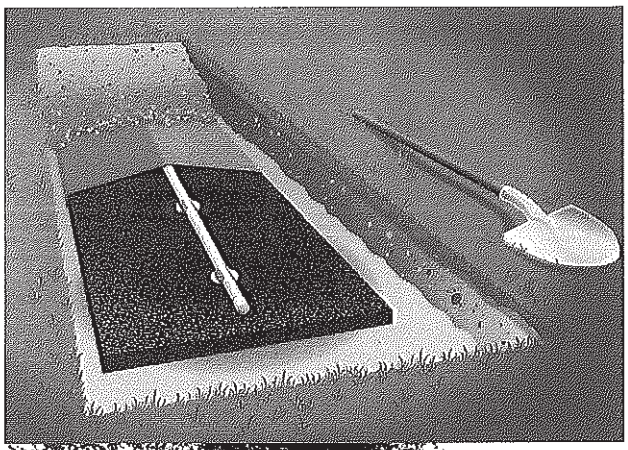
Geomat™ Leaching Systems

Wisconsin Manual

GeoMat lowers effluent strength and reduces drainfield size for about the same price as gravel, chambers or gravelless systems.

Now you can give your customers a downsized septic system without the added cost or hassle of pretreatment devices.

The GeoMat Leaching System (GLS) is a soil based treatment system. It is comprised of a core of fused, entangled plastic filaments with a geotextile fabric bonded on the top and bottom.



GeoMat is a stand-alone treatment for residential wastewater between 400 and 1,500 gallons per day.

In high-strength commercial effluent GeoMat can be used with SoilAir from Geomatrix or a pretreatment device.

GeoMat works in gravity, in-ground pressure, mounds, and at-grade systems

The narrow profile (1" high x 39" wide) the shallow burial depth and the uniform loading serves to maximize the oxygen transfer efficiency to the wastewater and the associated microbial community.

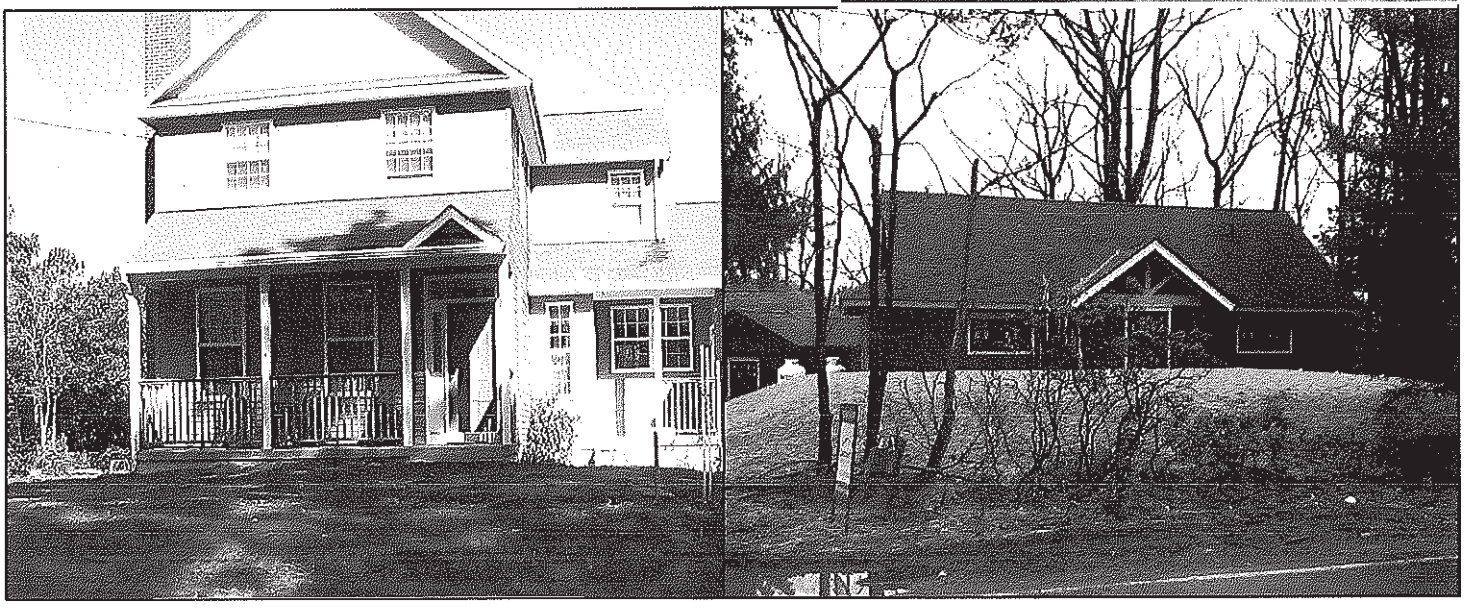
A 100' roll weighs 59 pounds. It only takes a few minutes to roll GeoMat out and insert the distribution pipe.

GeoMat is designed for maximum treatment of effluent and infiltration of wastewater into soil. Increased removal of pathogens, BOD and nutrients such as nitrogen and phosphorus.

The high level of oxygen in and adjacent to GLS serves to inhibit excess accumulations of biomat from developing and prematurely clogging GeoMat.

Wisconsin Approval: The State of Wisconsin has approved GeoMat Leaching Systems (GLS) as an alternative to pipe & stone. GLS qualifies for downsizing under Administrative Code SPS 383.44. SPS 383.44. (Table 2 and Table 3 are shown on Pages 13 & 14)

GeoMat (left) provides a lower profile than traditional mound (right)

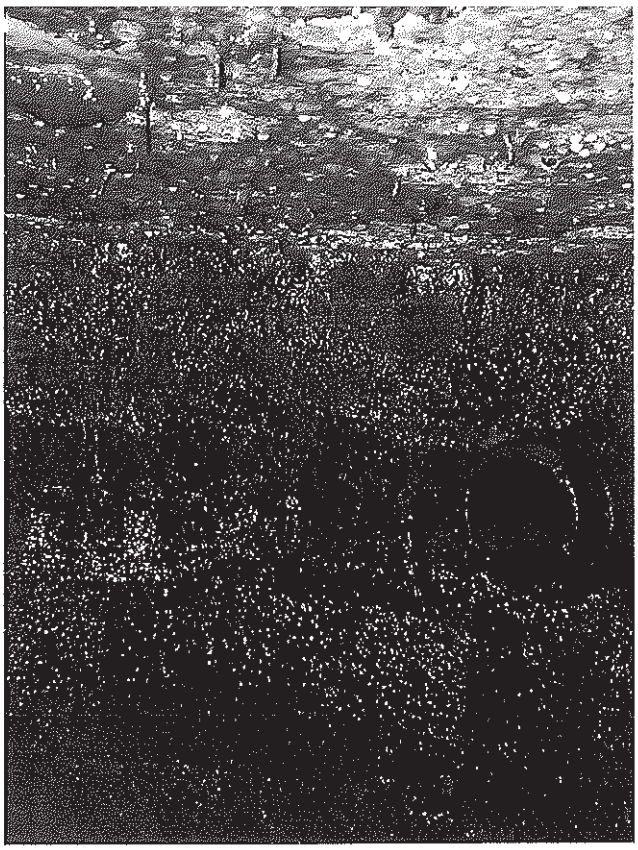


Geomat™ Leaching Systems

WISCONSIN MANUAL

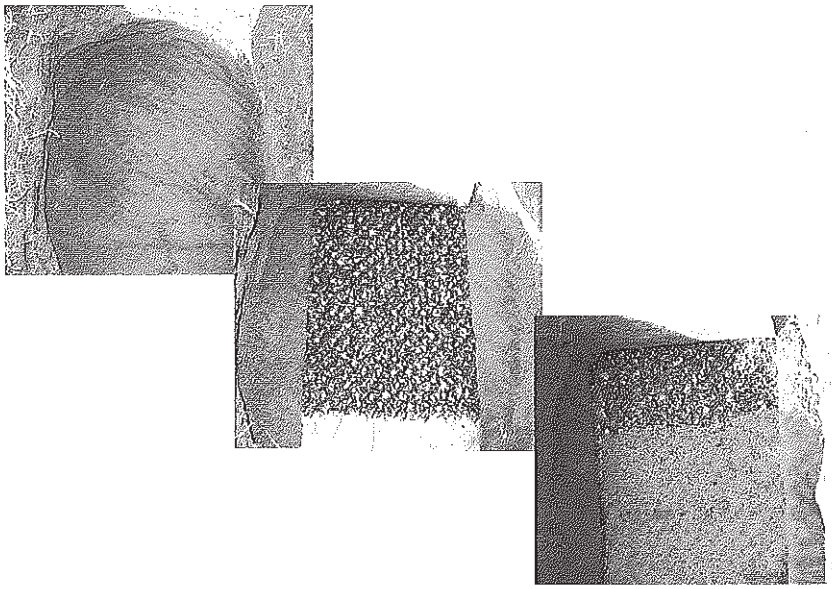
Index

Systems that store wastewater on the infiltrative surface buildup anaerobic biomat

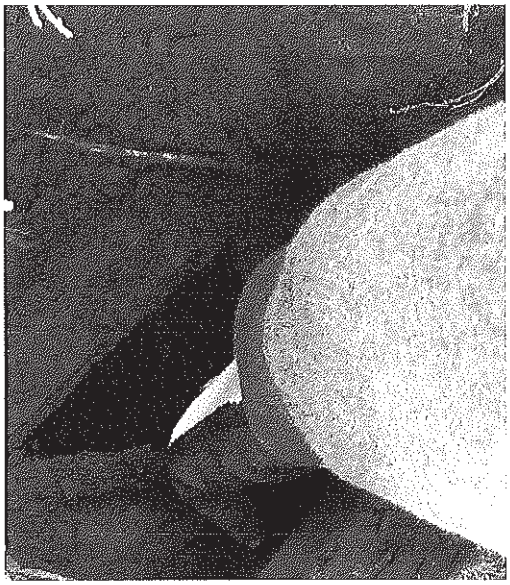


GeoMat maximizes oxygen transfer, minimizes storage of anaerobic water, enhances treatment and hydraulic capacity.

