NOTE:
ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE OR A COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED. (310 CMR 15.221(12))

EXIST. TANK TO BE PUMPED, COLLAPSED AND REMOVED, PROPOSE(2 COMPARTMENT)

Ⓐ NEW 2000 GALLON SEPTIC TANK (MONOLITHIC) (H-20 LOAD)
W/ 6" STONE BENEATH — TANKS SHALL HAVE A MIN. COVER OF 9", TANKS BURIED GREATER THAN 9" SHALL BE EQUIPPED WITH RISERS ON ALL TANK TOP OPENINGS.
PROP. ACCESS MANHOLE TO FINISHED GRADE WITH WATERTIGHT JOINTS.
MANHOLES BROUGHT TO FINAL GRADE SHALL BE SECURED TO PREVENT UNAUTHORIZED ACCESS. (310 CMR 15.228(2))

Ⓑ NEW 1500 GALLON PUMP CHAMBER(MONOLITHIC) (H-20 LOAD)
W/ 6" STONE BENEATH — TANKS SHALL HAVE A MIN. COVER OF 9", TANKS BURIED GREATER THAN 9" SHALL BE EQUIPPED WITH RISERS ON ALL TANK TOP OPENINGS.
PROP. ACCESS MANHOLE TO FINISHED GRADE WITH WATERTIGHT JOINTS.
MANHOLES BROUGHT TO FINAL GRADE SHALL BE SECURED TO PREVENT UNAUTHORIZED ACCESS. (310 CMR 15.228(2))

Ⓒ PROPOSED D-BOX/INLET TEE (6 OUTLET)
W/ 6" STONE BENEATH 3/4"- 1-1/2" CRUSHED STONE — OUTLET LINES SHALL BE LEVEL FOR A MINIMUM OF THE FIRST TWO FEET OF THEIR LENGTH.
PROVIDE 9" OF COVER OVER D-BOX COVER IF EXCESS OF 9" THEN PROP A RISER TO WITHIN 6" OF FINISHED GRADE (310CMR SEC 15.232(3)(F))
VENT LINE FROM THE D-BOX SHALL BE 2"MIN. ABOVE THE COVER OF THE D-BOX AT THE BEND INVERT.

Ⓓ PROP. PRESBY ENVIRO-SEPTIC PIPES (5 CELLS)
(14 LINES – 40.0'L – 12"ø) (525'L.F. PIPE REQUIRED-560'L.F. PIPE PROVIDED)
(1.50' O.C. SPACING) (BED SIZE 22.5'W x 42.0'L)

Ⓔ PROP. 4"PVC PERF SCH40 INSPECTION PORT(2) TO BOTTOM OF SYS. SAND AND THREADED CAP WITHIN 3" OF FIN. GRADE. WRAP PIPE WITH PERMEABLE GEOTEXTILE FABRIC.

Ⓕ PROP SYSTEM VENT/SCREENED(4"PVC SCH40) LOW VENT – 3' MIN ABOVE FINAL GRADE.

NOTE:
1. PROPOSED SEPTIC TANK AND PUMP CHAMBER SHALL BE MONOLITHIC AND TESTED FOR WATER-TIGHTNESS PER BOARD OF HEALTH REGULATIONS.
2. PROPOSED SEPTIC TANK AND PUMP CHAMBER SHALL BE VACUUM TESTED AND WATERPROOFED AS REQUIRED.

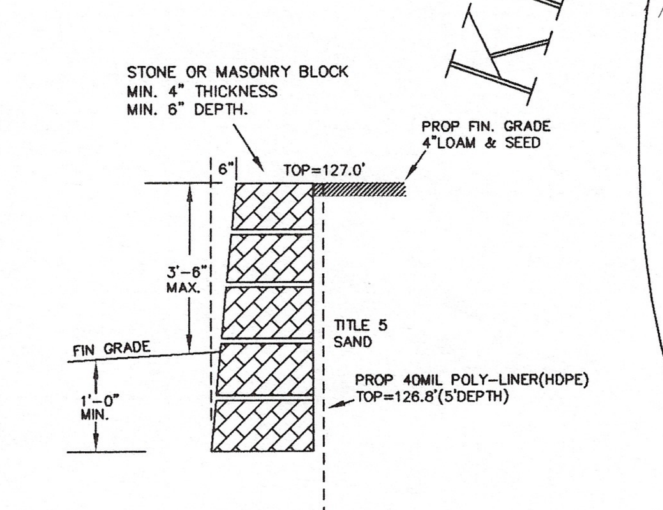
I HEREBY CERTIFY THAT THIS SYSTEM IS DESIGNED UNDER THE MA D.E.P. STANDARD CONDITIONS FOR ALTERNATIVE SOIL ABSORPTION SYSTEMS FOR GENERAL USE/REMEDIAL USE REVISED MARCH 05, 2018 CERTIFICATION PURSUANT TO TITLE 5, 310 CMR 15.00 AND MODIFIED CERTIFICATION FOR REMEDIAL USE MARCH 15, 2022 FOR PRESBY ENVIRO-SEPTIC LEACHING SYSTEM.
TRANSMITTAL NUMBER: 21-CLM-000073-APP

12/08/2023
STANTON W. BIGELOW, P.E. DATE

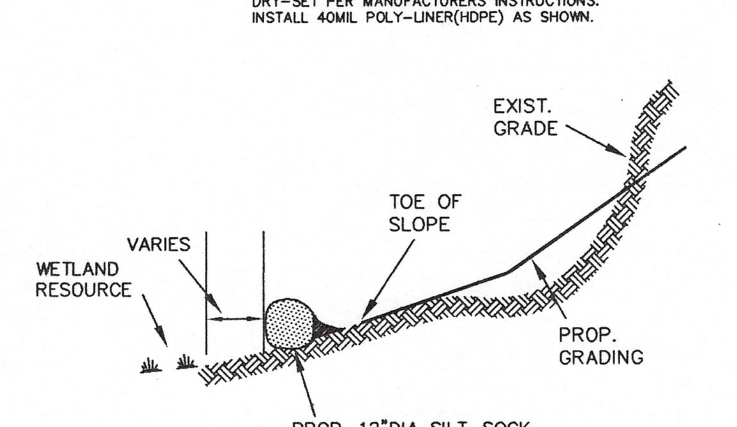
CERTIFICATIONS:
NO PART OF THIS SYSTEM IS WITHIN AN AREA NOTED BY D.E.P. AS AN ESTIMATED SETBACK AREA FOR TITLE 5.
NO PART OF THIS SYSTEM IS WITHIN 400 FEET OF PUBLIC AND SURFACE WATER SUPPLIES.
NO PART OF THIS SYSTEM IS WITHIN 200 FEET OF TRIBUTARIES TO PUBLIC AND SURFACE WATER SUPPLIES.
NO PART OF THIS SYSTEM IS WITHIN 100 FEET TO A PRIVATE WATER SUPPLY (WELL).
NO PART OF THIS SYSTEM IS WITHIN A NITROGEN SENSITIVE AREA AS DELINEATED BY D.E.P..
THIS PROPOSED SYSTEM IS NOT WITHIN 100' FEET OF A WETLAND RESOURCE AREA AS DEFINED BY 310 CMR 10.0, THE WETLAND PROTECTION ACT, AND CONFORM TO THE REQUIREMENTS OF TITLE 5.

