

Innovative/Alternative System Approval

Pilot Projects per §1-1002 of the
Wastewater System and Potable Water Supply Rules, effective September 29, 2007

#2005-01-R2 (2009 Renewal)

Vendor Information

EcoSolutions, LLC.
315 Plains Road
Westford, VT 05494

Technology Name

Advanced Wetland Treatment
System

Contact

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Technology Type

Aerated Wetland Treatment
System

Expiration Date

March 1, 2011

Approval

The EcoSolutions Advanced Wetland Treatment System has been determined to meet the criteria of Section §1-1002(a) of the Wastewater System and Potable Water Supply Rules, effective September 29, 2007 (Rules) and may be used as part of a subsurface wastewater disposal system under the following conditions:

1. Up to twenty-five installations of the EcoSolutions Advanced Wetland Treatment System may be authorized under this Pilot Project Approval.



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2. The treatment units must be designed by a Class I Licensed Designer, as established in Section §1-703 of the Rules, and in accord with the description in the Innovative/Alternative System application package filed with the Agency of Natural Resources (Agency) on August 4, 2004 and October 11, 2004, and with the site specific installation and operating instructions submitted.
3. The treatment units must be installed and operated as described in the site-specific Innovative/Alternative System application package filed with the Agency.
4. Unit sizing must be in accord with the technical information submitted with the Innovative/Alternative application package on August 4, 2004 and October 11, 2004. The sizing shall be based on the calculated design flow per §1-808 of the Rules.
5. 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. Systems to treat higher strength wastewater may be approved on a case by case basis.
6. The system may be used for both new and replacement systems.
7. All effluent from the EcoSolutions Advanced Wetland Treatment System shall be discharged to a filtrate disposal system that conforms to the requirements of §1-916 of the Rules. If the Rules are revised during the term of this approval, this approval may be revised as needed to conform to the revisions.
8. Detailed operating instruction shall be provided in writing to the owner/operator.
9. The vendor shall have an inventory of replacement parts available locally or available for delivery within 24 hours.
10. The Designer shall provide a copy of this approval letter to any landowner who is a prospective purchaser of an EcoSolutions Advanced Wetland Treatment 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 landowner'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. The owner of record shall notify the vendor of the sale and provide contact information for the new owner.
11. The owner of a property where an EcoSolutions Advanced Wetland Treatment System has been installed shall have a valid maintenance contract in force at all times. The minimum length of any contract shall be for a period of two years. A copy of the initial and each succeeding contract shall be submitted to the appropriate Regional Environmental Office of the Agency and the Vendor.

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Maintenance shall be performed or supervised by a Licensed Class 1 Designer, approved by the Vendor, who shall provide written inspection reports detailing the maintenance performed on the specific system, any problems that have occurred since the previous inspection, any modifications made to the system, the date of the inspection, and any work required to ensure the system operates in compliance with this approval.

The inspection shall be performed in accordance with the manufacturer's Operation and Maintenance requirements submitted as part of the site-specific application package. If at any inspection the effluent is cloudy or pungent smelling a sample shall be collected and tested for BOD₅ and TSS. The results of any testing shall be submitted with the annual inspection report.

12. The first inspection shall be completed no later than 3 months after placing the system in service. The second inspection shall be completed no later than 12 months after placing the system in service. Subsequent inspections shall be completed at least once per year based on the date when the system was first placed in service. More frequent inspections or additional testing, required by the manufacturer to ensure proper functioning of the system, shall be conducted in accordance with the manufacturer's specifications. All reports shall be filed with the appropriate Regional Environmental Office of the Agency, the Vendor and the landowner with the annual inspection report.
13. During the period of pilot use, daily wastewater flow rates shall be recorded at the pump station for the disposal system and the records shall be filed with the appropriate Regional Environmental Office of the Agency, the Vendor, and the landowner with the annual inspection report.
14. During the first two years of operation, grab samples shall be collected quarterly between the septic tank and the inlet to the EcoSolutions Advanced Wetland Treatment System and at the effluent standpipe of the wetland. The first samples shall be collected at the first inspection required under condition #12 above. The samples shall be tested for biochemical oxygen demand (BOD₅) and total suspended solids (TSS). All sampling reports shall be filed with the appropriate Regional Environmental Office of the Agency, the Vendor, and the landowner with the annual inspection report.
15. After the first two years of operation, the Designer and the Vendor shall evaluate the sampling test reports and daily flow records and make recommendations to the landowner, with a copy to the appropriate Regional Environmental Office of the Agency. Based on the sampling test reports and the recommendations of the Designer and the Vendor, additional sampling may be required by the Agency.

