



July 17, 2017

Mr. Dave Potts
 Geomatrix Systems, LLC
 114 Mill Rock Road East
 Old Saybrook, CT 06475

Subject: Geomatrix Systems, LLC, Proprietary Distribution Product - UPDATED Acceptance
 For Use in Colorado On-site Wastewater Treatment Systems

Dear Mr. Potts:

Subsequent to the adoption of the revisions to Regulation 43 (effective 6/30/2017), the Water Quality Control Division (Division) is providing an updated acceptance letter for your proprietary distribution product.

Pursuant to section 43.13 of the On-site Wastewater Treatment System Regulation 5 CCR 1002-43 (Regulation 43), the Division has reviewed drawings and specifications for the Geomatrix Systems, GeoMat™ proprietary distribution product noted below.

This acceptance addresses the following models:

- GeoMat™ 600 for distribution
- GeoMat™ 1200 for distribution
- GeoMat™ 3900 for distribution

This acceptance applies only to OWTS with design capacity less than or equal to 2,000 gallons per day (gpd). **Review and approval for the design of any OWTS proposing to use this technology will be reviewed by the local public health agency.** As individual local public health agency regulations may be more stringent than Regulation 43, the Division cannot ensure the acceptance of a treatment technology within any given jurisdiction.

Any modifications to the physical attributes or characteristics of this technology must be submitted to this office for review and acceptance by the Division prior to sale in Colorado. The Division will review modifications, any additional third party verification reports and issue a revised acceptance letter, or denial, as appropriate.

Table 1. Design Criteria for Geomatrix Systems, GeoMat™ as a Distribution Product

Design Criteria
<p>1. A septic tank consistent with section 43.9(A) and 43.9(B) must precede the distribution media. An effluent screen consistent with section 43.3(50) and 43.9(J) installed prior to the distribution media is recommended, but not required unless a local requirement. Pretreatment for non-residential kitchens must include adequate separate grease separator tank(s) prior to the primary septic tank(s) as required in section 43.9(J) of Regulation 43.</p>



2. The design of an OWTS utilizing the GeoMat™ for distribution shall adhere to the following criteria:
 - a. The required design flow shall be determined based on daily flow requirements defined in local OWTS regulations consistent with section 43.6(A) of Regulation 43.
 - b. The total soil treatment area square footage required shall be determined consistent with the requirements of section 43.10(C) of Regulation 43. This requirement is applicable to both trench and bed configurations.
 - 1) Where the GeoMat™ is placed directly on the in-situ soil, the multiplier noted in Table 10-3 (Category 2) of Regulation 43 for “other manufactured media” (0.9) may be applied for calculating the minimum soil treatment area.
 - 2) Where the GeoMat™ is placed on 6” of ASTM C33 sand, the multiplier noted in Table 10-3 of Regulation 43 (Category 3) for “enhanced manufactured media” (0.7) may be applied for calculating the minimum soil treatment area.
 - c. Effluent must be applied to the GeoMat™ through the use of pressure distribution as defined in section 43.10.E.3 of Regulation 43. Therefore, all systems utilizing the GeoMat™ must be designed by a professional engineer.
 - d. End-sweeps/cleanouts shall be provided on the terminal end of each lateral line. These can be used for annual cleaning or flushing the laterals and for distal head pressure measurements.
 - e. In a bed installation, the GeoMat™ may be installed with spacing between the edges of adjacent GeoMat™ panels or may be butted edge to edge. However, in either case, the total square footage of GeoMat™ shall comply with item “b” above.
 - f. The maximum width of a bed installation for a GeoMat™ accepting TL1 effluent shall be 12 feet to comply with Section 43.10(F)(2) of Regulation 43.
 - g. In a trench installation, the width of the GeoMat™ must cover at least 90% of the trench bottom in order to receive credit for the entire width of the trench. In certain instances where the 39” GeoMat™ is installed in a 36” trench, the GeoMat™ may travel up the sidewall of the trench not more than 2”. The total square footage of GeoMat™ shall comply with item “b” above.
 - h. Trench designs shall provide for the required 4 feet of undisturbed soil between adjacent trenches, sidewall to sidewall, as defined in Section 43.10(F)(1)(b) of Regulation 43.
 - i. Bed designs shall provide for the required 6 feet of undisturbed soil between adjacent excavations, sidewall to sidewall, as defined in Section 43.10(F)(2)(b) of Regulation 43.
 - j. While preparing the base for the GeoMat™ installation, the bottom of the excavation shall be raked and all cobble-sized (>2.5”) rocks should be removed. Cobble-sized or greater rocks shall also be removed from the material used for the final cover over the top of the GeoMat™.
 - k. Geotextile fabric provided by Geomatrix shall be placed around the entire perimeter of the GeoMat™ in accordance with manufacturer requirements. This fabric is specific to this product. Only the fabric provided by Geomatrix may be used.
 - l. A final soil cover over the GeoMat™ of 10” - 18” of a Soil Type 1 or Soil Type 2 material is recommended, crowned to promote surface runoff.
 - m. Vertical separation distances to a limiting layer for the soil treatment area as defined in Table 7-2 of Regulation 43 shall be measured from the bottom of GeoMat™ when placed directly on in-situ soil. Where GeoMat™ is placed on 6 inches of ASTM C33 sand, vertical separation distances to a limiting layer for the soil treatment area as

