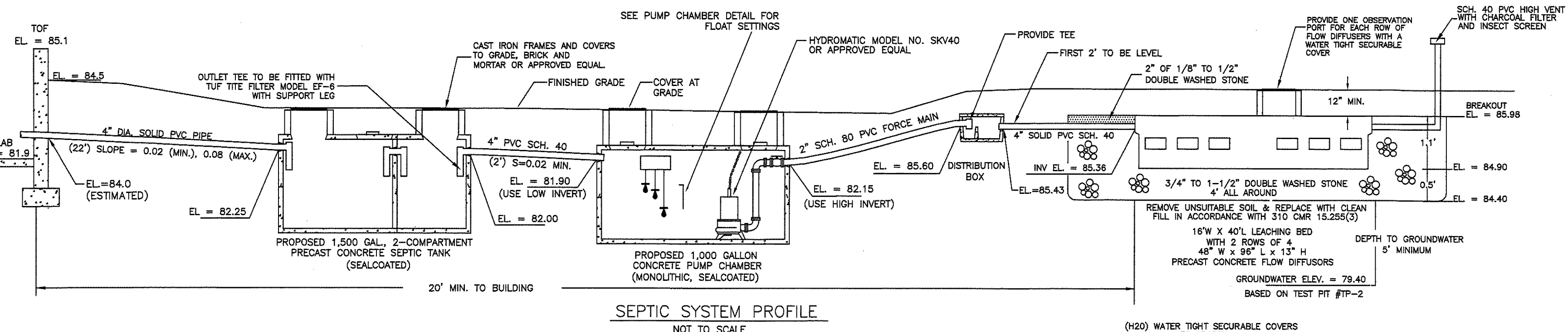


LOCUS PLAN



SEPTIC SYSTEM PROFILE  
NOT TO SCALE

