

ALTERATION VARIANCE (NO INCREASE IN FLOW)

VARIANCES REQUESTED:

- 6.33E - ESTIMATED SEASONAL HIGH GROUND WATER TABLE - 12" PROPOSED IN LIEU OF 24" REQUIRED
- 6.23C - SETBACK TO DRINKING WATER SUPPLY - 70' PROPOSED IN LIEU OF 200' REQUIRED
- 6.23B - SETBACK TO PROPERTY LINE - 1' SETBACK FROM PROPERTY LINE IN LIEU OF 10' REQUIRED

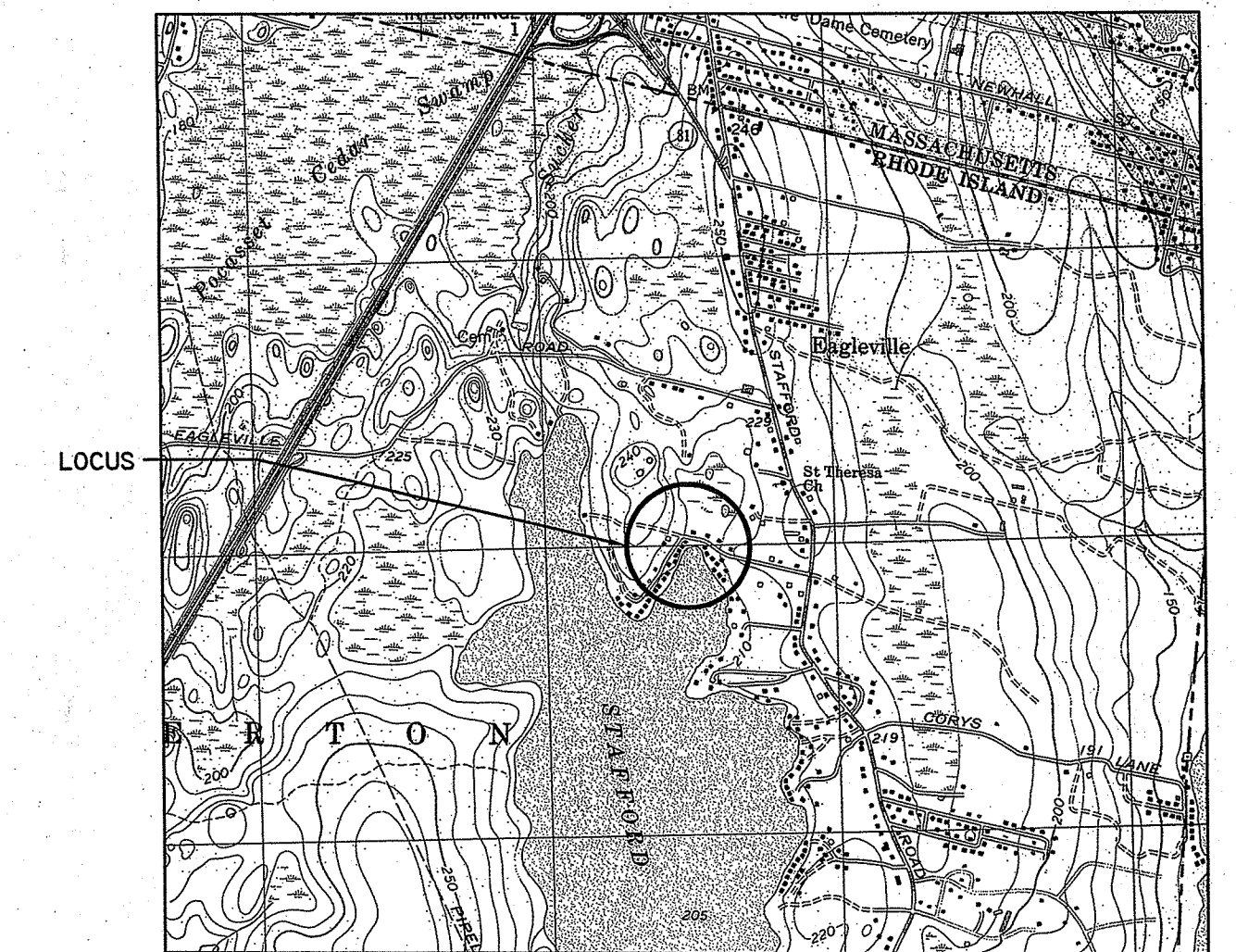
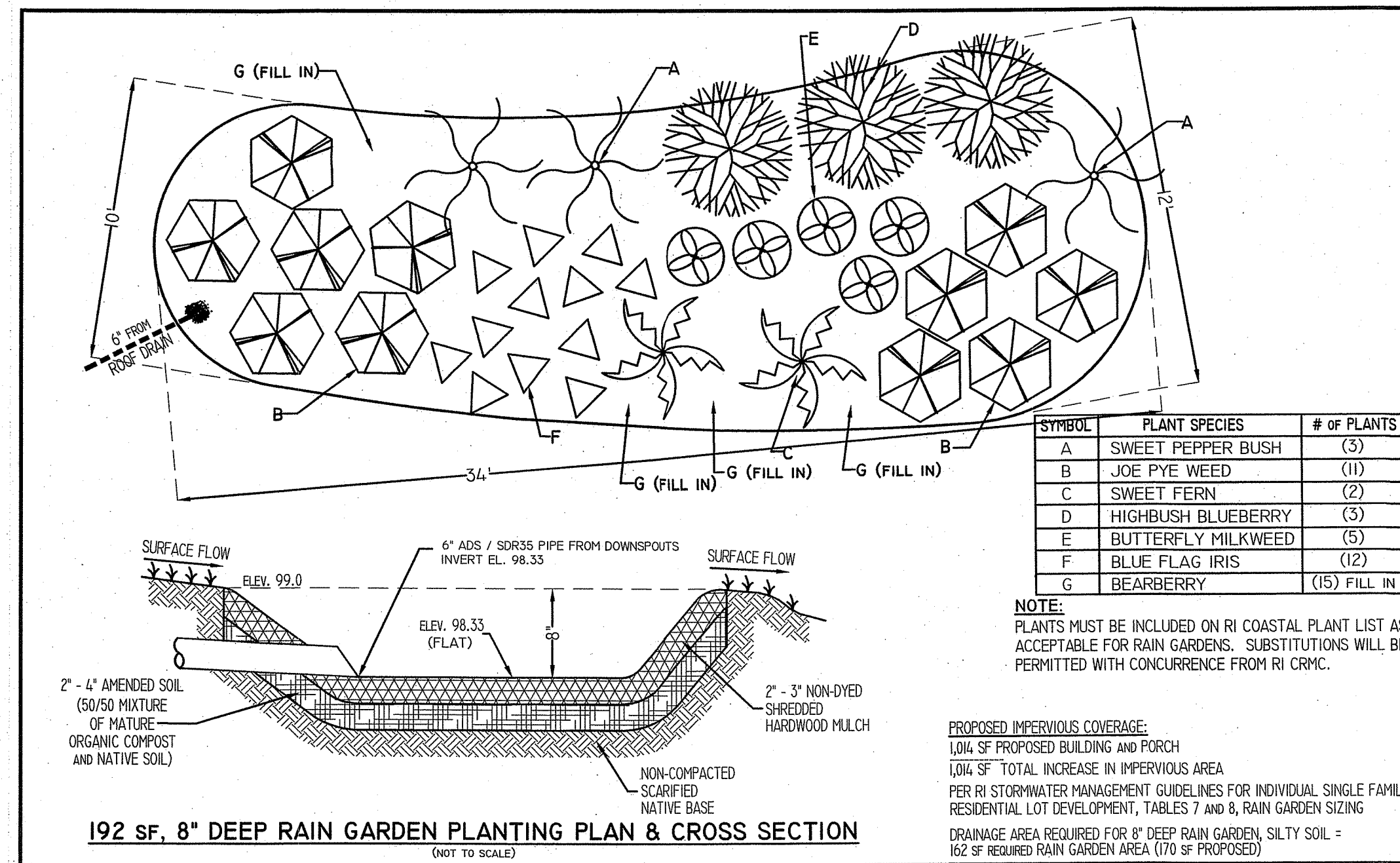
LIMITED COMMON AREA = 7,557 SF±

