AAL/JS

1. CONTRACT DOCUMENTS:THESE PLANS WERE PREPARED BY TRUDELL CONSULTING ENGINEERS (TCE) AND ARE INTENDED TO BE USED IN CONJUNCTION WITH THE STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT, #C-700 PREPARED BY THE ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE (EJCDC), LATEST EDITION. COPIES ARE AVAILABLE AT WWW.NSPE.ORG/EJCDC

2. UNDERGROUND IMPROVEMENTS: THE LOCATION OF EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS SHOWN ARE ASSUMED BASED ON RESEARCH, UTILITY PLANS PROVIDED BY OTHERS, AND/OR SURFACE EVIDENCE AVAILABLE AND WERE OBTAINED IN A MANNER CONSISTENT WITH THE ORDINARY STANDARD OF PROFESSIONAL CARE AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR THE DESIGN ENGINEER.

3. DIFFERING SUBSURFACE OR PHYSICAL CONDITIONS: IF CONTRACTOR BELIEVES THAT ANY SUBSURFACE OR PHYSICAL CONDITION AT OR CONTIGUOUS TO THE SITE THAT IS UNCOVERED OR REVEALED EITHER: (1) IS OF SUCH A NATURE AS TO ESTABLISH THAT ANY "TECHNICAL DATA" ON WHICH CONTRACTOR RELIED IS MATERIALLY INACCURATE; OR (2) IS OF SUCH A NATURE AS TO REQUIRE A CHANGE IN THE PLANS/ CONTRACT DOCUMENTS; OR (3) DIFFERS MATERIALLY FROM THAT SHOWN OR INDICATED IN THE PLANS/CONTRACT DOCUMENTS; OR (4) IS OF AN UNUSUAL NATURE, AND DIFFERS MATERIALLY FROM CONDITIONS ORDINARILY ENCOUNTERED AND GENERALLY RECOGNIZED AS INHERENT IN WORK OF THE CHARACTER PROVIDED FOR IN THE PLANS/CONTRACT DOCUMENTS; THEN CONTRACTOR SHALL, PROMPTLY AFTER BECOMING AWARE THEREOF AND BEFORE FURTHER DISTURBING THE SUBSURFACE OR PHYSICAL CONDITIONS OR PERFORMING ANY WORK IN CONNECTION THEREWITH (EXCEPT IN AN EMERGENCY), NOTIFY OWNER AND ENGINEER ABOUT SUCH CONDITION. CONTRACTOR SHALL NOT FURTHER DISTURB SUCH CONDITION OR PERFORM ANY WORK IN CONNECTION THEREWITH (EXCEPT AS AFORESAID) UNTIL RECEIPT OF WRITTEN ORDER TO DO SO. ALL PARTIES INVOLVED (OWNER, ENGINEER, ARCHITECT, AND MUNICIPALITY IF APPLICABLE) SHALL AGREE UPON HOW TO PROCEED AND ANY RELATED COST IMPLICATIONS.

4. UTILITIES: PRIVATE AND PUBLIC UTILITIES SUCH AS ELECTRIC, TELEPHONE, GAS, CABLE, FIBER OPTIC ETC. ARE THE RESPONSIBILITY OF THE RESPECTIVE UTILITY COMPANY. ANY INFORMATION SHOWN BY TCE SHOULD BE CONSIDERED PRELIMINARY (USUALLY TO ASSIST WITH PERMITTING). FINAL DESIGN, CONSTRUCTION AND MAINTENANCE ARE THE RESPONSIBILITY OF RESPECTIVE UTILITY COMPANIES. COMPLIANCE WITH EASEMENTS AND REGULATIONS (STATE AND LOCAL) ARE THE RESPONSIBILITY OF RESPECTIVE UTILITY COMPANY.

5. DIGSAFE: IN ACCORDANCE WITH VERMONT STATE LAW (VSA TITLE 30 CHAPTER 86 AND PSB RULE 3,800) THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT DIGSAFE SYSTEMS, INC. "DIGSAFE". AT LEAST 48 HOURS , EXCLUDING SATURDAYS, SUNDAYS, AND LEGAL HOLIDAYS, BUT NOT MORE THAN 30 DAYS BEFORE COMMENCING EXCAVATION ACTIVITIES, EXCEPT IN AN EMERGENCY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRE-MARKING THE SITE AND MAINTAINING DESIGNATED MARKINGS. FOR MORE INFORMATION ON DIGSAFE REQUIREMENTS SEE WWW.DIGSAFE.COM . THE TOWN OF ESSEX WATER AND SEWER SYSTEMS ARE CONSIDERED A PRIVATE UTILITY AND ARE NOT INCLUDED IN THE DIGSAFE SYSTEM. AS SUCH, THE CONTRACTOR SHALL CONTACT THE TOWN OF ESSEX AT LEAST 48 HOURS BEFORE COMMENCING WORK TO LOCATE ALL WATER AND SEWER UTILITIES WITHIN THE PROJECT LIMITS, IF APPLICABLE.

