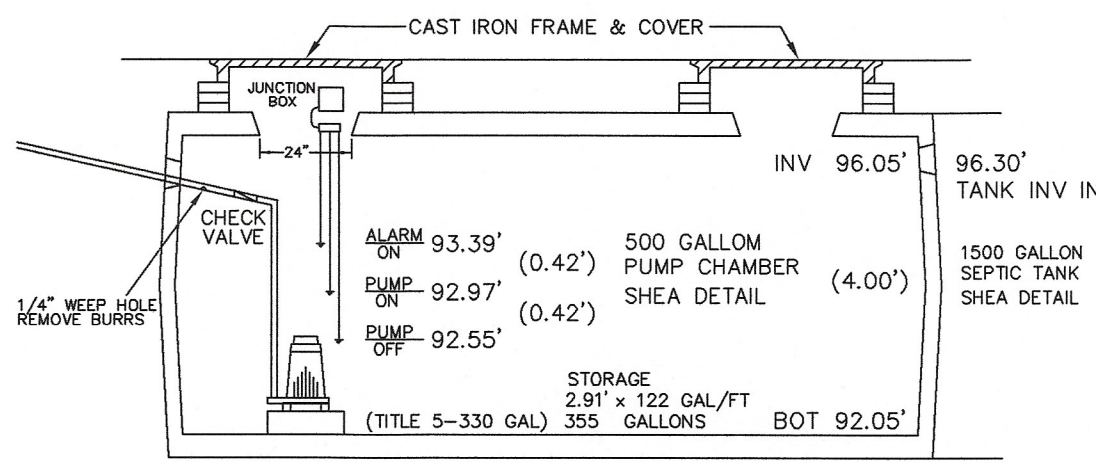




**PUMP CRITERIA: (STORAGE BUILDING)**

No. OF DOSES/DAY 150 GPD/4 = 38 GAL + BACKFLOW  
 BACKFLOW: 42' x (3.14159x(1/12)^2)x7.48 = 7 GAL  
 TOTAL DOSE = 38 + 7 = 52 GAL  
 VOLUME OF DOSE = 52 GAL/7.48 GAL/CU FT = 7 FT^3  
 DEPTH OF DOSE = 7 FT^3/1.45 FT^3/INCH DEPTH IN  
 750 GAL PUMP CHAMBER = 4.8 INCHES USE 5" PER CYCLE.  
**HEAD CALCULATIONS:**  
 STATIC HEAD = 5' RISE PUMP OFF TO DWELL INV IN  
 DYNAMIC HEAD (FRICTION LOSS)  
 EQ LENGTH 1-90' @ 3.1' CHECK VALVE 1.7'  
 GATE VALVE = 2.6' - 2.45' = 6' TOTAL = 13.4'  
 TOTAL D.H. = ( 42' + 13.4' ) x 5.4' / 100 @ 50 GPM = 3'  
 TOTAL HEAD = 5' + 3' = 8' FT



