

VICINITY MAP
NOT TO SCALE

SOIL TEST DATA

SOIL TESTING AND EVALUATION BY: JEFFREY M. HASSETT, P.E., DEP SOIL EVALUATOR
SOIL TESTING WITNESSED BY: WILL BARRETT, HANOVER BOARD OF HEALTH
DATE: FEBRUARY 4, 2021

TP-1	APPROX. GRADE EL. 122.5	TP-2	APPROX. GRADE EL. 122.5	TP-3	APPROX. GRADE EL. 121.6
EL. 119.7	FILL	EL. 119.7	FILL	EL. 117.6	FILL
EL. 118.9	A HORIZON SANDY LOAM 10YR 3/3	EL. 118.9	A HORIZON SANDY LOAM 10YR 3/3	EL. 116.6	A/B HORIZON
EL. 117.6	B HORIZON SANDY LOAM 10YR 4/6	EL. 117.6	B HORIZON SANDY LOAM 10YR 4/6	EL. 115.8	C1 HORIZON LOAMY SAND 2.5Y 5/3
EL. 112.5	C1 HORIZON LOAMY SAND 2.5Y 5/3	EL. 112.5	C1 HORIZON LOAMY SAND 2.5Y 5/3		

WEEPING OBSERVED: 40"
MOTTLING OBSERVED: 40"
PERC. RATE: NONE
ESHW: 40" (EL. 119.2)

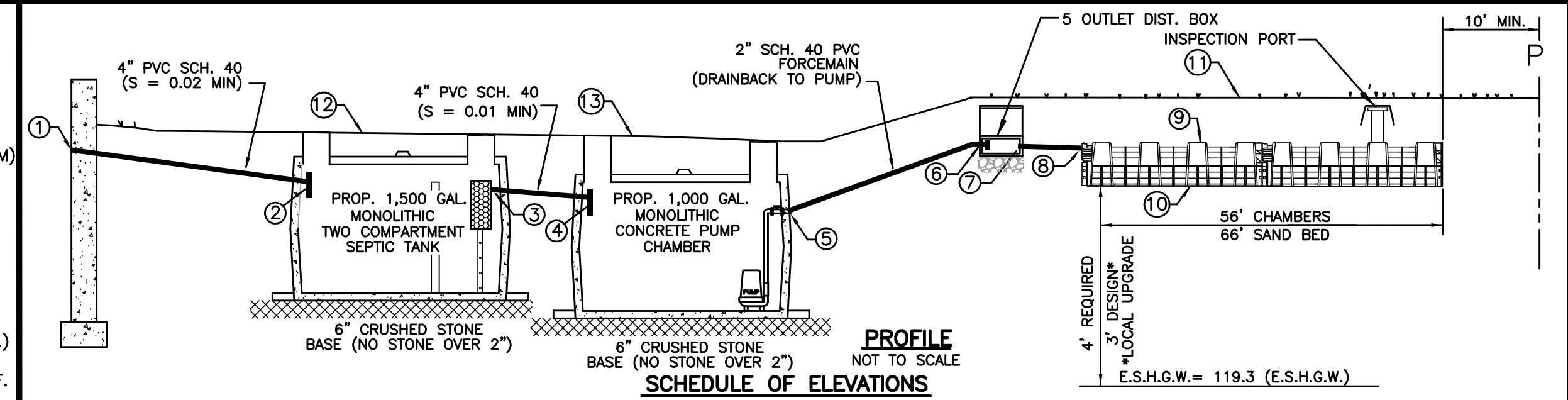
WEEPING OBSERVED: 39"
MOTTLING OBSERVED: 39"
PERC. RATE: SIEVE @ 70"
ESHW: 39" (EL. 119.3)

