

LAND USE TABLE

LOCATION: 310 EAST BROADWAY (LOTS 469-187-34C AND 469-187-34C-2)
HAVERHILL, MA 01830

ZONE: RURAL RESIDENTIAL (RR)

USE:	REQUIRED	EXISTING		PROPOSED	
		LOT 34C	LOT 34C-2	LOT 34C	LOT 34C-2
MINIMUM LOT AREA - SF	80,000	47,744 ⁽²⁾	147,080	47,744 ⁽²⁾	147,080
MINIMUM LOT FRONTAGE - FEET	200	150 ⁽³⁾	150 ⁽³⁾	150 ⁽³⁾	150 ⁽³⁾
MINIMUM LOT DEPTH - FEET	125	300	>125	300	>125
MINIMUM FRONT SETBACK - FEET	40	--	--	50.0	40.5
MINIMUM SIDE SETBACK - FEET	25	--	--	36.8	42.0
MINIMUM REAR SETBACK - FEET	40	--	--	111.9	233.8
MAX. BUILDING HEIGHT - FEET	35	--	--	<35	<35
MAX. BUILDING HEIGHT - STORIES	2.5	--	--	2.5	2.5
MAX. BUILDING COVERAGE ⁽¹⁾	15%	0%	0%	8.3%	0.9%
MINIMUM OPEN SPACE	70%	100%	100%	>70%	>70%

LAND USAGE NOTES:
 1. BUILDING COVERAGE CALCULATION:
 LOT 34C: 1,736-SF + 2,240-SF / 47,744-SF X 100 = 8.3%
 LOT 34C-2: 1,350-SF / 147,080-SF X 100 = 0.9%
 2. A VARIANCE TO REQUIRED AREA IS REQUESTED FOR THIS LOT.
 3. A VARIANCE TO REQUIRED FRONTAGE IS REQUESTED FOR THESE LOTS.

SITE NOTES:
 1. CONTRACTOR TO COORDINATE ALL BUILDING PENETRATIONS AND ROOF LEADER LOCATIONS WITH ARCHITECTURAL DOCUMENTS PRIOR TO CONSTRUCTION.

STORMWATER DESIGN NOTES:

LOT 34C
 COMBINED IMPERVIOUS AREA COLLECTED:
 ROOF AREA: ±4,106-SF
 STORAGE VOLUME CRITERIA
 BASED ON 0.5-INCH OF RAINFALL & WQV (0.0416-FT)
 4,106-SF X 0.0416-FT = 171-CF
 STORAGE VOLUME PROPOSED
 THE PROPOSED SYSTEM CONSISTS OF
 TWO (2) CULTEC 280HD UNITS
 CHAMBER & STONE STORAGE VOLUME: 190-CF
 CHAMBER & STONE STORAGE OF 190-CF > 171-CF,
 THEREFORE DESIGN IS ACCEPTED

LOT 34C-2
 IMPERVIOUS AREA COLLECTED:
 ROOF AREA: ±1,100-SF
 STORAGE VOLUME CRITERIA
 BASED ON 0.5-INCH OF RAINFALL & WQV (0.0416-FT)
 1,100-SF X 0.0416-FT = 46-CF
 STORAGE VOLUME PROPOSED
 THE PROPOSED SYSTEM CONSISTS OF
 TWO (1) CULTEC 100HD UNITS
 CHAMBER STORAGE & STONE VOLUME: 50-CF
 CHAMBER & STONE STORAGE OF 50-CF > 46-CF,
 THEREFORE DESIGN IS ACCEPTED

FLOODPLAIN STORAGE CALCULATIONS:

PRE-DEVELOPMENT

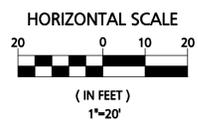
ELEVATION (FT)	SURFACE AREA (SF)	INCREMENTAL STORAGE (CF)	TOTAL STORAGE (CF)
16.0	2,042	0	0
17.0	4,942	3,492	3,492
17.8	7,812	5,101	8,594

POST-DEVELOPMENT

ELEVATION (FT)	SURFACE AREA (SF)	INCREMENTAL STORAGE (CF)	TOTAL STORAGE (CF)	STORAGE DIFFERENCE (CF)
16.0	2,088	0	0	0
17.0	4,960	3,514	3,514	22
17.8	7,848	5,123	8,637	22