**2000 GALLON COMBO TANK(H-20)  
 (1500 GAL SEPTIC/500 GAL PUMP)**

USE STANDARD SEPTIC TANKS OF PUMP CHAMBERS  
 PUMP, PLUMBING & ELECTRICAL BY OTHERS

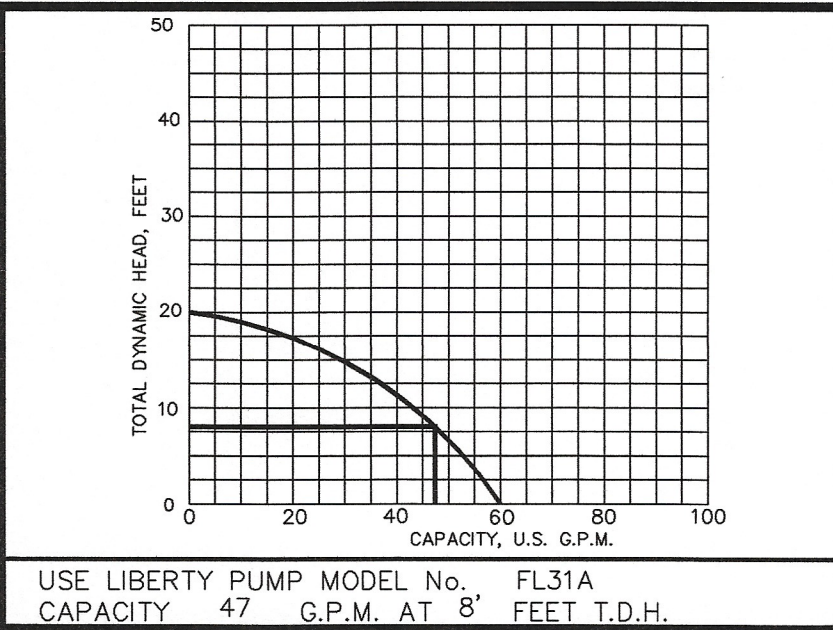
**PUMP CONTROLS:**

PUMP CONTROLS SHALL BE MOISTURE PROOF AND OPERATE IN THE SEQUENCE SHOWN. THE CONTROLS SHALL INCLUDE AN