

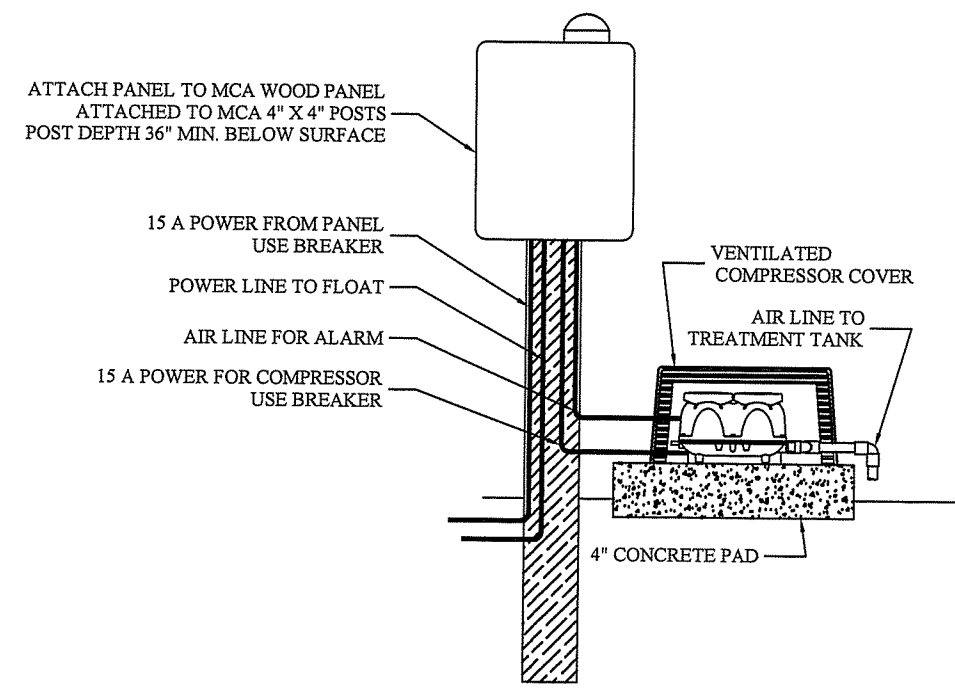


**GRAVEL SPECIFICATIONS:**

THE GRAVEL BASE MATERIAL SHALL CONSIST OF CLEAN SAND AND GRAVEL FREE FROM ORGANIC MATTER AND FOREIGN SUBSTANCES. THE GRAVEL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN 3 INCHES AND UP TO 10% MAY BE SIZED BETWEEN 3/4" AND 3". THE GRAVEL SHALL MEET THE FOLLOWING CRITERIA:

SI-EV SIZE	PERCENT PASSING
3/4"	100%
#4	55% - 100%
#10	40% - 100%
#40	10% - 50%
#100	0% - 20%
#200	0% - 5%

GRAVEL SHALL BE PLACED IN SHALLOW LIFTS (6") AND PROPERLY COMPACTED. THE SURFACE OF THE GRAVEL SHALL BE LEVEL AND SCARIFIED.



**FUJICLEAN NOTES**

- THE DESIGN ENGINEER SHALL OBSERVE THE OWTS PRIOR TO BACKFILL.
- THE OWTS SHALL BE TESTED FOR WATER TIGHTNESS USING A METHOD APPROVED BY THE MFGOR PRIOR TO ARRIVAL AT THE SITE.
- A FUJICLEAN REPRESENTATIVE SHALL BE PRESENT DURING START-UP.
- THE OWNER SHALL EXECUTE AND MAINTAIN AN OPERATION AND MAINTENANCE AGREEMENT WITH AN AUTHORIZED MAINTENANCE PROVIDER.
- NO KITCHEN SINK GARBAGE DISPOSER SHALL DISCHARGE TO THE OWTS.
- NO WATER SOFTENER SHALL DISCHARGE TO THE OWTS.
- INSTALLATION AND USE OF THE I/A OWTS MUST CONFORM TO THE DEPARTMENTS APPROVED I/A OWTS GUIDANCE DOCUMENT PREPARED IN ACCORDANCE WITH THE STANDARDS FOR "APPROVAL AND MANAGEMENT OF INNOVATIVE AND ALTERNATIVE ON SITE WASTEWATER TREATMENT SYSTEMS."
- WHEN AN I/A OWTS REQUIRES A VENT, THE UNIT SHALL BE VENTED TO THE ROOF OF THE RESIDENCE BEING SERVED. VENT PIPES SHALL EXTEND A MINIMUM OF 6" ABOVE THE ROOF LINE AND THE TOP OF THE VENT SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF 12" TO THE SLOPED PORTION OF THE ROOF. IN CASES WHERE IT IS NOT PRACTICAL TO VENT THE SYSTEM TO THE RESIDENCE ROOF, A VENT PIPE MAY BE PIPED TO THE EXTERIOR SIDE OF THE RESIDENCE AND TERMINATES A MINIMUM OF 18" ABOVE GRADE. THESE VENT PIPES SHALL BE LOCATED A MINIMUM OF 3' FROM ANY WINDOW OR DOORWAY AND MUST TERMINATE WITH A CARBON FILTER DEVICE. ALL VENT PIPES MUST HAVE MINIMUM DIAMETER OF 2".
- ALL ADAPTORS, RISERS, SAFETY SCREENS, AND LIDS SHALL BE MANUFACTURED BY POLYLOCK.
- DIRECT BURIAL OF ELECTRICAL AND CONTROL WIRES IS PROHIBITED. ALL WIRES SHALL BE ENCASED IN 1/2" MIN SCH 40 PVC CONDUIT.
- THE OWTS INSTALLER SHALL PROVIDE EITHER A 20-AMP CIRCUIT BREAKER INSIDE THE DWELLING MAIN ELECTRICAL PANEL OR INSTALL A SUB-PANEL IN AN EASILY ACCESSIBLE LOCATION.

