# Saturday Pond
# Watershed Survey Report

**Saturday Pond Watershed Association**
**Maine Department of Environmental Protection**

**January 2009**

# Acknowledgments

The following people and organizations were instrumental in the Saturday Pond Watershed Survey and deserve special recognition for their efforts:

**Watershed Survey Volunteers**

H. Carl Anderson
Eric Arnold
Ellen Attaliades
Eric Groves
Bruce LeBlanc
Steve Markarian
Gregory Milos
Gordon Peaco
Eric Williams
Ruth Wilson

**Steering Committee**

Carl Anderson, Ellen Attaliades, Bruce Leblanc, Gordon Peaco, Jacinthe Sirois, Eric Williams, and Ruth Wilson

**Survey Technical Staff**

| | |
|---|---|
| Kristin Feindel | Maine Department of Environmental Protection |
| Wendy Garland | Maine Department of Environmental Protection |
| Heather Germadnik | AmeriCorps Volunteer—Oxford County Soil and Water Conservation Service |
| Peter Marcinuk | Natural Resource Conservation Service |
| Ann Speers | AmeriCorps Volunteer—Maine Department of Environmental Protection |

**Sponsors**

Saturday Pond Watershed Association (SPWA)

with support from

Maine Department of Environmental Protection (DEP)

Town of Otisfield

Cover Photo by Jacinthe Sirois

# Table of Contents



When combined with many other similar sites throughout a watershed, even erosion from small sources such as this can have a significant impact on lake water quality.

# Introduction

This report is specifically designed for citizens living in the Saturday Pond Watershed. It provides the results and analysis of a soil erosion survey conducted in the Saturday Pond Watershed in 2008. The survey was conducted in response to concerns about the pond's water quality and a desire to preserve Saturday Pond's pristine quality for future generations to enjoy.

**WATERSHED**

All the land that surrounds a lake that drains or sheds its water into the lake through streams, ditches, over the land or through groundwater.

## Saturday Pond's Water Quality

Saturday Pond is a 170 acre pond located in the south central Maine town of Otisfield. The pond has a maximum depth of 25 feet, mean depth of 8 feet, and flushing rate of around once per year.

Volunteers have tested water quality in Saturday Pond since 1984. According to this data, Saturday Pond's water quality is considered to be slightly above average with a low potential for nuisance algal blooms. The long-time average water clarity is about 18 feet, which is three feet clearer than the average Maine lake, and would be even slightly better given some readings were visible all the way to the bottom of the pond. While the potential for phosphorus to leave the bottom sediments and become available to algae in the water column (also known as internal loading) is low, there has been some depletion of oxygen in deep areas of the lake in past years.


Saturday Pond's relatively good water quality has kept it off the various State lists of impaired or threatened waterbodies. However, indications such as the periodic low dissolved oxygen in the deep areas of the pond and qualitative changes observed by longtime residents of the pond indicate that while water quality is still good, some negative impacts are felt and sources of pollutants should be addressed for continued good water quality.

## Saturday Pond's Watershed

Saturday Pond's watershed (the region that drains to the pond—see inside red line in figure on left) covers 1.3 square miles. The water in the pond then outlets into Sucker Brook, which flows into Thompson Lake, then into the Androscoggin River, then Merrymeeting Bay, and ultimately into the Atlantic Ocean.

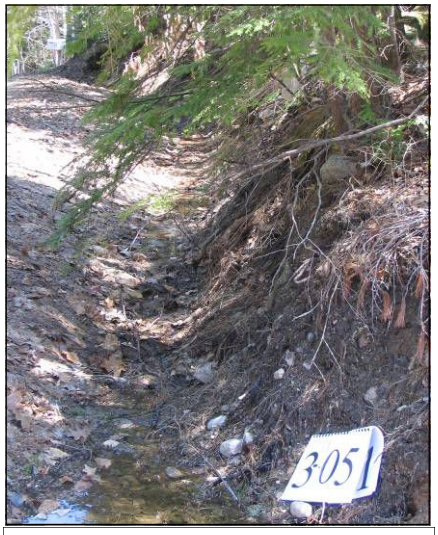
Activities in the entire watershed area—not just the shoreline areas—affect Saturday Pond's water quality.