GeoMat after three years



GeoMat after nine years



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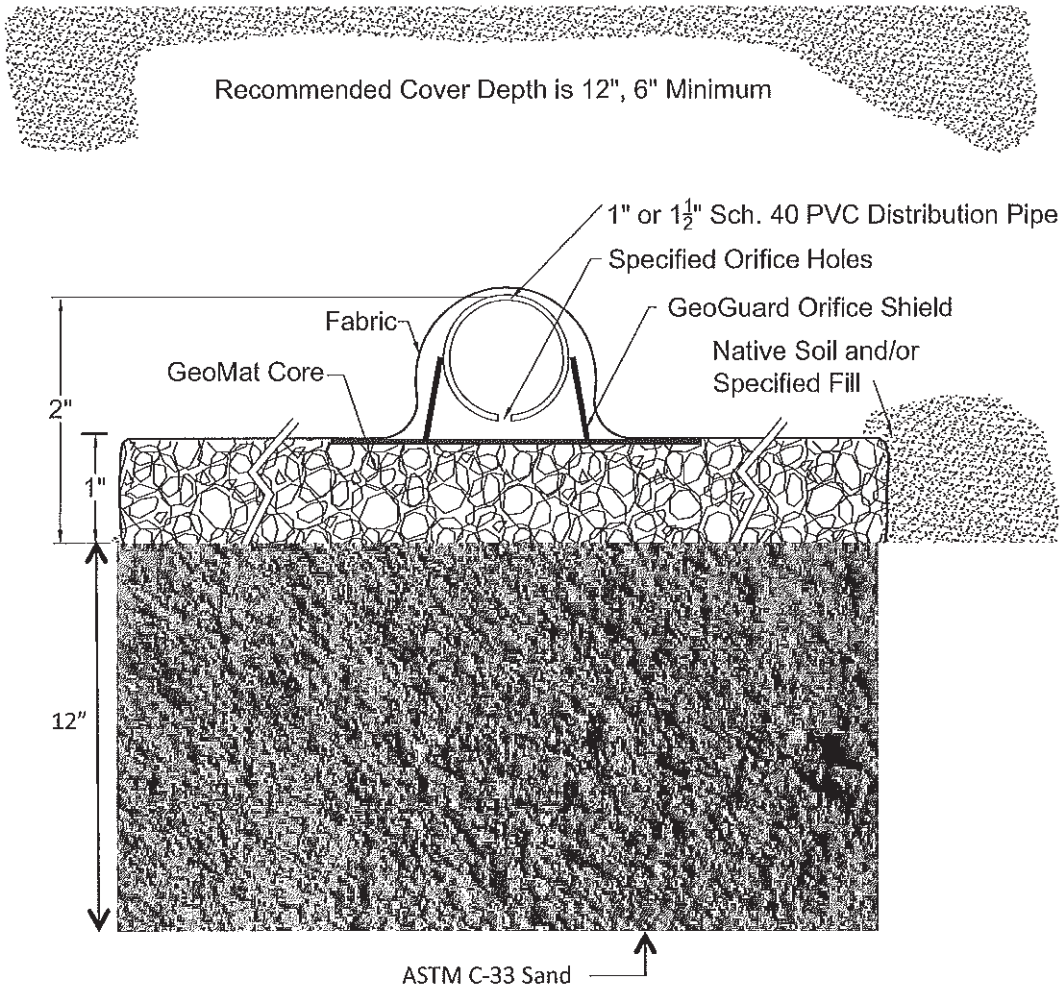
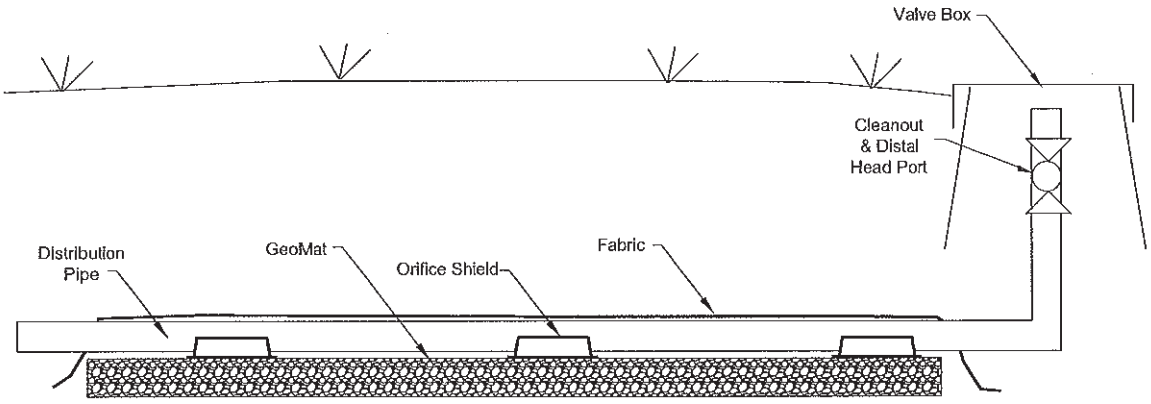
GeoMat Cross Section
Not To Scale



Longitudinal Cross Section



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System Performance

Pretreatment System Performance

"Once it has been established that a technology can provide the desired level of treatment, the next criterion to assess is the technology's reliability. In analyzing reliability, identify the part(s) of the system where things could go wrong. When one component of the system fails or breaks, will it alter or shut down the treatment process? In any system that is dosed with a pump, replacement when failure occurs is critical. For example, air flow is critical to the reliability of an aerobic system.

An aerobic treatment unit functions very well as long as it is getting air; however, when the air is turned off, the aerobic treatment unit becomes a septic tank very quickly. The design of a septic tank and an aerobic treatment unit are significantly different. Most aerobic treatment units can not function as conventional septic tanks, In this case, the failure of one aspect of the system causes the entire system to fail to meet its treatment objectives."

Above paragraph taken from Section 10 Pretreatment – University of Minnesota
The document can be viewed in its entirety at septic.umn.edu/prod/groups/cfans/@pub/@cfans/@ostp/documents/asset/..

GeoMat Performance

GLS is designed for maximum oxygen transfer. GLS has many similar benefits to drip irrigation(below) but it is significantly less complex and provides for massive surface area when compared to drip emitters.

GLS also shares similarities to to low pressure pipe systems; however, it is significantly easier to install and has a much lower profile.

GLS provides increased removal of pathogens, BOD and nutrients such as nitrogen and phosphorus. The high level of oxygen in and adjacent to GLS serves to inhibit excess accumulations of biomat from developing and prematurely clogging GeoMat.

Below. GeoMat provides more even distribution than drip

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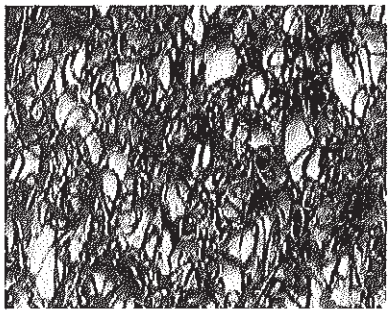
Gravity Flow Systems Installation

Figure 1



GeoMat 3900 Specifications

A. Physical Dimensions: 1" high x 39" wide.
   It comes in 100' rolls that weigh 59 pounds
B. GeoMat core is comprised of fused, entangled plastic filaments.
   The core is surrounded by geotextile fabric on the top and bottom. (Figure 1)

Gravity flow installation

Roll out GeoMat 3900 and cut for each zone. (Figure 2)

1. Install the 4" PVC lateral piping into the center of the GeoMat by feeding it from one end. (Figure 3)
2. GeoMat can be installed in a a single zone 39" wide trench with a 4-inch pipe running through the center. (Figure 3) There is no limitation on the length of the zone
3. GeoMat can also be installed in dual zone 78" wide trench with a 4-inch pipe running through the center of each zone. There is no limitation on the length of the zone.
4. Install a 4" PVC Sch. 40 Observation Well 10' from the end of the trench
5. Install a Soil Water Sampler at the beginning point of the trench. (See Pages 17, 18)
6. Backfill trench(es) with clean suitable cover material. (Uniform cover depth over the drain field results in consistent oxygen transfer to the entire system.) (Figure 4)
7. Cover material should be graded to prevent storm/water intrusion and allow for sheet flow away from the GeoMat system.
8. Seed distribution area immediately after installation to stabilize soil.

Figure 2

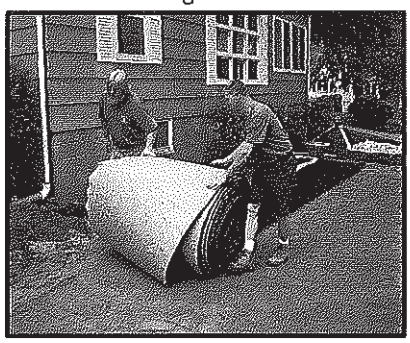


Figure 3

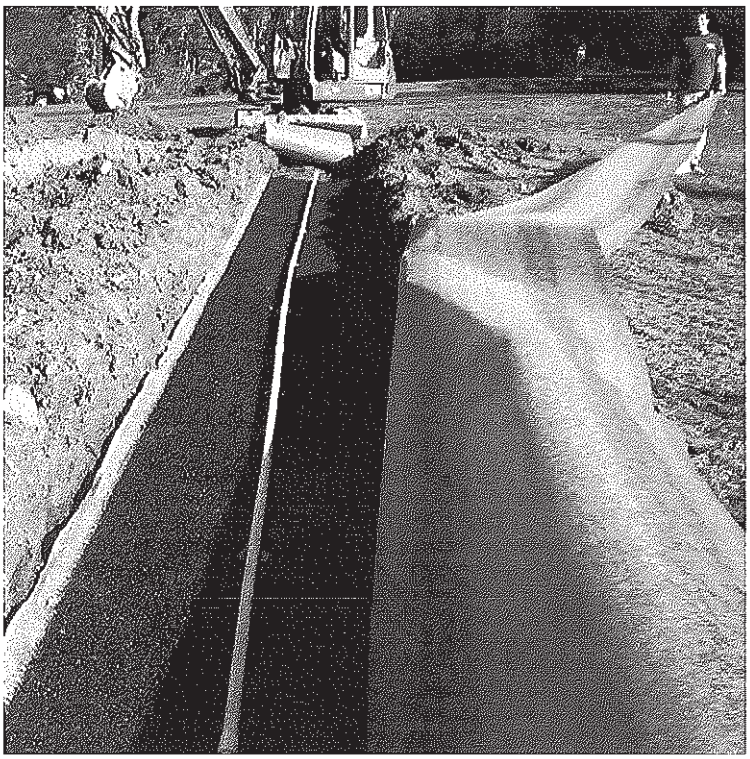


Figure 4

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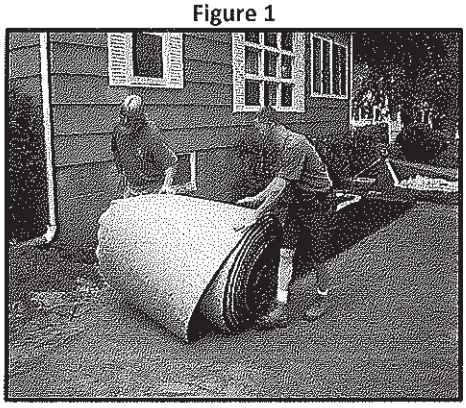
Pressure Distribution Specifications and Site Preparation

GeoMat 3900 Specifications

A. Physical Dimensions: 1" high x 39" wide.
It comes in 100' rolls that weigh 59 pounds (Figure 1)

B. GeoMat core (Figure 2) is comprised of fused, entangled plastic filaments.
The core is surrounded by geotextile fabric on the top and bottom. (Figure 2)

Figure 1



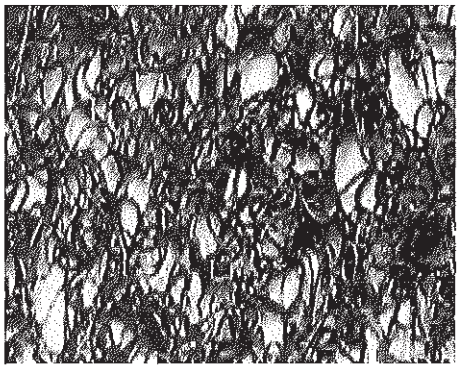
GeoMat 3900 Pressure System Layout

GeoMat is installed in a network of "Zones." (See Figure 3)

Zone Dimensions

Individual Zone Size	130 square feet
Maximum Length	40 feet (per zone)
Maximum Width	78 inches (Equals 2 GeoMat Zones placed side by side)
Orifice Diameter	3/16"
Orifice Spacing	4' on center

Figure 2



Zone Parameters

Each zone must be a minimum of 3 feet away from an adjacent single or dual zone.
Zones may be put in series or parallel arrangement or a combination of the two.

