

**GENERAL NOTES**

- ALL CONSTRUCTION TO CONFORM TO THE REQUIREMENTS OF THE MASSACHUSETTS D.E.P. STATE ENVIRONMENTAL CODE 310 CMR 15.00, TITLE FIVE, AND THE CITY OF WORCESTER BOARD OF HEALTH. PERCOLATION TESTS PERFORMED IN ACCORDANCE WITH THE INSTRUCTIONS OF THE MASSACHUSETTS D.E.P. STATE ENVIRONMENTAL CODE TITLE FIVE, 310 CMR 15.00.
  - ESTIMATED FLOW = 3 BEDROOMS @ 110 GPD = 330 GPD  
NO GARBAGE GRINDER ALLOWED
  - DESIGN PERCOLATION RATE = 11 MPI (CLASS II SOIL)
  - LEACHING AREA REQUIRED = 330 GPD / (0.59 GAL/SF) = 600 SF  
LEACHING AREA PROVIDED = TRAPEZOIDAL (18.6 FT X 44.44 FT X 9.22 FT) = 618 SF
  - LEACHING LINES SHALL CONSIST OF 600 SF LEACHING BED
  - FINISH GRADING TO BE DONE IN ACCORDANCE WITH PLAN.
  - EXCAVATION FOR CONSTRUCTION OF A SOIL ABSORPTION SYSTEM MAY BE BY MECHANICAL MEANS. PROVIDED CARE IS TAKEN TO ASSURE THAT THE SOIL AT THE BOTTOM OF THE EXCAVATION IS NOT COMPACTED OR SWEARED. THE BOTTOM AND SIDES OF THE EXCAVATION SHALL BE LEVEL AND SCARRIFIED. VEHICULAR TRAFFIC AND PARKING OF VEHICLES OR EQUIPMENT IN OR ON THE AREA OF THE SOIL ABSORPTION SYSTEM SHOULD BE AVOIDED AT ALL TIMES PRIOR, DURING AND AFTER CONSTRUCTION OF THE SYSTEM.
  - FROM THE DATE OF THE INSTALLATION OF THE SOIL ABSORPTION SYSTEM UNTIL RECEIPT OF A CERTIFICATE OF COMPLIANCE FROM THE APPROVING AUTHORITY IN ACCORDANCE WITH 310 CMR 15.021, THE PERIMETER OF THE SOIL ABSORPTION SYSTEM SHALL BE STAKED AND FLAGGED TO PREVENT THE USE OF SUCH AREA FOR ALL ACTIVITIES WHICH MIGHT DAMAGE THE SOIL ABSORPTION SYSTEM. SUCH FLAGGING IS NOT INTENDED TO PRECLUDE THE FINAL GRADING AND LANDSCAPING OF THE AREA OF THE SOIL ABSORPTION SYSTEM. STOCKPILING OF MATERIALS OR EQUIPMENT WITHIN THE AREA IS PROHIBITED.
  - NO DRIVEWAY, PARKING OR TURNING AREA OR OTHER IMPERVIOUS AREA SHALL BE LOCATED ABOVE A SOIL ABSORPTION SYSTEM. EXCEPT WHERE RESTRICTIONS ON USE OF LAND MAKE IT UNAVOIDABLE. IN SUCH CASES, THE SOIL ABSORPTION SYSTEM SHALL BE VENTED TO THE ATMOSPHERE IN ACCORDANCE WITH 310 CMR 15.241
  - THE BOTTOM OF EACH SOIL ABSORPTION SYSTEM SHALL BE EXCAVATED TO A LEVEL GRADE. IF THE REMOVAL OF STONES OR BOULDERS IS REQUIRED, CREATING LOCALIZED DEPRESSIONS, FILLING TO GRADE WITH THE EXCAVATED SOIL IS ACCEPTABLE.
  - THE SOIL PLACED AS BACKFILL OVER THE SYSTEM SHALL BE A MINIMUM OF NINE INCHES, EXCLUDING TOPSOIL, PLACED IN LIFTS AND SUFFICIENTLY COMPACTED TO PREVENT DEPRESSIONS DUE TO SETTLING WHICH MAY INTERFERE WITH SURFACE WATER RUNOFF ABOVE THE SYSTEM. BACKFILL MUST BE CLEAN AND FREE OF STONES AND BOULDERS GREATER THAN SIX INCHES IN SIZE. TAILINGS, CLAY OR SIMILAR MATERIALS ARE PROHIBITED.
  - FINAL COVER ABOVE THE SYSTEM SHALL BE GRADED TO REDUCE INFILTRATION OF SURFACE WATER AND MINIMIZE EROSION. FINISH GRADE SHALL HAVE A MINIMUM SLOPE OF 0.02 FEET PER FOOT.
  - SURFACE AND SUBSURFACE DRAINAGE SHALL BE DIRECTED AWAY FROM THE SOIL ABSORPTION SYSTEM.
  - DISTRIBUTION LINES FOR LEACHING TRENCHES SHALL BE CONSTRUCTED OF EITHER POLYVINYL CHLORIDE (PVC) PLASTIC, ACRYLONITRILE-BUTADIENE-STYRENE (ABS), OR HIGH DENSITY POLYETHYLENE (HDPE). ALL PVC LINES SHALL BE EITHER SCHEDULE 40 (ASTM D 1785) OR SDR 35 (ASTM D 3034). ALL ABS PIPES SHALL BE SCHEDULE 40 (ASTM F 628), AND ALL HDPE PIPE SHALL MEET OR EXCEED ASTM F 810.
  - ALL CONNECTIONS AND JOINTS SHALL BE MECHANICALLY SOUND AND TIGHT.
  - DISTRIBUTION LINES CONNECTING THE DISTRIBUTION BOX OR PUMP CHAMBER TO THE SOIL ABSORPTION SYSTEM DISTRIBUTION LINES SHALL BE UNPERFORATED WITH WATER TIGHT CONNECTIONS AND JOINTS.
