

CALCULATIONS:

HYDRAULIC LOADINGS:
FIVE (5) BEDROOMS AT 110 GALLONS PER DAY PER BEDROOM = 550 GALLONS PER DAY.

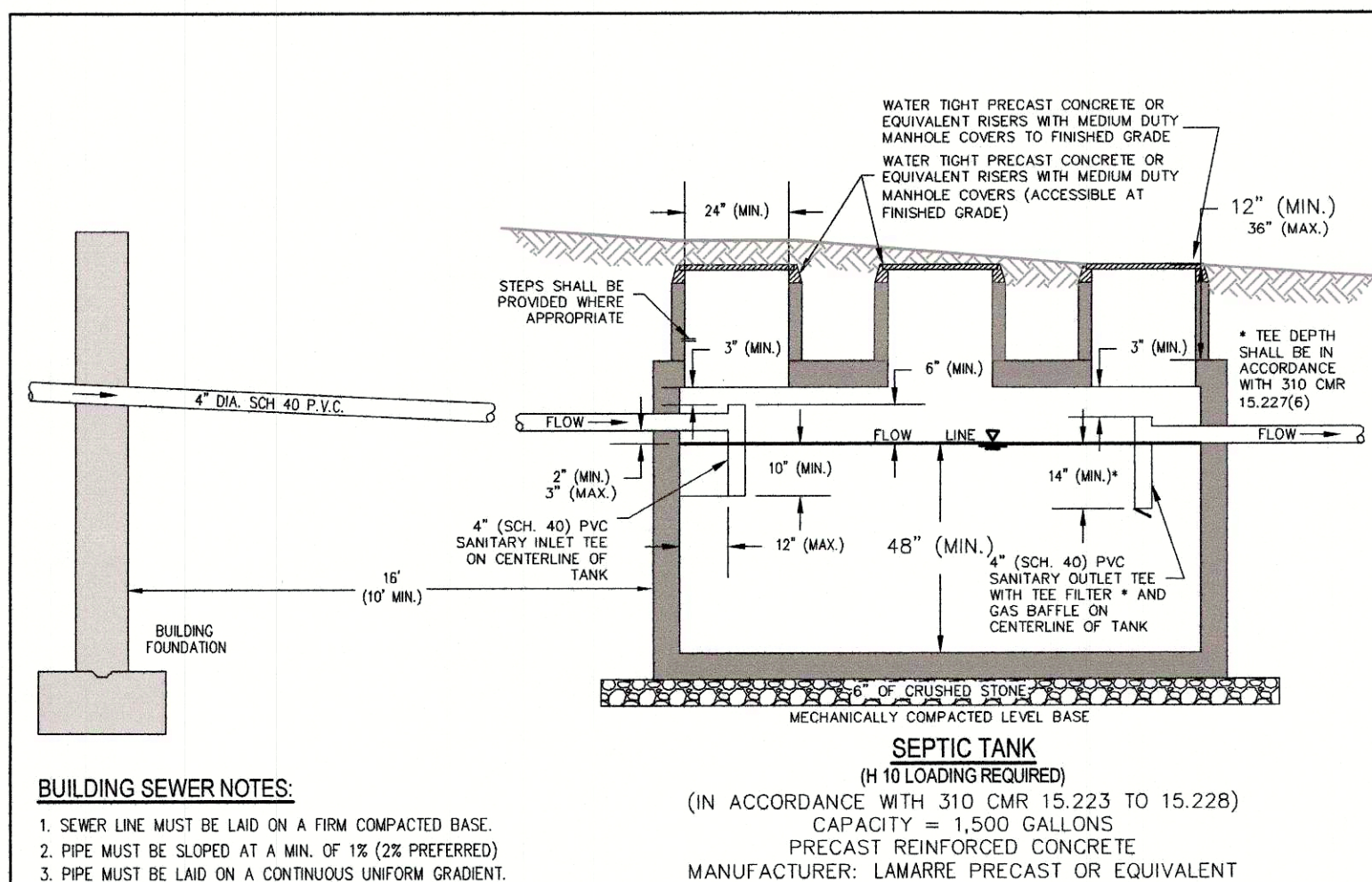
SEPTIC TANK SIZE:
AVERAGE DAILY FLOW = 550 G.P.D.
MINIMUM STORAGE REQUIRED:
550 G.P.D. X 2.00D = 1,100 GAL
SEPTIC TANK PROVIDED = 1,500 GALLONS

PRIMARY LEACHING AREA:
DESIGN PERCOLATION RATE = 24 M.P.I. (SOIL CLASS II)
EFFLUENT LOADING RATE = 0.40 GALLONS/S.F.
LEACHING AREA REQUIRED = 550 GPD / 0.40 GPD/S.F. = 1,375 S.F.
TOTAL LEACHING AREA PROVIDED = (5) 46' TRENCHES, 2' WIDE X 2' DEEP (5 X 46 X 6) = 1,380 S.F.
TOTAL DESIGN FLOW = 1,380 S.F. X 0.40 GALLON/S.F. = 552 GALLONS.