**MAINTENANCE:**

ALL COMPONENTS OF THE SYSTEM SHALL BE INSPECTED AFTER THE FIRST 4-6 MONTHS OF OPERATION, AND AFTER ONE YEAR OF OPERATION. THE SYSTEM SHALL BE INSPECTED YEARLY THEREAFTER UNLESS ORIGINAL INSPECTIONS DETERMINE MORE FREQUENT INSPECTIONS ARE REQUIRED. THE OWNER SHOULD BE AWARE THAT THIS ON-SITE WASTEWATER TREATMENT SYSTEM SHALL HAVE A PERMANENT ROUTINE MAINTENANCE AGREEMENT THAT SHALL BE RECORDED IN THE LAND EVIDENCE RECORDS OF THE TOWN.

**WATER-TIGHTNESS:**

CONTRACTOR SHALL TEST THE SEPTIC TANKS FOR WATER TIGHTNESS (IN THE PRESENCE OF C.J. DOYLE, P.E.) PRIOR TO BACKFILLING THE EXCAVATION. TESTING MAY INCLUDE: FILLING THE TANK FULL OF WATER AND LET STAND FOR 24 HOURS, USE OF TANK METRE BE EXPOSED, OR ON-SITE VACUUM TESTING OR A CERTIFICATION OF WATER TIGHTNESS BY MANUFACTURER IS ACCEPTABLE WHEN VACUUM TESTED AS PER ASTM C 1227-02. ALL INLETS AND OUTLETS SHALL HAVE PRESS SEALS PRECASTED.

**CONFINED SPACE SIGNS:**

PERMANENT DURABLE CORROSION RESISTANT SIGNS INDICATING "CONFINED SPACE - ENTRY BY PERMIT ONLY" SHALL BE PLACED AT EACH TANK AND PUMP CHAMBER SIDEWALL OF RISER. SIGNS SHALL MEET O.S.H.A. REQUIREMENTS FOR SIZE, MARKINGS AND LOCATION.

**EXTERNAL PUMP CHAMBER:**

THE PUMP CHAMBER SHALL HOUSE AN EFFLUENT PUMP MANUFACTURED BY ORENCO SYSTEMS, INC. MODEL PFF470-B (OR APPROVED EQUIVALENT) AND SHALL BE INSTALLED ACCORDING TO DETAILS PROVIDED AND TO MANUFACTURER'S SPECIFICATIONS. SEE TYPICAL PUMP CHAMBER DETAIL.

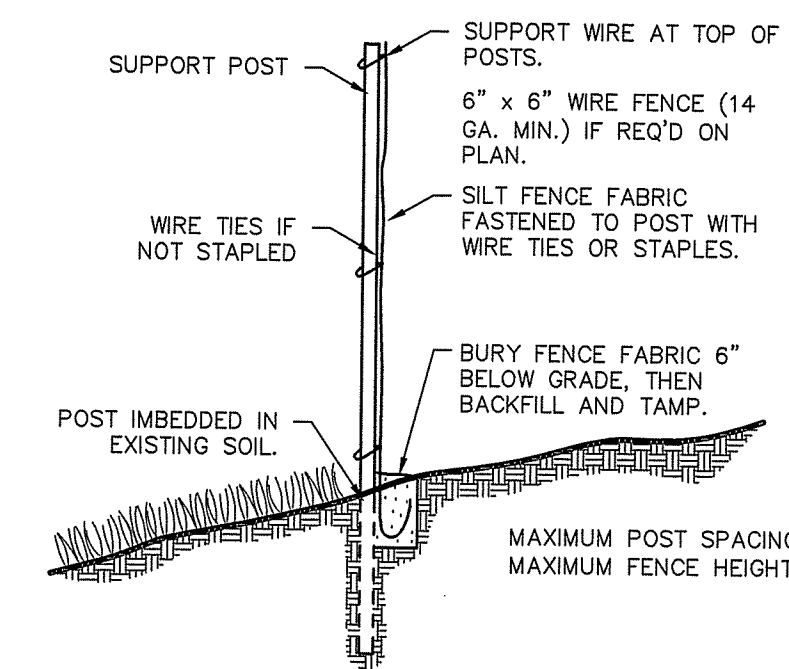
**CONTROL PANEL:**

THE CONTROL PANEL SHALL BE MANUFACTURED BY ORENCO SYSTEMS, INC. MODEL VERICOMM A/B. THE PROGRAMMABLE TIMER FOR THE RECIRCULATING TANK PUMP SHALL BE SET TO THE DEFAULT SETTINGS AS SUPPLIED BY THE MANUFACTURER.

THE EXTERNAL PUMP CHAMBER SHALL BE DEMAND DOSSED AND HAVE: THE FLOATS SET AS SHOWN IN THE PUMP CHAMBER DETAIL. THE HIGH AND/OR LOW LEVEL ALARMS SHALL BE IN THE CONTROL PANEL.