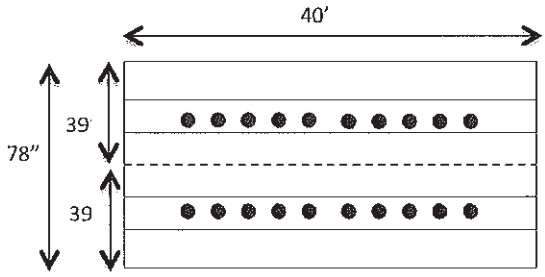
Pressure System Sizes

1 Zone System	130 square feet	Page 6
2 Zone System	260 square feet	Page 6
4 Zone System	520 square feet	Page 7
6 Zone System	780 square feet	Page 8
8 Zone System	1040 square feet	Page 9
10 Zone System	1300 square feet	Page 10
12 Zone System	1560 square feet	Page 11

Site Preparation

The area above and adjacent to any septic system should be protected from heavy vehicle traffic and excess weight loads before, during, and post construction.

Figure 3



Prior to construction, it is recommended the proposed septic system location be staked and flagged/fenced to prevent encroachment during construction. If vehicle encroachment is expected to be a problem after construction, barriers such as garden timbers, railroad ties, fences, walls, etc., should be used to protect the septic system area.

Do not install the system in wet conditions or in overly moist soil; this may cause smearing and compaction of the native soil horizon.

The soil between the dispersal trenches shall remain undisturbed when practical and not in a bed configuration. If the presence of boulders and/or other obstacles makes trench construction impractical, the entire leach field area may be excavated as necessary and backfilled with ASTM C-33 sand to design elevation.

A. Mark out the location of system components. Set stakes for location and elevation reference points. Ensure trees and shrubs are removed to prevent root intrusion.

B. Excavation depth must allow for 12" of ASTM C-33 sand below the GeoMat.

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Advantages of Pressure Dosing

Pressure dosing

Pressure dosing provides even distribution throughout the entire drainfield, increase the ability of the system to function better, longer. Time dosing meters the amount of effluent going to the drainfield over the course of a full day, rather than when the effluent is produced.

Pressure dosing with GeoMat Leaching Systems

GLS is designed for maximum oxygen transfer. The relatively narrow profile of GLS, the shallow burial depth and the uniform loading serves to maximize the oxygen transfer efficiency to the wastewater and the associated microbial community. This results in increased removal of pathogens, B.O.D. and nutrients such as nitrogen and phosphorus. The high level of oxygen in and adjacent to the GLS also serves to inhibit excess accumulations of biomat from developing and prematurely clogging the GLS. This further improves the long term acceptance rate of the leaching system.

GeoMat Leaching System Solutions

PROBLEM	The first major problem with time dosing is designing the correct system; correctly sizing the pump, making sure the laterals function, distributing evenly over the field.
SOLUTION	Geomatrix has complimentary software that makes designing either a demand dose or pressure dose system quick and accurate.
PROBLEM	The second major hassle is the time it takes to install a pressure dose system; measuring the pipe, drilling the holes in the laterals
SOLUTION	A portable (fits in any pickup or van) tool that measures and drills the orifice holes in the distribution pipe precisely where they need to be.
PROBLEM	Knowing the laterals are facing the right direction before backfilling.
SOLUTION	Custom orifice shields that are quick and easy to permanently glue over the holes, making sure the laterals are facing the correct way when you place the pipe inside GeoMat.
PROBLEM	Making sure pressure is equal throughout the laterals.
SOLUTION	Installation of Equalization/Throttle Valves on every GeoMat zone.
PROBLEM	Knowing the system is functioning properly years after installation
SOLUTION	Installation of a Soil Water Sampler on every GeoMat Leaching System

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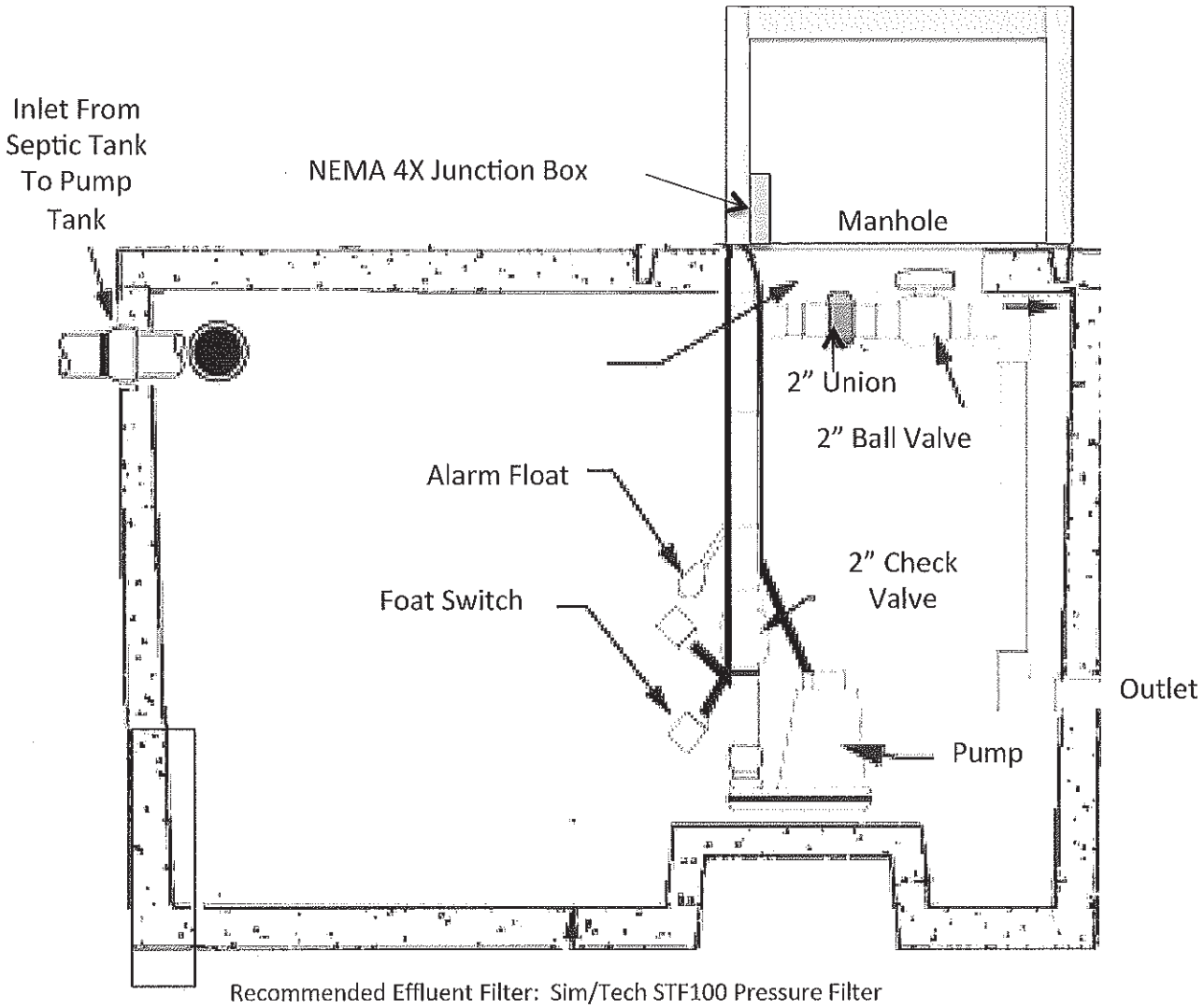
Pump Tank Components



Recommended Effluent Filter: Sim/Tech STF100 Pressure Filter

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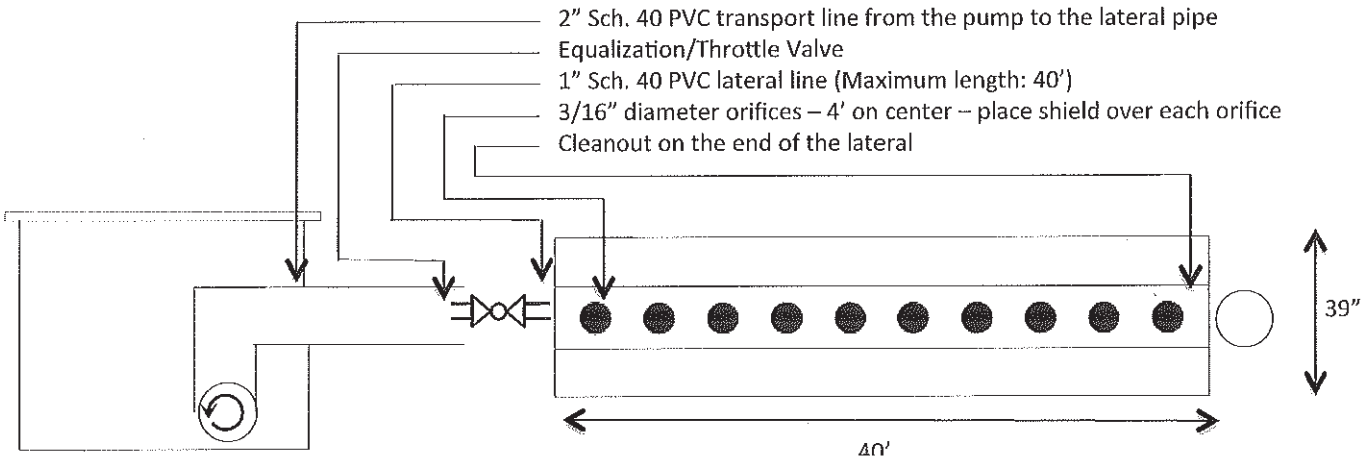
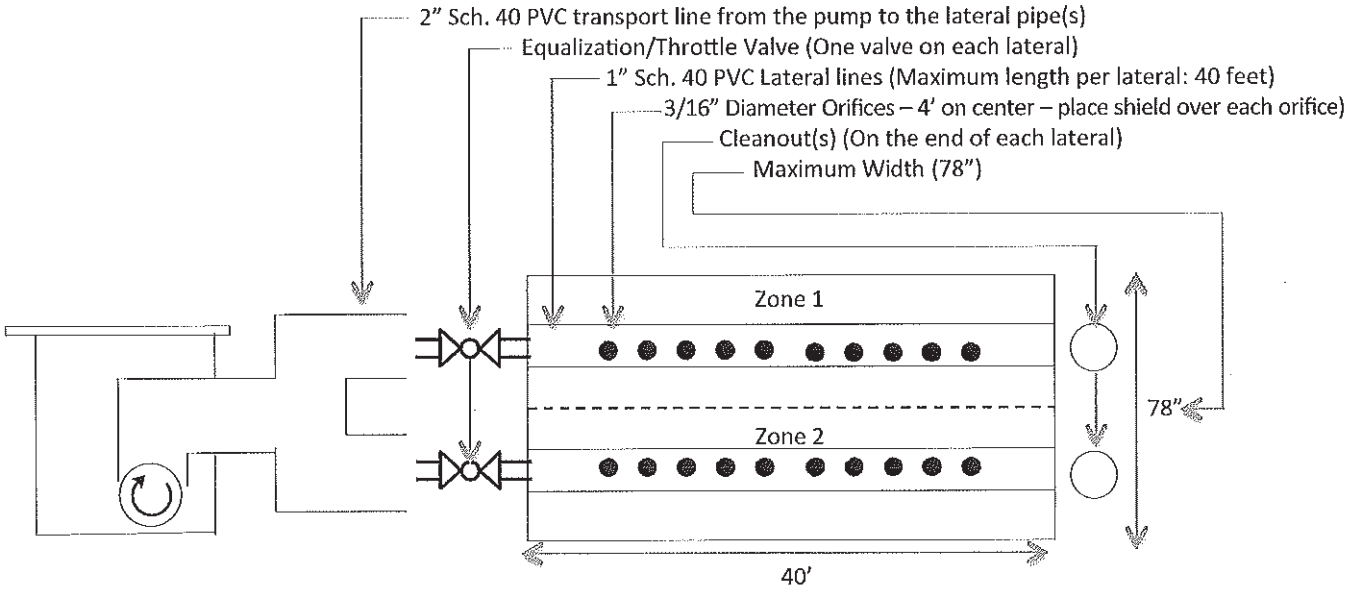
Pressure System Zone Layout

