THE CONTRACTOR SHALL NOTIFY "DIGSAFE" AT 1-888-DIG-SAFE PRIOR TO ANY EXCAVATION.

Legend

- APPROXIMATE LOCATION OF EXISTING PROPERTY LINE
- 408 — EXISTING SURFACE CONTOUR
- 408 — PROPOSED FINISH GRADE CONTOUR
- OHW — OVERHEAD WIRE
- I / D1 — DETAIL REFERENCE (DETAIL NUMBER; APPEARS ON PLAN SHEET)
- AB - 1 / 1.9 — AUGER BORING LOCATION (BORING NUMBER; DEPTH (FT) TO EVIDENCE OF HIGH GROUNDWATER)
- PT - 1 / 16.6 — PERCOLATION TEST LOCATION (TEST NUMBER; PERCOLATION RATE (MINUTES PER INCH))

NOTE:

THE WASTEWATER REPLACEMENT SYSTEM IS SHOWN ON A BASE PLAN CREATED FROM A TOPOGRAPHIC SURVEY OF THE SUBJECT PROPERTY. LAMOUREUX & DICKINSON DID NOT PERFORM COMPLETE DEED RESEARCH OR A BOUNDARY SURVEY AND THEREFORE CANNOT PROVIDE DEFINITIVE BOUNDARY INFORMATION. THE PROPERTY LINES DEPICTED ARE BASED ON THE DEED DESCRIPTION AND A PLAN ENTITLED "PROPERTY SURVEY & LOT DIVISION FOR ALFRED M. SOURDIFFE, GUINEA ROAD, CHARLOTTE, VERMONT", DATED APRIL 1968 AND PREPARED BY HARVELL ASSOCIATES, INC.