## Why is the Water Quality at Risk?

The biggest pollution culprit in Saturday Pond and other Maine lakes is **polluted runoff** or nonpoint source (NPS) pollution. Storm water runoff from rain and snowmelt picks up soil, nutrients and other pollutants as it flows across the land, and washes into the lake.

**POLLUTED RUNOFF**

Also called nonpoint source pollution or NPS. Soil, fertilizers, septic waste, pet waste and other pollutants from diffuse sources across the landscape that are carried into the pond by rainfall.




Runoff erodes sediment and carries it into Saturday Pond.

In an undeveloped, forested watershed, storm water runoff is slowed and filtered by tree and shrub roots, grasses, leaves, and other natural debris on the forest floor. It then soaks into the uneven forest floor and filters through the soil.

In a developed watershed, however, storm water does not always receive the filtering treatment the forest once provided. Rain water picks up speed as it flows across impervious surfaces like rooftops, compacted soil, gravel camp roads and pavement, and it becomes a destructive erosive force. In this way, runoff from the developed areas in Saturday Pond watershed often washes directly into the lake or its small feeder streams.

## Why is Runoff a Problem?

The problem is not necessarily the water itself. It's the sediment and nutrients in the runoff that can be bad news for Maine lakes. Studies have shown that runoff from developed areas has 5 to 10 times the amount of **phosphorus** compared to runoff from forested areas.

Excess **phosphorus** can "fertilize" a lake and lead to nuisance **algal blooms**.

The nutrient, phosphorus, is food for algae and other plants and is found in soils, septic waste, pet waste and fertilizers. In natural conditions, the scarcity of phosphorus in a lake limits algae growth. However, when a lake receives extra phosphorus, algae growth increases dramatically. Sometimes this growth causes choking blooms, but more often it results in small changes in water quality that, over time, damage the ecology, aesthetics and economy of lakes.

Soil is the biggest source of phosphorus to Maine lakes. As every gardener knows, phosphorus and other nutrients are naturally present in the soil. So, we are essentially "fertilizing" Saturday Pond with the soil that erodes from our driveways, roads, ditches, pathways and beaches.

## Why should we protect Saturday Pond from polluted runoff?

- Once a lake has declined, it can be difficult or impossible to restore. Prevention is the key.
- The lake contains valuable habitat for fish, birds and other wildlife.
- Saturday Pond provides excellent recreational opportunities to local residents and to visitors. It is an important contributor to the local economy.
- A 1996 University of Maine study found that lake water quality affects property values. For every 3-foot decline in water clarity, shorefront property values can decline as much as 10 to 20%! Declining property values affect individual landowners as well as the entire community.
- Sediment deposited into the pond from erosion creates the ideal environment for invasive aquatic plants to thrive.




## What is being done to protect Saturday Pond?

The Saturday Pond Watershed Association (SPWA) was formed in 1993. The Association is "dedicated to the promotion and development of environmental quality standards" and "to preserve, enhance, and protect the advantages of Saturday Pond and its environs."

Education: The Saturday Pond Watershed Association provides education on pondside best management practices via annual gatherings, newsletters, and website. SPWA also works with agencies and watershed residents to promote environmental stewardship.

Water Quality Monitoring: Saturday Pond residents currently volunteer as they have in the past with the Volunteer Lakes Monitoring Program to collect water quality data and monitor for aquatic invasive species.

Watershed Survey: Volunteer watershed surveys have been found to be one of the most effective ways to protect pond water quality by getting citizens involved in identifying existing and potential sources of polluted runoff. SPWA worked with the DEP to conduct a watershed survey, as discussed in this report, in the spring of 2008. As a result of survey findings, some of the recommended solutions have already been completed on at least one road site in the watershed.