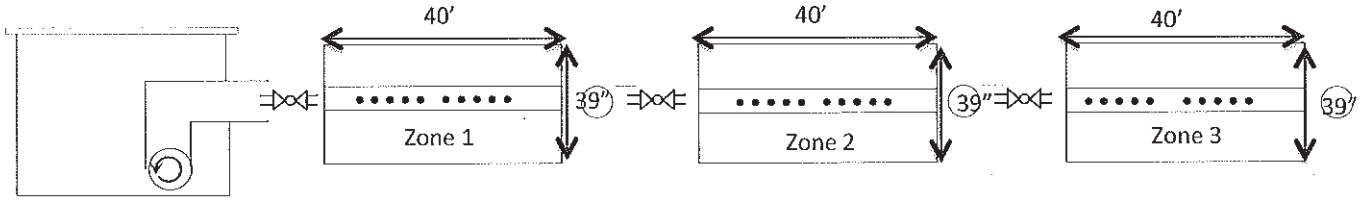
One Zone: 130 sq. ft.



2 Zones – 260 sq. ft.



3 Zones – 390 sq. ft.



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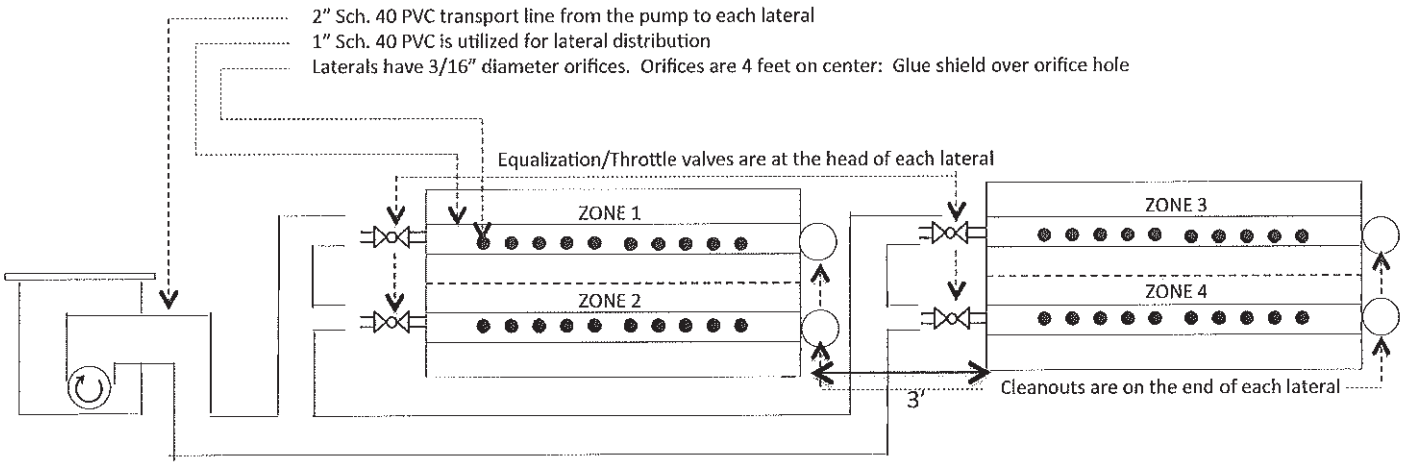
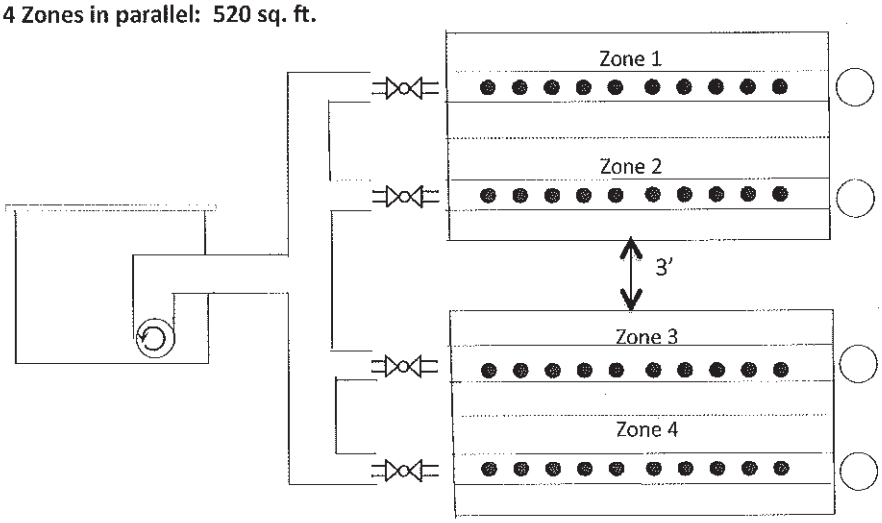
Pressure System Zone Layout

4 Zones in series: 520 sq. ft.



4 Zones in parallel: 520 sq. ft.



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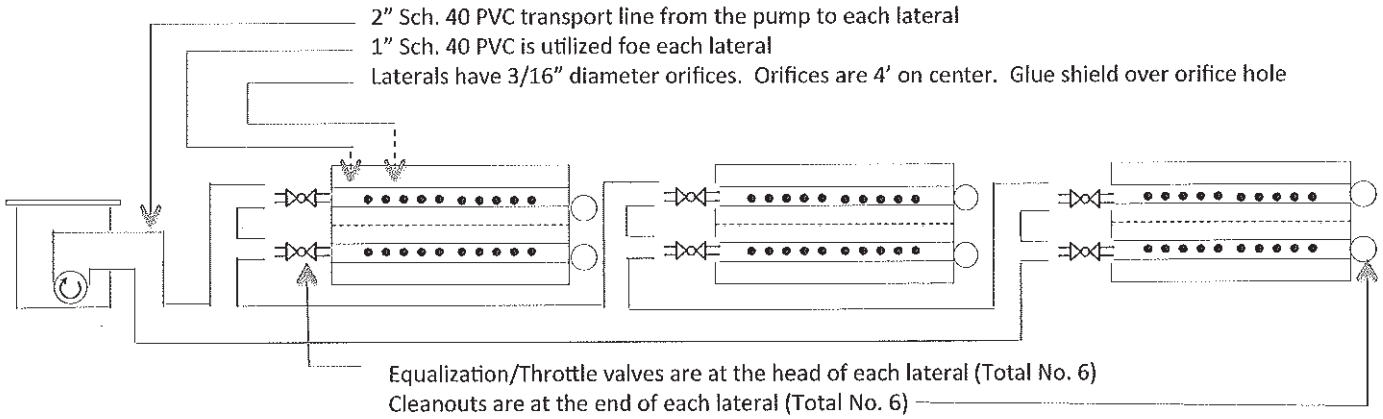
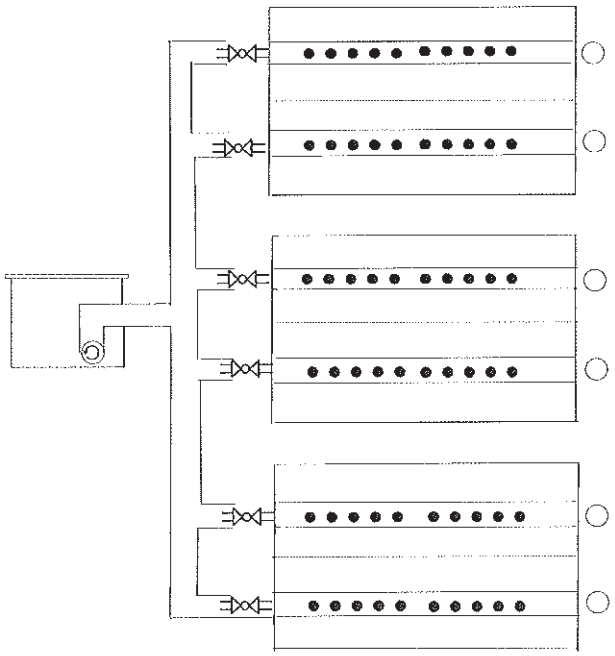
Pressure System Zone Layout

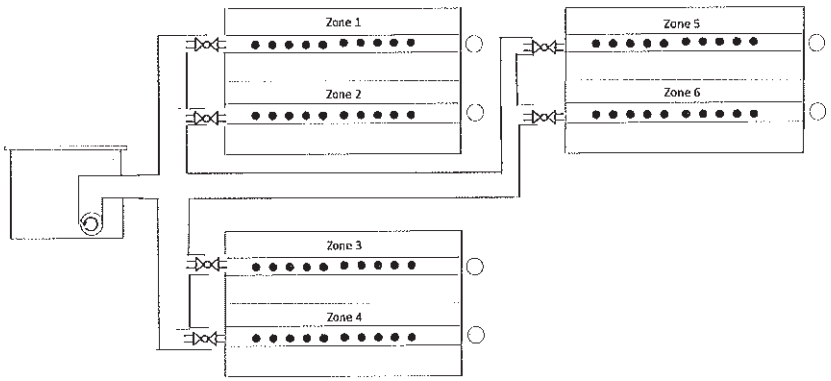
6 Zones in series: 780 sq. ft.