LEGEND

EXISTING BFE: 17.8	---
PROPOSED BFE: 17.8	---



DATE	DESCRIPTION
REVISIONS	

APPLICANT:
MITCHELL MESSER
 39 LAZARUS WAY
 SALEM, NH 03079

PROJECT:
310 EAST BROADWAY
 HAVERHILL, MA 01830

DATE ISSUED: FEBRUARY 05, 2026
 PROJECT #: 25-10802
 PREPARED BY: KC

DATE - ISSUED FOR REVIEW
 FEBRUARY 05, 2026

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DRAWING TITLE:
GRADING, DRAINAGE & UTILITY PLAN

DRAWING #:

C-2

CONSTRUCTION NOTES:

- ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO MASSACHUSETTS ENVIRONMENTAL CODE (310 CMR 15.00, TITLE 5) AND THE LOCAL BOARD OF HEALTH.
- SYSTEM TO BE INSTALLED IN ACCORDANCE WITH THE PROCEDURES AND SPECIFICATIONS DESCRIBED IN THE TITLE 5, 310 CMR 15.00, THE STATE ENVIRONMENTAL CODE AS WELL AS THE LOCAL BOARD OF HEALTH REGULATIONS.
- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THIS PLAN IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE.
- THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES PRIOR TO CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.
- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL HORIZONTAL AND VERTICAL CONTROL OF ALL SYSTEM COMPONENTS.
- ALL ELEVATIONS AND GRADES ARE TO BE SET FROM THE TEMPORARY BENCH MARK (TBM) AS ILLUSTRATED ON THE PLAN.
- NO DRAINS, HOT TUBS, SAUNAS, GARBAGE DISPOSALS ETC. SHALL BE INCORPORATED INTO THIS SYSTEM.
- ANY PIPING WITHIN TEN FEET OF THE BUILDING SHALL BE INSTALLED BY A PLUMBER LICENSED IN THE COMMONWEALTH OF MASSACHUSETTS IN COMPLIANCE WITH THE STATE BUILDING AND PLUMBING CODE.
- REMOVE ALL TOPSOIL, TREES, BUSHES, BOULDERS, AND DEBRIS FROM BENEATH THE S.A.S., FILL EXTENSION AND 3:1 SIDE SLOPES.
- WHERE FILL IS REQUIRED TO REPLACE UNSUITABLE SOILS, THE EXCAVATION OF THE UNSUITABLE MATERIAL SHALL EXTEND A MINIMUM OF FIVE FEET LATERALLY IN ALL DIRECTIONS BEYOND THE OUTER PERIMETER OF THE SOIL ABSORPTION SYSTEM TO THE DEPTH OF NATURALLY OCCURRING PERVIOUS MATERIAL, OR AS DIRECTED BY THE ENGINEER OR APPROVING AUTHORITY, AS REQUIRED BY 310 CMR 15.240 AND REPLACED WITH FILL MATERIAL (SEE CONSTRUCTION NOTE 11).
- FILL MATERIAL FOR SYSTEMS CONSTRUCTED IN FILL SHALL CONSIST OF SELECT ON-SITE OR IMPORTED SOIL MATERIAL. THE FILL SHALL BE COMPRISED OF CLEAN GRANULAR SAND, BE FREE FROM ORGANIC MATTER AND DELETERIOUS SUBSTANCES, AND SHALL NOT CONTAIN REMEDIATION WASTE AS THAT TERM IS DEFINED IN 310 CMR 40.0000. MIXTURES AND LAYERS OF DIFFERENT CLASSES OF SOIL SHALL NOT BE USED. THE FILL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN TWO INCHES. A SIEVE ANALYSIS, USING A #4 SIEVE, SHALL BE PERFORMED ON A REPRESENTATIVE SAMPLE OF THE FILL, UP TO 45% BY WEIGHT OF THE FILL SAMPLE MAY BE RETAINED ON THE #4 SIEVE. SIEVE ANALYSES ALSO SHALL BE PERFORMED ON THE FRACTION OF THE FILL SAMPLE PASSING THE #4 SIEVE. SUCH ANALYSES MUST DEMONSTRATE THAT THE MATERIAL MEETS EACH OF THE FOLLOWING SPECIFICATIONS:

SIEVE SIZE	EFFECTIVE PARTICLE SIZE	% THAT MUST PASS
# 4	4.75 MM	100%
# 50	0.30 MM	10% - 100%
#100	0.15 MM	0% - 20%
#200	0.075 MM	0% - 5%