AUDIO/VISUAL ALARMS, ALARM SILENCING SWITCH, MAIN POWER HAND SHUTOFF. ALARM SYSTEM SHALL BE POWERED BY A CIRCUIT SEPARATE FROM PUMP POWER.

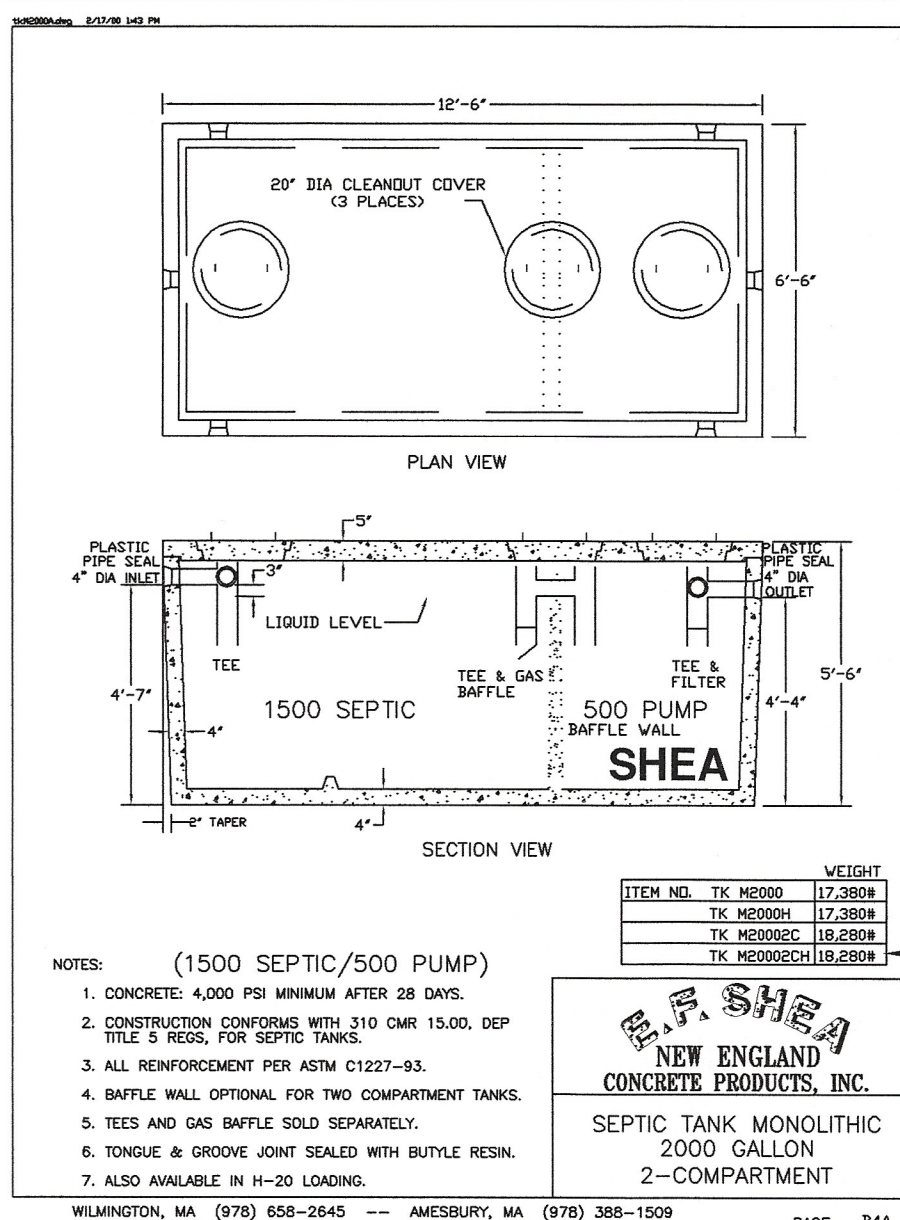
CONTROL BOX AND ELECTRICAL WIRING SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND IN FULL COMPLIANCE WITH ALL STATE AND LOCAL REGULATIONS.

