GeoMat IN GROUND AND DOSING DISTRIBUTION COMPONENT DESIGN

March 2017

INSTRUCTIONS

This GeoMat Design Application (GMDA) was designed to meet most standard system designs for residential and small commercial systems up to seven bedrooms or a 1,500 gpd design

Persons familiar with in ground and dosing distribution system design will find this file very helpful. Even though all calculations should be correct and a code compliant, please check results to verify.

This file is protected and therefore the designer may not change formulas and may not enter or change data in most cells of the worksheet. Protected cells simply will not allow you to enter data. The best way to navigate about on a sheet is to use the tab key to jump to the next unprotected cell where data can be entered. Unprotected cells are either underlined with red or are a red box. You can use the mouse to click on red boxes to enter data too but don't forget to change old data when doing a new design. Tabbing to each cell ensures that you have considered each input.

Instructions are generally in blue font and warnings are in red. Most cells where data is entered have a red triangle in the corner of a cell. These are design comments that pop up when you put the mouse cursor on it. There are also a few drop down menus for certain inputs that have limits.

Printing should always be done using the print buttons on each page or the print entire project on the index page. Using your computer's print button will likely print many pages you don't need or want. You need to accept "macros" when the file first opens in order for the print buttons to work.

To "turn on" Dosing criteria, simply answer yes to the question, System Dosed on Data Entry pg. Answering yes or no will populate or unpopulate the dosing design criteria. Note, you as designer will need to enter Friction loss and GPM. This APP does not calculate this for you.

Also, this system may be installed shallow. There are several elevations that will need to be input from soil test or from field staking the site and shooting elevations. If you field stake the site, please show that on plot plan.

Every effort has been made to provide a file without any errors in calculations and design concepts. The user of the file assumes all responsibility for the design produced by this GMDA file.

GeoMat IN GROUND AND DOSING DISTRIBUTION COMPONENT DESIGN

Residential Application

INDEX AND TITLE PAGE

Owner Info

Project Name:

Owner's Name:

Owner's Address:

Property Info

Property Address:

Legal Description: S T N R

Township County:

Subdivision Name:

Lot Number: Block Number: CSM#:

Parcel I.D. Number:

Plan Transaction No.:

Index Pages

Date: 12/23/25

License Number:

Phone Number:

Signature:

Designer Stamp:

State of Wisconsin Approval Stamp:

Designed Pursuant to the

GeoMat In Ground Component Manual April 2019 Version

In Ground and Dosing Distribution Component Design

Design Worksheet

Site Information

R	Residential or Commercial Design	**N**	ISD Required?
400.00	Estimated Wastewater Flow (gpd)		
1.50	Peaking Factor (e.g. 1.5 = 150%)		
600.00	Design Flow (gpd)		
1.00	Site Slope (%)		
102.50	Prop. System Elevation (ft)		
46.00	Depth to Limiting Factor (in)		
1.00	In-situ Soil Application Rate (gpd/ft^2)		
103.93	Contour of original grade at downslope side of cell(ft)		
104.00	Installation Contour (ft) Enter value on Cross section Tab		
100.17	Limiting Factor Elevation (ft)		
0.00	Depth Below Grade		

Distribution Cell Information

3.25	Cell Width (ft)	**1**	Number of Cells
2.00	Dispersal Cell Design Loading Rate (gpd/ft^2)		
2	Influent Wastewater Quality (1 or 2)		

