

1500 GAL. TWO COMPARTMENT TANK

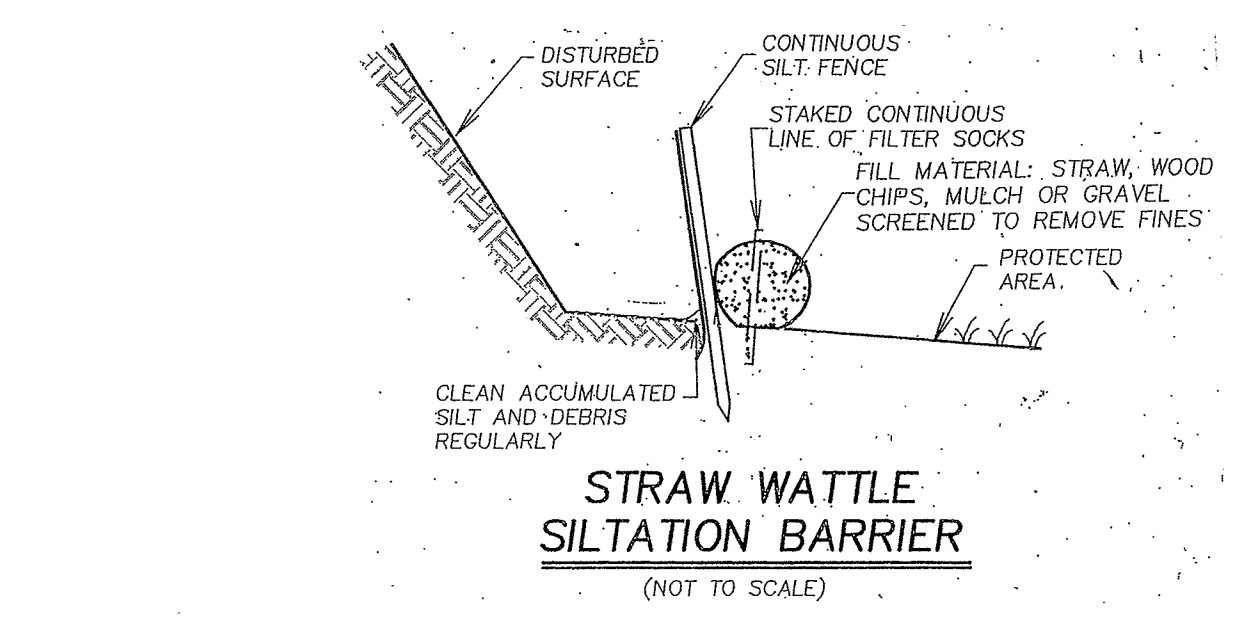
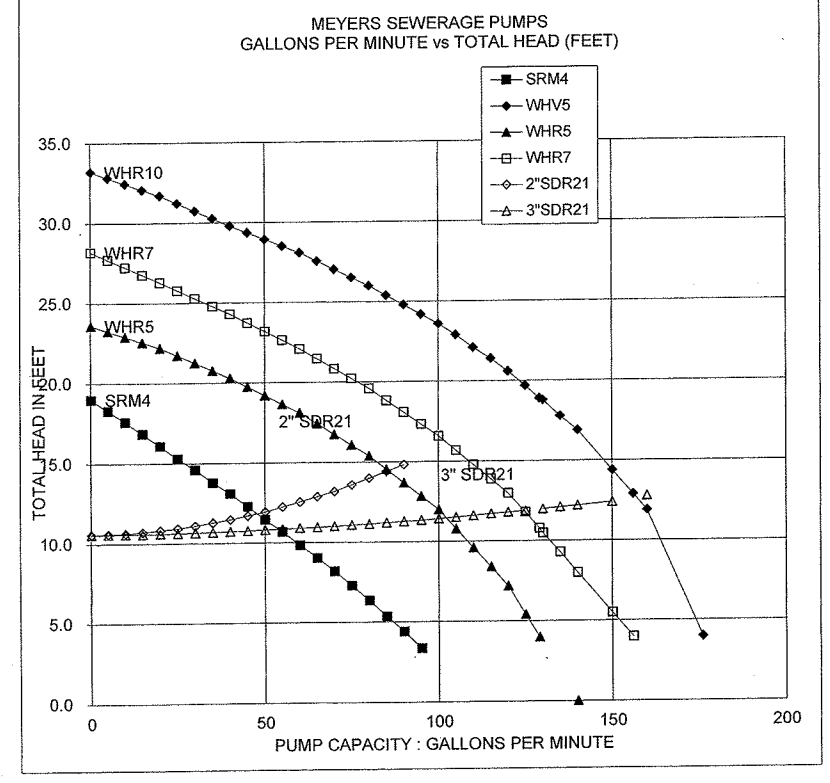
SUBSURFACE SEWAGE DISPOSAL SYSTEM
PUMP SELECTION PROGRAM
THIS PROGRAM USES MEYERS SEWAGE PUMPS