  - DISTRIBUTION LINES EXCEEDING 50 FEET IN LENGTH SHALL BE CONNECTED AND VENTING PROVIDED IN ACCORDANCE WITH 310 CMR 15.241.
  - FILL MATERIAL FOR SYSTEMS CONSTRUCTED IN FILL SHALL CONSIST OF SELECT ON-SITE OR IMPORTED SOIL MATERIAL, CONSISTING OF CLEAN GRANULAR SAND, FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES. MIXTURES AND LAYERS OF DIFFERENT CLASSES OF SOIL SHALL NOT BE USED. THE FILL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN 2 INCHES. A SIEVE ANALYSIS, USING A #4 SIEVE, SHALL BE PERFORMED ON A REPRESENTATIVE SAMPLE OF 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 AND MATERIAL MEETS EACH OF THE FOLLOWING SPECIFICATIONS:
- | SIEVE SIZE | EFFECTIVE PARTICLE SIZE | % THAT MUST PASS SIEVE |
|------------|-------------------------|------------------------|
| # 4        | 4.75 MM                 | 100%                   |
| # 50       | 0.30 MM                 | 10% - 100%             |
| #100       | 0.15 MM                 | 0% - 20%               |
| #200       | 0.075 MM                | 0% - 5%                |
- A MINIMUM OF ONE REPRESENTATIVE SAMPLE WILL BE TAKEN FROM THE IN-PLACE FILL FOR A SYSTEM SERVING A SINGLE FAMILY RESIDENCE AND TESTED FOR COMPLIANCE WITH THE GRAIN SIZE DISTRIBUTION SPECIFICATION. ONE TEST PER PIT PER REMOVAL DAY SHALL BE REQUIRED FOR SYSTEMS WITH DESIGN FLOWS OF 2000 GPD OR MORE.
  - WHERE FILL IS REQUIRED TO REPLACE UNSUITABLE OR IMPERMEABLE 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 AS REQUIRED BY 310 CMR 15.240 (SOIL ABSORPTION SYSTEMS) AND REPLACED WITH FILL MATERIAL MEETING THE SPECIFICATIONS OF 310 CMR 15.255(3)
  - PRIOR TO PLACEMENT OF THE FILL WHICH SHALL BE STOCKPILED AT THE EDGE OF THE EXCAVATION AND FILLED IN GRADUALLY, THE BOTTOM SURFACE OF THE EXCAVATION SHALL BE SCARRIFIED 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 DEWATERED AS NECESSARY.
  - ALL ELEVATIONS REFER TO SURVEYOR PLOT PLAN
  - FOR PROPER PERFORMANCE, SEPTIC TANK SHOULD BE PUMPED ANNUALLY.
  - MORTAR ALL UN-USED KNOCKOUTS ON SEPTIC TANK, PUMP CHAMBER AND D-BOX.
  - DESIGN ENGINEER TO BE CONTACTED 48 HOURS PRIOR TO BACKFILLING SYSTEM TO CONDUCT AN AS-BUILT SURVEY.
  - PROPOSED LEACH AREA IS NOT WITHIN 100' OF A WETLAND BOUNDARY.
  - WORCESTER BOARD OF HEALTH SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF REQUIRED INSPECTIONS AS A MINIMUM, FOUR INSPECTIONS SHALL BE REQUIRED:
    - UPON EXCAVATION OF LEACHING AREA.
    - AFTER FILL IS IN PLACE AND PRIOR TO PLACEMENT OF AGGREGATE.
    - UPON COMPLETION OF LEACHING TRENCHES PRIOR TO BACKFILLING.
    - UPON COMPLETION OF FINISH GRADING.
  - DISTRIBUTION BOX MANHOLE SHALL BE SET NO MORE THAN 12" (TWELVE INCHES) NOR LESS THAN 6" BELOW GRADE.
  - EXCAVATION SHALL ONLY BE DONE ON DRY SURFACES FREE OF MUD. DEWATERING IF NECESSARY. SHALL BE REQUIRED BEFORE PLACEMENT OF FILL
  - DESIGN ENGINEER SHALL CERTIFY FINISH GRADES.
  - NO EXISTING OR PROPOSED WELLS ARE WITHIN 100 FEET OF LEACHING AREA OR SEPTIC TANK.
  - ANY ALTERATIONS MUST BE APPROVED IN WRITING BY THE DESIGN ENGINEER. ANY CONDITIONS ENCOUNTERED DURING CONSTRUCTION DIFFERING FROM THOSE SHOWN HEREON OR REPORTED IN SHALL BE REPORTED TO THE DESIGN ENGINEER BEFORE CONSTRUCTION CONTINUES.
  - TEST HOLE INFORMATION SHOWN HEREON IS LIMITED TO SOIL CONDITIONS FOUND AT THAT PARTICULAR TEST HOLE LOCATION AND IS NOT TO BE CONSIDERED AN IMPLIED OR EXPRESS WARRANTY OF SOIL CONDITIONS BEYOND THE LIMITS OF SUCH TEST HOLES.
  - FORMER, PRE-EXISTING HOUSE WAS SERVICED BY THE EXISTING ASPHALT DRIVEWAY. THE INTENT WAS HAVING THE HOUSE REMOVED AND TO BUILD THIS NEW PROPOSED HOUSE IN ITS PLACE.