6 Zones in parallel: 780 sq. ft.



6 Zones in combination of series and parallel



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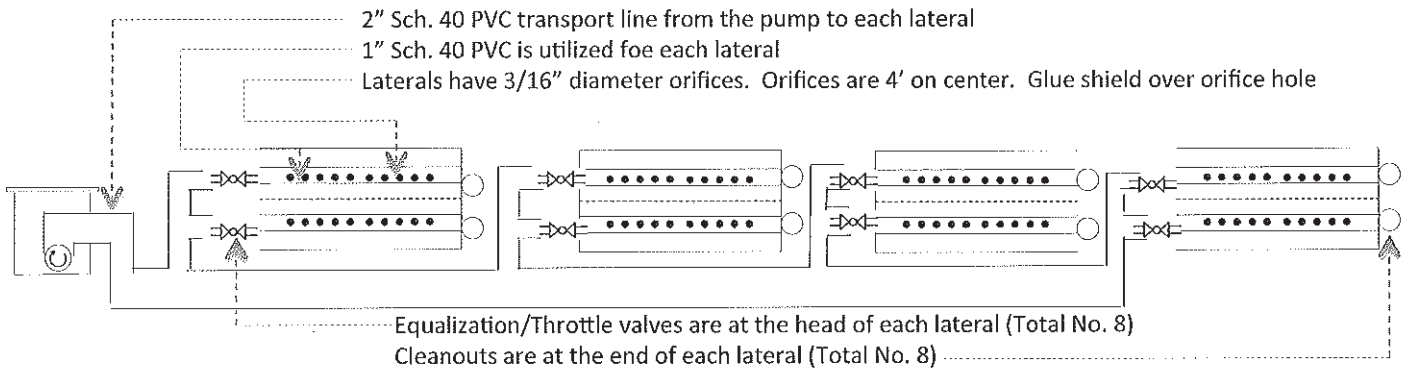
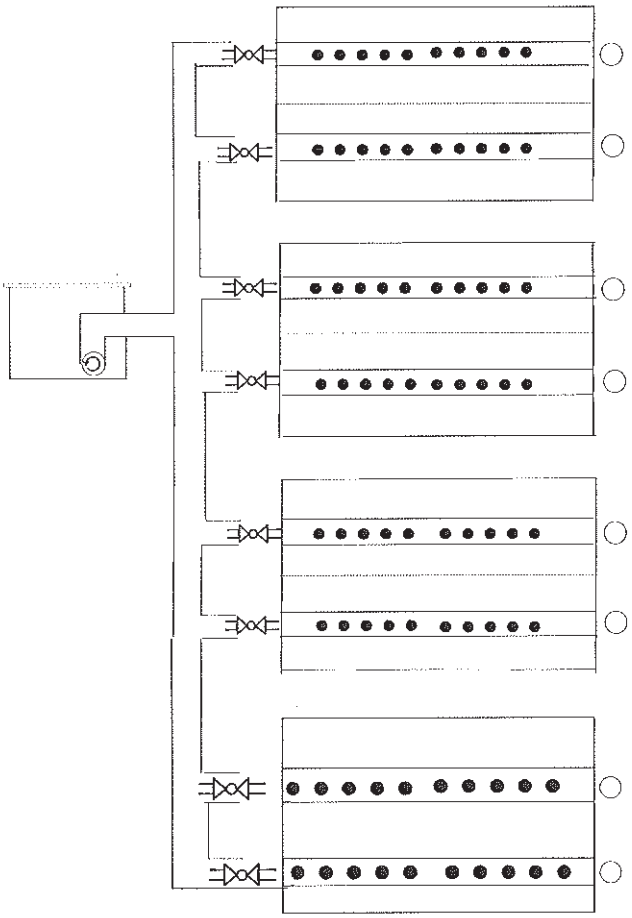
Pressure System Zone Layout

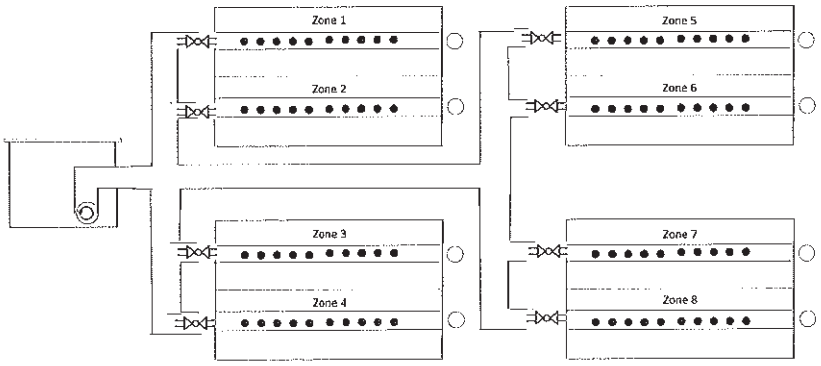
8 Zones in series: 1040 sq. ft.



8 Zones in parallel: 780 sq. ft.



8 Zones in combination of series and parallel



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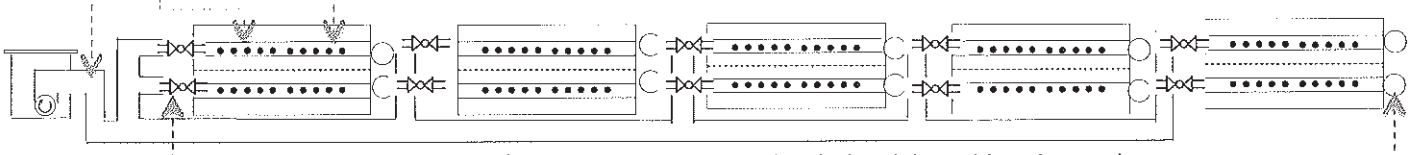
Pressure System Zone Layout

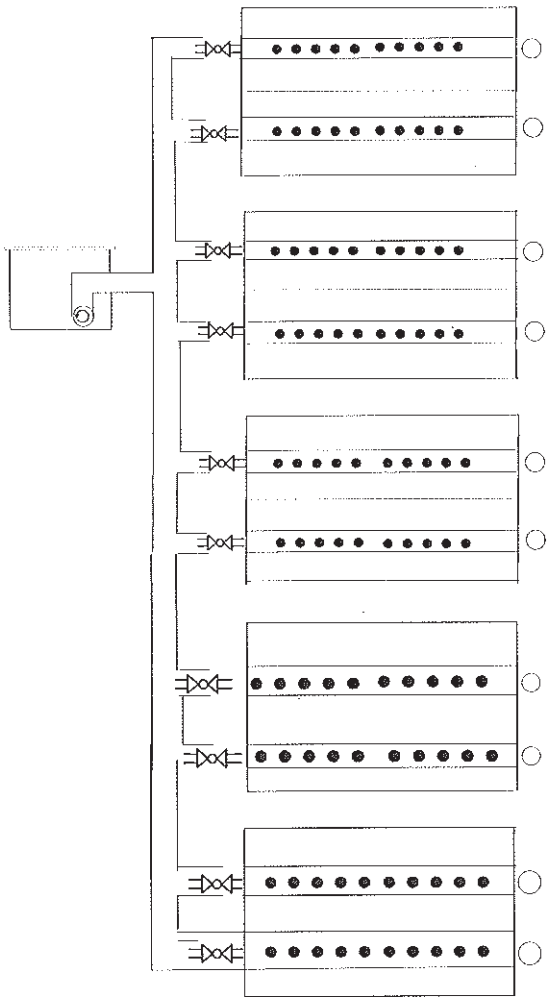
10 Zones in series: 1040 sq. ft.

2" Sch. 40 PVC transport line from the pump to each lateral
1" Sch. 40 PVC is utilized foe each lateral
Laterals have 3/16" diameter orifices. Orifices are 4' on center. Glue shield over orifice hole

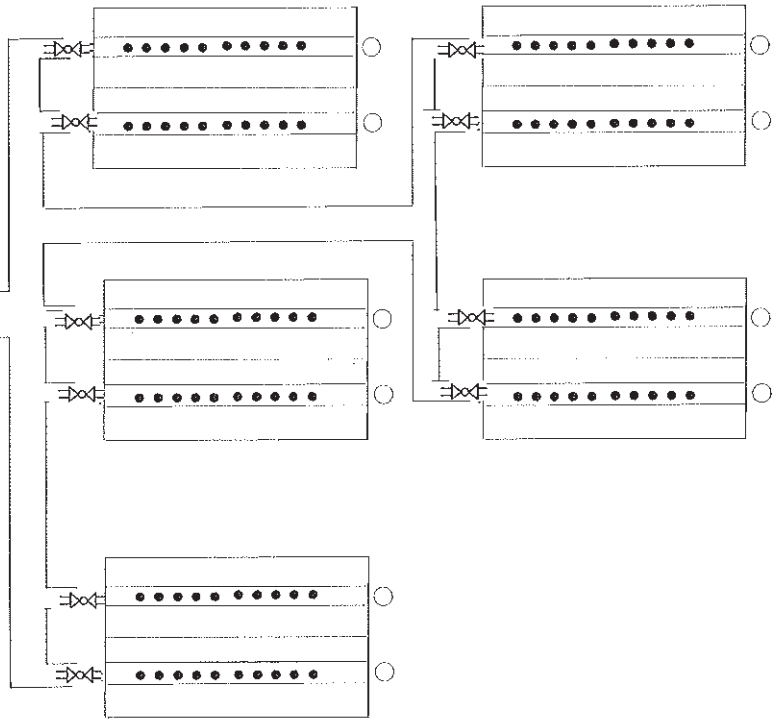


Equalization/Throttle valves are at the head of each lateral (Total No. 10)
Cleanouts are at the end of each lateral (Total No. 10)

10 Zones in parallel: 780 sq. ft.



10 Zone in combination of series and parallel



Geomat™ Leaching Systems

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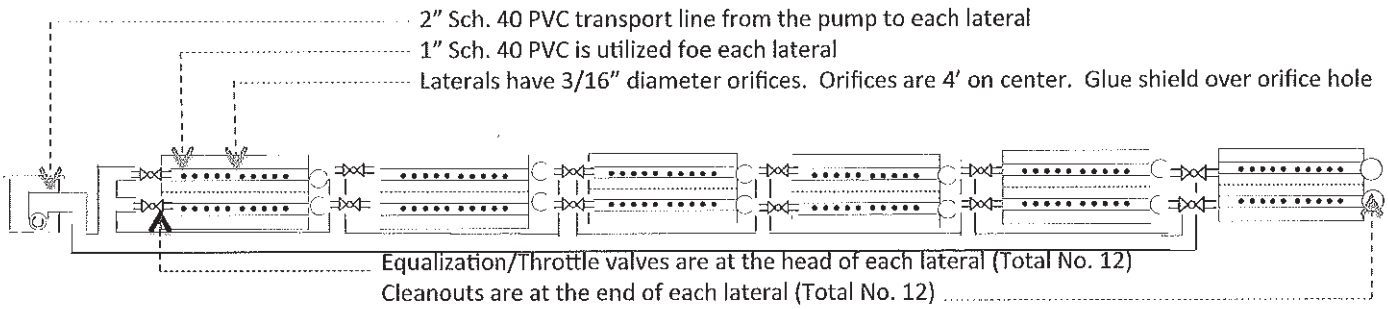
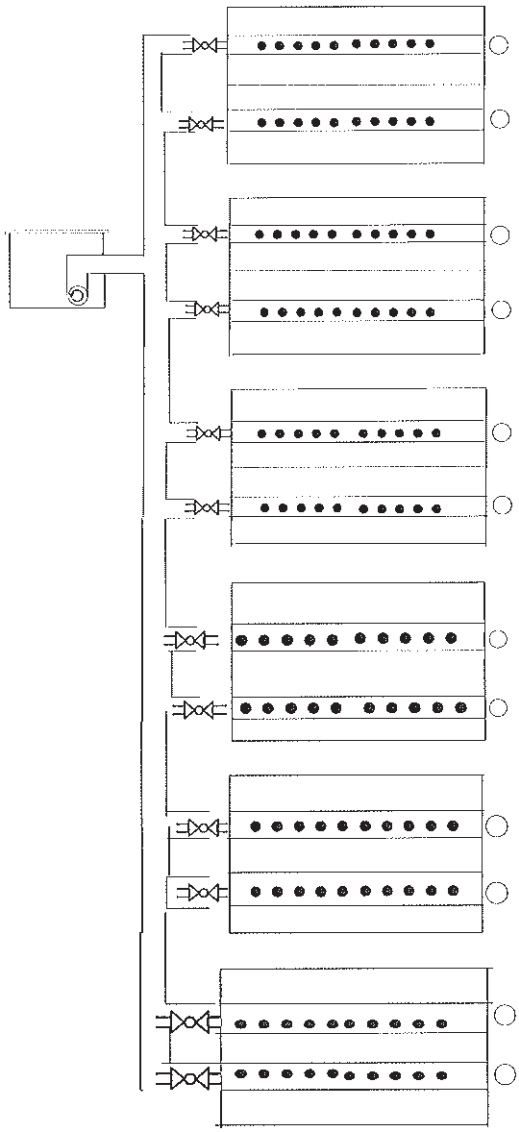
Pressure System Zone Layout

