

**WASTEWATER SYSTEM AND POTABLE WATER SUPPLY
INNOVATIVE AND ALTERNATIVE (I/A) TECHNOLOGY
GENERAL USE APPROVAL****LAWS/REGULATIONS INVOLVED**10 V.S.A. Chapter 64, Potable Water Supply and Wastewater System Permit
Wastewater System and Potable Water Supply Rules, Effective November 6, 2023**Applicant** and SludgeHammer Group, Ltd.
I/A Approval Recipient: 4772 US Highway 131, Building D
Petoskey, MI 49770**Approval Number:** 2023-02-R1**Date Issued:** 04/28/2025**Date Expires:** 05/01/2027Ryan Zaremba – Director of Operations
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This approval is for the following fixed-film media bioreactor I/A technology models:

Product Name	Model Numbers	Design Flow (gpd)
SludgeHammer ABG	S-400	400
SludgeHammer ABG	S-600	600
SludgeHammer ABG	S-800	800
SludgeHammer ABG	S-1000	1000

The technologies listed in this I/A Approval are used to treat low-strength effluent to discharge to a soil-based wastewater disposal system. The technologies, consisting of a bacterially-enhanced, extended-air, fixed-film bioreactor held in a standard two-chambered septic tank, are hereby approved under the requirements of the regulations named above subject to the following conditions.

1. GENERAL

- 1.1 The technologies listed in this I/A Approval may be used as part of a soil-based wastewater system, subject to the jurisdiction of, and permitted pursuant to, the referenced Rules, provided the conditions of this I/A Approval are met.
- 1.2 Failure by the I/A Approval Recipient to comply with these conditions is grounds for the Secretary to revoke, or to decline to renew, this I/A Approval.
- 1.3 This I/A Approval shall expire on **May 1, 2027**. Applications for renewal of this I/A Approval shall be submitted to the Division by March 1, 2027, to avoid a lapse in approval. The renewal request shall be submitted on a form prepared by the Secretary and shall include: a description of any changes to the equipment, technical specifications and drawings, installation requirements, and operation and maintenance manuals.
- 1.4 No changes shall be made to the approved technology without prior review and approval by the Secretary.
- 1.5 This I/A Approval is based on the design, operation, and maintenance manuals submitted by the Applicant to the Secretary. Misrepresentation in the application material is grounds for the Secretary to revoke this I/A Approval.



- 1.6 If the Rules are revised during the effective term of this I/A Approval, it shall be revised as needed to conform to the revisions.
- 1.7 Site-specific permission for the use of this technology is required in the form of a Wastewater System and Potable Water Supply Permit (WW Permit).
- 1.8 This I/A Approval is not a representation or guarantee of the effectiveness, efficiency, or operation of the approved technology.
- 1.9 This I/A Approval is limited to treating septic tank effluent that is characterized as low strength according to §1-805(b) of the Rules.
- 1.10 This I/A Approval is based on information submitted by the Applicant indicating that the technology will effectively treat the effluent to reduce the biochemical oxygen demand (BOD₅) to 30 mg/L or less and total suspended solids (TSS) to 30 mg/L or less.
- 1.11 Upon issuance of a site-specific WW Permit, each corresponding Vermont landowner in interest shall be shown a copy of this Wastewater System and Potable Water Supply Innovative and Alternative (I/A) Technology General Use Approval, the Operation and Maintenance manuals, and projected maintenance costs, prior to the installation of any permitted unit.
- 1.12 All components of the technology shall be warrantied for at least the first two (2) years following the commencement of use of the technology unit. The I/A Approval Recipient shall have an inventory of replacement parts available locally or available for delivery within 24 hours.
- 1.13 Second party replacement parts may be used in the repair and maintenance of the technology after the warranty period has elapsed, and if there is no change in the level of effluent treatment.
- 1.14 All conditions set forth in WW Permits that include the use of the approved technology shall remain in effect and may surpass the conditions set herein.
- 1.15 A WW Permit that approves the use of a technology approved by this I/A Approval remains valid for the use of the technology identified in the WW Permit even if this I/A Approval expires.

2. DOCUMENTS

- 2.1 The approval of this I/A technology is based on the following documents submitted by the Applicant:

Title	Submission Date	Revision
VT-ANR Innovative and Alternative Technology Approval Renewal Application	03/03/2025	-
SludgeHammer Owner's Manual	11/22/2021	-
SludgeHammer Installation Instructions	11/22/2021	-
SludgeHammer Installer's Maintenance Procedures	11/22/2021	-
SludgeHammer Spec Sheets	11/22/2021	-
NSF-40 Certification	11/22/2021	03/27/2023

- 2.2 Use of the I/A technology in any way not depicted or described in the referenced documents, or otherwise not identified and authorized by this I/A Approval, is not allowed without prior approval by the Drinking Water and Groundwater Protection Division.

3. SERVICE PROVIDER

- 3.1 The I/A Approval Recipient shall contract with and maintain a minimum of three Service Providers for the State of Vermont (Vermont Service Provider) to perform the inspections, maintenance, and repairs required by this I/A Approval and by the conditions of the associated WW Permit. The Vermont Service Providers must be based in Vermont or in a neighboring state or province, and be ready and willing to provide service to all the installed technologies in Vermont, regardless of where in Vermont a unit is located.