Name: Dellovo
Job No: 33379

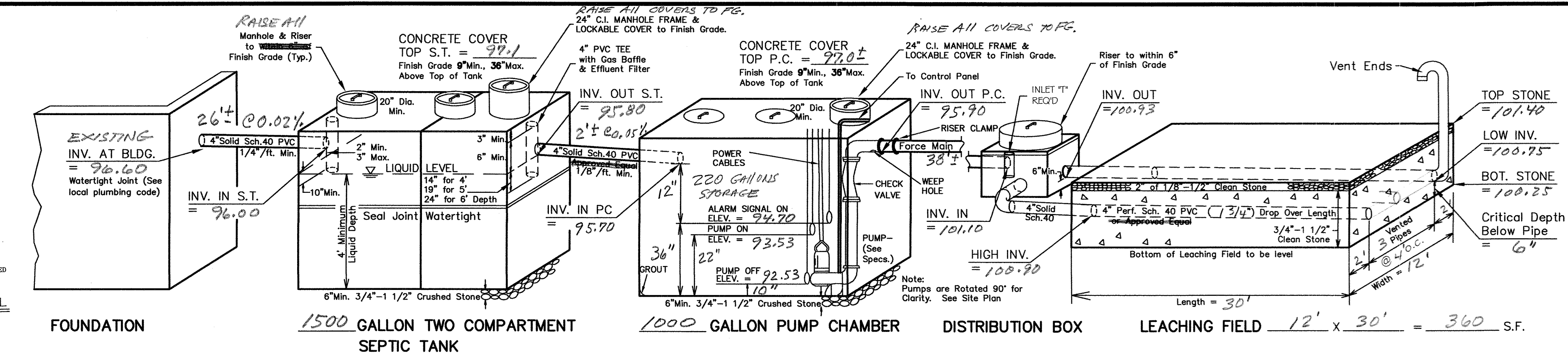
PLEASE ENTER THE FOLLOWING DATA:

Distribution Box In Inv. = 101.10
PUMP OFF ELEV. = 92.53
FORCEMAIN LENGTH = 38.00

Volume contained in Forcemain
2"sd21 = 5.7 3"sd21 = 14.0



STRAW WATTLE SILTATION BARRIER (NOT TO SCALE)



FOUNDATION 1500 GALLON TWO COMPARTMENT SEPTIC TANK 1000 GALLON PUMP CHAMBER DISTRIBUTION BOX LEACHING FIELD 12' x 30' = 360 S.F.

SEPTIC TANK
SEPTIC TANK SHALL BE A PRECAST, REINFORCED CONCRETE TANK MADE WATER-TIGHT. CONSTRUCTION MATERIALS AND DIMENSIONS SHALL CONFORM TO TITLE 5 AND ASHTO HS 10 REQUIREMENTS AND PLACED ON A STABLE MECHANICALLY COMPACTED LEVEL BASE.

TANK/ SYSTEM TO BE VENTED THROUGH THE BUILDING PLUMBING SYSTEM AS REQUIRED BY BUILDING CODE.

TANK SHOULD BE INSPECTED, MAINTAINED AND BE PUMPED OUT WHEN SLUDGE DEPTH IN THE BOTTOM EXCEEDS ONE FOURTH OF THE TOTAL LIQUID DEPTH.

AT LEAST THREE 20" MANHOLES SHALL BE PROVIDED. THE MANHOLE OVER THE OUTLET GAS BAFFLE AND EFFLUENT FILTER SHALL BE EQUIPPED WITH A 24" MANHOLE AND LOCKABLE COVER TO FINISH GRADE. ALL OTHERS SHALL BE EQUIPPED WITH RISERS TO WITHIN 6" OF FINISH GRADE.

PUMP CHAMBER & NOTES
GENERAL
ALL WORKMANSHIP, MATERIALS AND CONSTRUCTION SHALL CONFORM TO FEDERAL, STATE AND LOCAL CODES, WHETHER SPECIFIED HEREIN OR NOT. ALL PIPING, CONTROLS AND PUMP ARE SUBJECT TO APPROVAL BY THE DESIGN ENGINEER.

CHAMBER
THE CHAMBER SHALL BE A PRECAST, REINFORCED CONCRETE SEPTIC TANK MADE WATER-TIGHT. ONE TANK MANHOLE SHALL EXTEND TO FINISHED GRADE AND BE WATER-TIGHT. COVER TO BE METAL AND WEIGH 60 LB. (MINIMUM) AND HAVE AN INSIDE DIMENSION 1-1/2 TIMES MAXIMUM PUMP DIMENSION AND BE A 24" INSIDE DIAMETER MINIMUM. CHAMBER TO BE VENTED VIA BUILDING PLUMBING SYSTEM TO ROOF. IF THE CHAMBER IS TO BE UNDER PAVED SURFACES OR SUBJECT TO VEHICULAR LOADING, THE CHAMBER, ALL MANHOLES AND EXTENSIONS SHALL BE RATED TO WITHSTAND ASHTO HS-20 DIRECT LOADING (HEAVY DUTY).

PUMPS
PUMP SHALL BE A NON-CLOG SUBMERSIBLE SEWAGE PUMP CAPABLE OF PASSING A 1-1/4" DIAMETER SOLID AND STRINGY MATERIAL. PUMPS SHALL HAVE A 2-1/2" H.P. (MINIMUM) MOTOR AND BE CAPABLE OF PUMPING 50 GALLONS PER MINUTE (GPM) AGAINST A TOTAL DYNAMIC HEAD (TDH) OF 11.9 FEET.

PUMP SIZE AND SPECIFICATIONS ARE BASED UPON THE PROPOSED PUMP CHAMBERS' ELEVATIONS AND LOCATION SHOWN HEREON. ANY ALTERATIONS SHALL BE APPROVED BY THE DESIGN ENGINEER.

