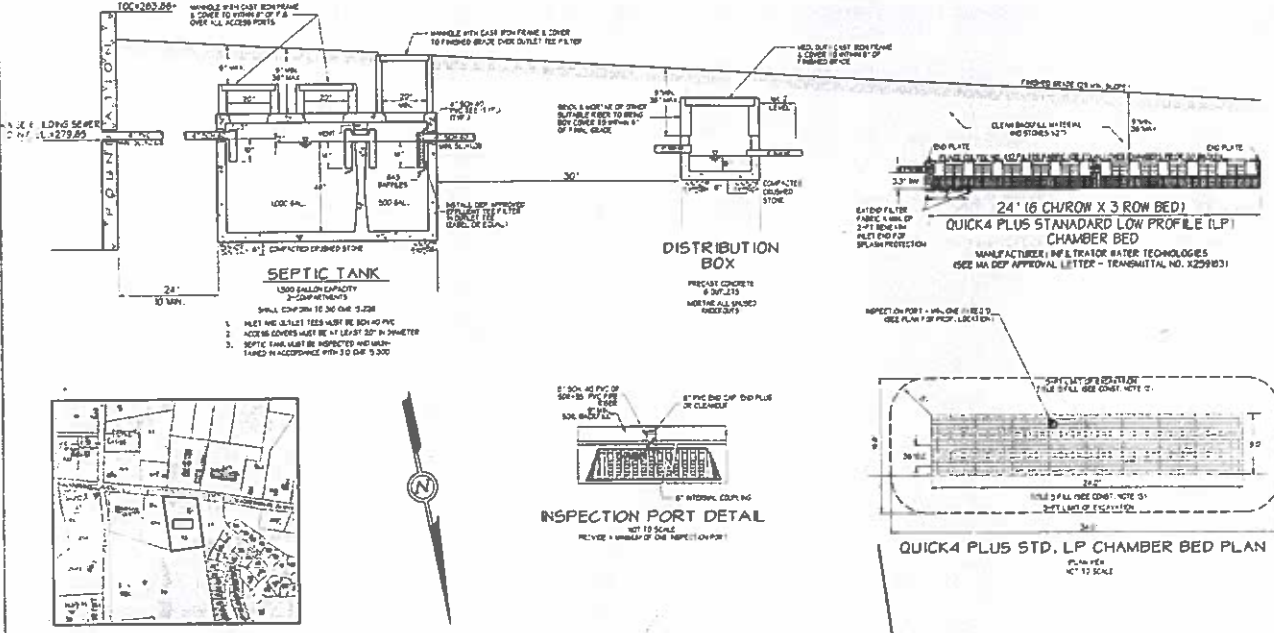


SEWAGE DISPOSAL SYSTEM PROFILE & DETAILS



DESIGN CALCULATIONS

1. SEWAGE DISPOSAL SYSTEM IS NOT DESIGNED FOR USE WITH A GARBAGE GRINDER.

2. SEPTIC TANK:
A VOLUME EQUAL TO TWICE THE DESIGN FLOW OR A MINIMUM VOLUME OF 1500 GALLONS IS REQUIRED. A 1500 GALLON 2-COMPARTMENT SEPTIC TANK IS REQUIRED.

3. DESIGN CRITERIA:
OFFICE SPACE: 1,039 SF
DESIGN FLOW: 75 GPD/IX SF (200 GPD/V N) = 200 GPD
SOIL TEXTURAL CLASS: I
PERCOLATION RATE: NO USE VARIANCES
APPLICATION RATE: 0.66 GPD/SF
DESIGN GROUNDWATER ELEVATION: 273.7
GROUNDWATER OFFSET: 4'-0"

4. LEACHING FACILITY SIZING:
AREA REQUIRED IS EQUAL TO THE DESIGN FLOW DIVIDED BY THE APPLICATION RATE:
 $\frac{200 \text{ GPD}}{0.66 \text{ GPD/SF}} = 304.5 \text{ SF}$

UTILIZE INFILTRATOR WATER TECHNOLOGIES QUICK4 PLUS STANDARD LP CHAMBERS IN BED CONFIGURATION.
LOADING RATE: 4.73 SF/LP (PER DEP MA APPROVAL - TABLE 3)
MIN. LINEAR FOOTAGE REQ'D = $\frac{304}{4.73} = 64.5 \text{ LF}$
PROVIDE 3 ROWS OF 6 QUICK4 PLUS STD. LP CHAMBERS IN BED CONFIGURATION:
LENGTH: 4.0 FT/CHAMBER X 6 CHAMBERS = 24 FT
WIDTH: 2 FT/ROW X 3 ROWS = 6.0 FT

5. HYDRAULIC LOADING CAPACITY:
4.73 SF/LP X 24 LF X 3 ROWS = 0.66 GPD/SF = 224 GPD
EFF. LEACHING AREA = 4.73 SF/LP X 24 LF X 3 ROWS = 341 SF
CONVENTIONAL TITLE 5 SYSTEM SIZING:
UTILIZE LEACHING BED 34' X 5' WIDE = 306 SF