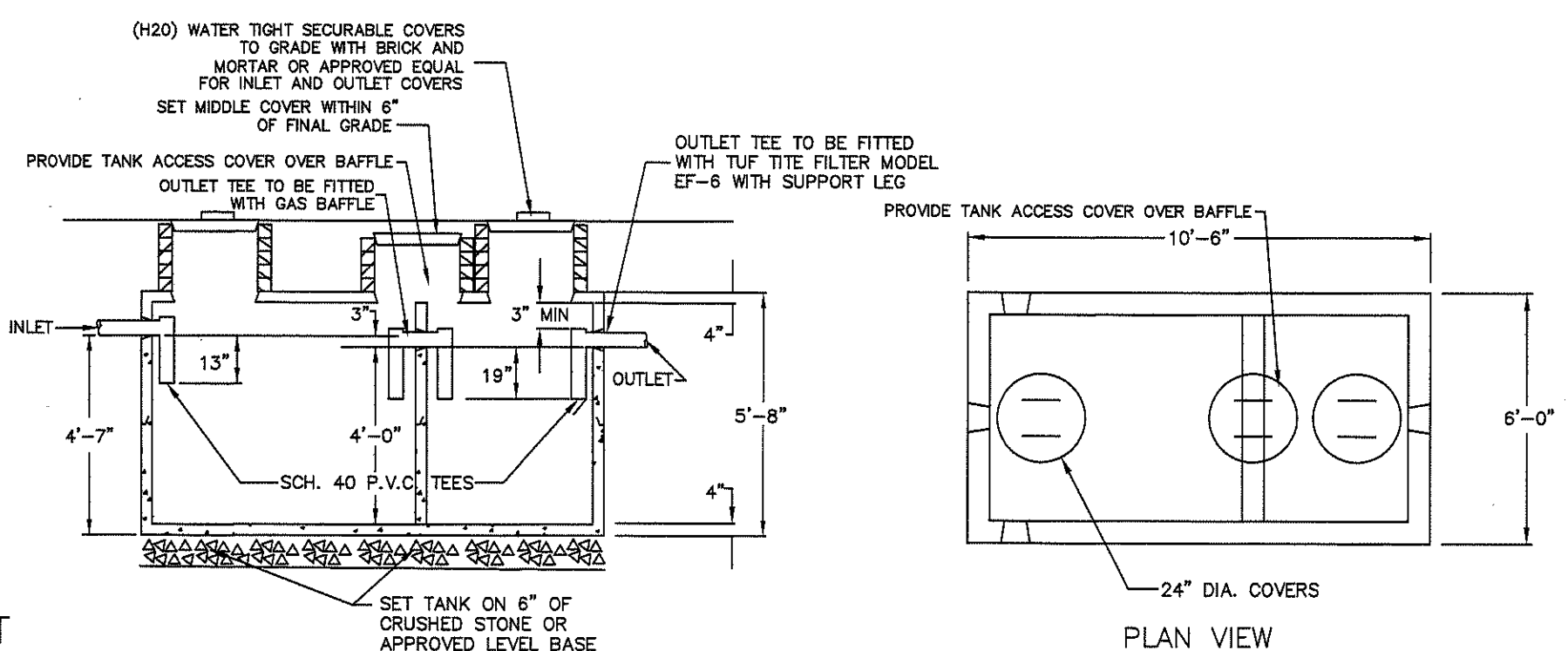
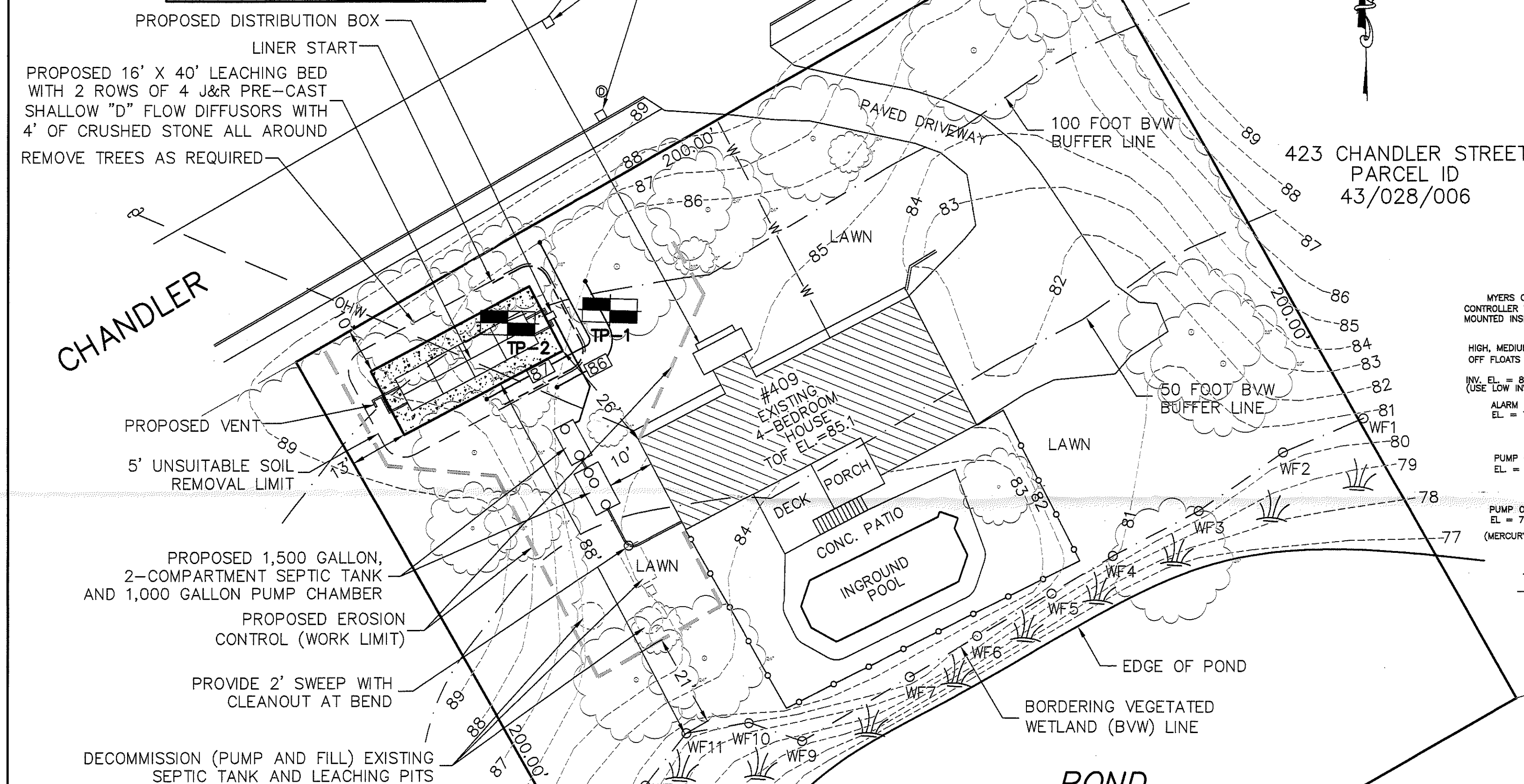
ELEVATION SCHEDULE:

DESCRIPTION	ELEVATION
4" INV. AT HOUSE (ESTIMATED)	84.0
4" INV. AT SEPTIC TANK (IN)	82.25
4" INV. AT SEPTIC TANK (OUT)	82.00
4" INV. AT PUMP CHAMBER (IN)	81.90
4" INV. AT PUMP CHAMBER (OUT)	82.15
4" INV. AT DIST. BOX (IN)	85.60
4" INV. AT DIST. BOX (OUT)	85.43
4" INV. INTO SAS	85.36
ELEVATION AT BOTTOM OF SAS	84.90
ELEVATION AT BOTTOM OF STONE	84.40
GROUNDWATER ELEVATION	79.40

NOTES:

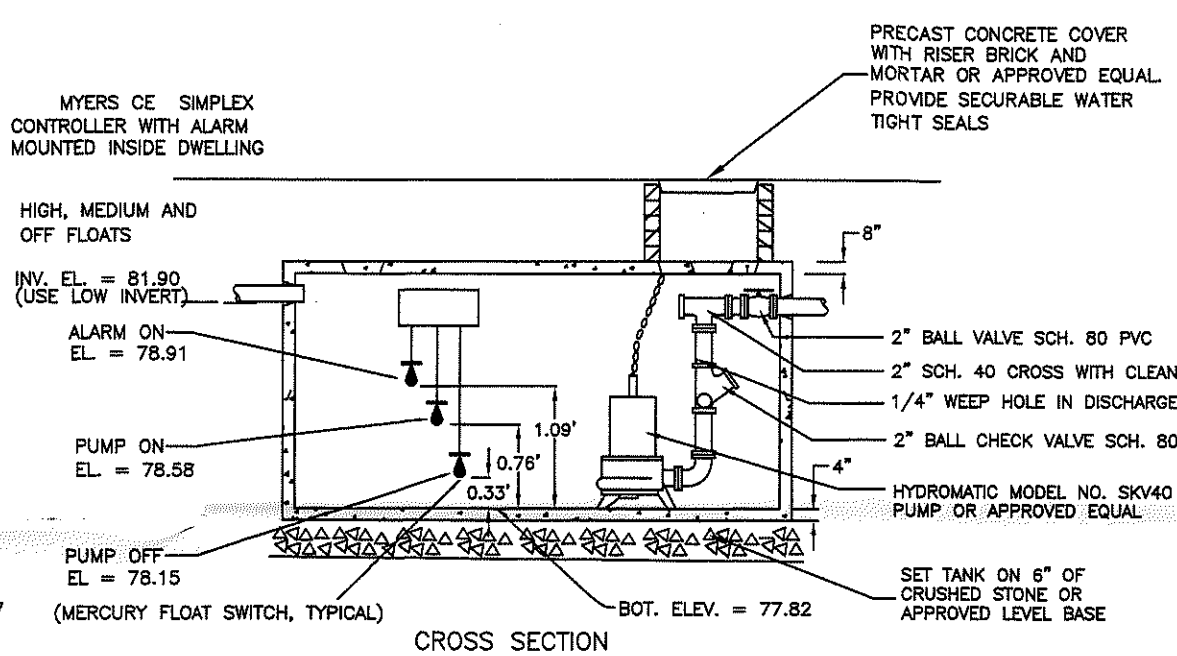
- THE CONTRACTOR SHALL NOTIFY THE LOCAL BOARD OF HEALTH AND COLLINS ENGINEERING GROUP AT LEAST 48 HOURS PRIOR TO REQUIRED INSPECTIONS.
- SITE BENCHMARK IS THE TOP OF THE LOWEST FRONT STEP AS INDICATED ON THIS PLAN: EL. = 85.83 (NAVD 88).
- HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO OPERATE OVER THE LIMITS 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 SURVEY.
- THE CONTRACTOR SHALL DECOMMISSION (PUMP & FILL OR REMOVE) THE EXISTING SEPTIC SYSTEM AND ALL ASSOCIATED PIPING IN ACCORDANCE WITH 310 CMR 15.254.
- AS SHOWN, THERE ARE NO KNOWN WELLS WITHIN 150 FEET OF THE PROPOSED LEACH FIELD.
- ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED (LOAM AND SEED) TO INCLUDE HISTORIC TEST PITS OUTSIDE CONSTRUCTION LIMITS.
- CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING ANY APPLICABLE PERMITS.
- CONTRACTOR WILL BE RESPONSIBLE FOR CONTACTING DIG SAFE (888-DIGSAFE) AND ANY OTHER APPLICABLE UTILITY COMPANIES PRIOR TO STARTING WORK.
- UNDERGROUND UTILITY LOCATIONS SHOWN ARE APPROXIMATE ONLY.
- 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
- CONTRACTOR TO CONFIRM EXISTING PLUMBING, BENCHMARK, AND SILL ELEVATIONS PRIOR TO CONSTRUCTION.
- MAGNETIC LOCATOR TAPE TO BE PLACED ON ALL SEPTIC SYSTEM COMPONENTS.
- THE PROPOSED SYSTEM IS NOT LOCATED WITHIN A ZONE II.
- THERE ARE WETLANDS WITHIN 150' OF THE PROPOSED SYSTEM (VARIANCE REQUESTED).
- THERE ARE NO IRRIGATION WELLS WITHIN 100' OF THE PROPOSED SYSTEM.
- THE PROPOSED SYSTEM IS NOT LOCATED WITHIN A FLOOD ZONE.
- NO VARIANCES ARE REQUESTED FROM TITLE V OR THE TOWN OF DUXBURY RULES AND REGULATIONS, EXCEPT AS NOTED.