CONTROLS
PUMP AND ALARM SHALL BE ACTIVATED BY MERCURY FLOAT SWITCHES AS SHOWN. FLOAT SWITCHES SHALL BE OF THE MERCURY TUBE TYPE SEALED IN POLYURETHANE. 3 FLOATS ARE REQUIRED. FLOATS AND PUMP POWER CABLES ARE TO BE SUSPENDED FROM AND TIED TO A 1/2" DIAMETER STEEL REBAR WITH HOSE CLAMPS. THE REBAR SHALL BE SECURELY AND PERMANENTLY ANCHORED TO THE SIDES AND/OR WALL OF THE CHAMBER. THERE SHALL BE NO WIRE SPLICES WITHIN THE PUMP CHAMBER, UNLESS SEALED IN A WATER AND GAS-TIGHT (NEMA-4X) JUNCTION BOX.

THE DIMENSIONAL SETTINGS OF THE FLOATS (SEE PUMP CHAMBER DETAIL ON THIS SHEET) ARE THE ELEVATIONS AT WHICH THE FLOATS ARE TO ACTIVATE/INACTIVATE THE PUMP AND/OR ALARM. THE FLOAT LEVEL CONTROLS SHALL BE SET TO OPERATE AT THE ELEVATIONS INDICATED. THESE ELEVATIONS SHALL BE ADJUSTED BY THE INSTALLER TO ENSURE FUNCTION ACCORDING TO THESE SPECIFIC ELEVATIONS.

THE CONTROL PANEL SHALL BE HOUSED IN A NEMA-1 CONTROL BOX SUITABLE FOR USE WITH ALL OF THE COMPONENTS MANUFACTURER'S STANDARDS FOR THE EQUIPMENT USED AND SHALL HAVE AN AUDIO AND VISUAL ALARM WITH MANUAL SILENCER. THE CONTROL PANEL SHALL BE INSTALLED IN A SUITABLE LOCATION INSIDE OF THE BUILDING. ALARM TO BE ON A SEPARATE CIRCUIT FROM THE PUMP. ALL ELECTRICAL WORK SHALL CONFORM TO ALL FEDERAL, STATE AND LOCAL BUILDING CODE.

PIPING
PIPING FROM PUMPS TO 3" OUTSIDE TANK SHALL BE 2" SCHEDULE 40 (SDR-21) SOLVENT WELDED PVC OR ABS. CHECK VALVE SHALL BE 2" BALL-TYPE WITH 2 HOSE CLAMP CONNECTIONS AT EACH SIDE OF THE JOINT. RISER CLAMPS WITH PVC INSERTS ARE REQUIRED AT PUMP CHAMBER. ALL PIPING SHALL BE SHIELDED FROM ANY ABRASION (INCLUDING FORCE MAIN).

FORCE MAIN
FORCE MAIN SHALL HAVE 4" MINIMUM COVER EXCEPT WITHIN 5' OF THE CHAMBER AND MANHOLE WHICH SHALL BE INSULATED WITH 2" RIGID PRE-MOLDED POLYSTYRENE INSULATION. FORCE MAIN SHALL BE 2" SDR-21 PVC TIGHT JOINT PIPE. JOINTS SHALL BE SOLVENT-WELDED. TRANSITION BETWEEN DOSING CHAMBER PIPING AND FORCE MAIN SHALL BE WITH A 2" PVC UNION SOCKET. ALL PIPES SHALL BE SET IN 6" OF SAND AND BE SNAKED TO ALLOW FOR CONTRACTION AND BE LAID TO PROVIDE A DOWNWARD GRADIENT FROM THE MANHOLE TO THE CHAMBER. FORCE MAIN AND ALL JUNCTIONS SHALL BE WATER AND PRESSURE TIGHT WITH NO LEAKAGE ALLOWED.

A PORTION OR ALL OF THE FORCE MAIN MAY BE PROPOSED TO BE INSTALLED ABOVE THE FROST LINE. IN ACCORDANCE WITH 310 CMR 15.221(6)-TITLE 5, IT SHALL BE INSULATED ADEQUATELY OR BE MADE SELF DRAINING.

"D" BOX
"D" BOX TO BE MADE WATER-TIGHT. CONSTRUCTION MATERIALS AND DIMENSIONS SHALL CONFORM TO TITLE 5 AND ASHTO HS 10 REQUIREMENTS AND PLACED ON A STABLE MECHANICALLY COMPACTED LEVEL BASE.

"D" BOX OUTLETS SHALL BE INSTALLED LEVEL ("BUILT UP" INVERTS, NOT PERMITTED).

FIRST 2' (MIN.) OF OUTLETS SHALL BE INSTALLED LEVEL TO EQUALIZE FLOW.

THE MINIMUM INSIDE DIMENSIONS OF THE "D" BOX TO BE 12" AND THE MINIMUM WALL THICKNESS TO BE 2".

WHEN INLET PIPE SLOPE EXCEEDS 8%-PVC INLET TEE REQUIRED. CUT LOW END 1" ABOVE OUTLET INVERT.

"D" BOX COVER TO BE SEALED WITH BITUMEN. "D" BOXES BURIED GREATER THAN 9" BELOW GRADE SHALL BE EQUIPPED WITH A RISER TO WITHIN 6" OF FINISH GRADE.

LEACH AREA
ALL LOAM, LARGE BOULDERS OR FOREIGN MATERIAL ENCOUNTERED DURING EXCAVATION ARE TO BE REMOVED FROM THE LEACHING AREA.