GENERAL NOTES

1. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR HORIZONTAL AND VERTICAL CONTROL OF ALL SYSTEM COMPONENTS.
2. THIS PLAN IS TO SHOW THE DESIGN OF THE SUBSURFACE SEWAGE DISPOSAL SYSTEM ONLY. THE SYSTEM IS DESIGNED FOR FLOWS ESTIMATED UNDER DESIGN CRITERIA.
3. SYSTEM IS DESIGNED TO ACCOMIDATE ONLY SANITARY SEWAGE ASSOCIATED WITH NORMAL DOMESTIC USAGE AND CONSISTING OF WATER-CARRIED PUTRESCIBLE WASTE.
4. THIS SYSTEM IS NOT DESIGNED FOR GARBAGE GRINDERS.
5. THE SYSTEM SHALL BE VENTED THROUGH BUILDING PLUMBING AS REQUIRED BY BUILDING CODE.
6. PROPERTY LINES AND BUILDING LOCATION ARE GRAPHIC ONLY, PROPERTY LINES NOT HAVING BEEN VERIFIED, NO REPRESENTATION OR CERTIFICATION AS TO THE ACCURACY OF THOSE SHOWN IS IMPLIED OR INTENDED. A BOUNDARY SURVEY BY A PROF. LAND SURVEYOR TO ESTABLISH LOT LINES ON THE GROUND MAY BE REQUIRED BY THE B.O.H. PRIOR TO CONSTRUCTION OF THE PROPOSED FACILITIES.
7. PURSUANT TO LOCAL REGULATIONS, ALL PROPOSED BUILDING LOTS, BUILDINGS OR ADDITIONS SHALL COMPLY WITH THE ZONING BYLAWS.
8. THE 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.
9. THE INSTALLER OF THIS SYSTEM MUST BE LICENSED BY THE LOCAL BOARD OF HEALTH.
10. THERE ARE NO EXISTING WELLS WITHIN 100' OF THE PROPOSED SEWAGE DISPOSAL SYSTEM, SYSTEM TO BE STAKED IF WELLS LESS THAN 125'.
11. DISPOSAL SYSTEM AREAS ARE TO BE RAKED (SCARIFIED) BEFORE INSTALLATION OF STONE. ALL STONES EXCEDING 2 INCHES IN DIAMETER, ALL LOAM, OR FOREIGN MATERIAL ENCOUNTERED DURING EXCAVATION ARE TO BE REMOVED FROM THE LEACHING AREA SURFACES.
12. FINISHED SURFACE OF THE LEACHING AREA SHALL BE GRADED TO ASSURE WATER RUNOFF (2% MINIMUM SLOPE).
13. ALL DISTURBED AREAS TO BE LOAMED, SEEDED, AND MAINTAINED TO PREVENT EROSION.
14. THE SEPTIC TANK SHOULD BE PERIODICALLY INSPECTED AND MAINTAINED AND SHOULD BE PUMPED WHEN SLUDGE IN THE BOTTOM OF THE TANK EXCEEDS 1/4 OF THE DEPTH.
15. ALTERNATE MANUFACTURERS FOR CONCRETE STRUCTURES AND EQUIPMENT SHOWN ON THESE PLANS MAY BE USED UPON THE WRITTEN APPROVAL OF THE DESIGN ENGINEER. ALTERNATE MANUFACTURERS WILL NOT BE USED IF THE USE OF THEIR EQUIPMENT REQUIRES DESIGN CHANGES.
16. IF ANY PART OF THIS DESIGN IS TO BE ALTERED IN ANY WAY, THE DESIGN ENGINEER AS WELL AS THE APPROVING AUTHORITIES SHALL BE NOTIFIED IN WRITING BEFORE CONSTRUCTION.
17. THE LOCAL BOARD OF HEALTH AGENT OR STATE INSPECTOR WILL CONDUCT PERIODIC INSPECTIONS AS NEEDED.
18. A RESIDENT INSPECTOR FROM E.L.S., LLC SHALL BE ON SITE TO (A) INSPECT THE INSTALLATION OF ALL CONCRETE STRUCTURES PRIOR TO BEING BACKFILLED, (B) INSPECT THE BOTTOM OF THE LEACH AREA AT THE TIME IT IS SCARIFIED, AND (C) INSPECT THE LEACH AREA PRIOR TO BEING BACKFILLED. E.L.S., LLC SHALL BE GIVEN AT LEAST 48 HOURS NOTICE BY THE GENERAL CONTRACTOR PRIOR TO THE COMMENCEMENT OF THE ABOVE CONSTRUCTION OPERATIONS.
19. THESE PLANS AN SPECIFICATIONS ARE INTENDED TO BE EXPLANATORY OF THE WORK TO BE DONE AND OF EACH OTHER, BUT SHOULD ANY OMISSION, ERRORS, OR DISCREPANCIES APPEAR, THEY SHALL BE SUBJECT TO CORRECTION AND INTERPRETATION BY THE DESIGN ENGINEER THEREBY DEFINING AND FULFILLING THE INTENT OF THE PLANS.
20. ALL UNSUITABLE MATERIAL UNDER AREA OF LEACHING SYSTEM AND 5' BEYOND SHALL BE REMOVED AND REPLACED WITH CLEAN FILL MEETING THE SPECIFICATIONS OF TITLE 5, 310 CMR 15.255(3).
21. CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS IN THE FIELD. IF ANY DISCREPANCIES ARE FOUND BETWEEN EXISTING DIMENSIONS AND PLAN DIMENSIONS, CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY BEFORE PROCEEDING WITH ANY WORK.



SECTION CONCRETE BLOCK RETAINING WALL
N.T.S.
NOTE: 1 – WALL TO BE CONSTRUCTED OF CONCRETE LANDSCAPING BLOCKS DRY-SET PER MANUFACTURERS INSTRUCTIONS. INSTALL 40MIL POLY-LINER(HDPE) AS SHOWN.



PROP. SILT-SOCK
N.T.S.

SILT FENCE T.E.C.
N.T.S.