UPON COMPLETION, THE INSTALLATION SHALL BE TESTED TO INSURE PROPER OPERATION.

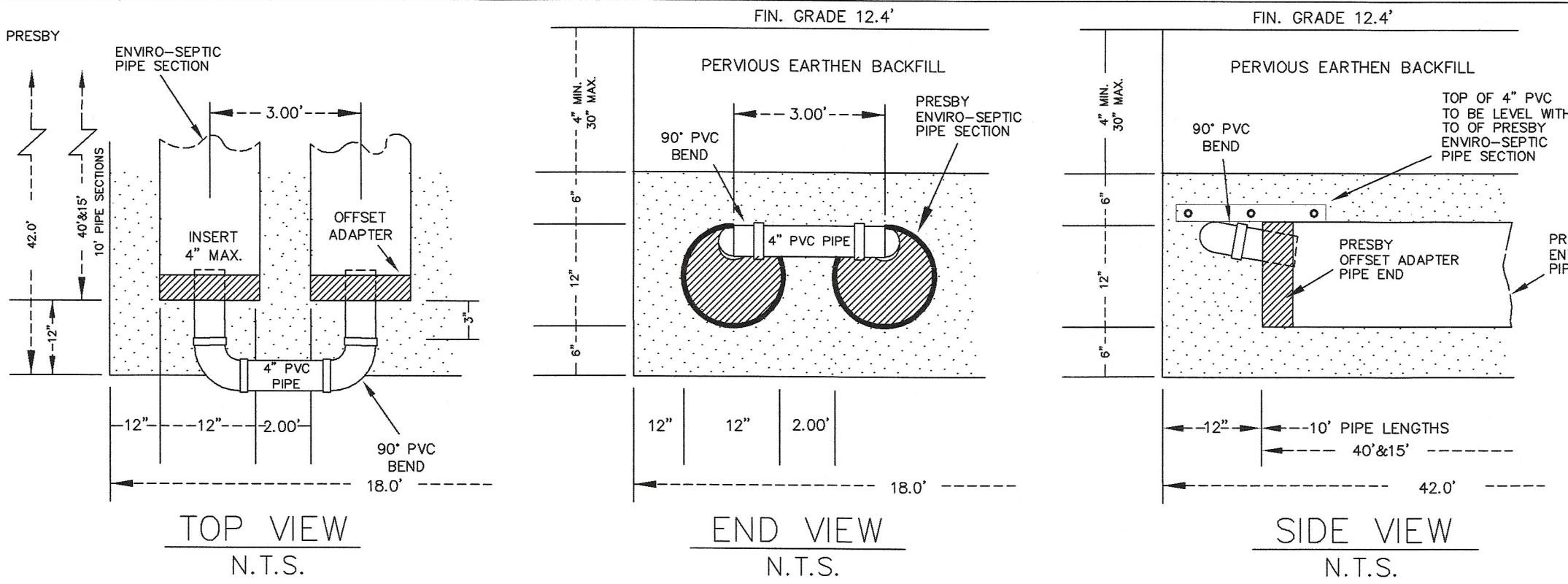
**PUMP RATING CURVE:**



USE LIBERTY PUMP MODEL No. FL31A  
