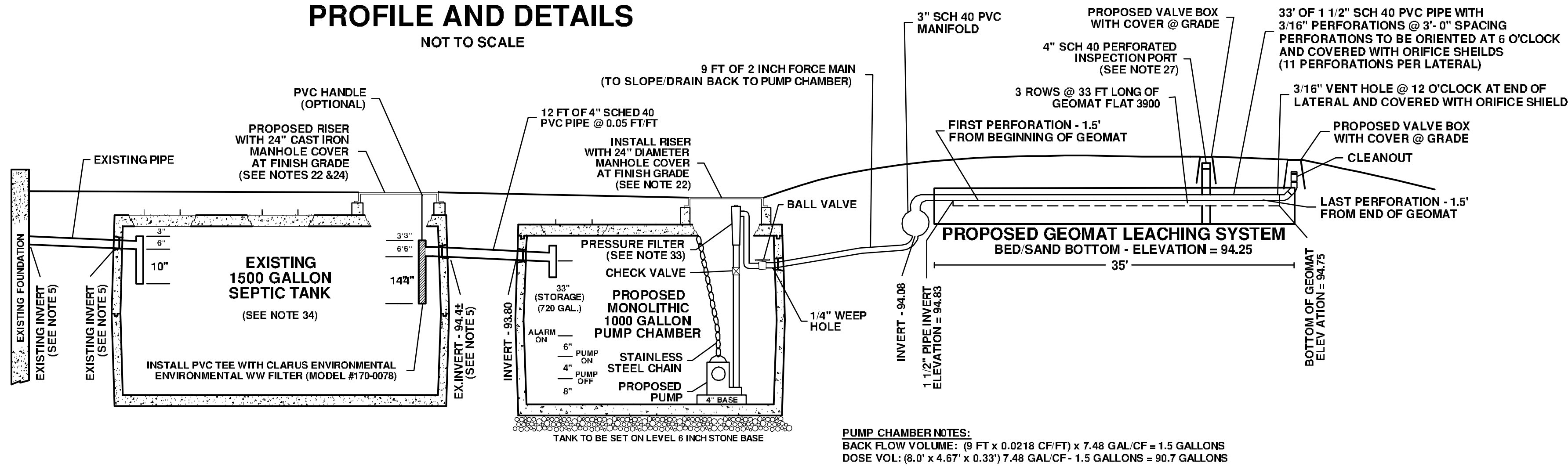


PROFILE AND DETAILS

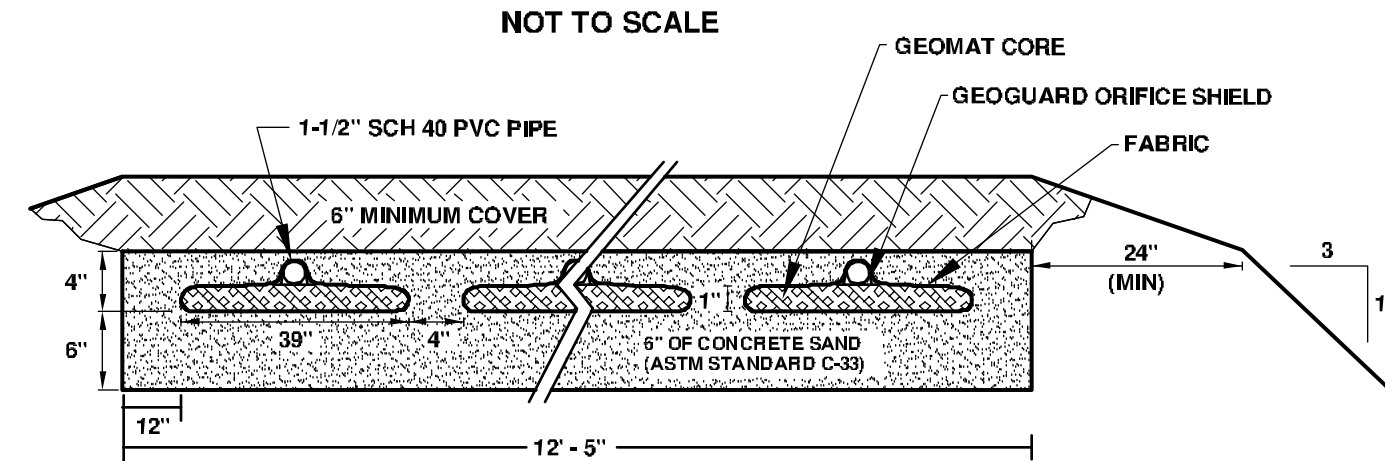
NOT TO SCALE



PUMP CHAMBER NOTES:
BACK FLOW VOLUME: (9 FT x 0.0218 CF/FT) x 7.48 GAL/CF = 1.5 GALLONS
DOSE VOL: (8.0' x 4.67' x 0.33') 7.48 GAL/CF - 1.5 GALLONS = 90.7 GALLONS

CROSS SECTION

NOT TO SCALE



INSTALL 3 ROWS OF GEOMAT FLAT 3900 @ 3' - 7" ON CENTER			
SCHEDULE OF ELEVATIONS			
TOP OF FOUNDATION	EXISTING	GEOMAT LEACHING SYSTEM	
OUT OF FOUNDATION	EXISTING	FINISH GRADE	95.58
INTO SEPTIC TANK	EXISTING	TOP SYSTEM SAND	95.08
OUT SEPTIC TANK	94.42	1 1/2" LATERAL INVERT	94.83
IN PUMP CHAMBER	93.80	BOTTOM OF GeOMAT	94.75
		BOTTOM SYSTEM SAND	94.25

SOIL PROFILE DATA

TESTHOLE No. 1		TESTHOLE No. 2		TESTHOLE No. 3	
DEPTH	ELEV.	DEPTH	ELEV.	DEPTH	ELEV.
0'	94.30	0'	93.80	0'	94.30
12"	93.30	12"	92.97	12"	93.30
36"	91.30	24"	91.80	36"	91.30
42"	90.80(ESHW)	32"	91.13(ESHW)	48"	90.30(ESHW)
82"	87.47(0bsGW)	60"	88.80	84"	87.30
REF @ 84"	87.30	REF @ 60"	88.80	REF @ 84"	87.30
DATE: 8/31/2023		DATE: 8/31/2023		DATE: 8/31/2023	
ENG: K. RITCHIE, CSI		ENG: K. RITCHIE, CSI		ENG: K. RITCHIE, CSI	
AGENT: J. GARREFFI, NABOH		AGENT: J. GARREFFI, NABOH		AGENT: J. GARREFFI, NABOH	

THE SOIL EVALUATOR FOR THIS SITE IS KEVIN RITCHIE.
HE PASSED THE MA SOIL EVALUATOR'S EXAM SUMMER 1996.

