CONSTRUCTION SPECIFICATIONS - TRENCH

NOTE: PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY DIGSAFE (1-888-DIGSAFE) AND ALL MATERIALS, INCLUDING STONE SHALL BE APPROVED BY THE ENGINEER.

1. THE OUTLET PIPE FROM THE SEPTIC TANK TO THE DISTRIBUTION BOX SHALL BE 4 INCHES SDR 35 PVC, AT A MINIMUM SLOPE OF 1/8 INCH/FT. THE PIPE SHALL BE LAID ON UNDISTURBED GROUND OR PROPERLY BEDDED.

2. A DISTRIBUTION BOX SHALL BE INSTALLED BETWEEN THE SEPTIC TANK OR PUMP STATION, IF APPLICABLE AND THE ABSORPTION TRENCHES. THE DISTRIBUTION BOX SHALL BE SET LEVEL, ON UNDISTURBED GROUND TO EVENLY DISTRIBUTE THE EFFLUENT TO EACH DISTRIBUTION LINE. ADEQUATE PROVISIONS SHALL BE TAKEN TO ASSURE THE STABILITY AND ACCESSIBILITY OF THE DISTRIBUTION BOX FOR INSPECTIONS. LEVELNESS OF THE DISTRIBUTION BOX SHALL BE WITNESSED BY THE ENGINEER AND AN AUTHORIZED TOWN REPRESENTATIVE.

3. EACH DISTRIBUTION LINE SHALL CONNECT INDIVIDUALLY TO THE DISTRIBUTION BOX AND EXIT AT THE SAME SLOPE FOR THE FIRST 5 FEET TO 10 FEET. THE PIPE CONNECTING THE DISTRIBUTION BOX TO THE DISTRIBUTION LINES SHALL BE WATERTIGHT AND LAID ON UNDISTURBED GROUND OR PROPERLY BEDDED.

4. WHEN THE TRENCHES HAVE BEEN EXCAVATED, THE SIDES AND BOTTOM SHALL BE RAKED TO LOOSEN ANY SMEARED SOIL SURFACES.

5. CONSTRUCTION EQUIPMENT SHALL BE KEPT OFF THE AREA TO BE USED FOR SEWAGE DISPOSAL AS MUCH AS POSSIBLE TO PREVENT COMPACTION OF THE SOILS.

6. PLACEMENT OF CRUSHED STONE IN THE TRENCHES SHALL BE INITIATED IMMEDIATELY AFTER TRENCH EXCAVATION IS COMPLETED. THIS WILL REQUIRE THAT THE ENGINEER AND AUTHORIZED TOWN REPRESENTATIVE BE PRESENT AT THE TIME OF COMPLETION OF TRENCH EXCAVATION (SEE INSPECTION SPECIFICATIONS).

7. 12 INCHES OF CLEAN CRUSHED STONE (3/4 TO 1-1/2 INCHES) SHALL BE PLACED IN THE BOTTOM OF THE TRENCHES IN ACCORDANCE WITH THE PLANS. THE DISTRIBUTION LINE SHALL BE CAREFULLY PLACED LEVEL ON THE BEDDING AND COVERED WITH AT LEAST 2 INCHES OF STONE. THE ENDS OF THE DISTRIBUTION LINES SHALL BE CAPPED.

8. THE GRADING SHALL DIRECT RUN-OFF AWAY FROM THE SEPTIC SYSTEM AREAS AND BE SMOOTH AND FREE OF POCKETS WITH SUFFICIENT SLOPE TO ENSURE DRAINAGE.

INSPECTION REQUIREMENTS

1. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND AUTHORIZED TOWN REPRESENTATIVE A MINIMUM OF 24 HOURS IN ADVANCE FOR INSPECTION OF THE BOTTOM OF THE TRENCHES PRIOR TO PLACEMENT OF STONE AND PIPING.

2. THE CONTRACTORS SHALL NOTIFY THE ENGINEER AND AUTHORIZED TOWN REPRESENTATIVE A MINIMUM OF 24 HOURS IN ADVANCE FOR INSPECTION OF THE SYSTEM PRIOR TO BACKFILLING, INCLUDING THE DISTRIBUTION BOX (LEVELNESS CHECK) AND SEPTIC TANK.

3. LOTS REQUIRING PUMP STATIONS: WITNESSING OF PUMP ON, OFF AND ALARM OPERATION. CHECK OF PUMPING RATE AND EMERGENCY STORAGE VOLUME.

4. THIS DESIGN MUST BE INSPECTED BY LINCOLN APPLIED GEOLOGY, INC., LINCOLN, VERMONT TO ENSURE COMPLIANCE WITH THESE PLANS. LINCOLN APPLIED GEOLOGY, INC, WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS THAT ARISE FROM FAILURE TO FOLLOW SPECIFICATIONS, AND THE DESIGN INTENT THAT THE PLANS CONVEY, AND FROM FAILURE TO HAVE BEEN NOTIFIED BY THE CONTRACTOR FOR INSPECTIONS.

SEPTIC TANK OPERATION & MAINTENANCE RECOMMENDATIONS

1. THE SEPTIC TANK'S PURPOSE IS TO SETTLE OUT SOLIDS, CONTAIN THE SCUM AND PASS TREATED EFFLUENT. BACTERIA WITHIN THE SEPTIC TANK HELPS DECOMPOSE THE SOLIDS. SHOULD ANY SOLIDS PASS THROUGH THE SEPTIC TANK INTO THE SYSTEM, PREMATURE CLOGGING OF THE PIPING, STONE OR NATIVE SOIL BENEATH THE SYSTEM IS LIKELY TO OCCUR. ONLY HUMAN WASTES SHOULD ENTER THE SEWAGE SYSTEM. WATER USE SHOULD BE CONSERVATIVE AND CLEANING AGENTS CANNOT ENTER THE SYSTEM, AS THEY KILL BACTERIA.

2. THE STATE FLOW FIGURES OF 140 GAL/DAY/BEDROOM ARE BASED ON SHORT TERM PEAK USE PERIODS (I.E., DAILY EVENTS). ACTUAL FLOWS SHOULD AVERAGE 75-100 GALLONS PER DAY, PER BEDROOMS.

3. ONCE PER YEAR, THE DEPTH OF SCUM AND SLUDGE IN THE SEPTIC TANK SHOULD BE MEASURED AND THE TANK SHALL BE PUMPED IF:

A. THE SLUDGE LEVEL IS WITHIN 12 INCHES OF THE BOTTOM OF THE OUTLET.

B. THE SCUM LAYER IS WITHIN 3 INCHES OF THE TOP OF THE OUTLET.

C. IF A OR B IS ANTICIPATED TO OCCUR PRIOR TO THE NEXT INSPECTION.

D. IN ANY CASE, THE TANK SHALL BE PUMPED AT A MAXIMUM 5 YEAR INTERVAL.

4. ONCE A YEAR, THE DISTRIBUTION BOX AND/OR PUMP STATION SHOULD BE INSPECTED AND ANY SETTLED SOLIDS REMOVED.

5. THE EFFLUENT FILTER SHOULD BE INSPECTED AND CLEANED ANNUALLY.

6. ABOVE ITEMS 1-5 ARE INTENDED TO PROLONG THE LIFE OF THE SYSTEM, NOT GUARANTEE IT.

SEWAGE DESIGN INFORMATION

1. THE SEWAGE DISPOSAL SYSTEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPLICABLE TOWN REGULATIONS AND THE VERMONT ENVIRONMENTAL PROTECTION RULES.

2. THE FOLLOWING MINIMUM ISOLATION DISTANCES SHALL BE MAINTAINED FROM THE DISPOSAL AREA TO:

PROPERTY LINE	25 FEET
BUILDING (WITH FOOTING DRAIN) UPSLOPE OR SIDESLOPE	35 FEET
BUILDING (WITH FOOTING DRAIN) DOWNSLOPE	75 FEET
DRIVEWAYS & PARKING LOTS	10 FEET
TREES	10 FEET

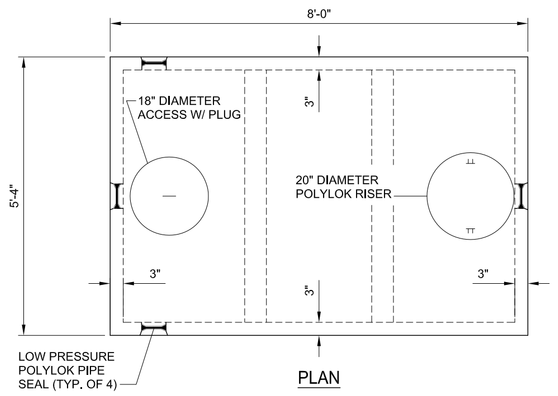
3. BASIS OF DESIGN:

NO. OF BEDROOMS	8
DESIGN FLOW	980
PERCOLATION RATE	<60 MININCH
LOADING RATE, Q (TRENCHES)	1.3 GAL/SF/DAY (18" STONE)

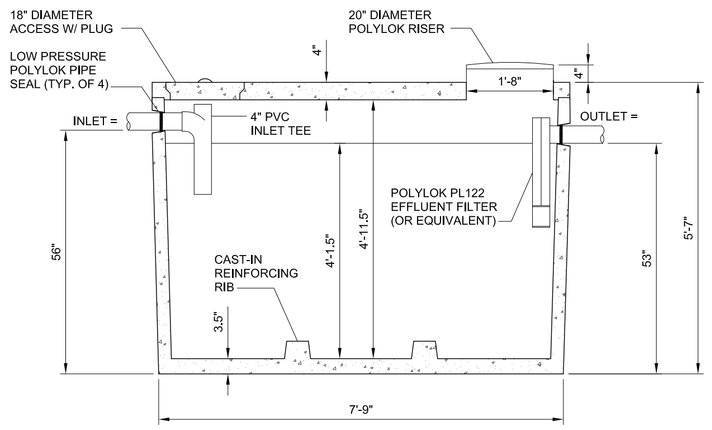
4. SEPTIC TANK

A. A 1,000 GALLON PRECAST CONCRETE SEPTIC TANK. CAMP PRECAST OR APPROVED EQUAL SHALL BE USED, WITH THREE ACCESS COVERS: 4,000 PSI CONCRETE: WATERPROOF JOINTS AND SET ON THOROUGHLY COMPACTED SUBBASE. THE OUTLET BAFFLE SHALL HAVE AN EFFLUENT FILTER & A TWO (2) FOOT DIAMETER RISER TO GRADE WITH STEEL COVER.

B. THE USE OF GARBAGE DISPOSALS IS NOT RECOMMENDED.



PLAN



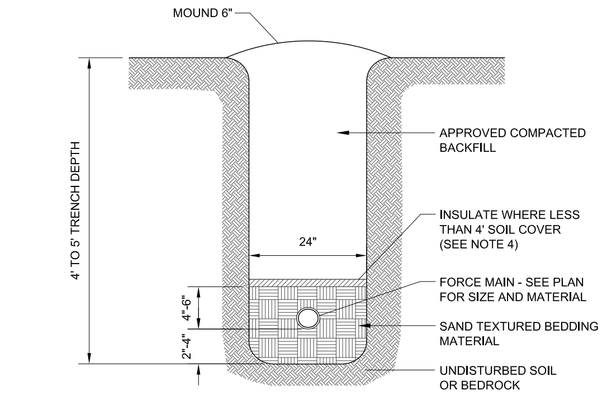
SECTION

1,000 GALLON PRECAST CONCRETE SEPTIC TANK

NOT TO SCALE

1,000 GALLON SEPTIC TANK NOTES:

1. INLET, OUTLET, SEAM, AND CASTING HOLES TO BE SEALED WITH HYDRAULIC CEMENT AND/OR BUTYLENE GASKET.
2. TANK TO BE SET LEVEL
3. DIMENSIONS MAY VARY AMONG DIFFERENT MANUFACTURERS.



FORCE MAIN TRENCH NOTES:

1. BACKFILL AND BEDDING SHALL BE PROPERLY COMPACTED.
2. BEDDING MATERIAL SHALL NORMALLY CONSIST OF WELL-GRADED SANDS AND GRAVELS WITH A MAXIMUM SIZE OF 3/4".
3. BACKFILL SHALL NOT CONTAIN:
   - -ANY STONES MORE THAN 12" (1 1/2" MAXIMUM DIAMETER WITHIN 2' OF THE OUTSIDE OF THE PIPE) IN THE LARGEST DIMENSION.
   - -BE GREATER THAN 50 POUNDS,
   - -CONTAIN ANY FROZEN, WET OR ORGANIC MATERIAL.
4. USE RIGID INSULATION AT THE RATE OF 1" FOR EVERY FOOT LESS THAN 4'.
5. FORCE MAIN MUST BE TESTED FOR LEAKAGE.
6. AT ANY CROSSING UNDER A ROAD OR DRIVE, FORCE MAIN IS TO BE ENCASED IN A 4" PVC SLEEVE, SAID SLEEVE IS TO EXTEND 8' IN EITHER DIRECTION FROM EDGE OF TRAVELED WAY.
7. THE SIDES OF THE TRENCHES 4' OR MORE IN DEPTH ENTERED BY PERSONNEL SHALL BE SHEETED OR SLOPED TO THE ANGLE OF REPOSE AS DEFINED BY O.S.H.A. STANDARDS.

FORCE MAIN TRENCH DETAIL

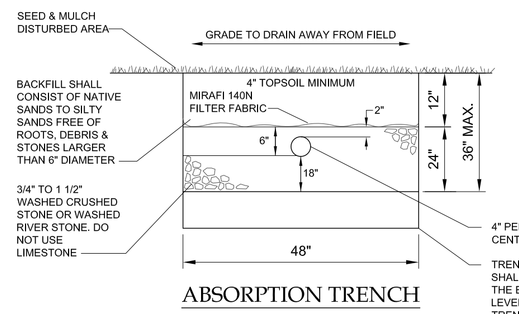
NOT TO SCALE

ITEM	LEACHFIELD	SEPTIC TANK	SEWER
DRILLED WELL	(b)	50	50
GRAVEL PACK WELL, SHALLOW WELL OR SPRING	(b)	75	75
LAKES, PONDS AND IMPOUNDMENT'S	50	25	25
RIVER, STREAM	50	25	10
DRAINAGE SWALES, ROADWAY DITCHES	25	--	--
MAIN OR MUNICIPAL WATER LINES	50	50	(d)
SEWER SERVICE LINES	25	25	(d)
ROADWAYS, DRIVEWAYS, PARKING LOTS	10	5	(c)
TOP OF EMBANKMENT, OR SLOPE > 30%	25	10	--
PROPERTY LINE	25[1]	10	10
TREES	10	10	10
OTHER DISPOSAL FIELD OR REPLACEMENT AREA	10[3]	--	--
FOUNDATION, FOOTING DRAINS, CURTAIN DRAINS	35[3]	10	--
PUBLIC COMMUNITY WATER SUPPLY (e)	(f)	(f)	(f)
SUCTION WATER LINE	100	50	50

THESE DISTANCES MAY BE REDUCED WHEN EVIDENT THAT THE DISTANCE IN UNNECESSARY TO PROTECT AN ITEM OR INCREASED IF NECESSARY TO PROVIDE ADEQUATE PROTECTION.

(a) ISOLATION DISTANCES APPLY REGARDLESS OF PROPERTY LINE AND OWNERSHIP.
(b) SEPARATION BETWEEN POTABLE WATER SUPPLIES AND LEACHFIELD'S SHALL BE DETERMINED BY METHODS IN THE VERMONT WATER AND SUPPLY RULE, APPENDIX 21-A, PART 11, 11.4.
(c) SEWERS UNDER ROADS, DRIVEWAYS OR PARKING LOTS MAY REQUIRE PROTECTIVE CONDUITS OR SLEEVES.
(d) SEPARATION OF PRESSURE WATER LINES CONSIDERED AS "SERVICE CONNECTIONS" AND SEWER LINES SHALL ADHERE TO THE VERMONT PLUMBING RULES. SEPARATION OF PRESSURE WATER LINES (CONSIDERED TO BE PART OF A PUBLIC WATER SYSTEM AS DEFINED BY THE VERMONT WATER SUPPLY RULE) AND SEWER LINES SHALL ADHERE TO THE REQUIREMENTS OF THE VERMONT WATER SUPPLY RULE.
(e) THIS REFERS TO PUBLIC COMMUNITY WATER SYSTEMS, AS DEFINED IN THE VERMONT WATER SUPPLY RULE.
(f) CONTACT DEPARTMENT OF ENVIRONMENTAL CONSERVATION'S WATER SUPPLY DIVISION, 103 SOUTH MAIN STREET, WATERBURY, VERMONT FOR ISOLATION DISTANCES RELATIVE TO PUBLIC COMMUNITY WATER SUPPLY.

WASTEWATER SYSTEM ISOLATION DISTANCES



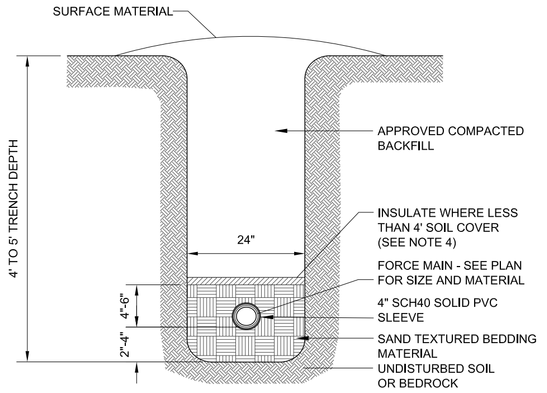
ABSORPTION TRENCH

NOT TO SCALE

ABSORPTION TRENCH NOTES:

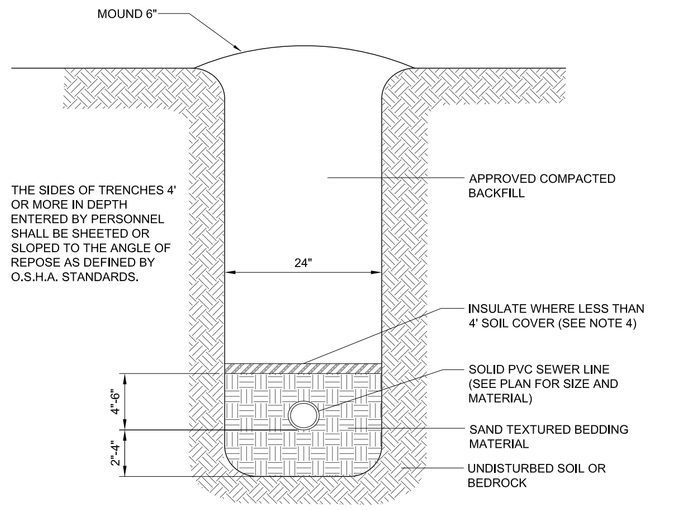
1. DO NOT ALLOW CONSTRUCTION TRAFFIC, DRIVING OR PARKING ON TOP OF THE SYSTEM.

2. THE TRENCH SIDEWALLS AND BOTTOM SHALL BE UNDISTURBED. PRIOR TO BACKFILLING CALL FOR INSPECTION, RAKE ANY SMEARED SOILS.



FORCE MAIN PROTECTIVE SLEEVE DETAIL

NOT TO SCALE



NOTES:

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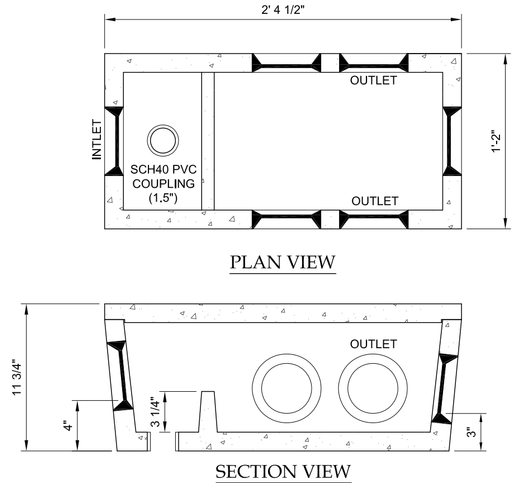
4. USE RIGID INSULATION AT THE RATE OF 1" FOR EVERY FOOT LESS THAN 4 FEET.
5. FORCE MAIN MUST BE TESTED FOR LEAKAGE,
6. AT ANY CROSSING UNDER A ROAD OR DRIVE, FORCE MAIN IS TO BE ENCASED IN 4" P.V.C. SLEEVE, SAID SLEEVE IS TO EXTEND 8' IN EITHER DIRECTION FROM EDGE OF TRAVELED WAY.