**ELECTRICAL:**

ALL WIRING REQUIRED FOR PUMPS, ALARMS ETC. SHALL BE INSTALLED IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND MANUFACTURER'S INSTRUCTIONS. CONDUITS ENTERING THE PUMP CHAMBERS SHALL BE PROPERLY INSTALLED WITH CONDUIT SEALS TO PREVENT SEWAGE GASES FROM LEAVING THE BASIN. CONDUITS ENTERING THE FAN CHAMBER SHALL BE PROPERLY INSTALLED WITH CONDUIT SEALS TO PREVENT WATER FROM ACCESSING THE CHAMBER.

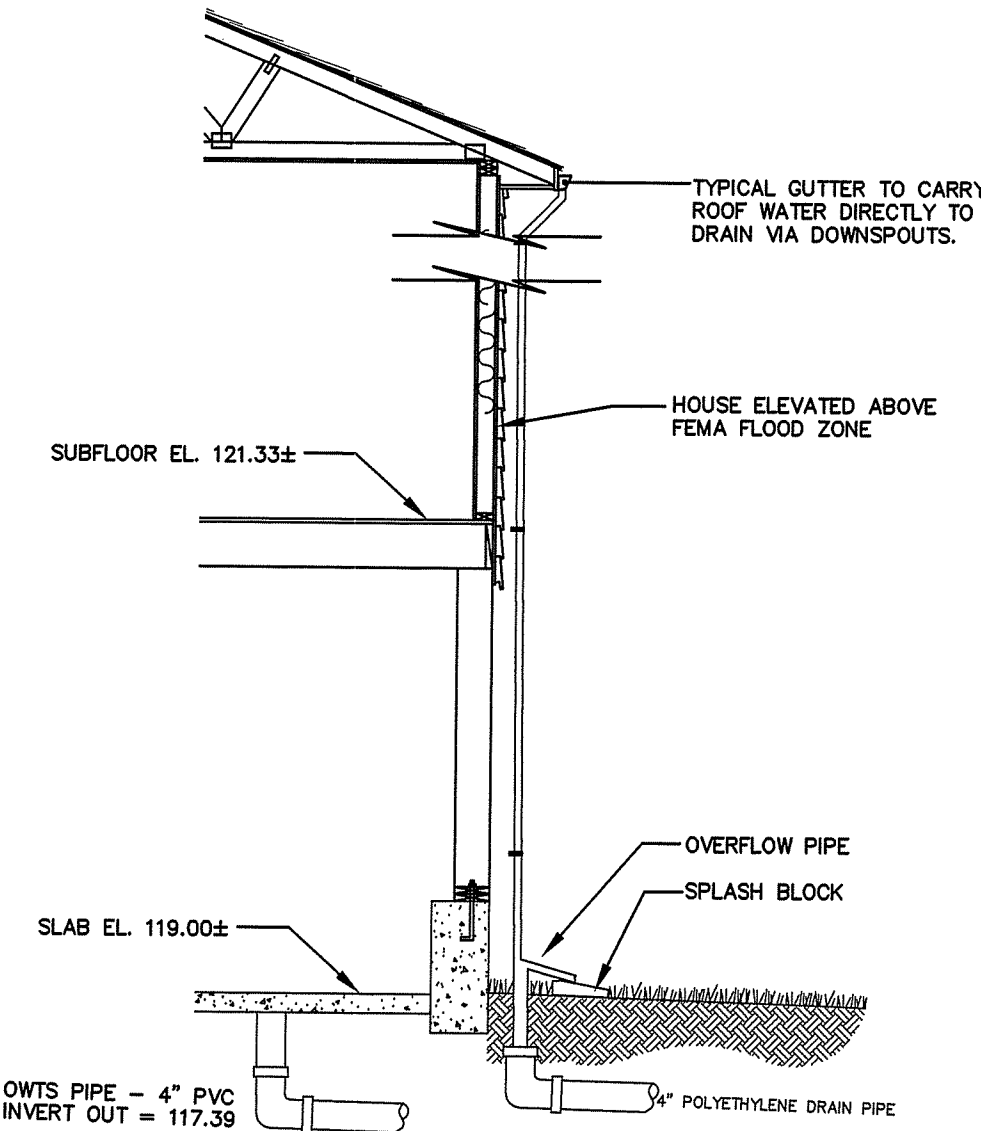


**SILT FENCE DETAIL**  
NOT TO SCALE

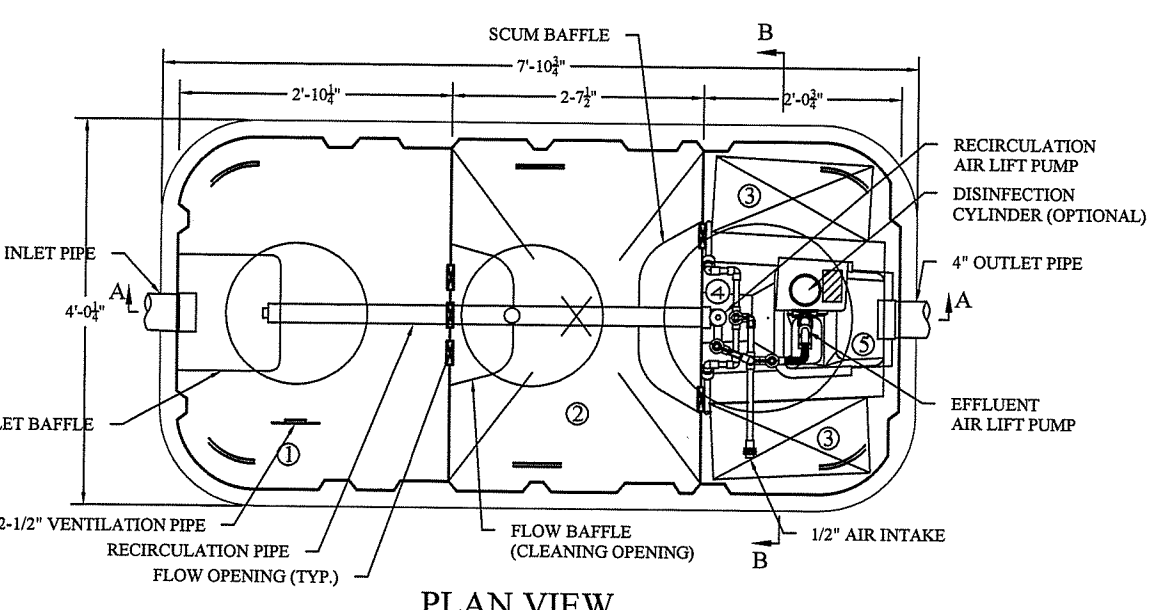
