

October 17, 2012

Dear Mr. Quimby:

Thank you for inviting the New Hampshire Lakes Association (NH LAKES) out to Naticook Lake to view the stormwater runoff issue at the boat launch at Veterans Park. The purpose of this letter is to summarize my site observations made on Friday, September 28, 2012, and provide you, your association, and your Town with some concepts for improvement that could be made at the site to alleviate some of the sediment and nutrient loading entering the lake through stormwater runoff occurring at the Town boat launch.

Existing Conditions Photo with Recommendations:



Install an open-top culvert across top of the ramp to catch precipitation and runoff water from roadway. Direct the runoff water north into a stone-filled drywell placed into the wooded area.

Drywell #1

Install a second open-top culvert in the middle of the ramp and direct flow to the south into a stone-filled drywell.

Drywell #2

Veterans Park Boat Launch
Naticook Lake, Merrimack, NH
Picture taken: 09/28/2012

Site Evaluation Observations:

During my site evaluation on September 28, 2012, it was raining heavily. I observed runoff water flowing along and across the length of the gravel boat ramp and into the Naticook Lake. I observed rill and gully erosion of gravel and soil along the entire length of the boat launch roadway. The runoff water had a brownish-hue, indicating that it was sediment-laden and a delta of sediment was visible in the nearshore area of the lake located immediately downgradient of the boat ramp.

Solutions:

There are a number of simple stormwater runoff best management practices that could be installed on the landscape in the vicinity of the boat launch to reduce the amount of stormwater runoff that flows into Naticook Lake during rain events.

- **Open-top culverts:** The installation of two open-top culverts (one at the top of the launch and one in the middle) would help to collect and divert the runoff water into stable, vegetated areas located off to the side of the boat launch access road.
- **Drywells:** At the downgradient end of each of the open-top culverts, a drywell would collect runoff water and allow it to infiltrate into the ground.

- **Waterbars:** The installation of two waterbars along the south side entrance at the top of the hill upgradient of the launch and access road would help reduce the quantity of runoff water flowing toward the launch. The redirected flow could be discharged into a large shallow stone-filled area where it could infiltrate into the ground. The shallow stone-filled area could still be used for parking and picnicking.

These projects, although located within the 250-foot Protected Shoreland Zone, should not trigger New Hampshire Department of Environmental Services (NHDES) Wetlands Bureau or Shoreland Permits if the installation of these best management practices are done using hand tools and wetland resource areas (wetlands, banks, lake bottom, etc.) are not disturbed. These stormwater runoff reduction activities within the Protected Shoreland have been identified as not requiring a Shoreland Permit because the activity does not constitute construction, excavation or filling.

There are more substantial structurally-related fixes that could be installed to improve the launch area and reduce stormwater runoff, including constructing a concrete launch pad, installing open-top culverts with subterranean holding areas for runoff water collection, and sloping or grading of the access path. These types of projects would require machinery, would increase the impermeable surface area, and would need to be permitted through NHDES.

Options:

Below I have provided you with some options on how to proceed with the recommendations that have been presented.

1. Approach the Town and encourage the Department of Public Works to install the recommended stormwater runoff best management practices.
2. Work with Town engineers to design specific plans and have the DPW and/or association or other volunteer group install the recommended best management practices.
3. Hire NH LAKES to provide a conceptual plan and project oversight that the association/town could partner to install. This work would be billed out to the customer (the association) at an hourly rate of \$25 for members of NH LAKES and \$30 for non-members with an additional mileage rate of \$0.555 (the federally mandated rate) for all miles accrued by NH LAKES staff driving to and from NH LAKES' headquarters to the project site.
4. Work with NH LAKES to implement a Town-wide Lake Conservation Corps Program to address this site and the other sites on Naticook Lake. This type of program would be contingent upon funding made available by town/association and or other funding sources (grants, etc.).

I have included a Shoreland Homeowners Guide to Stormwater Management which details the recommended stormwater runoff best management practices in greater detail.

If you have any questions please feel free to contact me via phone (603-226-0299) or email (rparsons@nhlakes.org).

Thank you for your interest in protecting and improving the health of Naticook Lake!

Sincerely,

Robie Parsons
Program Coordinator