ZONING LOT COVERAGE CALCULATIONS

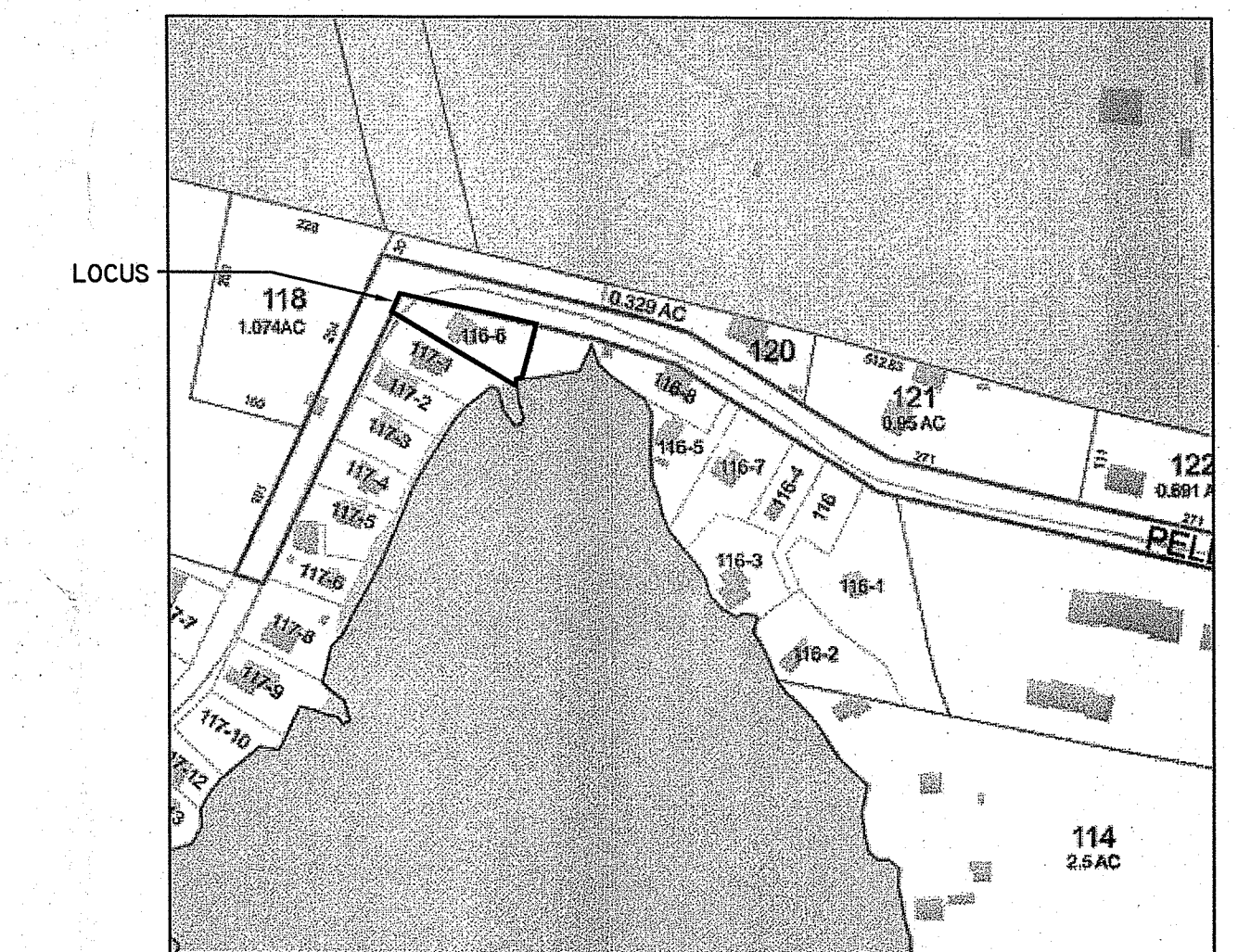
EXISTING BUILDING (IMPERVIOUS) COVERAGE = 1,193 SF = 15.78% LOT COVERAGE
 PROPOSED BUILDING (IMPERVIOUS) COVERAGE = 1,014 SF = 13.42% LOT COVERAGE

RIDEM IMPERVIOUS CALCULATIONS FOR STORMWATER BMP SIZING

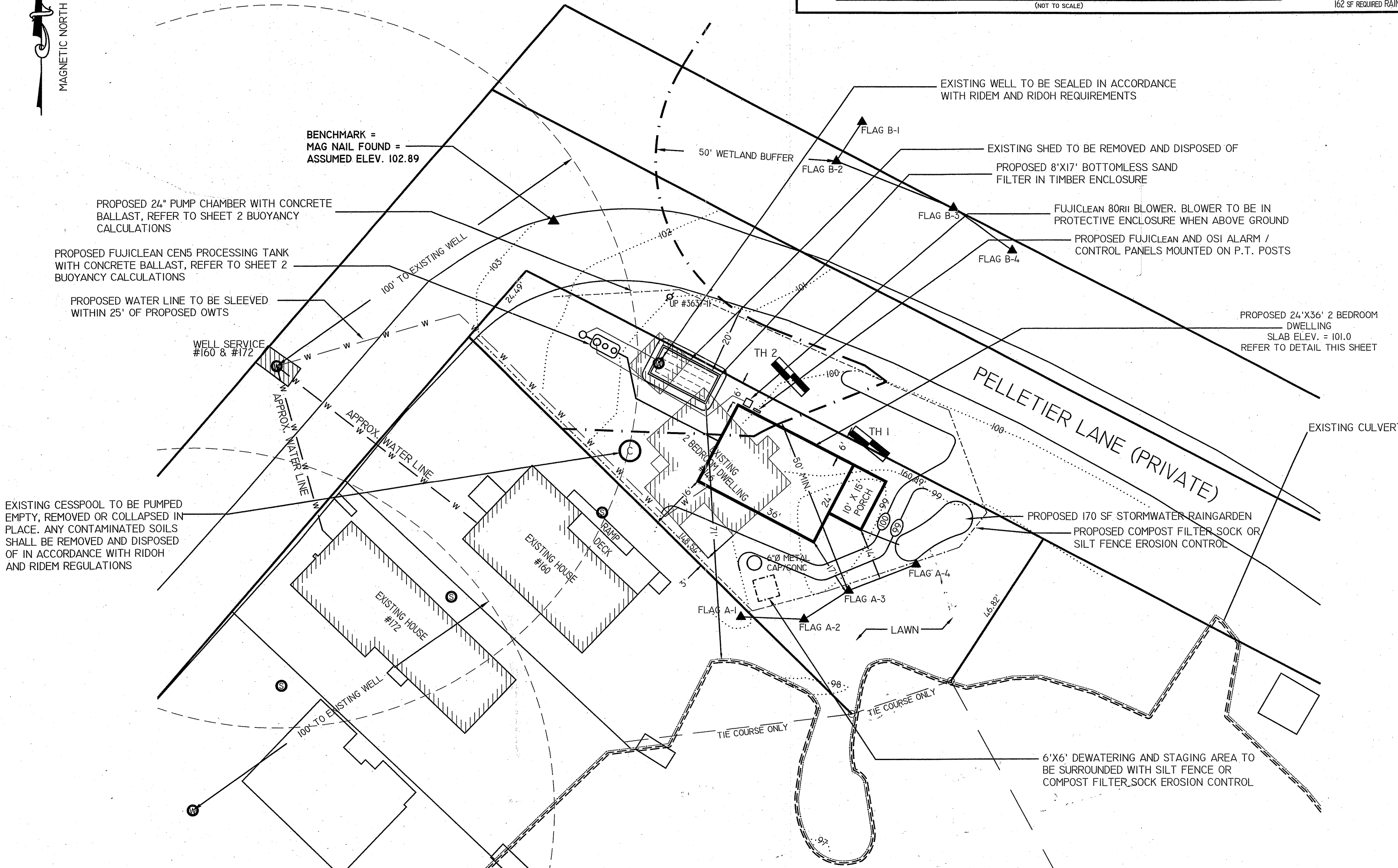
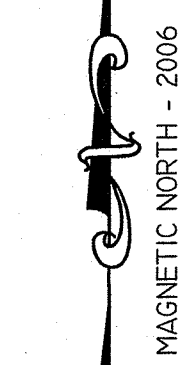
EXISTING IMPERVIOUS (BUILDING, SHED, STAIRS, ETC.) = 1,193 SF
 PROPOSED IMPERVIOUS BUILDING COVER = 1,014 SF
 MAXIMUM BUILDING HEIGHT = 25'