DESIGN DATA

- DESIGN FLOW:
EXISTING = 200 GPD (1,616 S.F. RETAIL X 50 GPD/1000 SF. 200 GPD MINIMUM)
PROPOSED = 200 GPD (2,666 S.F. MAX.) OFFICE X 75 GPD/1000 SF. 200 GPD MINIMUM
(NO INCREASE IN TITLE V FLOW)
- DESIGN PERCOLATION RATE: CLASS II SANDY LOAM PER SIEVE ANALYSIS
- GARBAGE DISPOSAL: NO
- SEPTIC TANK DESIGN REQUIREMENT: 200% DESIGN FLOW
200 X 2 = 400 GAL. (PROVIDE NEW 1500 GAL. TWO COMPARTMENT SEPTIC TANK)
- LEACH AREA REQUIREMENTS GALLONS/SQ. FT.
BOTTOM: 0.33 GAL./S.F. SIDE: 0.33 GAL./S.F.
- TOTAL LEACH AREA REQUIRED:
TITLE 5: 200 GPD / (0.33 GPD/S.F.) = 606 S.F. (800 S.F. REQ'D PER HANOVER HEALTH REGS.)
PROVIDED: 3 ROWS OF 11 ARC 36 CHAMBERS W/ 1' END CAPS
EFFECTIVE AREA: (33 CHAMBERS X 5.00'L (+ 3 END CAPS X 1.00'L)) X 4.8 S.F./L.F.* = 806 S.F.
CAPACITY = 648 S.F. X 0.33 GPD/S.F. = 214 GPD
*EFFECTIVE AREA PER GENERAL USE CERTIFICATION ISSUED BY DEP

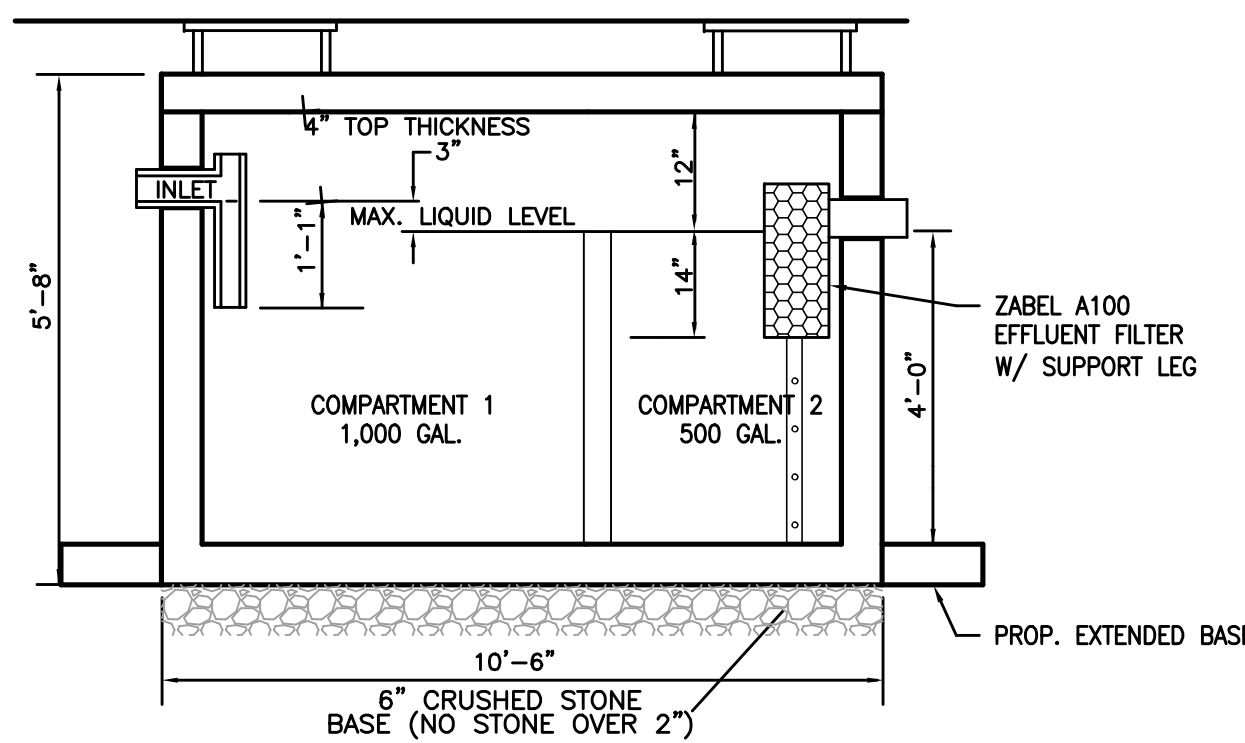
REMOVE & REPLACE NOTE

CONTRACTOR TO EXCAVATE ALL UNSUITABLE MATERIAL TO A DEPTH OF C HORIZON (62"±) DIRECTLY UNDER & WITHIN 5' OF PROPOSED LEACHING AREA AND REPLACE CLEAN TITLE 5 PERC SAND TO TOP OF CHAMBER ELEVATION
(VOL. OF SAND = (18.49'W X 66'L X (123.38-117.6)D) / 27 = 313 C.Y. ±



