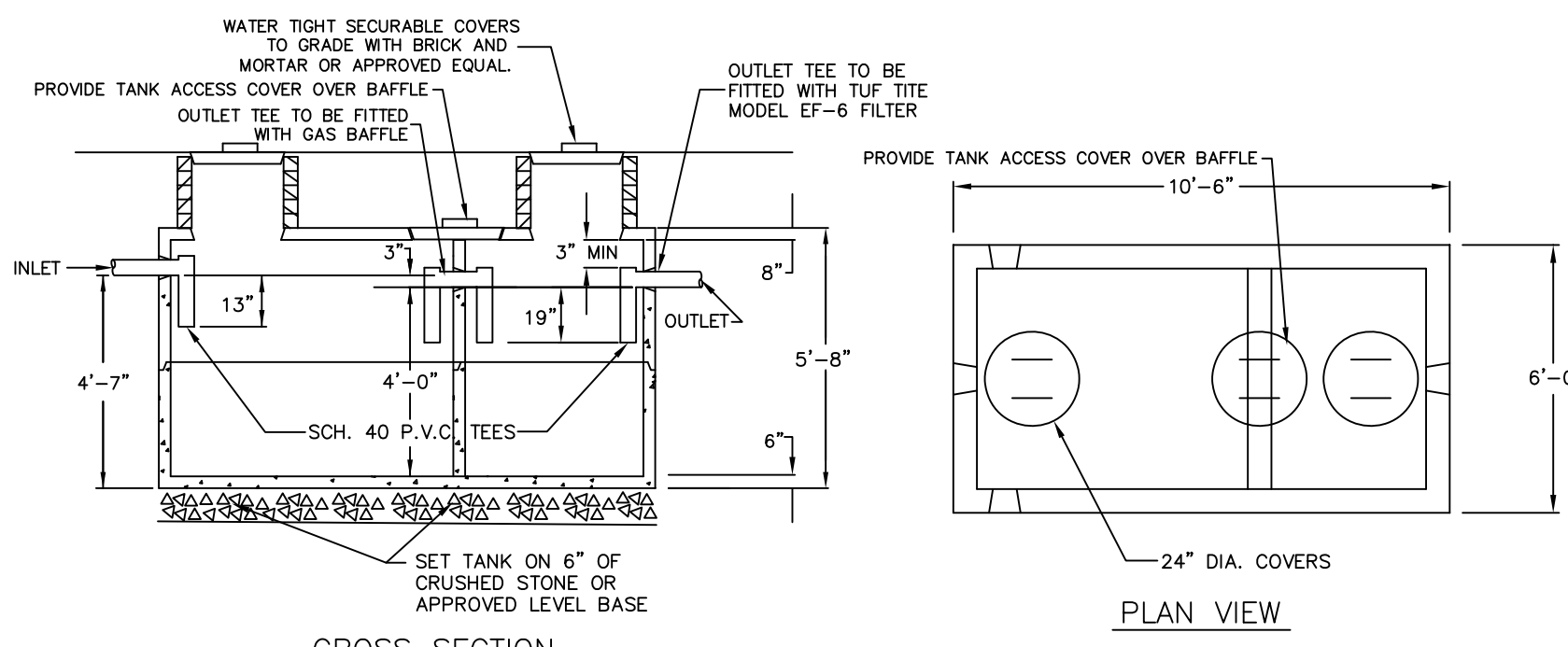


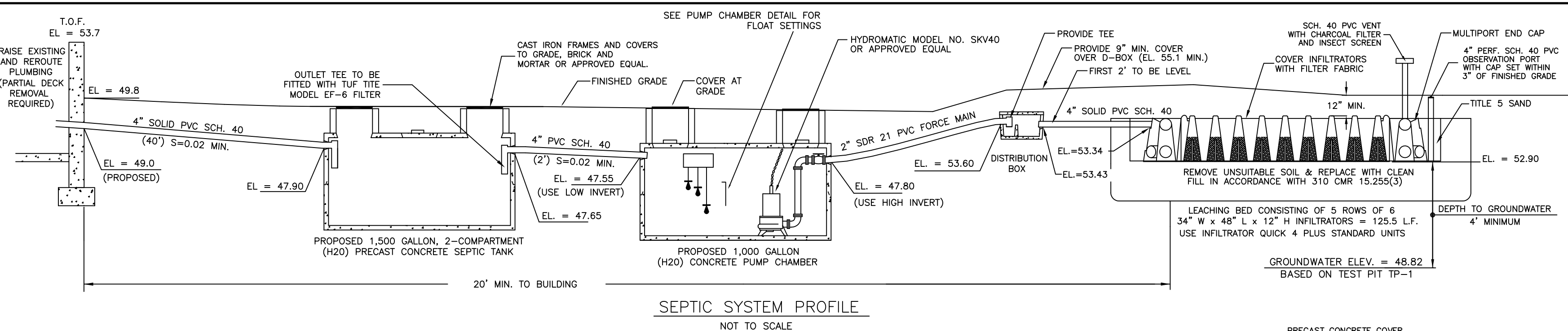
LOCUS PLAN



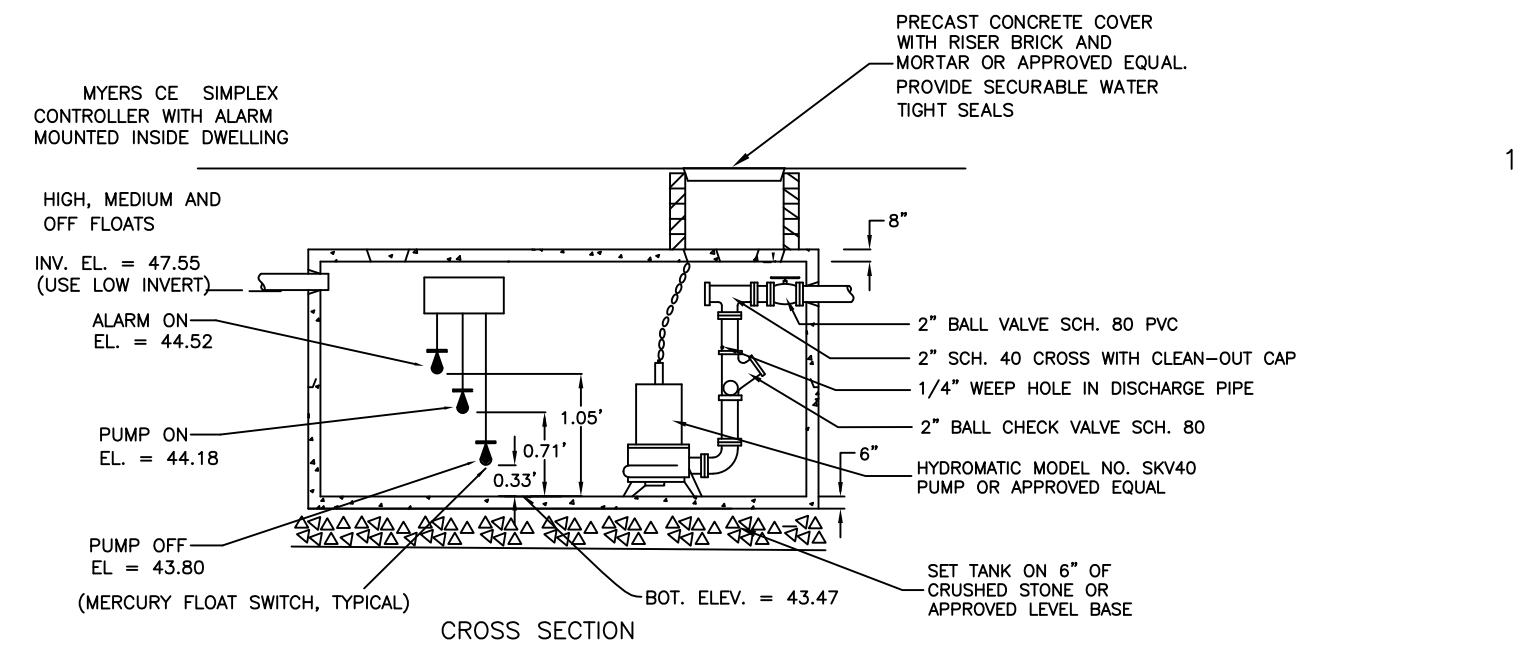
1,500 GALLON 2-COMPARTMENT (H2O) PRECAST SEPTIC TANK
NOT TO SCALE

BUOYANCY CALCULATIONS 1,500 GALLON TANK:
 DOWNWARD FORCE:
 WEIGHT OF EMPTY 1,500 GAL. TANK = 12,930 LBS.
 WEIGHT OF SOIL ABOVE TANK:
 107 CF OF SOIL X 110 LB/CF OF SOIL = 11,770 LBS.
 DOWNWARD FORCE = 12,930 + 11,770 = 24,700 LBS.
 BUOYANT FORCE: (ASSUMES TANK FULLY SUBMERGED IN WATER)
 VOLUME OF DISPLACED WATER = 357 CF
 BUOYANT FORCE = 357 CF X 62.4 LB/CF = 22,277 LB
 24,700 LB > 22,277 LB (DOWNWARD FORCE > BUOYANT FORCE)