LOCUS MAP
SCALE: 1"=2000'



ASSESSOR'S MAP
NOT TO SCALE



EXISTING CESSPOOL TO BE PUMPED EMPTY, REMOVED OR COLLAPSED IN PLACE. ANY CONTAMINATED SOILS SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH RIDOH AND RIDEM REGULATIONS

BENCHMARK = MAG NAIL FOUND = ASSUMED ELEV. 102.89

PROPOSED 24\"/>

PROPOSED FUJICLEAN CENS PROCESSING TANK WITH CONCRETE BALLAST. REFER TO SHEET 2 BUOYANCY CALCULATIONS

PROPOSED WATER LINE TO BE SLEEVED WITHIN 25' OF PROPOSED OWTs

WELL SERVICE #160 & #172

EXISTING WELL TO BE SEALED IN ACCORDANCE WITH RIDEM AND RIDOH REQUIREMENTS

EXISTING SHED TO BE REMOVED AND DISPOSED OF
 PROPOSED 8'X17' BOTTOMLESS SAND FILTER IN TIMBER ENCLOSURE

FUJICLEAN 80R11 BLOWER. BLOWER TO BE IN PROTECTIVE ENCLOSURE WHEN ABOVE GROUND
 PROPOSED FUJICLEAN AND OSI ALARM / CONTROL PANELS MOUNTED ON P.T. POSTS

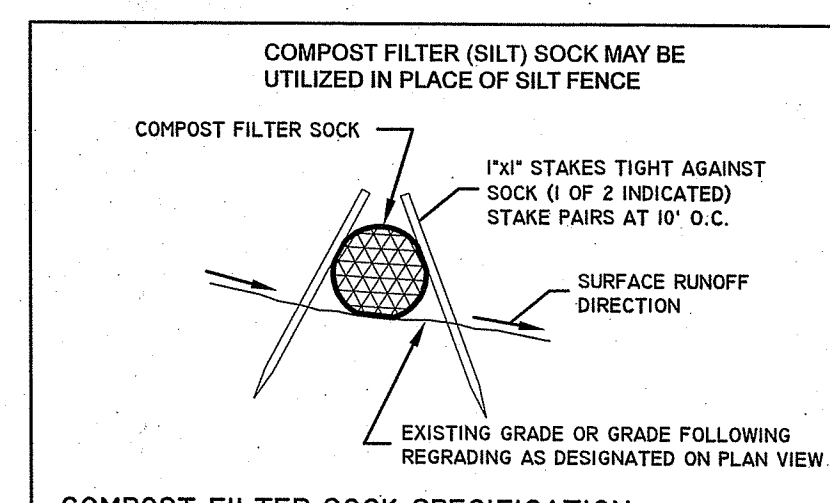
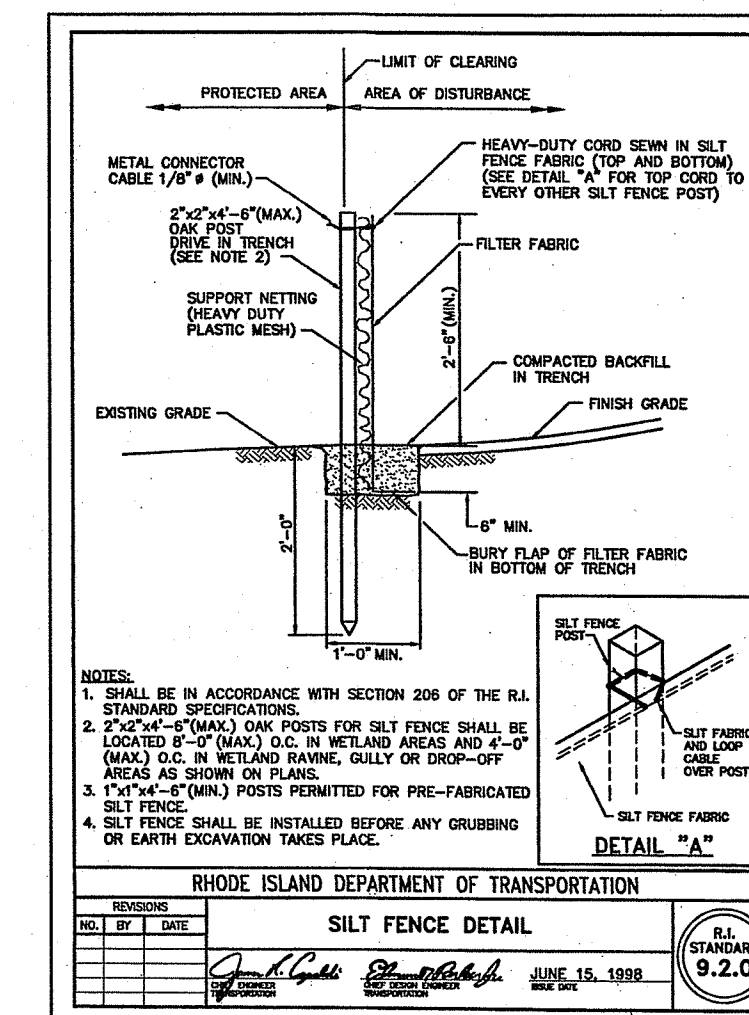
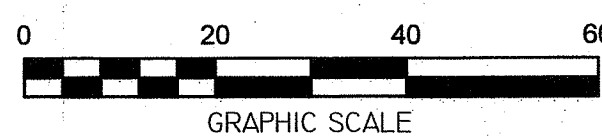
PROPOSED 24\"/>

PELLETIER LANE (PRIVATE)

PROPOSED 170 SF STORMWATER RAINGARDEN
 PROPOSED COMPOST FILTER SOCK OR SILT FENCE EROSION CONTROL

6'X6' DEWATERING AND STAGING AREA TO BE SURROUNDED WITH SILT FENCE OR COMPOST FILTER SOCK EROSION CONTROL

- LEGEND**
- 100 --- EXISTING CONTOUR
 - 100 ○ PROPOSED CONTOUR
 - - - - - APPROXIMATE EDGE OF POND
 - ⊕ UTILITY POLE
 - ⊙ SOIL EVALUATION TEST PIT
 - WELL (AS NOTED)
 - ⊙ OWTs COVER
 - FLAG A-1 --- DELIMITED WETLAND
 - 50' WETLAND BUFFER ---
 - LIMITED COMMON AREA PER CONDO DOCUMENTS ---
 - PROPOSED EROSION CONTROL ---



COMPOST FILTER SOCK SPECIFICATION:
 COMPOST FILTER SOCK SHALL COMPLY WITH SECTION 206.01.4, 206.02.04 AND 206.03.4 OF THE RIDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AMENDED 2015, WITH ALL REVISIONS, AS FOLLOWS:
 COMPOST FILTER SOCK MATERIAL AND COMPOST MATERIAL SHALL BE IN ACCORDANCE WITH AASHTO DESIGNATION MP 9-06 (2007 OR LATEST EDITION). COMPOST SHALL ALSO MEET ALL APPLICABLE FEDERAL AND STATE REGULATIONS. FOR COMPOST FILTER SOCKS 18 INCHES OR LESS IN DIAMETER, WOODEN STAKES SHALL BE 1 INCH BY 1 INCH AT 10 FOOT INTERVALS ON CENTER, AND OF A LENGTH THAT SHALL PROJECT INTO THE SOIL 1 FOOT LEAVING 3 INCHES TO 4 INCHES PROTRUDING ABOVE THE FILTER SOCK.

