

**TOWN OF LEICESTER**

CEDAR MEADOW POND

FERNCROFT RD

FAIRVIEW DR

MARLBORO DR

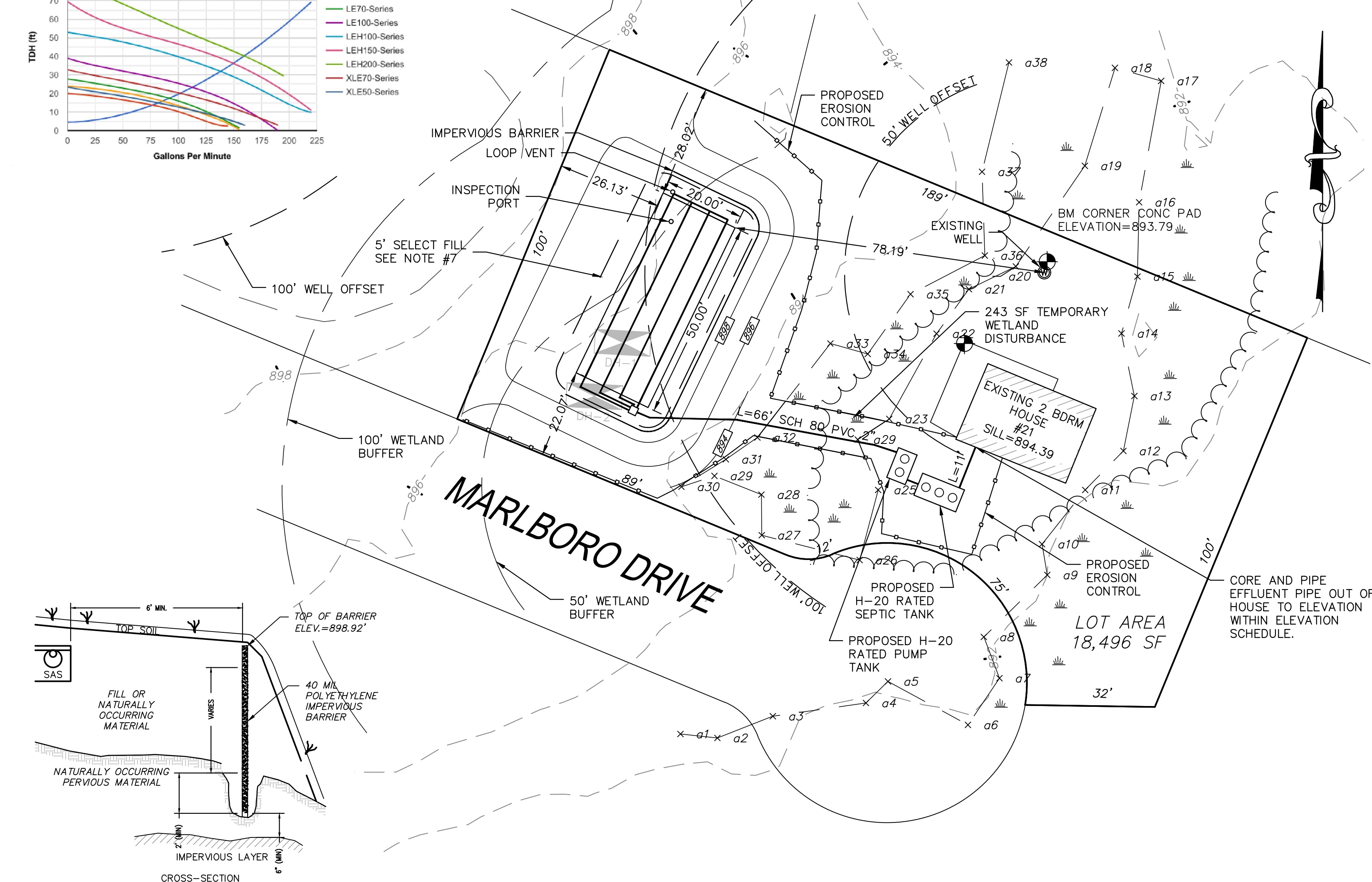
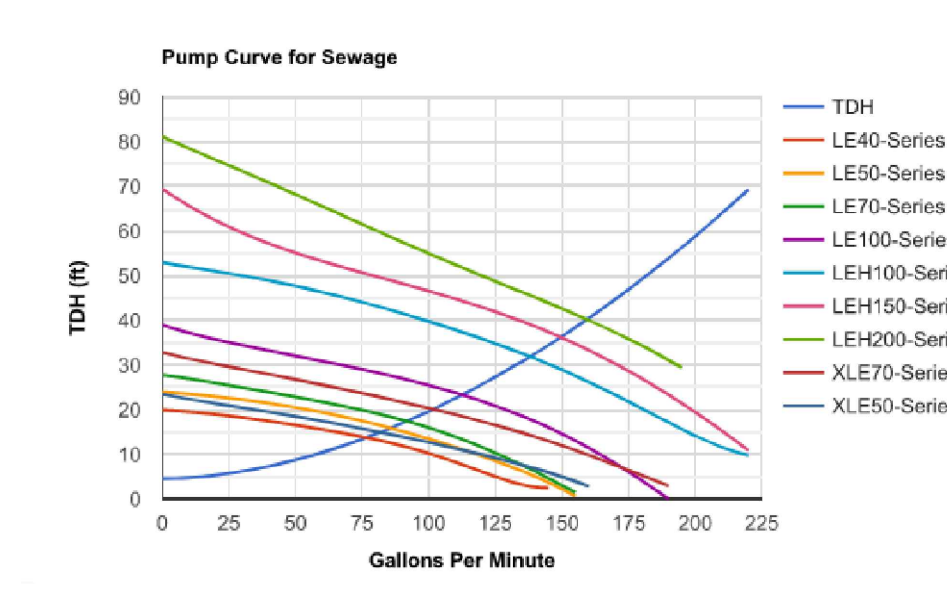
ANGELL TERR

