THE STATE OF RHODE ISLAND STORMWATER MANAGEMENT GUIDANCE FOR INDIVIDUAL SINGLE–FAMILY RESIDENTIAL LOT DEVELOPMENT.

BMP REQUIRED MAINTENANCE:

MONTHLY:

INSPECT AND REMOVE ANY TRASH
REMOVE ANY INVASIVE SPECIES PLANTS

ANNUALLY:

MULCH– SPRING, AS NEEDED
REPLACE ANY DEAD VEGETATION–SPRING
REMOVE DEAD VEGETATION–FALL OR SPRING
PRUNE–SPRING

AS NEEDED:

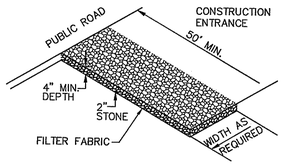
REPLACE SOIL MEDIA AND PLANTS WHEN PONDING DOES NOT SUBSIDE WITHIN 72 HRS
(CAREFUL MAINTENANCE SHOULD PROLONG THIS REQUIREMENT)

*ALL PLANT MATERIAL SHALL BE WATERED AND MAINTAINED BY THE OWNER TO ASSURE THAT SUITABLE GROWTH HAS BEEN ESTABLISHED.

PLANT SPECIES TO BE USED

BOTANICAL NAME	COMMON NAME
ASTER DIVARICATUS	WHITE WOOD ASTER
IRIS VERSICOLOR	BLUE FLAG IRIS
LOBELIA CARDINALIS	CARDINAL FLOWER
OSMUNDA CINNAMOMEA	CINNAMON FERN

*PLANT SPECIES IN ONE GALLON CONTAINERS TO BE INSTALLED AT 2' O.C. IN GROUPS OF THREE WITHIN THE RAIN GARDEN AREA.



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	–	–	–

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

RIP–RAP STABILIZATION PAD @ CONSTRUCTION ENTRANCE
NOT TO SCALE

DRAINAGE CALCULATIONS:

RAIN GARDEN DESIGN BASIS:

RAINGARDEN WATERSHED AREA:
PROP. DWELLING = 1,040 SF

REFER TO RI DEM DESIGN MANUAL:
PAGE 10 OF 17 (TABLES 7 & 8) RAIN GARDEN SIZING

SUBSOIL: SILT LOAM

NEED 160 SF (MIN. 8" DEEP) OF RAIN GARDEN SURFACE AREA FOR EVERY 1,000 S.F. OF DRAINAGE AREA FOR THE SILT LOAM SUBSOIL MATERIAL.

RAIN GARDEN SURFACE AREA (8" DEEP):
1,040 SF / 1,000 SF = 1.04
160 SF X 1.04 = 166.40 SF
166.40 SF REQUIRED

181 SF PROVIDED

*CONTRACTOR TO STRICTLY ADHERE TO THE INSTALLATION MANUAL FOR THE RAIN GARDEN.

*OWNER SHALL ALSO STRICTLY ADHERE TO THE RAIN GARDEN MAINTENANCE SCHEDULE SET FORTH BY RI DEM IN ORDER TO ASSURE ITS PROPER FUNCTION

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM

NOTE PER DEM:

Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site

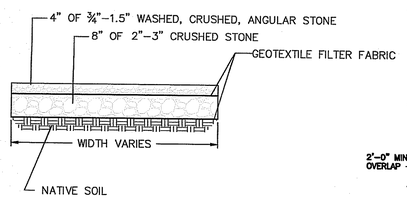
RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM

APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL

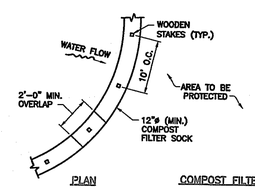
DATED: FEB 15 2024 FILE #: 23-0216

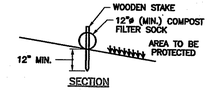
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Nancy L. Freeman



PERVIOUS DRIVEWAY
TYPICAL CROSS SECTION
NOT TO SCALE





NOTES:
1. ALL MATERIAL TO MEET REQUIREMENTS OF SECTION 206 OF RI STANDARD SPECIFICATIONS.
2. COMPOST MATERIAL MUST BE ACCEPTED BY THE ENGINEER PRIOR TO PLACEMENT.

COMPOST FILTER SOCK

PERIMETER EROSION CONTROLS
NOT TO SCALE

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 MANOR TO PREVENT SOIL EROSION.
10. THE SMALLEST POSSIBLE SITE AREAS SHALL BE DISTURBED OR EXPOSED AT ONE TIME AND DENUDED 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.

Thomas J. Principe, III
No. 9107
REGISTERED PROFESSIONAL ENGINEER

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ENGINEERING DIVISION
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TIVERTON, RI 02878
401.816.5385
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REVISIONS

No.	DATE	DRWN	CHKD
1.	01/22/24	KAB	TJP

RIDEM ON–SITE WASTEWATER TREATMENT SYSTEM PLAN
for
AP 21 LOT 22
30 WOOD LANE
in
LITTLE COMPTON, RHODE ISLAND

SCALE: AS NOTED		SHEET NO: 3 of 3
DRAWN BY: NEC	DESIGN BY: NEC	CHECKED BY: TJP
DATE: 06/21/23		PROJECT NO.: 22101.00

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