PLAN NOTE:
THIS PLAN HAS BEEN PREPARED AS A SEPTIC SYSTEM DESIGN PLAN AND IS NOT TO BE USED TO ESTABLISH PROPERTY LINES OR USED FOR BUILDING SETBACKS. PROPERTY LINES AND BUILDING LOCATIONS ARE GRAPHIC ONLY AND ARE NOT HAVING BEEN VERIFIED.

CONDITIONS APPLICABLE TO THE SYSTEM OWNER:
1 – THE SYSTEM IS APPROVED FOR THE TREATMENT AND DISPOSAL OF SANITARY SEWAGE ONLY. ANY WASTES THAT ARE NON-SANITARY SEWAGE GENERATED OR USED AT THE FACILITY SERVED BY THE SYSTEM SHALL NOT BE INTRODUCED INTO THE ON-SITE SEWAGE DISPOSAL SYSTEM AND SHALL BE LAWFULLY DISPOSED OF.
2 – THE OWNER OF THE SYSTEM SHALL AT ALL TIMES PROPERLY OPERATE AND MAINTAIN THE ON-SITE SEWAGE DISPOSAL SYSTEM.
3 – THE OWNER SHALL FURNISH THE DEPARTMENT ANY INFORMATION THAT THE DEPARTMENT REQUESTS REGARDING THE OPERATION AND PERFORMANCE OF THE SYSTEM, WITHIN 21 DAYS OF THE DATE OF RECEIPT OF THAT REQUEST.
4 – NO OWNER SHALL AUTHORIZE OR ALLOW THE INSTALLATION OF THE SYSTEM OTHER THAN BY A PERSON TRAINED BY THE COMPANY TO INSTALL THE SYSTEM.

SEPTIC TANK NOTE:
A GAS BAFFLE SHALL BE INSTALLED AT THE FIRST TANK COMPARTMENT OUTLET TEE AND A FILTER SHALL BE INSTALLED AT THE FIRST TANK COMPARTMENT OUTLET TEE.

ALL INLETS AND OUTLETS OF THE PROPOSED TANKS SHALL BE RUBBER BOOTED.

MIN. SEPTIC TANK CAPACITY REQUIRED:
825 x 200% = 1650 GALLONS
PROPOSE 2000 GALLON SEPTIC TANK(H-20)(2 COMPARTMENT)
PROPOSE 1500 GALLON PUMP CHAMBER(H-20)

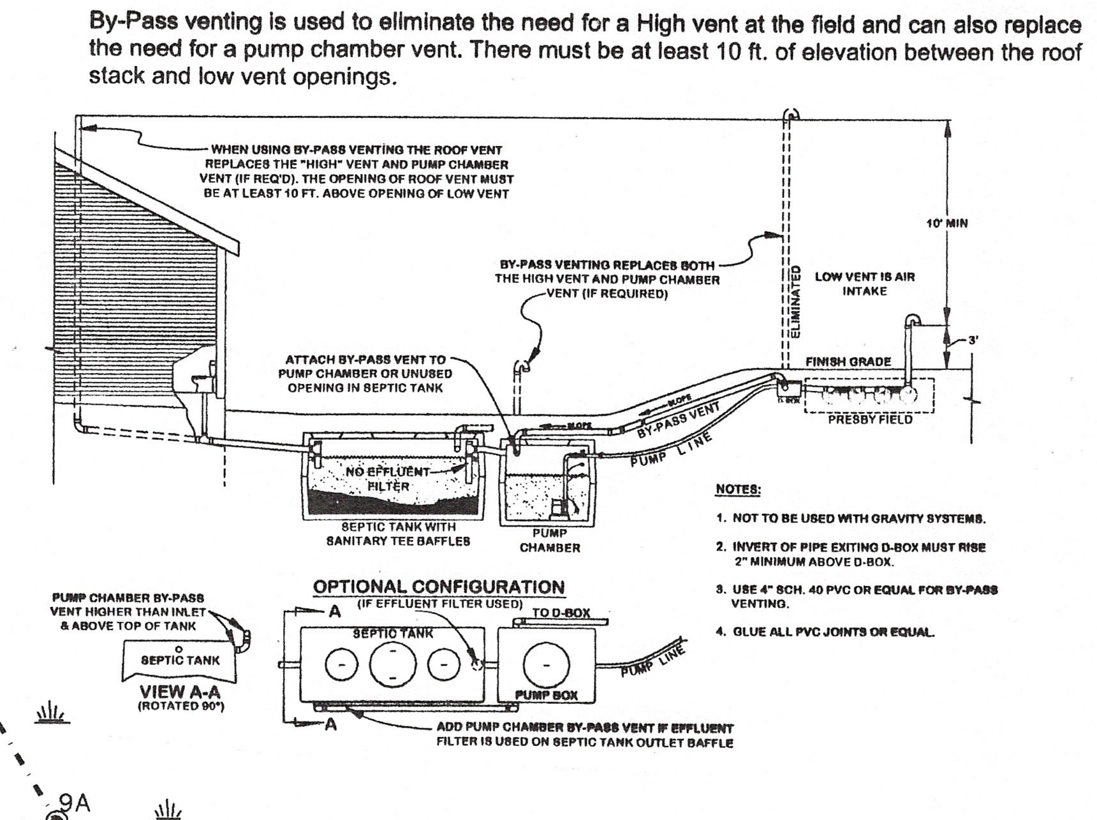
EXISTING SEPTIC SYSTEM NOTE:
EXISTING SEPTIC LEACH AREA TO BE ABANDONED.
EXISTING SEPTIC TANK(S.T.) SHALL BE PUMPED, CRUSHED AND REMOVED.

THE INTENT OF THIS PLAN IS TO PROVIDE FULL COMPLIANCE WITH TITLE 5 OF THE STATE ENVIRONMENTAL CODE, AS AMENDED BY THE BOARD OF HEALTH, EXCEPT WHERE NOT POSSIBLE, AND NOTED IN THE FOLLOWING VARIANCE REQUESTS TO ACHIEVE MAXIMUM FEASIBLE COMPLIANCE.