6. JOBSITE SAFETY: NEITHER THE PROFESSIONAL ACTIVITIES OF TRUDELL CONSULTING ENGINEERS (TCE), NOR THE PRESENCE OF TCE OR ITS EMPLOYEES AND SUB CONSULTANTS AT A CONSTRUCTION SITE, SHALL RELIEVE THE GENERAL CONTRACTOR AND ANY OTHER ENTITY OF THEIR OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. TCE AND ITS PERSONNEL HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER ANY CONSTRUCTION CONTRACTOR OR OTHER ENTITY OR THEIR EMPLOYEES IN CONNECTION WITH THEIR WORK OR ANY HEALTH OR SAFETY PRECAUTIONS. THE CLIENT AGREES THAT THE GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR JOBSITE SAFETY, AND WARRANTS THAT THIS INTENT SHALL BE MADE EVIDENT IN THE CLIENT'S AGREEMENT WITH THE GENERAL CONTRACTOR. THE CLIENT ALSO AGREES THAT THE CLIENT, TCE AND TCE'S CONSULTANTS SHALL BE INDEMNIFIED AND SHALL BE MADE ADDITIONAL INSURED UNDER THE GENERAL CONTRACTOR'S GENERAL LIABILITY INSURANCE POLICY .

7. CODES AND STANDARDS COMPLIANCE:TCE SHALL EXERCISE USUAL AND CUSTOMARY PROFESSIONAL CARE IN ITS EFFORTS TO COMPLY WITH CODES, STANDARDS, REGULATIONS, AND ORDINANCES IN EFFECT. THE OWNER ACKNOWLEDGES THAT SUCH REQUIREMENTS MAY BE SUBJECT TO VARIOUS AND CONTRADICTORY INTERPRETATIONS. TCE, THEREFORE, WILL USE ITS REASONABLE PROFESSIONAL EFFORTS AND JUDGMENT TO INTERPRET APPLICABLE REQUIREMENTS AS THEY APPLY TO THE PROJECT. TCE, HOWEVER, CANNOT AND DOES NOT WARRANT OR GUARANTEE THAT THE PROJECT WILL COMPLY WITH ALL INTERPRETATIONS OF SUCH REQUIREMENTS.

8. CONSTRUCTION OBSERVATION: TCE MAY VISIT THE PROJECT AT APPROPRIATE INTERVALS DURING CONSTRUCTION TO BECOME GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF THE CONTRACTOR'S WORK AND TO DETERMINE IF THE WORK IS PRECEDING IN GENERAL ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE OWNER HAS NOT RETAINED TCE TO MAKE DETAILED INSPECTIONS OR TO PROVIDE EXHAUSTIVE OR CONTINUOUS PROJECT REVIEW AND OBSERVATION SERVICES. TCE DOES NOT GUARANTEE THE PERFORMANCE OF, AND SHALL NOT HAVE RESPONSIBILITY FOR, THE ACTS OR OMISSIONS OF ANY CONTRACTOR, SUB-CONTRACTOR, SUPPLIER OR ANY OTHER ENTITY FURNISHING MATERIALS OR PERFORMING ANY WORK ON THE PROJECT. TCE SHALL NOT SUPERVISE, DIRECT OR HAVE CONTROL OVER THE CONTRACTOR'S WORK NOR HAVE ANY RESPONSIBILITY FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OF THE CONTRACTOR. IF THE OWNER DESIRES MORE EXTENSIVE PROJECT OBSERVATION OR FULL-TIME PROJECT REPRESENTATION, THE OWNER SHALL REQUEST SUCH SERVICES BE PROVIDED BY TCE AS ADDITIONAL SERVICES.

CONSTRUCTION NOTES FOR CONTRACTOR & CLIENT/OWNER

2018 TRUDELL CONSULTING ENGINEERS | LAST REVISED 12/27/2017 | SN-014

PRESSURE TEST

UPON COMPLETION OF CONSTRUCTION OF A FORCE MAIN, THE LINE SHALL BE PRESSURE AND LEAKAGE TESTED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:

AFTER THE PIPE HAS BEEN LAID, ALL NEWLY LAID PIPE OR ANY VALVED SECTION THEREOF SHALL BE SUBJECTED TO A HYDROSTATIC PRESSURE OF AT LEAST 1.5 X THE HIGHEST WORKING PRESSURE IN THE SECTION

