Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
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REVISED APPROVAL FOR REMEDIAL USE
Pursuant to Title, 310 CMR 15.000

Name and Address of Applicant:

Geomatrix, LLC
114 Mill Rock Road East
Old Saybrook, CT 06475

Trade name of technology: SoilAir Models RF-3952TB, RF-3952MP, RF-5264MP, RF-5295MP, RF-9858MP, RF-15652MP, RF-21650MP, RF-29450MP (hereinafter called the "System"). Schematic drawings of a typical System and models, and Technology inspection checklist are attached and are a part of this Approval.

Transmittal Number: X233306
Date of Issuance: August 13, 2010, revised March 20, 2015, revised June 20, 2016

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Approval for Remedial Use to: Geomatrix, LLC, 114 Mill Rock Road East, Old Saybrook, CT 06475 (hereinafter "the Company"), approving the System described herein for Remedial Use in the Commonwealth of Massachusetts. Sale and use of the System are conditioned on compliance by the Company and the System owner with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.

David Ferris, Director
Wastewater Management Program
Bureau of Water Resources

Date: June 20, 2016

I. Purpose

1. The purpose of this Approval is to allow use of the System in Massachusetts, on a Remedial Use basis to repair systems failing to protect public health and safety and the environment where failure has occurred as described in 310 CMR 15.303 (1) (a) (1) and (2) due to clogging of the soil absorption system (SAS).
2. With the necessary permits and approvals required by 310 CMR 15.000, this Approval for Remedial Use authorizes the use and installation of the System in Massachusetts.
3. The System may only be installed on facilities that meet the criteria of 310 CMR 15.284(2).
4. This Approval for Remedial Use authorizes the use of the System where the local approving authority finds that the System is for upgrade of a failed, failing or nonconforming system and the design flow for the facility is less than 10,000 gallons per day (GPD).

II. Design Standards

1. The SoilAir System is designed for enhancement of leach fields or soil absorption systems (SAS). The System blower introduces air directly into the SAS for optimum ventilation. This supplemental air displaces carbon dioxide, methane and hydrogen sulfide and increase oxygen levels within the SAS and surrounding soil. This subsequently increases the microbial population which in turn reduces the clogging of the biomat and organic accumulations at the soil interface; thereby improving SAS capacity.

2. SoilAir components include a blower and either a timer or a microprocessor based controller in a small enclosure. This enclosure is connected to a power supply and an air line to the existing piping running from the septic tank to the SAS. The System typically includes other components, installed to monitor septic system operation and to determine aeration frequency. A phone line is necessary for the remote telemetry option.

3. The smallest model RF-3952TB is designed for up to 5 bedrooms or 400 mg/L BOD sanitary wastewater and is operated on a 115 volts electrical supply. It is controlled by a 7 day programmable timer and an optional line voltage float switch. The timer can be set to control the operation of the system on a daily basis, allowing the system to be shutdown on certain days or times, or to run more or less on other days, depending of flows or other constraints. If blower static back pressure is greater than 2 inches of water column, and the system is configured for gravity flow, the timer must be programmed to shut down the blower to allow water to pass to the leach field. Alternatively, on a gravity system, an optional float switch can be installed in the outlet baffle or effluent filter to automatically dose a set volume of effluent to the SAS. A float can also be utilized in conjunction with a pump system to alternate the flow of air and water.

4. The System requires installation of a check valve in the existing system venting between the septic tank and the dwelling to prevent loss of the added System aeration.

5. Prior to installation of the System, the site and existing system shall be evaluated in accordance with 310 CMR 15.100 through 15.107. The existing on-site system including the septic tank, distribution box and SAS shall be inspected in accordance with 310 CMR 15.302. The evaluation shall include identification of existing components, their compliance with 310 CMR 15.000, cause of failure and the location for the upgrade of the system if required in the future.

6. The System shall not be proposed for installation where:

   A. The high groundwater elevation determined in accordance with 310 CMR 15.103 would be less than two feet in soils with recorded percolation rate more than two minutes per inch or less than three feet in soils in soils with a recorded percolation rate of two minutes per inch or less below the bottom of the SAS.

