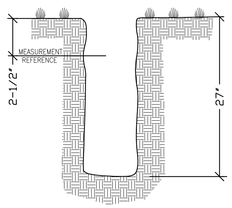
PERCOLATION TEST #1

CONDUCTED BY DATUM ENGINEERING & SURVEYING, LLC. ON FEB. 10, 2012

PRESOAKED AT 11:58

TIME	READING
2:06	11"
2:11	12"
2:16	13–1/4"
2:21	14–1/4"
2:26	15–1/4"
2:31	16–1/4"
2:36	17"
2:41	18"
2:46	18–1/2"
2:51	19"
2:56	19–1/2"
3:01	20"
3:06	20–1/2"



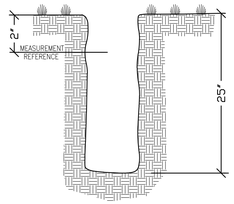
CALCULATED PERCOLATION RATE: 10 MIN/IN

PERCOLATION TEST #2

CONDUCTED BY DATUM ENGINEERING & SURVEYING, LLC. ON APRIL 5, 2012

PRESOAKED AT 2:25 P.M. ON 4–4–12

TIME	READING
7:19	10"
7:24	13"
7:29	15–1/2"
7:34	17"
7:39	18–1/2"
7:44	19–1/2"
7:49	20–1/2"
7:54	21–1/2"
7:59	22"
8:04	22–1/2"
8:09	DRY



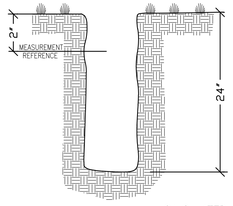
CALCULATED PERCOLATION RATE: 10 MIN/IN

PERCOLATION TEST #3

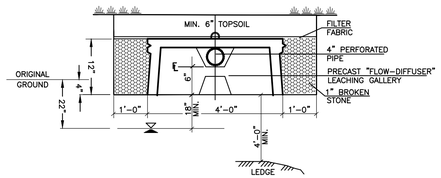
CONDUCTED BY DATUM ENGINEERING & SURVEYING, LLC. ON APRIL 5, 2012

PRESOAKED AT 2:45 P.M. ON 4–4–12

TIME	READING
7:22	9"
7:27	13"
7:32	14–1/2"
7:37	16"
7:42	17–1/2"
7:47	19"
7:52	19–1/2"
7:57	20"
8:02	20–1/2"
8:07	DRY

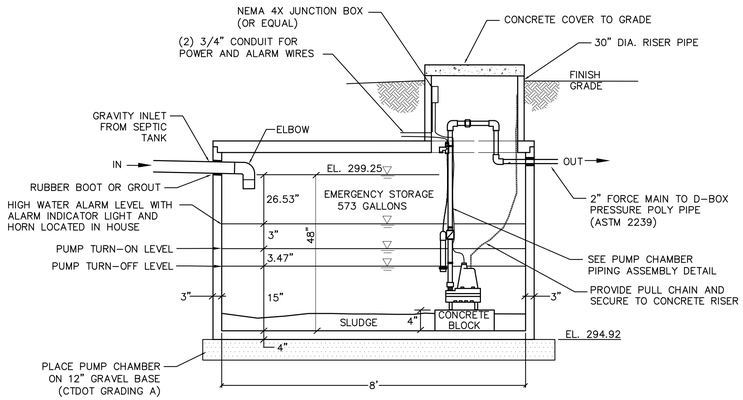


CALCULATED PERCOLATION RATE: 10 MIN/IN



LEACHING GALLERY DETAIL

NOT TO SCALE



1,000-GALLON PUMP CHAMBER

MANUFACTURER: JOLLEY PRECAST, INC.
STORAGE = 258 GALLONS PER FOOT
NOT TO SCALE

PUMP STATION AND FORCE MAIN

The pump chamber shall be a 1,000 gallon pre-cast concrete utility vault (Jolley Precast, Inc.). The utility vault used must be watertight. Seal joints with asphalt cement or equal.

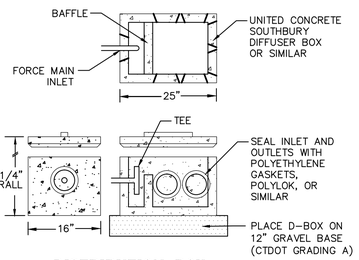
Pump shall be Liberty Model 250-3 submersible sewage pump or equal. Minimum capacity of the pump shall be 38 GPM @ 10 feet total dynamic head.

Pump turn-on and turn-off level shall be set as shown.

Pump shall be wired so that alarm is on a separate circuit.

Since this is a pumped system, a baffle and tee on the force main discharge shall be installed in the distribution box at the end of the force main.