SITE BENCHMARK: TOP OF LOWEST STEP, EL. = 85.83 (NAVD 88)



CROSS SECTION  
1,500 GALLON 2-COMPARTMENT PRECAST SEPTIC TANK  
NOT TO SCALE

PLAN VIEW

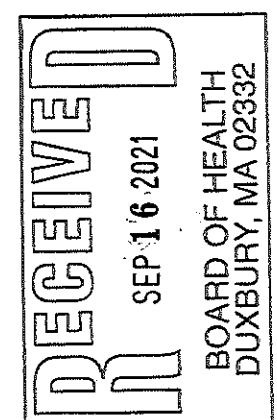


CROSS SECTION  
1,000 GALLON PRECAST PUMP CHAMBER  
NOT TO SCALE

BUOYANCY CALCULATIONS 1,000 GALLON TANK:  
DOWNWARD FORCE:  
WEIGHT OF EMPTY 1,000 GAL. TANK = 8,800 LBS.  
WEIGHT OF SOIL ABOVE TANK:  
87.12 CF OF SOIL X 110 LB/CF OF SOIL = 9,583 LBS.  
DOWNWARD FORCE = 8,800 + 9,583.75 = 18,383 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  
18,383 LB > 15,912 LB (DOWNWARD FORCE > BUOYANT FORCE)

DESIGN DATA:

DESIGN FLOW:  
4 BEDROOMS X 110 GPD/BEDROOM = 440 GPD  
SEPTIC TANK:  
440 GPD X 2.0 = 880 GALLONS  
USE NEW 1,500 GALLON, 2-COMPARTMENT SEPTIC TANK  
SOIL ABSORPTION SYSTEM:  
DESIGN PERCOLATION RATE = <2 MIN./INCH (CLASS I SOIL)  
DESIGN LOADING RATE = 0.74 GPD/SF  
LEACHING AREA REQ'D = (440 GPD) / 0.74 GPD/SF = 595 S.F.  
USE: 16' X 40' LEACHING BED WITH 2 ROWS OF 4 J&R PRE-CAST SHALLOW "D" FLOW DIFFUSORS WITH 4" OF CRUSHED STONE ALL AROUND  
LEACHING AREA PROVIDED:  
16' X 40' = 640 SF > 595 S.F. REQUIRED  
DAILY FLOW CAPACITY:  
640 SF X 0.74 GPD/SF = 473 GPD > 440 GPD REQ'D