# The Purpose of the Watershed Survey

The primary purpose of the watershed survey was to identify and prioritize for remediation existing sources of polluted runoff, particularly soil erosion sites, in the Saturday Pond Watershed. However, of equal importance was to:

- Raise public awareness of the connection between land use and water quality, and the impact of polluted runoff.
- Inspire people to become active stewards of the watershed.
- Use the information gathered as one component of a long-term pond protection strategy.
- Make general recommendations to landowners for fixing erosion problems on their properties.

The purpose of the survey was NOT to point fingers at landowners with problem spots, nor was it to seek enforcement action against landowners not in compliance with ordinances.

The SPWA hopes that you will think about your own property as you read this report, and then try some of the recommended conservation measures. Everyone has a role to play in lake protection!

# The Survey Method

In the fall of 2007, the steering committee (see inside front cover for members) and DEP met to plan for the survey and prepare to mail letters to all landowners in the watershed. The letter informed landowners about the survey and gave them the opportunity to "opt-out" their property. Only a few landowners requested their property not be included in the survey, and these requests were honored.

The survey was conducted by volunteers with the help of trained technical staff from the DEP, the Natural Resource Conservation Service, and the Oxford County Soil and Water Conservation District. On April 26, 2008, ten volunteers were trained in the survey techniques during a two-hour classroom workshop. The classroom workshop was attended by volunteers for the Thompson Lake watershed survey, which also occurred that day as a separate event, as well. Following the classroom training, the volunteers and technical staff spent the remainder of that day documenting erosion on the roads, properties, driveways, and trails in their assigned sectors using cameras and standardized forms. The teams worked together throughout the next couple weeks to complete any unfinished sectors, resulting in the developed portions of the entire watershed being surveyed.

The collected data was entered into a computer database to create a spreadsheet, and the documented erosion sites were plotted on maps. The sites were broken out into categories (such as driveways, roads, private residences) and ranked based on their probable impact on the pond, the technical ability needed to fix the problem, and the estimated cost of fixing the problem. A description of sites and associated rankings are discussed in the next section of this report. A spreadsheet of the documented sites is located in Appendix A. Contact SPWA for additional site information.

# Summary of Watershed Survey Findings

Volunteers and technical staff identified 23 sites in the Saturday Pond Watershed that are impacting or have the potential to impact water quality. Some key conclusions include:

- The largest category of erosion sites (39%) were associated with private roads. These sites tend to be larger erosion problems with a greater lake impacts. Some are located back from the lake but erode into the lake's tributaries.

- 6 of the identified sites (26%) were found on residential areas and 4 (17%) of the identified sites were found on driveways. While most of these were determined to have a medium impact, many of them can be fixed easily with low cost. Individual landowners can play a big role in helping address these problems.

- Most sites can be fixed with low to moderate labor and materials cost. In fact, 53% of the sites were rated to have a low cost to fix (under $500 for materials and labor).

- Erosion sites were identified all around the watershed and on 6 different types of land uses. As such, everyone has a role to play in lake protection. The Town of Otisfield, shorefront property owners, road associations, lakefront landowners and even people living far from the lake can all take measures to reduce lake pollution.