- THE BOTTOM AND SIDES OF THE SOIL ABSORPTION SYSTEM SHALL BE EXCAVATED TO A LEVEL GRADE AND SCARIFIED. IF THE REMOVAL OF STONES, BOULDERS OR PORTIONS OF AN EXISTING SEWAGE DISPOSAL SYSTEM IS REQUIRED, CREATING LOCALIZED DEPRESSIONS, FILLING TO GRADE MUST BE WITH CLEAN FILL (SEPTIC GRAVEL), NOT ON SITE MATERIAL.
- ALL STONE MUST BE DOUBLE WASHED AND FREE FROM FINES AND ANY ORGANIC MATERIAL AND MUST HAVE LESS THAN 0.2 PERCENT MATERIAL FINER THAN A NUMBER 200 SIEVE.
- FINISHED GRADE OVER THE SOIL ABSORPTION SYSTEM SHALL HAVE A MINIMUM SLOPE OF 2%.
- ALL DISTURBED AREAS ARE TO BE LOAMED, SEEDED AND MAINTAINED TO PREVENT EROSION.
- STOCK PILING OF MATERIAL OR CONSTRUCTION EQUIPMENT OVER THE SOIL ABSORPTION SYSTEM IS PROHIBITED.
- DISTRIBUTION BOX OUTLET PIPES SHALL BE LEVEL FOR AT LEAST THE FIRST 2 FEET.
- TIGHT JOINT PIPING TO CONSIST OF POLYVINYL CHLORIDE (P.V.C.) SCHEDULE 40, UNLESS OTHERWISE NOTED.

GENERAL NOTES:

- THIS SEPTIC DESIGN HAS BEEN PREPARED FOR THE CONSTRUCTION OF A 4 BEDROOM DWELLING AND SEWAGE DISPOSAL SYSTEM LOCATED AT 310 EAST BROADWAY IN HAVERHILL, MA IN COMPLIANCE WITH 310 CMR 15.00 AND THE RULES AND REGULATIONS OF THE HAVERHILL BOARD OF HEALTH.
- ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO MASSACHUSETTS ENVIRONMENTAL CODE (310 CMR 15.00, TITLE 5), AND THE HAVERHILL BOARD OF HEALTH.
- THERE SHALL BE NO CHANGES MADE IN THIS PLAN WITHOUT THE WRITTEN PERMISSION OF THE HAVERHILL BOARD OF HEALTH AND THE DESIGN ENGINEER.
- ALL ERRORS, OMISSIONS, AND CHANGE OF CONDITIONS AT THE SITE SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.
- 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. NO REPRESENTATION OR CERTIFICATION AS TO THE ACCURACY OF THOSE SHOWN IS IMPLIED OR INTENDED.
- THIS SYSTEM HAS BEEN DESIGNED IN CONFORMANCE WITH THE HAVERHILL BOARD OF HEALTH REGULATIONS AND THE REQUIREMENTS OF TITLE 5, 310 CMR 15.000. NO GUARANTEE OF PERFORMANCE IS EXPRESSED OR IMPLIED.
- TEST HOLE INFORMATION SHOWN HEREON IS LIMITED TO SOIL CONDITIONS FOUND AT THAT PARTICULAR TEST HOLE LOCATIONS AND IS NOT CONSIDERED OR IMPLIED OR EXPRESSED WARRANTY OF SOIL CONDITIONS BEYOND LIMITS OF SUCH TEST HOLES.
- ALL KNOWN WELLS WITHIN 150' OF THE PROPOSED LEACHING AREA ARE INDICATED ON THE PLAN.
- THE PROPOSED SYSTEM IS NOT DESIGNED FOR THE USE OR INSTALLATION OF A GARBAGE GRINDER.
- MAGNETIC MARKING TAPE TO BE INSTALLED OVER ALL SYSTEM COMPONENTS PER 310 CMR 15.221(12).
- BUILDING SEWER TO HAVE WATERTIGHT JOINTS, TO BE LAID ON A COMPACTED AND FIRM BASE, AND IN A CONTINUOUS GRADE ON A STRAIGHT LINE PER 310 CMR 15.222.
- 2-INCH RIGID FOAMBOARD INSULATION (R-12 INSULATING VALUE) TO BE INSTALLED OVER UPPER HALF OF PROCESSOR, AIR AND WATER LINES.