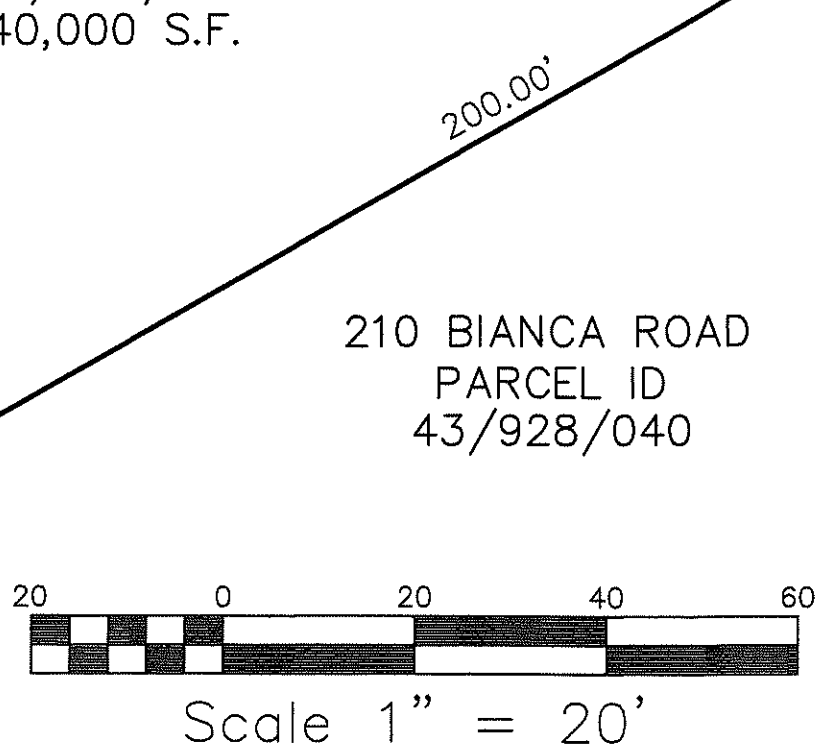
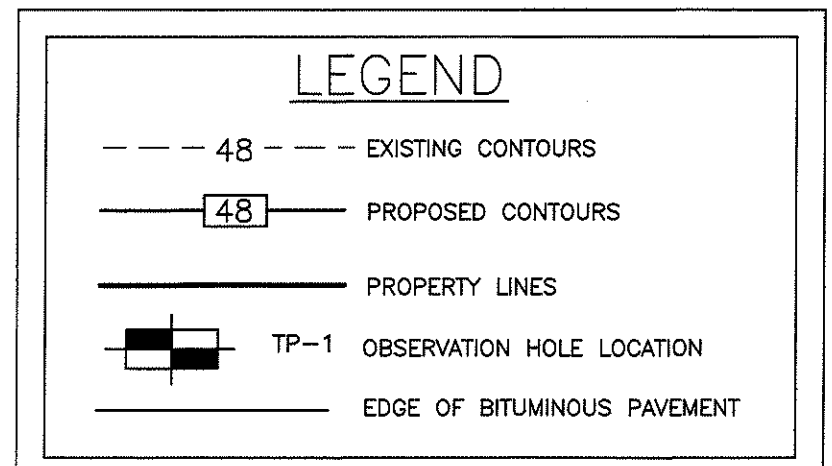


SOIL DATA:

DATE: SEPTEMBER 10, 2021  
PERFORMED BY: GEORGE R. COLLINS, P.E. (SE-413)  
WITNESSED BY: TRACY MAYO, DUXBURY BOH

SOIL HORIZ.	SOIL COLOR	TP-1	DEPTH	ELEV.	SOIL HORIZ.	SOIL COLOR	TP-2	DEPTH	ELEV.
		FILL/A	0"	85.50			FILL/A	0"	86.40
Bw	10YR 5/6	LOAMY F. SAND	8"		Bw	10YR 5/6	LOAMY F. SAND	8"	
			30"					18"	
			66"		C1	2.5Y 6/3	MED. SAND	60"	
			80"	78.83				84"	79.40
C2	2.5Y 6/2	CRS. SAND	106"		C2	2.5Y 6/2	CRS. SAND	84"	79.40
C3	2.5Y 5/8	LOAMY F. SAND	126"					108"	77.40
C4	2.5Y 6/2	CRS. SAND	140"	73.83					

ESTIMATED SEASONAL HIGH GROUNDWATER ELEV. = 79.40  
DESIGN PERC RATE = 1" IN <2 MIN.  
NOTE: LAYERS FILL/A, B, AND C1 TO BE REMOVED TO A DEPTH OF 36" 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.