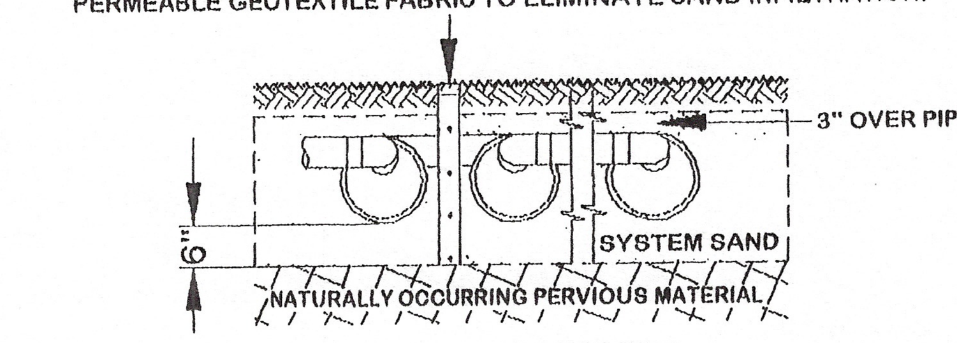
VARIANCE REQUESTS:
1 – S.A.S. SETBACK FROM WETLAND RESOURCE AREA FROM 150' REQUIRED WITH A < 5MPI PERCOLATION RATE TO 100' PROVIDED WITH 40MIL POLY-LINER AND PRESBY ENVIRO TREATMENT SYSTEM. (LOCAL 201-9(E))
2 – S.A.S. SETBACK FROM PRIVATE WELL FROM 150' REQUIRED WITH A < 5MPI PERCOLATION RATE TO 119' PROVIDED WITH PRESBY ENVIRO TREATMENT SYSTEM. (LOCAL 201-9(D))

NOTES:
1 – THE CONTRACTOR SHALL USE EXTREME CARE WHILE WORKING IN THE EXISTING PATHWAY TO CONSTRUCT THE PROPOSED SEPTIC SYSTEM. THE CONTRACTOR SHALL NOT WIDEN THE EXISTING PATHWAY ON THE SIDE LOCATED NEAREST TO THE EXISTING WETLAND FLAGS 1A-13A.
2 – THE CONTRACTOR SHALL REMOVE THE PATHWAY LOAM AND REPLACE WITH ROADWAY STABILIZATION CLEAN FILL(STONE OR RAP) TO CREATE A TEMPORARY WAY TO CONSTRUCT THE PROPOSED SEPTIC SYSTEM. THE REMOVED LOAM SHALL BE STORED IN THE PROPOSED LOAM STOCKPILE LOCATIONS AS SHOWN ON THIS PLAN. ANY FILLED AREAS IN THE CONSTRUCTED PATHWAY SHALL BE REMOVED AND ALL DISTURBED AREAS SHALL BE LOAMED AND SEEDED AT THE COMPLETION OF THE SITE WORK.
3 – A STABILIZED CONSTRUCTION ENTRANCE (STONE FILTER) SHALL BE UTILIZED BY THE CONTRACTOR (SEE DETAIL). SILT SOCK SHALL BE INSTALLED IN LOCATIONS SHOWN ON THE PLAN PRIOR TO COMMENCEMENT OF CONSTRUCTION WORK.

By-Pass venting is used to eliminate the need for a High vent at the field and can also replace the need for a pump chamber vent. There must be at least 10 ft. of elevation between the roof stack and low vent openings.



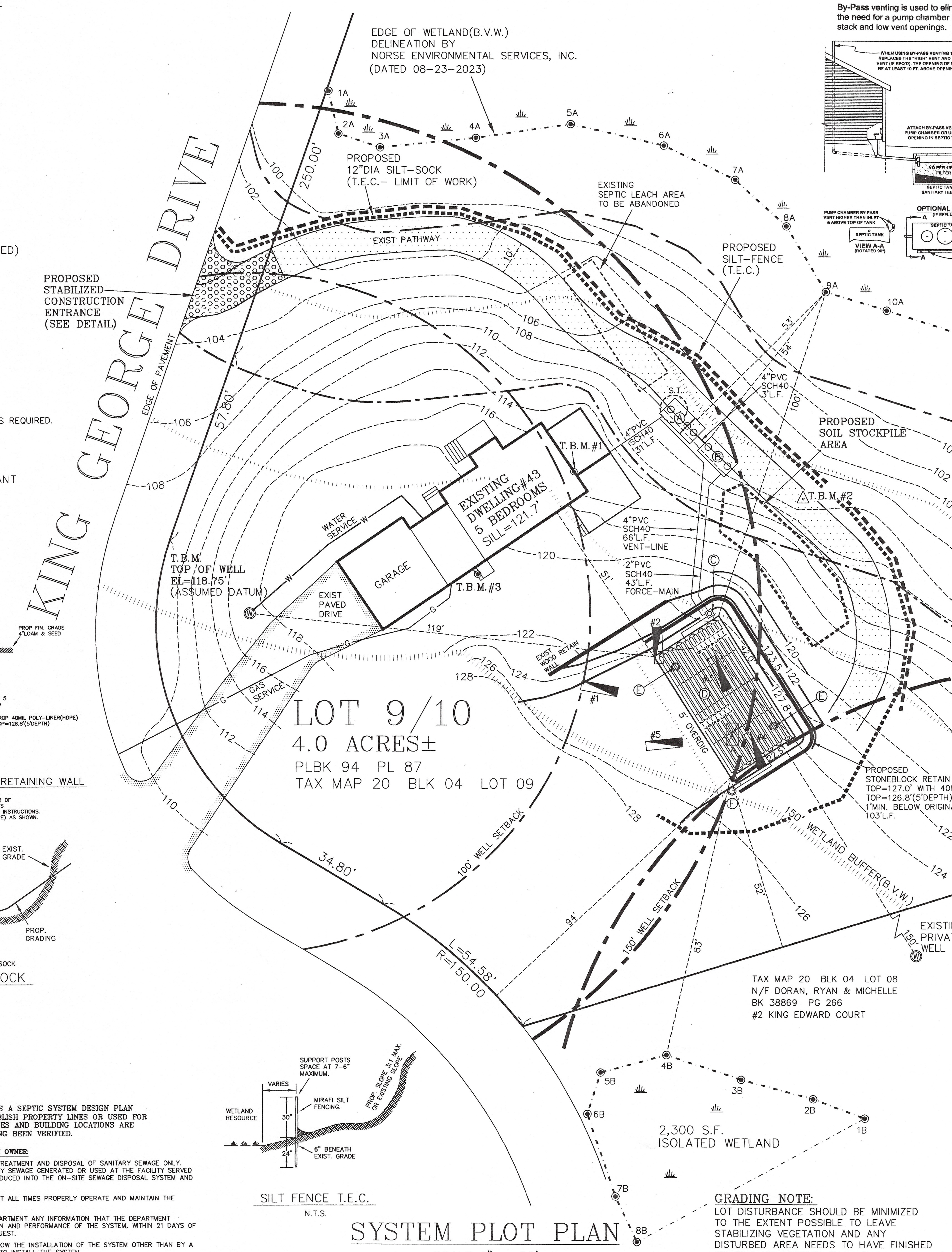
4"Ø PERFORATED INSPECTION PORT TO BOTTOM OF SYSTEM SAND AND THREADED CAP WITHIN 3" OF FINAL GRADE. WRAP PIPE WITH PERMEABLE GEOTEXTILE FABRIC TO ELIMINATE SAND INFILTRATION.