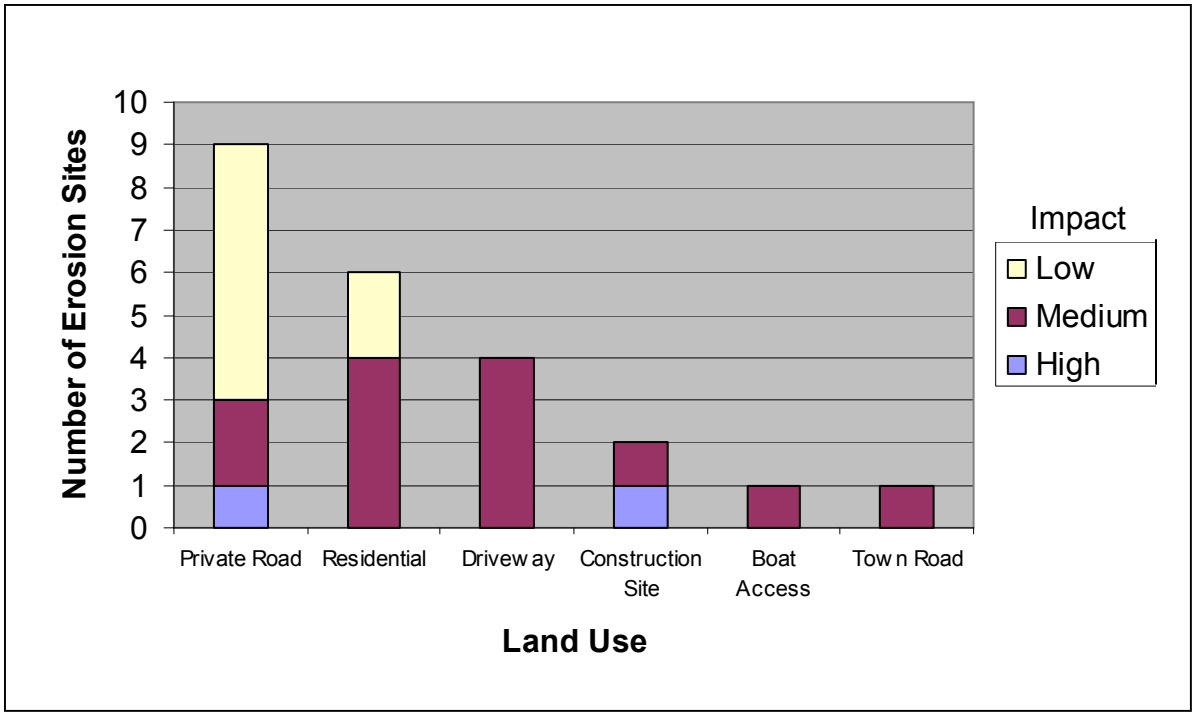


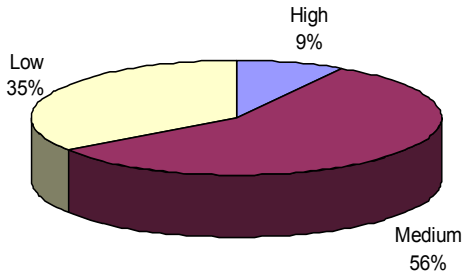

**Figure 1. Erosion Sites by Land Use**

**Table 1. Breakdown of site by land use categories and impact to lake.**

| Land Use | High Impact | Medium Impact | Low Impact | Total |
|---|---|---|---|---|
| Private Road | 1 | 2 | 6 | **9** |
| Residential | 0 | 4 | 2 | **6** |
| Driveway | 0 | 4 | 0 | **4** |
| Construction Site | 1 | 1 | 0 | **2** |
| Boat Access | 0 | 1 | 0 | **1** |
| Town Road | 0 | 1 | 0 | **1** |
| Total | **2** | **13** | **8** | **23** |

---

**Impact to Lake**—Each site was rated for its potential impact to the lake. Only 9% (2 of 23 sites) were deemed to have a high impact.

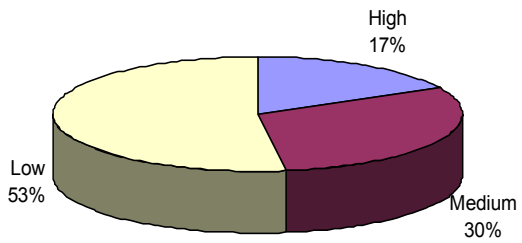



**Impact** was based on slope, soil type, amount of soil eroding, proximity to water or buffer, and buffer size.

- "Low" impact sites are those with limited soil transport off-site.
- At "medium" impact sites, sediment is transported off-site, but the erosion doesn't reach a high magnitude.
- "High" impact sites are large sites with significant erosion that flows directly into a stream or the lake.