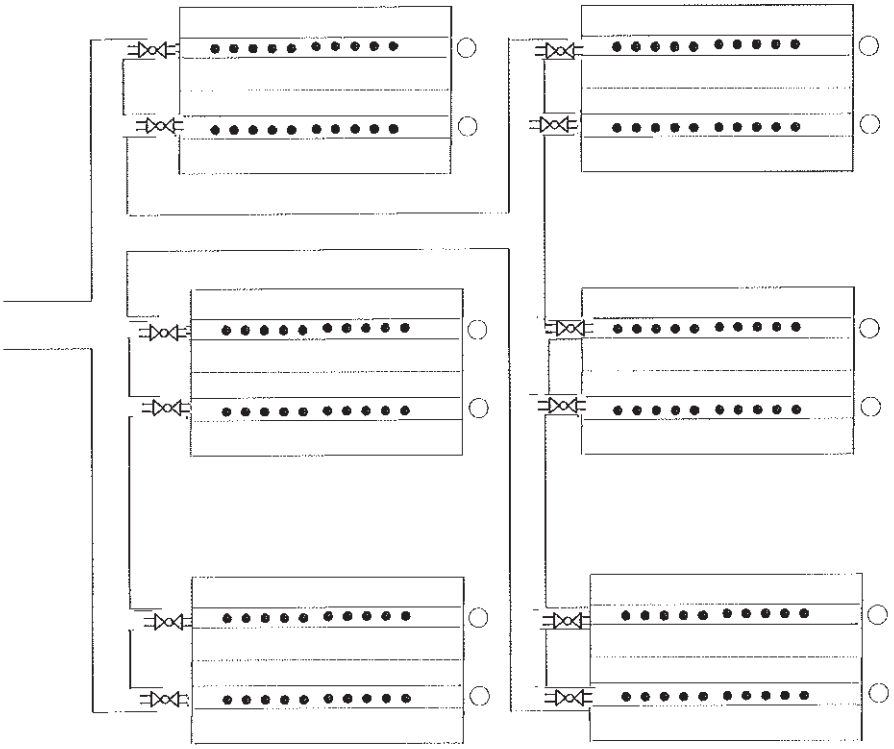
12 Zones in series: 1040 sq. ft.



12 Zones in parallel: 780 sq. ft.



12 Zones in combination of series and parallel



Geomat™ Leaching Systems

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Pressure System Installation

GEOMAT 3900 INSTALLATION INSTRUCTIONS

1. Install 2" Sch. 40 PVC pipe from the pump and install zone valve in the line.
2. Install 1" Equalization/Throttle valve at the head of each lateral. (Page 10)
3. Roll out GeoMat 3900 and cut for each zone. (Figure 11)
4. Install the 1" Sch. 40 PVC distribution piping into the center of the GeoMat by feeding it from one end.
   a. Ensure the flat side of the orifices is is facing down and lying flat on top of the geotextile fabric. (Figure 12)
   b. Glue the distribution pipe together using two-part solvent weld glue and Sch. 40 fittings.
   c. Piping should pitch back to the pump tank in a draining free manner to prevent freezing.
6. Install GeoMat distal port on the end of the row directly fed by the distribution manifold. (Figure 13)
   a. Distal port should ideally be 18" off the end of the mat.
   b. Distal end of the pipe should be raised slightly to allow effluent to drain from the distal head port back to the mat.
   c. Install distal port so the top of the distal port is just below grade.
   d. Install distal port valve box over distal port. (Figure 14)
7. Connect the distribution lateral pipe(s) to the manifold.
8. Install 4" Observation Well
9. Backfill trench(es) with clean suitable cover material. (Uniform cover depth over the drain field results in consistent oxygen transfer to the entire system.) (Figure 15)
10. Cover material should be graded to prevent storm/water intrusion and allow for sheet flow away from the GeoMat system.
11. Seed distribution area immediately after installation to stabilize soil.

Figure 10

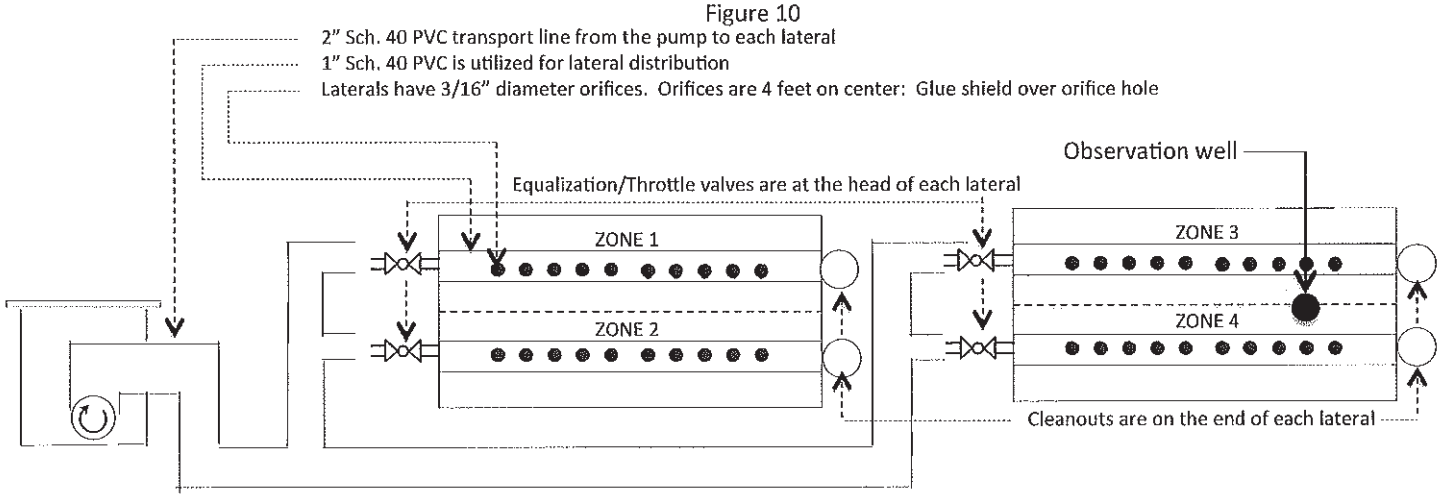

Figure 11

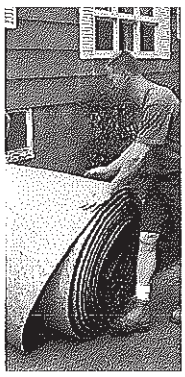

Figure 12

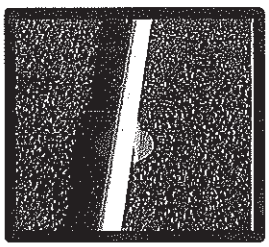

Figure 13

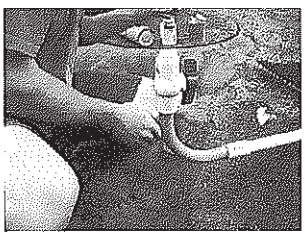

Figure 14

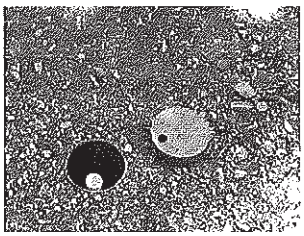

Figure 15

Geomat™ Leaching Systems

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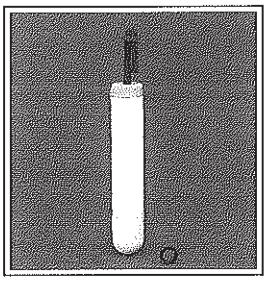
Soil Water Sampler Equipment

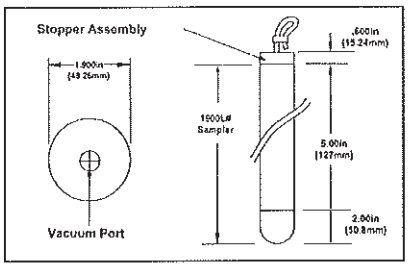
Every GeoMat Leaching System installation should include a Soil Water Sampler to verify code compliancy. Samplers allow the simple and convenient collection of soil water moving through the soil profile.

The SOILMOISTERE Model 1900L Near Surface Samplers are available at participating GeoMat Distributors.

1900L NEAR SURFACE SAMPLERS



1900L Near Surface Sampler



1900L Series Dimensions

This illustration shows the dimensional characteristics of the 1900 series, comes complete with stopper and sealing ring.

The 1900L Series of near surface samoling allows one to quickly pull and pore water sample from within 6in to 6ft with ease. It provides the most economical way to capture large volumes of pore water quickly. Simply auger a hole, provide a silica sand interface around the cup, place a bit of bentonite sealing compound above the cup insertion and back fill with a near surface bentonite seal. You can be sampling in less than an hour.

Selection Part Number	Part Selection Description
1900L06-B02M2	SOIL WATER SAMPLER, 6" LENGTH
1900L12-B02M2	SOIL WATER SAMPLER, 12" LENGTH
1900L24-B02M2	SOIL WATER SAMPLER, 24" LENGTH
1900L36-B02M2	SOIL WATER SAMPLER, 36" LENGTH
1900L48-B02M2	SOIL WATER SAMPLER, 48" LENGTH
1900L60-B02M2	SOIL WATER SAMPLER, 60" LENGTH
1900L72-B02M2	SOIL WATER SAMPLER, 72" LENGTH

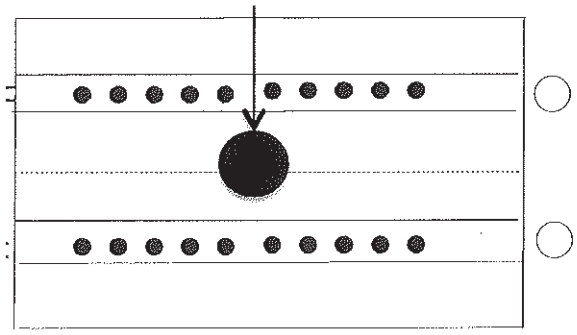
Geomat™ Leaching Systems

WISCONSIN MANUAL

Soil Water Sampler Equipment And Installation

Center the Sampler between two zones (Figure 1)
Core a 2" diameter hole to depth of 6" below the sand surface.