**SOIL TEST RESULTS**

TP-1 (392.0)

0" - 3"	Ap	SL	10YR3/3
3" - 9"	Bw1	SL	10YR4/4
9" - 22"	Bw2	SL	2.5Y4/4
22" - 60"+	Cd	SL	5Y5/3

REDOX 55" 5Y5/3

**PERCOLATION**

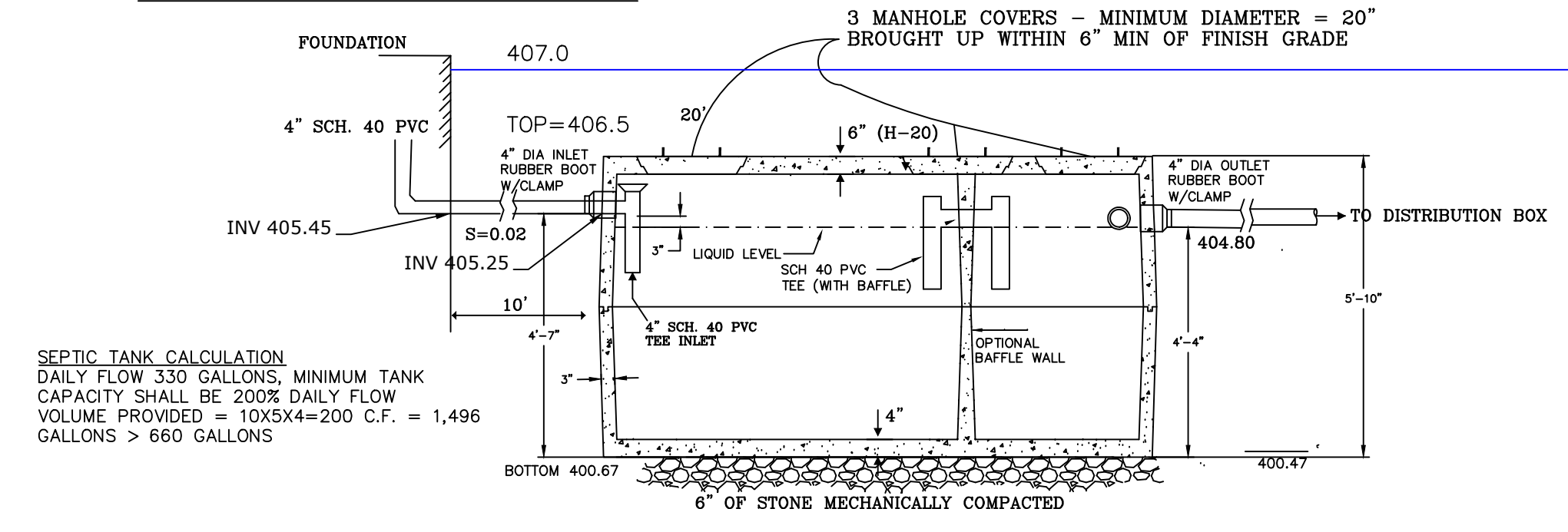
NO.	DEPTH	RATE	DATE
PT-1	10"	11 MPI	3/6/24

DATE: MARCH 6, 2024

BY: GEORGE ATALLAH, P.E.  
SOIL EVALUATOR SE14749

INSP. CEDRIC RICHARDSON B.O.H.