1. TEST PRESSURE RESTRICTIONS. TEST PRESSURES SHALL:
   A. NOT BE LESS THAN 50 PSI AT THE HIGHEST POINT ALONG THE TEST SECTION.
   B. NOT EXCEED PIPE OR THRUST RESTRAINT DESIGN PRESSURES.
   C. BE OF AT LEAST 2 (TWO) HOUR DURATION.
   D. NOT VARY BY MORE THAN ± 5 PSI.
   E. NOT EXCEED TWICE THE RATED PRESSURE OF THE VALVES WHEN THE PRESSURE BOUNDARY OF THE TEST SECTION INCLUDES CLOSED GATE VALVES.
2. PRESSURIZATION.
   A. EACH VALVED SECTION OF PIPE SHALL BE FILLED WITH WATER SLOWLY AND THE SPECIFIED TEST PRESSURE, BASED ON THE ELEVATION OF THE LOWEST POINT IN THE LINE OR SECTION UNDER TEST AND CORRECTED TO THE ELEVATION OF THE TEST GAUGE, SHALL BE APPLIED BY MEANS OF A PUMP CONNECTED TO THE PIPE.
   B. AIR REMOVAL: BEFORE APPLYING THE SPECIFIED TEST PRESSURE, AIR SHALL BE EXPELLED COMPLETELY FROM THE PIPE VALVES.
   C. EXAMINATION: ALL EXPOSED PIPE, FITTINGS, VALVES, AND JOINTS SHALL BE EXAMINED CAREFULLY DURING THE TEST. ANY DAMAGED OR DEFECTIVE PIPE, FITTINGS, OR VALVES, THAT ARE DISCOVERED FOLLOWING THE PRESSURE TEST SHALL BE REPAIRED OR REPLACED WITH SOUND MATERIAL AND THE TEST SHALL BE REPEATED AT NO EXPENSE TO OWNER.

LEAKAGE TEST

A LEAKAGE TEST SHALL BE CONDUCTED CONCURRENTLY WITH THE PRESSURE TESTS.

1. LEAKAGE SHALL BE DEFINED AS THE QUANTITY OF WATER THAT MUST BE SUPPLIED INTO THE NEWLY LAID PIPE, OR ANY VALVED SECTION THEREOF, TO MAINTAIN PRESSURE WITHIN 5 PSI OF THE SPECIFIED TEST PRESSURE AFTER THE AIR IN THE PIPELINE HAS BEEN EXPELLED AND THE PIPE HAS BEEN FILLED WITH WATER.
2. ALLOWABLE LEAKAGE: NO PIPE INSTALLATION WILL BE ACCEPTED IF THE LEAKAGE IS GREATER THAN THAT DETERMINED BY THE FOLLOWING FORMULA:

$$L = \frac{ND\sqrt{P}}{7400}$$

WHERE:
L IS THE ALLOWABLE LEAKAGE, IN GALLONS PER HOUR;
N IS THE NUMBER OF JOINTS IN THE LENGTH OF PIPELINE TESTED;
D IS THE NOMINAL DIAMETER OF THE PIPE, IN INCHES; AND
P IS THE AVERAGE TEST PRESSURE DURING THE LEAKAGE TEST, IN POUNDS PER SQUARE INCH GAUGE.

NOTE: IN THE EVENT THAT THE FORCE MAIN IS RELATIVELY SHORT (100 FEET OR LESS), THE PROJECT ENGINEER CAN UTILIZE DISCRETION IN TEST REQUIREMENTS.

TESTING FORCE MAINS

(ENVIRONMENTAL PROTECTION RULES CH1, EFFECTIVE 9/29/07 SECTION 1-A-05(g))

2015 TRUDELL CONSULTING ENGINEERS | LAST REVISED 09/16/2015 | SN-001

WATER PRESSURE TEST

UPON COMPLETION OF INSTALLATION ALL TANKAGE SHALL BE TESTED WITH CLEAN WATER TO DEMONSTRATE THAT THE STRUCTURES ARE WATERTIGHT. THE TESTING SHALL BE CONDUCTED BEFORE THE TANKAGE AND STRUCTURES ARE BACKFILLED. THE TEST SHALL BE CONDUCTED BY COMPLETELY FILLING THE TANKAGE TO THE TOP OF THE STRUCTURES AND PROVIDING A HYDROSTATIC HEAD OF AT LEAST TWO FEET ABOVE THE SURROUNDING GROUNDWATER LEVEL AT THE TIME OF TESTING. THE TEST SHALL BE AT LEAST 24 HOURS, WITH NO LEAKAGE RESULTING. IF ANY LEAKAGE OCCURS DURING THE TEST PERIOD THE TANKS SHALL BE REPAIRED AND RETESTED (PER ASTM C1227-9.2.2 STANDARDS).