GENERAL NOTES

- THIS PLAN IS FOR THE CONSTRUCTION OF THE PROPOSED SEWAGE DISPOSAL SYSTEM ONLY. OTHER LOCAL REGULATIONS MAY BE APPLICABLE TO THE PROJECT (IE. ZONING, WETLANDS, ETC.).
- CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN OBSERVED FIELD CONDITIONS AND THIS DESIGN PLAN TO THE ARCHITECT IMMEDIATELY.
- PROPERTY BOUNDARIES SHOWN ARE THE RESULT OF A SURVEY BY FORESITE ENGINEERING ASSOCIATES, INC. WITH REFERENCE TO DEEDS SOUTH DISTRICT REGISTRY OF DEEDS PLAN NO. 18 OF 2000.
- THE SYSTEM IS NOT DESIGNED FOR USE WITH A GARBAGE GRINDER.
- THE SEPTIC TANK SHALL BE FLOPPED WHEN THE BLUDGE DEPTH EXCEEDS 1/3 OF THE LIQUID CAPACITY OF THE SEPTIC TANK WITHOUT ONCE EVERY 2 YEARS, OR AS REQUIRED BY THE LOCAL BOARD OF HEALTH.
- ANY PROPOSED WORK WITHIN 100 FEET OF A BORDERING VEGETATED WETLAND OR OTHER PROTECTED RESOURCE AREA IS UNDER THE JURISDICTION OF THE WETLANDS PROTECTION ACT AND THE LOCAL CONSERVATION COMMISSION.
- ALL KNOWN DRINKING WATER WELLS WITHIN 200 FEET OF THE PROPOSED SEWAGE DISPOSAL SYSTEM ARE SHOWN OR INDICATED.
- SITE IS LOCATED WITHIN A DEP APPROVED ZONE II.

CONSTRUCTION NOTES

- CONTRACTOR SHALL CONTACT US (SEE AT 1-800-364-1233) AT LEAST 72 HOURS BEFORE EXCAVATING ON PUBLIC OR PRIVATE PROPERTY.
- CONSTRUCTION MATERIALS AND CONSTRUCTION METHODOLOGY SHALL CONFORM TO THIS PLAN, TITLE 5 AND THE REQUIREMENTS OF THE BOARD OF HEALTH.
- ANY DEVIATION IN CONSTRUCTION FROM THIS PLAN SHALL VOID ANY CERTIFICATION MADE RELATIVE TO THE SYSTEM UNLESS APPROVED IN WRITING BY THE LOCAL APPLYING AUTHORITY AND FORESITE ENGINEERING ASSOCIATES, INC.
- ALL TRENCHES INCLUDING SEPTIC TANKS, DISTRIBUTION BOXES, DOWN CHAMBERS AND GREASE TRAPS SHALL EITHER BE WATER TIGHT BY MANUFACTURER'S SPECIFICATION OR WATER TIGHT WITH A SHIMMIL OR POLYMER SEALER.
- ALL PRECAST CONCRETE TANKS AND DISTRIBUTION BOXES SHALL BE SET ON A MINIMUM OF SIX INCHES OF WELL COMPACTED CRUSHED STONE AND SHALL BE MADE WATER TIGHT.
- DISTRIBUTION BOX OUTLET PIPES SHALL BE LAID LEVEL FOR THE FIRST 10 FEET OUT OF THE DISTRIBUTION BOX.
- DISTRIBUTION BOX SHALL BE SET ON A FIRM BASE OF EITHER SIX INCHES OF COMPACTED CRUSHED STONE OR SIX INCH THICK CONCRETE PAD WITH ALL AREA 15 TIMES THE BOTTOM AREA OF THE DISTRIBUTION BOX.
- AN INLET TEE SHALL BE INSTALLED IN THE DISTRIBUTION BOX WHEN THE SYSTEM IS A PUMP SYSTEM OR WHEN THE SLOPE OF THE INLET PIPE EXCEEDS 0.5%.
- SYSTEM SHALL BE VENTED THROUGH THE BUILDING PLUMBING OR AS SHOWN ON THE SYSTEM PROFILE.
- ALL SURFACES SHALL BE SCARIFIED PRIOR TO THE LAYOUT OF FILL.
- ALL SUSCEPTIBLE MATERIAL ENCOUNTERED IN THE EXCAVATION SHALL BE REMOVED.
- ALL FRESH STONE USED IN THE CONSTRUCTION OF THE SEWAGE DISPOSAL SYSTEM SHALL BE THE SIZE SPECIFIED, DUAL AND DOUBLE WASHED.
- WHEN GRAVEL FILL IS REQUIRED, ALL ORGANIC MATERIAL WITHIN 15 FEET OF THE PROPOSED LEACHING FACILITY SHALL BE REMOVED AND REPLACED WITH WELL COMPACTED GRAVEL FILL MEETING THE REQUIREMENTS OF 310 CMR 10.000.
- ALL SMALL AND BREAK-OUT FILL REQUIRED SHALL BE ORGANIC MATERIAL FREE OF CONSTRUCTION DEBRIS, STUMPS, BOLLERS AND PREZEMERETS. FILL MATERIAL SHALL BE PLACED IN A MANNER THAT FILL RUNOFF AND PREVENT EROSION.
- SEWAGE DISPOSAL SYSTEM CORNERS SHALL BE STAKED AND FLAGGED BY A PROFESSIONAL ENGINEER OR PROFESSIONAL LAND SURVEYOR PRIOR TO THE START OF CONSTRUCTION.
- ALL SYSTEM COMPONENTS SHALL BE MARKED WITH PLASTIC MARKING TAPE OR A COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED.