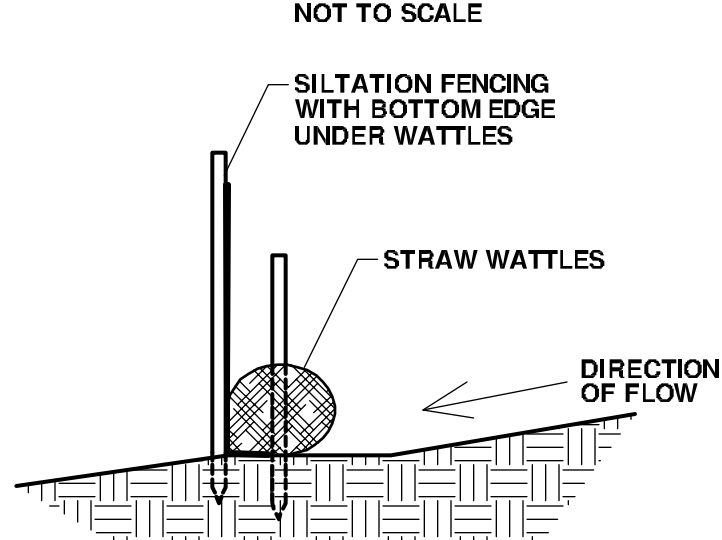
PERCOLATION TEST DATA

PERC No.	DATE	DEPTH	RATE
P-A	8/31/2023	48 INCHES	3 MPI

PERCOLATION TEST(S) PERFORMED BY: K. FITZPATRICK, CSI
WITNESSED BY: J. GARREFFI, NABOH

SEDIMENT AND EROSION CONTROL DETAIL

NOT TO SCALE

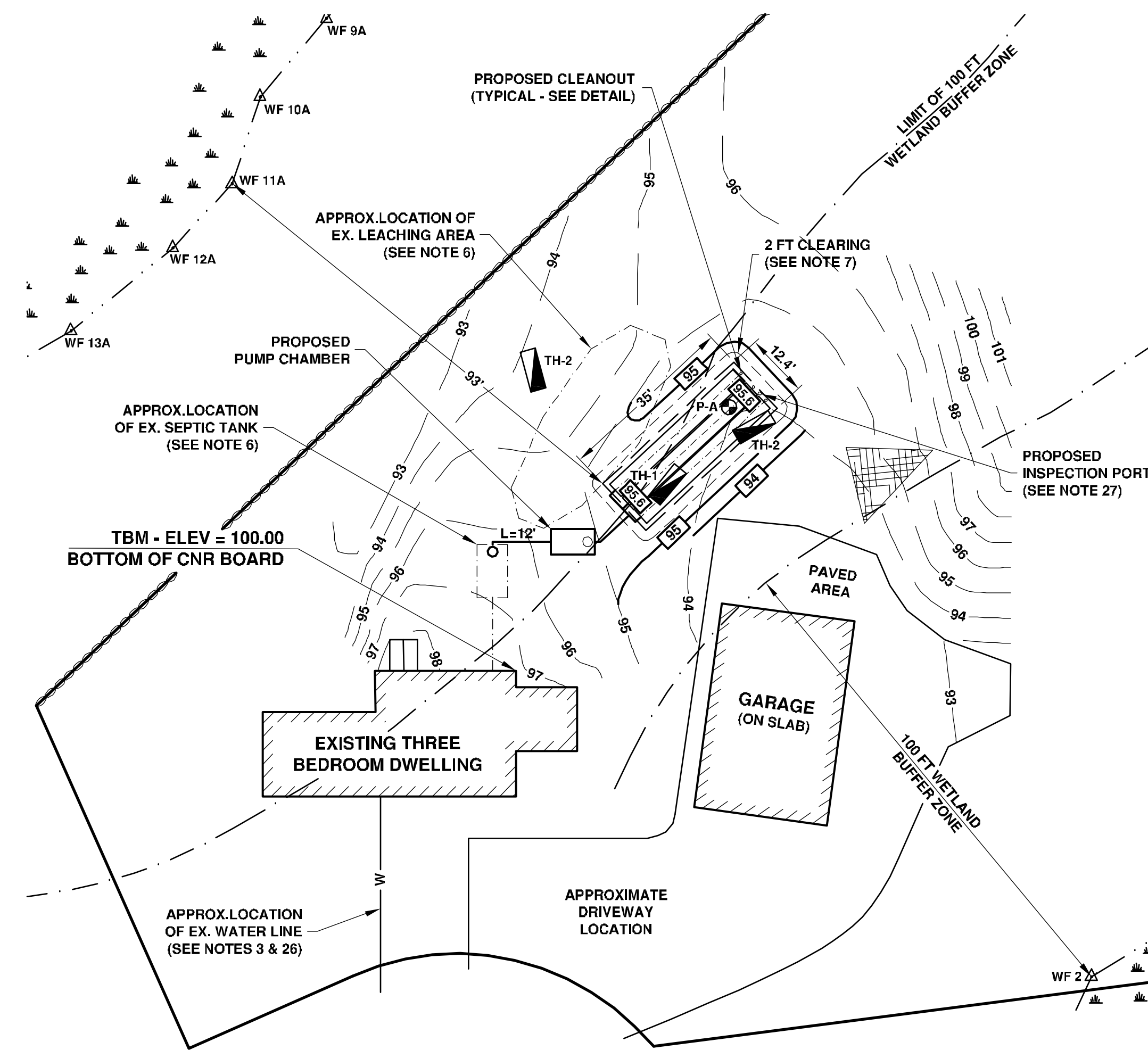


SAND SPECIFICATIONS

GEOMAT SYSTEM SAND:
35% OR LESS OF THE TOTAL SAND MAY BE GRAVEL. 40% TO 90% OF THE TOTAL SAND IS TO BE COARSE TO VERY COARSE SAND. NO GRAVEL SHALL EXCEED 3/4" IN DIAMETER. NO GRAVEL SHALL PASS A #10 SIEVE. NO COARSE SAND SHALL PASS A #35 SIEVE. NO MORE THAN 2% OF THE TOTAL SAND MAY PASS THROUGH A #200 SIEVE. ASTM C-33 (CONCRETE SAND) MEETS THESE REQUIREMENTS.