Figure 1: Sampler Location



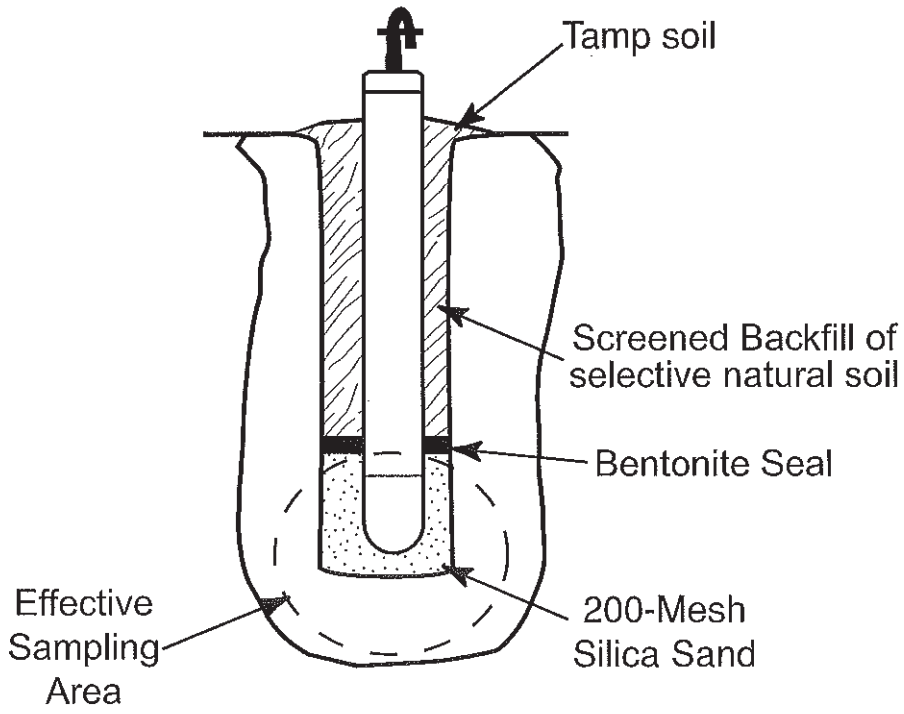
Special materials required: Silica flour, Bentonite Pellets
(Available at participating GeoMat Distributors)

Silica four is used to establish a pure, clean hydraulic contact and the surround hole soil. Approximately one pound of silica is needed for a 2" diameter hole. Mix the silica with water to produce a slurry with the consistency of cement mortar.

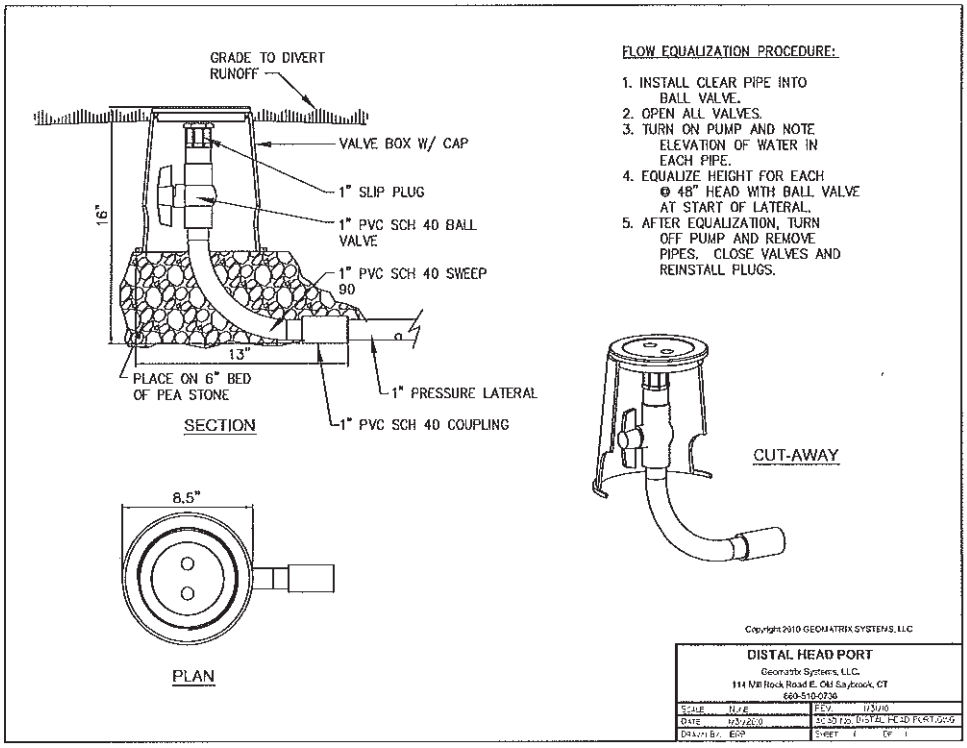
Core the hole to the desired depth, and pour in about 1/4 of the silica slurry. Insert the Soil Water Sampler and pour in the remainder of the slurry so t hat the slurry completely covers the ceramic cup.

Prior to backfilling, you want to seal off the sampling area from possible contamination or bias from above. To do this, add Bentonite pellets to a 2" level above the slurry allowing time for the Bentonite to absorb water from the slurry below. Backfill the hole with sifted soil (free of pebbles and rocks), tamping continuously with a metal rod to prevent surface water from channeling down the soil and the body tube of the Sampler. (Figure 2)

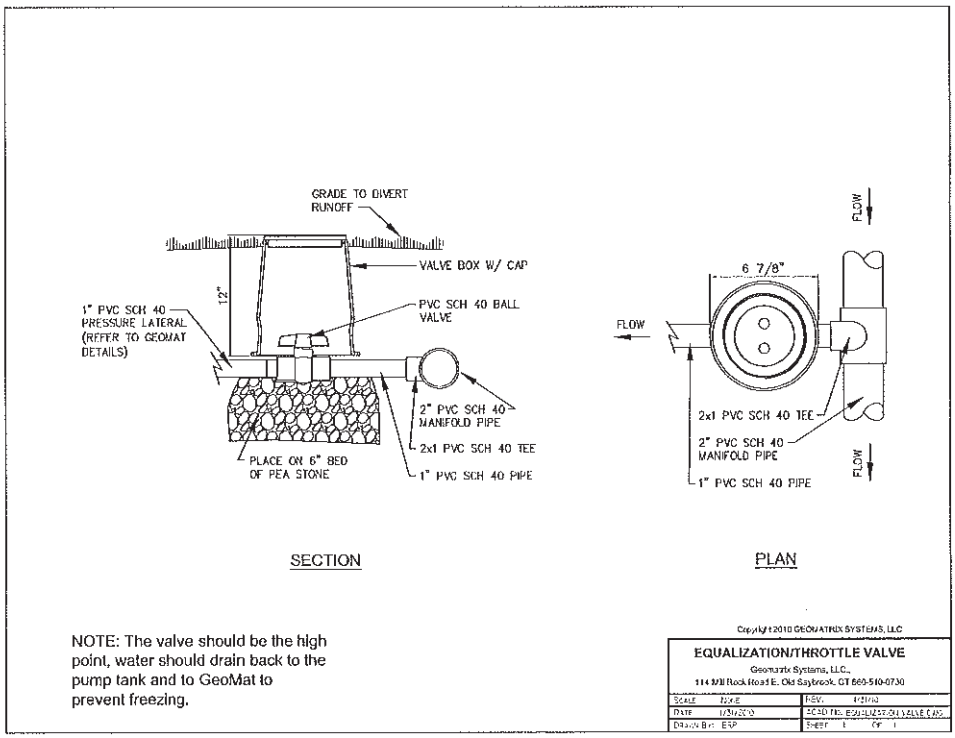
Figure 2



GeoMat Distal Head Port Detail



Equalization/Throttle Valve Detail



Geomat™ Leaching Systems

WISCONSIN MANUAL

What is BOD and TSS

Wastewater contains organic materials that are decomposed by microorganisms, which use oxygen in the process. The amount of oxygen consumed by these organisms in breaking down the waste is know as the biochemical oxygen demand or BOD.

BOD is the standard method for indirect measurement of the amount of organic pollution (that can be oxidized biologically) in a sample of water. BOD test procedure is based on the activities of bacteria and other aerobic microorganisms (microbes), which feed on organic matter in the presence of oxygen. The results of a BOD test indicates the amount of water-dissolved oxygen (expressed as parts per million or milligrams per liter of water) consumed by microbes incubated in darkness for five days at an ambient temperature of 20 degrees Celsius.

Higher the BOD, higher the amount of pollution in the test sample. For the contaminants that can not be oxidized biologically, chemical oxygen demand (COD) is used. Also called BOD5.

NSF STANDARD 40 BOD5 Test Results on GeoMat
Result: 3.2 Biochemical Oxygen Demand

"The five-day biochemical oxygen demand (BOD5) and five-day carbonaceous biochemical oxygen demand (CBOD5) analyses were completed using *Standard Methods* for the *Examination of Water and Wastewater* 21st edition.
The results of the analysis are shown in Figure 1."

Total Suspended Solids (TSS) is a water quality parameter used to test the quality of wastewater after treatment in a wastewater plant. It is listed as a conventional pollutant in the U.S. Clean Water Act.

"Over the course of the evaluation, NSF/ANSI Standard 40 states that the effluent TSS not exceed 45 mg/L on a 7-day average or 30/ mg/L on a 30-day average. Table III shows the 7- and 30-day total suspended solids averages. The 7-day average effluent TSS ranged from 7 to 26 mg/L and the 30-day average ranged from 8 to 20 mg/L during the test.

The GeoMat N40-450 met the requirements of NSF/ANSI Standard 40 for effluent TSS."

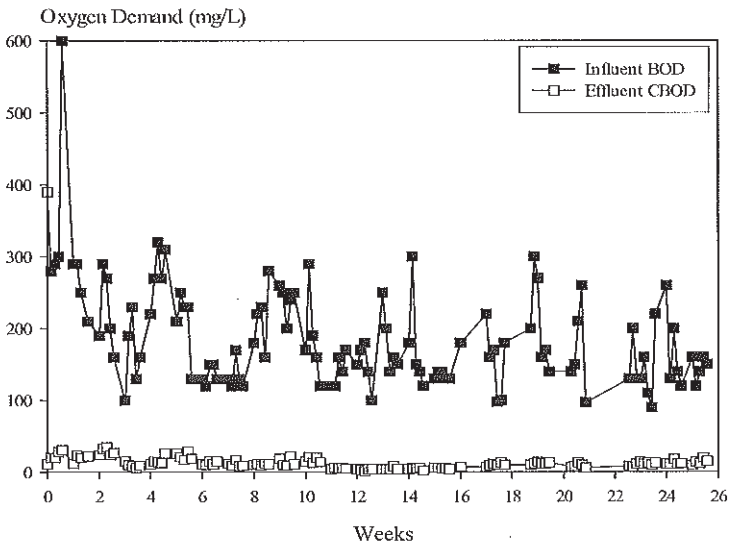


Figure 1. Biochemical Oxygen Demand

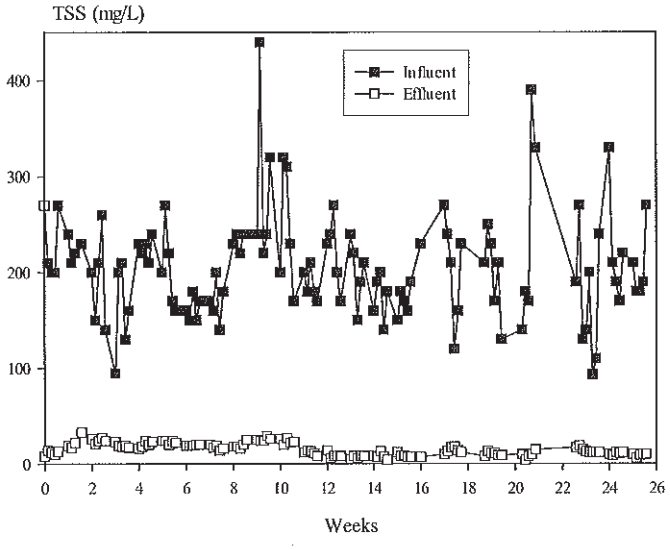


Figure 2. Total Suspended Solids

GeoMat 3900

f. The application rates specified under Table 383.44–1 shall only be recognized where the percolation results have been filed with the governmental unit before July 2, 1994.