**EXCAVATION:**

THE AREA BENEATH THE PROPOSED LEACH FIELD SHALL BE EXCAVATED DOWN TO THE C<sub>u</sub> SOIL STRATA (SAND), APPROXIMATELY 12" BELOW THE EXISTING GRADE.

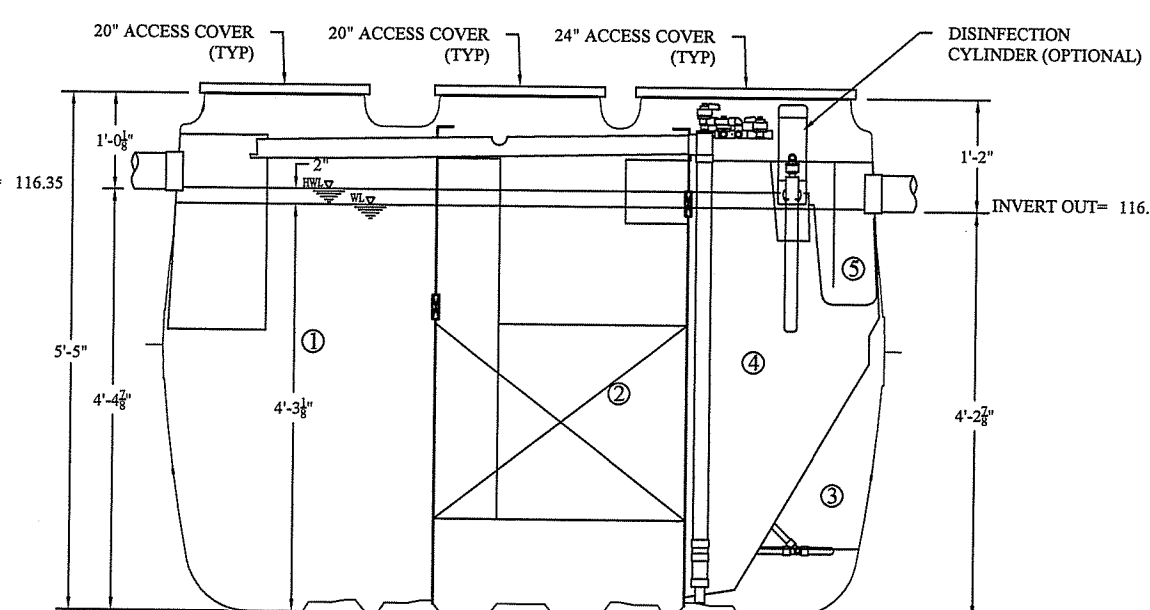
BACK FILL THE EXCAVATION WITH CLEAN INDIAN SAND OR BANK RUN GRAVEL COMPACTED IN 6" LIFTS.



**DETAIL OWTS BUILDING SEWER**  
NO SCALE



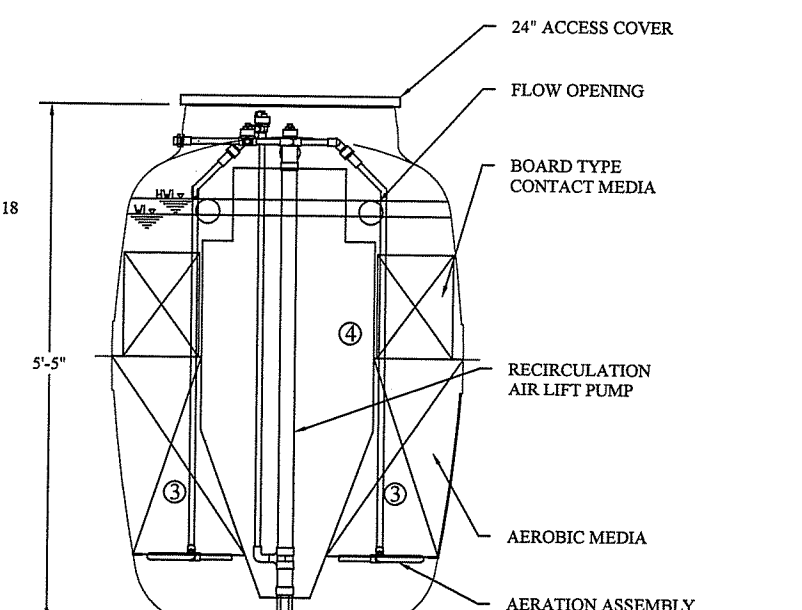
**PLAN VIEW**



**SECTION A-A VIEW**

CHAMBER	Volume (gal)
1 Sedimentation Chamber	277
2 Anaerobic Filtration Chamber	278
3 Aerobic Contact Filtration Chamber	127
4 Clarification Chamber	63
5 Disinfection Chamber	4
<b>Total Volume</b>	<b>749</b>