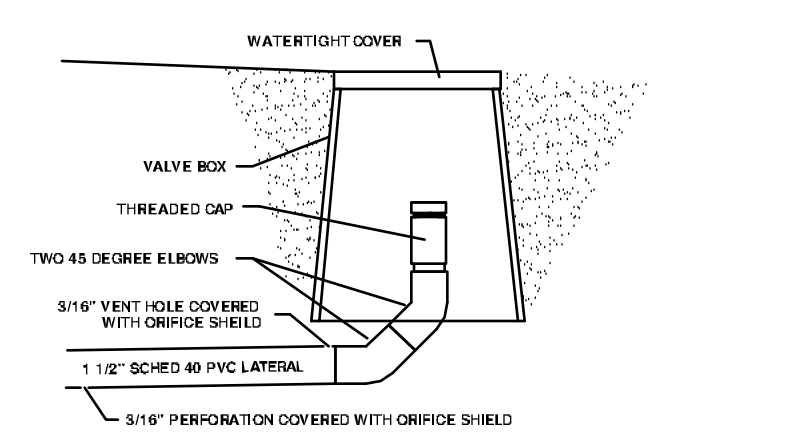
TITLE 5 SURROUNDING SAND:
TITLE 5 SAND SHALL MEET THE REQUIREMENTS OF 310 CMR 15.25(3). SAND SHALL BE COMPRISED OF CLEAN GRANULAR SAND, FREE FROM ORGANIC MATTER AND DELETERIOUS SUBSTANCES. FILL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN 2 INCHES. UP TO 45% BY WEIGHT OF FILL MATERIAL MAY BE RETAINED ON THE #4 SIEVE. FOR THE PORTION OF MATERIAL PASSING THE #4 SIEVE: 10% TO 100% MUST PASS THE #50 SIEVE, 0% TO 25% MUST PASS THE #100 SIEVE AND 0% TO 5% MUST PASS THE #200 SIEVE.