★ LOCUS

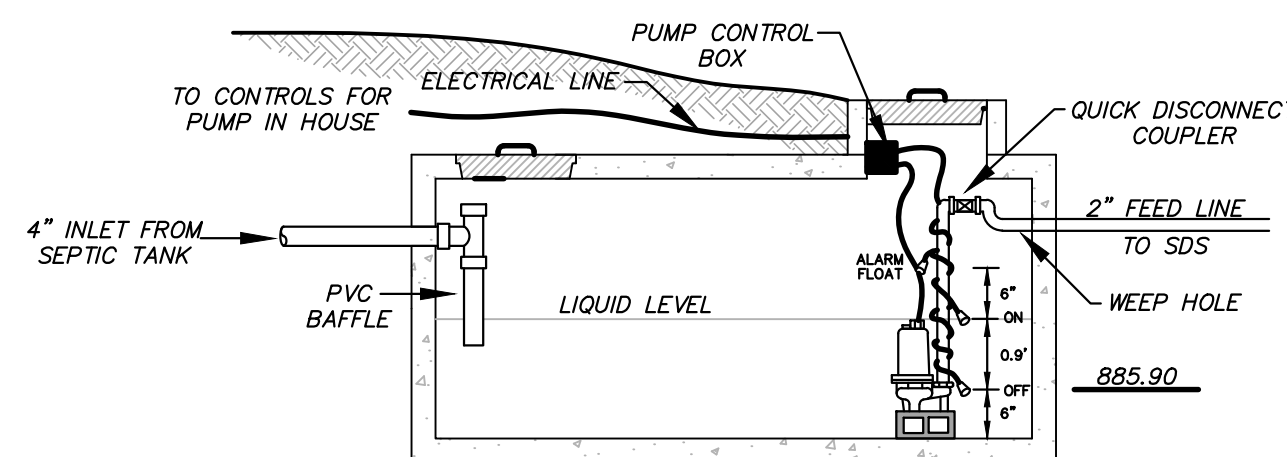
LOCUS MAP – (NOT TO SCALE)

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-LOCAL UPGRADE APPROVAL VARIANCE REQUIRED:  
310 CMR 15.211 REDUCTION IN MINIMUM DISTANCE  
TO A PRIVATE DRINKING WELL FROM 100 FEET TO  
78 FEET.