Distribution Information

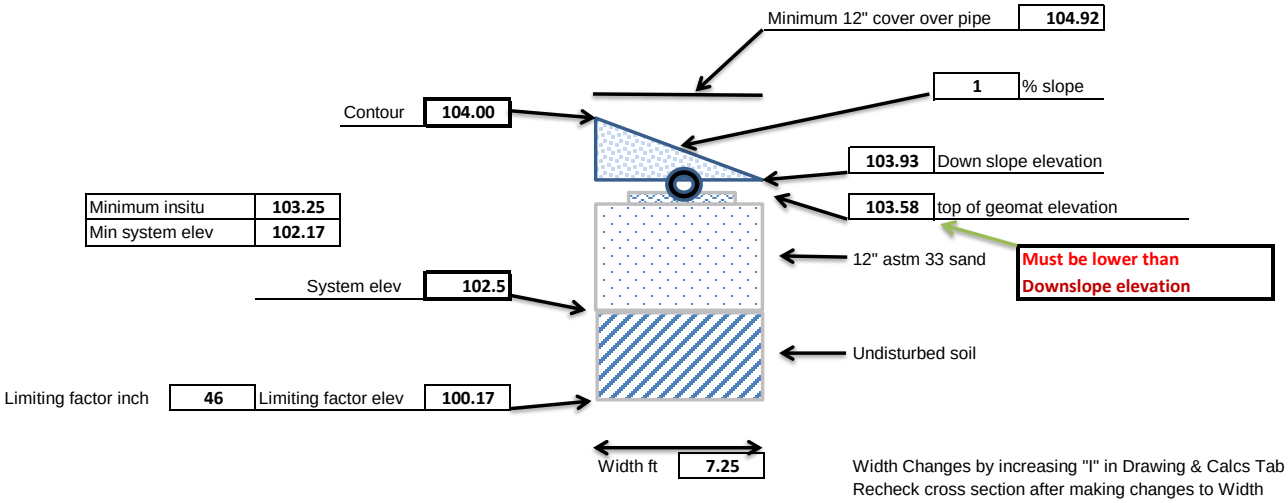
E	Center or End Manifold, Dist. Box or Drop Box		
1	Number of Laterals	System dosed	**N**
0.00	Lateral Spacing (ft)		

System not dosed

Manufacturer Information

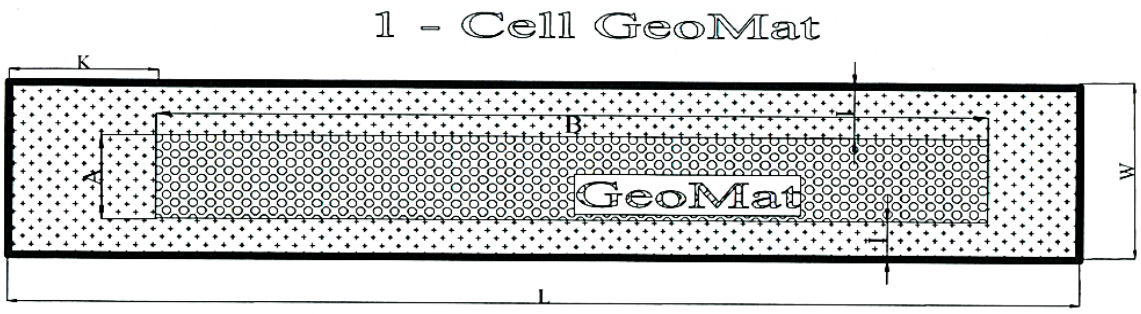
Treatment Tank Information		Effluent Filter Information	
1250.00	Septic Tank Capacity (gal)	Polylok Inc./Zabel	Filter Manufacturer
Wieser Concrete	Manufacturer	3014-525-1/16-10,000 GPD	Filter Model Number

Geomat Sloping site Cross Section View



Width Changes by increasing "I" in Drawing & Calcs Tab
Recheck cross section after making changes to Width

In Ground Plan View



Calculations

I	2.00	ft
K	1	ft
S	0.00	ft

A	3.25	ft
B	93	ft
L	95	ft
W	7.25	ft

Basal Area Required	600	ft^2
Basal Area Proposed	674.25	ft^2

!

Basal Area Calculation			
GPD	Loading Rate		
600	1		gal/sq ft/day
	Total	600	ft^2

GeoMat Dispersal Cell Basal Area Calculation			
GPD	Loading Rate		
600	2.00		gal/sq ft/day
	Total	300	ft^2
	Proposed	302.25	ft^2
GeoMat Width		3.25	ft

Number of Cells	1	

Cell Length	93.00	ft
Min. Cell Length	92.3	ft
Cell Spacing	0.00	ft

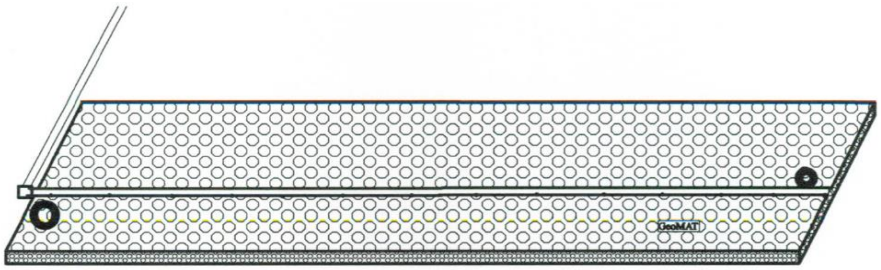
Lineal Feet of GeoMat Required	92.3	
Lineal Feet of GeoMat Proposed	93	

NOTE: Min S dimension = 1'

System Elevation	102.5	ft	
Limiting Factor	100.16667	ft	
Separation	2.3333333	ft	*2' Min*

Directions:
Play with cell length to get desired cell spacing, length and width. Remember system SHOULD be longer than it is wide. It must also Satisfy basal loading rate and GeoMat cell loading rate.