FLOOR PLANS  
NOT TO SCALE

DISTRIBUTION BOX

NOT TO SCALE

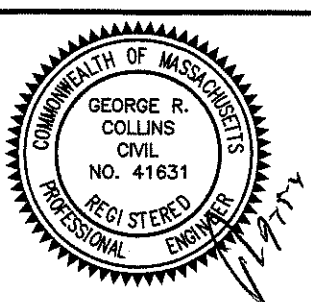
REQUESTED B.O.H. REGULATION VARIANCES:

- VARIANCE FROM DUXBURY BOARD OF HEALTH REGULATIONS WHICH REQUIRES A 150' SETBACK FROM A WETLAND TO A SAS. A VARIANCE ALLOWING A REDUCTION TO 88' IS REQUESTED.
- VARIANCE FROM DUXBURY BOARD OF HEALTH REGULATIONS WHICH REQUIRES THAT THE MINIMUM VERTICAL SEPARATION FROM THE SOIL UNDERLYING THE SOIL ABSORPTION SYSTEM TO THE HIGH GROUND-WATER ELEVATION SHALL BE 6 FEET WITH A RECORDED PERC RATE LESS THAN TWO MINUTES PER INCH. A VARIANCE THAT WOULD ALLOW A REDUCTION FROM THE REQUIRED 6 FEET TO 5 FEET IS REQUESTED.

PLAN TO ACCOMPANY A CONSERVATION NOTICE OF INTENT

REV.	DATE	DESCRIPTION	BY	APP.

DRAWING TITLE	PLAN AND DETAILS	SCALE:	AS SHOWN
PROJECT	SUBSURFACE SEWAGE DISPOSAL SYSTEM UPGRADE	DATE:	9-10-21
CLIENT	409 CHANDLER STREET DUXBURY, MA	DRAWN BY:	SWR
	KAREN WEATHERBEE	DESIGNED BY:	SWR
	409 CHANDLER STREET, DUXBURY, MA 02332	CHECKED BY:	GRC
	<b>COLLINS CIVIL ENGINEERING GROUP, INC.</b>	APPROVED BY:	GRC
	BRAINTREE - FALMOUTH - WEST BRIDGEWATER	DRAWING NO.	
	CIVIL ENGINEERING - LAND SURVEY - L.S.P. SERVICES	PROJECT NO.	20-180-3390
	225 SOUTH MAIN STREET, WEST BRIDGEWATER, MA 02379		
	TEL:508-580-2332 MOBILE: 617-347-1363 E-MAIL:GRCPE@AOL.COM		



WETLAND AND EROSION CONTROL NOTES

- WETLAND DELINEATED BY BROOKE MONROE, BOTANIST, AUGUST 2021.
- EROSION CONTROL TO BE INSTALLED PRIOR TO ANY ACTIVITY AND REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED.
- CONTRACTOR RESPONSIBLE FOR IMPLEMENTING ALL CONSERVATION COMMISSION AND BOARD OF HEALTH DIRECTIVES.
- CONTRACTOR TO SWEEP STREET AT THE END OF EACH WORK DAY.
- CONTRACTOR TO MONITOR, REPAIR AND MODIFY EROSION CONTROL TO ASSURE THAT THERE IS NO WETLAND RESOURCE AREA OR ABUTTER ENCROACHMENT.
- THE DEP FILE NUMBER MUST BE POSTED ON SITE PRIOR TO STARTING WORK.
- A COPY OF THE REGISTRY RECORDED ORDER OF CONDITIONS MUST BE ON SITE AT ALL TIME DURING WORK.
- THE NAME AND CONTACT NUMBERS OF THE GENERAL CONTRACTOR MUST BE PROVIDED TO THE ENGINEER AND CONSERVATION COMMISSION PRIOR TO STARTING WORK.
- SILT SACKS (2) TO BE INSTALLED AT THE 2 CATCH BASINS IN THE STREET AS SHOWN. CONTRACTOR TO MAINTAIN AND MONITOR DURING WORK AND REMOVED AFTER WORK IS DONE.