ELEVATION SCHEDULE

TOP OF FOUNDATION	283.66
REVERTS	
AT FOUNDATION	279.89 (RAISE EXIST. BLDG SEWER TO THIS ELEVATION (+1.0'))
AT SEPTIC TANK INLET	279.25
AT SEPTIC TANK OUTLET	279.00
AT D-BOX INLET	278.80
AT D-BOX OUTLET	278.60
AT CHAMBER INLET	278.20
AT CHAMBER BOTTOM	276.00
TOP OF CHAMBER (BREAKOUT)	278.67

NOTE: EXISTING BUILDING SEWER MUST BE RAISED APPROXIMATELY 1' TO ELEVATION 279.35 FOR GRAVITY DISTRIBUTED SYSTEM.

PERCOLATION TEST

ENGINEER: SCOTT HAYES PE - FORESITE ENGINEERING ASSOCIATES, INC.
HEA. 70126-0121 (2015) (SHEEP) - 1000

DATE	DEPTH	PERCOLATION RATE
4-23-20	1'-0"	ND

SEE ANALYSIS PROVIDED FILED OF PERCOLATION TEST DUE TO HAZARDOUS DEPTH BOLLERS AND PREZEMERETS (SEE VARIANCE REQUESTS)

LEGEND

- PROPOSED 1500 GALLON 2-COMPARTMENT PRECAST CONCRETE SEPTIC TANK
- PROPOSED P-C-TILE PRECAST CONCRETE DISTRIBUTION BOX
- DEEP TEST HOLE
- PERCOLATION TEST
- SPOT ELEVATION (TYP.)
- EXISTING 5-FT CONTOUR (TYP.)
- EXISTING 5-FT CONTOUR (TYP.)

DEEP OBSERVATION HOLE LOGS

TEST HOLE: 420-1
DATE: 4-23-20

DEPTH (FEET)	SOIL TYPE	REMARKS
0-30"	FL	ORGANIC
30-36"	A	ORGANIC
36-39"	BA	ORGANIC
39-42"	B	ORGANIC
42-54"	C	ORGANIC

DEPT. 19:
REMARKS:
STANDARD TEST RESULTS:
ESTIMATED SEASONAL HIGH GROUNDWATER: 281.07(3)

TEST HOLE: 420-2
DATE: 4-23-20

DEPTH (FEET)	SOIL TYPE	REMARKS
0-30"	FL	ORGANIC
30-36"	A	ORGANIC
36-39"	BA	ORGANIC
39-42"	B	ORGANIC
42-54"	C	ORGANIC

DEPT. 19:
REMARKS:
STANDARD TEST RESULTS:
ESTIMATED SEASONAL HIGH GROUNDWATER: 281.07(3)

VARIANCES

- BOXBOROUGH BOARD OF HEALTH REGS. 64 BUILDING SEWER TO EXISTING WELL 100'-0" (EXISTING WELL IS WITHIN 100'-0" OF EXISTING DWELLING FOOTPRINT)
- 30 CMR 15.000 TITLE 5
- 210 CMR 15.005
- CLASS (I) SOIL ANALYSIS AND USDA SOIL CLASSIFICATION FOR LEACHING AREA SIZING IN L.V. OF PERCOLATION TEST. TEST COULD NOT BE PERFORMED DUE TO HAZARDOUS DEPTH AND UNDERGROUND UTILITIES IN PROXIMITY. SMALLEST LTR FOR CLASS I SOIL (GLASSY SAND) OF 0.66 GPD/SF WAS UTILIZED FOR DESIGN.

RECEIVED
JUN - 1 2022

Zoning Board of Appeals
Town of Boxborough

SEWAGE DISPOSAL SYSTEM DESIGN PLAN

LOCATION: 650 MASSACHUSETTS AVE
BOXBOROUGH, MASSACHUSETTS 01719
ASSESSORS MAP 10 LOT 12 BLOCK 00

PREPARED FOR: THE 650 MASSACHUSETTS AVENUE NOM. TR.
421 CENTRAL STREET
ACTON, MASSACHUSETTS 01720

DATE: MAY 22, 2020 SCALE: 1 INCH = 20 FEET

FORESITE ENGINEERING
ENGINEERING SURVEYING PLANNING
16 Gleasondale Road Suite 1-1
Stow, Massachusetts 01770
Phone: (978) 481-2300