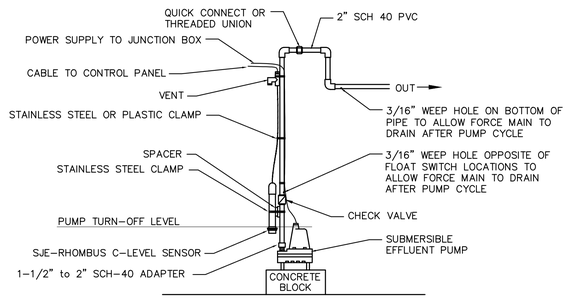
The force main shall be coiled 2" diameter polyethylene plastic flexible pressure pipe (100 psi minimum), meeting ASTM D 2239 or D 2737; PVC pressure pipe ASTM D 2241, SDR 21, SDR 17 or SDR 13.5; or PVC pressure water pipe AWWA C-900 (PC 200 PSI minimum), as specified in the State Health Code. No joints are allowed within 75 feet of a well or within 25 feet of an open water course or ground or surface water drains.



DISTRIBUTION BOX

NOT TO SCALE

NOTE: DISTRIBUTION BOX TO BE SET LEVEL TO ENSURE EQUAL DISTRIBUTION.



PUMP CHAMBER PIPING ASSEMBLY

NOT TO SCALE

--- BASIS OF SANITARY DESIGN ---

DETERMINE MAXIMUM FLOW PER DAY:

BUILDING (MANUFACTURING) – 7 EMPLOYEES

BUILDING (OFFICE) 8,005 S.F./ 200 S.Q. PER EMPLOYEE = 40 EMPLOYEES

DAILY FLOW = 47 EMPLOYEES x 20 GAL. PER DAY = 940 GALLONS PER DAY

PERCOLATION RATE: 10 MIN./IN.

APPLICATION RATE: 1.5 GALLONS/S.F./DAY

LEACHING AREA REQUIRED = 940/1.5 = 626.7 S.F.

LEACHING AREA PROVIDED = 12" HIGH BY 4' WIDE AND 8' LONG CONCRETE GALLERIES ((16 UNITS x 8') + 4 L.F. STONE) x 5.9 S.F./L.F) = 778.8 S.F.

PROVIDED LEACHING SYSTEM SPREAD = 128'

MINIMUM LEACHING SYSTEM SPREAD (MLSS) *

SLOPE=6.2% RESTRICTIVE LAYER AT 22" M.L.S.S. = (H.F.) x (F.F.) x (P.F.) = (34) x (3.13) x (1.2) = 127.7 L.F.

* SEE CONNECTICUT PUBLIC HEALTH CODE, APPENDIX A

TEST HOLES OBSERVED BY GERRY HARDISTY, P.E. AND RON CHALECKI, TOWN SANITARIAN
FEBRUARY 10, 2012

TP # 1
0 - 6ò TOPSOIL
6ï 22ò BROWN FINE SANDY LOAM
22ï 84ò GRAY FINE LOAMY SAND
WATER @ 81ò
RESTRICTIVE @ 22ò

TP # 2
0 - 8ò TOPSOIL
8ï 24ò BROWN VERY FINE SANDY LOAM
24ï 84ò GRAY FINE SANDY LOAM
WATER @ 76ò
RESTRICTIVE 24ò

TP # 3
0ï 7ò TOPSOIL
7ï 27ò BROWN FINE SANDY LOAM
27ï 80ò GRAY FINE SANDY LOAM
WATER @ 75ò
RESTRICTIVE @ 27ò

TP # 4
0ï 7ò TOPSOIL
7ï 26ò BROWN FINE SANDY LOAM
26ï 86ò GRAY FINE SANDY LOAM
WATER @ 74ò
RESTRICTIVE @ 26ò

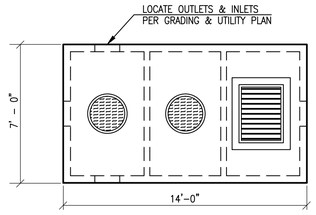
TEST HOLES OBSERVED BY GERRY HARDISTY, P.E. AND RON CHALECKI, TOWN SANITARIAN
MARCH 30, 2012

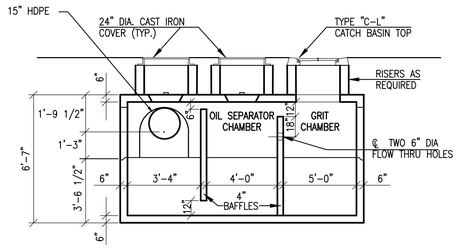
TP #5
0ï 10 TOPSOIL
10ï 24ò BROWN FINE SANDY LOAM
24ï 84ò MOTTLED GRAY FINE SANDY LOAM
WATER SEEPS @ 42ò