LEGEND:

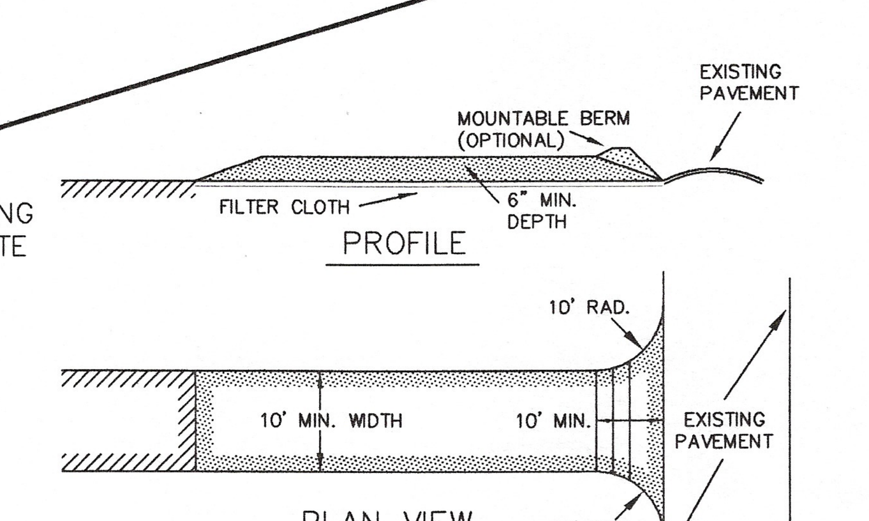
100x0	SPOT ELEVATION
	EXIST. CONTOUR
	PROP. CONTOUR
	EXISTING SOIL TEST LOCATION
	EXISTING PERC. TEST LOCATION
—W—W—	EXIST WATER-SERVICE
	EXIST SHRUB
	EXIST TREE

T.B.M.#1 DOOR SILL EL=114.90' (ASSUMED DATUM)
T.B.M.#2 SPIKE(SET) EL=107.72' (ASSUMED DATUM)
T.B.M.#3 TOP FIRST STEP EL=121.26' (ASSUMED DATUM)



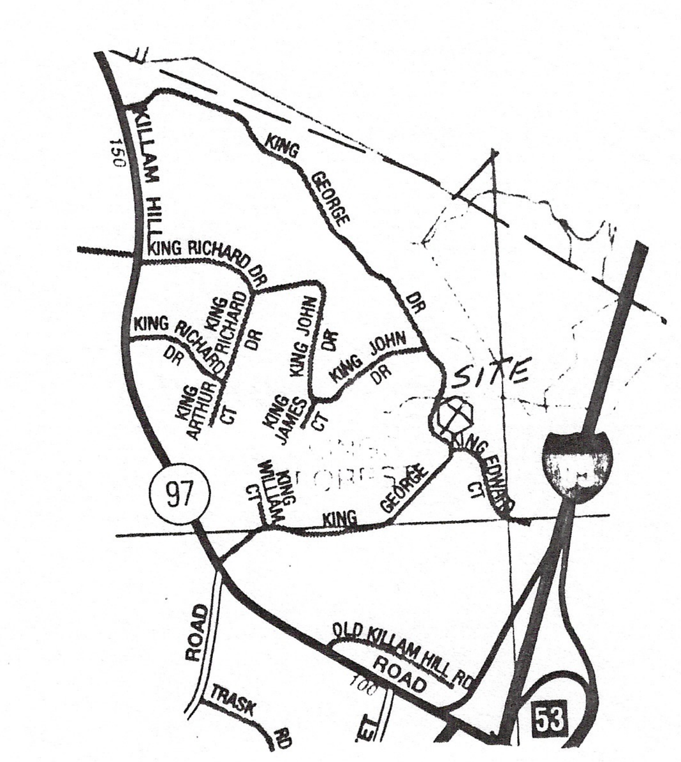
SYSTEM PLOT PLAN
SCALE 1" = 20'

GRADING NOTE:
LOT DISTURBANCE SHOULD BE MINIMIZED TO THE EXTENT POSSIBLE TO LEAVE STABILIZING VEGETATION AND ANY DISTURBED AREA NEEDS TO HAVE FINISHED GRADING NO STEEPER THAN 2H:1V.