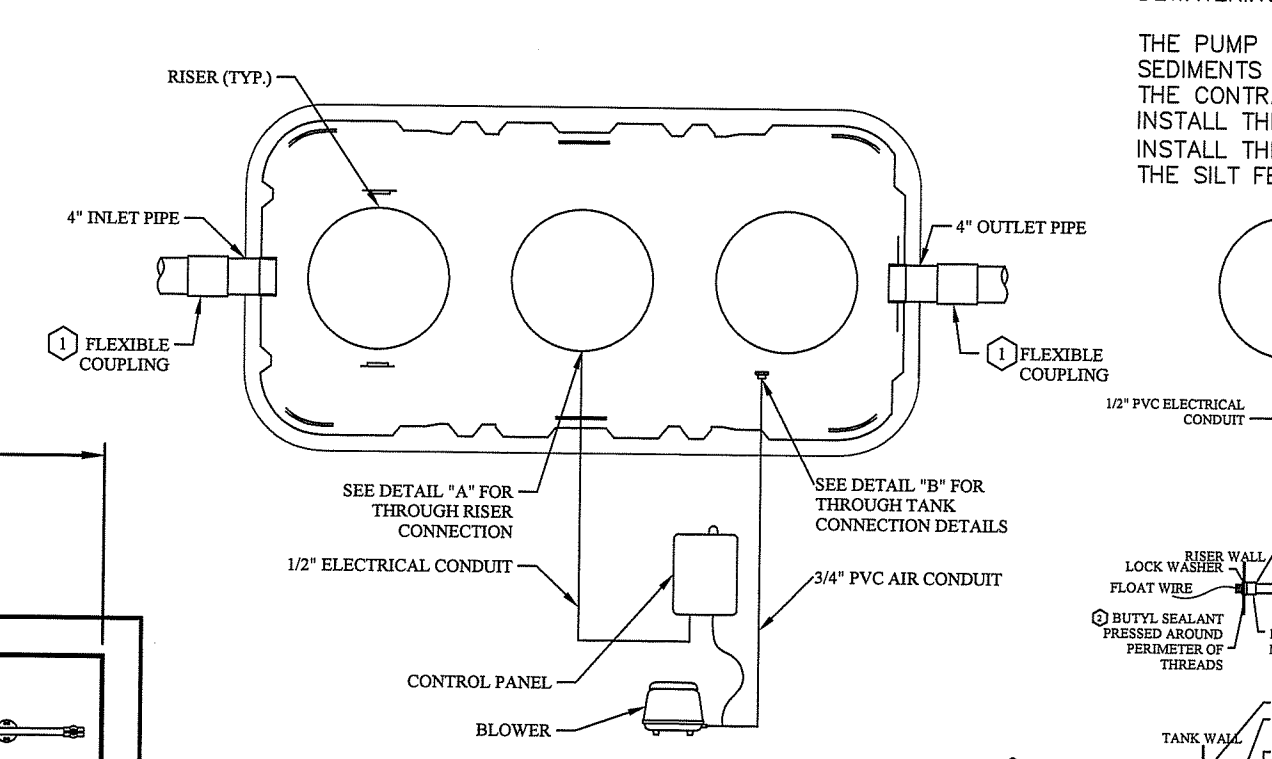
SPECIFICATIONS	
Anaerobic Media	PP / PE
Board Type Aerobic Media	PVC / PP / PE
Aerobic Media	PVC / PP / PE
Blower	2.8 cfm
Tank	FRP
Piping	PVC / PP / PE
Access Covers	Plastic / Cast Iron
Disinfectant (Optional)	Chlorine Tablets



**SECTION B-B VIEW**

**FUJICLEAN CENS DETAIL**

NO SCALE



**INSTALLATION DETAILS**  
NO SCALE

**BOTTOMLESS SAND FILTER:**

THE BOTTOMLESS SAND FILTER SHALL BE 20' X 7.5' AND COMPRISED OF 4 LATERALS (SEE DETAILS). A SERIES OF 1/8" DIAMETER HOLES (ORIFICES) SHALL BE DRILLED WITH A NEW SHARP 1/8" DRILL BIT TO MAKE CLEAN HOLES, FREE OF RESIDUAL DEBRIS OR OBSTRUCTIONS IN THE DISTRIBUTION LATERALS AND SPACED EVERY 18 INCHES. EACH LATERAL SHALL BE INSTALLED WITH ALL ORIFICES POINTING DOWN (6 O'CLOCK POSITION) EXCEPT FOR 2 UP FACING ORIFICES (12 O'CLOCK, SPACED AT 10 AND 20 INCHES). EACH ORIFICE SHALL HAVE ORIFICE SHIELDS WITH SLOTS OR HOLES TO PROVIDE FREE DRAINAGE (USUALLY REFERRED TO AS COLD WEATHER ORIFICE SHIELDS) SEE DETAILS.

THE TRANSPORT LINE SHALL BE SLOPED (WITH NO BAGS OR DIRS) TO PROVIDE FREE-DRAINING OF THE EFFLUENT TO PREVENT TOXIC PRESSURIZED DRAINFIELDS.

