

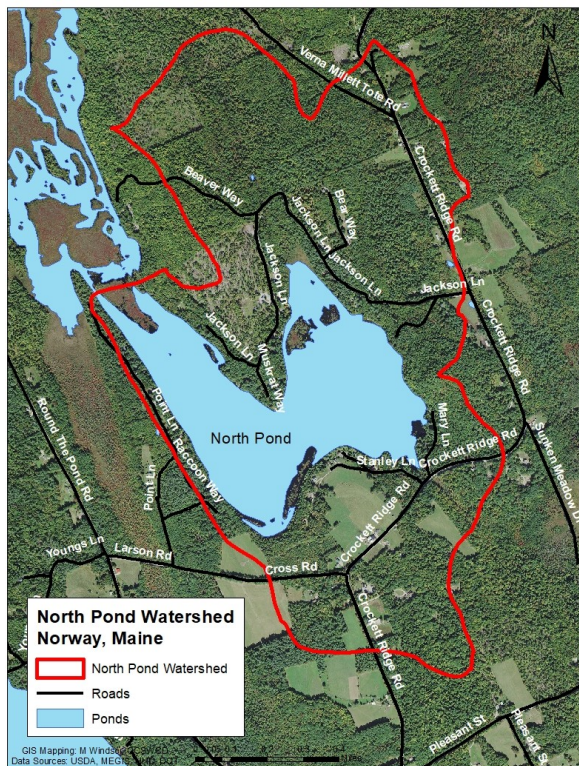
Photo by Sal Girifalco

North Pond Watershed Protection Project—Phase I 2017-2019

The North Pond Watershed Protection Project, Phase I began in the late fall of 2017. Over the next two years project partners worked very hard to accomplish the goal of reducing the amount of soil erosion, a significant source of phosphorous, that washes into the pond of their grant driven project. The project, which ended in December of 2019, has exceeded most of its goals. A huge amount of credit goes to the Lake Association of Norway (LAON) and it's president Sal Girifalco, who contributed enormous amounts of time and energy towards getting the work coordinated and completed.

Besides LAON, partners included Maine DEP, the Androscoggin River Watershed Council and the Town of Norway. Norway Savings Bank and the Town of Norway also contributed cash match toward addressing NPS sites. LAON provided over 200 hours of in-kind volunteer and material contributions including applying over 48 cubic yards of Erosion Control Mulch and installing rubber razors to divert runoff from driveways into stable vegetation instead of flowing to the pond.

The project, which was funded in part by a grant from the USEPA through Section 319 of the Clean Water Act, provided cost-share funding to address many of the highest non-point source pollution problem sites identified in the North Pond Watershed Survey done in 2016. Non-point source pollution is primarily soil sediment washed into the lake by stormwater runoff and erosion. Phosphorus, a plant nutrient that attaches to soil particles as a “hitch hiker”, is common on land but naturally limited in lakes. If too much phosphorus washes into a lake, it fertilizes an explosive growth of algae that transforms a clear, blue lake into a slimy green mess. Once a bloom happens, it can ruin water quality, wildlife habitat, swimming, fishing, and boating. Severe blooms can even reduce shoreline property values. This brochure summarizes project accomplishments and applied “best management practices” (BMPs).



Project Summary of Accomplishments

- ◇ **13 NPS Cost-sharing Erosion Control projects** that reduced soil sediments entering North Pond by an estimated **35.46 tons each year**; (Several projects are described on pages 2 and 3);
- ◇ **22 Technical assistance** visits provided to private property owners around North Pond to give them recommendations for controlling erosion on their land;
- ◇ **13 Residential Matching Grants** were awarded to property owners to address small residential erosion problems by installing “best management practices”;
- ◇ **Two Educational Workshops.** “Planting Greenery for Cleaner Ponds” covered information on planting shoreline buffers, “Gravel Road Maintenance and BMPs” covered ways to prevent gravel road runoff from getting into the pond.
- ◇ **Outreach:** News articles, web postings, presentations at Selectmen’s Meetings and before the Lake Association of Norway, informed the community about project activities and progress.

Non-Point Source Project Highlights

Beaver Way BMPs

Problems on Beaver Way were contributing the largest amount of sediment (16.77 tons/year) of any site in the watershed. This was the first priority for the project to tackle. The road was completely re-surfaced with less erodible gravel material and re-shaped to shed runoff as sheet flow towards ditches. A rubber razor diverter was also installed to help direct flow to the ditches. The ditches were also re-shaped and armored with rip-rap (large angular rock). Cross culverts were installed with armored inlets and outlets and sediment pools with level spreaders at the outlets of the culverts to slow and disperse stormwater.