ALL SOIL INTERFACES SHALL BE SCARIFIED PRIOR TO THE PLACEMENT OF STONE.

ALL STONE IN PLACE SHALL BE DURABLE, FREE FROM IRON, FINES AND DUST AND DOUBLE WASHED.

WHEN GRAVEL FILL IS REQUIRED, ALL LOAM AND ORGANIC MATERIAL SHALL BE REMOVED FROM AREA TO BE FILLED. FILL SHALL BE COMPACTED TO MINIMIZE SETTLEMENT AND SHALL BE CLEAN GRANULAR MATERIAL, FREE FROM FINES AND ORGANIC MATERIALS, AND SHALL BE IN ACCORDANCE WITH 310 CMR 15.225(3).

ALL DISTURBED AREAS ARE TO BE LOAMED, SEEDED AND MAINTAINED TO PREVENT EROSION.

AREAS ABOVE THE SOIL ABSORPTION SYSTEM SHALL REMAIN PEROUS UNLESS UNAVOIDABLE. IN SUCH CASES THE SYSTEM SHALL BE VENTED.

GENERAL NOTES
SYSTEM IS DESIGNED TO ACCOMMODATE SANITARY SEWAGE ASSOCIATED WITH NORMAL DOMESTIC USE AND CONSISTING OF WATER CARRIED PUTRESIBLE WASTE ONLY.

ALL COMPONENTS OF THE SEWAGE DISPOSAL SYSTEM SHALL BE COVERED BY A MAXIMUM OF 36" OF CLEAN BACKFILL MATERIAL, FREE OF STONES AND BOULDERS GREATER THAN 6" IN SIZE.

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

OWNER SHALL VERIFY EFFECTIVE ZONING REGULATIONS PRIOR TO CONSTRUCTION.

PLAN SHOWS ONLY THOSE FEATURES THAT WERE VISUALLY APPARENT ON DATE OF TOPOGRAPHY, AND THE ABSENCE OF SUBSURFACE STRUCTURES, UTILITIES, ETC IS NOT INTENDED OR IMPLIED.

ALL PIPING SHALL BE LAID TRUE TO LINE, GRADE AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

THERE ARE NO EXISTING WELLS WITHIN 100' OF THE PROPOSED SEWAGE DISPOSAL SYSTEM. (50' OF THE SEPTIC TANK.)

THERE ARE NO EXISTING SEWAGE DISPOSAL SYSTEMS WITHIN 1/4" OF THE PROPOSED WELL. (PREVIOUSLY EXISTING)

ALL KNOWN WELLS WITHIN 200' OF THE PROPOSED PRIMARY AND EXPANSION LEACH AREAS ARE SHOWN.

THE DESIGN ENGINEER SHALL BE NOTIFIED PROMPTLY OF ANY PLAN DEFICIENCIES FOUND DUE TO UNFORESEEN SUBSURFACE CONDITIONS OR OTHER REASONS THAT MIGHT AFFECT THE FUNCTION OF THIS DESIGNED SYSTEM.

DEVIATIONS IN DESIGN OR CONSTRUCTION FROM THIS PLAN OR ANY OF THE CONDITIONS RELATING TO THE USE OR MAINTENANCE OF THE PROPOSED SYSTEM SHALL BE DEEMED TO VOID ANY CERTIFICATION OR REPRESENTATION MADE RELATIVE TO THIS SUBSURFACE SEWAGE DISPOSAL SYSTEM.

CONTRACTOR SHALL NOTIFY "DIG SAFE" PRIOR TO ANY EXCAVATION. 1-888-DIG-SAFE (344-7233)

PRIOR TO ANY CONSTRUCTION A BENCHMARK SHALL BE SET WITHIN 50-75' OF THE PROPOSED SEWAGE DISPOSAL SYSTEM.

WETLAND PROTECTION ACT (C131 S40)
PRIOR TO INITIATING ANY ALTERATIONS (REMOVAL OF VEGETATION, EXCAVATIONS, GRADING, ETC) WITHIN 100' OF WETLANDS (PONDS, BROOKS, SWAMPS, ETC) OR WITHIN 200' OF AN AREA SUBJECT TO THE RIVER'S ACT (PERMANENTLY FLOWING RIVER, BROOK OR STREAM). A REQUEST FOR DETERMINATION OF APPLICABILITY OR A NOTICE OF INTENT UNDER THE WETLANDS PROTECTION ACT (310 CMR 10.00) SHOULD BE FILED WITH THE TOWN'S CONSERVATION COMMISSION. LOCAL BYLAWS MAY ALSO APPLY.

SCHEDULE OF ELEVATIONS

	PROPOSED	AS-BUILT
TOP CONCRETE FOUNDATION	100.41	
INVERT AT FOUNDATION	96.60	
INVERT TANK INLET	96.00	
INVERT TANK OUTLET	95.80	
TOP SEPTIC TANK	97.11	
INVERT PUMP CHAMBER INLET	95.70	
INVERT PUMP CHAMBER OUTLET	95.90	
TOP PUMP CHAMBER	99.01	
INV. "D" BOX INLET	101.10	
INV. "D" BOX OUTLET	100.93	
TOP OF STONE	101.40	
INVERT HIGH END	100.90	
INVERT LOW END	100.75	
BOTTOM OF STONE	100.25	
GROUNDWATER OFFSET REQUIRED	5'	
GROUNDWATER OFFSET UTILIZED	5'	

DESIGN CRITERIA CLASS I

GARBAGE GRINDERS - NOT PERMITTED

PERC. TESTS: PERFORMED BY STEPHEN SEAS WITNESSED BY RICK METCALF, R.S.