   B. A facility for which the site investigation indicates that the existing onsite system was designed and installed for a design flow smaller than required by 310 CMR 15.203. The minimum area for the existing SAS shall not be less than 50 percent of the area as required in accordance with 310 CMR 15.242.

   C. The existing septic tank(s) has not been tested and shown to be watertight.

   D. The existing system includes a leaching pit or cesspool.

   E. A site investigation indicates that the existing soil absorption system must be removed and replaced prior to installation of the System.

7. For seasonal use, the System operation and maintenance (O&M) provider shall witness reactivation of System at each start-up and ensure system is operating properly.

8. With the exception of Section III (7) and limited exposure by excavation along outer edge(s) of SAS field for installation of air piping and header system installation shall not include modifications, excavations, or any other changes to the existing SAS.

9. System installations 2,000 GPD or greater must have a pressure dosed SAS, and, if in a nitrogen sensitive area (NSA) as defined in 310 CMR 15.215 shall have treatment with an RSF or equivalent as required by 310 CMR 15.202(1).

III. General Conditions

1. All provisions of 310 CMR 15.000 are applicable to the use of this System, the System owner and the Company, except those that specifically have been varied by the terms of this Approval.

2. Any required operation and maintenance, monitoring and testing shall be performed in accordance with a Department approved plan. Any sample analysis shall be conducted by an independent U.S.EPA or DEP approved testing laboratory, or a DEP approved independent university laboratory. It shall be a violation of this Approval to falsify any

data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such plan.

3. The facility served by the System and the System itself shall be open to inspection and monitoring by the Department and the local approving authority at all reasonable times.

4. In accordance with applicable law, the Department and the local approving authority may require the System owner to cease operation of the system and/or to take any other action as it deems necessary to protect public health, safety, welfare and the environment.

5. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer system. No System shall be installed, upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless as allowed by 310 CMR 15.004. When a sanitary sewer connection becomes feasible, the facility served by the System shall be connected to the sewer, within 60 days of such feasibility, and the System shall be abandoned in compliance with 310 CMR 15.354, unless a later time is allowed, in writing, by the approving authority.

6. Design, installation and operation shall be in strict conformance with 310 CMR 15.000 and this Approval.

7. Installation of SoilAir can include installations of inspection ports, and with the concurrence from SoilAir™, plastic membranes over the SAS, splitting the SAS into two or more zones with a plastic membrane, modifications of existing piping to facilitate proper SoilAir operation, and installation of D-boxes or manifolds.

IV. Conditions Applicable to the System Owner

1. The System is approved for sanitary sewage only. Any wastes that are non-sanitary sewage generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed.

2. Operation and Maintenance Agreement:

   A. Throughout its life, the System owner shall operate and maintain the System in accordance with the Company and System designer's O&M requirements and this Approval. To ensure proper O&M the System owner shall enter into an O&M agreement. No O&M agreement shall be for less than one year.

   B. No System shall be used until an O&M agreement is submitted to the local approving authority which:

      i. Provides for the contracting of a person or firm, trained by the Company as provided in Section V (7), and competent in providing services consistent with the System's specifications with the O&M requirements specified by the Company and the designer and with any specified by this approval;

ii. Contains procedures for notification to the local board of health within five days of a System failure or alarm event and for corrective measures to be taken immediately;

iii. Provides the name of an O&M provider, which must be an approved Title 5 System Inspector trained by the Company, that will operate and monitor the System. The O&M provider must inspect and maintain installed Systems at single family homes at least quarterly and anytime there is an alarm event, and

iv. For all other Systems installations the O&M provider must inspect and maintain the System at least every month and anytime there is an alarm event.

3. The System owner shall at all times have the System properly operated and maintained in accordance with this Approval, the designer's O&M requirements and the Company's approved procedures and monitoring protocols. The System owner shall notify the local approving authority and the Company in writing within seven days of any cancellation, expiration or other change in the terms and/or conditions of their O&M agreement.