BUOYANCY CALCULATIONS 1,000 GALLON TANK:
 DOWNWARD FORCE:
 WEIGHT OF EMPTY 1,000 GAL. TANK = 8,800 LBS.
 WEIGHT OF SOIL ABOVE TANK:
 72.25 CF OF SOIL X 110 LB/CF OF SOIL = 7,947.5 LBS.
 DOWNWARD FORCE = 8,800 + 7,947.5 = 16,747.5 LBS.
 BUOYANT FORCE: (ASSUMES TANK FULLY SUBMERGED IN WATER)
 VOLUME OF DISPLACED WATER = 255 CF
 BUOYANT FORCE = 255 CF X 62.4 LB/CF = 15,912 LB
 16,747.5 LB > 15,912 LB (DOWNWARD FORCE > BUOYANT FORCE)



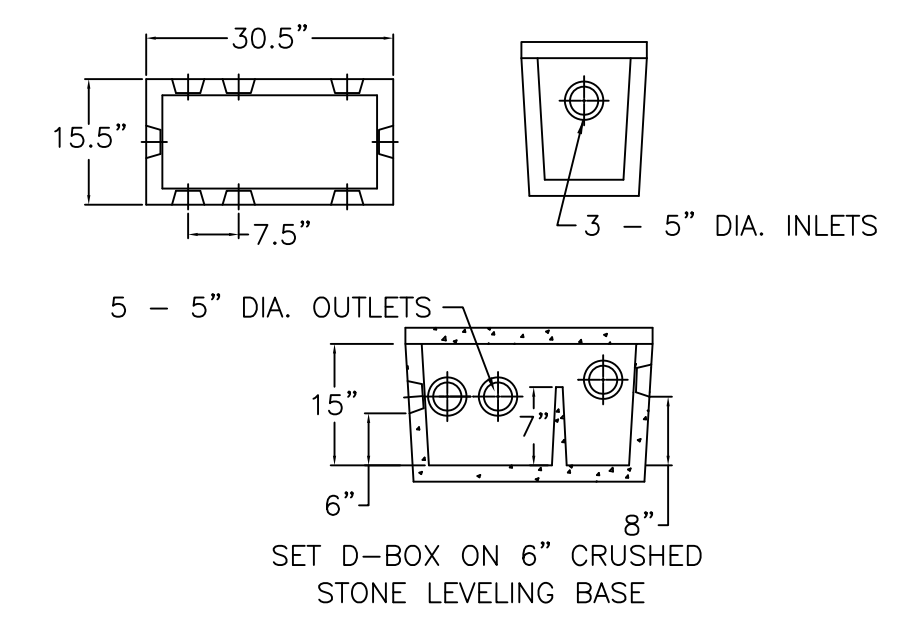
SEPTIC SYSTEM PROFILE
NOT TO SCALE