SEWER TRENCH DETAIL

NOT TO SCALE

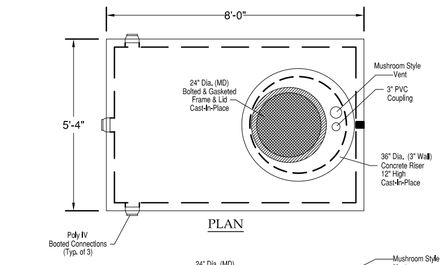


PLAN VIEW

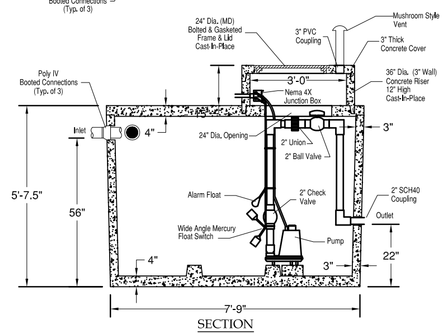
SECTION VIEW

5-OUTLET PRESSURIZED DISTRIBUTION BOX DETAIL

NOT TO SCALE



PLAN



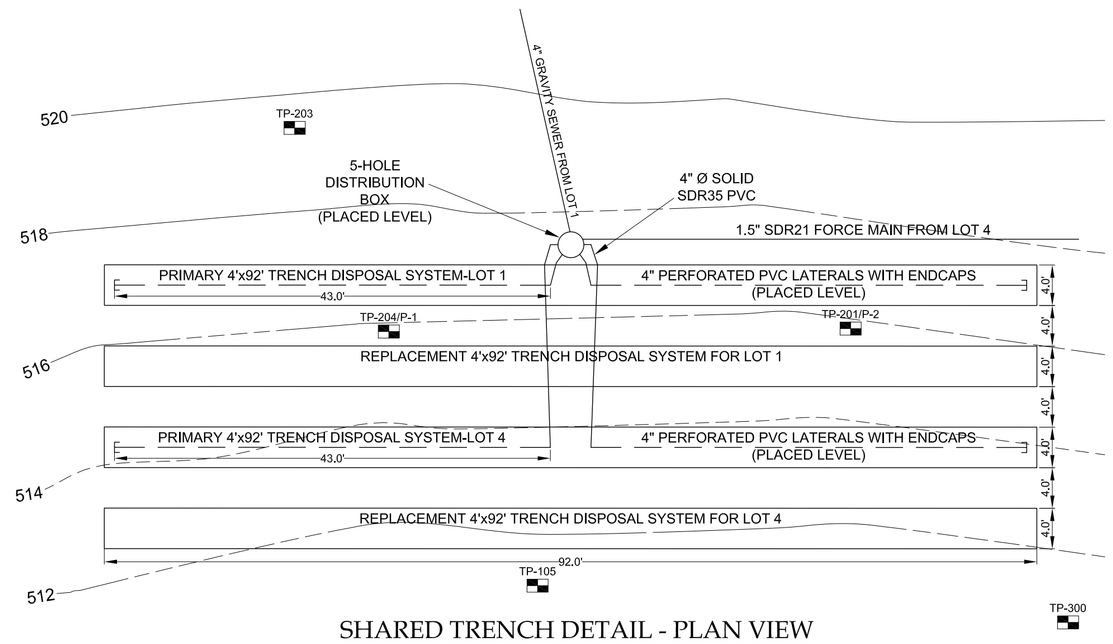
SECTION

1000 GALLON PRECAST CONCRETE PUMP STATION

NOT TO SCALE

DESIGN NOTES:

1. 5000 PSI CONCRETE, 28 DAY STRENGTH.
2. LOW PRESSURE SEALS DESIGNED TO ACCEPT 4" C.I. OR PVC PIPE.
3. REQUIRES EFFLUENT PUMP CAPABLE OF PUMPING A MINIMUM OF 20 GPM VERSUS 35' TDH, AND A SUPER SINGLE PUMP SWITCH WITH A 3" SWING SETTING (+/- 70 GALLONS) SET 6" ABOVE THE BASE OF THE PUMP WITH HIGH LEVEL ALARM SET 6" ABOVE THE PUMP ON SETTING.
4. IT SHOULD BE NOTED THAT ANY DEVIATION IN THE LOCATION OR ELEVATION OF THE SEPTIC TANK, PUMP STATION, OR THE DISPOSAL SYSTEM FROM THE DESIGNED LOCATION MAY REQUIRE A DIFFERENT SIZE PUMP.



SHARED TRENCH DETAIL - PLAN VIEW

NOT TO SCALE

NOT TO SCALE

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

"I hereby certify that in the exercise of my reasonable professional judgment the design-related information submitted with this application is true and correct, and that the design included in this application for a permit complies with the Vermont Wastewater System and Potable Water Supply Rules and the Vermont Water Supply Rules."

Stephen Revell, CPG
Licensed Class B Designer #178

12/4/13
Date

AMERICAN INSTITUTE OF PROFESSIONAL GEOLOGISTS — CERTIFIED PROFESSIONAL GEOLOGIST — 6259 — AIPG — STEPHEN REVELL

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Trono Property

800 Bingham Brook Road
Charlotte, Vermont

Trono Lot 1 & Lot 4
Wastewater System Design Details

LAG PROJECT #:	10077
DATE:	Dec. 3, 2013
SURVEYORS:	D. Ring & LAG
DRAWN BY:	TAM
PLAN SHEET:	3