Soil Test Summary

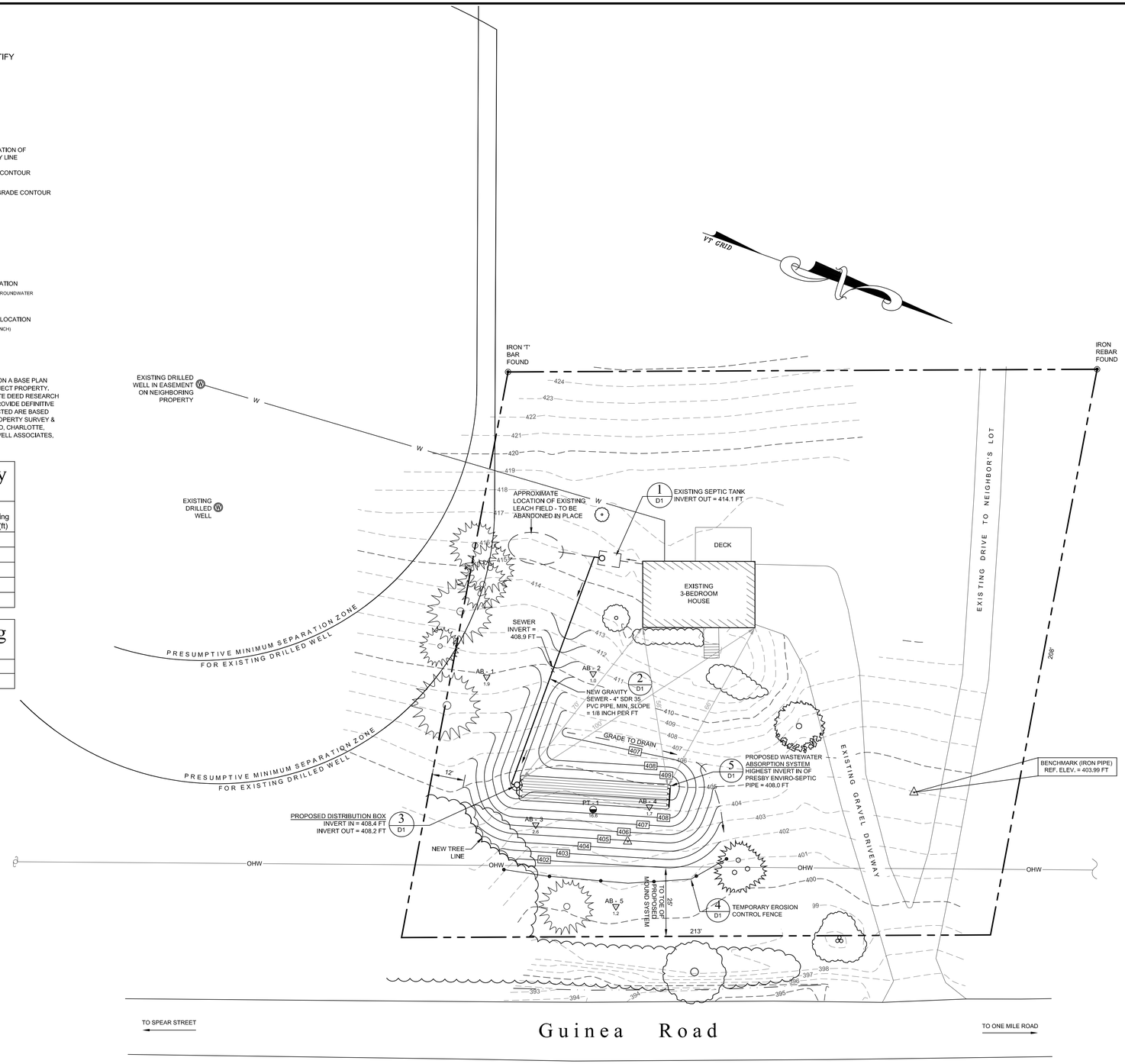
Logged by Brian Tremback on 7-13-09

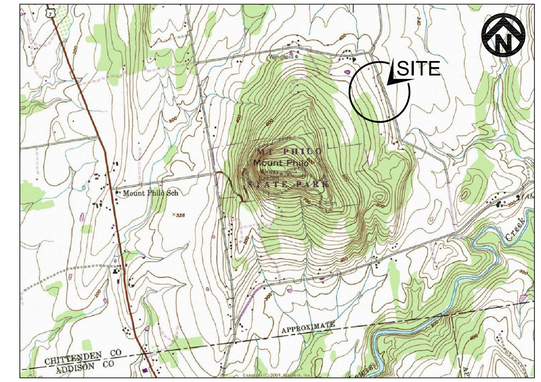
Test number	Depth to evidence of seasonal high groundwater (ft)	Depth to existing groundwater (ft)
1	1.9	> 2.4
2	1.0	> 1.8
3	2.6	> 3.1
4	1.7	> 2.4
5	1.2	> 2.1

Percolation Testing

Performed by Brian Tremback on 7-13-09

Test number	Percolation rate (min/in)
1	16.6





Location Map

NOT TO SCALE

GRAPHIC SCALE

20 0 10 20 40 80

(in feet)
1 inch = 20 ft.

Date	Revision	By

These plans shall only be used for the purpose shown below:

- ☐ Sketch/Concept
- ☐ Preliminary
- ■ Final State Review
- ☐ Act 250 Review
- ☐ Construction
- ☐ Record Drawing

Christie Property

2338 Guinea Road, Charlotte, Vermont

Replacement Wastewater System Design

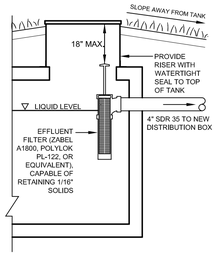
STATE OF VERMONT — BRIAN J. TREMBACH — No. 329 — LICENSED DESIGNER ELIGIBLE

Lamoureux & Dickinson Consulting Engineers, Inc.
14 Morse Drive, Essex, VT 05452
802-878-4450 www.LDengineering.com

Project No.	09066
Survey	L&D
Design	BJT
Drawn	L&D
Checked	DJG
Date	8-17-09
Scale	1" = 20'
Sheet number	S1
	2 sheets total