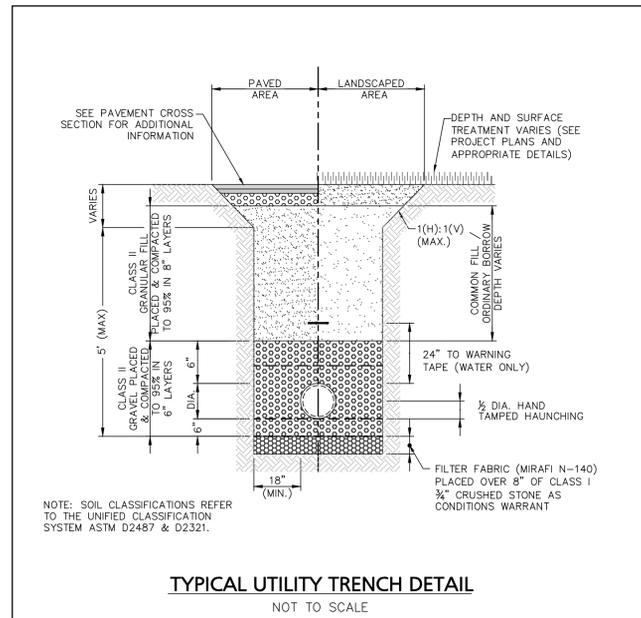
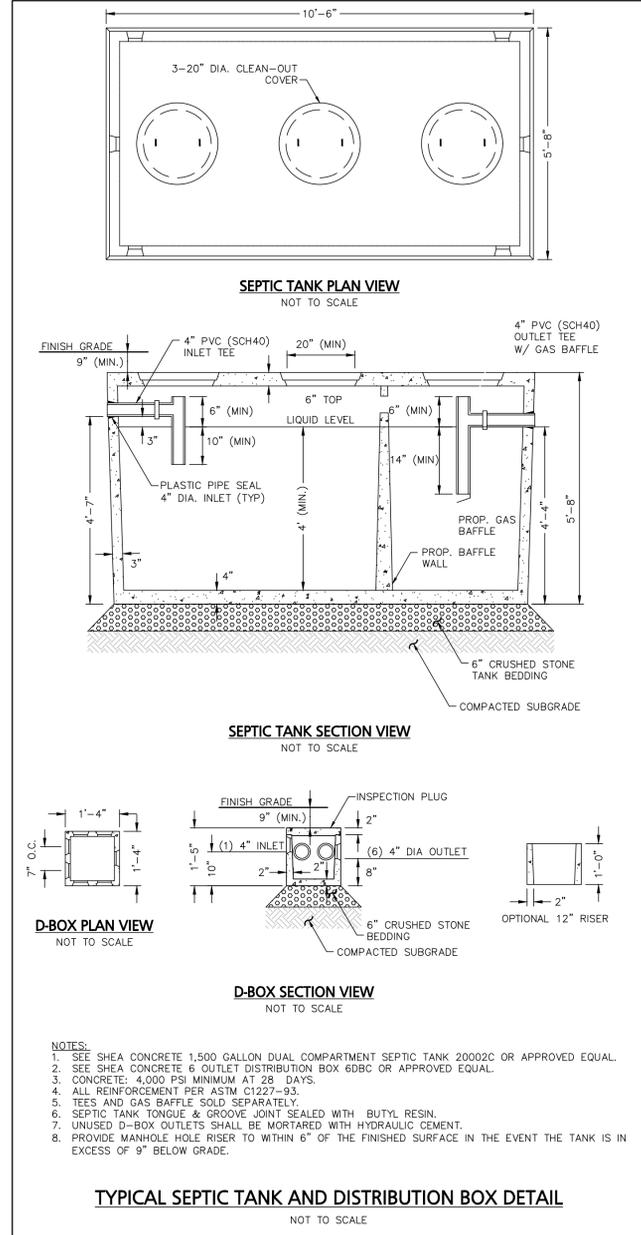
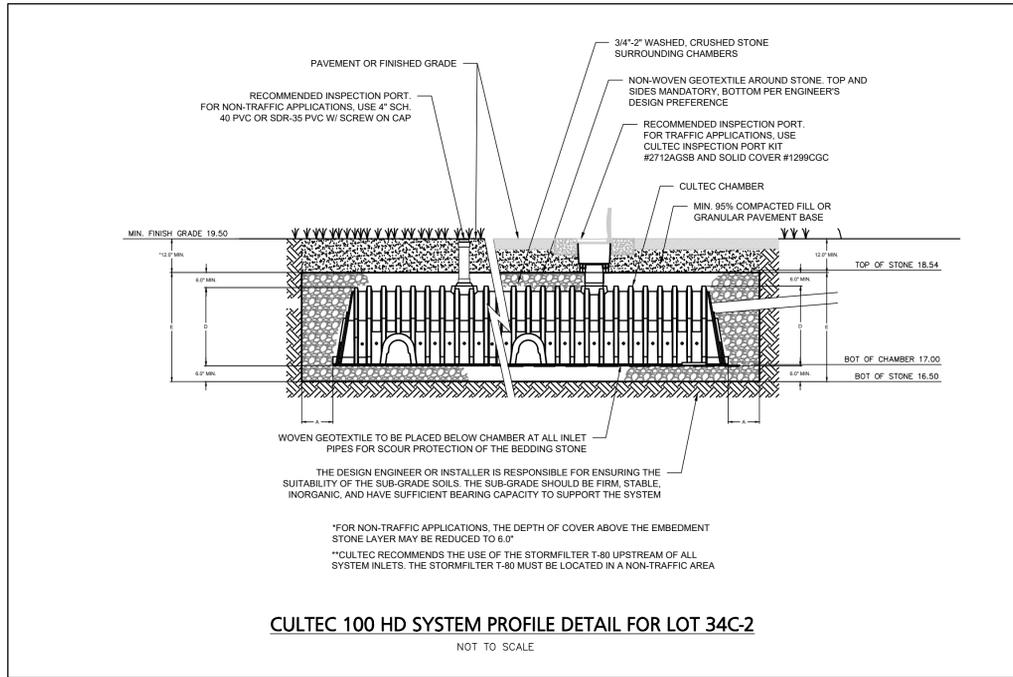
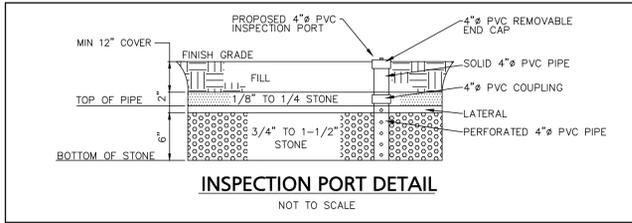
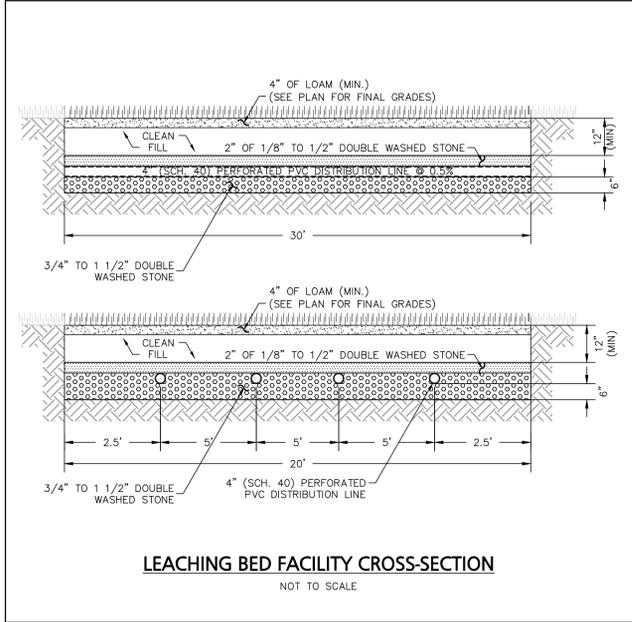
GENERAL CONSTRUCTION SEQUENCE:

- DESCRIBED BELOW ARE THE MAJOR CONSTRUCTION ACTIVITIES. THEY ARE PRESENTED IN THE ORDER (OR SEQUENCE) THEY ARE EXPECTED TO BEGIN, BUT EACH ACTIVITY WILL NOT NECESSARILY BE COMPLETED BEFORE THE NEXT BEGINS. ALSO, THESE ACTIVITIES COULD OCCUR IN A DIFFERENT ORDER IF NECESSARY TO MAINTAIN ADEQUATE EROSION AND SEDIMENTATION CONTROL. ALL ACTIVITIES AND THE TIMEFRAME (BEGINNING AND ENDING DATES) SHALL BE RECORDED BY THE GENERAL CONTRACTOR:
- CONTRACTOR TO REVIEW ALL LOCAL, STATE AND FEDERAL PERMITS.
 - DELINEATE THE LIMIT OF WORK AND INSTALL EROSION CONTROL.
 - CUT AND CLEAR TREES WITHIN THE AREA OF DISTURBANCE.
 - IMPORT FILL REQUIRED. THE AREA OF THE PROPOSED LEACHING FIELD SHALL NOT BE DISTURBED OR COMPACTED IN ANY WAY PRIOR TO CONSTRUCTION OF THE SYSTEM.
 - STRIP TOP AND SUBSOIL IN AREA OF PROPOSED LEACHING FIELD. IMPORT REQUIRED SAND, CONSTRUCT FIELD, AND INSTALL COMPONENTS.
 - BRING AREA TO GRADE AND PAVE AS REQUIRED, COMPLETE PERMANENT SEEDING AND LANDSCAPING.
 - ALL SLOPES SHALL BE STABILIZED IMMEDIATELY AFTER GRADING. ALL DISTURBED AREAS SHALL BE STABILIZED NO LATER THAN 72-HOURS AFTER CONSTRUCTION ACTIVITIES CEASE. IF EARTHWORK TEMPORARILY CEASES ON A PORTION OF OR ON THE ENTIRE SITE, AND WILL NOT RESUME WITHIN 21-DAYS, THE AREA SHALL BE STABILIZED. REMOVE TEMPORARY EROSION CONTROL MEASURES ONCE ALL AREAS ARE STABILIZED WITH A SUITABLE STAND OF GRASS, PAVEMENT, OR COMPACTED GRAVELS.