IMPERVIOUS BARRIER DETAIL



PUMP CHAMBER  
1000 GALLON  
H-20 RATED  
PREFABRICATED  
CONCRETE TANK

PUMP DESIGN CALCULATIONS	
REQUIRED PIPE LENGTH	66'
CHANGE IN ELEVATION (HEAD)	12.79'
TOTAL FRICTION LOSS	8.6'
TOTAL HEAD	21.39'
* USE LIBERTY L70 OR EQUIVALENT PERFORMANCE: 22' OF HEAD @ 70 GPM .75 HP, 115 VOLT, SINGLE PHASE MOTOR CAPABLE OF PASSING A 2" SOLID	

PUMP CHAMBER RESERVE CAPACITY

EFFLUENT RESERVE CAPACITY  
VOLUME BETWEEN ALARM SWITCH AND INVERT =  $L \times W \times D \times 7.8$  GAL./C.F  
RESERVE CAPACITY =  $7' \times 7' \times 2' \times 7.48 = 733.04$

$$\text{TIME} = \frac{\text{RESERVE CAPACITY}}{\text{FLOW}} = \frac{733.04}{330.00} = 2.2 \text{ DAYS}$$

-3" ANCHOR TRENCH

BOUYANCY CALCULATION - BASED ON GRAVES 1000 GAL  
H-20 TANK WITH 6" TOP

**Control Detail**  
(NOT TO SCALE)

WEIGHT OF TANK = 14,825 LBS  
UPLIFT OF TANK (ASSUMING FULL SUBMERSION) = 17,839 LBS  
1 FT OF SOIL OVER TANK = 3,578 LBS  
TOTAL WEIGHT OF 18,403 LBS > UPLIFT OF 17,839 LBS

Erosion Control Detail  
(NOT TO SCALE)

# SYSTEM PROFILE

(NOT TO SCALE)

ALL SEPTIC COMPONENTS SHALL BE MARKED WITH MAGNETIC TAPE OR COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED.

FINISH GRADE

3" MIN AIR SPACE

4" SCH 40 PVC SLOPE = .02 MINIMUM

10"

48" LIQUID DEPTH

CONSTRUCT TEES FROM 4" SCH 40 PIPE

14" BELOW FLOW LINE

ZABEL EFFLUENT FILTER OR EQUAL GAS Baffle

6" CRUSHED STONE BASE

12" MIN COVER

12" MIN COVER

2" PVC TEE EXTEND 1" BELOW FLOW LINE

3/8" DOUBLE WASHED PEA STONE

6" OF 1/2" DOUBLE WASHED STONE

SCH 40 PVC SLOPE = .01 MINIMUM

\* PUMP ALARM IS REQUIRED TO BE ON A SEPERATE CIRCUIT THAN THE PUMP

INSPECTION PIPE 4" PERFORATED PIPE WITH CAP WITHIN 3" OF FINISH GRADE

FINISH GRADE 2% MIN SLOPE

4" TIGHT JOINT PERFORATED PIPE

VENT

2.5' TO EDGE OF SYSTEM

4 LINES 5.0' APART 20' WIDE SYSTEM

3/8" DOUBLE WASHED PEA STONE

1/2" DOUBLE WASHED STONE

SEE PUMP DETAIL

VARIABLE

50.00'

**LEACH FIELD CROSS SECTION**

(NOT TO SCALE)

NOTE: IN ACCORDANCE WITH 310 CMR 15.247(b), GEOTEXTILE FABRIC MAY BE SUBSTITUTED FOR THE MINIMUM 2-INCH LAYER OF DOUBLE WASHED PEA STONE.

## LEACH FIELD CROSS SECTION

(NOT TO SCALE)

NOTE: IN ACCORDANCE WITH 310 CMR  
15.247(b), GEOTEXTILE FABRIC MAY BE  
SUBSTITUTED FOR THE MINIMUM 2-INCH LAYER  
OF DOUBLE WASHED PEA STONE.