TP #6
0ï 4ò TOPSOIL
4ï 31ò BROWN FINE SANDY LOAM
31ï 82ò GRAY WET FINE SANDY LOAM
ROOTS TO 31ò

TP #7
0ï 9ò TOPSOIL
9ï 33ò BROWN FINE SANDY LOAM
33ï 80ò GRAY FINE SANDY LOAM
MOTTLING @ 19ò

TP #8
0ï 8ò TOPSOIL
8ï 27ò BROWN FINE SANDY LOAM
27ï 78ò GRAY FINE SANDY LOAM
MOTTLING @ 24ò





SEPARATOR STRUCTURE

NO SCALE

NOTES:

- SEPTIC TANK SHALL BE A 1500 GALLON, TWO COMPARTMENT TANK. IT SHALL BE PROPERLY BAFFLED AT THE INLET AND OUTLET AND SHALL BE WATERTIGHT, JOINTS SEALED WITH ASPHALT CEMENT OR EQUAL. TANK OUTLET SHALL HAVE APPROVED NON-BY-PASS EFFLUENT FILTER.
- THE PIPE BETWEEN BUILDING AND SEPTIC TANK SHALL BE A 4" SCHEDULE 40 OR 80 PVC, EXTRA HEAVY CAST IRON, DUCTILE IRON, OR EXTRA STRENGTH PVC PRESSURE PIPE WITH RUBBER COMPRESSION GASKET JOINTS (AWWA C-900) OR EQUAL. PIPE SHALL HAVE MINIMUM PITCH OF 1/4 INCH PER FOOT.
- SOLID DISTRIBUTION PIPE AFTER SEPTIC TANK SHALL BE 3" PVC MEETING ASTM D2729 OR 4" PVC MEETING ASTM D3034 OR EQUAL.
- BOTTOM OF ALL LEACHING GALLERIES SHALL BE LEVEL THROUGHOUT.
- ALL TOPSOIL IN THE AREA OF THE PROPOSED SYSTEM SHALL BE STRIPPED BEFORE FILLING.
- STRIPPED AREA MUST BE APPROVED BY THE SANITARIAN PRIOR TO FILLING, FILL MUST BE PLACED ON STRIPPED AREA THE SAME DAY AREA IS PREPARED.
- SANITARIAN SHALL INSPECT FILL PLACEMENT. ALL FILL MATERIAL MUST BE APPROVED PRIOR TO PLACEMENT IN SYSTEM AREA.
- FILL MATERIAL SHALL BE "SELECT FILL" COMPRISED OF CLEAN SAND AND GRAVEL, FREE FROM ORGANIC MATTER AND FOREIGN SUBSTANCES AND COMPACTED IN SIX (6) INCH LAYERS. THE FILL MATERIAL SHALL MEET THE FOLLOWING REQUIREMENTS UNLESS OTHERWISE APPROVED BY A PROFESSIONAL ENGINEER FOR USE WITHIN THE LEACHING AREA.
  1.) THE SELECT FILL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN THREE (3) INCHES.
  2.) UP TO 45% OF THE DRY WEIGHT OF THE REPRESENTATIVE SAMPLE MAY BE RETAINED ON THE #4 SIEVE (THIS IS THE GRAVEL PORTION OF THE SAMPLE).
  3.) THE MATERIAL THAT PASSES THE #4 SIEVE IS THEN REWEIGHED AND THE SIEVE ANALYSIS STARTED.
  4.) THE REMAINING SAMPLE SHALL MEET THE FOLLOWING GRADATION CRITERIA:

	SIEVE SIZE	% PASSING WET SIEVE	% PASSING DRY SIEVE
COARSE SAND	#4	100%	100%
MEDIUM SAND	#10	70% – 100%	70% – 100%
FINE SANDS	#40	10% – 50% *	10% – 75%
VERY FINE SANDS	#100	0% – 20%	0% – 5%
SILTS & CLAYS	#200	0% – 5%	0% – 2.5%

NOTE: * PERCENT PASSING THE #40 SIEVE CAN BE INCREASED TO NO GREATER THAN 75% IF THE PERCENT PASSING THE #100 SIEVE DOES NOT EXCEED 10% AND THE #200 SIEVE DOES NOT EXCEED 5%.

THE RESPONSIBILITY FOR THE PREPARATION OF THE LEACHING AREA UTILIZING "SELECT MATERIAL" IS THAT OF THE LICENSED INSTALLER. THE INSTALLER SHALL TAKE THE NECESSARY STEPS TO PROTECT THE UNDERLYING NATURALLY OCCURRING SOILS FROM OVERCOMPACTION AND SILTATION ONCE EXPOSED.