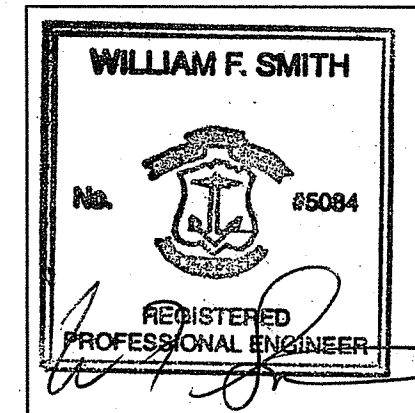
COMPOST FILTER SOCK DETAIL
NOT TO SCALE

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED: MAR 25 2022 FILE #: 21-0306
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Dorothy L. Freeman

Environmental Management
 MAR 03 2022
 Office of Water Resources

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



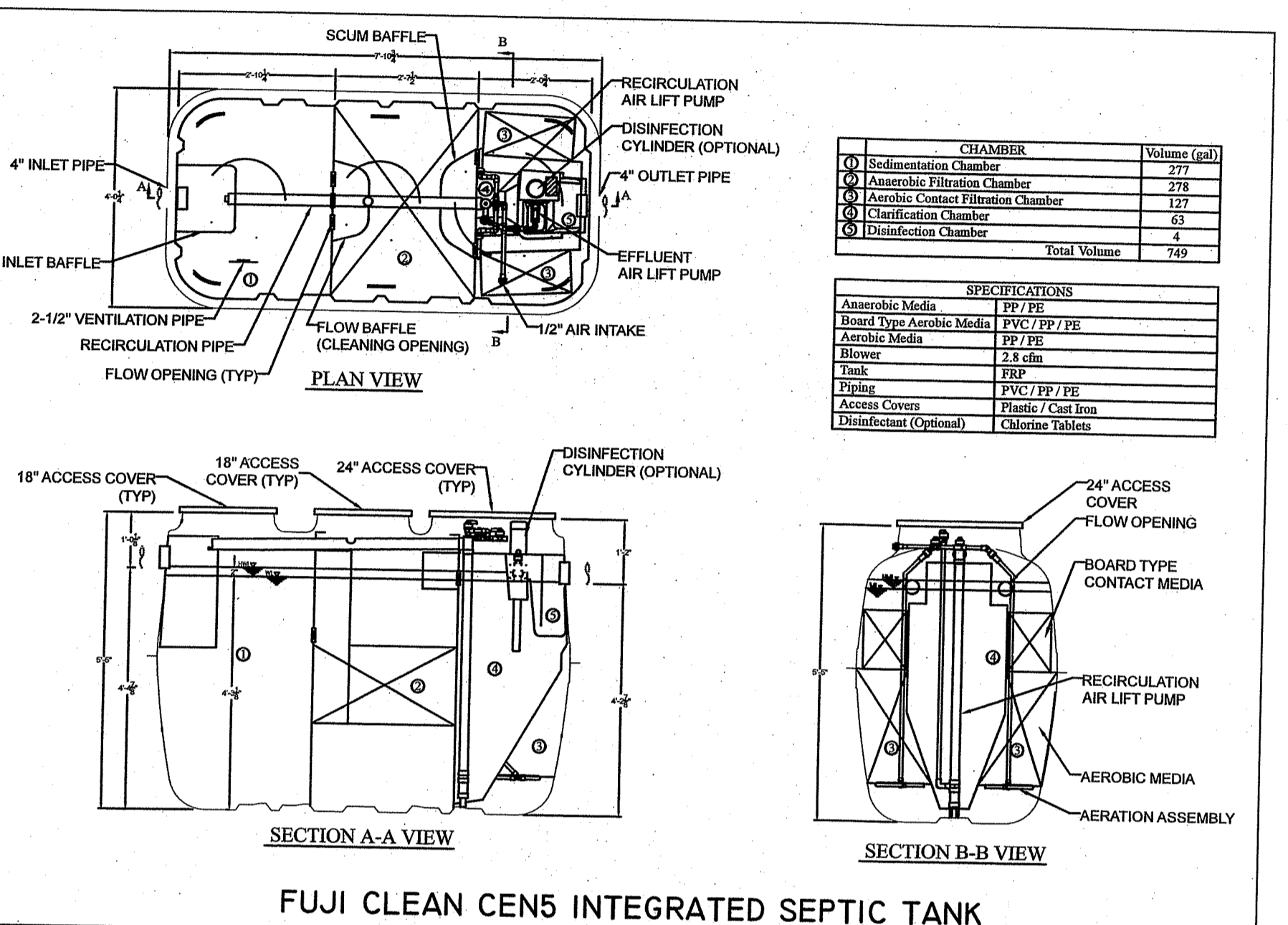
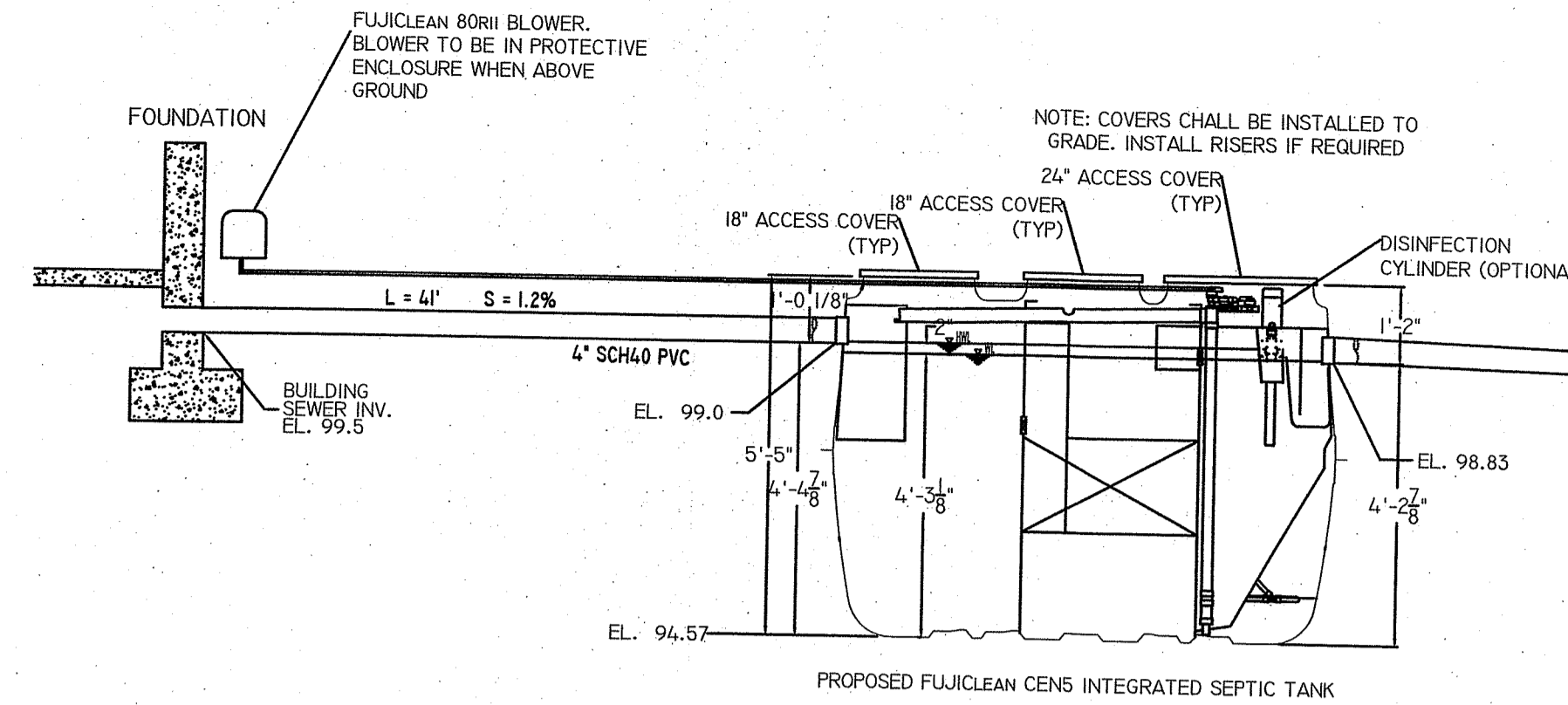
#1) 1/27/22: HOUSE FOOTPRINT AND OWTs LOCATION