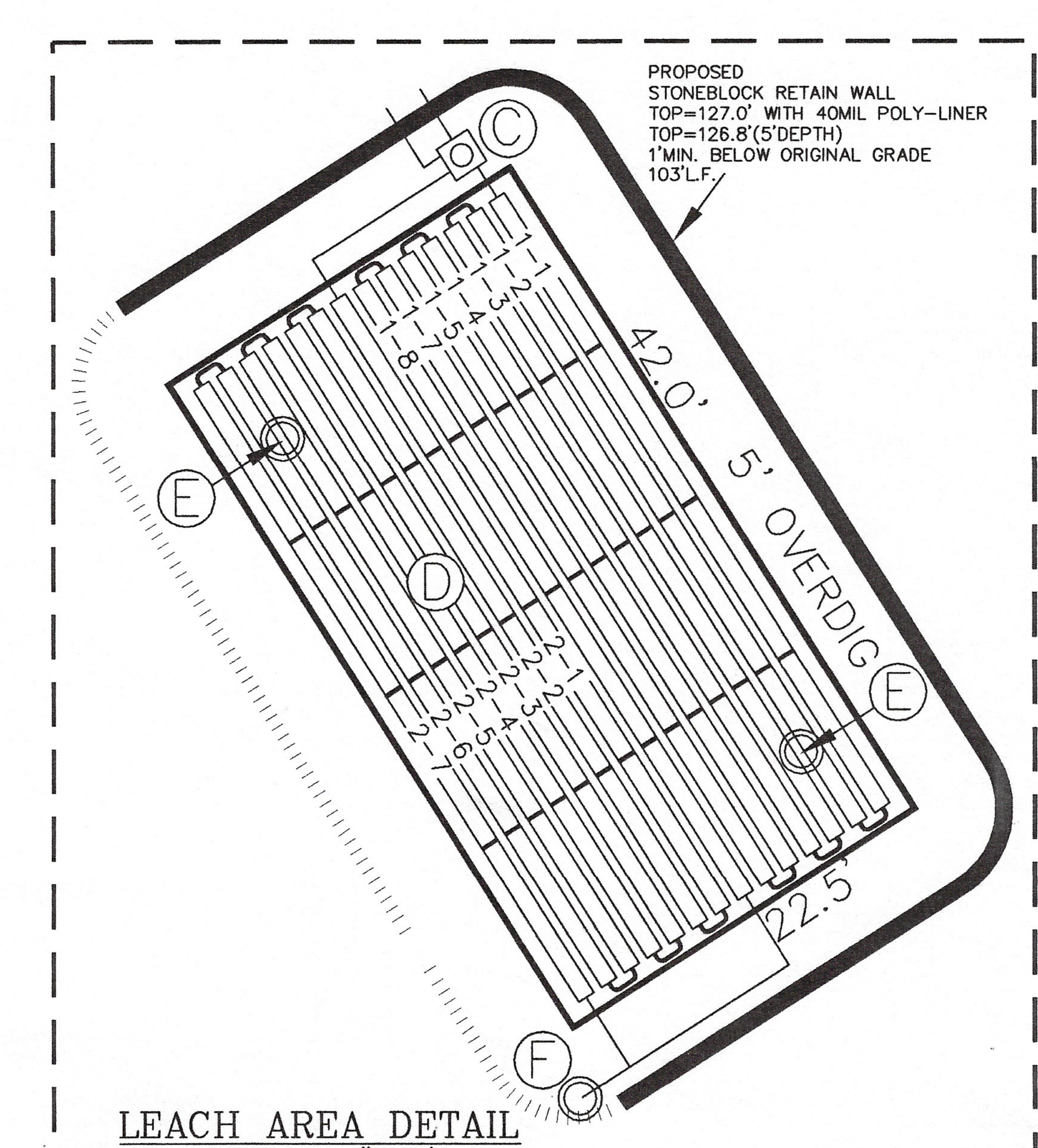


CONSTRUCTION SPECIFICATIONS:
1. STONE SIZE: USE 2" STONE OR RECYCLED CONCRETE EQUIVALENT.
2. PERIODIC INSPCTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAINFALL EVENT.
3. THICKNESS: NOT LESS THAN SIX INCHES (6") DEPTH.
4. WIDTH: TEN (10) FOOT MINIMUM, BUT NOT LESS THAN FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. FILTER CLOTH: WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACEMENT OF STONE. (NOT REQUIRED FOR SIGNLE RESIDENCE LOT).
6. SURFACE WATER: ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONTRUCTION ENTRANCE SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPE WILL BE REQUIRED.
7. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING SEDIMENT ONTO THE PUBLIC RIGHT OF WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS WARRANT, AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHT OR WAY, SHALL BE REMOVED IMMEDIATELY.
8. WASHING: WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONEON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

STABILIZED CONSTRUCTION ENTRANCE



LOCUS MAP
N.T.S.



LEACH AREA DETAIL
SCALE: 1"=10'

OWNER: ELLEN WORRALL & MICHAEL MCARDLE
TAX MAP 20 BLK 04 LOT 09
LOCUS DEED: BK 8480 PG 130

LOCATION: 43 KING GEORGE DRIVE
BOXFORD, MA 01921

Engineering Land Services, LLC
P.O.BOX 41 WEST NEWBURY, MA 01985
TEL: 978-815-6744
EMAIL: MASSPLSRG@AOL.COM

SANITARY DISPOSAL SYSTEM UPGRADE PLAN (REPAIR)

REVISIONS: (CONSERVATION) 12-08-2023

DRAWN: RMG
CHECKED: SWB
SCALE: 1"=20'
DATE: 10-26-2023
DWG No.

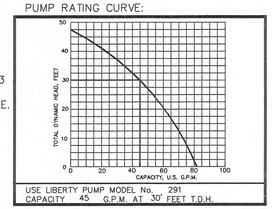
DATE 12/08/2023

PUMP CRITERIA:

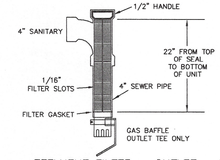
No. OF DOSES/DAY 825 GPD/9 = 92 GAL + BACKFLOW
BACKFLOW: 43' x (3.14159x(1/12)^2)x7.48 = 8 GAL
TOTAL DOSE = 92 + 8 = 100 GAL
VOLUME OF DOSE = 100 GAL/7.48 GAL/CU FT = 14 FT^3
DEPTH OF DOSE = 14 FT^3/4.35 FT^3/INCH DEPTH IN
1500 GAL PUMP CHAMBER = 3.2 INCHES USE 4" PER CYCLE.

HEAD CALCULATIONS:
STATIC HEAD = 26' RISE PUMP OFF TO D-BOX INV IN
DYNAMIC HEAD (FRICTION LOSS)
EQ LENGHT 1-90° @ 3.1' CHECK VALVE 1.7'
GATE VALVE = 2.6' 2-45° = 6' TOTAL = 13.4'
TOTAL D.H. = (43' + 13.4) x 5.4)/100 @ 50 GPM = 4'
TOTAL HEAD = 26' + 4' = 30' FT

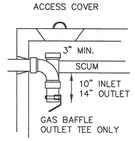
PUMP RATING CURVE:



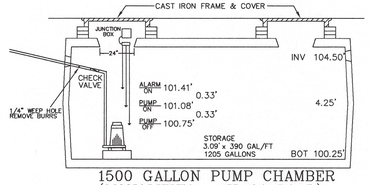
USE LIBERTY PUMP MODEL No. 291
CAPACITY 45 G.P.M. AT 30' FEET T.D.H.



EFFLUENT FILTER – OUTLET
ZABEL MODEL A1800-HIP



SANITARY TEE INLET/OUTLET
N.T.S.



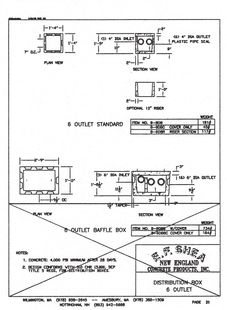
1500 GALLON PUMP CHAMBER
(MONOLITHIC – H-20 LOAD)

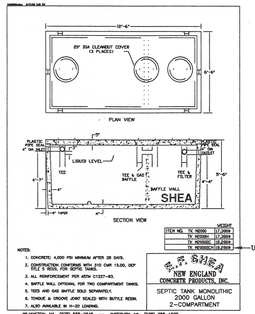
USE STANDARD SEPTIC TANKS OF PUMP CHAMBERS
PUMP, PLUMBING & ELECTRICAL BY OTHERS

PUMP CONTROLS:
PUMP CONTROLS SHALL BE MOISTURE PROOF AND OPERATE IN THE SEQUENCE SHOWN. THE CONTROLS SHALL INCLUDE AN AUDIO/VISUAL ALARMS, ALARM SILENCING SWITCH, MAIN POWER HAND SHUTOFF. ALARM SYSTEM SHALL BE POWERED BY A CIRCUIT SEPARATE FROM PUMP POWER.

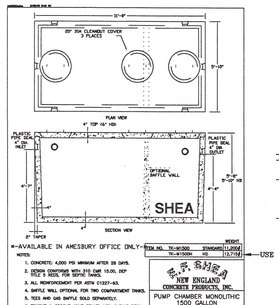
CONTROL BOX AND ELECTRICAL WIRING SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND IN FULL COMPLIANCE WITH ALL STATE AND LOCAL REGULATIONS.