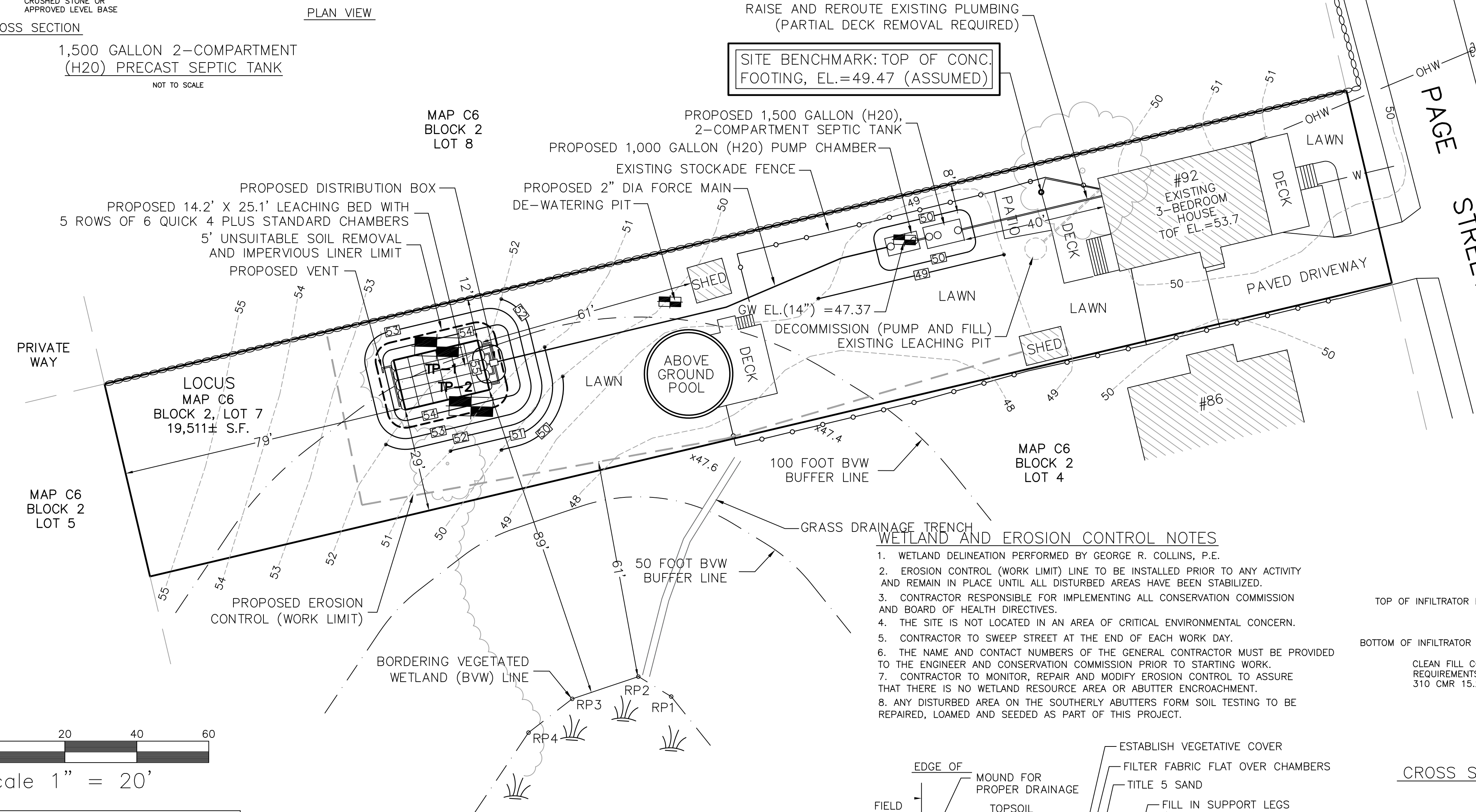
1,000 GALLON PRECAST (H2O) PUMP CHAMBER
MONOLITHIC / SEALCOATED
NOT TO SCALE

ELEVATION SCHEDULE:

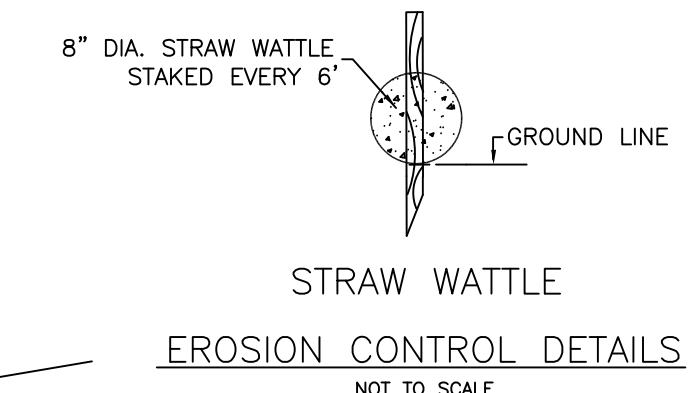
DESCRIPTION	ELEVATION
4" INV. AT BUILDING (PROPOSED)	49.0
4" INV. AT SEPTIC TANK (IN)	47.90
4" INV. AT SEPTIC TANK (OUT)	47.65
4" INV. AT PUMP CHAMBER (IN)	47.55
2" INV. AT PUMP CHAMBER (OUT)	47.80
2" INV. AT DIST. BOX (IN)	53.60
4" INV. AT DIST. BOX (OUT)	53.43
4" INV. AT BEGINNING OF SAS	53.34
ELEVATION AT BOTTOM OF SAS	52.90
GROUNDWATER ELEVATION	48.82