defined in Table 7-2 of Regulation 43 shall be measured from the bottom of the 6-inch sand layer underlying the GeoMat™. Horizontal separation distances for the soil treatment area as defined in section 43.7 of Regulation 43 shall be measured from the nearest sidewall of the bed or trench excavation.

3. In addition to these design criteria, other provisions of Regulation 43 and local regulations also apply to a specific design as well as good OWTS design practice. The Division does not approve manufacturer design manuals. Manufacturer provisions shall not be applicable if those provisions are not consistent with Regulation 43, these design criteria, and the regulations adopted by the local board of health for the design location. Local public health agencies will review proposed designs to confirm consistency with Regulation 43, these design criteria, the local board of health regulations adopted pursuant to Regulation 43, and good OWTS design practice.
4. Reductions in soil treatment area size shall be as described in section 43.10(C)(4) of Regulation 43. Use of the distribution product in a design claiming a higher level treatment designation is dependent on a separate treatment product prior to the distribution product, or a separate higher level treatment acceptance by the Division for this product, and the rating identified in the acceptance for the treatment product. Reductions in soil treatment area size or separation distances based on higher level treatment may not be applied unless the local public health agency has a maintenance oversight program in place as described in section 43.14.D of Regulation 43. In locations where the local public health agency has not adopted a maintenance oversight program, the distribution system may be used but only with soil treatment area size and separation distances consistent with treatment level TL1 requirements.
5. Design flow for single-family residential designs may vary based on the regulations adopted by the local board of health for the design location. Design flow values and strengths for multi-family and commercial systems shall be consistent with section 43.6(A)(4). Therefore, all design criteria in this acceptance are based on total gallons per day and the assumption of residential strength wastewater.
6. Design shall provide access at grade to any components as described in section 43.9(F) and (G) in addition to any additional access ports as provided for in the engineered drawings.

The owner of the OWTS is responsible for arranging proper design, operation, and maintenance of the OWTS facility.

If you have any questions regarding the Division's review or findings, please contact me at (303) 692-2366 or chuck.cousino@state.co.us.

Sincerely,



Digitally signed by Chuck Cousino, REHS
DN: cn=Chuck Cousino, REHS, o=Engineering
Section, ou=Water Quality Control Division,
email=chuck.cousino@state.co.us, c=US
Date: 2017.07.17 08:59:40 -06'00'

Charles J. Cousino, REHS
On-site Wastewater Treatment System Coordinator
Engineering Section | Water Quality Control Division
Colorado Department of Public Health and Environment

cc: Files