VACUUM TEST

UPON COMPLETION OF INSTALLATION ALL TANKAGE SHALL BE TESTED TO DEMONSTRATE THAT THE STRUCTURES ARE WATERTIGHT. THE TESTING SHALL BE CONDUCTED BEFORE THE TANKAGE AND STRUCTURES ARE BACKFILLED. THE TEST SHALL BE CONDUCTED BY SEALING THE EMPTY TANK AND APPLYING A VACUUM TO 2 INCHES (50MM) OF MERCURY. THE TANK IS APPROVED IF 90% OF THE VACUUM IS HELD FOR A MINIMUM OF 2 MINUTES (PER ASTM C1227-9.2.1 STANDARDS).

TANK LEAKAGE TESTING

2013 TRUDELL CONSULTING ENGINEERS | LAST REVISED 3/4/2013 | WN-004

Project Reference:

CONTRACTOR'S CERTIFICATION REQUIRED

PRIOR TO THE DESIGN ENGINEER CERTIFYING THAT THE INSTALLATION HAS BEEN INSTALLED IN ACCORDANCE WITH THE PERMITTED DESIGN, THE CONTRACTOR SHALL PROVIDE A CERTIFICATION THAT THE WASTEWATER SYSTEM WAS INSTALLED AND TESTED IN ACCORDANCE WITH THE APPROVED DESIGN PLANS. STATE PERMITS REQUIRE THERE SHALL BE NO DEVIATIONS FROM THE APPROVED PLANS WITHOUT PRIOR APPROVALS. THE DESIGN ENGINEER SHALL BE NOTIFIED AND ALLOWED TO OBSERVE THE CRITICAL PHASES OF CONSTRUCTION INCLUDING ANY REQUIRED TESTS. LIKEWISE, THE DESIGN ENGINEER SHALL BE NOTIFIED OF ANY DEVIATIONS FROM THE APPROVED PLANS. SINCE THE DESIGN ENGINEER DOES NOT CUSTOMARILY OBSERVE ALL PHASES OF THE WORK, OR ALL TESTING, HE MAY RELY ON THE CONTRACTOR'S CERTIFICATION AS THE BASIS FOR FINAL CERTIFICATION. THE CONTRACTOR SHALL THEREFORE SIGN AND RETURN A COPY OF THE FOLLOWING CERTIFICATION UPON COMPLETION OF THE WORK:

"I HEREBY CERTIFY THAT I HAVE INSTALLED, PROPERLY TESTED, AND SUCCESSFULLY PASSED THOSE TESTS, AND THE WASTEWATER DISPOSAL AND COLLECTION SYSTEM(S) ARE BUILT IN ACCORDANCE WITH THE APPROVED DESIGN PLANS AND APPLICABLE PERMIT CONDITIONS."

CONTRACTOR NAME _____

AUTHORIZED AGENTS NAME _____

SIGNATURE _____ DATE _____

NOTE ANY DEVIATIONS FROM APPROVED PLANS HERE:

NOTE: THE CERTIFICATION AND THE PROJECT ENGINEER'S SUBSEQUENT CERTIFICATION DOES NOT VOID THE CONTRACTOR FROM REPAIR OR REPLACEMENT OF DISCREPANCIES DISCOVERED AT A LATER DATE. THE CONTRACTOR REMAINS RESPONSIBLE, INCLUDING CUSTOMARY GUARANTEE AND WARRANTY PERIODS.