- ONE PERCOLATION TEST IN THE FILL MATERIAL IS REQUIRED AT TIME SANITARIAN INSPECTS FILL PLACEMENT. EXCAVATE PERC HOLE TO 12" AND PRE-SOAK 1 HOUR PRIOR TO APPOINTED TIME.
- ALL SYSTEMS REQUIRE PROTECTION FROM SURFACE WATER FLOW.
- ALL DISTRIBUTION BOXES SHALL BE PLACED ON A 6 INCH COMPACTED GRAVEL BASE TO PREVENT HEAVING AND SETTLING.
- INLETS AND OUTLETS OF THE SEPTIC TANK, PUMP CHAMBER AND DISTRIBUTION BOXES SHALL BE SEALED WITH A POLYETHYLENE GASKET, "POLYOK" OR EQUAL.
- IF TOP OF SEPTIC TANK IS GREATER THAN 12" BELOW GRADE, RISERS SHALL BE INSTALLED OVER EACH MANHOLE OPENING TO WITHIN 12" OF THE FINISH GRADE. FOR DEPTHS LESS THAN 24" USE 17" INSIDE DIAMETER RISERS, FOR DEPTHS GREATER THAN 24" USE 24" INSIDE DIAMETER RISERS.
- OPEN ENDS OF PERFORATED PIPE IN TRENCHES SHALL BE PLUGGED OR CAPPED.
- BOTTOM OF GALLERIES TO BE NO LOWER THAN 4" INTO EXISTING GROUND.
- NO PARKING, DRIVING OVER, STOCKPILING OR OTHER ACTIVITY IN THE SEPTIC AREA THAT WOULD COMPACT OR DISTURB THE SOIL.
- LEACHING GALLERIES WITH BOTTOM ELEVATIONS SHOWN SHALL BE FIELD STAKED BY DESIGN ENGINEER. ENGINEER SHALL SET A PERMANENT BENCHMARK IN THE IMMEDIATE VICINITY OF THE PROPOSED LEACHING SYSTEM AT THIS TIME.
- CONTRACTOR SHALL CHECK AND VERIFY BENCH MARK PRIOR TO INSTALLATION OF SEPTIC SYSTEM.
- THE WORK SHALL INCLUDE THE FURNISHING OF ALL LABOR, MATERIAL, EQUIPMENT AND OTHER INCIDENTALS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ENGINEER AND/OR OWNER AWARE OF ANY ERRORS OR OMISSIONS FROM THE PLAN PRIOR TO EXECUTION OF WORK.
- NO WORK TO BE STARTED ON SEPTIC SYSTEM PRIOR TO MEETING WITH THE SANITARIAN. FINAL INSTALLATION INSPECTION BY THE SANITARIAN IS REQUIRED.
- LEACHING GALLERIES REQUIRE A MINIMUM OF 6" OF COVER, 4" OF WHICH MUST BE TOPSOIL.
- ALL SYSTEMS MUST BE MULCHED AND SEEDED IMMEDIATELY AFTER COMPLETION.
- PUMP CHAMBER SHALL HAVE A MINIMUM CAPACITY OF 1000 GALLONS. IT SHALL BE FACTORY SEALED AND ALL JOINTS AND SEALS SHALL BE TESTED TO INSURE IT IS WATERTIGHT.
- PUMP CHAMBER TO BE PROVIDED WITH MANHOLE TO GRADE FOR ACCESS TO PUMP AND CONTROLS.
- EFFLUENT PUMP SHALL BE "LIBERTY" MODEL #253 (1/2 H.P.) PROVIDED WITH AWS-1 ADJUSTABLE LEVEL CONTROL AND HAVING A MINIMUM CAPACITY OF 38 G.P.M. AGAINST A TOTAL HEAD OF 10 FEET. SET LEVEL CONTROLS TO PUMP 150 GALLONS PER CYCLE, A SEPARATE ALARM CONTROL SHALL BE INSTALLED & SET TO SOUND WHEN APPROX. 25.5" OF EFFLUENT IS PRESENT IN PUMP CHAMBER.
- MAINTAIN 3'-6" OF COVER OVER THE POLYETHYLENE TUBING EXCEPT AT DISTRIBUTION BOX.

DETAIL SHEET

PREPARED FOR APPLICANT

SIP ENERGY SOLUTIONS

OWNER

DSD CEDAR HILL, LLC
P.O. BOX 103
SOUTH WINDHAM, CONNECTICUT 06266

SCALE: AS NOTED DATE: MARCH 16, 2012
REVISED: JULY 2, 2012

PROFESSIONAL ENGINEER AS LICENSED BY THE STATE OF CONNECTICUT DEPARTMENT OF CONSUMER PROTECTION.

GERALD HARDISTY, P.E. #15974

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132 CONANTVILLE ROAD
MANSFIELD CENTER, CT 06250
TEL (860)456-1357 FAX (860)456-1840

JOB NO. 211015

CHECKED BY:_____ CORRECTIONS BY:_____