PERC. #	RATE (M/D)	ELEVATION	DEPTH	DATE
A	2 MIN	101.2	45"	9-14-20

FLows: 2 BEDROOMS AT 110 GPD = 220 GPD (300 GPD MIN.)

SEPTIC TANK REQUIRED: (1500 GAL. MIN.)
220 GPD x 2.0 = 440 GAL. TANK

LEACHING AREA PROVIDED:

- BASIS 2 MIN./IN. PERCOLATION RATE
- APPLICATION RATE ALLOWED 80.74 S.F.
- BOTTOM AREA PROVIDED 360 S.F.
- TOTAL G.P.D. PROVIDED 2660

REVISIONS

NO.	DATE	DESCRIPTION
1	9/14/20	GRAVEL ELEV. = 101.2
2	9/14/20	GRAVEL ELEV. = 101.1

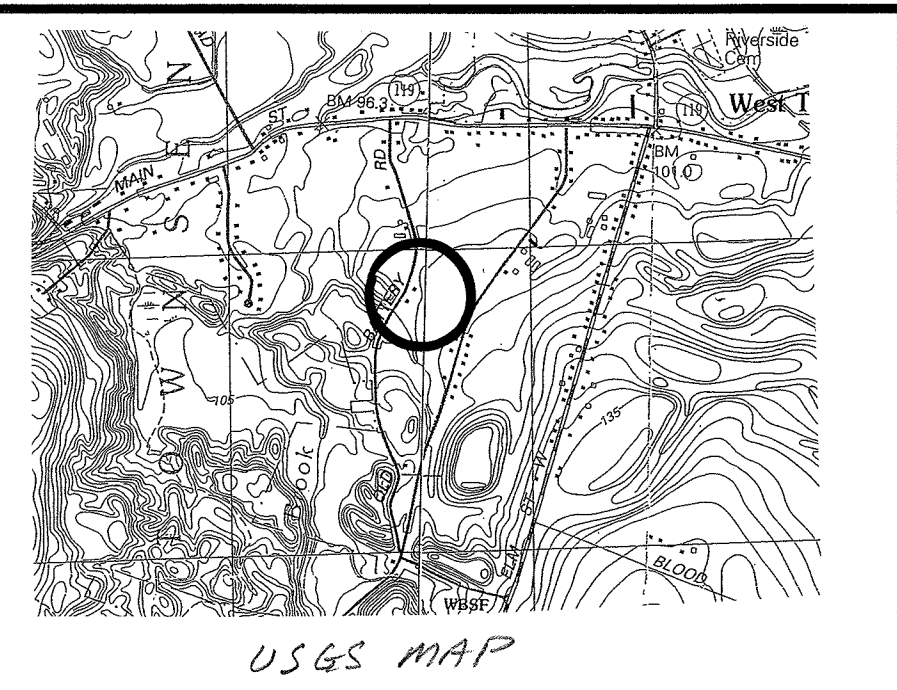
VENTED END DETAIL (NOT TO SCALE)

INSPECTION PORT (NOT TO SCALE)