CONTRACTOR CERTIFICATION FOR WASTEWATER SYSTEM

2016 TRUDELL CONSULTING ENGINEERS | LAST REVISED 04/28/16 | SN-002

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1. CONTACT THE DESIGN ENGINEER PRIOR TO CONSTRUCTION FOR AN ON-SITE MEETING WITH THE CONTRACTOR TO DISCUSS THE CONSTRUCTION AND TO STAKE OUT THE SITE WITH THE PROPER ORIENTATION OF THE SYSTEM ACCORDING TO THE APPROVED PLAN.
2. ABOVE GROUND VEGETATION SHALL BE CLOSELY CUT AND REMOVED FROM THE GROUND SURFACE THROUGHOUT THE AREA TO BE UTILIZED FOR THE PLACEMENT OF THE FILL MATERIAL. PRIOR TO PLOWING, THE DOSING PUMP DISCHARGE LINE FROM THE PUMP CHAMBER TO THE POINT OF CONNECTION WITH THE DISTRIBUTION PIPING HEADER SHALL BE INSTALLED. CONTACT THE DESIGN ENGINEER TO OBSERVE TESTING OF THE SEWER FORCEMAIN.
3. THE AREA SHALL THEN BE PLOWED TO A DEPTH OF 7 TO 8 INCHES PARALLEL TO THE LAND CONTOUR PLOWING THE SOIL UP SLOPE TO PROVIDE A PROPER INTERFACE BETWEEN THE FILL AND THE NATURAL SOILS. ONCE PLOWING OF THE ENTIRE MOUND AREA IS COMPLETED, THE AREA SHALL BE FENCED TO PREVENT VEHICLES AND EQUIPMENT FROM ENTERING THE PLOWED AREA.
4. THE AREA SURROUNDING THE MOUND SHALL BE GRADED TO PROVIDE DIVERSION OF SURFACE RUN-OFF WATERS.
5. ONCE THE PLOWING IS COMPLETED, THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER FOR AN INSPECTION OF THE SITE PRIOR TO THE PLACEMENT OF SAND FILL.
6. PLACE THE APPROVED SAND FILL AROUND THE EDGE OF THE PLOWED AREA KEEPING THE WHEELS OF THE DUMP TRUCK FROM PLOWED AREA. WHEEL TRACKS IN THE AREA WILL LEAD TO COMPACTION. THE EFFLUENT WILL FLOW WITHIN THE RUTS AND SEEP FROM THE MOUND.
7. USING A CRAWLER TRACTOR WITH A BLADE, MOVE THE SAND AROUND INTO PLACE. KEEP AT LEAST 6 INCHES OF SAND UNDER THE TRACKS TO MINIMIZE COMPACTION OF THE PLOWED SURFACE. SHAPE THE SIDES TO THE REQUIRED SLOPES AS SHOWN ON THE SITE PLAN.
8. WITH THE BLADE OF THE CRAWLER, FORM THE BED (OR TRENCH)BY MOVING ALONG ITS LENGTH. MAKE SURE THE BOTTOM OF THE BED (OR TRENCH) IS LEVEL. SOME HAND SHOVEL LEVELING WILL BE REQUIRED.
9. PRIOR TO THE PLACEMENT OF STONE IN THE BED (OR TRENCH) THE STONE SHALL BE WASHED FREE OF ALL STONE DUST OR SEDIMENT. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE WASHING OF THE STONE. WASHING SHALL BE DONE BY TILTING THE BODY OF THE DUMP TRUCK AND, WITH A FIRE HOSE, HOSING THE STONE UNTIL THE WATER EXITING THE TRUCK IS CLEAR. CONTACT THE DESIGN ENGINEER FOR INSPECTION OF THE WASHED STONE PRIOR TO PLACEMENT.
10. UPON ACCEPTANCE, USE A BUCKET ON THE CRAWLER TO PLACE THE STONE IN THE BED (OR EACH TRENCH) BY TRAVELING UP THE SIDE SLOPE. LEVEL THE STONES OFF TO THE DESIRED ELEVATION.
11. THE PRESSURE DISTRIBUTION PIPE SHALL BE PLACED IN CRUSHED STONE WITH THE ORIFICES UPWARD. THE HOLES SHALL BE COVERED WITH AN ORIFICE SHIELD. ONE ORIFICE MAY BE FACED DOWNWARD TO ALLOW DRAINAGE OF THE PIPING AND TO HELP PREVENT FREEZING. THE MATERIAL USED TO COVER THE TOP OF THE STONE SHALL BE ONE LAYER OF FILTER FABRIC AND ONE LAYER OF INSULATION.
12. CONTACT THE DESIGN ENGINEER PRIOR TO BACKFILLING FOR INSPECTION OF THE DISTRIBUTION PIPING.
13. FINISH BY PLACING 2 INCHES OF STONE OVER THE DISTRIBUTION PIPE.
14. PLACE ONE LAYER OF FILTER FABRIC OVER STONES. THE ENTIRE MOUND SHALL BE COVERED WITH A MINIMUM OF 12 INCHES OF TOPSOIL (18 INCHES AT THE CREST) SHAPING THE MOUND SURFACE AS SHOWN ON THE PLAN.
15. LANDSCAPE THE MOUND BY PLANTING GRASSES ON THE SURFACE. A MIXTURE OF 90 PERCENT BIRDSFOOT TREFOIL AND 10 PERCENT TIMOTHY MAY BE DESIRABLE IF THE MOUND WILL NOT BE MANICURED. IF MANICURING IS DESIRED, A COMBINATION OF 60 PERCENT BLUEGRASS, 30 PERCENT CREEPING RED FESCUE AND 10 PERCENT ANNUAL RYE GRASS MAY BE THE DESIRED VEGETATIVE COVER. SHRUBS PLACED ALONG THE SIDE SLOPES AND TOE ARE RECOMMENDED. DO NOT PLACE SHRUBS OR TREES DIRECTLY ON TOP OF THE MOUND AS ROOTS WILL INTERFERE WITH THE DISTRIBUTION SYSTEM.
16. UPON COMPLETION OF THE CONSTRUCTION, CONTACT THE DESIGN ENGINEER. IF THE MOUND CONSTRUCTION IS SATISFACTORY, THE DESIGN ENGINEER WILL PROVIDE WRITTEN CERTIFICATION THAT THE CONSTRUCTION WAS DONE IN ACCORDANCE WITH THE APPROVED PLANS.