SITE PLAN FOR WETLAND AND OWTs ALTERATION VARIANCE
 PREPARED FOR
CAROLYNN VALLOT
 ASSESSOR'S PLAT 208 LOT 116-06
 146 PELLETIER LANE
 TIVERTON, RHODE ISLAND

SCALE: 1" = 20' DATE: OCTOBER 22, 2021

Civil Engineering Concepts, Inc.
 34A MAIN STREET
 LITTLE COMPTON, RI 02837
 PH: (401) 592-0177
 FAX: (401) 592-0178
 EMAIL: wsmithcec@aol.com

REVISIONS: SHEET 1 OF 2 JOB#: 20-106



NUMBER OF BEDROOMS: 2 Proposed
 DESIGN GALLONAGE: 230 GPD
 GARBAGE GRINDER: Not Allowed
 LEACHING SYSTEM USED: Bottomless Sand Filter
 SIZE OF PRIMARY PROCESSING TANK: FUJICLEN CEN5
 SOIL CATEGORY: Category 8 Soil
 CAT. 8 BSF LOADING RATE: 1.9 gal/sf/day, timed dose category 1 L.R.

TOTAL SQUARE FOOTAGE REQ'D:
 230 GAL/DAY
 1.9 L.R. = 121 S.F. REQUIRED (MIN.)

PROPOSED BSF SQUARE FOOTAGE:
 8.0' x 17.0' = 136.0 SF
 136 SF x 1.9 = 258 GAL/DAY CAPACITY PROVIDED

DISCHARGE TO B.S.F.:
 10.56 gal/cycle = 0.88 gal (drainback)
 64 orifices = 0.15 GAL/ORIFICE/CYCLE

DOSING QUANTITY: Float settings to be verified by OSI Representative / Service provider during Start-Up test. Initial pump settings shall provide minimum one dose per hour. Pump dose shall not exceed 12.06 gallons.

BASIS OF SANITARY DESIGN

ELEVATION SCHEDULE

TOP OF SLAB	101.00
INVERT AT DWELLING	99.50
INVERT INTO SEPTIC TANK	99.00
INVERT OUT OF SEPTIC TANK	99.83
INVERT INTO PUMP CHAMBER	99.76
INVERT OUT OF PUMP CHAMBER	99.00
HIGH WATER ALARM	97.66
PUMP "ON"	97.30
PUMP "OFF"	96.85
PUMP CHAMBER RIM	101.60
PUMP CHAMBER FLOOR	95.60
TOP OF PEA BSF PEA STONE	103.25
INVERT OF DISTRIBUTION LATERAL	102.75
TOP OF C-33 FILTER SAND	102.50
BOTTOM OF C-33 FILTER SAND	100.50
BOTTOM OF PREPARED NATIVE SOIL LAYER	100.00
ELEVATION OF WATER TABLE	99.50
EXISTING AVERAGE GRADE AT OWTS	100.50

PROCESSING TANK - BUOYANCY CALCULATIONS

Tank type: FUJICLEN CEN5 Tank Wt: 463 lbs. (excluding interior components)
 Weight of Earth Cover (minimum of 0.5' of soil on tank): 1,485 lbs.

Upward lift (neglecting soil friction):
 7.92' (length) x 4' (width) x 5.0' (max. submerged depth) x 62.4 lbs/c.f. = 9,884 lbs.

Additional 1.75" thick x 2' wide Concrete Collar around Tank (w/ Submerged concrete wt = 87.6 lbs/cf) = 9,762 lbs