4. Prior to transferring any or all interest in the property served by the System, or any portion of the property, including any possessory interest, the System owner shall provide written notice of all conditions contained in this Approval to the transferee(s). Any and all instruments of transfer and any leases or rental agreements shall include as an exhibit attached thereto and made a part thereof a copy of this Approval. The System owner shall send a copy of such written notification(s) to the Company and local approving authority within 10 days of such notice being given.

5. The System owner shall have the System monitored quarterly for single family homes and monthly for all other installations. Monitoring shall include depth of ponding in the SAS and observation for breakout. If after three months of System operation, ponding below the leaching field indicates the dose storage provided between the discharge pipes invert and the naturally occurring soils at bottom of stone is at least 50% of the dose storage, monitoring may be reduced from quarterly to every six months, and from monthly to quarterly. Further reduction in monitoring is not allowed. Should an observation port measurement indicate the ponding level is less than 50% dose storage; an additional ponding measurement shall be made 30 days later. Provided this second reading indicates a minimum 50% dose storage, the previous observation port measurement frequency may be continued. However, if the additional measurement is less than 50% dose storage, an evaluation of the System and a report shall be submitted to the local approving authority within 30 days providing recommendations. The report shall include water use data as well as depth of ponding. If the System continues to indicate excessive ponding after 6 months as defined above, the System is in failure and shall be removed in accordance with Section V (8).

6. By February 15th of each year for the previous year, the System owner or a designated O&M provider shall submit to the local approving authority all data

collected in accordance with Section IV (5), and completed technology inspection checklists.

7. Prior to the issuance of a Certificate of Compliance for the System, the System owner shall record and/or register in the appropriate Registry of Deeds and/or Land Registration Office, a Notice disclosing both the existence of the alternative septic system subject to this Approval on the property and the Department's approval of the system. If the property subject to the Notice is unregistered land, the Notice shall be marginally referenced on the owner's deed to the property. Within 30 days of recording and/or registering the Notice, the System owner shall submit the following to the local approving authority: (i) a certified Registry copy of the Notice bearing the book and page/instrument number and/or document number; and (ii) if the property is unregistered land, a Registry copy of the owner's deed to the property, bearing the marginal reference.

V. Conditions Applicable to the Company

1. The Company shall develop and submit to the Department within 60 days of the effective date of this Approval: minimum site evaluation criteria and installation requirements; an operating manual, including information on substances that should not be discharged to the System; a technology checklist; and a recommended schedule for maintenance and replacement of components essential to consistent successful performance of the installed Systems. The Company shall develop and submit to the Department within 60 days of the effective date of this Approval a standard protocol for evaluating ponding within the SAS. System success is defined as ponding elevation consistently maintained at or below the naturally occuring soils elevation (below the designed discharge storage volume) within the SAS. The Company shall also submit to the local approving authority within 60 days of the effective date of this Approval a protocol for completing inspections and monitoring of the System and any procedures that will be implemented should the System fail. The Company shall make available, in print and electronic format, the above referenced procedures and protocols to owners, O&M providers, designers and installers of the System.

2. The Company shall develop and submit to the Department for approval a plan for ensuring the submission of inspection reports by the O&M provider to the Company within 30 days of the date of issuance of this approval.

3. The Company or its designee shall review the plans and site evaluation conducted for proposed System installations prior to the sale of any unit to ensure that the System’s use is consistent with this Approval and the System’s capabilities. The Company or its designee shall certify in writing that the System plan and existing site conditions conform to the requirements of this Approval and any requirements of the Company and shall submit a copy of that certification to the local approving authority and the System owner.

4. Prior to the issuance of a Certificate of Compliance for the System, the Company or its designee shall submit to the local approving authority and the System owner a signed certification that the System has been installed in accordance with the

Company's requirements, the approved plan and this Approval. This certification in no way changes the requirements of 310 CMR 15.021(3).

5. The Company or a Company approved O&M provider shall maintain a contract with the System owner that:

   A. Provides for operating and maintaining the System with an O&M provider that has been trained by the Company to operate the System consistent with the System's specifications and any additional operation and maintenance requirements specified by the designer and the local approving authority;

   B. Contains procedures for notification to the System owner and the local approving authority within five days of knowledge of a System failure and for corrective measures to be taken immediately; and

   C. Contains a plan to determine, if required, after the first three months of operation why the effluent elevations in the SAS are as high or higher than the water surface elevation when the System was installed.