RESERVE LEACHING AREA:
DESIGN PERCOLATION RATE = 24 M.P.I. (SOIL CLASS II)
EFFLUENT LOADING RATE = 0.40 GALLONS/S.F.
LEACHING AREA REQUIRED = 550 GPD / 0.40 GPD/S.F. = 1,375 S.F.
TOTAL LEACHING AREA PROVIDED = (5) 46' TRENCHES, 2' WIDE X 2' DEEP (5 X 46 X 6) = 1,380 S.F.
TOTAL DESIGN FLOW = 1,380 S.F. X 0.40 GALLON/S.F. = 552 GALLONS.

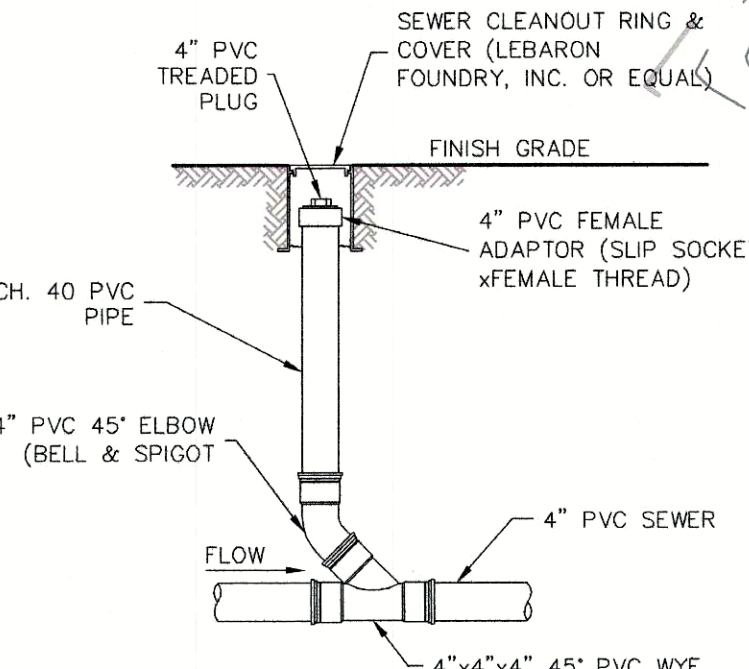
SCHEDULE OF ELEVATIONS:

SYSTEM ELEVATIONS:				PIPE DATA:			
TOP EL. OF FOUNDATION WALL = 518.0±				PIPE 1		PIPE 2	
INV. EL. AT FOUNDATION WALL = 515.00±				GRAVITY SEWER		GRAVITY SEWER	
				4" PVC (SCH. 40)		4" PVC (SCH. 40)	
				L = 16'		L = 91'	
				S = 0.02		S = 0.02	
SEPTIC TANK (ST-1) = 11-10				PIPE 3		PIPE 4	
4" INV. (IN) = 514.88	CLEANOUT #1 (CO-1)			GRAVITY SEWER		GRAVITY SEWER	
4" INV. (OUT) = 514.43	4" INV. = 514.24			4" PVC (SCH. 40)		4" PVC (SCH. 40)	
				L = 22.5'		L = 20.3'	
				S = 0.2564		S = 0.02	
DISTRIBUTION BOX (DB-1)							
4" INV. (IN) = 508.07	CLEANOUT #2 (CO-2)						
4" INV. (OUT) = 507.90	4" INV. = 508.47						
PRIMARY FIELD ELEVATIONS:				RESERVE FIELD ELEVATIONS:			
TRENCH NO.	EL. INV. BEG. OF TRENCH:	EL. INV. END OF TRENCH:	EL. OF BOT. OF TRENCH:	TRENCH NO.	EL. INV. BEG. OF TRENCH:	EL. INV. END OF TRENCH:	EL. OF BOT. OF TRENCH:
P1	507.73	507.50	505.50	R1	507.73	505.50	505.50
P2	507.73	507.50	505.50	R2	507.73	505.50	505.50
P3	507.73	507.00	505.00	R3	507.73	505.00	505.00
P4	506.73	506.50	504.50	R4	506.73	504.50	504.50
P5	506.23	506.00	504.00	R5	506.23	506.00	504.00