2. Maximum soil application rates other than those specified in Tables 383.44–1 or 383.44–2 may be employed for the design of a POWTS treatment or dispersal component consisting in part of in situ soil if documentation is submitted and approved under s. SPS 383.22 and is based on soil permeability and evapotranspiration estimates correlated to specific soil characteristics described in a detailed morphological soil evaluation.

(b) The treatment capability of a POWTS treatment component consisting of unsaturated soil shall be limited to that specified in Table 383.44–3, unless otherwise approved by the department.

(c) The design of a treatment or dispersal component consisting in part of in situ soil shall reflect restrictive soil horizons that affect treatment or dispersal.

(5) EFFLUENT DISTRIBUTION. (a) 1. Except as provided in subd. 2., the distribution of effluent to a treatment or dispersal component shall be by means of pressure distribution as specified in Tables 383.44–2 and 383.44–3.

2. Pressure distribution is not required when rehabilitating an existing non–pressurized in situ soil treatment or dispersal component that is persistently ponded and that has at least 24 inches of unsaturated soil beneath the infiltrative surface of the component.

(b) Each dose of effluent by means of pressurized distribution into a treatment or dispersal component consisting in part of in situ soil may not be less than 5 times the void volume of the POWTS distribution laterals.

Table 383.44–1
Maximum Soil Application Rates Based Upon Percolation Rates

	Maximum Monthly Average	
Percolation Rate (minutes per inch)	BOD_5 > 30mg/L ≤ 220 mg/L TSS > 30 mg/L ≤ 150 mg/L (gals/sq ft/day)	BOD_5 ≤ 30 mg/L TSS ≤ 30 mg/L (gals/sq ft/day)
0 to less than 10	0.7	1.2
10 to less than 30	0.6	0.9
30 to less than 45	0.5	0.7
45 to less than 60	0.3	0.5
60 to 120	0.2	0.3
greater than 120	0.0	0.0

Note: > means greater than
≤ means less than or equal to

Table 383.44–2
Maximum Soil Application Rates Based Upon Morphological Soil Evaluation (in gals./sq. ft./day)

Soil Characteristics			Maximum Monthly Average			
Texture[d]	Structure[e]		BOD_5 >30 ≤220mg/L TSS >30 ≤150mg/L		BOD_5 ≤30 mg/L[c] TSS ≤30 mg/L[c]	
	Shape	Grade				
COS, S, LCOS, LS	----	0	0.7[a]	0.5[b,c]	1.6[a]	0.5[b]
FS, LFS	----	0	0.5		1.0	
VFS, LVFS	----	0	0.4		0.6	
COSL, SL	----	0M	0.2		0.6	
	PL	1	0.4		0.6	
		2, 3	0.0		0.2	
	PR, BK, GR	1	0.4		0.7	
		2, 3	0.6		1.0	
FSL, VFSL	----	0M	0.2		0.5	
	PL	2, 3	0.0		0.2	
	PL, PR, BK, GR	1	0.2		0.6	
	PR, BK, GR	2, 3	0.4		0.8	
L	----	0M	0.2		0.5	
	PL	2, 3	0.0		0.2	
	PL, PR, BK, GR	1	0.4		0.6	
	PR, BK, GR	2, 3	0.6		0.8	
SIL	----	0M	0.0		0.2	
	PL	2, 3	0.0		0.2	
	PL, PR, BK, GR	1	0.4[c]		0.6	
	PR, BK, GR	2, 3	0.6		0.8	
SI	----	---	0.0		0.0	

GeoMat 3900

Soil Characteristics			Maximum Monthly Average	
Texture[d]	Structure[e]		BOD_5 >30 ≤220mg/L TSS >30 ≤150mg/L	BOD_5 ≤30 mg/L[c] TSS ≤30 mg/L[c]
	Shape	Grade		
SCL, CL, SICL	----	0M	0.0	0.0
	PL	1, 2, 3	0.0	0.2
	PR, BK, GR	1	0.2	0.3
		2, 3	0.4	0.6
SC, C, SIC	----	0M	0.0	0.0
	PL	1, 2, 3	0.0	0.0
	PR, BK, GR	1	0.0	0.0
		2, 3	0.2	0.3

Note a: With ≤60% rock fragments
Note b: With >60 to <90% rock fragments
Note c: Requires pressure distribution under sub. (5) (a)

Note d:
COS – Coarse Sand
S–Sand
LCOS – Loamy Coarse Sand
LS – Loamy Sand
FS – Fine Sand
LFS – Loamy Fine Sand
VFS – Very Fine Sand
LVFS – Loamy Very Fine Sand
COSL – Coarse Sandy Loam
SL – Sandy Loam
FSL – Fine Sandy Loam
VFSL – Very Fine Sandy Loam
L – Loam
SIL – Silt Loam
SI – Silt
SCL – Sandy Clay Loam
CL – Clay Loam
SICL – Silty Clay Loam
SC – Sandy Clay
C – Clay
SIC – Silty Clay

Note e:
PL – Platy
PR – Prismatic
BK – Blocky
GR – Granular
M – Massive
0 – Structureless
1 – Weak
2 – Moderate
3 – Strong

Table 383.44–3

Minimum Depth of Unsaturated Soil for Treatment Purposes[a] (in inches)

Soil Characteristics	Influent Quality[e] and Percent Coarse Fragments					
Texture[d]	Fecal Coliform >10^4 cfu/100mL			Fecal Coliform ≤10^4 cfu/100mL[b]		
	≤35%	>35 to ≤60%	>60 to ≤90%[b,c]	≤35%	>35 to ≤60%	>60 to ≤90%[c]
COS, S, LCOS, LS	36	60	60	24	36	60
FS, VFS, LFS, LVFS	36			24		
COSL, SL	36			24		
FSL, VFSL	36			24		
L	36			24		
SIL	36			24		
SI	36			24		
SCL, CL, SICL	36			24		
SC, C, SIC	36			24		

Note a: Influent quality as per s. SPS 383.44 (2)
Note b: Requires pressure distribution under sub. (5) (a)
Note c: All coarse fragment voids must be filled with fine earth

Note d:
COS – Coarse Sand
S–Sand
LCOS – Loamy Coarse Sand
LS – Loamy Sand
FS – Fine Sand
LFS – Loamy Fine Sand
VFS – Very Fine Sand
LVFS – Loamy Very Fine Sand
COSL – Coarse Sandy Loam
SL – Sandy Loam
FSL – Fine Sandy Loam
VFSL – Very Fine Sandy Loam
L – Loam
SIL – Silt Loam
SI – Silt
SCL – Sandy Clay Loam
CL – Clay Loam
SICL – Silty Clay Loam
SC – Sandy Clay
C – Clay
SIC – Silty Clay

Note e: The values for fecal coliform are reported as a monthly geometric mean. The geometric mean shall be determined on the basis of measurements taken over 30 consecutive days, with at least 6 measurements occurring on 6 separate days.

(6) ORIENTATION. (a) 1. The infiltrative surface of a distribution cell within a POWTS treatment or dispersal component consisting in part of in situ soil and located in fill material above original grade shall be level.

2. The longest dimension of a POWTS treatment or dispersal component consisting in part of in situ soil shall be oriented along the surface contour of the component site location unless otherwise approved by the department.

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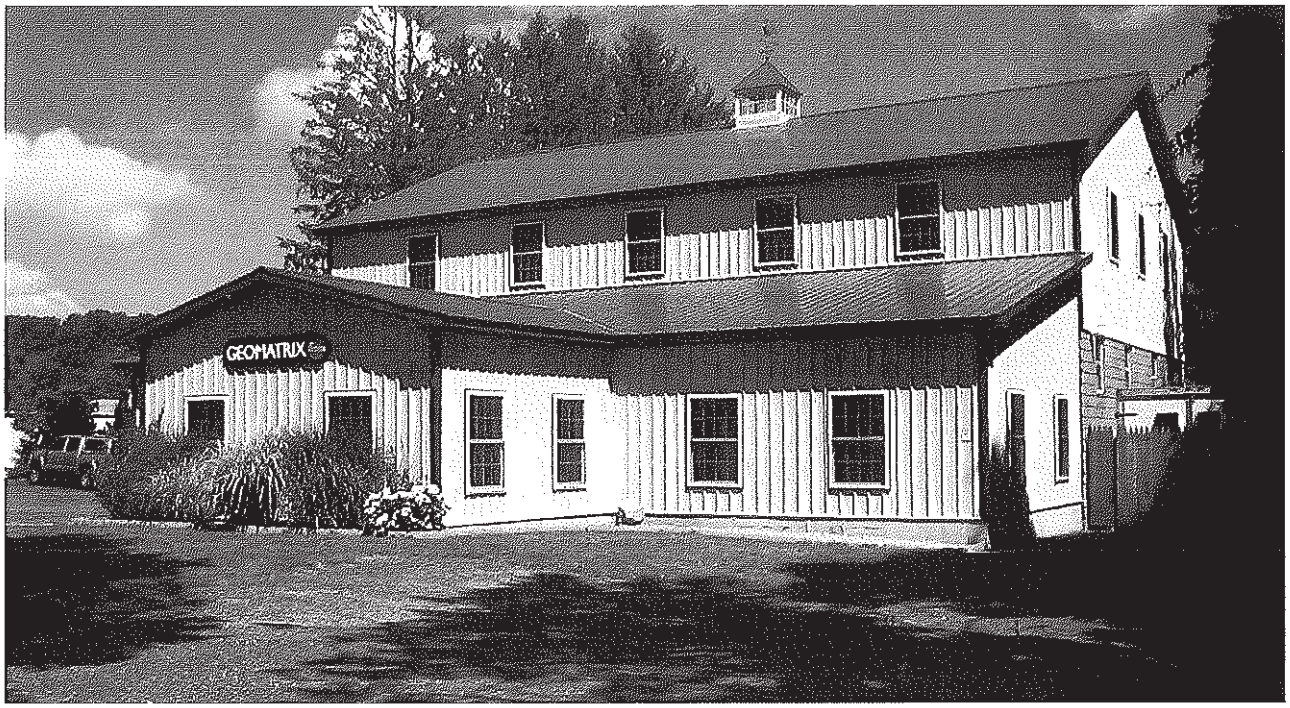
Since 1987, Geomatrix has engineered a wide variety of systems for soil and water treatment to help protect the environment. With a multi-disciplined team of Engineers and Scientists. Specializing in soils, wastewater treatment, microbiology, hydrogeology and construction management, Geomatrix is uniquely qualified to analyze your wastewater treatment problems.

Geomatrix facilities in Old Saybrook CT



Geomatrix BioSafety R&D Lab