PRESSURIZED MOUND CONSTRUCTION SPECIFICATIONS

2016 TRUDELL CONSULTING ENGINEERS | LAST REVISED 04/01/16 | SN-009

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1. THIS SITE DOES NOT MEET THE MINIMUM REQUIREMENTS FOR A CONVENTIONAL SANITARY DISPOSAL SYSTEM. THE DESIGN OF A MOUND TYPE DISPOSAL SYSTEM WILL BRING THE SITE INTO CONFORMANCE WITH THE MINIMUM REQUIREMENTS.
2. THE ENGINEER HAS DETERMINED A LOCATION FOR SANITARY DISPOSAL ON THE PROPERTY, BASED ON SITE INVESTIGATION AND SOIL TESTS. THE REQUIRED DISPOSAL AREA AND SYSTEM DESIGN WERE DETERMINED BY CODE REQUIREMENTS AND SUBMITTED TO APPROVING AUTHORITIES. UPON APPROVAL, THE OWNER ASSUMES RESPONSIBILITY FOR PROPER CONSTRUCTION AND CONTINUED OPERATION OF THE SYSTEM.
3. THE OWNER IS RESPONSIBLE FOR OPERATING THE DISPOSAL SYSTEM IN A MANNER WHICH WILL PROTECT THE PUBLIC HEALTH AND PREVENT POLLUTION.
4. NEW DISPOSAL SYSTEMS REQUIRE ADJUSTMENTS OR MODIFICATIONS DURING START UP, AND DURING THE LIFE OF THE SYSTEM. THESE ADJUSTMENTS INCLUDE LEVELING THE SEPTIC TANK, PUMP STATION OR SIPHON, DUE TO SETTLEMENT OR FROST ACTION. FILL MAY BE ADDED TO REPAIR EROSION OR LEVEL SETTLED AREAS.
5. ON SITE SANITARY DISPOSAL SYSTEMS REQUIRE REGULAR INSPECTION AND MAINTENANCE. THE SEPTIC TANK, BIO-FILTER AND PUMP STATION OR SIPHON CHAMBER, IF APPLICABLE, SHOULD BE INSPECTED ANNUALLY AND PUMPED OUT AND CLEANED EVERY 3 YEARS. THE PLUMBING AND ELECTRICAL SYSTEMS, IF APPLICABLE, SHOULD BE CHECKED FOR PROPER OPERATION AND LEAKS.
6. THE LIFE OF THE DISPOSAL SYSTEM CAN BE AFFECTED BY A VARIETY OF OPERATIONAL AND ENVIRONMENTAL FACTORS. THE PRESENCE OF EXCESS GROUNDWATER, RAINWATER, INTRODUCTION OF MATERIAL OTHER THAN HUMAN WASTES, (INCLUDING BUT NOT LIMITED TO, BACKWASH FROM WATER SOFTENERS, POOLS, SPA'S, AND/OR SIMILAR EQUIPMENT), OR EXCESSIVE SEWAGE FLOWS WILL ADVERSELY AFFECT OPERATION OF ANY DISPOSAL SYSTEM. SOIL SETTLEMENT, FREEZING OF COMPONENTS, AND CLOGGING DUE TO ORGANIC SOLIDS ACCUMULATION WILL REQUIRE REPAIRS.
7. THE OWNER IS RESPONSIBLE FOR COMPLIANCE WITH STATE AND LOCAL OPERATION AND MAINTENANCE REQUIREMENTS. THE ENGINEER AND CONTRACTOR ASSUMES NO RESPONSIBILITY FOR THE IMPROPER USE AND/OR MAINTENANCE OF THE SYSTEM.
8. WARNING: WITH SUCH FINE FILTRATION (SEPTIC TANK EFFLUENT FILTER) A SCHEDULED MAINTENANCE PROGRAM MUST BE FOLLOWED.
9. THE OWNER IS RESPONSIBLE FOR ALL STATE AND LOCAL PERMITS AND REQUIRED CONDITIONS OF SAID PERMITS. THIS INCLUDES BUT IS NOT LIMITED TO ANNUAL INSPECTIONS AND REPORTING. THE OWNER IS ALSO RESPONSIBLE FOR RECORDING PERMITS IN THE TOWN LAND RECORDS OFFICE. IF CONSTRUCTION DOESN'T OCCUR IN THE TIME FRAMES ESTABLISHED BY SAID PERMITS THEN THE OWNER IS RESPONSIBLE FOR REVISING DESIGN PLANS AS NEEDED AND RE-PERMITTING. IF CHANGES IN THE REGULATIONS OCCUR ONCE THE PERMITS HAVE EXPIRED, TRUDELL CONSULTING ENGINEERS DOES NOT OFFER ANY GUARANTEES THAT THE PERMIT WILL BE RE-ISSUED. CHANGING REQUIREMENT MAY PREVENT COMPLIANCE AND CAUSE CERTAIN PROPERTIES TO BE UN-DEVELOPABLE.
10. IF THE SYSTEM IS DESIGNED USING THE PERFORMANCE BASED DESIGN ACCORDING TO PREVIOUS STATE PERMITS THE SYSTEM SHALL BE INSPECTED EACH SPRING FOR THREE CONSECUTIVE YEARS BY A LICENSED ENGINEER TO DEMONSTRATE THAT THE SYSTEM IS WORKING AS DESIGNED.