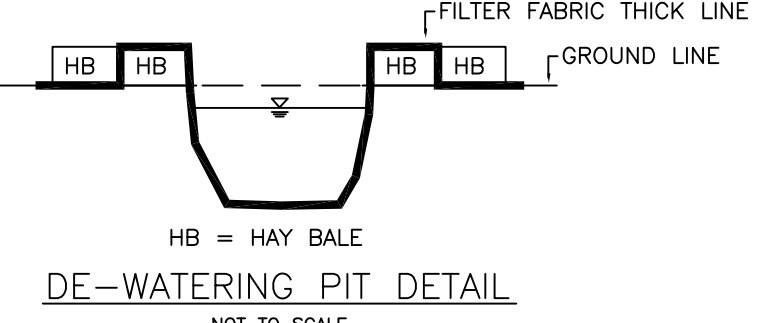
DISTRIBUTION BOX
NOT TO SCALE



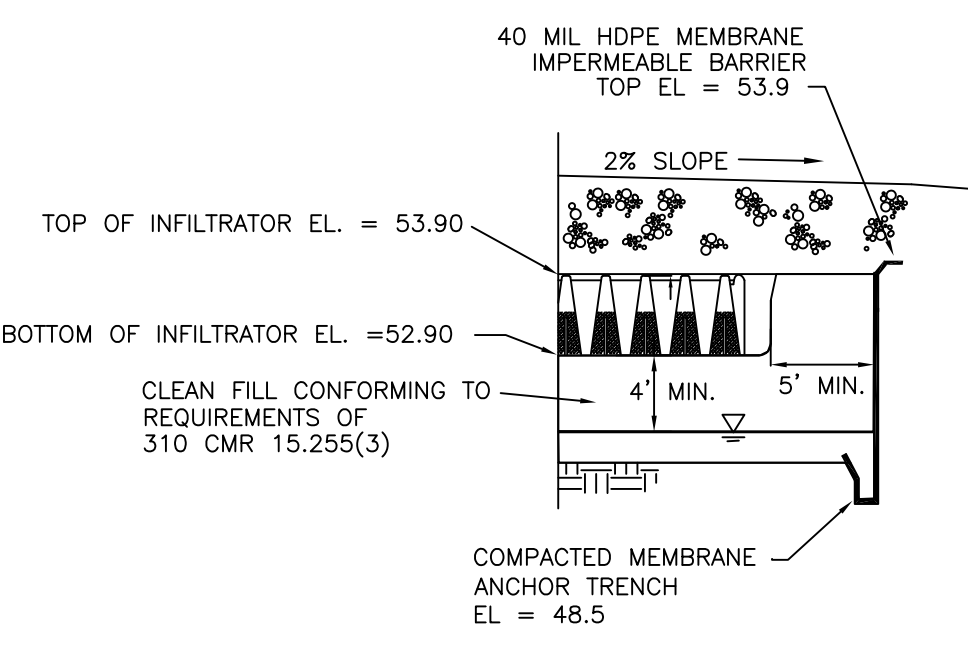
RAISE AND REROUTE EXISTING PLUMBING (PARTIAL DECK REMOVAL REQUIRED)
 SITE BENCHMARK: TOP OF CONC. FOOTING, EL.=49.47 (ASSUMED)