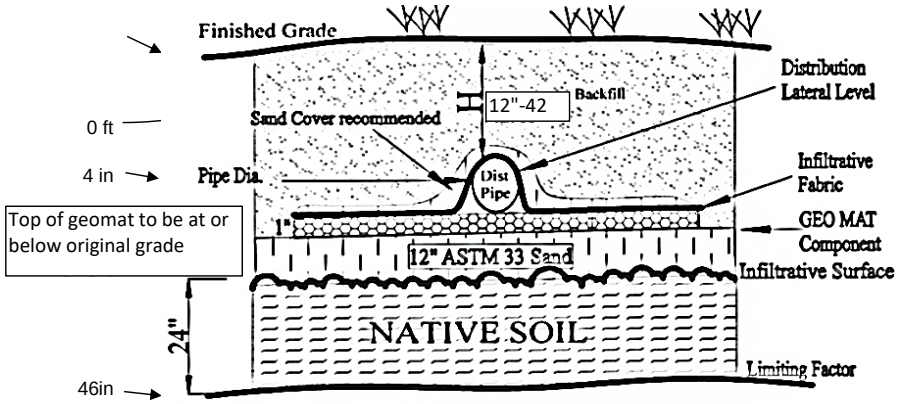
End Connection Lateral Layout Diagram



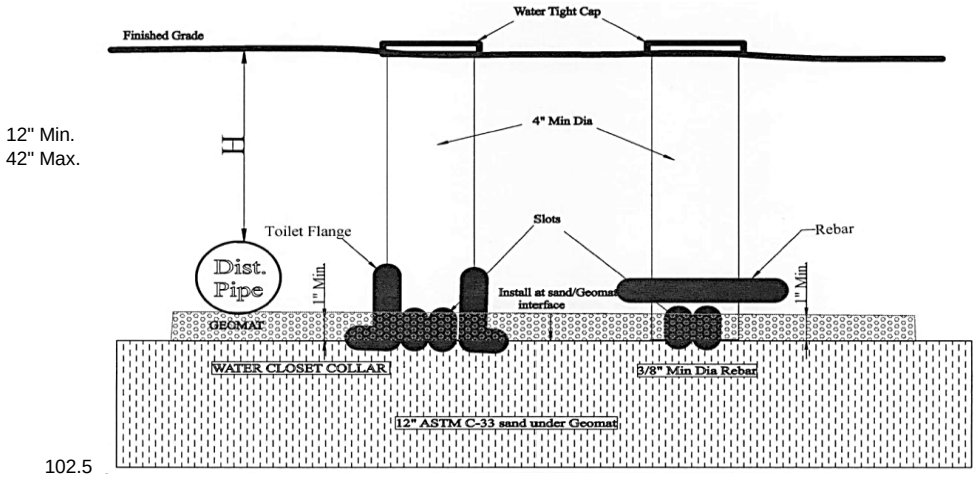
Hole spacing is every 12" , 1/2" hole at 4 & 8 O'clock, starting 4 O'clock 6" from end and 8 O'clock Holes at 12" from end.

Lateral Spacing 0.00 ft Pipe Diameter **4.00** in

Distribution Cell Cross Section



Observation Pipes



Notes/ Maintenance Requirements

MANAGEMENT PLAN

This private onsite wastewater (POWTS) has been designed, and is to be installed and maintained in accordance with SPS 383, Wis. Admin. Code, the in-Ground Soil Absorption Component Manual for Private Onsite Wastewater Treatment Systems Version 2.0 SPS-10705-P (N.01/01). GeoMat in ground Component manual April 2019 Version .

1. This POWTS has been designed to accommodate a maximum daily flow of 600.00 gallons of wastewater per day. The quality of influent discharge into the POWTS treatment or dispersal component shall be equal to or less than all of the following.