**SYSTEM PROFILE**



SEPTIC TANK CALCULATION  
DAILY FLOW 330 GALLONS, MINIMUM TANK CAPACITY SHALL BE 200% DAILY FLOW VOLUME PROVIDED = 10X54=200 C.F. = 1,496 GALLONS > 660 GALLONS

2 MANHOLE COVERS - MINIMUM DIAMETER = 20" BROUGHT UP WITHIN 9" MIN OF FINISH GRADE

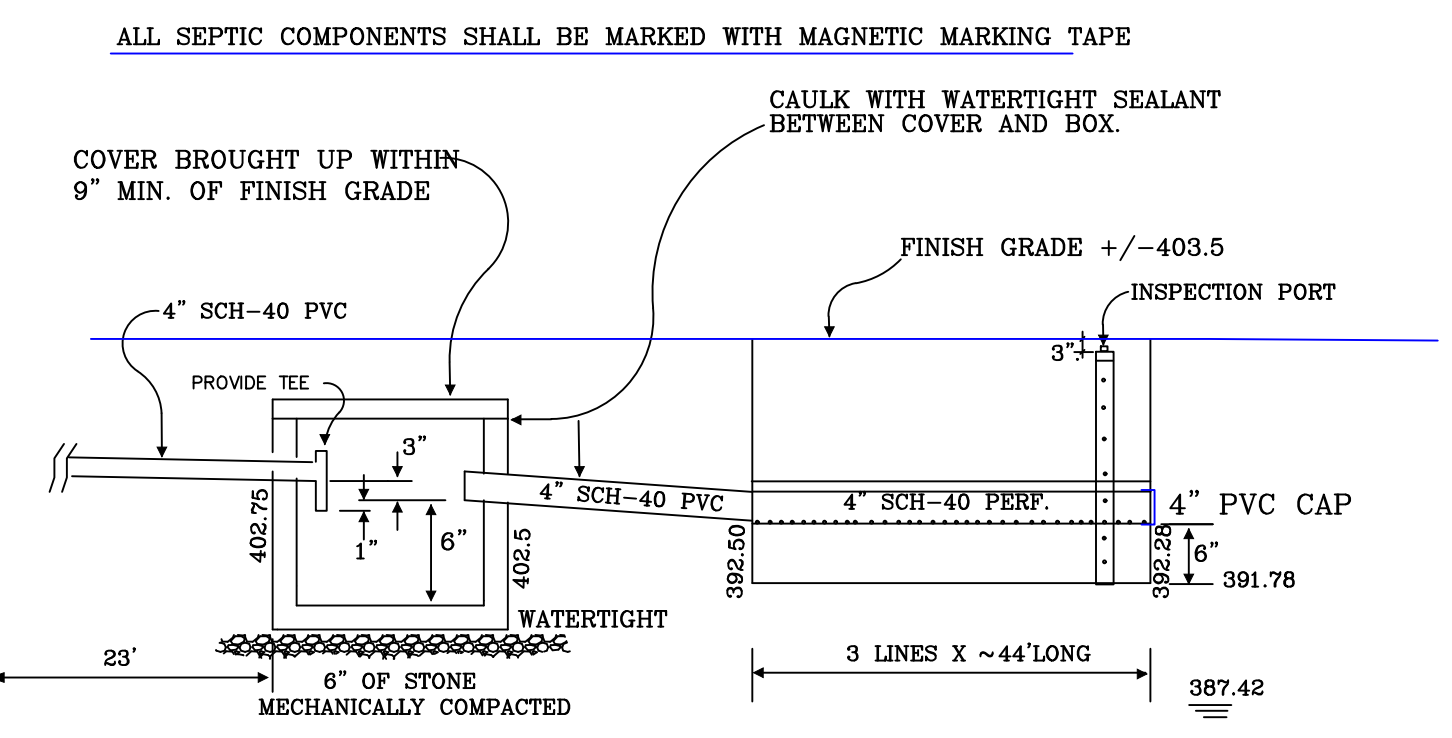
3 MANHOLE COVERS - MINIMUM DIAMETER = 20" BROUGHT UP WITHIN 6" MIN OF FINISH GRADE