1,500 GAL. TWO COMPARTMENT MONOLITHIC H-20 SEPTIC TANK DETAIL

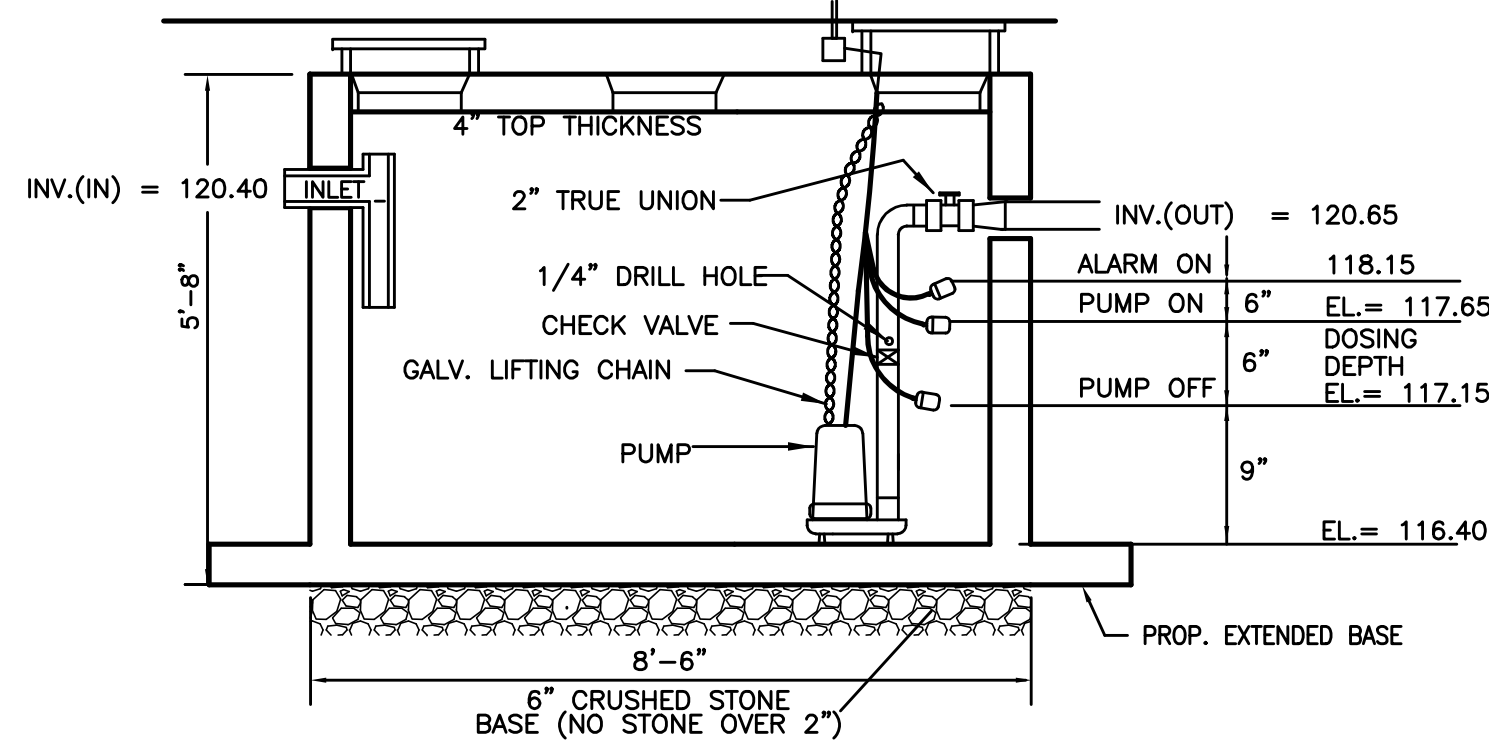
NOTE: INLET AND OUTLET COVERS (20" DIA.) BROUGHT TO FINISHED GRADE.



- THE TANK INLET & OUTLET COVERS SHALL BE EXTENDED TO FINISHED GRADE & EQUIPPED WITH 20" DIA. CAST IRON FRAME & COVERS.
- ALL PIPE CONNECTION AND CONSTRUCTION JOINTS SHALL BE SEALED WITH HYDRAULIC CEMENT.
- THE TANK SHALL BE INSTALLED ON A LEVEL 6" CRUSHED STONE BASE.
- OUTLET SHALL BE EQUIPPED WITH A ZABEL A100 EFFLUENT FILTER (OR APPROVED EQUAL).