 CAPACITY 47 G.P.M. AT 8' FEET T.D.H.

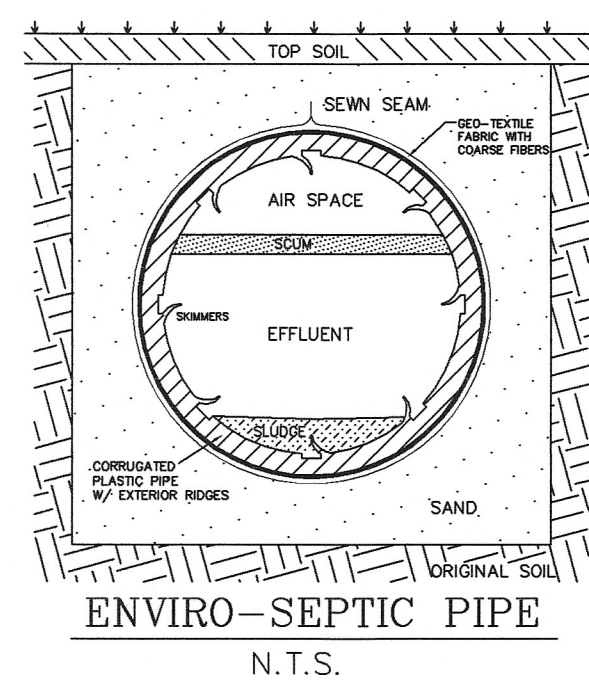
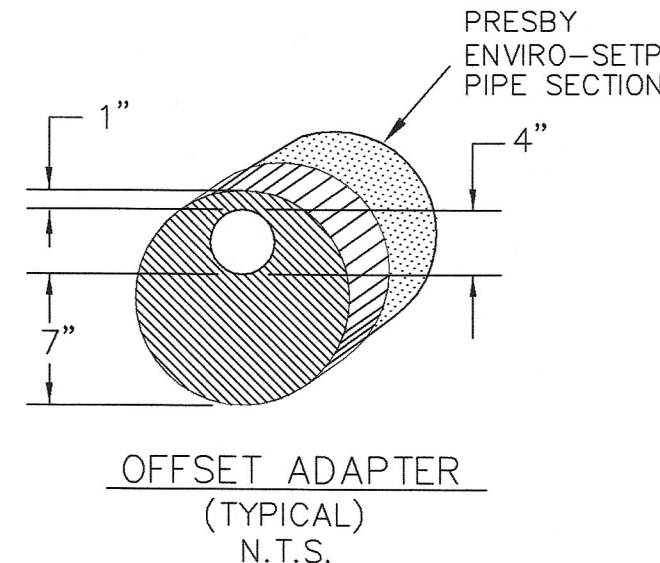
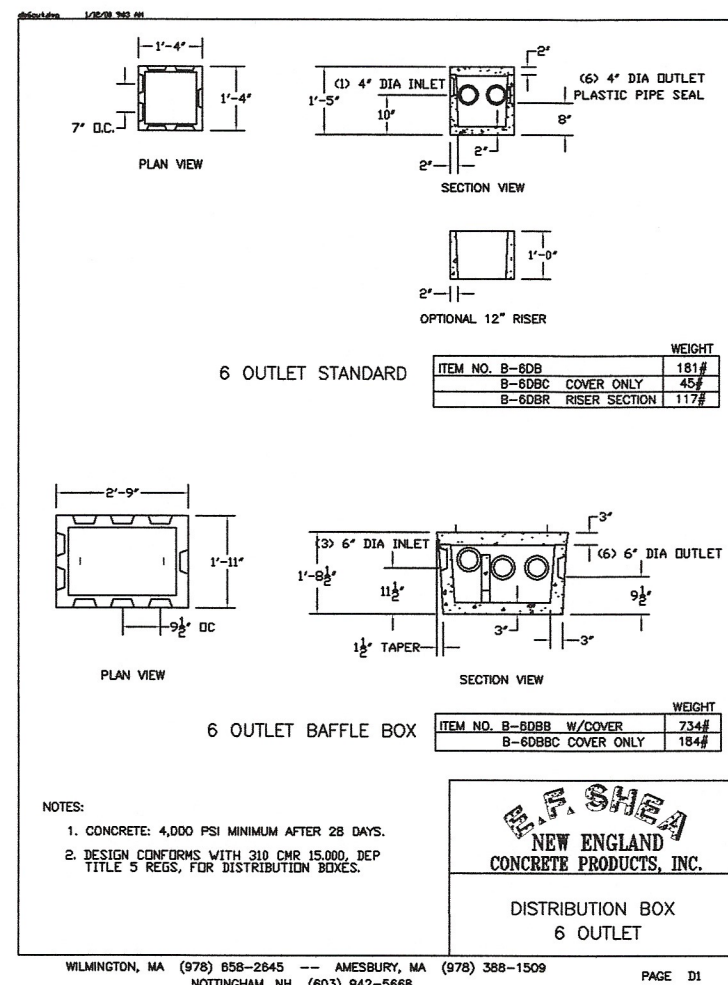