INSPECTIONS / AS-BUILT / CERTIFICATION NOTES:

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ALL INSPECTIONS WITH THE APPROVING AUTHORITY AND THE DESIGNER CONSISTENT WITH SECTION 15.021(2) OF TITLE 5.
- SUBSURFACE COMPONENTS 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.
- AT A MINIMUM, THE DESIGNER SHALL INSPECT THE SYSTEM AFTER THE INITIAL EXCAVATION, PRIOR TO BACKFILLING, DURING BACKFILLING OPERATIONS AND DURING THE PLACEMENT OF THE IMPERVIOUS MEMBRANE IF SO PROVIDED.
- THE CONTRACTOR IS RESPONSIBLE TO COORDINATE THE PREPARATION OF AN AS-BUILT PLAN TO REFLECT ANY CHANGES TO THE APPROVED DESIGN PLAN AND SHOW THE EXACT LOCATION AND ELEVATION OF ALL SYSTEM COMPONENTS. IN THE EVENT NO CHANGES ARE MADE TO THE APPROVED PLAN, THE APPROVED PLANS SHOWING THE DISTANCES FROM A KNOWN STRUCTURE TO THE SYSTEM COMPONENTS SHALL BE SUBMITTED TO THE APPROVING AUTHORITY IN PLACE OF AN AS-BUILT PLAN.
- PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF COMPLIANCE, THE DISPOSAL SYSTEM INSTALLER AND DESIGNER SHALL CERTIFY IN WRITING THAT THE SYSTEM HAS BEEN CONSTRUCTED IN COMPLIANCE WITH THE APPROVED PLAN AND TITLE 5.
- SOIL EVALUATOR CERTIFICATION: I CERTIFY THAT I AM CURRENTLY APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION PURSUANT TO 310 CMR 15.017 TO CONDUCT SOIL EVALUATIONS AND THAT THE ABOVE ANALYSIS HAS BEEN PERFORMED BY ME CONSISTENT WITH THE REQUIRED TRAINING, EXPERTISE, AND EXPERIENCE DESCRIBED IN 310 CMR 15.017. I FURTHER CERTIFY THAT THE RESULTS OF MY SOIL EVALUATION, AS INDICATED IN THE ATTACHED SOIL EVALUATION FORM, ARE ACCURATE AND IN ACCORDANCE WITH 310 CMR 15.100 THROUGH 15.107.

TROY STEARNS, S.E.



DATE	DESCRIPTION
REVISIONS	

APPLICANT:
MITCHELL MESSER
39 LAZARUS WAY
SALEM, NH 03079

PROJECT:
310 EAST BROADWAY
HAVERHILL, MA 01830

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DRAWING TITLE:
CONSTRUCTION DETAILS

DRAWING #:
D-2