A monthly average of 30 mg/L fats, oil and grease
A monthly average of 220 mg/L BOD5
A monthly average of 150 mg/L TSS

Wastewater shall not discharge to the POWTS in quantities or qualities that exceed these limits or that result in exceeding the enforcement standards and preventative action limits specified in ch. NR 140Tables 1 & 2 at a point of standards application, except as provided in DSPS 383.03 (4), Wis Admin. Code.
2. The owner of this POWTS is responsible for system operation and maintenance.
3. Defects or malfunctions identified during maintenance described above shall be repaired in conformance with SPS383 Wis. Admin. Code, and the pertaining county Private Sewage Systems Ordinance. The user's manual, provided to the owner of the POWTS includes the names and telephone numbers of the properly licensed individuals to contact for such repairs.
5. No product for chemical or physical restoration or chemical or physical procedures for POWTS may be used unless approved by the Dept. of Commerce in accordance with SPS. 384, Wis. Admin. Code.
6. If the POWTS is replaced, or its use discontinued, it shall be abandoned in accordance with SPS 383.33, Wis. Admin. Code.

NOTES

Two Effluent Filters to be installed where possible 1 to be installed in ST, and or 1 in pump tank in order to insure particle size less than or equal to 1/8". Filters should be cleaned once in spring, and once in fall. Also, strainers in sinks in the building shall be maintained, so that solids and fats are minimized to flow into system.
A minimum of 2 observation pipes per cell shall be installed. These pipes shall be located approximately at the end of each cell.
The plumber, or county shall see to it that a copy of these plans including this page, maintenance folder, and maintenance agreement is given to the homeowner.
This system may contain a dose chamber. If a pump, float, electrical outage causes the dose tank to fill, the homeowner should see to it that the effluent level in the tank is brought down gradually and not all dosed to the system at once. One large dose could cause damage. Contact a pumper or your installer if this problem occurs.
The homeowner is responsible for formulating a water conservation plan that will ensure the system is rarely overloaded. I.E. spread laundry out over time, not 6 loads in 2 hours, while everybody showers, and uses the toilet, ETC.

CONTINGENCY PLAN FOR COMPONENT FAILURE

A. Septic Tank. Any structural failure resulting in cracks or leaks in the tank must be corrected by replacement of the septic tank component. Leaks in the joints between manhole risers or covers shall be repaired by replacing faulty seals with approved materials to make joints water-tight.
B. Outlet Filter. The outlet filter shall be replaced or repaired when it is either no longer capable of preventing the discharge of particles larger than 1/8 inch or when it has become permanently degraded by clogging so as to interfere with the design flow out of the septic tank.
C. Dosing chamber and pump. The dosing chamber shall be replaced if any structural failure is found. Leaks in joints between manhole risers or covers shall be repaired by replacing faulty seals with approved materials to make joints water-tight. The pump and controls shall be replaced when they are no longer capable of functioning according to the design plan.
D. Pressure Distribution Piping. Partial clogging of the distribution network may result in unduly long dosing cycles. The ends of the distribution laterals may be exposed and the threaded end caps removed. The piping can be disconnected on the outlet end of the pump. The distribution piping may then be back flushed to cleanse any accumulated matter from the piping. It is recommended that the dosing chamber then be pumped by a licensed plumber.
E. Soil Absorption Cell. The discharge of sewage or wastewater to the ground surface is strictly prohibited due to the human health hazard created by the effluent. All failures created by surface discharge shall immediately be reported to the appropriate county. The pump shall then be immediately disconnected to prevent further discharge to the ground surface via the soil absorption cell. The existing septic tank and dosing chamber shall be used as a temporary holding tank until the necessary repairs to the soil absorption cell can be achieved. The replacement shall be initiated only after any necessary plan approvals have been obtained from the appropriate plan review authority and the required sanitary permit is obtained from the county.