**E.P. SHEA**  
 NEW ENGLAND  
 CONCRETE PRODUCTS, INC.  
 SEPTIC TANK MONOLITHIC  
 2000 GALLON  
 2-COMPARTMENT



**DIMENSION TABLE:**

PIPE SEPARATION = 2.00'  
 LINE LENGTH = 40' & 15'  
 PIPE CENTER O.C. = 3.00'  
 BED WIDTH = 18.0'  
 BED LENGTH = 42.0'



**INVERT TABLE**

AT HSE	7.60'	PROP MIN.
TANK IN	7.30'	
PUMP OUT	7.05'	
D-BOX IN	11.32'	
D-BOX OUT	11.15'	
BEG 4"PIPE	10.98'	
END 4"PIPE	10.98'	
TOP 12" PIPE	11.40'	
12"PIPE INV	10.40'	
BOTTOM BED	9.90'	
GROUNDWATER	7.9'	

**PERCOLATION TESTS**

SOIL ANALYSIS CONDUCTED BY PENN STATE EXTENSION SOIL LABORATORY

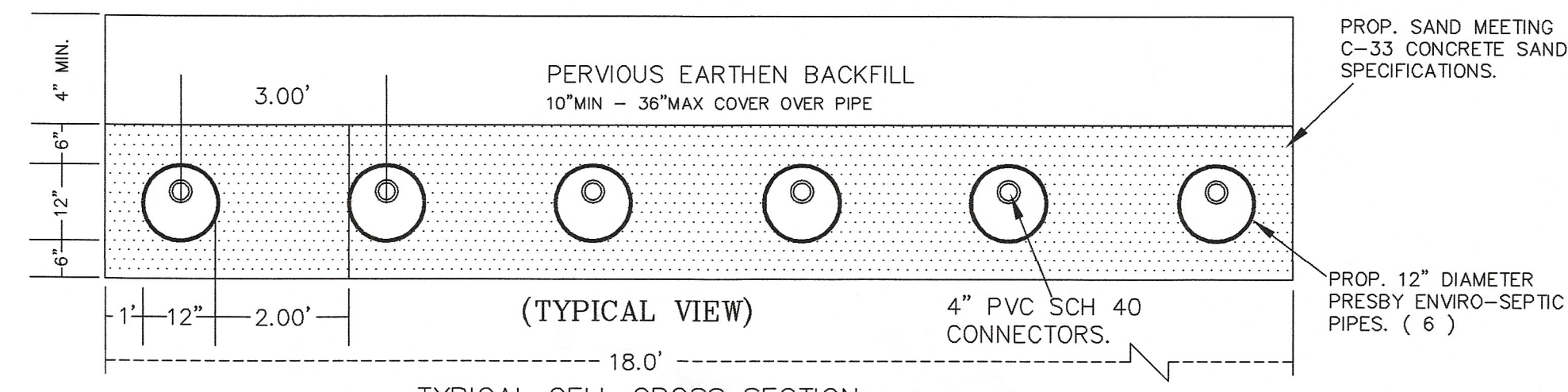
DEEP HOLE#1	13.3% SAND, 64.2% SILT, 22.6% CLAY (CL III - SILT LOAM)
DEEP HOLE#2	12.7% SAND, 65.2% SILT, 22.1% CLAY (CL III - SILT LOAM)

**DESIGN CRITERIA** ( 60 MIN/INCH )  
 USE 0.15 GAL/S.F. - CL III ( SILT LOAM )  
 NUMBER OF BEDROOMS: 1 DESIGN FLOW: 150 GAL/BEDROOM  
 TOTAL No. ROOMS: 3  
 TOTAL DAILY FLOW: 150 GPD. LEACHING AREA: 1000 S.F.

