

Innovative/Alternative (I/A) System Approval For General Use

Mantis™ M⁵ and M⁵ LowPro Wastewater Leaching Systems

Original Approval Date: November 30, 2015

Approval Number: 2015-05-R1

Revision Date: November 29, 2017

Expiration Date: November 29, 2019

Vendor Information

Eljen Corporation
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Technology Name

Mantis™ Wastewater Leaching Systems
M⁵ Series: Mantis 5.1 and Mantis 5.2
M⁵ LowPro: Mantis 5.1 LowPro, Mantis 5.2 LowPro

Contact

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Technology Type

Gravelless Pipe Distribution System

Approval

The Mantis™ M⁵ Series Models 5.1 & 5.2, and the M⁵ LowPro Models Mantis 5.1 LowPro & 5.2 LowPro Wastewater Leaching Systems may be used as part of a subsurface wastewater disposal system approved under the Wastewater System and Potable Water Supply Rules, effective September 29, 2007 (Rules) under the following conditions:

1. The Mantis™ M⁵ Wastewater Leaching Systems must be designed, installed, and operated as described in the 2017 Vermont Mantis™ M⁵ Design and Installation Manual, filed with the Agency of Natural Resources (Agency) in October 2017.
2. This approval is based on treatment only of domestic wastewater of low and moderate strength as specified in §1-915(a)(1)(C) & (D) of the Rules. No high strength wastewater shall be dispersed using this technology. The Pipe Leaching Systems may be used with septic tank effluent, or with pretreatment as a filtrate system. This system is granted a 50% reduction in



leachfield sizing, but no vertical reductions to seasonal high groundwater table, impervious soil or bedrock are allowed without pretreatment.

3. The system may be used for both new and replacement systems.
4. If the Rules are revised during the term of this approval, this approval shall be revised as needed to conform to the revisions.
5. The Licensed Designer (Designer) shall provide a copy of this approval letter to any landowner who is a prospective purchaser of a Mantis™ M⁵ Series or M⁵ LowPro Wastewater Leaching System prior to the sale of the system and prior to the filing of any application for a site-specific approval by the Agency for the purchaser's property. The application filed with the Agency shall include the landowner's written acknowledgement of this approval letter. Prior to any sale of the property or completion of a sales agreement to sell the property, a copy of the site-specific permit shall be provided to the prospective purchaser.
6. When a project is subject to the Rules, site-specific permission for the use of this product is required in the form of a Wastewater System – Potable Water Supply Permit.
7. A site-specific permit for the use of this product may be revoked if the system fails to function properly. Revocation of the permit will require that the use of the building be discontinued unless another wastewater disposal system is installed based on prior written approval by the Agency.
8. This approval is not a representation or guarantee of the effectiveness, efficiency or operation of the Mantis™ M⁵ Series or M⁵ LowPro Wastewater Leaching System.
9. In-ground trenches and beds can utilize gravity, pump to distribution box (d-box) with timed dosing or pipe-in-pipe pressure distribution. Mound systems shall utilize pump to d-box with timed dosing or pipe-in-pipe pressure distribution. Filtrate systems must utilize pipe-in-pipe pressure distribution.

Landowner Requirements

1. A copy of the permit shall be provided to any prospective purchaser prior to the sale.
2. Each new landowner of the property shall inform the appropriate Regional Environmental Office of the Agency within 30 days of the transfer of the property and include the name and mailing address of the new owner.

Vendor Requirements

1. The vendor shall submit an annual report to the Agency by April 1 of each year containing the following information for the 12 month period ending December 31 of the previous year:
 - A. New permitted systems installed in Vermont for the previous year and shall include:

- i. Assigned Wastewater Permit Number;
 - ii. Physical and landowner mailing addresses;
 - iii. Name of current landowner;
 - iv. Name of Designer providing the installation certification; and
 - v. Name of installer.
 - B. Existing permitted systems with known changes in ownership shall include the Wastewater Permit Number; the physical and mailing address, and the name of the current landowner.
 - C. All known problems, damages and/or failures, including:
 - i. Description of the issues;
 - ii. Potential/known causes of problems;
 - iii. System operability;
 - iv. Recommended repair/remediation;
 - v. Date(s) of repair/remediation; and
 - vi. System effectiveness.

Note: Repairs that are not defined by the Rules as a "Minor Repair" require approval by the Division prior to making the repair.
 - D. A list of names of Designers and Installers trained by the vendor.
2. The vendor shall train and certify Designers and installers in the proper use and installation of the Mantis™ M⁵ Wastewater Leaching Systems.

Design and Review Conditions

The following conditions will be used by the Agency in reviewing permit applications that include an Mantis™ M⁵ Wastewater Leaching System:

Design and Application

1. The Designer shall specify which Mantis™ M⁵ Wastewater Leaching System model is to be installed: Mantis™ M⁵ Model 5.1/5.1 LowPro or 5.2/5.2 LowPro;
2. The wastewater leaching system shall be designed in accordance with the approved Vermont System Design and Installation Manual.
3. The designer shall assure that the system will properly function in all seasons.
4. The designer must assess the ventilation path for the particular application and make any necessary provisions to assure proper flow and control of odor emissions.

5. The designer shall provide the landowner with written guidance on their responsibilities for operation and maintenance of the onsite wastewater system incorporating the Mantis™ M⁵ Series or M⁵ LowPro Wastewater Leaching System.
6. The designer shall include in the design a septic tank effluent filter with easy access for inspection and cleaning.

Installation Inspection

1. The Mantis™ M⁵ Series or M⁵ LowPro wastewater leaching system shall be installed in accordance with the approved plans and under the instruction and guidance of an installer/inspector trained by the vendor.
2. The Mantis™ M⁵ Series or M⁵ LowPro wastewater leaching system shall be inspected by a Licensed Class 1 Designer or a Licensed Class B Designer, approved by the Vendor, during installation of the system and installation of all tanks before backfilling, and after backfilling and grading is complete. The inspection shall include checking for levelness of the pipes, and inspecting for damage and proper assembly. The Designer shall inspect all transport piping for proper installation and watertightness before backfilling.
3. A letter certifying that the system is correctly installed (including the language specified in §1-308 of the Rules) shall be provided electronically to the vendor and the approving Regional Office that issued the permit.

Permitting

1. The permit shall run with the land.

Effective Date: November 29, 2017

By



Graham Bradley

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