Design and Construction Oversight of a Pond Upgrade and Stormwater Bumpouts at Pine Grove Terrace, Morehouse Brook, Winooski

STONE ENVIRONMENTAL

Services / Expertise
Watershed Planning
Water Quality Management
Stormwater Project Scoping
Stormwater BMP Design
Retrofit Planning & Design
Developed Lands Erosion Solutions
Stakeholder Involvement & Stewardship
Stormwater Flow Restoration & Modeling
Phosphorus TMDL Compliance & Modeling
Project Development
Construction Phase Engineering

Markets
Local and Regional Government
Watershed Organizations

Project Location
Winooski, Vermont

Date Completed
2018-2019

Project Owners
Chittenden County Regional Planning Commission & City of Winooski

Project Manager
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Project Team
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Branden Martin, PE

Final conditions of the pond at the lower portion of the Pine Grove Terrace drainage area and cul-de-sac.

In 2018, the Chittenden County Regional Planning Commission (CCRPC) and the City of Winooski hired Stone to develop a concept (30%) design for stormwater improvements to address runoff from public highways and directly connected residential impervious surfaces in the Pine Grove Terrace development. The development is located in the Morehouse Brook watershed, which has an approved flow restoration plan (FRP) developed by Stone under an engineering partner in 2013-2017.

Stone's conceptual design work helped the City and CCRPC secure Ecosystem Restoration Grant funding to advance the project to final engineering and design. Under a separate contract, the City of Winooski hired Stone to prepare final engineering design plans, including construction cost estimates, and oversee construction of the stormwater mitigation and treatment practices. We performed an additional topographic survey, coordinated soil investigations, prepared final design plans, and provided bid and construction review services for implementation in 2019. Construction commenced in August and was complete in, meeting the tight timeline required by the Design/Implementation Block Grant.

Our final engineering design plans to maximize water quality and peak flow control benefits including control of the 1-year storm from an approximately 30-acre drainage area, of which 5.2 acres is impervious cover. Key components of the design included infiltrating bioretention bump-outs in the right-of-way, increasing detention/retention capacity in the existing undersized extended detention pond via expansion into the adjacent cul-de-sac, and redesigning of the pond outlet structure and outfall pipe. As constructed, these stormwater management practices help address both the high flow target established in the Morehouse Brook FRP, and Phosphorus Control Plan (PCP) requirements included in the Municipal Separate Storm Sewer System (MS4) General Permit.