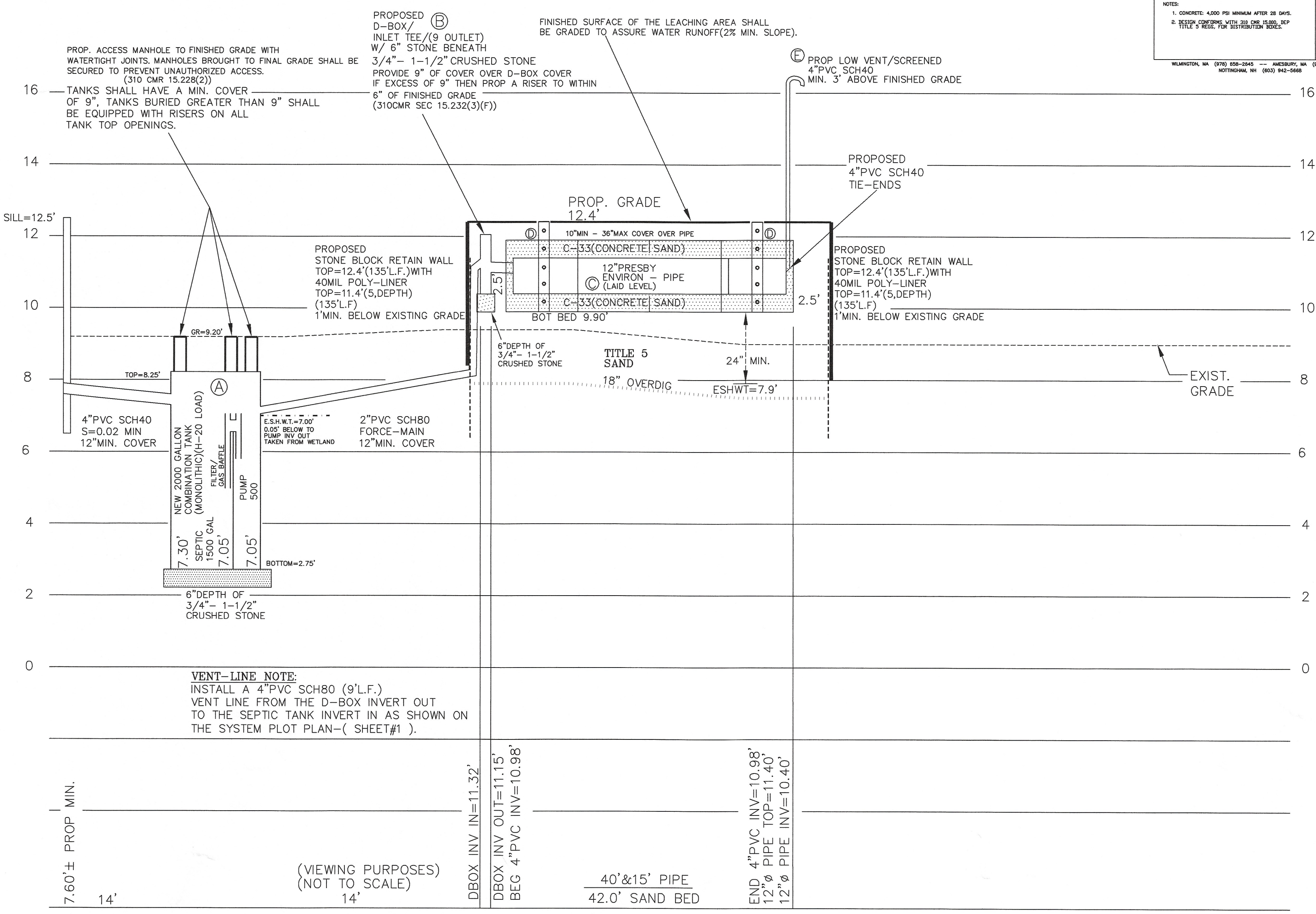
NO GARBAGE GRINDER TO BE USED.  
 ACTUAL LEACHING AREA PROVIDED: 606 S.F.  
 CALCULATED DAILY FLOW: SAND BED SIZE: 42'x12' + 17'x6' = 606 S.F.  
 190'L.F. x 1.36 GAL/L.F. AT 60 MPI = 258 GPD >= 150 GPD REQ'D.  
 (4 LINES - 40.0'L & 2 LINES - 30.0'L - 3.00' O.C.) + 1' SAND AROUND  
**PRESBY ENVIRO-SEPTIC REQUIREMENTS:**  
 MIN. LENGTH OF PIPE = 110' L.F.  
 MIN. SIZE OF SAND BED: 600 S.F.  
 MIN. PIPE O.C. SPACING: 3.00'

**NOTES:**  
 REMOVE ALL UNSUITABLE SOIL MATERIAL FOR A MINIMUM OF 5' ALL AROUND LEACH AREA AND ( 18" ) BELOW EXISTING GRADE, AND REPLACE WITH CLEAN FILL MEETING TITLE 5, 310 CMR 15.255(3).  
 INSTALL FLOW LEVELERS AT DISTRIBUTION BOX OUTLETS. (GRAVITY ONLY)  
 DIMENSIONS, DETAILS, AND SHAPE OF SEPTIC TANK AND DISTRIBUTION BOX WILL VARY SLIGHTLY WITH MANUFACTURER.  
 ALL UNITS SHALL CONFORM WITH THE REGULATIONS OF TITLE 5 OF THE MASSACHUSETTS ENVIRONMENTAL CODE, AND WITH ALL APPLICABLE LOCAL BOARD OF HEALTH REQUIREMENTS.  
 PRESBY ENVIRO-SEPTIC SYSTEM CANNOT BE USED WITH A PRESSURE DISTRIBUTION SYSTEM.

THIS SYSTEM REQUIRES 1 CELLS OF ENVIRO-SEPTIC PIPES, EACH CELL HAS 6 DIST. LINES 40' & 15' IN LENGTH.