HAYBALES NEEDED IN PLAN VIEW



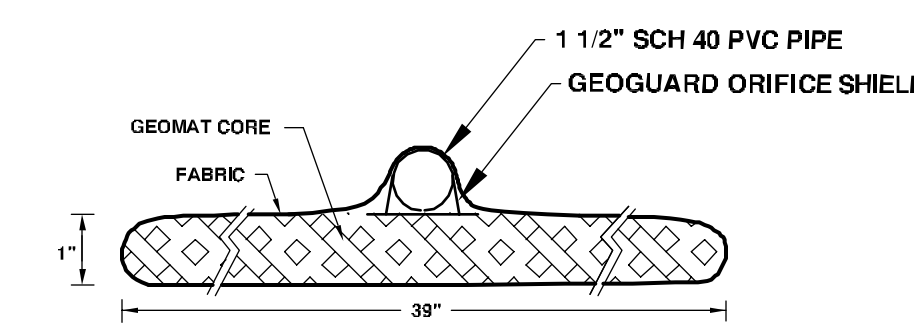
CLEANOUT DETAIL

NOT TO SCALE

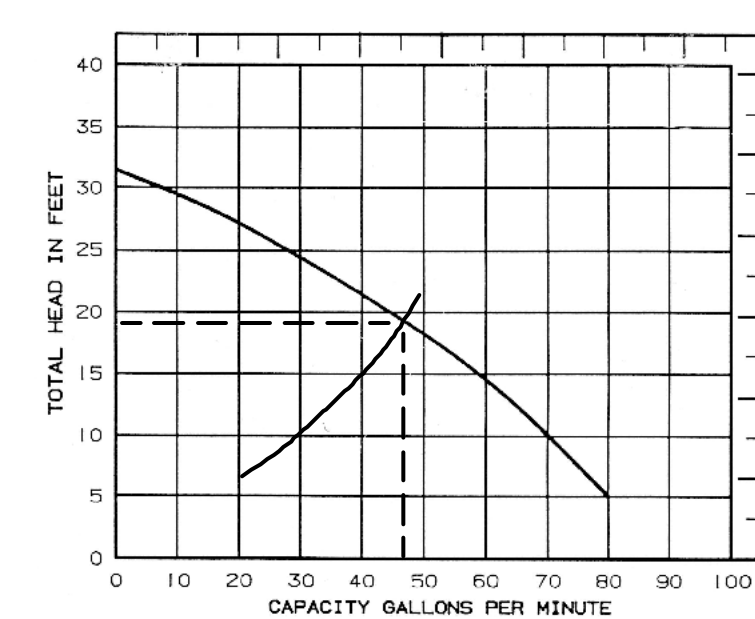


GEOMAT LEACHING SYSTEM

NOT TO SCALE



PERFORMANCE CURVE



SUMMARY

THE INTENT OF THIS PLAN IS TO SHOW THE SUBSURFACE SEWAGE DISPOSAL SYSTEM UP-GRADE DESIGN TO REPLACE THE EXISTING SYSTEM WHICH FAILED A TITLE 5 INSPECTION. THERE IS NO INCREASE IN FLOW OR ADDITION TO THE DWELLING ASSOCIATED WITH THE DESIGN OF THIS REPLACEMENT SYSTEM.