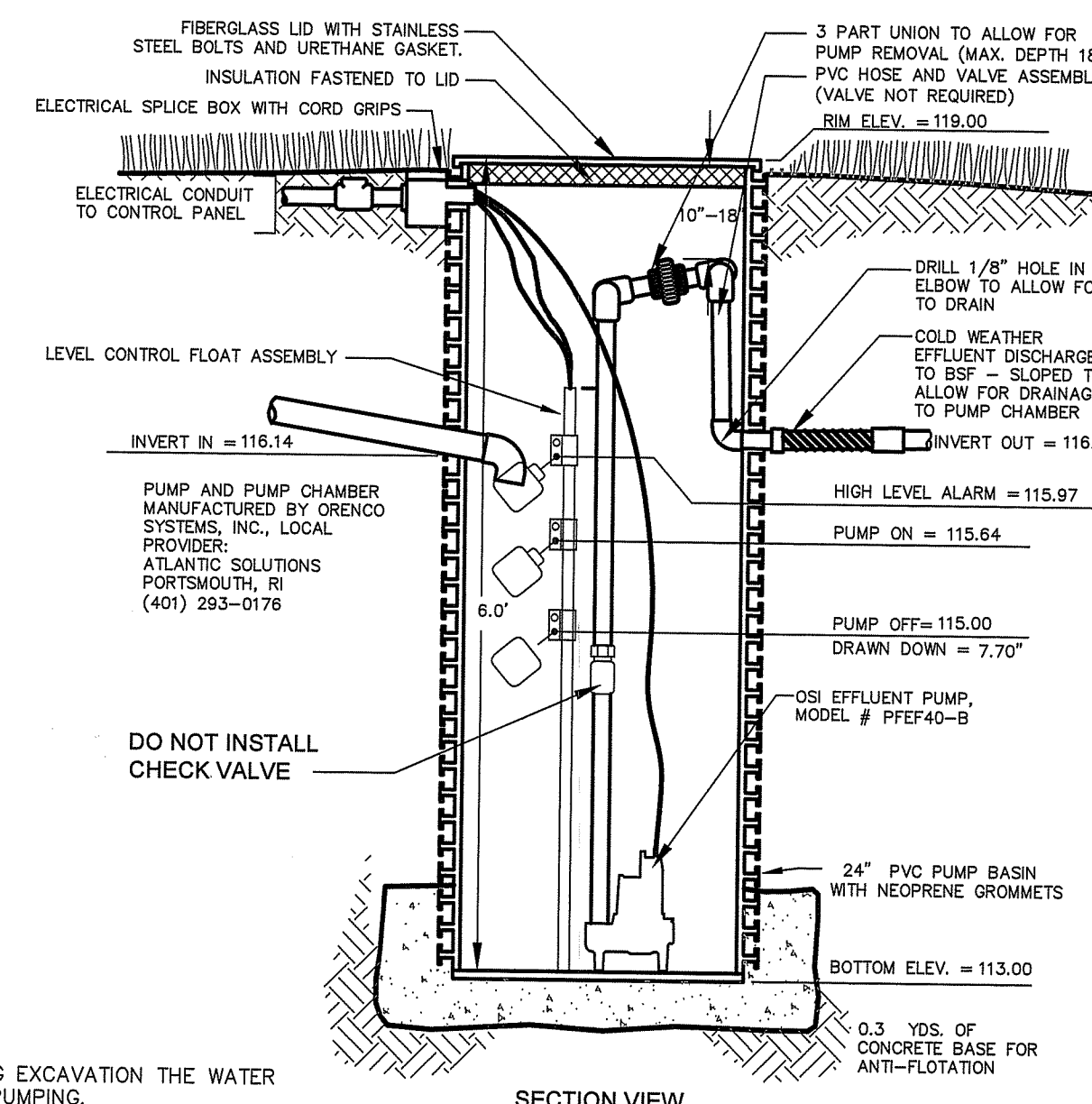
**SAND FILTER MEDIA**

BOTTOMLESS SAND FILTER MEDIA SHALL BE ASTM C33 SAND MEETING ALL OF THE FOLLOWING ADDITIONAL REQUIREMENTS:  
-EFFECTIVE SIZE: D<sub>10</sub> = 0.3MM  
-UNIFORMITY COEFFICIENT: 2.0 TO 4.0  
-MAXIMUM ALLOWABLE FINES: PASSING #200  
SIEVE SHALL BE 19#  
OR AS SPECIFIED ON FIGURE 14 OF THE MOST RECENTLY PUBLISHED R.I.D.E.M. GUIDELINES FOR THE DESIGN AND USE OF PRESSURIZED DRAINFIELDS.

**DEWATERING EXCAVATION:**

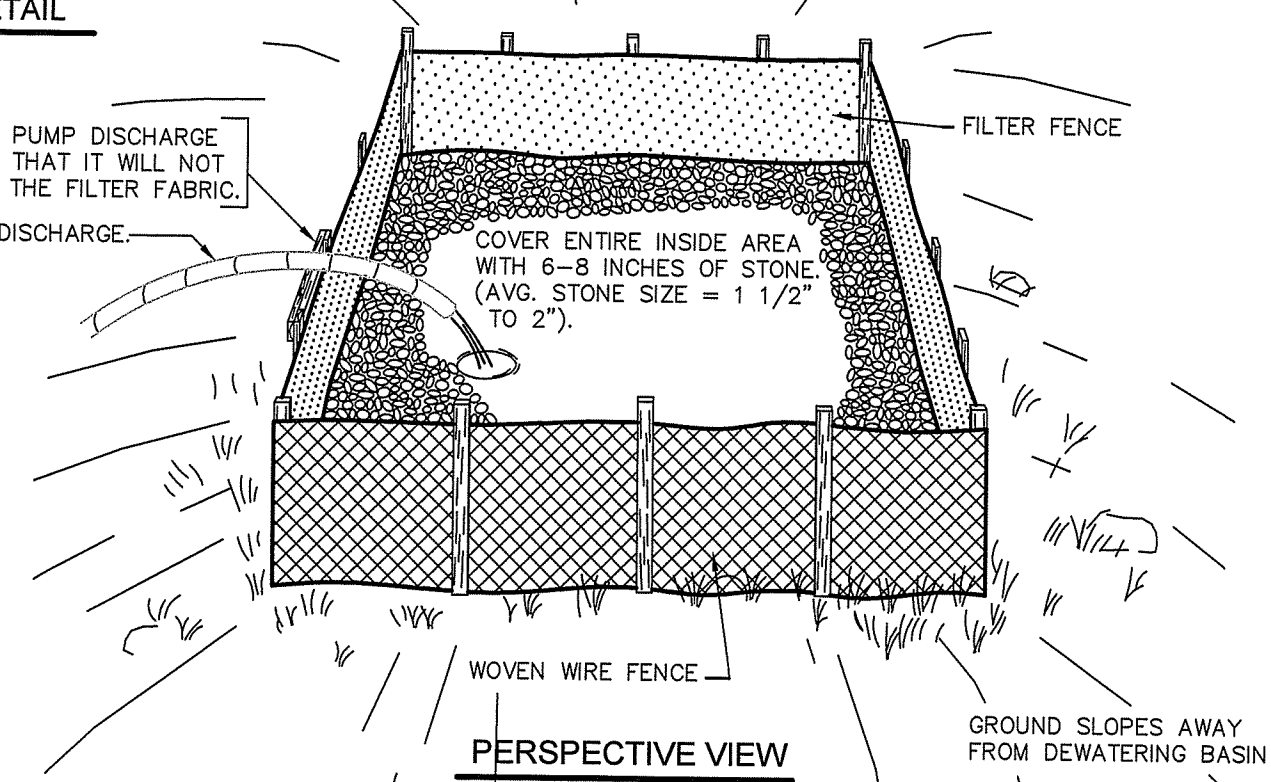
A HIGH WATER TABLE IS ANTICIPATED. IF THE WATER TABLE IS ENCOUNTERED DURING EXCAVATION THE WATER TABLE SHALL BE TEMPORARILY LOWERED BY PUMPING. THE CONTRACTOR SHALL INSTALL A DEWATERING BASIN AS SHOWN IN THE DEWATERING BASIN DETAIL.

THE PUMP DISCHARGE SHALL BE DIRECTED TO THIS BASIN TO PREVENT SEDIMENTATION FROM LEAVING THE CONSTRUCTION AREA. THE CONTRACTOR SHALL INSTALL ADDITIONAL BASINS IF REQUIRED. INSTALL THE BASIN(S) SHOWN ON THE SITE PLAN IF SO NOTED, OTHERWISE INSTALL THE BASIN(S) WITHIN THE LIMITS OF DISTURBANCE AS SHOWN BY THE SILT FENCE OR HAY BALES.



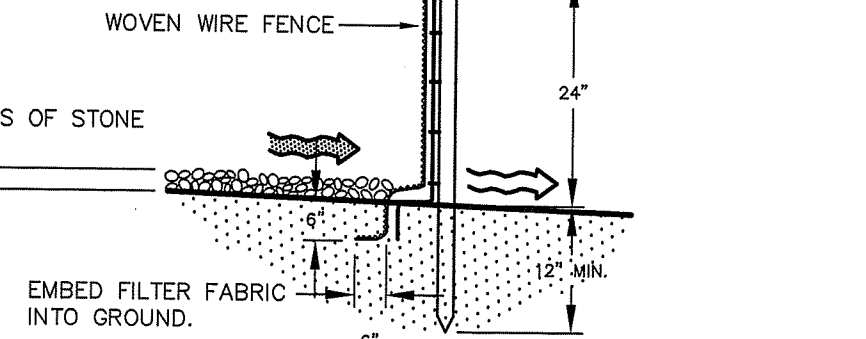
**EXTERNAL PUMP BASIN DETAIL**  
NO SCALE