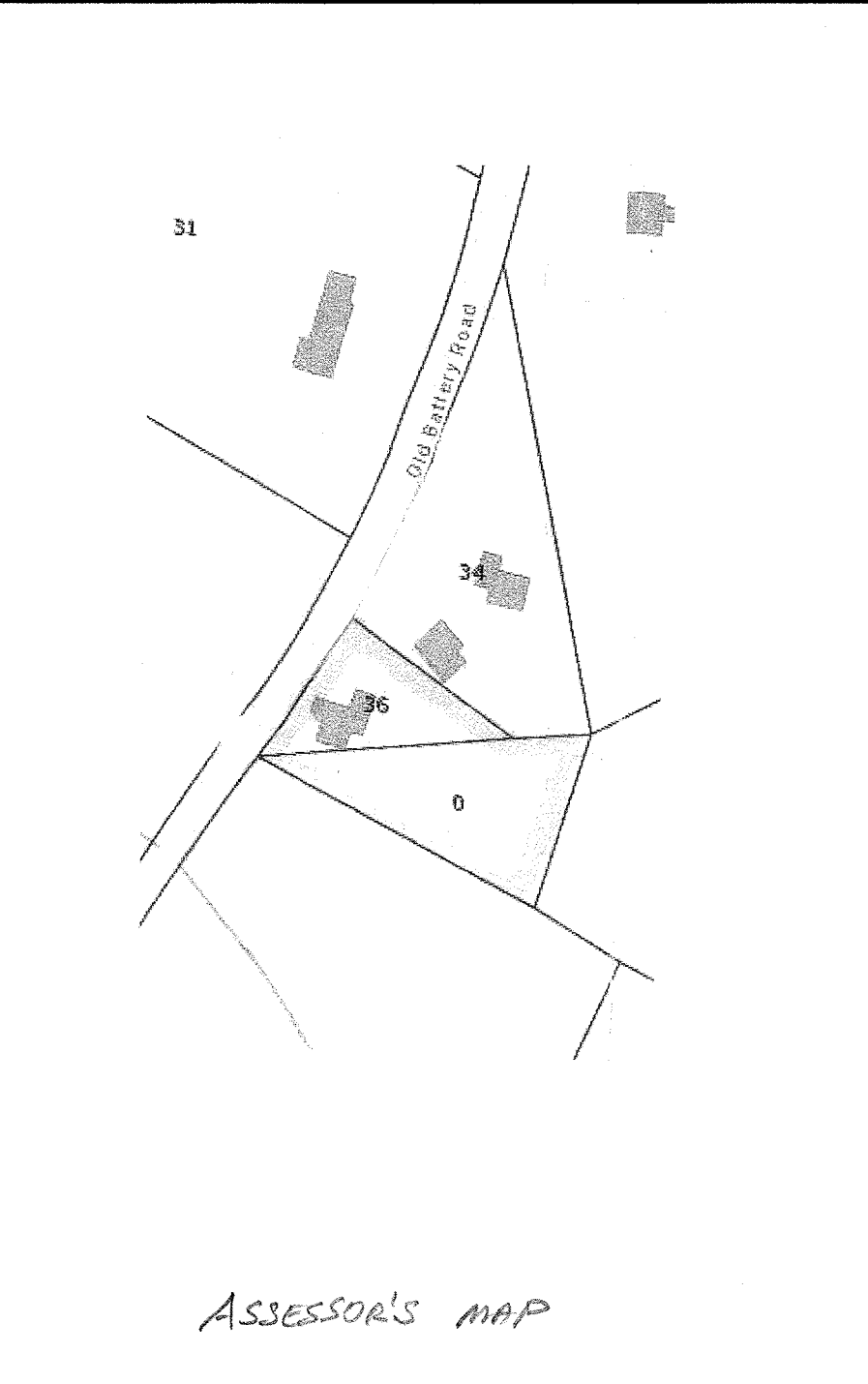
SOIL EVALUATOR CERTIFICATION

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 or under my direct supervision, and that the results of the soil evaluation, as indicated in the attached Soil Evaluation Form, are accurate and in accordance with 310 CMR 15.017 through 15.10.

Signature: [Signature]
Date: 10/14/20



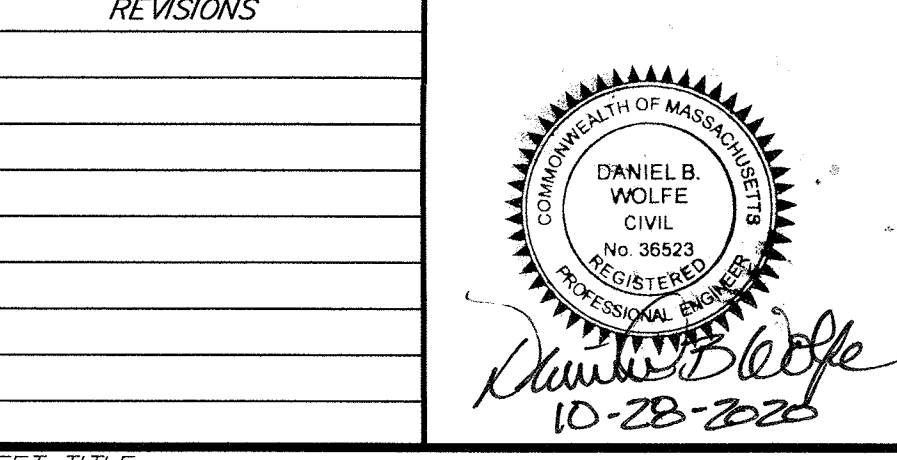
USGS MAP LOCUS MAP NOT TO SCALE



ASSESSOR'S MAP GRAPHIC SCALE IN FEET

REVISIONS

NO.	DATE	DESCRIPTION
1	9/14/20	GRAVEL ELEV. = 101.2
2	9/14/20	GRAVEL ELEV. = 101.1



SHEET TITLE: SEWAGE DISPOSAL SYSTEM

DESIGNED FOR: ERIKA W. DELLOVO

ADDRESS: 36 OLD BATTERY ROAD WEST TOWNSEND, MA.