UPON COMPLETION, THE INSTALLATION SHALL BE TESTED TO INSURE PROPER OPERATION.





USE



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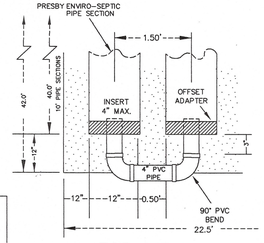
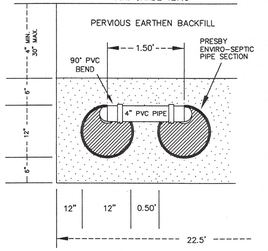
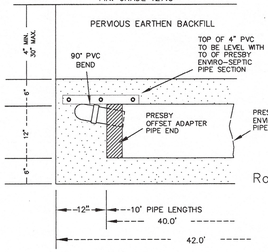


TOP VIEW
N.T.S.



END VIEW
N.T.S.

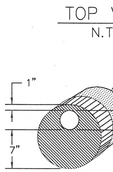


SIDE VIEW
N.T.S.

I HEREBY CERTIFY THAT IN OCTOBER 1997, I HAVE PASSED THE EXAMINATION APPROVED BY THE D.E.P. AND THAT THE ABOVE ANALYSIS WAS PERFORMED BY ME CONSISTENT WITH THE REQUIRED TRAINING, EXPERTISE AND EXPERIENCE DESCRIBED IN CMR 15.017.

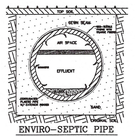
12-8-23
ROBERT M. GRASSO, P.L.S., SE#933 DATE

USDA – S.C.S. SOIL TYPES
THE ENTIRE SITE IS MAPPED AS:
RoC – Rock Outcrop–Charlton–Hollis Complex



OFFSET ADAPTER
(TYPICAL)
N.T.S.

DIMENSION TABLE:
PIPE SEPARATION = 0.50'
LINE LENGTH = 40.0'
PIPE CENTER O.C. = 1.50'
BED WIDTH = 22.5'
BED LENGTH = 42.0'



TEST PIT # 01
ELEV = 124.8'
7" FILL
17" A – F.S.L. 10YR 3/2
27" BW – F.S.L. 10YR 4/6
82" C – F.S.L. 2.5Y 5/3 40% STONE

WATER TABLE
NONE OBSERVED
41" ESTIMATED 121.4'

TEST PIT # 02
ELEV = 123.8'
8" FILL
14" A – F.S.L. 10YR 3/2
22" BW – F.S.L. 10YR 4/6
61" C – F.S.L. 2.5Y 5/3 30% STONE

WATER TABLE
NONE OBSERVED
56" ESTIMATED 119.2'

TEST PIT # 03
ELEV = 124.3'
6" A – F.S.L. 10YR 3/2
22" BW – F.S.L. 10YR 4/6
77" C – F.S.L. 2.5Y 5/4 20% STONE

WATER TABLE
NONE OBSERVED
48" ESTIMATED 120.3'

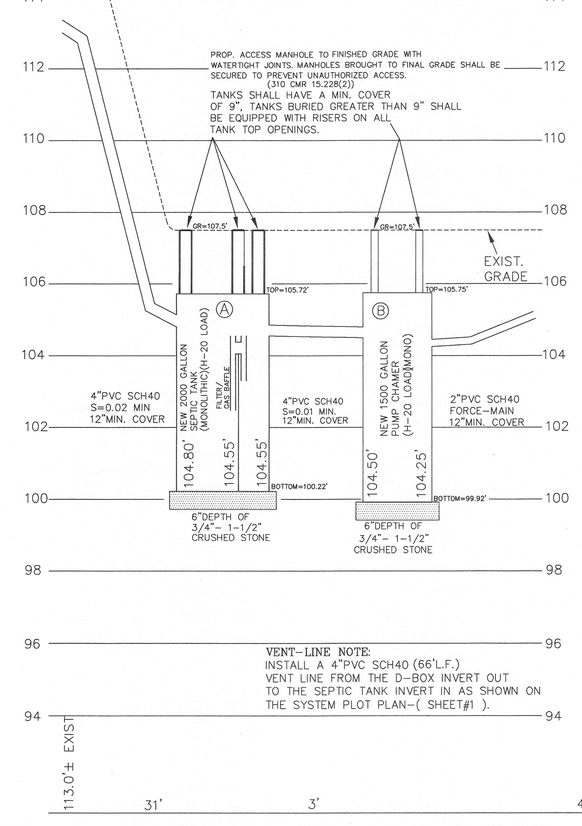
TEST PIT # 04
ELEV = 125.6'
6" A – F.S.L. 10YR 3/2
15" BW – F.S.L. 10YR 4/6
82" C – F.S.L. 2.5Y 5/4 30% STONE

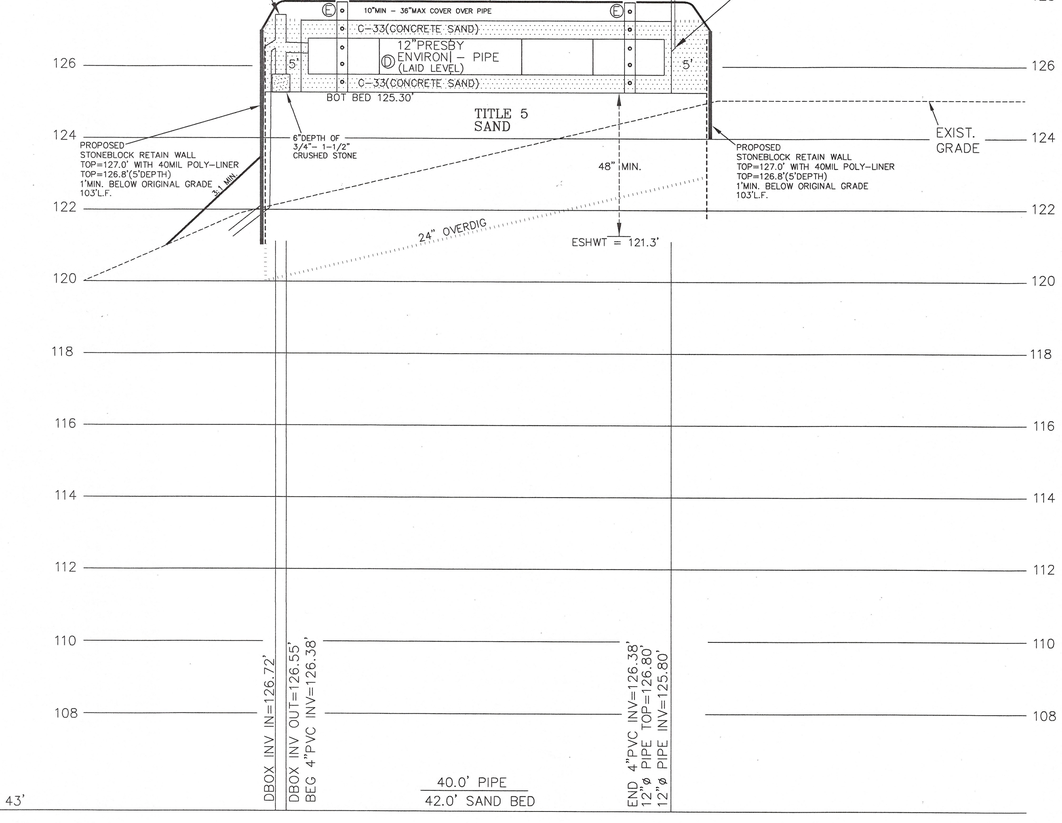
WATER TABLE
NONE OBSERVED
52" ESTIMATED 121.3'