MOUND DISPOSAL FIELD - OPERATION AND MAINTENANCE

2013 TRUDELL CONSULTING ENGINEERS | LAST REVISED 3/6/2013 | SN-004

DON'T PUT THESE ITEMS DOWN THE DRAIN

- FOOD WASTES
  ANIMAL BONES / EGG SHELLS
  COFFEE GROUNDS / CORN COBS
  MELON RINDS / FRUIT PEELS
  SKIN / HOME BREWERY WASTE
- PERSONAL CARE PRODUCTS
  BANDAGES / CONDOMS
  DISPOSABLE DIAPERS
  FEMININE HYGIENE PRODUCTS
  WET WIPES
- CHEMICALS/TOXINS
  AUTOMOTIVE FLUIDS
  CAUSTIC CLEANERS
  HARSH DETERGENTS
  FLOOR STRIPPERS
  HERBICIDES / PESTICIDES
  MEDICATIONS / DRUGS
  PAINTS - OIL-BASED
  QUATERNARY AMMONIUM
  SOLVENTS / THINNERS
- OTHER PRODUCTS
  CAT LITTER
  CIGARETTE BUTTS
  CLOTH TOWELS / RAGS
  FILM DEVELOPING WASTE
  METAL / PLASTIC OBJECTS
  MODELING CLAY
  PAPER TOWELS / SCRAPS
  PLASTIC BAGS
  RV WASTE
  STRING / YARN / NYLONS
  STICKS / YARD WASTE

OUTSIDE DO'S & DON'TS - YARD SAFETY

REGULAR MAINTENANCE SHOULD BE PERFORMED BY A QUALIFIED SERVICE COMPANY FOR ENSURING THE LONG LIFE OF YOUR SYSTEM.

- BLOWER OPERATION
  DO NOT TURN OFF BLOWER. DO NOTIFY YOUR MAINTENANCE OR SERVICE PROVIDER IF YOU DETECT PROBLEMS WITH SYSTEM OR LEAVING THE PROPERTY FOR AN EXTENDED PERIOD OF (>3 WEEKS).
- ALARM
  IF ALARM SOUNDS, DO PRESS THE "SILENCE/RESET" BUTTON ON THE FRONT OF THE PANEL. CONTACT YOUR SERVICE PROVIDER (INFO SHOULD BE ON THE CONTROL PANEL AND/OR THE BLOWER).
- DOWN SPOUTS
  DO DIVERT WATER AWAY FROM ANYWHERE IT IS COLLECTED, I.E. ROOF DOWNSPOUTS, PAVEMENT RUNOFF, OR SUMP PUMP / HOUSE FOOTING DRAINS. THE WATER SHOULD BE ALLOWED TO DISCHARGE OVER BURIED TANK(S)OR DRAIN FIELD.
- TRAFFIC / LANDSCAPING
  DO NOT DRIVE OVER ANY PORTION OF YOUR SYSTEM (TANK, PIPING, DRAIN FIELD) EXCEPT FOR NORMAL YARD TRAFFIC, I.E. MOWERS. BURIED TANKS (H-20) CAN BE MADE FOR UNDER ROADWAYS, DRIVEWAYS. IF POSSIBLE, DETER TRAFFIC BY USING A FENCE OR CREATE A LANDSCAPED AREA WITH SHALLOW ROOT PLANTS (ORNAMENTALS, SHRUBBERY, BUSHES, DECORATIVE GRASSES, AND/OR FLOWERS). DO NOT PLANT TREES NEAR ANY PORTION OF YOUR SYSTEM (WITHIN 30 FEET).
- STRUCTURES
  DO NOT BUILD PATIOS, CARPORTS, OR OTHER STRUCTURES OVER ANY PART OF YOUR SEPTIC SYSTEM AS THIS MAY CAUSE DAMAGE.
- VENTS / ODORS / INTAKE
  DO KEEP VENT AND BLOWER HOUSING CLEAR OF DEBRIS, SUCH AS LEAVES OR SNOW. CONTACT YOUR SERVICE PROVIDER IF YOU DETECT SEPTIC ODORS, AS THIS MAY INDICATE A PROBLEM WITH THE SYSTEM.
- BIOSOLIDS (SLUDGE) REMOVAL
  DO DETERMINE WHEN A PUMP OUT OF YOUR TANK IS REQUIRED; A MAINTENANCE PROVIDER SHOULD MEASURE THE BIOSOLIDS LEVEL(S) IN THE TANK(S) ON A REGULAR BASIS. PLEASE SEE THE SERVICE MANUAL FOR SPECIFIC PROCEDURES.
- SEPTIC TANK OUTLET FILTER
  DO REGULARLY CHECK OR DEVELOP A CLEANING SCHEDULE TO MAINTAIN THE FUNCTIONALITY OF THE SEPTIC TANK OUTLET FILTER. COMMONLY THIS REQUIRES MORE FREQUENT CLEANINGS THAN THE SEPTIC TANK.

REFER TO THIS LIST TO HELP KEEP SYSTEM PERFORMING PROPERLY

- RECORD KEEPING
  KEEP COPIES OF ALL SYSTEM MANUALS, DRAWINGS, AND SITE PLANS, AS WELL AS OTHER INFORMATION ABOUT INSTALLED EQUIPMENT AND SERVICE/MAINTENANCE RECORDS WITH ALL OTHER HOME APPLIANCE DOCUMENTS. DO KEEP RECORD ON ALL SYSTEM AND SITE EVALUATIONS.
- LAUNDRY/WATER USAGE
  SPREAD WASH LOADS THROUGHOUT THE WEEK. INSTEAD OF LIQUID FABRIC SOFTNER,DRYER SHEETS SHOULD BE USED. USE A LOW-SUD, BIODEGRADABLE DETERGENT.
- LEAKY FIXTURES
  LARGE QUANTITIES OF WATER ARE ADDED TO YOUR WASTEWATER SYSTEM WHEN YOU HAVE LEAKING FIXTURES. TIMELY DETECTION AND REPAIR CAN HELP TO MAXIMIZE THE LIFE OF YOUR SYSTEM, ESPECIALLY THE DRAIN FIELD.
- WATER SOFTENERS
  IF ALLOWED BY YOUR LOCAL REGULATORY AUTHORITY, THE FAST ® PROCESS MAY TOLERATE DISCHARGE FROM PROPERLY OPERATING SOFTENERS THAT BACKWASH (AS NEEDED) BASED ON WATER USAGE (DIR) VS. TIMER OPERATED SYSTEM. HOWEVER, PLEASE BE AWARE THAT THESE DISCHARGES CAN POSSIBLY DAMAGE OTHER PARTS OF THE SEPTIC SYSTEM.
- FOOD WASTES
  GARBAGE DISPOSAL WASTE IS ACCEPTABLE - IF ALLOWED BY YOUR LOCAL REGULATORY AUTHORITY AND THE SEPTIC TANK IS ADEQUATELY SIZED. HOWEVER, IT MAY LEAD TO MORE FREQUENT REMOVAL OF SOLIDS FORM YOUR SEPTIC TANK. FOR LARGE QUANTITIES OF FOOD, PLEASE DISPOSE OF IT IN THE GARBAGE.
- FATS, OILS, AND GREASE
  BE AWARE TOO MUCH GREASE (I.E. ANIMAL FATS, VEGETABLE OILS, LARD, ETC) DOWN THE DRAIN MAY OVERLOAD OR PREVENT THE BACTERIAL FROM FULLY BREAKING DOWN THE WASTE AND CAN PLUG THE SEPTIC TANK OUTLET FILTER OR DRAIN FIELD.
- DISINFECTANTS / CLEANERS
  USE CITRIC ACID, CHLORINE, AND/OR OTHER BIODEGRADABLE CLEANERS ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. PRODUCTS CONTAINING QUATERNARY AMMONIUM OR PINE OIL-BASED CLEANERS SHOULD NOT BE USED. USE DRAIN CLEANERS AS A LAST RESORT TO UNCLOG PIPES.
- MEDICINES
  DO NOT FLUSH THEM DOWN ANY DRAIN . ALL ANTIBIOTIC MEDICINES ARE HARMFUL TO TREATMENT QUALITY. UNUSED MEDICATIONS SHOULD BE RETURNED TO THE PHARMACY, DOCTOR, OR THROWN AWAY IN THE TRASH.

NOTE: AS THE HUMAN BODY ABSORBS <20% OF THESE MEDICATION, PLEASE NOTIFY YOUR SERVICE PROVIDER OF MEDICINES IN THE HOUSE. THIS COULD REDUCE TROUBLESHOOTING EFFORT AND POSSIBLE YOUR MAINTENANCE BILL.

- FLOOR DRAINS FROM GARAGE AND WORKROOMS
  SHOULD BE DIVERTED AWAY FROM YOUR SEPTIC SYSTEM. ITEMS LIKE PETROLEUM-BASED OILS, GAS, AND SAW DUST SHOULD NEVER ENTER THE SYSTEM