LOT NO.:	ASSESSOR MAP:	ASSESSOR PARCEL:
	10	8

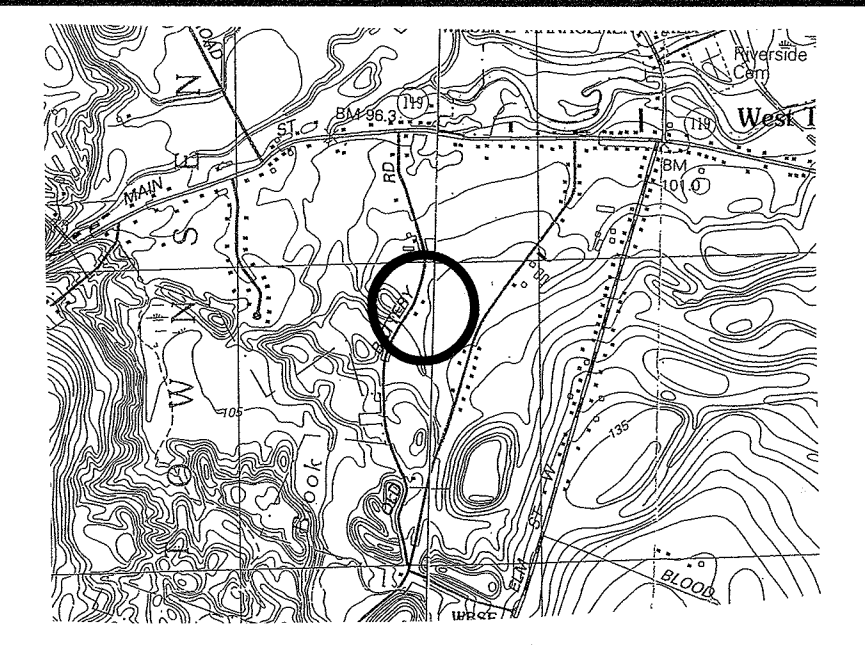
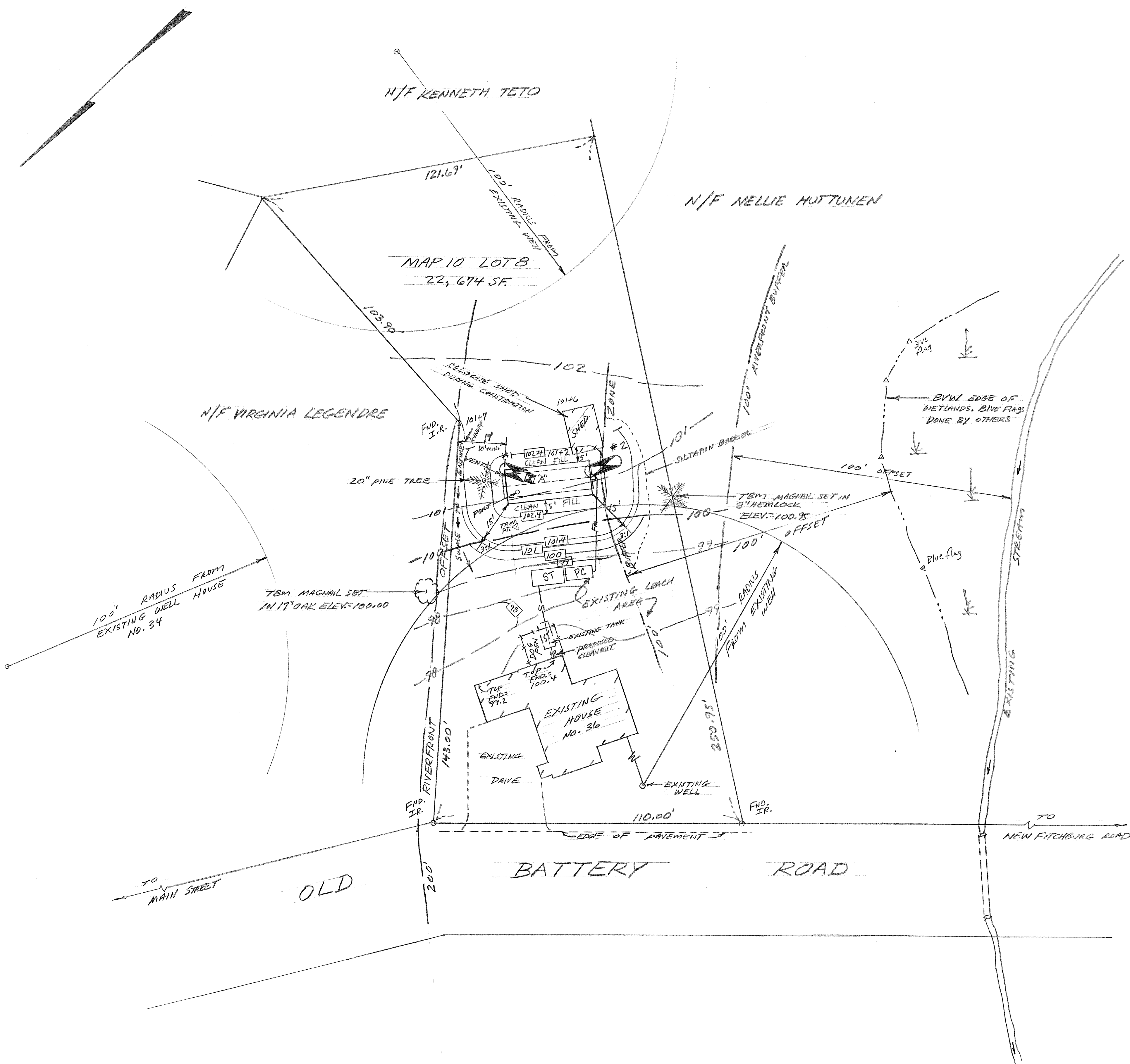
DAVID E. ROSS ASSOCIATES, INC.
CIVIL ENGINEERS - LAND SURVEYORS
ENVIRONMENTAL CONSULTANTS