P:\2009\09066\dwg\09066-S1.dwg, 8/31/2009 1:59:51 PM, brian

1 RETROFIT OF EXISTING SEPTIC TANK
S1 NOT TO SCALE

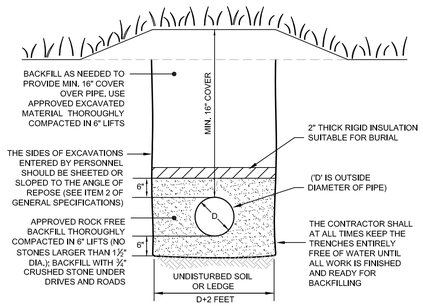


SECTION AT OUTLET END

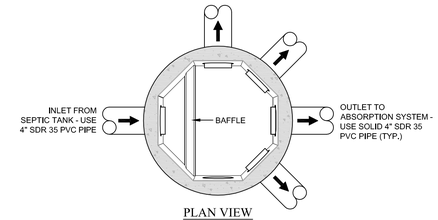
SEPTIC TANK SPECIFICATIONS

1. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING TANK IS PRECAST CONCRETE, WATERTIGHT, WITH 1,000 GALLON CAPACITY AND IN GOOD CONDITION. THE TANK SHALL HAVE AN INLET BAFFLE.
2. THE TANK SHALL BE FITTED WITH AN EFFLUENT FILTER CAPABLE OF RETAINING 1/16" SOLIDS. SURFACE ACCESS SHALL BE PROVIDED FOR MAINTENANCE OF THE EFFLUENT FILTER. THE SURFACE ACCESS RISER AND LID SHALL PREVENT INFILTRATION BY SURFACE OR GROUND WATER.