SEWER LINE INSULATION

NOT TO SCALE



SEWER CLEANOUT DETAIL

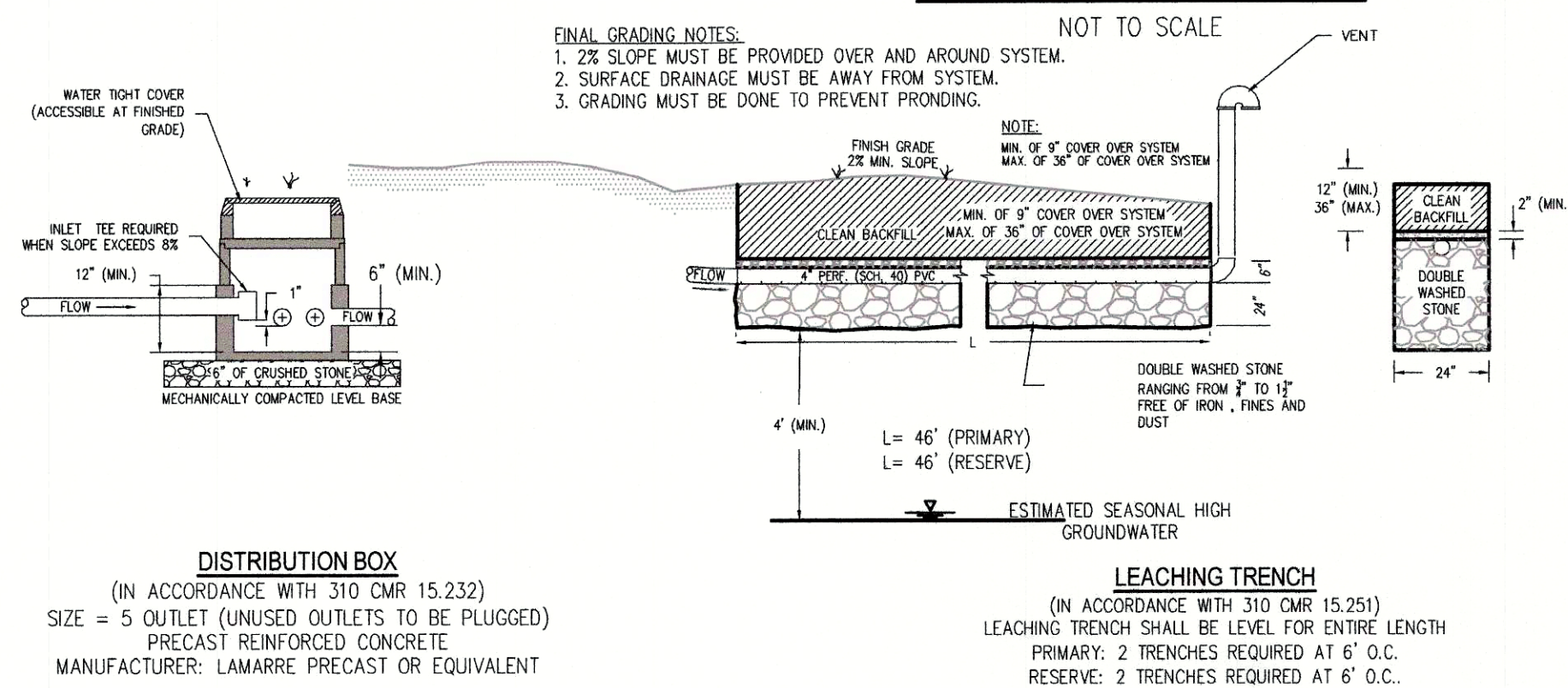
NOT TO SCALE

SITE PLAN

SCALE 1" = 20'

SYSTEM PROFILE

NOT TO SCALE



INSPECTION PORT DETAIL

NOT TO SCALE

GENERAL NOTES:

1. TOPOGRAPHIC INFORMATION IS THE RESULT OF AN ON-THE-GROUND SURVEY PERFORMED BY DUCHARME & DILLIS CIVIL DESIGN GROUP, INC. ELEVATIONS REFER TO ADEQUATE DATUM (SEE BENCH MARK LOCATED ON PLOT PLAN).
2. PROPERTY LINE INFORMATION TAKEN FROM RECORDED PLAN ON FILE WITH THE WORCESTER REGISTRY OF DEEDS.
3. PLAN BOOK: 469. PLAN 50. NEW LOT, AND LOT LINES FROM PLAN BEING PREPARED BY THIS OFFICE.
4. PERCOLATION TESTS PERFORMED IN ACCORDANCE WITH 310 CMR (TITLE 5) REGULATIONS 15.104 AND 15.105.
5. ANY DEVIATIONS FROM THE DESIGN PLAN MUST BE APPROVED IN WRITING BY DUCHARME & DILLIS CIVIL DESIGN GROUP, INC.
6. NO PERMANENT STRUCTURES MAY BE CONSTRUCTED OVER THE RESERVE LEACHING AREA.
7. THE BOARD OF HEALTH REQUIRES INSPECTION OF ALL CONSTRUCTION BY THE DESIGN ENGINEER OR BY AN AGENT OF THE BOARD OF HEALTH, AND THAT SUCH A PERSON CERTIFIES IN WRITING THAT ALL WORK HAS BEEN COMPLETED IN ACCORDANCE WITH THE TERMS OF THE PERMIT AND THE APPROVED PLANS.
8. FOR PROPER PERFORMANCE, A SEPTIC TANK SHOULD BE INSPECTED AT LEAST EVERY YEAR AND WHEN THE TOTAL DEPTH OF SCUM AND SOLIDS EXCEEDS ONE THIRD OF LIQUID DEPTH OF THE TANK, THE TANK SHOULD BE PUMPED.
9. THIS DESIGN DOES NOT ACCOMMODATE A GARBAGE DISPOSAL.
10. CONSTRUCTION WITHIN 100 FEET OF A WETLAND RESOURCE AREA AS DEFINED IN THE MASSACHUSETTS WETLAND PROTECTION ACT AND REGULATIONS (310 CMR 10.00) SHALL NOT BE PERFORMED UNTIL AN ORDER OF CONDITIONS OR NEGATIVE DETERMINATION OF APPLICABILITY HAS BEEN OBTAINED FROM THE LOCAL CONSERVATION COMMISSION.
11. EXISTING UTILITIES SHOWN ON THIS PLAN WERE COMPILED FROM FIELD MEASUREMENT AND RECORD PLANS. THE UTILITIES SHOWN ON THIS PLAN ARE FOR REFERENCE ONLY AND SHOULD NOT BE ASSUMED TO BE CORRECT NOR SHOULD IT BE ASSUMED THAT THE UTILITIES SHOWN ARE THE ONLY UTILITIES LOCATED ON OR NEAR THE SITE. THE CONTRACTOR SHALL CALL GCS SAFE 1-888-DIG-SAFE PRIOR TO CONSTRUCTION IN ACCORDANCE WITH STATE LAWS.

CONSTRUCTION NOTES:

1. FINISH GRADING SHALL BE DONE IN ACCORDANCE WITH THE PLOT PLAN. ALL DISTURBED AREAS SHALL BE COVERED WITH A MINIMUM OF 4" OF LOAM AND SEEDED WITH A NATIVE GRASS MIXTURE.
2. BACKFILL OVER THE SOIL ABSORPTION SYSTEM, SEPTIC TANK AND PUMP CHAMBER SHALL BE A MINIMUM OF 9 INCHES EXCLUDING TOPSOIL. PLACED IN LIFTS AND SUFFICIENTLY COMPACTED TO PREVENT DEPRESSIONS DUE TO SETTLING. BACKFILL OVER THE SOIL ABSORPTION SYSTEM SHALL BE FREE OF STONES AND BOULDERS GREATER THAN 6 INCHES IN SIZE.
3. THE BUILDING SEWER SHALL BE LAID ON A COMPACTED FIRM BASE.
4. ALL PIPING SHALL BE MINIMUM OF SCHEDULE 40 UNLESS OTHERWISE NOTED.
5. ALL PIPE JOINTS AND CONNECTIONS TO SYSTEM COMPONENTS SHALL BE MECHANICALLY SOUND, WATER TIGHT AND PROTECTED AGAINST DAMAGE BY ROOTS.
6. ALL BUILDING SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STATE PLUMBING CODE 24B CMR 2.00.
7. FINAL COVER OVER THE SYSTEM SHALL BE GRADED TO REDUCE INFILTRATION OF SURFACE WATER AND MINIMIZE EROSION. FINISH GRADE SHALL HAVE A MINIMUM SLOPE OF 2%.
8. EFFLUENT DISTRIBUTION LINES SHALL HAVE A SLOPE OF 0.05%.
9. OUTLET DISTRIBUTION LINES FROM THE D-BOX SHALL BE LEVEL FOR A MINIMUM OF TWO FEET OF THEIR LENGTH.
10. FILL MATERIAL FOR SYSTEMS CONSTRUCTED IN FILL SHALL CONSIST OF SELECT ON-SITE OR IMPORTED SOILS THAT MEET THE MINIMUM REQUIREMENTS STATED IN 310 CMR 15.255(3).
11. WHERE FILL IS REQUIRED TO REPLACE UNSUITABLE OR IMPERMEABLE SOILS, THE EXCAVATION OF THE UNSUITABLE MATERIAL SHALL EXTEND A MINIMUM OF 5 FEET LATERALLY IN ALL DIRECTIONS BEYOND THE OUTER PERIMETER OF THE SOIL ABSORPTION SYSTEM TO THE DEPTH OF 3 INCHES INTO THE NATURALLY OCCURRING PERVIOUS MATERIAL.
12. THE BOTTOM SURFACE OF THE EXCAVATION SHALL BE SCARIFIED AND RELATIVELY DRY. FILL SHALL NOT BE PLACED DURING RAIN OR SNOW STORMS. IF THE WATER TABLE ELEVATION IS ABOVE THE ELEVATION OF THE BOTTOM OF THE EXCAVATION, THE EXCAVATION SHALL BE DETERMINED.
13. SUBSURFACE COMPONENTS OF A SYSTEM SHALL NOT BE BACKFILLED OR OTHERWISE CONCEALED FROM VIEW UNTIL A FINAL INSPECTION HAS BEEN CONDUCTED BY THE APPROVING AUTHORITY AND PERMISSION HAS BEEN GRANTED BY THE APPROVING AUTHORITY TO BACKFILL. THE SYSTEM DESIGNER SHALL INSPECT THE CONSTRUCTION AFTER THE INITIAL EXCAVATION, PRIOR TO BACKFILLING, AND DURING BACKFILLING. IN ADDITION, THE FINAL INSPECTION OF THE SYSTEM SHALL BE CONDUCTED BY THE APPROVING AUTHORITY. THE SYSTEM INSTALLER AND THE DESIGNER PRIOR TO THE ISSUANCE OF A CERTIFICATE OF COMPLIANCE PURSUANT TO 310 CMR 15.02(3). ANY COMPONENT OF THE SYSTEM WHICH HAS BEEN COVERED WITHOUT SUCH PERMISSION SHALL BE UNCOVERED UPON THE REQUEST OF THE APPROVING AUTHORITY OR THE DESIGNER.
14. ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE OR A COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED.
15. ALL SOIL ABSORPTION SYSTEMS SHALL HAVE A MINIMUM OF ONE (1) INSPECTION PORT CONSISTING OF A PERFORATED FOUR (4) INCH PIPE PLACED VERTICALLY DOWN INTO THE STONE TO THE NATURALLY OCCURRING SOIL OR SAND FILL WITHIN THE STONE. THE PIPE SHALL BE CAPPED WITH A SCREW TYPE CAP AND ACCESSIBLE TO WITHIN THREE (3) INCHES OF FINISH GRADE.

SOIL TEST DATA

NAME OF APPROVING AUTHORITY:				NAME OF SOIL EVALUATOR:				
BOLTON BOARD OF HEALTH				DUCHARME AND DILLIS CIVIL DESIGN GROUP				
BILL BROOKINGS, NABOB AGENT				WILLIAM J. "JACK" MALONEY, JR. (SE-13704)				
IN-SEASON GROUND WATER TESTING - (IF REQ'D)				PERCOLATION TEST DATA				
TEST PIT NO.	DATE	SURFACE ELEVATION	DEPTH TO OBSERVED GROUNDWATER	TEST PIT NO.	DATE	TOP OF 12" OF WATER		RATE, MINUTES PER INCH
						DEPTH FROM SURFACE	SURFACE ELEVATION	
PA	8/31/17	48'	502.44	21 MPI				
PB	8/31/17	47'	503.24	24 MPI				
PC	8/31/17	52'	504.34	9 MPI				
PD	8/31/17	47'	503.24	13 MPI				
SOIL CLASSIFICATION: CHATHAM-HOLLIS ROCK COMPLEX								
GEOLOGICAL MATERIAL: COARSE LOAMY MELT-OUT TILL								
LAND FORM: OUTWASH PLAIN								
SOIL LIMITATIONS: DEPTH TO BEDROCK								
GENERAL NOTES: 102-C								