6 Lancaster County Road P.O. Box 795 Harvard, MA 01451

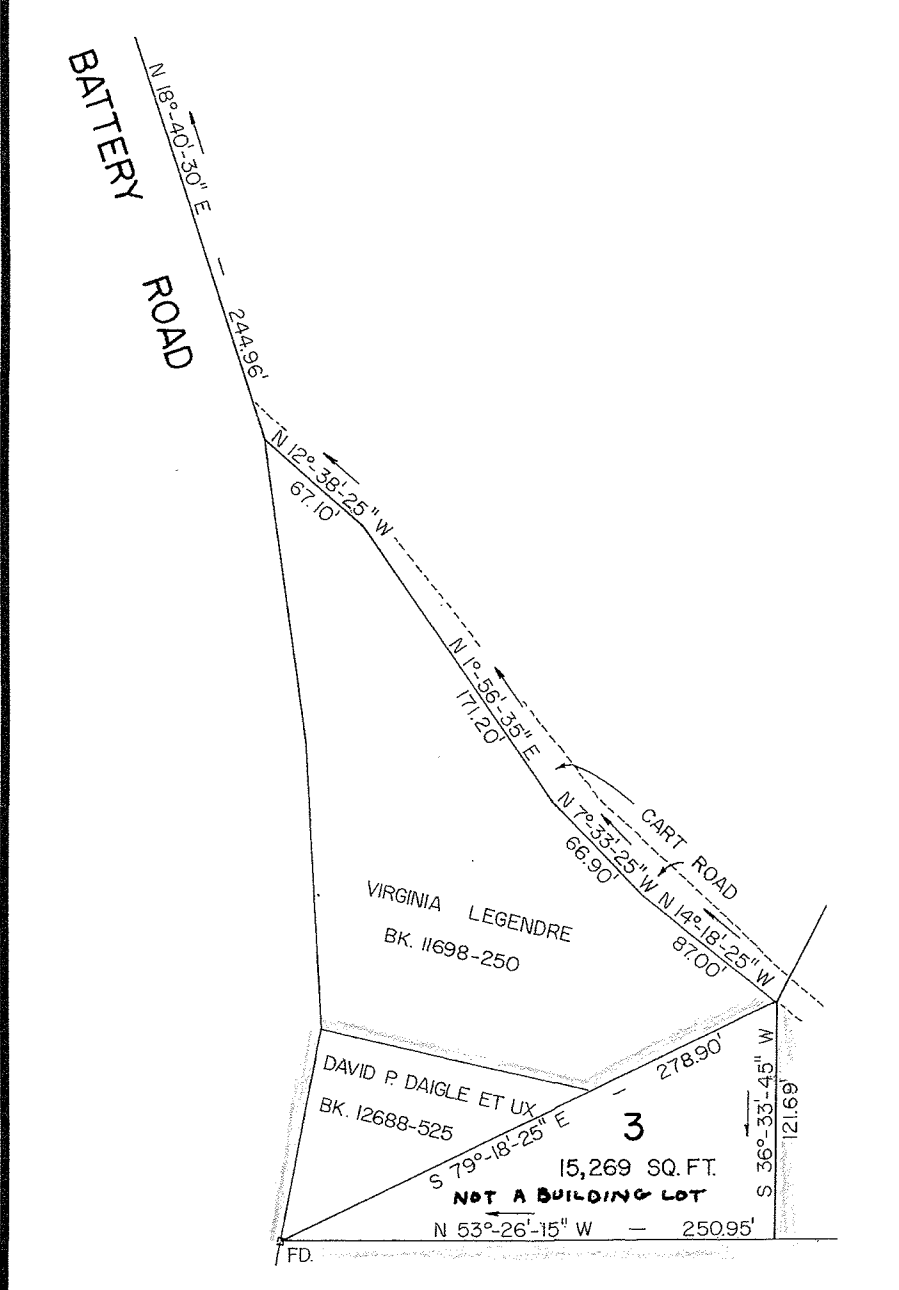
978-772-6232 FAX 978-772-6258 www.davidross.com

SCALE: SEE SHEET 2 DATE: OCT. 2020
REF: PL.No. 744 OF 1983 PLAN NO.: L-14134
JOB NO.: 33379 SHEET NO.: 1 OF 2

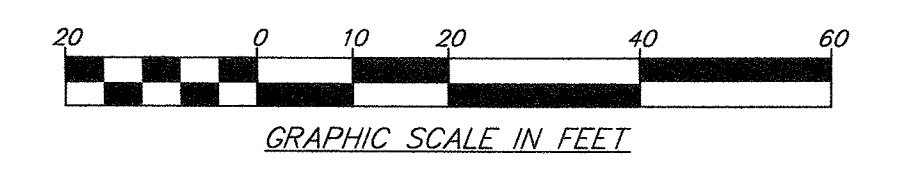
- LEGEND**
- 300 --- EXISTING CONTOUR
 - 300 --- PROPOSED CONTOUR
 - ⊗ PERCOLATION TEST HOLE
 - ⊙ OBSERVATION TEST HOLE
 - S SEWER LINE
 - W WATER LINE
 - EDGE OF WETLANDS



USGS MAP
LOCUS MAP
NOT TO SCALE



SURVEY PLOT PLAN



SURV: SJS	CALC.: SJS	DRAFT: SJS
NB: 808R-54	DEED: 3/17/18-188	CHECK: DBW

REVISIONS

DANIEL B. WOLFE
REGISTERED PROFESSIONAL ENGINEER
10-28-2020

SHEET TITLE:
SEWAGE DISPOSAL SYSTEM

DESIGNED FOR:
ERIKA W. DELLOVO

ADDRESS:
**36 OLD BATTERY ROAD
WEST TOWNSEND, MA.**

LOT NO.:	ASSESSOR MAP:	ASSESSOR PARCEL:
	10	8

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SCALE: 1"=20'	DATE: OCT. 2020
REF.: PL No. 744 of 1983	PLAN NO.: L-14134
JOB NO.: 33379	SHEET NO.: 2 of 2