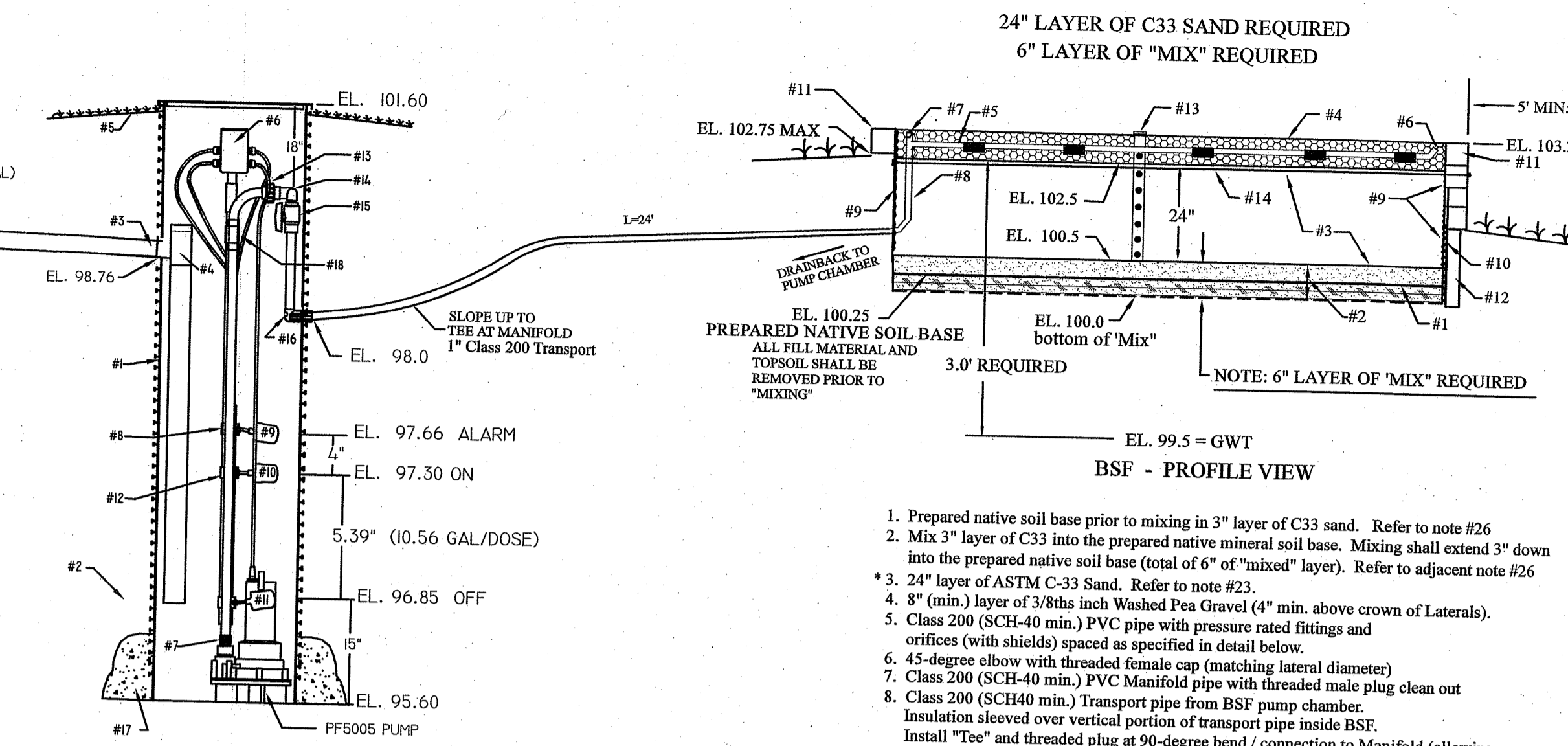
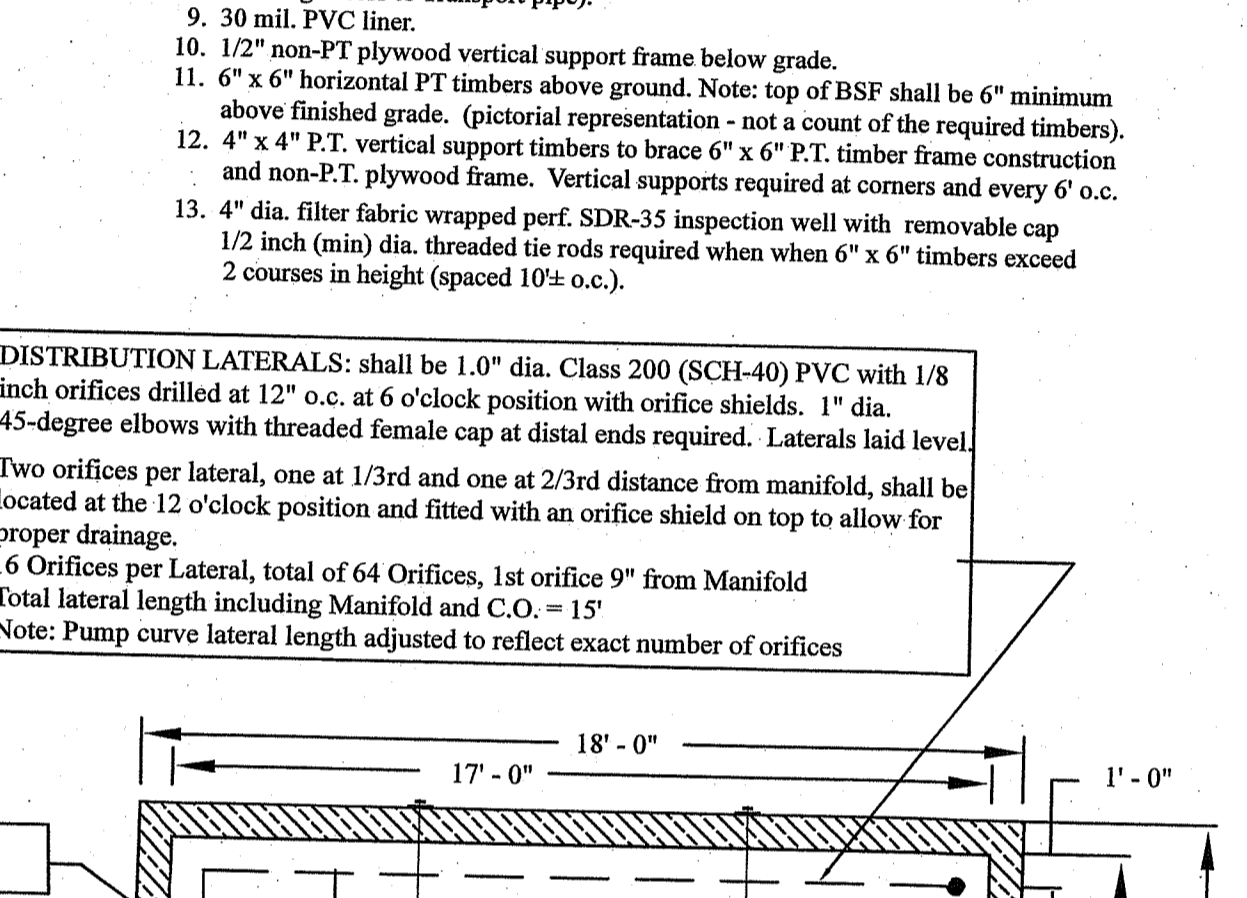
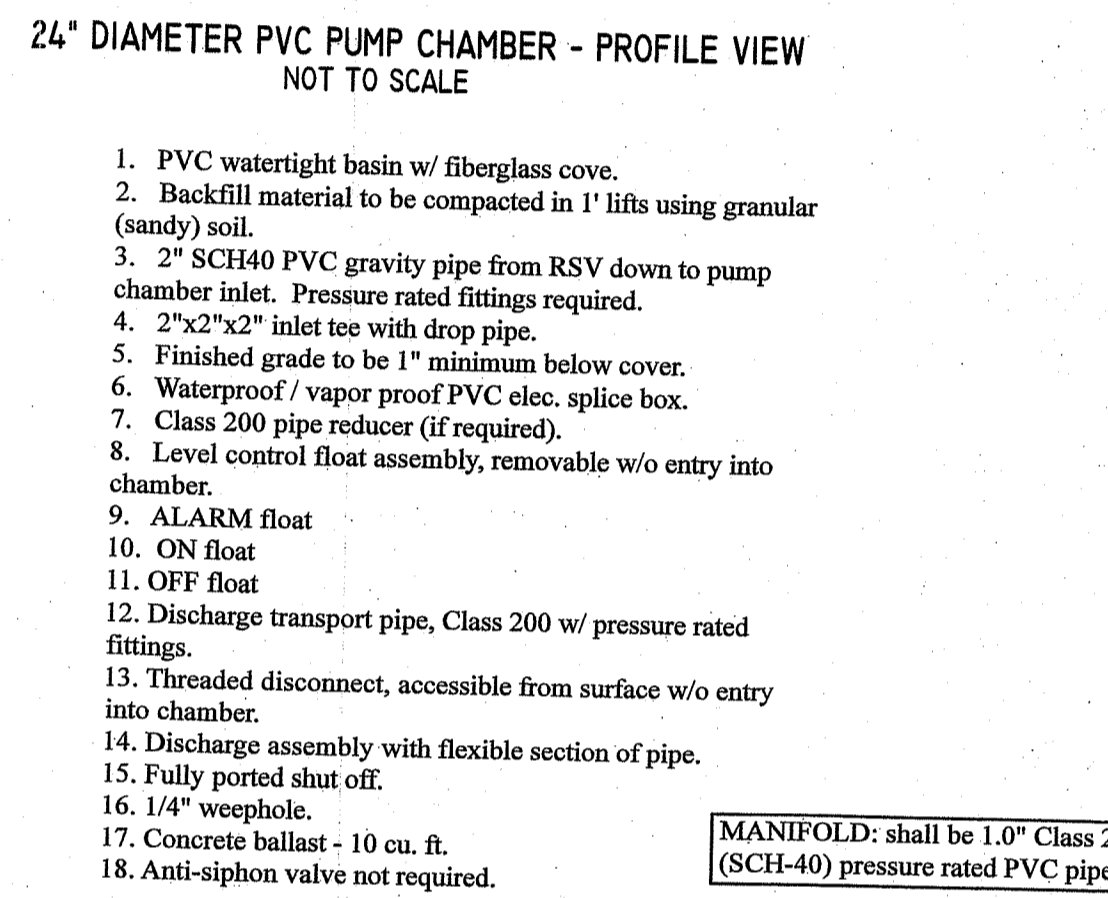
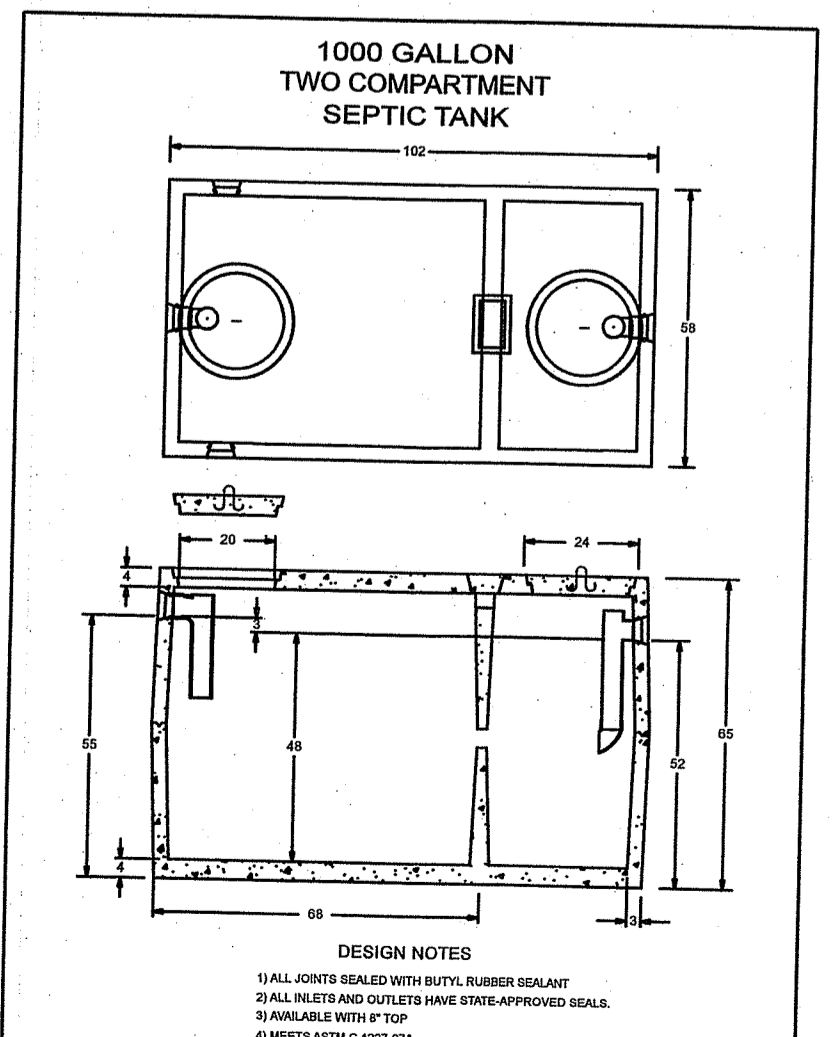
Safety factor: (463 + 1,485 + 9,762) / 9,884 = 1.19