SYSTEM CALCULATIONS

TITLE 5 DESIGN CAPACITY PROVIDED:
3 BEDROOMS X 110 GAL/BEDROOM = 330 GALLONS/DAY

PROVIDED:
PERCOLATION RATE: 3 MINUTES/INCH
APPLICATION RATE: 0.60 GAL/SF

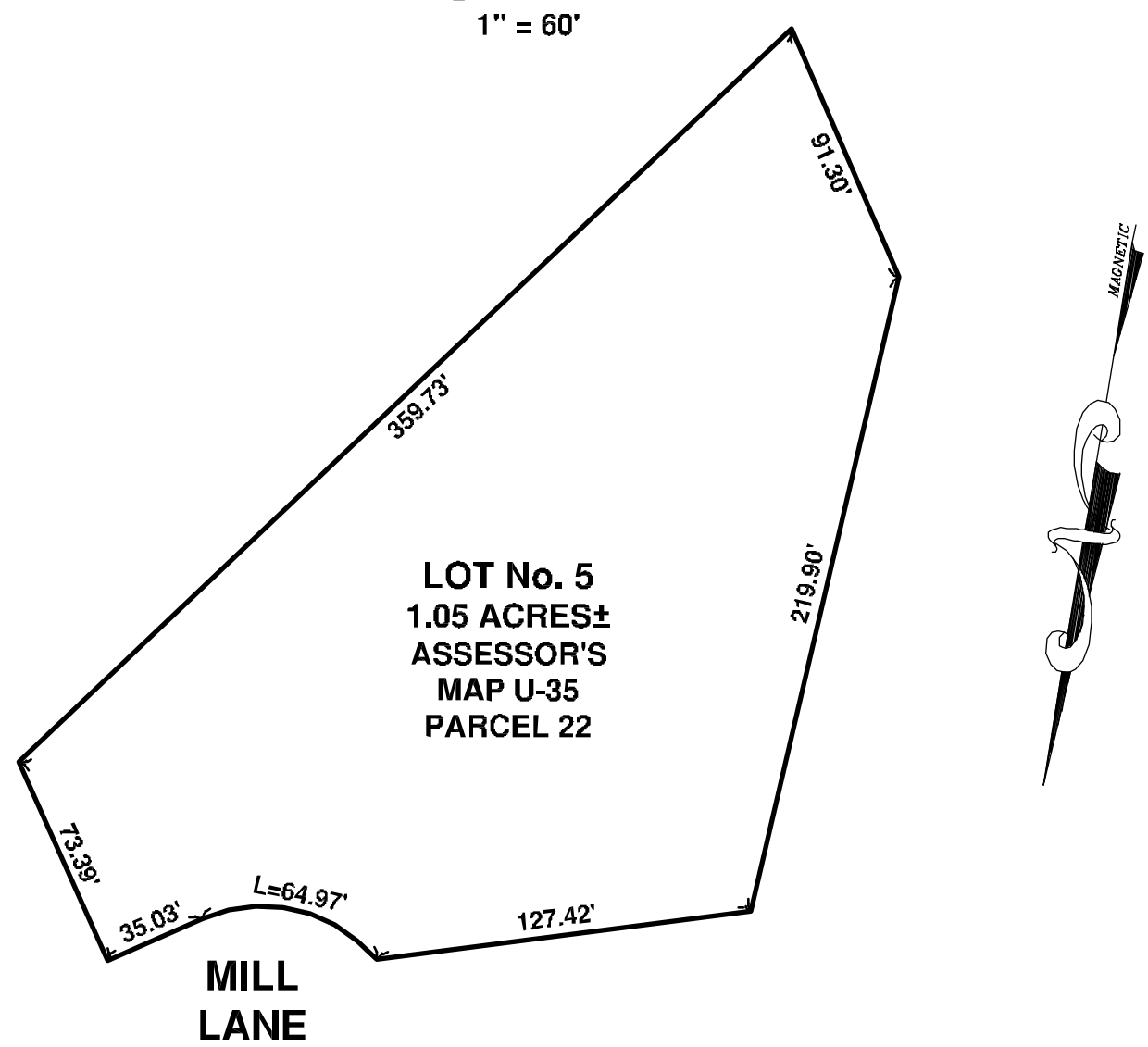
MIN. REQUIRED LEACHING AREA: 330 GAL/DAY / 0.60 GPD/SF = 550 SF
MIN. REQUIRED LEACHING AREA USING GEOMAT LEACHING SYSTEM:
60% X 550 SF = 330 SF
MIN. ALLOWABLE GEOMAT LEACHING AREA = 400 SF

SF OF GEOMAT REQUIRED = 330 GAL/DAY / 1.22 GPD/SF = 271 SF
LENGTH OF GEOMAT FLAT 3900 REQUIRED = 271 SF / 3.42 SF/FT = 79 LF
LENGTH OF GEOMAT 3900 PROVIDED = 3 ROWS X 35 FT = 105 LF