6. The Company shall institute and maintain a program of System O&M provider training and continuing education, as approved by the Department. The Company shall maintain and annually update, and make the list of qualified O&M providers available by February 15th of each year. The company shall update the list of qualified O&M providers and make the list known to users of the technology. The list shall be included with the annual report.

7. The Company shall provide to each System owner a written warranty transferable to a new owner that includes the following:

   A. Refund of the cost of equipment and installation should the System continue in failure as described in 310 CMR 15.303(1)(a)(1) and (2) after 120 days of operation that is conducted in accordance with the Company's specifications and oversight; or

   B. Refund of the cost of equipment and installation should the System fail as described in Section IV (5) within two years of installation provided that the System owner has entered into and maintained an operation and maintenance contract with the Company and has operated the System in accordance with the Company's specifications.

8. The Company shall conduct a performance evaluation starting after the first 100 systems have been installed and operating for at least one year. A report shall be submitted to the Department no more than 180 days beyond the one year period evaluating whether at least 90 percent of the units installed for at least one year have demonstrated a reduction in ponding depth (data as required in Section IV (5)) and that the reduction in depth of the effluent within these system SAS's has either occurred within 120 days of start up or that ponding elevations are not excessive. Should the System not demonstrate the capability to reduce or eliminate ponding in 90 percent of the failed systems, the report shall detail the changes that must be made in site evaluation, design, installation and/or operation or maintenance procedures to meet the goal and shall include a schedule containing a deadline for implementing those changes. No more than 100 systems shall be installed until the performance

report has been completed and the results indicate that over 90 percent of the Systems are no longer in failure.

9. The Company shall include copies of this Approval and the procedures and protocol described in Section V (1) with each System that is sold. In any contract executed by the Company for distribution or re-sale of the System, the Company shall require the distributor or re-seller to provide each purchaser of the System with copies of this Approval and the procedures and protocol described in Section V (1).

10. The Company shall notify the Director of the Wastewater Management Program at least 30 days in advance of the proposed transfer of ownership of the technology for which this Approval issued. Said notification shall include the name and address of the proposed new owner and a written agreement between the existing and proposed new owner containing a specific date for transfer of ownership, responsibility, coverage and liability between them. All provisions of this Approval applicable to the Company shall be applicable to successors and assigns of the Company, unless the Department determines otherwise.

11. The Company shall furnish the Department any information that the Department requests regarding the System within 21 days of the receipt of that request.

12. Systems approved and installed after the revised date of this Approval and at least thirty (30) days prior to submitting an application for a Disposal System Construction Permit (DSCP), the Company or its representative shall provide to the Approving Authority a certification, signed by the owner of record for the property to be served by the unit, stating that the property owner:

    A. has been provided a copy of the Remedial Use Approval and all attachments and agrees to comply with all terms and conditions**;**

    B. has been informed of all the owner's costs associated with the operation including power consumption, maintenance, sampling, recordkeeping, reporting, and equipment replacement;

    C. understands the requirement for a contract with a company approved O&M provider and has been provided a current list of all approved O&M providers;

    D. agrees to fulfill his responsibilities to provide a Deed Notice as required by 310 CMR 15.287(10) and the Approval; and

    E. agrees to fulfill his responsibilities to provide written notification of the Approval conditions to any new owner, as required by 310 CMR 15.287(5).

VI. **Reporting**

1. All notices and documents required to be submitted to the Department by this Approval shall be submitted to:

    Director
    Wastewater Management Program
    Department of Environmental Protection
    One Winter Street - 5th floor
    Boston, Massachusetts 02108

VII. Rights of the Department

1. The Department may suspend, modify or revoke this Approval for cause, including, but not limited to, non-compliance with the terms of this Approval, non-payment of the annual compliance assurance fee, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Approval and/or the System owner, or O&M provider of the System and/or the Company.