PUMP CHAMBER - BUOYANCY CALCULATIONS

Tank type: OSI 24" dia. PVC unit Tank Wt: 200 lbs.
 Concrete ballast required: 12 cu. ft. x 87.6 lbs/c.f. (submerged conc. wt.) = 1,051 lbs.

Upward lift (neglecting soil friction):
 Assume maximum water table at 2.0' below rim
 1.0' x 1.0' x 3.14 x 5.0' x 62.4 lbs/c.f. = 980 lbs.

Safety factor: (200 + 1,051) / 980 = 1.28



- Prepared native soil base prior to mixing in 3" layer of C33 sand. Refer to note #26
- Mix 3" layer of C33 into the prepared native mineral soil base. Mixing shall extend 3" down into the prepared native soil base (total of 6" of "mixed" layer). Refer to adjacent note #26
- 24" layer of ASTM C-33 Sand. Refer to note #23
- 8" (min.) layer of 3/8ths inch Washed Pea Gravel (4" min. above crown of Laterals).
- Class 200 (SCH-40 min.) PVC pipe with pressure rated fittings and orifices (with shields) spaced as specified in detail below.
- 45-degree elbow with threaded female cap (matching lateral diameter)
- Class 200 (SCH-40 min.) PVC Manifold pipe with threaded male plug clean out
- Class 200 (SCH40 min.) Transport pipe from BSF pump chamber.
- Insulation sleeved over vertical portion of transport pipe inside BSF.
- Install "Tee" and threaded plug at 90-degree bend / connection to Manifold (allowing cleaning access to Transport pipe).
- 30 mil. PVC liner.
- 1/2" non-P.T. plywood vertical support frame below grade.
- 6" x 6" horizontal PT timbers above ground. Note: top of BSF shall be 6" minimum above finished grade. (pictorial representation - not a count of the required timbers).
- 4" x 4" P.T. vertical support timbers to brace 6" x 6" P.T. timber frame construction and non-P.T. plywood frame. Vertical supports required at corners and every 6' o.c.
- 4" dia. filter fabric wrapped perf. SDR-35 inspection well with removable cap 1/2 inch (min) dia. threaded tie rods required when 6" x 6" timbers exceed 2 courses in height (spaced 10" o.c.).

- GENERAL CONSTRUCTION NOTES:**
- All construction shall conform to the state of Rhode Island Department of Environmental Management - Rules and Regulations establishing minimum standards relating to location, design, construction, and maintenance of onsite wastewater treatment systems most recently added. There are no proposed changes to the dwelling.
 - All work shall be done in a workmanlike manner with lines laid as straight as possible and joints made watertight. All work shall be performed by an installer licensed for BSF installations by the State of Rhode Island. Verification of Installer's certification may be required by the Engineer prior to start of construction.
 - Engineer is to be notified 72 hours prior to the start of the septic system construction. Contractor is to ensure that Engineer is notified 2 working days in advance of the required necessary survey work on all piping and components are installed and prior to backfilling. Start up test required to be performed by an authorized Orenco dealer and witnessed by the Engineer. Contractor shall notify the Engineer of the start up test date.
 - Contractor is responsible for notifying the designer for scheduling the required "bottom" and final inspections so proper scheduling can be made for RIDEM.
 - Contractor or property owner shall provide the Engineer with a copy of the required Maintenance Agreement prior to start of construction.
 - Dig-Safe notification is to be provided to the Engineer in advance of any excavation. Any underground utilities shown are approximate only and are based on limited availability of plans, visual observation, and local knowledge. Actual locations are to be verified by the Contractor prior to excavation through Dig-Safe procedures and any local utility department as necessary. Compaction or smearing of native soil will compromise the operation of the BSF.
 - Area to be utilized for the BSF shall remain clear of all vehicles, equipment, and stockpiles materials. Contractor shall delineate the BSF area with caution tape to restrict access.
 - Proper size hole saws, in good conditions, are to be used for the installation of conduit/piping grommets. Refer to, and follow, required hole sizes specified in manufacturer's installation documentation. The use of incorrectly sized hole saw will result in improperly seated grommets. Any conduit/piping installed into polyethylene riser or tank that is not watertight will not be approved by the Engineer.
- SEPTIC/RECIRCULATION TANK:** to be FUJICLEN CEN5 INTEGRATED SEPTIC TANK (Gallage as specified on Processing Tank Detail)
- Equipped with suitable cast-in-place PVC mounting flange for detail-specified diameter inlet & outlet PVC risers. Watertight bonding epoxy (or other proper adhesive) required between tank adapters and risers. Access covers are not to be covered with soil. Final loam placement (elevation) shall be at least 1" below the access covers and graded away from tank.
 - All tank seams, riser connections (if any) and all plumbing joints are to be installed 100% watertight, sealed with suitable gasket material, or other bonding agent suitable for that specific component. Any knock-out holes in the bottom of the tank shall remain sealed or be sealed with suitable plug and hydraulic cement. Unused inlet/outlet knock-outs shall any groundwater.
 - For proper operation, the septic tank shall be inspected annually and pumped when any solids accumulation exceeds 1/3 liquid depth.
 - All materials and construction shall meet the manufacturer requirements and applicable building, plumbing, electrical, and safety codes. Third party or alternate generic parts requiring substantial field modifications to fit shall not be permitted.
 - Tank shall be equipped with a FUJICLEN 80R11 Blower which feeds the aerobic clarification chamber. If above grade, blower shall be in a protective enclosure with adequate enclosure and any fittings must be watertight with a 2" pvc air supply pipe brought up above possible snow line. A gooseneck at top of pipe is necessary to prevent water from entering basin. Supply pipe should not be located near exhaust vents.
 - Transport line shall be Class 200 pressure piping (with pressure rated fittings) laid at consistent slope up to the BSF Manifold to allow for drainback. Transport pipe shall be utilized secured flexible rubber seals.
 - BSF pump chamber shall be as specified. Any pump substitution shall require the Engineer's review of the substitute pump specifications and pump curve.
 - Lateral lengths & manifold lengths used for pump specifications reflect that piping does not extend to the far edges of the BSF enclosure.
- ELECTRICAL CONTROL/ALARM PANEL:** w/ telephone line remote telemetry connection and programmable timers
- Control Panel shall be an OSI pump-matched NEMA-4X rated waterproof lockable unit with visual alarms and programmable timer that operates both OSI RT Media Filter pump unit and BSF pump on same circuit. Elapsed time meter and cycle event counter required.
 - Panel to be placed outside, mounted on P.T. posts within view of the pump access covers. Outside face of Control Panel shall be equipped with high-intensity alarm light and alarm silence button that shall automatically reactivate after 12 hours.
- OSI DISCHARGE PUMP CHAMBER:**
- Any w/ephosphes shown in discharge pipe shall not be directed toward floats. Pump floats shall be controlled by the septic/recirculation tank Biotope Pump Vault Control Panel.
 - Transport line shall be Class 200 (SCH-40) pressure piping (with pressure rated fittings) laid at consistent slope up to the Geomat leaching system to allow drainback. 1 cu. ft. (min) concrete thrust blocks required at all angle points.
 - Pump(s) shall be as specified. Any pump substitution shall require the Designer's review of the substitute pump specifications and pump curve.
 - A flexible section of Class 200 rated pressure pipe shall be used in the discharge pipe to prevent stress cracking from pump start up torque.
- ELECTRICAL CONTROL / ALARM PANEL:** w/ telephone line remote telemetry connection
- Control panel shall be an OSI pump-matched NEMA-4 rated waterproof lockable unit with visual alarms and programmable timer that operates both OSI AX Media Filter pump unit and Discharge pump on the same circuit. Alarm shall be on separate circuit. Panel to be mounted on 4"x4" PT posts within view of both pump access covers. Panel shall be in a location where the alarm will be heard from a normally occupied area of the building. Outside face of panel shall be equipped with high-intensity alarm light and alarm silence button that shall automatically reactivate after 12 hours. Panel shall be equipped with timer circuitry capable of recording run time and cycles.
 - A start up test is required to be performed by the installer / maintenance provider and witnessed by Designer of the AX pumping system, the discharge pumping system, and pressure (head) testing of the Geomat laterals. Any subsequent electrical work shall include the Electrician's verification that the electricity is properly restored to the Control Panel.
- BOTTOMLESS SAND FILTER (BSF):**
- A start up test of the entire treatment system is required to be performed by the Installer/Maintenance provider and witnessed by the Engineer. Any subsequent electrical work shall include the Electrician's verification to the Maintenance provider that the electricity is properly restored to the Control Panel.
 - BSF shall be constructed as shown with materials as specified in the details. Installation of a 4" dia. perforated (filter fabric wrapped) inspection well required. Figure 14 for ASTM C33 SAND AND SHALL HAVE AN EFFECTIVE SIZE (D10) OF 0.33 mm; AND UNIFORMITY COEFFICIENT (D60/D10) OF 3.0 TO 4.0, WITH A MAXIMUM OF 1% FINES PASSING A NUMBER 200 SIEVE. Regulations require a sieve analysis from sand supplier be provided to the Engineer. Sand shall be installed in 8" lifts, "walked down" using foot pressure (no compaction) per RIDEM requirements.
 - Manifold and Distribution lateral: dia. specified on detail and shall be Class 200 PVC with 1/8" orifice holes (drilled with a new bit) and fitted slotted cold weather orifice shields spaced at intervals specified. Laterals shall be laid level. Distal ends of laterals shall be equipped with a 45-degree elbows and threaded female end caps. Sweep elbows extending to the surface are not to be installed on ends. All fittings shall be pressure rated (DWV fittings not acceptable).
 - An inspection well (vertical, filter fabric wrapped 4" perforated PVC w/ cover) is required to be installed in the BSF.
 - Leaching area excavation shall be level and scarified. Care shall be taken to avoid compaction of remaining soil. Excavation of native material below the BSF shall only be to the extent designated on the plan. Sod, vegetation, dead/de-caying organic litter and any organic soil horizon (unsuitable "A" horizon material) shall be removed from the footprint of the BSF. Prepared native soil surface shall be inspected by the Designer prior to mixing of 3" of C33 into the native soil.
 - Above ground BSF support framing shall consist of 6" x 6" pressure treated timbers drilled and pinned to the soil with #3 or #4 rebar and screwed/laid together at the corners. Vertical 4" x 4" timbers (to support 6" x 6" frame) required with three at each corner and one every 10' on center (max).
 - Where more than two courses of 6" x 6" timbers are exposed, 1/2" dia. threaded galvanized rod(s) with 2" dia. galvanized washers and nuts shall be installed in the second timber down from the top (to support timbers from bowing out), evenly placed along the length of BSF. Existing trees or deep rooted shrubs within 10' of the BSF shall be removed.
 - Trees or shrubs shall not be planted within 10' of the BSF. Existing trees or deep rooted shrubs within 10' of the BSF shall be removed.
 - Heavy equipment shall not be operated over the components or the prepared leaching area during installation. Rubber tired machinery is not to be driven over the prepared natural soil base or sand/stone bed during system installation.
 - BSF is not to be covered with topsoil or any other type of cover material that will restrict air flow. Any accumulated weeds, grass, or foreign material on the BSF shall be removed by hand labor. Pea gravel surface must remain fully exposed to atmosphere.
 - All existing or proposed (if any) wells within 150' of proposed Septic System are shown. Site is serviced by a private well.
 - All existing or known proposed (if any) public wells within 500' of proposed Septic System are shown.
 - No parking is permitted in the vicinity of the Septic System.
 - A backup generator (adequate for supplying the pumps in case of electrical failure) is to be provided by the property owner.
 - Property lines as depicted on this plan are approximate only and are not the result of a boundary survey.
 - For proper operation, the processing tank shall be inspected annually and pumped when any solids accumulation exceeds 1/3rd liquid depth.
39. A manufacturer-approved maintenance contract for the pump/filter system is required to be filed in the applicable Town Hall Land Evidence records office. Contract must be kept current as a condition of approval.

RI Environmental Management
 MAR 03 2022
 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: MAR 25 2022 FILE #: 21-0-3006

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

William F. Smith
 REGISTERED PROFESSIONAL ENGINEER
 No. 65084

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

SITE PLAN FOR WETLAND AND OWTS ALTERATION VARIANCE
 PREPARED FOR
 CAROLYNN VALLOT
 ASSESSOR'S PLAT 208 LOT 116-006
 146 PELLETIER LANE
 TIVERTON, RHODE ISLAND

NOT TO SCALE DATE: OCTOBER 22, 2021

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#1) 1/27/22: PROCESSING TANK AND OWTS LOCATION

REVISIONS:

SHEET 2 OF 2 JOB#: 20-106