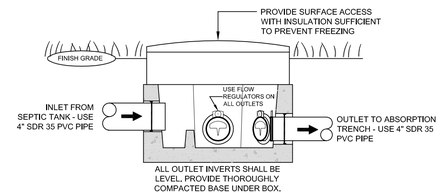
2 TYPICAL SEWER TRENCH
D1 NOT TO SCALE



3 PRECAST CONCRETE DISTRIBUTION BOX
S1, D1 NOT TO SCALE

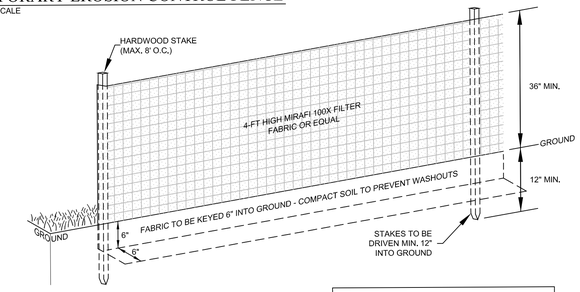


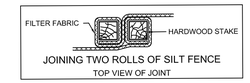
PLAN VIEW



SECTION

4 TEMPORARY EROSION CONTROL FENCE
S1 NOT TO SCALE

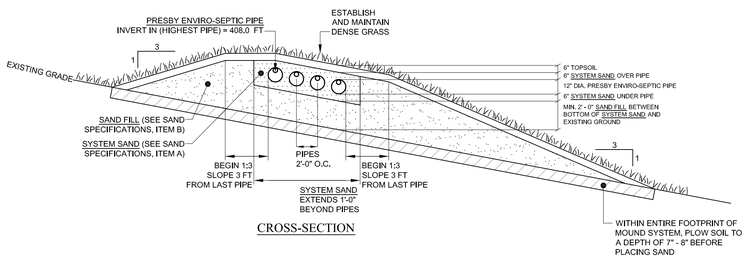




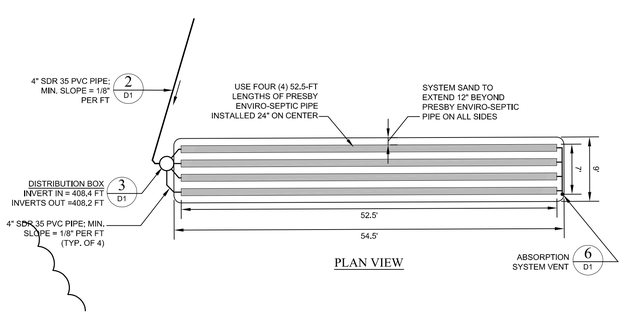
EROSION CONTROL SPECIFICATIONS

1. PRIOR TO THE BEGINNING OF CONSTRUCTION OR EARTHMOVING, THE CONTRACTOR SHALL INSTALL A CONTINUOUS SILT FENCE AT THE LIMIT OF DISTURBANCE AS SHOWN ON THESE PLANS.
2. TO ENSURE PROPER FUNCTION, THE SILT FENCE SHALL BE PROPERLY INSTALLED. THIS INCLUDES DRIVING THE POSTS TO A DEPTH OF 12 INCHES, KEYING THE SILT FENCE FABRIC 6 INCHES INTO THE GROUND, AND COMPACTING THE SOIL OVER THE KEYED-IN PORTION OF THE FABRIC. USE ONLY MANUAL METHODS OF INSTALLATION WITHIN WETLANDS AND BUFFER ZONES.
3. THE SILT FENCE SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION OF THE PROJECT AND UNTIL ESTABLISHMENT OF VEGETATION SUFFICIENT TO PREVENT SOIL EROSION. AFTER WORK IS COMPLETE AND THE DISTURBED SOIL HAS BEEN STABILIZED, THE CONTRACTOR SHALL REMOVE ALL SILT FENCE FROM THE SITE.
4. INSPECT EROSION CONTROL FENCE AT REGULAR INTERVALS AND AFTER EVERY HEAVY RAINFALL TO ENSURE THAT THERE ARE NO BROKEN POSTS, FABRIC TEARS, WASHOUTS OF THE BOTTOM EDGE OF THE FABRIC, OR EXCESSIVE SEDIMENT ACCUMULATION. ANY DAMAGE OR DEFECTS SHALL BE REPAIRED IMMEDIATELY. SEDIMENT ACCUMULATION OF MORE THAN ONE-QUARTER THE HEIGHT OF THE FABRIC SHALL BE REMOVED AND PLACED IN AN APPROPRIATE AREA OUTSIDE WETLANDS AND BUFFER ZONES.
5. THE CONTRACTOR SHALL INSTALL SILT FENCE AT OTHER LOCATIONS AS NEEDED.

5 WASTEWATER ABSORPTION SYSTEM
S1 SCALE: 1" = 5'



CROSS-SECTION



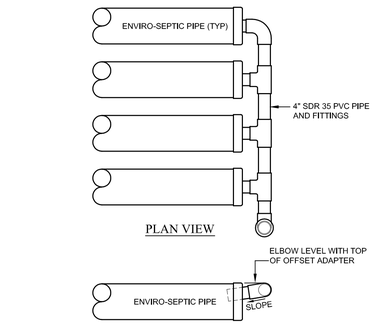
PLAN VIEW

SAND SPECIFICATIONS
(A) SYSTEM SAND SHALL THE FOLLOWING SIEVE ANALYSES:
2. SIEVE NO. — % PASSING
4 — 95-100
8 — 80-100
16 — 50-85
30 — 25-60
50 — 10-30
100 — 2-10
(ASTM SPECIFICATION C-33)
(B) SAND FILL SHALL HAVE ONE OF THE FOLLOWING SIEVE ANALYSES:
1. SIEVE NO. — % PASSING
10 — 85-100
40 — 25-75
60 — 0-30
100 — 0-10
200 — 0-5
2. SIEVE NO. — % PASSING
4 — 95-100
8 — 80-100
16 — 50-85
30 — 25-60
50 — 10-30
100 — 2-10
(ASTM SPECIFICATION C-33)
3. SIEVE NO. — % PASSING
10 — 85-100
40 — 30-50
200 — 0-10

ABSORPTION SYSTEM SPECIFICATIONS

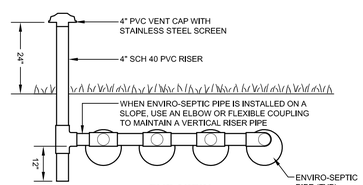
1. INSTALL SYSTEM IN ACCORDANCE WITH VERMONT INNOVATIVE/ALTERNATIVE SYSTEM APPROVAL #2004-02-R1, THE MANUFACTURER'S INSTALLATION MANUAL, THE VERMONT WASTEWATER SYSTEM AND POTABLE WATER SUPPLY RULES, AND THESE PLANS.
2. DO NOT INSTALL SYSTEM ON FROZEN GROUND OR LEAVE SYSTEM UNCOVERED FOR EXTENDED PERIODS OF TIME.
3. CONSTRUCTION EQUIPMENT SHALL BE KEPT OFF THE AREA TO BE USED FOR EFFLUENT ABSORPTION AS MUCH AS POSSIBLE TO PREVENT UNDESIRABLE COMPACTION OF THE SOILS.
4. ABOVE-GROUND VEGETATION SHALL BE CLOSELY CUT AND REMOVED FROM THE GROUND SURFACE THROUGHOUT THE ABSORPTION AREA. ONCE CLEARING OF THE LAND IS COMPLETED, THE AREA SHALL BE FENCED TO PREVENT VEHICLES AND EQUIPMENT FROM DRIVING ON THE SOIL.
5. PREPARE THE SOIL SURFACE BY PLOWING, OR TURNING UP WITH A BACKHOE BUCKET, THE UPPER 7 - 8" OF SOIL OVER THE ENTIRE FOOTPRINT OF THE WASTEWATER ABSORPTION SYSTEM.
6. PLACE SAND FILL, MEETING ONE OF THE THREE SPECIFICATIONS IN ITEM 'B' IN THE TABLE, OVER THE PREPARED AREA AS SHOWN ON THE PLAN. THE SAND FOR 6 INCHES BELOW, 6 INCHES ABOVE, AND FOR A DISTANCE OF 1 FOOT AROUND THE PERIMETER OF THE PRESBY ENVIRO-SEPTIC® PIPES SHALL MEET THE SPECIFICATIONS FOR SYSTEM SAND SHOWN IN ITEM 'A' OF THE TABLE. EACH ENVIRO-SEPTIC® PIPE SHALL BE INSTALLED LEVEL AT THE SPACING SHOWN AND TEMPORARILY HELD IN PLACE (USING GRADE STAKES OR A SIMILAR METHOD) SO THAT THEIR POSITIONS DO NOT SHIFT AS SAND IS BEING ADDED.
7. PROVIDE LIGHT COMPACTION BY WALKING THE SAND INTO PLACE BETWEEN THE PIPES. INSTALL THE VENT AS SHOWN ON THE PLAN.
8. **INSPECTION:** THE ENGINEER MUST OBSERVE THE PLOWING OF THE SURFACE BEFORE PLACING SAND AND, LATER, THE PIPING IN PLACE BEFORE COVERING WITH SAND AND TOPSOIL.
9. AFTER INSPECTION OF THE ABSORPTION SYSTEM PIPING, COVER WITH SIX (6) INCHES OF SYSTEM SAND, AND THEN AN ADDITIONAL 6 INCHES OF TOPSOIL.
10. THE AREA OVER AND AROUND THE WASTEWATER SYSTEM SHALL BE GRADED SUCH THAT THERE ARE NO AREAS CAPABLE OF PONDING WATER AND SO THAT THERE IS SUFFICIENT SLOPE TO ENSURE DRAINAGE.
11. THE CONTRACTOR SHALL PROVIDE THE OWNER AND ENGINEER WITH AS-BUILT INFORMATION AND CERTIFICATION THAT THE SYSTEM WAS INSTALLED IN ACCORDANCE WITH THE PLANS AND ALL PERTINENT APPROVALS AND PERMITS ISSUED FOR THE PROJECT.

6 ABSORPTION SYSTEM VENT WITH MANIFOLD
D1 NOT TO SCALE



PLAN VIEW

SIDE VIEW



END VIEW

DESIGN DATA

1. IT IS THE OPINION OF THE DESIGNER THAT THE SOIL CONDITIONS WITHIN THE PROPOSED WASTEWATER SYSTEM AREA MEET THE REQUIREMENTS OF THE VERMONT ENVIRONMENTAL PROTECTION RULES-CHAPTER 1 FOR A PERFORMANCE BASED MOUND SYSTEM.
2. GROUNDWATER MOUNDING ANALYSIS

2.1. SOIL TEXTURE =	SILT LOAM
2.2. NATURAL GROUND SLOPE =	9%
2.3. DEPTH TO EVID. OF SEAS. HIGH GRDWATER =	1.7 FT
2.4. REQUIRED UNSATURATED DEPTH =	0.5 FT
2.5. LINEAR LOADING RATE FACTOR (f) =	6.7
2.6. AVAILABLE SOIL DEPTH (h) (MAINTAINING GROUNDWATER MOUND AT 0.5 FT BELOW GRADE) =	1.2 FT
2.7. DESIGN FLOW =	420 GPD
2.8. MIN. SYSTEM LENGTH = GPD/(h x f) = 420 / (1.2 x 6.7) =	52.2 FT

3. BASIS OF DESIGN (USING PRESBY ENVIRO-SEPTIC DESIGN MANUAL)

NO. OF BEDROOMS =	3
PERCOLATION RATE =	16.6 MIN/IN
MIN. LENGTH OF PIPE (FROM TABLE A) =	180 FT
PIPE SPACING FOR 9% SLOPE AND PERCOLATION RATE OF 11-20 MIN/IN (FROM TABLE B) =	1.5 FT O.C.
SYSTEM SAND AREA REQUIRED TO MEET 50% OF PIPE AND STONE SYSTEM (FROM TABLE D) MIN. SYSTEM SAND AREA =	409 SQ FT

SYSTEM DESIGN: USE 210 FT OF ENVIRO-SEPTIC® PIPE CONSISTING OF FOUR (4) 52'-6" LENGTHS SPACED 2.0 FT ON CENTER. SYSTEM SAND AREA PROVIDED IS 491 SQ FT (9.0' x 54.5').

INSPECTION

1. CONSTRUCTION OBSERVATION AND CERTIFICATION IS OFTEN REQUIRED BY STATE AND LOCAL PERMITS. IT IS RECOMMENDED THAT CONSTRUCTION OF THE IMPROVEMENTS DETAILED ON THESE PLANS BE OBSERVED BY LAMOUREUX & DICKINSON CONSULTING ENGINEERS INC. (L&D) TO DETERMINE IF THE WORK IS BEING PERFORMED IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS. L&D WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS THAT MAY ARISE FROM: FAILURE TO FOLLOW THESES PLANS AND SPECIFICATIONS AND THE DESIGN INTENT THAT THEY CONVEY. ANY CHANGES MADE IN THE PLANS AND SPECIFICATIONS OR IN THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS WITHOUT L&D'S PRIOR KNOWLEDGE AND CONSENT, AND/OR FAILURE TO SCHEDULE OBSERVATION OF THE WORK AND TESTING IN PROGRESS.
2. THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR NOTIFYING THE ENGINEER AND THE TOWN FOR INSPECTION OF THE WASTEWATER SYSTEM AT APPROPRIATE STAGES OF CONSTRUCTION. THE REQUIREMENTS FOR CONTACTING THE ENGINEER ARE LISTED BELOW. THE CONTRACTOR SHALL ALSO DETERMINE THE TOWN'S REQUIREMENTS FOR INSPECTION.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF 24 HOURS IN ADVANCE FOR INSPECTION OF EACH OF THE FOLLOWING ITEMS:
   - THE PLOWED SOIL BEFORE PLACING SAND
   - STRUCTURES AND PIPES BEFORE BACKFILLING
   - FINAL GRADING OVER THE WASTEWATER SYSTEM COMPONENTS

GENERAL SPECIFICATIONS

1. UTILITIES INFORMATION SHOWN HEREON WERE OBTAINED FROM THE BEST AVAILABLE SOURCES AND MAY OR MAY NOT BE EITHER ACCURATE OR COMPLETE. THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY UTILITY, PUBLIC OR PRIVATE, SHOWN OR NOT SHOWN HEREON.
2. THE CONTRACTOR SHALL NOTIFY "DIGSAFE" AT 1-888-DIG-SAFE PRIOR TO ANY EXCAVATION.
3. LAMOUREUX & DICKINSON DOES NOT UNDERTAKE OR ASSUME ANY RESPONSIBILITY FOR SAFETY ON THE CONSTRUCTION SITE BUT DOES REMIND THE CONTRACTOR THAT THE SIDES OF EXCAVATIONS ENTERED BY PERSONNEL SHOULD BE SHEETED OR SLOPED TO THE ANGLE OF REPOSE; AND IN ANY CASE, THE CONTRACTOR SHOULD WORK IN STRICT COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) STANDARDS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND REMOVAL OF ALL EXISTING VEGETATION, PAVEMENT AND STRUCTURES NECESSARY TO DEVELOP THIS PROPERTY UNLESS OTHERWISE NOTED ON THESE PLANS. CONTRACTOR SHALL REMOVE ALL TRASH FROM SITE UPON COMPLETION OF CONSTRUCTION.
5. THE CONTRACTOR SHALL BE RESPONSIBLE AT HIS OWN EXPENSE FOR ENSURING THAT THE DUST CREATED AS A RESULT OF CONSTRUCTION DOES NOT CREATE A NUISANCE OR A SAFETY HAZARD. WHERE AND WHEN DEEMED NECESSARY BY THE ENGINEER, THE CONTRACTOR WILL BE REQUIRED TO WET SECTIONS OF THE CONSTRUCTION AREA WITH WATER, APPLY CALCIUM CHLORIDE, OR SWEEP THE ROADWAY WITH A POWER BROOM AS DUST CONTROL.
6. ALL DISTURBED AREAS SHALL RECEIVE A MINIMUM OF 4 TO 6 INCHES OF TOPSOIL AND SHALL BE IMMEDIATELY SEEDED AND MULCHED/MATTED AFTER COMPLETION OF GRADING. ANY WORK PERFORMED AFTER OCTOBER 1 OF EACH YEAR SHALL BE STABILIZED WITH MULCH OR MATTING SUFFICIENT TO PREVENT EROSION AND SHALL BE IMMEDIATELY SEEDED AND REMULCHED OR REMATTED AS SOON AS WEATHER PERMITS IN THE SPRING.
7. ALL SLOPES, DITCHES, AND DISTURBED AREAS SHALL BE GRADED SMOOTH AND BE FREE OF POCKETS WITH SUFFICIENT SLOPE TO ENSURE DRAINAGE.
8. ALL FILL OR BACKFILL SHALL BE PLACED AND THOROUGHLY COMPACTED TO 95% OF MAXIMUM DENSITY OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D698 STANDARD PROCTOR.

MAINTENANCE

1. AT LEAST ONCE PER YEAR, THE DEPTH OF THE SLUDGE AND SCUM IN THE SEPTIC TANK SHALL BE MEASURED. THE TANK SHOULD BE PUMPED IF:
   1.1. THE SCUM LAYER IS THICKER THAN 6 INCHES.
   1.2. THE SLUDGE LAYER IS THICKER THAN 12 INCHES.
2. ONCE EVERY 6 MONTHS, OR MORE OFTEN AS NEEDED, THE EFFLUENT FILTER SHALL BE CLEANED BY HOSING IT OFF INTO THE SEPTIC TANK.
3. AT LEAST ONCE PER YEAR, THE DISTRIBUTION BOX SHOULD BE OPENED, SETTLED SOLIDS REMOVED AS NECESSARY, AND THE BOX CHECKED FOR LEVELNESS AND EVEN DISTRIBUTION OF EFFLUENT.
4. ONCE PER YEAR, THE ABSORPTION FIELD SHALL BE INSPECTED BY A QUALIFIED PERSON. THE PROPER FUNCTIONING OF THE SYSTEM SHALL BE VERIFIED AND ANY NECESSARY REPAIRS OR MAINTENANCE SHALL BE DONE.
5. DO NOT FLUSH OR DISCHARGE TO THE SEWAGE DISPOSAL SYSTEM ANY MATERIALS THAT ARE NON-BIODEGRADABLE OR SLOW TO DECOMPOSE. SUBSTANCES THAT CAN SLOW OR HALT BIOLOGICAL ACTIVITY, OR MATERIALS THAT CAN OVERLOAD THE TREATMENT CAPACITY OF THE SYSTEM. THIS INCLUDES. FOR EXAMPLE: FOOD WASTE, HIGH-STRENGTH PAPER TOWELS, FEMININE NAPKINS AND TAMPONS, CONDOMS, FATS AND OILS, PESTICIDES, DISINFECTANTS, STRONG ACIDS AND BASES, PAINTS, SOLVENTS, SOIL, WATER SOFTENER BACKWASH, AND SALTS.
6. DO NOT CONNECT FLOOR DRAINS, HOT TUBS, SAUNAS, GARBAGE DISPOSALS, OR OTHER POTENTIAL SOURCES OF EXCESS WATER OR ORGANIC MATTER INTO THIS SYSTEM.
7. EXCESS WATER USAGE WILL SIGNIFICANTLY REDUCE THE LIFE OF ANY WASTEWATER SYSTEM. WATER FIXTURES SHALL BE REGULARLY INSPECTED FOR LEAKS AND PROMPTLY REPAIRED IF NECESSARY. INSTALL AND MAINTAIN WATER-CONSERVING FIXTURES (TOILETS WITH MAX. 1.6 GALLON FLUSH AND SHOWERHEAD AND FAUCET AERATORS WITH MAX. 2 GALLON PER MINUTE FLOW).
8. THIS WASTEWATER SYSTEM DESIGN INCLUDES ONE OR MORE STRUCTURES THAT MEET THE DEFINITION OF A "CONFINED SPACE". UNDER NO CIRCUMSTANCES SHALL A CONFINED SPACE BE ENTERED EXCEPT IN STRICT CONFORMANCE WITH OSHA REQUIREMENTS.

Date	Revision	By

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- ☐ Sketch/Concept
- ☐ Preliminary
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2338 Guinea Road, Charlotte, Vermont

Wastewater System Details and Specifications

Lamoureux & Dickinson Consulting Engineers, Inc.
14 Morse Drive, Essex, VT 05452
802-878-4450 www.LDengineering.com

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