1,000 GAL. MONOLITHIC H-20 PUMP CHAMBER DETAIL

NOTE: INLET AND OUTLET COVERS (20" DIA.) BROUGHT TO FINISHED GRADE.



- THE TANK INLET & OUTLET COVERS SHALL BE EXTENDED TO FINISHED GRADE & EQUIPPED WITH 20" DIA. CAST IRON FRAME & COVERS.
- ALL PIPE CONNECTION AND CONSTRUCTION JOINTS SHALL BE SEALED WITH HYDRAULIC CEMENT.
- THE TANK SHALL BE INSTALLED ON A LEVEL 6" CRUSHED STONE BASE.

ELECTRICAL CONDUIT TO CONTROL PANEL (SIMPLEX OR EQUAL) MOUNTED INSIDE BUILDING. PUMP POWER CABLE AND FLOAT CONTROL TO BE PLACED IN CONDUIT IN ACCORDANCE WITH LOCAL BUILDING AND ELECTRICAL CODES.

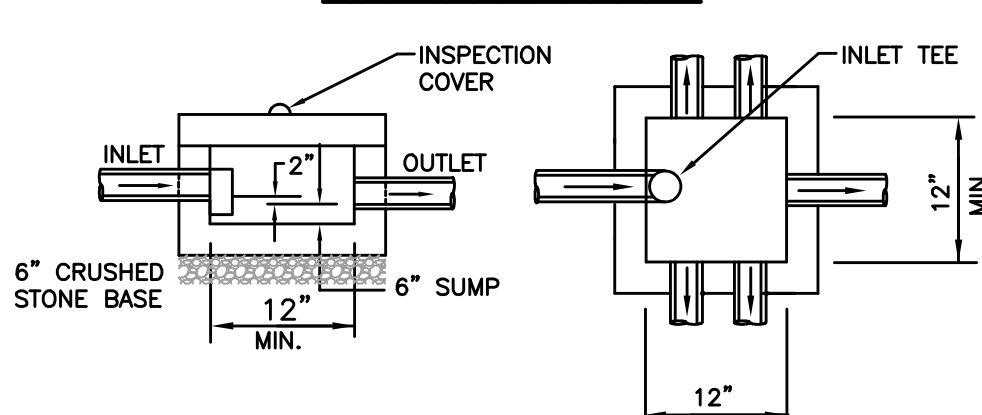
24-HOUR EMERGENCY STORAGE (440 GAL. MIN)

EL = 120.65 INVERT OUT
EL = 118.15 ALARM ON
2.50" AVAILABLE STORAGE
X 250 GAL./VERT. FOOT = 625 GALLONS

PUMP DESIGN NOTES:

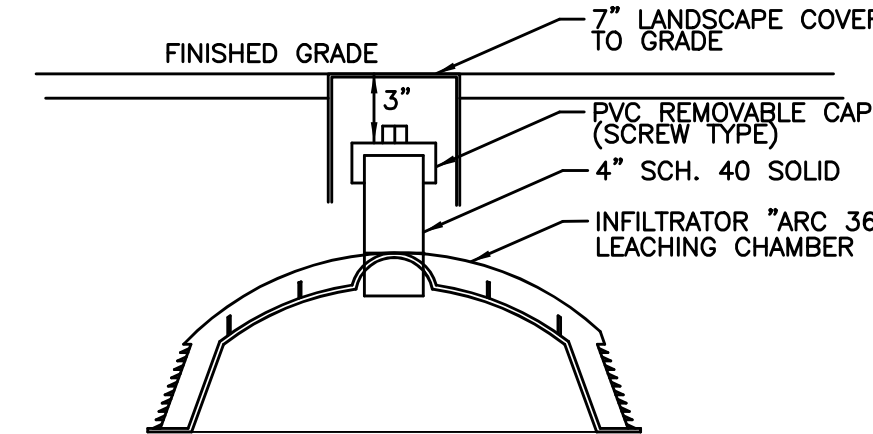
- THE PUMP CONTROLS SHALL BE DESIGNED TO ALLOW THE FIELD TO BE DOSED WITH 191 GAL. PER DOSE (APPROX. 5.1 TIMES IN A 24-HOUR PERIOD UNDER NORMAL OPERATING CONDITIONS).
- USE GOULDS SUBMERSIBLE EFFLUENT PUMP WS03B, 1/3 HP, 2" DISCHARGE, 2" SOLIDS CAPACITY, I.D.H. = 13 FT.± @ 15 GPM OR APPROVED EQUAL.
- INSTALL HIGH WATER MERCURY FLOAT LEVEL CONTROL IN PUMP CHAMBER WITH VISIBLE FLASHING AND AUDIBLE ALARMS. CONTRACTOR TO COORDINATE LOCATIONS WITH HOMEOWNER. PUMP POWER SHALL BE LOCATED ON SEPARATE CIRCUIT FROM THE ALARM CIRCUIT. ALL ELECTRICAL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICIAN.