SEPTIC TANK(S) SIZING:
200% X 330 GPD = 660 GALLONS
RE-USE EXISTING 1500 GALLON SEPTIC TANK

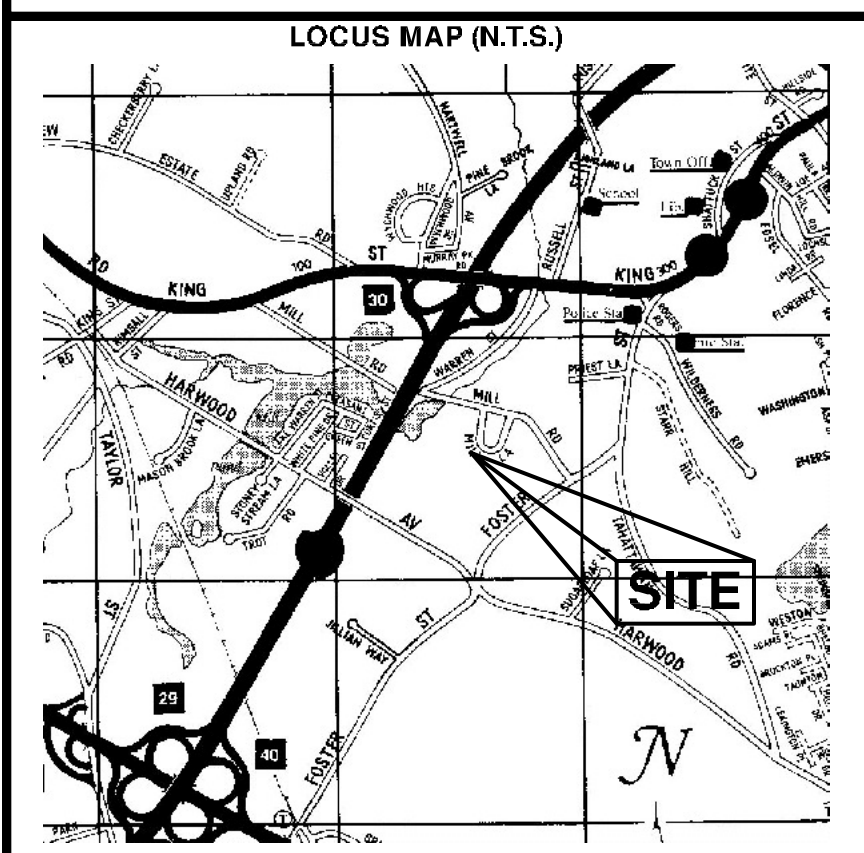
PLOT PLAN

1" = 60'



LEGEND

	EXISTING BOULDER
	EXISTING STUMP TO BE REMOVED
	EXISTING TREE
	UTILITY POLE
	EXISTING SPOT GRADE
	PROPOSED SPOT GRADE
	SOIL PROFILE TEST
	PERCOLATION TEST
	EXISTING CONTOUR
	PROPOSED CONTOUR
	OVER HEAD WIRES
	GAS LINE
	BRUSH LINE
	FENCE LINE
	STONE WALL



MILL LANE

SCALE: 1" = 20'

APPROVALS REQUIRED

1. APPROVAL IS REQUESTED FROM THE LITTLETON BOARD OF HEALTH TO ALLOW A REDUCTION IN THE REQUISITE GROUNDWATER OFFSET FROM 4 FEET TO 3 FEET WITH THE USE OF THE GEOMAT LEACHING SYSTEM.

SEWAGE DISPOSAL SYSTEM PLAN

18 MILL LANE
LITTLETON, MASSACHUSETTS
SEPTEMBER 12, 2023

ASSESSOR'S MAP U-35, PARCEL 22

CIVIL SOLUTIONS, INC.

P.O. BOX 107, 285 LITTLETON ROAD, UNIT 2, WESTFORD, MA
PHONE: (978) 692-5000 FAX: (978) 692-0386
E-MAIL: civilsolutionsinc@outlook.com

DESIGN:
KCF

DRAWN:
KCF

CHECK:
KJR

SHEET	SCALE	JOB NO.	DWG. NO.	OWNER OF RECORD:	#	DATE	REVISION	BY
1 OF 1	1"=20'	23-040	23-040PD	HENRY & SALLY CHRISTIE 18 MILL LANE LITTLETON, MA 01460				
				PLAN PREPARED FOR: HENRY & SALLY CHRISTIE 18 MILL LANE LITTLETON, MA 01460				