

Planning, Design, and Implementation of a Decentralized Wastewater Management System in Warren, Vermont

STONE
ENVIRONMENTAL
100% EMPLOYEE-OWNED

Services / Expertise

Water Resources Management
Wastewater Needs Assessment/Feasibility
Hydrogeologic Investigations
Decentralized Wastewater Management
Water Quality Monitoring
Permitting Support
Compliance Monitoring
ArcGIS Analysis

Markets

Municipal Clients and Regional Planning
Commissions

Project Location

Warren, Vermont

Duration

1999-present

Project ID#

991045-W, 041546-W, 061829-W

Project Manager

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Under the recreation field at the Warren Elementary School is a community leachfield that serves many properties in the village. Stone is part of the team that planned for, that built and manages the system.

STONE worked with an engineering firm to construct decentralized wastewater systems and implement a management program in the Town of Warren's historic Village in 1999-2005, funded by a US Environmental Protection Agency demonstration grant to the town. Juli Beth Hinds, AICP was the Town of Warren's project manager in her capacity as Executive Director of the Mad River Valley Planning District.

The first part of the project, a wastewater needs assessment, focused on maintaining existing suitable wastewater systems, identifying replacement system solutions as close to the wastewater-generating property as possible, and establishing a community wastewater management program. Working extensively with the local Wastewater Advisory Committee (WAC), Stone completed a detailed lot-by-lot needs assessment (including opening septic tanks and soils hand augering), developed a combination of onsite and offsite cluster system upgrades, and drafted a comprehensive management plan for all participating properties in the Town. We produced a report that describes and summarizes the results of our work using maps, diagrams, and tables. Stone helped the committee and the Selectboard through a series of public meetings that allowed diverse views to be expressed and aired. The community's goal of solving a village problem with town-wide support was achieved through a transparent process in which all voices were heard and then summarized for resolution.

Using community survey data, the site-by-site assessment, and an examination of available natural study area data, the WAC and Stone developed the best combination of solutions within a management plan that will meet the Village's long-term wastewater needs. Construction of our recommended solution was completed in 2005, and includes individual onsite upgrades, small and large cluster systems (2,500 gpd, 3,500 gpd with an innovative treatment and dispersal technology, and 30,000 gpd).

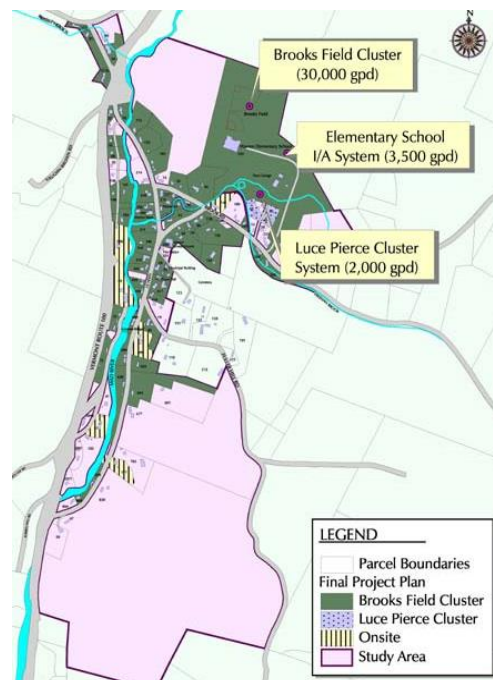


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Upon completion of the construction project in 2005, Stone provided QA plan development, groundwater monitoring, and downgradient subsurface characterization services in support of the Town's efforts to amend the 30,000 gpd cluster system's Indirect Discharge Permit to allow for future growth in the village. The surficial and bedrock geology beneath and downgradient from the dispersal site is complex, and the position of the site within the watershed of a very small unnamed receiving stream necessitated precision in defining the plume of renovated effluent. We were able to demonstrate that the system was meeting the Indirect Discharge Permit Program's stringent Aquatic Permitting Criteria for nitrate-nitrogen and total dissolved phosphorus. The Town and its engineering partner utilized our work in negotiating with Indirect Discharge permitting staff to allow the 30,000 gpd system to be re-permitted as an experimental system with capacity for new connections, up to actual flows of 20,000 gpd.

Since the issuance of the revised Indirect Discharge permit in 2008, Stone has provided downgradient groundwater and surface water monitoring and reporting services to the Town.



Final project for the historic village as constructed.



During this project, our team completed Vermont's first municipal innovative/alternative (I/A) treatment system—an American Council of Consulting Engineers award winner—for the Warren Elementary School. In so doing, we developed a process for choosing I/A techniques and technologies that assisted the State regulators in learning about new technologies and developing regulations to properly manage these systems.

Here, members of the National Steering Committee of the EPA Demonstration Grant, Stone Environmental, and engineering partners look at the recirculation and pump tank for an innovative/alternative onsite system at the Warren Elementary School in Warren, Vermont.