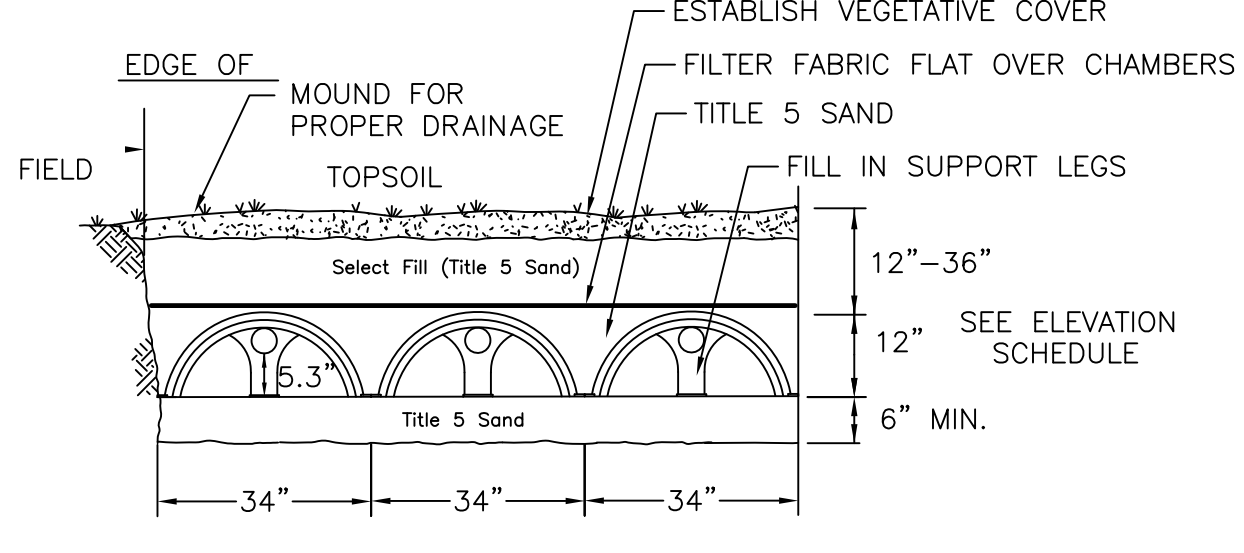
EROSION CONTROL DETAILS
NOT TO SCALE



DE-WATERING PIT DETAIL
NOT TO SCALE



CROSS SECTION IMPERMEABLE BARRIER
NOT TO SCALE



QUICK 4 PLUS STANDARD™ CONFIGURATION
NOT TO SCALE

- NOTES:**
- THE CONTRACTOR SHALL NOTIFY THE LOCAL BOARD OF HEALTH AND COLLINS ENGINEERING GROUP AT LEAST 48 HOURS PRIOR TO REQUIRED INSPECTIONS.
 - SITE BENCHMARK IS THE TOP OF THE CONCRETE DECK FOOTING AS INDICATED ON THIS PLAN, EL. = 49.47 (ASSUMED DATUM).
 - HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO OPERATE OVER THE LIMITS OF THE SEWAGE DISPOSAL FIELD DURING THE COURSE OF CONSTRUCTION OF THE SYSTEM.
 - NO FIELD MODIFICATIONS TO THE SEWAGE SYSTEM SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER AND THE LOCAL BOARD OF HEALTH.
 - UNLESS OTHERWISE NOTED ALL SYSTEM COMPONENTS SHALL BE INSTALLED IN ACCORDANCE WITH TITLE V OF THE STATE ENVIRONMENTAL CODE DATED JANUARY 2014 AND ANY APPLICABLE LOCAL RULES.
 - DISTRIBUTION BOX SHALL BE MANUFACTURED BY J&R PRECAST, INC. OR APPROVED EQUAL.
 - GROUT TO BE USED AT ALL POINTS WHERE PIPES ENTER OR LEAVE ALL CONCRETE STRUCTURES IN ORDER TO PROVIDE A WATER TIGHT SEAL.
 - THE FIRST TWO FEET OF EACH LINE EXITING THE DISTRIBUTION BOX SHALL BE LEVEL.
 - THIS SYSTEM IS NOT DESIGNED TO ACCOMMODATE A GARBAGE GRINDER OR WATER FILTRATION SYSTEM BACKWASH.
 - SYSTEM COMPONENTS TO WITHSTAND H-10 LOADING CRITERIA.
 - PROPERTY LINE SHOWN IS APPROXIMATE ONLY AND IS NOT A RESULT OF A PROPERTY LINE OR VERTICAL SURVEY.
 - THE CONTRACTOR SHALL DECOMMISSION (PUMP & FILL OR REMOVE) THE EXISTING SEPTIC SYSTEM IN ACCORDANCE WITH 310 CMR 15.354.
 - AS SHOWN, THERE ARE NO KNOWN WELLS WITHIN 100 FEET OF THE PROPOSED LEACH FIELD.
 - RESTORE (LOAM & SEED) ALL AREAS DISTURBED DURING CONSTRUCTION.
 - AN AUDIBLE AND VISUAL ALARM SHALL BE PROVIDED. PUMP TO BE ON SEPARATE CIRCUIT FROM ALARM.
 - PUMP AND APPURTENANCES TO BE INSTALLED AND LOCATED ACCORDING TO MANUFACTURERS INSTRUCTIONS AND LOCAL BUILDING AND WIRING CODES.
 - PUMP SHALL CONSIST OF HYDROMATIC MODEL SKV40 SUBMERSIBLE PUMP (OR APPROVED EQUAL). PUMP SHALL BE RATED AT 4/10 HP AND SHALL HAVE A 2" DISCHARGE. THE PUMP SHALL OPERATE FROM A 115 VOLT, 12.6 AMP, SINGLE PHASE, 60 HERTZ POWER SUPPLY.
 - CONTRACTOR TO ENSURE LIQUID IN DISCHARGE PIPE FLOWS BACK TO PUMP CHAMBER AFTER PUMP CYCLE.
 - PUMP CONTROL PANEL SHALL CONSIST OF MYERS CE SIMPLEX ELECTRICAL CONTROL PANEL (OR APPROVED EQUAL). PUMP CONTROL PANEL TO BE LOCATED INSIDE EXISTING DWELLING.
 - CONTRACTOR WILL BE RESPONSIBLE FOR CONTACTING CITY OF SALEM (888-DIGSAFE) AND ANY OTHER APPLICABLE UTILITY COMPANIES PRIOR TO STARTING WORK.
 - CONTRACTOR WILL BE RESPONSIBLE FOR COMBINING LAUNDRY FLOW WITH SYSTEM.
 - CONTRACTOR RESPONSIBLE FOR IMPLEMENTING ALL O.S.H.A. PROCEDURES TO INCLUDE BUT NOT LIMITED TO CONFINED SPACE ENTRY PROCEDURES.
 - CONTRACTOR RESPONSIBLE FOR CONFIRMING LOCATION OF EXISTING LEACHING FACILITY AND DECOMMISSION AS REQUIRED.
 - CONTRACTOR TO CONFIRM EXISTING PLUMBING, SILL AND BENCHMARK ELEVATIONS PRIOR TO CONSTRUCTION.
 - MAGNETIC LOCATOR TAPE TO BE PLACED ON ALL SEPTIC SYSTEM COMPONENTS.
 - THE EXISTING POOL AND DECK ARE TO BE REMOVED FOR SITE ACCESS AS PART OF THIS PROJECT.