Before (top): Beaver Way's road surface was experiencing significant erosion due to poor surface material and insufficient crowning. Ditches were extremely unstable and eroding as well due to high runoff volumes.



After (bottom): With new cross-culverts, turnouts and stabilized ditches, sediment is no longer carried to the stream tributary or the pond.



Jackson Lane Improvements

Three sites on Jackson way received cost-share funding to address unstable cross culverts and road ditching. Ditch Turnouts were also created in several areas to decrease flow volume heading downhill which can overwhelm culvert capacity.



Before (Left): Sediment choked culvert inlets.



After (Right): Reshaped and rip-rap stabilized ditches and culvert inlet.



After photos of a stabilized by-pass channel (left) and stable ditches (right).



Crockett Ridge Rd.

The Town of Norway stepped up to do some improvements on a section of Crockett Ridge Rd that had eroding shoulders and ditches that were sending large amounts of sediment into a stream tributary. They applied “Reclaim”, a mixture of gravel and crushed asphalt, to the shoulders to stabilize them. A level spreader sediment pool was created before the stream.



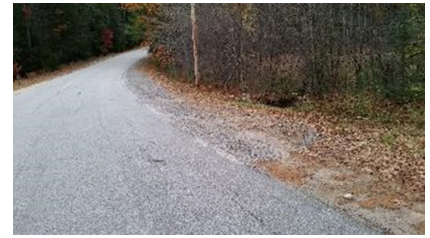
Before: Eroding road shoulders.



After (above): Rip-rap stabilized ATV trail entrance, “Reclaim” on the shoulder, plunge pool with level lip spreader at the terminus of the ditch before the stream crossing.



Before: Eroding gravel shoulder at stream crossing culvert.



After (above): Shoulder stabilized with 3/4” crushed gravel.



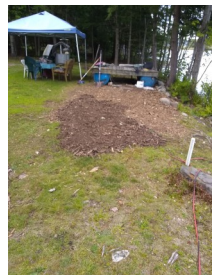
After (above): Shoulder stabilized with Reclaim and rip-rap.

Residential Improvements

Most of the erosion problems from stormwater runoff identified during the 2015 Watershed Survey were on residential properties and driveways. Several properties were addressed with driveway improvements that diverted runoff into stable vegetation, such as installing rubber razors (below left). One property on Jackson lane upgraded the steep stairs that led to the camp with new infiltration steps (center) which allow runoff to absorb into the ground through the gravel. Stabilizing a steep slope with rip-rap (right) is another BMP that was used to reduce erosion.



Shoreline buffers, planted on over a half dozen properties, help to absorb runoff and filter phosphorous before it reaches the pond where it could feed algae growth. Pathways protected with Erosion Control Mix mulch, and stone applied under roof driplines were other effective methods used to reduce erosion. These landowners received Residential Matching Grants to help defray expenses.



This project would not have been possible without the help of our valued partners!

- * Lake Association of Norway (LAON)
 - * Oxford County Soil & Water Conservation District (OCSWCD)
 - * Androscoggin River Watershed Council (ARWC)
 - * The Town of Norway
 - * Norway Savings Bank
 - * The Brook Family Foundation
 - * The Jackson Lane Road Association
 - * Maine Department of Environmental Protection, and...
- The North Pond Watershed Residents**

For more information on the North Pond Watershed Contact:

**The Lake Association of Norway,
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For more information about technical assistance and BMPs Contact:

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To access Fact Sheets with information on practices that homeowners can install on their properties to protect water quality go to the website below:
<http://www.maine.gov/dep/land/watershed/materials.html>



Project Partners (left to right), Sal Girifalco (LAON), Jeff Stern (ARWC), and Tom Webster (LAON) coordinated and implemented BMP work on the Beaver Way site reducing sediment input to North Pond by over 16 tons/year.

Maintenance Is Critical...

Many of the erosion control measures discussed in this brochure will require maintenance so they continue to prevent erosion in future years. Periodic maintenance is more cost-effective than fixing a site after a major erosion event occurs. The *Gravel Road Maintenance Manual*, a guidebook produced by MDEP, estimates \$1 spent on routine road maintenance saves \$15 in capital repairs. Road and driveway maintenance includes periodically cleaning out plunge pools, sediment basins and ditches, unplugging clogged culverts and maintaining the proper crown on gravel roads and driveways. Sediment that accumulates behind rubber razor bars will need to be cleaned occasionally, and buffer plants should be monitored to ensure they remain healthy and well-watered.

Funding for this project, in part, was provided by the U.S. Environmental Protection Agency under Section 319 of the Clean Water Act. Section 319 grants are administered by the Maine Department of Environmental Protection in partnership with EPA.