TEST PIT # 05
ELEV = 125.9'
4" A – F.S.L. 10YR 3/2
17" BW – F.S.L. 10YR 4/6
62" C – F.S.L. 2.5Y 5/3 20% STONE

WATER TABLE
NONE OBSERVED
39" ESTIMATED 122.7'

SOIL LOG
HEALTH AGENT KENDELL LONGO
SOIL EVALUATOR ROBERT GRASSO
DATE: 08-16-2023



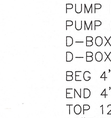


INVERT TABLE

AT HSE	113.0'± EXIST
TANK IN	104.80;
TANK OUT	104.55'
PUMP IN	104.50'
PUMP OUT	104.25'
D–BOX IN	126.72'
D–BOX OUT	126.55'
BEG 4"PIPE	126.38'
END 4"PIPE	126.38'
TOP 12" PIPE	126.80'
12"PIPE INV	125.80'
BOTTOM BED	125.30'
GROUNDWATER	121.3'

PERCOLATION TESTS

DATE 08-16-2023



6 MIN 12"– 9"
8 MIN 9"– 6"
3 MIN/INCH RATE

DESIGN CRITERIA (3 MIN/INCH) USE 0.60 GAL/S.F. – CL II (SANDY LOAM)
NUMBER OF BEDROOMS: 5 DESIGN FLOW: 165 GAL/BEDROOM
TOTAL No. ROOMS 10
TOTAL DAILY FLOW: 825 GPD. LEACHING AREA: 1375 S.F.

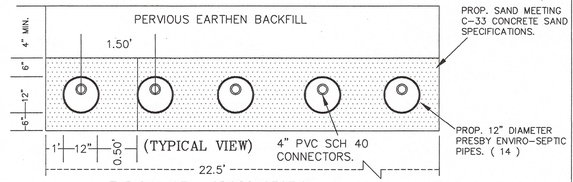
NO GARBAGE GRINDER TO BE USED.

ACTUAL LEACHING AREA PROVIDED: 945 S.F.
SAND BED SIZE: 22.5'W x 42.0'L = 945 S.F.
CALCULATED DAILY FLOW:
560'L.F. x 1.57 GAL/L.F. AT 3 MPI = 879 GPD >= 825 GPD REQ'D.
14 LINES (40.0'L – 1.50' O.C.) + 1' SAND AROUND

PRESBY ENVIRO–SEPTIC REQUIREMENTS:
MIN. LENGTH OF PIPE – 525' L.F.
MIN. SIZE OF SAND BED: – 825 S.F.
MIN. PIPE O.C. SPACING: – 1.50'

NOTES:
REMOVE ALL UNSUITABLE SOIL MATERIAL FOR A MINIMUM OF 5' ALL AROUND LEACH AREA AND (24") BELOW EXISTING GRADE, AND REPLACE WITH CLEAN FILL MEETING TITLE 5, 310 CMR 15.255(3).
INSTALL FLOW LEVELERS AT DISTRIBUTION BOX OUTLETS. (GRAVITY ONLY)
DIMENSIONS, DETAILS, AND SHAPE OF SEPTIC TANK AND DISTRIBUTION BOX WILL VARY SLIGHTLY WITH MANUFACTURER.
ALL UNITS SHALL CONFORM WITH THE REGULATIONS OF TITLE 5 OF THE MASSACHUSETTS ENVIRONMENTAL CODE, AND WITH ALL APPLICABLE LOCAL BOARD OF HEALTH REQUIREMENTS.
PRESBY ENVIRO–SEPTIC SYSTEM CANNOT BE USED WITH A PRESSURE DISTRIBUTION SYSTEM.

THIS SYSTEM REQUIRES 2 CELLS OF ENVIRO–SEPTIC PIPES,
EACH CELL HAS 7 DIST. LINES 40.0' IN LENGTH.



TYPICAL CELL CROSS SECTION
(NOT TO SCALE)
(2 CELLS 14 LINE(S) 40.0' LENGHT, 560.0' TOTAL)

NOTE: SET TANK INVERTS TO MEET EXIST. BUILDING SEWER.

NOTE: ALL OTHER GREYWATER PIPES SERVICING WASHERS, SINKS, ETC SHALL BE CONNECTED TO THE SEPTIC TANK.

SYSTEM PROFILE

SCALE: VER. 1" = 2'

REMOVE ALL UNSUITABLE MATERIAL, AND SOIL LAYER A, BW & C(PORTIONS) WHICH ARE WITHIN LIMITS OF PROPOSED SOIL ABSORPTION SYSTEM AREA (AND 5' BEYOND). REPLACE WITH CLEAN FILL MEETING TITLE 5, 310 CMR 15.255(3).

REVISIONS:
(CONSERVATION) 12-08-2023

SHEET No. 2 OF 2

DRAWN: RMG
CHECKED: SWB
SCALE: AS NOTED
DATE: 10-26-2023
DWG No: X:\CAD\DEP\BOX\KING-GEORGE

DATE

COMMONWEALTH OF MASSACHUSETTS ROBERT M. GRASSO NO. 42215 PROFESSIONAL LAND SURVEYOR

OWNER: ELLEN WORRALL & MICHAEL MCARDLE
TAX MAP 20 BLK 04 LOT 09
LOCUS DEED: BK 8480 PG 130

LOCATION: 43 KING GEORGE DRIVE
BOXFORD, MA 01921

Engineering Land Services, LLC
P.O.BOX 41
WEST NEWBURY, MA 01985
TEL: (978) 815-6744
EMAIL: MASSPLSRG@AOL.COM

SANITARY DISPOSAL SYSTEM UPGRADE PLAN (REPAIR)