### GENERAL NOTES

1. ALL MODIFICATIONS TO THIS PLAN MUST BE PREAPPROVED IN WRITING BY THE DESIGN ENGINEER AND THE LOCAL BOARD OF HEALTH.
2. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM WITH THE REQUIREMENTS OF THE LOCAL BOARD OF HEALTH AND THE STATE ENVIRONMENTAL CODE TITLE 5.
3. THE CONSTRUCTION OF PERMANENT STRUCTURES UPON THE DISPOSAL SYSTEM OR RESERVE AREA IS NOT ALLOWED.
4. TO OBTAIN A CERTIFICATE OF COMPLIANCE, THREE INSPECTIONS WILL BE REQUIRED BY THE DESIGN ENGINEER. 1) BOTTOM INSPECTION FOLLOWING THE EXCAVATION OF TOPSOIL & SUBSOIL, 2) FOLLOWING THE INSTALLATION OF THE SYSTEM COMPONENTS PRIOR TO BACKFILL, 3) FINAL GRADING.
5. MACHINERY THAT MAY CRUSH OR DISTURB THE PIPE SHALL NOT BE ALLOWED ON THE DISPOSAL AREA.
6. THIS SYSTEM WAS NOT DESIGNED TO FACILITATE GARBAGE DISPOSAL.
7. TOPSOIL, SUBSOIL, PEAT, FILL, AND OTHER IMPERVIOUS MATERIALS SHALL BE REMOVED FROM ALL AREAS WITHIN THE LEACHING FACILITY AND FOR A DISTANCE OF 5 FEET IN ALL DIRECTIONS THEREFROM.
8. WHERE A SEWAGE DISPOSAL SYSTEM IS TO BE CONSTRUCTED IN FILL, THE FILL SHALL BE PLACED AND COMPACTED IN NO GREATER THAN 12 INCH LIFTS OR ALLOWED TO SETTLE FOR A MINIMUM OF ONE YEAR. THE FILL MATERIAL MUST CONFORM WITH THE REQUIREMENTS OF THE LOCAL BOARD OF HEALTH AND STATE ENVIRONMENTAL CODE TITLE 5 SECTION 15.255
9. TITLE 5 SAND CERTIFICATE MUST BE SUBMITTED TO THE BOARD OF HEALTH AND THE DESIGN ENGINEER PRIOR TO CONSTRUCTION.
10. THE BASE FOR THE SEPTIC TANK, PUMP CHAMBER AND DIST. BOX MUST BE COMPACTED BY A VIBRATORY TAMPER.
11. INTERIOR PLUMBING SHALL BE CONNECTED TO THE PROPOSED SEPTIC SYSTEM WITH THE EXCEPTION OF WATER SOFTENERS AND/OR WATER CONDITIONING SYSTEMS.
12. WELLS WITHIN 100' OF THE PROPOSED SEPTIC SYSTEM ARE SHOWN.
13. APPLICABLE STATE AND LOCAL PERMITS SHALL BE ACQUIRED PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION.
14. HYDRAULIC CEMENT IS REQUIRED TO SEAL ALL CONNECTIONS AT THE SEPTIC TANK, PUMP CHAMBER, AND D-BOX.
15. CONSERVATION APPROVAL MAY BE REQUIRED.
16. ALL SEPTIC COMPONENTS SHALL BE MARKED WITH MAGNETIC TAPE OR COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED.

SOIL EVALUATOR: MARK ELBAG, JR PE SE#12682 - PERC TEST BY: MARK ELBAG, JR PE  
TEST WITNESSED BY: SHELLEY HULTGREN BOH- DATE PERFORMED: 9/14/2022













DEEP OBSERVATION HOLE NUMBER: DH-1										
DEPTH FROM SURFACE (INCHES)	SOIL HORIZON/LAYER	SOIL MATRIX: COLOR-MOIST (MUNSELL)	REDOXIMORPHIC FEATURES (MOTTLES)			SOIL TEXTURE (USL)	COARSE FRAGMENTS % BY VOLUME (GRAVEL, COBBLES & STONES)	SOIL CONSISTENCE (MOIST)	OTHER	
			DEPTH	COLOR	PERCENT					
7"	A	10YR4/2				SL	2	2	FRIABLE	
26"	B	7.5Y4/6	28"	2.5Y4/6	5	SL	5	5	FRIABLE	
88"	C	10YR5/3				SL	15	15	FRIABLE	