DISTRIBUTION BOX

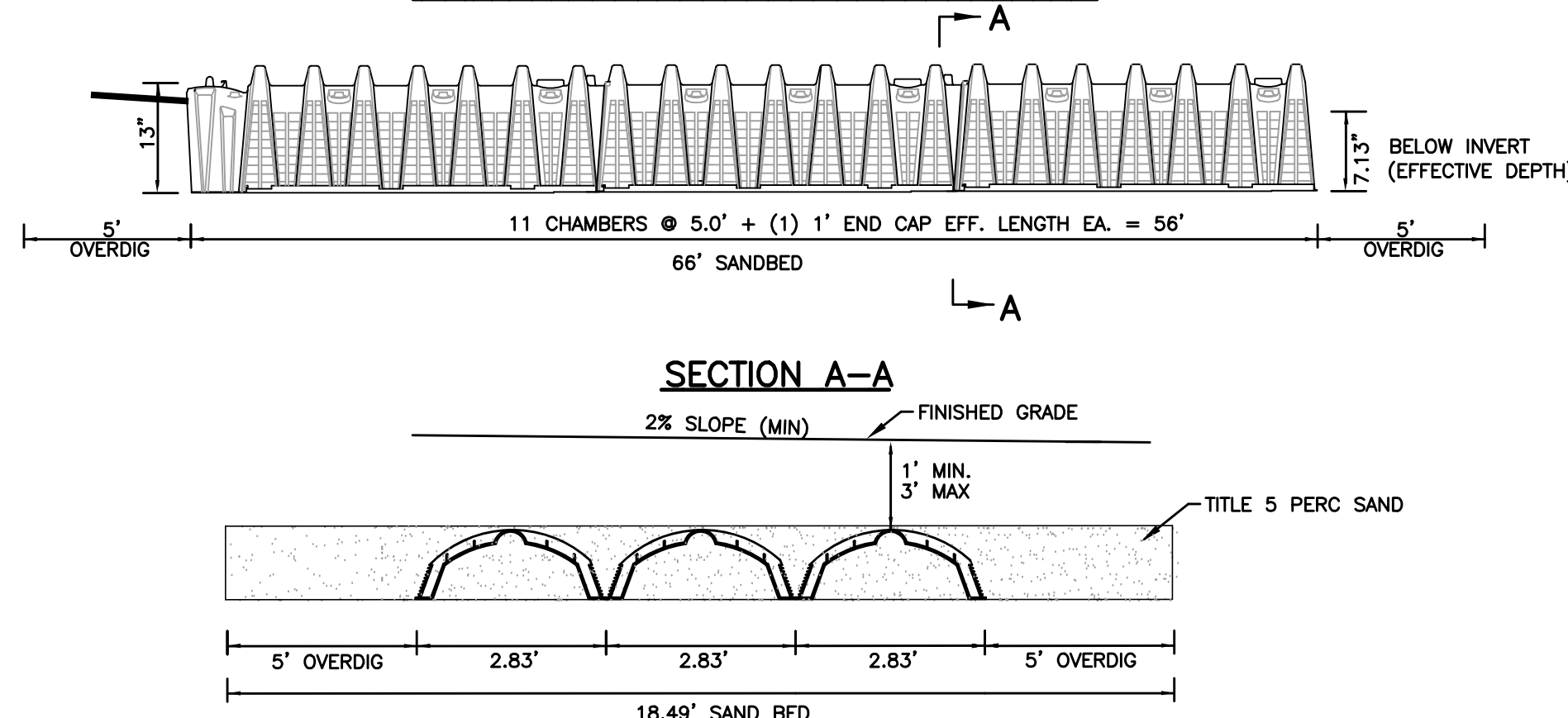


- NOTES:
- DISTRIBUTION BOX COVER SHALL BE EQUIPPED WITH RISERS AS NECESSARY TO BRING THE COVER TO WITHIN 6" OF FINISHED GRADE.
 - ALL PIPE CONNECTION AND CONSTRUCTION JOINTS SHALL BE SEALED WITH HYDRAULIC CEMENT.
 - DISTRIBUTION BOX TO BE INSTALLED ON A LEVEL 6" CRUSHED STONE BASE.

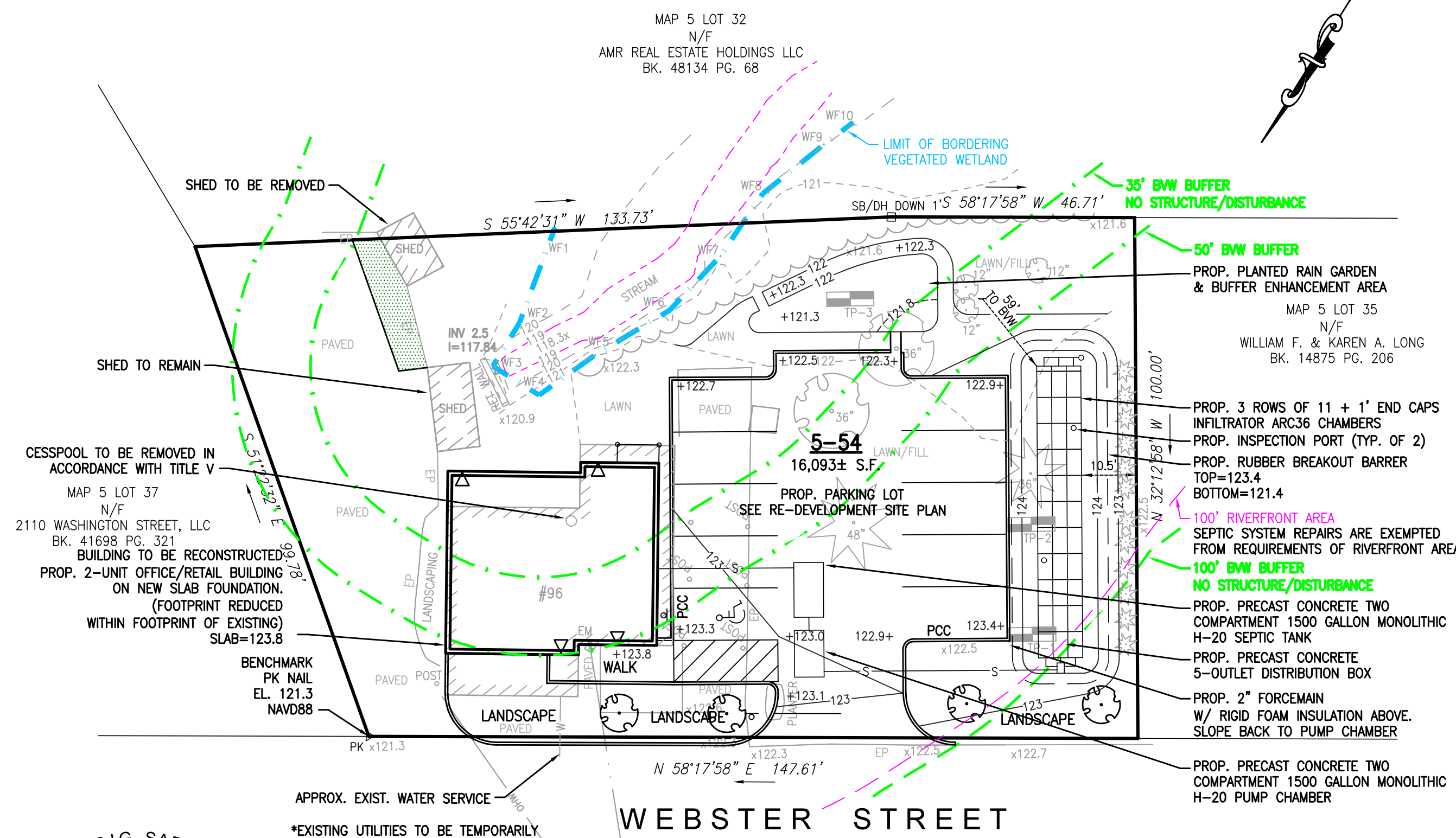
INSPECTION PORT



INFILTRATOR ARC 36 CHAMBER SYSTEM



- NOTES:
- NO STONE BELOW OR AROUND CHAMBERS IS REQUIRED.
 - BACKFILL CHAMBERS WITH CLEAN COARSE SAND IN ACCORDANCE WITH 310 CMR 15.255 (3) TO THE TOP OF THE CHAMBER.
 - DO NOT BACKFILL WITH ANY STONES 3" OR LARGER AGAINST CHAMBERS.
 - CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.



WEBSTER STREET

*EXISTING UTILITIES TO BE TEMPORARILY DISCONNECTED AND RECONNECTED TO NEW BUILDING IN ACCORDANCE WITH UTILITY PURVEYOR REQUIREMENTS.

TITLE V LOCAL UPGRADE APPROVAL REQUESTS

310 CMR 15.405(h): TO ALLOW A REDUCTION FROM 4' (REQ'D) TO 3' (PROP.) BETWEEN GROUNDWATER AND THE BOTTOM OF THE SAS.

HANOVER BOARD OF HEALTH RULES & REGULATIONS

DESIGN REQUIREMENT 3: TO ALLOW A REDUCTION FROM 100' (REQ'D) TO 63' (PROP.) BETWEEN THE WETLAND AND SAS. THE PROPOSED SETBACK COMPLIES WITH TITLE V.

GENERAL NOTES

- SEPTIC SYSTEM INSTALLATION CONTRACTORS SHALL BE LICENSED BY THE BOARD OF HEALTH AND MUST COMPLY WITH ALL REQUIREMENTS OF THE BOARD OF HEALTH DISPOSAL WORKS CONSTRUCTION PERMIT AND ANY CONDITIONS, IF ISSUED BY THE CONSERVATION COMMISSION.
- ALL CONSTRUCTION MUST COMPLY WITH TITLE 5 OF THE STATE ENVIRONMENTAL CODE 310 CMR 15 & THE ANY LOCAL BOARD OF HEALTH SUPPLEMENTAL REGULATIONS.
- THERE SHALL BE NO CHANGES MADE IN THIS PLAN WITHOUT THE WRITTEN PERMISSION OF THE BOARD OF HEALTH AND DESIGN ENGINEER.
- ANY CHANGE IN SITE CONDITIONS, DISCREPANCIES, ERRORS OR OMISSIONS SHALL BE BROUGHT TO THE ATTENTION OF MORSE ENGINEERING PRIOR TO THE COMMENCEMENT OF WORK.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH TITLE 5 (310 CMR 15) AND THE LOCAL BOARD OF HEALTH REQUIREMENTS TO THE FULLEST EXTENT PRACTICABLE. NO GUARANTEE TO THE SYSTEMS PERFORMANCE IS EXPRESSED OR IMPLIED.
- SOIL TEST DATA SHOWN IS LIMITED TO THE CONDITIONS EXISTING AT THE SUBJECT TEST PIT LOCATION ONLY. IF DIFFERENT SOIL CONDITIONS ARE FOUND IN THE AREA OF THE PROPOSED SOIL ABSORPTION SYSTEM THEY SHALL BE BROUGHT TO THE ATTENTION OF MORSE ENGINEERING IMMEDIATELY.
- THE CONTRACTOR SHALL NOTIFY DIGSAFE PRIOR TO ANY EXCAVATION AT THE SUBJECT PROPERTY. IT IS SPECIFICALLY CAUTIONED THAT THE SUBSURFACE UTILITIES SHOWN ARE APPROXIMATE ONLY AND HAVE BEEN COMPILED FROM AVAILABLE RECORDS AND OBSERVABLE SITE FEATURES. UTILITIES OTHER THAN THOSE SHOWN MAY BE PRESENT AT THIS LOCATION.
- THIS PLAN HAS BEEN PREPARED SPECIFICALLY AS A SEPTIC SYSTEM DESIGN AND IS NOT TO BE USED TO ESTABLISH PROPERTY LINES OR BUILDING SETBACKS. PROPERTY LINES AND BUILDING LOCATIONS ARE GRAPHIC ONLY. PROPERTY LINES NOT HAVING BEEN VERIFIED. NO REPRESENTATION OR CERTIFICATION AS TO THE ACCURACY OF THOSE SHOWN IS IMPLIED.
- CONTRACTOR TO VERIFY AND ENSURE THAT ALL INTERIOR PLUMBING IS DIRECTED INTO PROPOSED SEPTIC SYSTEM. ANY VARIATIONS FROM THE DESIGN AS SHOWN SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGN ENGINEER.