4" SCH. 40 PVC  
TOP=406.5  
INV 405.45  
S=0.02  
6" (H-20)  
4" DIA INLET RUBBER BOOT W/CLAMP  
3" SCH 40 PVC TEE (WITH BAFFLE)  
4" DIA OUTLET RUBBER BOOT W/CLAMP  
4" DIA OUTLET RUBBER BOOT W/CLAMP  
TO DISTRIBUTION BOX  
5'-10"  
4"  
4"  
6" OF STONE MECHANICALLY COMPACTED  
BOTTOM 400.67

SHEA CONCRETE PRODUCTS, INC. OR EQUAL TO BE APPROVED BY DESIGN ENGINEER

PRECAST REINFORCED CONCRETE  
CAPACITY OF TANK = 1500 GALLONS

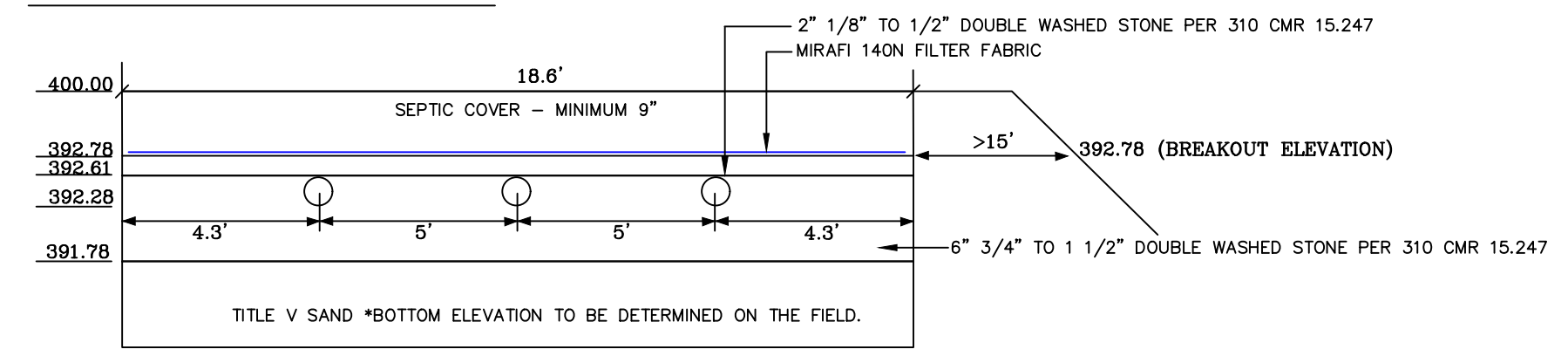
1500 GALLON SEPTIC TANK  
CONSTRUCTION PER 310 CMR 15.223 THRU 15.228