**PERSPECTIVE VIEW**



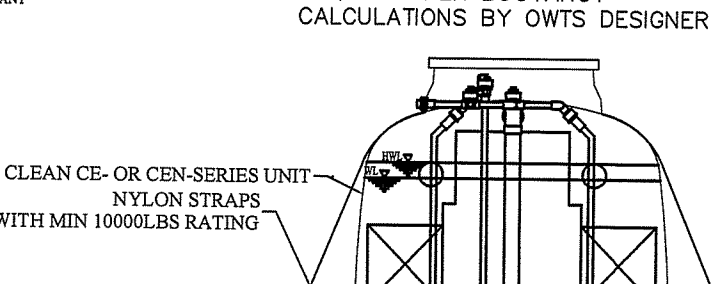
**PERSPECTIVE VIEW**

**CROSS-SECTION**



**CROSS-SECTION**  
SCALE: NONE

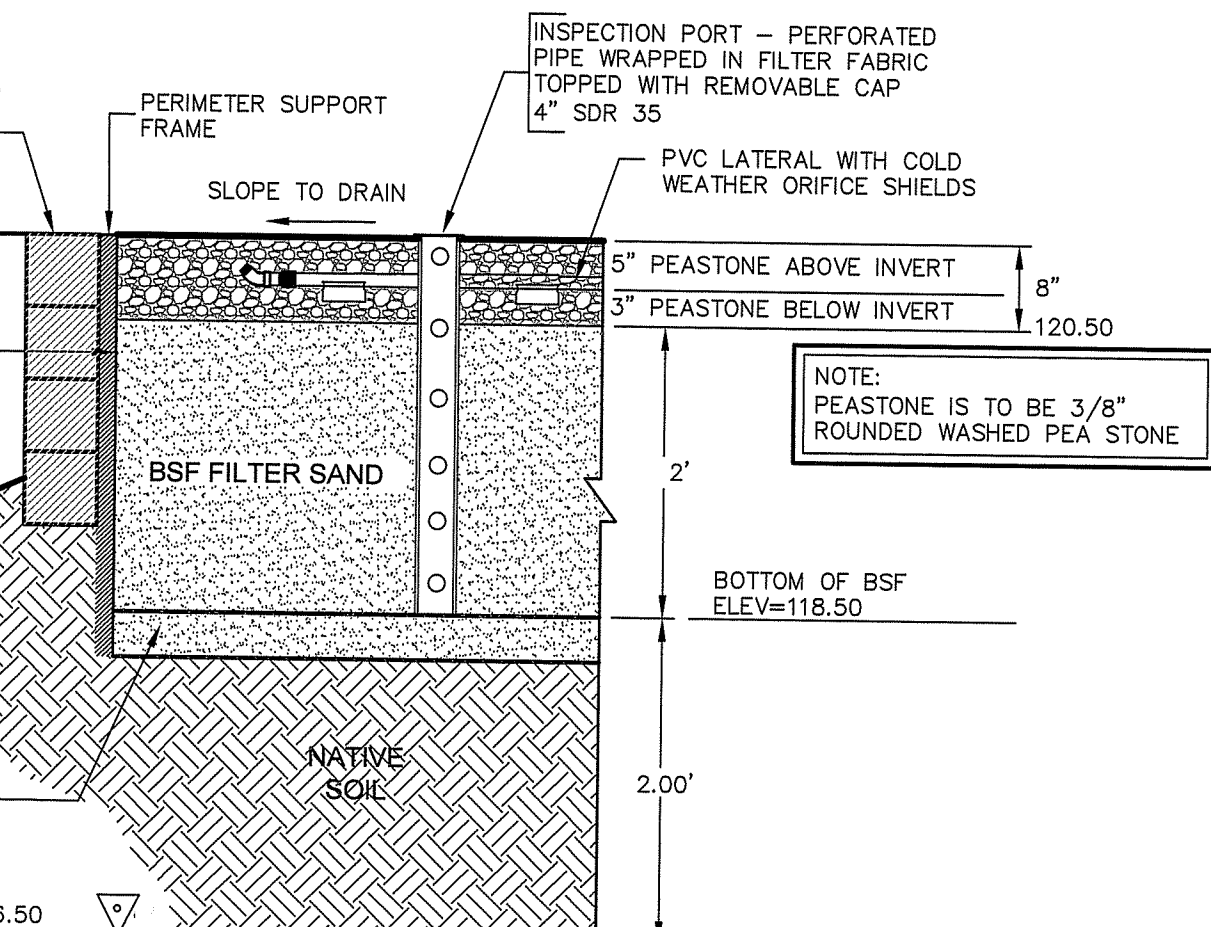
**TIE-DOWN DETAIL**



**TIE-DOWN DETAIL**  
NO SCALE

**TANK BUOYANCY:**

USE UPLIFT RESTRAINT CALCULATIONS FOR FUJICLEAN INSTALLATION MANUAL:  
2 EA DEADMAN WITH DIMENSIONS 8' X 18' X 8', PROVIDING 22,200 LBS NET RESTRAINT WITH A FACTOR OF SAFETY OF 3.01



**BOTTOMLESS SAND FILTER CROSS SECTION**  
NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
OWTS & FRESHWATER WETLANDS  
JOINT PERMIT APPROVAL  
OWTS# 2332-0048 PERMIT# 24-0056  
APPROVED: *[Signature]* DATE: 6/24/24  
No Changes Allowed Without RIDEM Approval  
Approved Plans/Permit Must Be Kept at Construction Site

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

**CJ DOYLE, P.E.**

CIVIL ENGINEERING  
MAILING ADDRESS:  
P.O. BOX 1161, HOPE VALLEY, RI 02832  
OFFICE LOCATION:  
1122 MAIN STREET, WYOMING, RI  
PHONE (401) 491-9530  
cjoyle@cox.net

NO.	DATE	REVISIONS	DESCRIPTION	BY
1	05/21/2024	REVISED PER RIDEM COMMENTS		CJD

**DETAILS FOR AN ONSITE WASTEWATER TREATMENT SYSTEM**

LOCATED ON:  
LOT 38 PLAT 13  
OWNED BY:  
KEITH R. HOLMANDER & KATHLEEN A. MCCORMICK  
ADDRESS:  
84C BARBER POND ROAD  
IN THE TOWN OF SOUTH KINGSTOWN, RI

DESIGNED BY:  
CAROLYN J. DOYLE, P.E.  
SCALE: AS SHOWN  
DRAWN BY:  
CJD  
CHECKED BY:  
CJD  
DRAWING NO.  
SHEET 2 OF 2