- 3.2 The I/A Approval Recipient shall provide the Secretary with the names, mailing addresses, email addresses, and phone numbers of three or more service providers, prior to the Division issuing a WW Permit for use of the technology.
- 3.3 The I/A Approval Recipient shall maintain with the Secretary the names and contact information for all Vermont Service Providers, and shall notify the Secretary within 30 days after the removal of an existing, or the addition of a new, Service Provider. Failure to maintain a minimum of three Vermont Service Providers will result in the Secretary declining to issue a WW Permit with the subject approved technology.
- 3.4 The I/A Approval Recipient shall provide training to each Vermont Service Provider for the proper installation, operation, maintenance, and repair of each approved technology.
- 3.5 Service Providers must follow the terms and conditions of this I/A Approval, and the associated WW Permit, for inspection, maintenance, and reporting requirements.
- 3.6 Maintenance and inspections of the approved technology must be performed by a Service Provider trained and authorized by the I/A Approval Recipient. Reports of such inspections shall be provided to the I/A Approval Recipient, landowner, and Division in a timely manner so that they can ensure that the corresponding conditions of the I/A Approval and WW Permit are met.
- 3.7 Maintenance and inspections performed by Service Providers shall be in accordance with the operation and maintenance manual submitted as part of the I/A Approval application, as provided in trainings by the I/A Approval Recipient, and as specified in the WW Permits issued by this Division.
- 3.8 Disposal of used biofilter media by the Service Provider shall be in accordance to rules and statutes in the State of Vermont governing the disposal of biosolids of a hazardous nature.

4. REPORTS

- 4.1 The I/A Approval Recipient shall submit electronically, by April 1st of each year, an annual report to the Division containing the following information for the previous 12-month period ending December 31st:
 - A. the entities who are distributing the permitted technology in the State of Vermont; and
 - B. a listing of each permitted technology installed in Vermont during the previous calendar year with the following information:
 - i. assigned WW Permit number;
 - ii. the property's SPAN number;
 - iii. the distributor who sold the installed technology;
 - iv. the name of the Vermont-licensed Designer providing the installation certification;
 - v. the name of the contracted and authorized Service Provider inspecting the technology at the time of installation;
 - vi. the date of installation; and
 - vii. the date of initial use of the technology (beginning of two-year warranty period).
- 4.2 The I/A Approval Recipient shall ensure that the Vermont Service Providers for each of the permitted systems utilizing this technology installed in Vermont are submitting to the Division the following inspection reports pertaining to the I/A technology component(s):
 - A. an initial report of an inspection conducted within 60 days of its initial usage;
 - B. reports for inspections performed every 6 months for the first two years of its usage; and
 - C. reports for inspections performed annually following the initial two years of its usage.
- 4.3 Maintenance and inspections reports shall be submitted on the Secretary-approved inspection report form and must be signed and dated by the Service Provider.

- 4.4 Inspection reports by the Service Provider shall include, but not be limited to, a summary of all known problems, defects, damages, or failures of the technology to comply with this approval and the operating requirements for the technology, including:
- A. a description of any problems, defects, damages, or failures;
 - B. potential/known causes of any problems, defects, damages, or failures;
 - C. a statement of system operability including whether or not the technology is operating in compliance with this approval and operating specifications following repairs or corrections of any problems, defects, damages, or failures;
 - D. a listing of the required repairs, maintenance, and remediation measures;
 - E. identification of changes to the technology specifications; and
 - F. any observed failure of the wastewater system including wastewater exposed to the open air, wastewater pooling on the surface of the ground, wastewater discharging directly to surface water, or wastewater backing up into the building or structure.
- 4.5 Problems, defects, damages, or failures of the technology identified during an inspection per Conditions 4.2 and 4.3 of this I/A Approval must be reported by the Service Provider immediately to the landowner, and within 30 days to this Division.
- 4.6 Maintenance and inspections shall be performed in accordance with the permitted operation and maintenance manual(s) that are specified in the WW Permits issued by this Division.

5. DESIGN SPECIFICATIONS

- 5.1 The design of a wastewater system using the approved technology shall identify the specific approved model, which shall not be replaced with any other model without an amendment to the WW Permit.
- 5.2 Technologies shall be equipped with anti-flotation devices. The I/A Approval Recipient may specify whether or not the anti-flotation devices are required if a designer demonstrates flotation will not occur, or if the designer proposes, in a WW Permit application for the use of the technology, an alternative method to stabilize the technology that complies with the I/A Approval Recipient's requirements for installation.
- 5.3 Technology model choice and sizing shall be in accordance with the I/A Approval Recipient's technical requirements, as approved by the Secretary in this I/A Approval. Sizing of each unit shall be based on the calculated design flow per §1-803 of the Rules.

6. INSTALLATION SPECIFICATIONS

- 6.1 The approved technology shall be installed under the guidance of a Service Provider and a designer.
- 6.2 The installation of each technology shall be in accordance with the I/A Approval Recipient's technical requirements, as approved by the Secretary.

Any person aggrieved by this I/A Approval may appeal to the Environmental Court within 30 days of the date of issuance of this permit in accordance with 10 V.S.A. Chapter 220 and the Vermont Rules of Environmental Court Proceedings.

Julia S. Moore, Secretary
Agency of Natural Resources

Dated at Rutland, Vermont this 28th day of April, 2025.

By 

David R. Swift, Environmental Analyst - Wastewater Technical Services
Drinking Water and Groundwater Protection Division