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16. The vendor shall submit an annual report to the Agency by April 1st of each year containing the following information for the previous 12 month period ending December 31st of the previous year:
 - A. The number of systems installed in Vermont.
 - B. The address of each installation.
 - C. The name of the owner at the time of installation and any known change in ownership.
 - D. All known problems or failures, with a brief summary of the cause and remedial measures taken.
 - E. Copies of reports from an approved laboratory of all effluent quality testing conducted.
17. This approval is based on information submitted by the Vendor indicating that the specified system will routinely provide effluent with no more than 30 mg/l of BOD₅ or more than 30 mg/l of TSS.
18. Site specific permission for the use of this product is required in the form of a Wastewater System and Potable Water Supply Permit.
19. A site-specific permit for the use of this system may be revoked if the system fails to function properly or if the property owner fails to have a valid contract for the required maintenance and inspection of the system. 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.
20. This approval is not a representation or guarantee of the effectiveness, efficiency or operation of an EcoSolutions Advanced Wetland Treatment System.

Design and Review Conditions

The following conditions will be used by the Department in reviewing permit applications that include EcoSolutions Advanced Wetland Treatment System

Equipment

- EcoSolutions Advanced Wetland Treatment System as specified in the site-specific approval.

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Design and Application

- The treatment unit shall be installed in accordance with the approved plans and the manufacturer's recommendations. The designer shall assure that the system will properly function in all seasons.
- The designer must assess the structural needs of the unit for the specific application site and place the requirements on the design plans.
- The designer must determine the type of backfill required and any necessary placement specification.
- 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.
- The designer shall consult with the Vendor for proper sizing and include in the design a septic tank effluent filter with easy access for inspection and cleaning.
- The designer must assure routine access to the system as well as the control panel, blower, any pumps, distribution boxes (for sampling), and effluent filters.
- The designer must address flotation issues if the SHWT will be above the bottom of any of the tanks.

Installation Inspection

- The treatment unit shall be set up under the instruction and guidance of an installer/inspector trained by the Vendor.
- The treatment unit shall be inspected by a Licensed Class 1 Designer, approved by the Vendor, after construction of the unit and installation of the tank(s) before backfilling, and after backfilling and grading is complete. The inspection shall include checking for an adequate structural foundation to support the unit, checking for levelness of the tanks, and inspecting for damage and proper assembly.
- Before backfilling, the unit and tankage shall be tested for watertightness by filling the system or tank with water to a point above all below grade openings and holding it at a constant level for 24 hours. There shall be no measurable leakage. During the test the entire unit and tanks shall be inspected for visible leaks. Should the unit or tanks fail the test they may be repaired and retested. The testing and repairs shall be conducted under the direction and in the presence of the inspecting Licensed Class 1 Designer.

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- The Licensed Class 1 Designer shall inspect all piping for proper installation and watertightness before backfilling.

Start-up

- Start-up of the system and initial operational checks shall be conducted by an installer/inspector trained by the manufacturer, who shall submit a report to the owner, the vendor, and to the inspecting Licensed Class 1 Designer indicating any problems encountered, their resolution, and affirmation that the system is operating as intended.

Operational Maintenance and Inspection

- The owner shall have a valid maintenance contract in force at all times. The minimum length of any contract shall be for a period of two years. A copy of the initial and each succeeding contract shall be submitted to the appropriate Regional Environmental Office of the Agency. Maintenance shall be performed by, or shall be supervised by, a Licensed Class 1 Designer, approved by the Vendor, who shall provide written inspection reports detailing the maintenance performed on the specific system, any problems that have occurred since the previous inspection, any modifications made to the system, the date of the inspection, and any work required to ensure the system operates in compliance with this approval.

The inspection shall be performed in accord with the manufacturers Operation and Maintenance Manual submitted as part of the Innovative/Alternative System application package. During the first two years of operation, grab samples shall be collected quarterly between the septic tank and the inlet to the EcoSolutions Advanced Wetland Treatment System and at the effluent standpipe of the wetland. The first samples shall be collected at the first inspection required below. The samples shall be tested for biochemical oxygen demand (BOD₅) and total suspended solids (TSS). If at any inspection, after the first two years of operation, the effluent is cloudy or pungent smelling a sample shall be collected and tested for BOD₅ and TSS. All sampling reports shall be filed with the appropriate Regional Environmental Office of the Agency, the Vendor, and the landowner with the annual inspection report.

- During the period of pilot use, daily wastewater flow rates shall be recorded at the pump station for the disposal system and the records shall be filed with the appropriate Regional Environmental Office of the Agency, the Vendor and the landowner with the annual inspection report.
- The first inspection shall be completed no later than 3 months after placing the system in service.

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- The second inspection shall be completed no later than 12 months after placing the system in service.
- Subsequent inspections shall be completed at least once per year based on the date when the system was first placed in service. More frequent inspections or additional testing, required by the manufacturer to ensure proper functioning of the system, shall be conducted in accordance with the manufacturer's specifications.
- All reports shall be filed with the appropriate Regional Environmental Office of the Agency, the Vendor and the landowner with the annual inspection report.

Permitting

- The permit shall run with the land.
- A copy of the permit shall be provided to any prospective buyers prior to the sale.
- Each new owner 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.

Effective March 1, 2009

By Roger Thompson, Jr.
Roger Thompson, Jr.
Regional Office Program Manager