In Ground System Maintenance and Operation Specifications

Service Provider's Name	Robert Berceau	Phone	920-819-4100
POWTS Regulator's Name	Pierce County SPIA - Zoning Division	Phone	(715) 273-6747

System Flow and Load Parameters

Design Flow - Peak	600	gpd	Maximum Influent Particle Size	1/8	in
Estimated Flow - Average	400	gpd	Maximum BOD5	30	mg/L
Septic Tank Capacity	1250	gal	Maximum TSS	30	mg/L
Soil Absorption Component Size	302.25	ft^2	Maximum FOG	10	mg/L
Type of Wastewater	Domestic		Maximum Fecal Coliform	10E4	cfu/100 mL

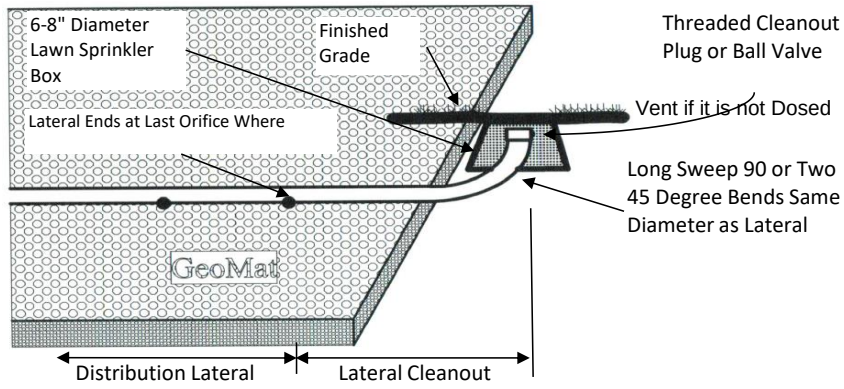
Service Frequency

Septic and Pump Tank	Inspect and/or service once every 3 years
Effluent Filter	Inspect and clean as necessary at least once every 3 years
Pump and Controls	Test once every 3 years
Alarm	Should test periodically
Pressure System	Laterals should be flushed and pressure tested every 3 years
In Ground	Inspect for ponding and seepage once every 3 years

Miscellaneous Construction and Materials Standards

1. Observation pipes are slotted and materials conform to Table SPS 384.30-1, have a watertight cap and are secured in as shown in the GeoMat In Ground Component Manual Ver. April 2019.
2. Dispersal cell media conforms to GeoMat products approved for use with the GeoMat In Ground Component Manual Ver April 2019. Media is covered with an approved geotextile fabric.
3. All gravity and pressure piping materials conform to the requirements in SPS 384, Wis. Adm. Code.
4. Scarification of basal area is accomplished with a rake or other tool.
5. All disturbed areas will be seeded and mulched to prevent soil erosion and help reduce frost penetration.

Lateral Turn-up Detail



102.5 Feet

GeoMat Distribution Cell Media Layout

3.25	Cell Width (ft)	2.63	Sidewall to Lateral (ft)

Distribution Cell Cross-section Arrangements

Component Legend

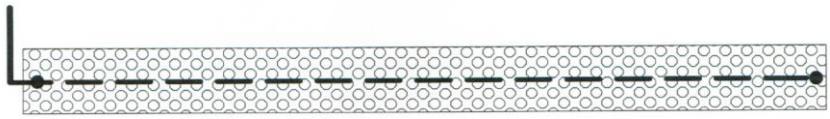
- Distribution Pipe

GeoMat is covered with approved geotextile fabric as per the their product approval.

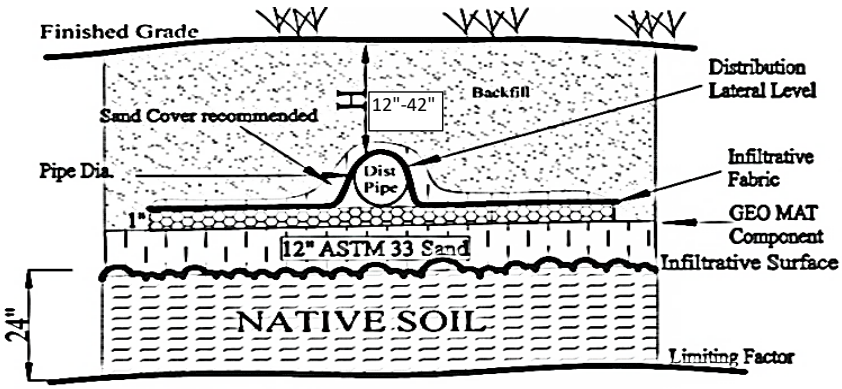
Distribution Cell Plan View Layout - Typical

3.25	Cell Width - A (ft)	93.00	Cell Length - B (ft)

End Connection Lateral Layout Diagram



Typical Dispersal Cell



See details on page 4 for number, size, and spacing of laterals.