DEEP OBSERVATION HOLE NUMBER: DH-2										
DEPTH FROM SURFACE (INCHES)	SOIL HORIZON LAYER	SOIL MATRIX: COLOR/MOIST (MUNSELL)	REDOXIMORPHIC FEATURES (MOTTLES)			SOIL TEXTURE (SDA)	COARSE FRAGMENTS % BY VOLUME		SOIL CONSISTENCE (MOIST)	OTHER
			DEPTH	COLOR	PERCENT		GRAVEL	COBBLES/STONES		
8"	A	10YR4/2				SL	2	2	FRIBLE	
24"	B	7.5Y4/6	28"	2.5Y4/6	5	SL	5	5	FRIBLE	
89"	C	10YR5/3				SL	15	15	FRIBLE	

[illegible][illegible]

TEST RESULTS		
OBSERVATION HOLE #	1	2
DEPTH OF PERC	42"	
TIME (9"-6")	56 MIN	
RATE (MIN/INCH)	26 MPI	

THIS SEPTIC DESIGN IS NOT GUARANTEE  
THAT THE SYSTEM WILL FUNCTION AS  
INTENDED OR THAT IT WILL FUNCTION FOR  
A DISCLOSED PERIOD OF TIME. NO  
WARRANTIES ARE IMPLIED BY THIS DESIGN


TYPICAL LEGEND	
PROPERTY LINE	
SETBACK	
EASEMENT	
STONEWALL	
TREE LINE	
WELL	
EXISTING CONTOUR	 100
PROPOSED CONTOUR	 100
SPOT ELEVATION	 99x50
SILT FENCE	
HAYBAIL	
BENCHMARK	

24 ZONING REQUIREMENTS

**DigSafe**  
MA-ME-NH-VT

CONTRACTOR TO  
VERIFY ACTUAL  
LOCATION OF  
EXISTING UTILITY  
SERVICES IN THE  
FIELD PRIOR  
TO CONSTRUCTION.

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TO CONSTRUCTION.



**PROFESSIONAL ENGINEER**  
MASSACHUSETTS LICENSE NO. 00447

REVISIONS			
REV	DATE	COMMENT	B
1	8/1/2023	REVISE WETLANDS	DA
2			
3			
4			
5			
6			

## SCHEDULE OF ELEVATIONS

INVERT @ HOUSE	890.72
TANK INLET	890.50
TANK OUTLET	890.25
PUMP TANK INLET	890.15
PUMP TANK OUTLET	890.15
D-BOX INLET	898.69
D-BOX OUTLET	898.52
BEG. OF FIELD	898.42
END OF FIELD	898.17
TOP OF FIELD	898.92
BOTTOM OF FIELD	897.67
ESHW	893.67

## DESIGN DATA

NO GARBAGE GRINDER (DISPOSAL) ALLOW

TYPE OF BUILDING	SINGLE FAMILY HOUSE
NO. OF BEDROOMS	3 BEDROOMS
DESIGN PERCOLATION RATE	30 MIN. PER INCH
LTAR	0.33
DAILY FLOW	3 x 110 = 330
SEPTIC TANK VOLUME	1500 GALLONS

REQUIRED LEACHING AREA  
DESIGN FLOW / LTAR:  
 $330 / 0.33 = 1,000 \text{ S.F.}$   
TOTAL LEACHING AREA =  $(L \times W)$   
 $20 \times 50 = 1,000 \text{ S.F.}$   
TOTAL DESIGN FLOW = LEACHING AREA  $\times$  LTAR  
 $1,000 \times 0.33 = 330 \text{ G.P.D.}$   
DESIGN FLOW  $\geq$  DAILY FLOW  
 $330 \geq 330$

*REPAIR  
SUBSURFACE SEWAGE  
DISPOSAL SYSTEM*

PREPARED FOR:

*JERRY PHILLIPS*  
*21 MARLBORO DR aka*  
*54 FAIRVIEW DR*  
*LEICESTER, MA*

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PROPERTY ADDRESS:

*21 MARLBORO DR aka*  
*54 FAIRVIEW DR*  
*LEICESTER, MA*

**EE** ***M.A. ELBAG***  
***ENGINEERING***

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April 7, 2023 Project No.: