

Memorandum

Date: March 29, 2020

To: Users of 2020 revised GeoMat Design Manual

From: Douglas F. Canody, PE – Technical Services Engineer – VDH-OEHS

Subject: Key Points for Understanding and Putting the 2020 GeoMat Design Manual Revisions into Context

The design manual for the GeoMat approved in March, 2016 addressed the use of the GeoMat system as a TL-2 treatment system.

The design manual revised in March, 2020 addresses the use of the GeoMat system in 3 additional purposes / configurations. Instructions for design for all 4 potential uses are addressed in this Design Manual. The following is offered as an attempt to clarify the context and promote the understanding of the design manual revisions that effectively expand the potential uses and accessibility of the GeoMat system to system Designers. The intended audience of this memo are VDH personnel charged with reviewing and approving applications that propose to use the GeoMat system. However others may find it useful as well.

This memorandum should not be interpreted as an endorsement of this product for any specific application. It is simply another tool that may be available as a solution in certain circumstances. Question, comments or concerns regarding the regulatory aspects of reviewing and approving the GeoMat system should be directed to the Technical Services Staff of VDH-OEHS. Generally speaking, technical questions from the Designer community should be directed to an authorized GeoMatrix representative.

The 2020 GeoMat Manual provides information on using the GeoMat product in 4 configurations:

- As a TL-2 treatment unit;
- As a dispersal system only;
- For nitrogen reduction when pressure distribution is used
- For vertical separation to a limiting feature

The GeoMat System is comprised of the GeoMat supplied distribution piping, the GeoMat (core) membrane, and six inch system sand layer below the membrane. Key features of each use are noted here

Use as a TL-2 Treatment Unit:

GeoMat was tested at NSF and certified to the NSF 40 criteria. They have since dropped the listing with NSF, but Virginia still recognizes Geo-Mat for TL-2 General Approval based on the previous listing.

When used for TL-2 treatment, the system includes a six inch system sand base, the GeoMat membrane, and the distribution piping on the top of the membrane. When measuring vertical separation to a limiting feature, the distance must be measured from the system base. Regardless of the depth of sand provided under the core, the base (measurement point) is considered to be at the 6-inch depth of the sand beneath the core. It is at this point that the system effluent is considered to meet TL-2 standards.

Use as a dispersal system only:

When a TL-2 or TL-3 treatment unit is provided upstream of the dispersal field that produces an effluent that satisfies the site requirement, the GeoMat system may be used as a dispersal system only. When used for dispersal only, Geomatrix Systems, LLC, the manufacturer has stated that the GeoMat system (distribution piping, GeoMat core (membrane) and 6-inch depth of system sand) must be installed. For gravity dispersal systems (trenches or pads) the GeoMat specified loading rates in Table 1 on Page 6 must be used regardless of whether the upstream treatment unit meets TL-2 or TL-3 effluent criteria.

Use for Nitrogen Reduction when pressure distribution is used:

This is a subset of using GeoMat for dispersal so a TL-2 or TL-3 treatment must precede the GeoMat system. To achieve a net 50% total nitrogen reduction credit the Geomat system shall be pressure dosed. When all criteria in GMP 2013-01 regarding best management practices for pressure dosed systems are met, a nitrogen reduction credit can be applied to the design for the soil BMP. If a net 50% N reduction is required for the site, then the treatment unit upstream of the GeoMat must meet at least a 20% nitrogen reduction factor in accordance with GMP 2013-01.

A GeoMat system can NOT be used simultaneously for TL2 treatment and for N reduction.

Use for vertical separation to a limiting feature:

When GeoMat is used for TL2 treatment, the vertical separation to a limiting feature is measured from the 6 inch depth of the required sand layer beneath the core. Additional system sand can be added below the required 6 inch layer to increase vertical separation in accordance with 12VAC5-613. When there is less than 6-inches of natural soil beneath GeoMat system to a limitation, TL-3 treatment plus disinfection shall be provided.

When the GeoMat system is used for dispersal only (all treatment ascribed to the system occurs upstream of the GeoMat system), the vertical separation to a limiting feature is measured from the bottom of the GeoMat core itself and the required 6 inch system sand layer beneath the core can be considered as contributing to vertical separation required. For applications in which there is less than 6 inches of natural soil between the system sand layer and the limitation, upstream treatment shall be compliant with TL-3 requirements and disinfection shall be provided.