DESIGN DATA:

DESIGN FLOW:
 3 BEDROOMS x 110 GPD/BEDROOM = 330 GPD

SEPTIC TANK:
 330 GPD x 2.0 = 660 GALLONS
 USE NEW 1,500 GALLON, 2-COMPARTMENT SEPTIC TANK

SOIL ABSORPTION SYSTEM:
 PERCOLATION RATE = <2 MIN./INCH (CLASS I SOIL)
 DESIGN LOADING RATE = 0.74 GPD/SF
 LEACHING AREA REQ'D = (330 GPD) / 0.74 GPD/SF = 446 SF

USE 14.2' X 25.1' LEACHING BED WITH 5 ROWS OF 6 INFILTRATOR QUICK4 PLUS STANDARD LEACHING CHAMBERS WITH END CAPS = 125.5 L.F.
 EACH ROW (6) 4' UNITS PLUS 1.1' END CAP CREDIT = 24.0' + 1.1' = 25.1' PER ROW X 5 ROWS = 125.5 L.F.

QUICK 4 CHAMBER LEACHING AREA = 4.73 S.F./L.F.
 LEACHING AREA REQUIRED:
 125.5 L.F. X 4.73 S.F./L.F. = 593 SF > 446 SF REQUIRED
 DAILY FLOW CAPACITY:
 593 SF X 0.74 GPD/SF = 439 GPD > 330 GPD REQ'D

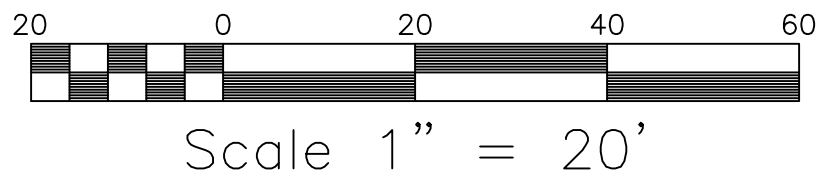
SOIL DATA:

DATE: APRIL 1, 2021
 PERFORMED BY: GEORGE R. COLLINS, P.E.
 WITNESSED BY: KATHLEEN WALDRON, AVON BOH

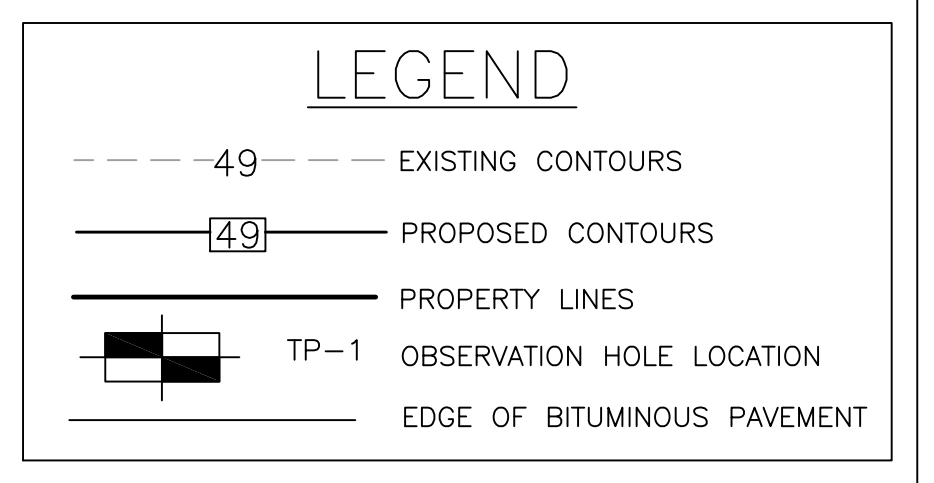
SOIL HORIZ.	SOIL COLOR	TP-1 DEPTH	ELEV.	SOIL HORIZ.	SOIL COLOR	TP-2 DEPTH	ELEV.
FILL/A		0	52.15	FILL/A		0	51.20
Bw 10YR 5/6	SANDY LOAM	10"		Bw 10YR 5/6	SANDY LOAM	8"	
		22"				18"	
40" BOTTOM OF PERC HOLE		40"	48.82			34"	48.37
C 2.5Y 6/3	M-C SAND (COBBLES)			C 2.5Y 6/3	M-C SAND (COBBLES)		
		88"	44.82			80"	44.53

ESTIMATED SEASONAL HIGH GROUNDWATER ELEV. = 48.82
 DESIGN PERC RATE = 1" IN <2 MIN.

NOTE: LAYERS FILL/A, B, AND C TO BE REMOVED TO A DEPTH OF 24" INCHES BELOW GRADE AND REPLACED WITH CLEAN FILL IN ACCORDANCE WITH 310 CMR 15.255(3). UNSUITABLE SOIL TO BE REMOVED TO A DISTANCE OF 5'-0" BEYOND THE LIMITS OF THE SOIL ABSORPTION SYSTEM.



Scale 1" = 20'



LOCAL UPGRADE APPROVAL REQUESTS:

- VARIANCE FROM SECTION 310 CMR 15.212 OF THE STATE SANITARY CODE WHICH REQUIRES A MINIMUM VERTICAL SEPARATION FROM THE SOIL UNDERLYING THE SOIL ABSORPTION SYSTEM ABOVE THE HIGH GROUND-WATER ELEVATION SHALL BE FIVE (5) FEET WITH A RECORDED PERC RATE OF LESS THAN TWO MINUTES PER INCH. A VARIANCE THAT WOULD ALLOW A VERTICAL SEPARATION REDUCTION FROM THE REQUIRED FIVE (5) FEET TO FOUR (4) FEET IS REQUESTED.
- LOCAL UPGRADE APPROVAL FROM SECTION 310 CMR 15.227 OF THE STATE SANITARY CODE WHICH REQUIRES A 12" VERTICAL SEPARATION BETWEEN THE HIGH GROUNDWATER ELEVATION AND THE LOWEST TANK INVERT. A VARIANCE ALLOWING A REDUCTION OF THE REQUIRED 12 INCHES TO 2 INCHES IS REQUESTED.

PLAN TO ACCOMPANY A CONSERVATION APPLICATION

REV.	DATE	DESCRIPTION	BY	APP.

DRAWING TITLE	PLAN AND DETAILS	SCALE:	AS SHOWN
PROJECT	SUBSURFACE SEWAGE DISPOSAL SYSTEM UPGRADE	DATE:	4-12-21
CLIENT	92 PAGE STREET AVON, MA	DRAWN BY:	SWR
	CLIFFORD HARRISON	DESIGNED BY:	SWR
	92 PAGE STREET, AVON, MA 02322	CHECKED BY:	GRC
	COLLINS CIVIL ENGINEERING GROUP, INC.	APPROVED BY:	GRC
	BRAINTREE - FALMOUTH - WEST BRIDGEWATER	DRAWING NO.	
	CIVIL ENGINEERING - LAND SURVEY - L.S.P. SERVICES	PROJECT NO.	21-051-3275
	225 SOUTH MAIN STREET, WEST BRIDGEWATER, MA 02379		
	TEL:508-580-2332 MOBILE: 617-347-1369 E-MAIL:GRCPE@AOL.COM		