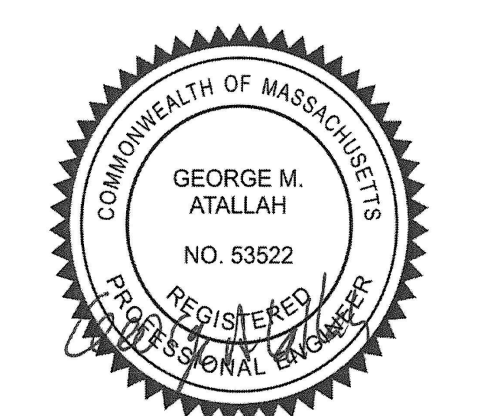
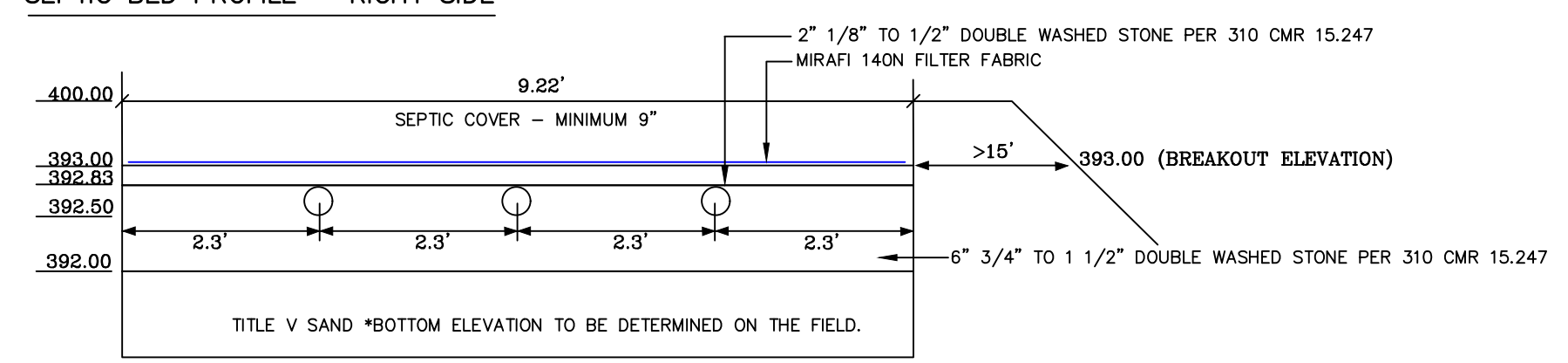
**SCHEDULE OF ELEVATIONS**

- TOP OF FOUNDATION (TC) = 408.00
- INVERT OF PIPE AT FOUNDATION = 405.45
- INVERT AT SEPTIC TANK INLET = 405.25
- INVERT AT SEPTIC TANK OUTLET = 404.80
- INVERT AT DISTRIBUTION BOX INLET = 402.75
- INVERT AT DISTRIBUTION BOX OUTLET = 402.50
- INVERT AT LEACHING LINES (BEGINNING) = 392.50
- INVERT AT LEACHING LINES (END) = 392.28
- ELEVATION OF BOTTOM STONE = 391.78
- FINISH GRADE OVER LEACHING AREA (FG) = 400.00
- DESIGN WATER TABLE ELEV= 387.42

**SEPTIC BED PROFILE - LEFT SIDE**



**SEPTIC BED PROFILE - RIGHT SIDE**



DATE:

No.	Date	Description
Revisions		

Prepared for:  
ROCCO LEONE  
0 NATURAL HISTORY DRIVE  
WORCESTER, MA

Property of:  
ROCCO LEONE  
0 NATURAL HISTORY DRIVE  
WORCESTER, MA

Prepared By:

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Project Title  
0 NATURAL HISTORY DR.  
WORCESTER, MA

Sheet Title  
SEPTIC SYSTEM

SCALE	1" = 20'
DRAWN	G&F
CHECKED	MF
FILE NAME	SITE.DWG
PROJECT	0 NATURAL HISTORY
ISSUE DATE	3/26/24
JOB NO.	0 NATURAL HISTORY