**TYPICAL CELL CROSS SECTION**  
 (NOT TO SCALE)  
 ( 1 CELLS 6 LINE(S) 40.0 & 15.0' LENGTH, 190.0' TOTAL )



**SYSTEM PROFILE**

SCALE: VER. 1" = 2'  
 HOR. 1" = 10'

REMOVE ALL UNSUITABLE MATERIAL, AND SOIL LAYER A, BW & C(PORTIONS) WHICH ARE WITHIN LIMITS OF PROPOSED SOIL ABSORPTION SYSTEM AREA (AND 5' BEYOND). REPLACE WITH CLEAN FILL MEETING TITLE 5, 310 CMR 15.255(3).

NOTE: SET TANK INVERTS TO MEET EXIST. BUILDING SEWER.

NOTE: ALL OTHER GREYWATER PIPES SERVICING WASHERS, SINKS, ETC SHALL BE CONNECTED TO THE SEPTIC TANK.

I HEREBY CERTIFY THAT IN OCTOBER 1997, I HAVE PASSED THE EXAMINATION APPROVED BY THE D.E.P. AND THAT THE ABOVE ANALYSIS WAS PERFORMED BY ME CONSISTENT WITH THE REQUIRED TRAINING, EXPERTISE AND EXPERIENCE DESCRIBED IN CMR 15.017.

ROBERT M. GRASSO, P.L.S., SE#933 DATE 1-22-04

USDA - S.C.S. SOIL TYPES  
 THE ENTIRE SITE IS MAPPED AS:  
 BeB - BELGRADE

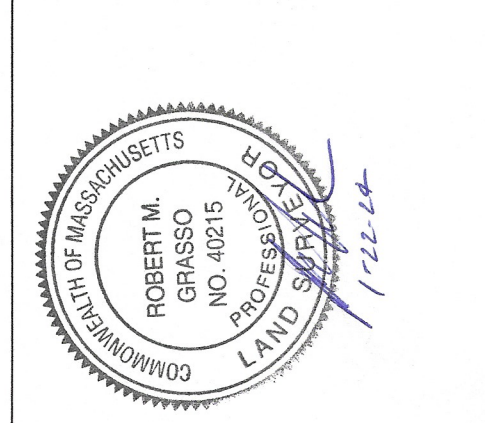
**SOIL LOG**  
 HEALTH AGENT EDWARD GALLAGHER  
 SOIL EVALUATOR ROBERT GRASSO  
 DATE: 06-30-2016

TEST PIT # 01	TEST PIT # 02
ELEV = 9.4'	ELEV = 9.0'
A - F.S.L. 10YR 3/2	A - F.S.L. 10YR 3/2
8"	8"
BW - F.S.L. 10YR 4/6	BW - F.S.L. 10YR 4/6
17"	16"
C - SILLOAM 2.5Y 5/3 (FRM)	C - SILLOAM 2.5Y 5/3 (FRM)
109"	112"

**WATER TABLE**  
 NONE OBSERVED  
 19" ESTIMATED 7.9'

REVISIONS:

DRAWN: RMG  
 CHECKED: SWB  
 SCALE: AS NOTED  
 DATE: 01-22-2024  
 DWG No. 01-22-2024



DATE 1/22/2024

**OWNER:** 17 VESTRY STREET, LLC  
 TAX MAP 33 LOT 16  
 LOCUS DEED: BK 41873 PG 459

**LOCATION:** 45 STACKYARD ROAD  
 ROWLEY, MA 01969

**Engineering Land Services, LLC**  
 P.O. BOX 41  
 WEST NEWBURY, MA 01985  
 TEL: (978) 815-6744  
 EMAIL: MASSPLSRG@AOL.COM

**SANITARY DISPOSAL SYSTEM UPGRADE PLAN (REPAIR)**