CONSTRUCTION NOTES

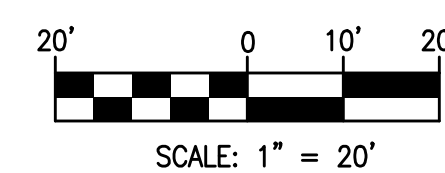
- CONTRACTOR SHALL COORDINATE INSPECTION TIMES WITH THE LOCAL BOARD OF HEALTH AND DESIGN ENGINEER 24-HOURS IN ADVANCE OF THE FOLLOWING INSPECTIONS:
 - AFTER EXCAVATION OF ALL UNSUITABLE MATERIAL FROM SOIL ABSORPTION AREA.
 - PRIOR TO COVERING THE CONSTRUCTED SYSTEM.
 - AFTER SYSTEM BACKFILL AND FINAL GRADING.
- ALL CONSTRUCTION MUST COMPLY WITH TITLE 5 OF THE STATE ENVIRONMENTAL CODE 310 CMR 15 & THE ANY LOCAL BOARD OF HEALTH SUPPLEMENTAL REGULATIONS.
- ALL TIGHT-JOINT PLUMBING SHALL BE CONSTRUCTED OF SCH. 40 PVC PIPE WITH CLEANED AND CEMENTED FITTINGS, UNLESS OTHERWISE NOTED.
- ALL PRECAST/PIPE CONSTRUCTION JOINTS AND FITTINGS SHALL BE MADE WATERTIGHT BY PARGING WITH HYDRAULIC CEMENT.
- THE CONTRACTOR SHALL PROVIDE A SIEVE ANALYSIS OF THE TITLE 5 PERC SAND UTILIZED FOR FILL TO VERIFY THAT IT MEETS THE REQUIREMENTS OF 310 CMR 15.255(3). TITLE 5 SAND FILL SHALL COMPLY WITH THE FOLLOWING:

SIEVE SIZE	PARTICLE SIZE
#4	4.75 mm
#50	0.30 mm
#100	0.15 mm
#200	0.075 mm
- THE CONTRACTOR SHALL PREVENT ANY HEAVY CONSTRUCTION MACHINERY AND/OR TRUCKS FROM DRIVING OVER THE PROPOSED SOIL ABSORPTION SYSTEM LOCATION UNTIL FINISHED GRADE IS ESTABLISHED.
- THE CONTRACTOR SHALL INSTALL MAGNETIC TAPE OVER SYSTEM PIPING & COMPONENTS
- THE DESIGN ENGINEER SHALL CERTIFY AND PREPARE AN "AS-BUILT" PLAN FOR SUBMITTAL TO THE BOARD OF HEALTH UPON SEPTIC SYSTEM COMPLETION.
- ALL DISTURBED AREAS SHALL BE RESTORED WITH 4" LOAM & SEED POST CONSTRUCTION.
- ALL SEPTIC SYSTEM COMPONENTS TO BE STAKED OUT BY PROFESSIONAL LAND SURVEYOR PRIOR TO SYSTEM INSTALLATION.
- CONTRACTOR SHALL ABANDON EXISTING SEPTIC COMPONENTS IN ACCORDANCE WITH 310 CMR SEC. 15.354 OF TITLE 5 AND LOCAL REGULATIONS BY PUMPING DRY, CRUSHING AND ABANDONING. CONTRACTOR TO BE INFILTRATOR CERTIFIED.

SITE NOTES

- THIS PLAN IS BASED ON A GROUND SURVEY PERFORMED BY MORSE ENGINEERING COMPANY, INC. IN MARCH 2021.
- ALL KNOWN WETLAND RESOURCE AREAS ARE SHOWN.
- THE SUBJECT PROPERTY LIES IN ZONE "X" AS SHOWN ON FEMA COMMUNITY MAP PANEL 25023C 0111J DATED JULY 17, 2012.
- THE SUBJECT PROPERTY IS NOT LOCATED WITHIN A DEP ZONE A SURFACE WATER SUPPLY.
- THE SUBJECT PROPERTY DOES NOT LIE WITHIN A DEP DESIGNATED ZONE II RESOURCE AREA.
- THERE ARE NO KNOWN ACTIVE WELLS WITHIN 100' OF THE PROPOSED SYSTEM.

	PREPARED BY: 	DESIGN: JMH
	PROJECT: 96 WEBSTER STREET (ASSESSOR'S MAP 5 LOT 54) HANOVER, MASSACHUSETTS	CHECK: GJM
APPLICANT: 96 WEBSTER STREET, LLC 690 MAIN STREET NORWELL, MA 02061	DATE: 3/30/2021 REV: 5/5/2021	JOB NO: 21-117
PLAN TITLE: SEPTIC SYSTEM UPGRADE PLAN	SHEET: 1	



SCALE: 1" = 20'