---

**Cost to Fix Sites**—Recommendations were made for fixing each site and the associated cost of labor and materials were estimated. Only 4 sites (or 17%) entail a high cost. As shown below, most sites can be fixed inexpensively with low-cost materials like mulch and stone.

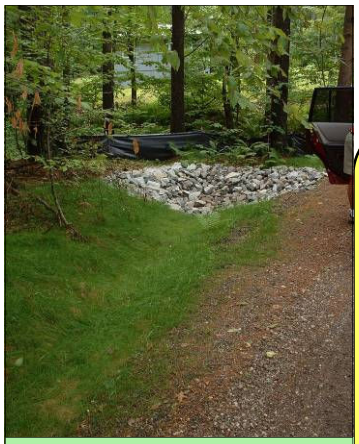



**Cost** is an important factor in planning for restoration. The cost of labor and materials to fix each site was rated as follows.

- "Low" cost sites were estimated to cost less than $500.
- An estimate of $500 to $2,500 was rated "medium".
- If the estimated cost to fix a site exceeded $2,500, a "high" rating was assigned.

# Private Roads and Driveways

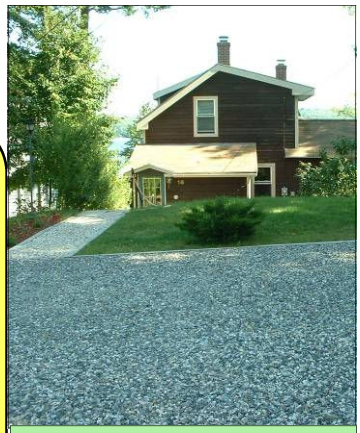
9 private road and 4 driveway sites had documented erosion problems. Of the private road sites, 1 had a high impact, 2 had medium impact and 6 had low impact. 8 of the private road sites can be fixed at a medium cost ($500-$2500) or low cost (under $500). Of the driveway sites, all 4 sites had medium impact, and 3 can be fixed at a low cost (under $500). Some of the most common problems and recommended conservation practices are pictured below.



**Ponding Areas—**Create small ponding areas to trap sediment and infiltrate driveway runoff.

**Before**— Stormwater washes sediment down steep driveway into lake.

**After**— The driveway was resurfaced and graded, and "rubber razors" were installed to direct water off the driveway and into vegetation.



**Road Material—**Add hard-packing, cohesive surface material to the driveway.

**Open Top Culverts—**Direct water off the road or driveway with open top culverts.

**Crown—**Grade the road so that water runs off the sides. Remove sand and grader berms from the edges of the road.

**Preserve water quality and save time, money and wear on your vehicle by having a lake-friendly camp road. Use adequate surface material, establish a crown, and add diversions to direct runoff into buffers.**

# Residential Areas

Of the 6 sites associated with residential areas, 2 were low impact and 4 were medium impact. 5 of the 6 sites can be fixed with low cost and 1 at medium. Some of the most common problems and recommended conservation practices are pictured below.

**Roof Runoff—**Install stone-filled trenches along the roof dripline to help infiltrate runoff.

**Before**

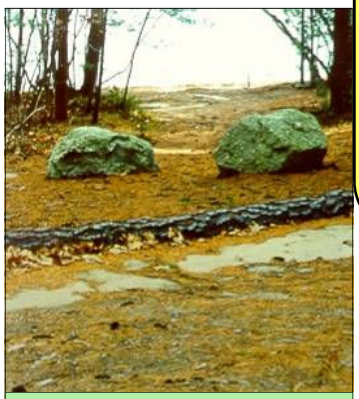
Loose, bare soil washed down hill directly into lake.

**After**

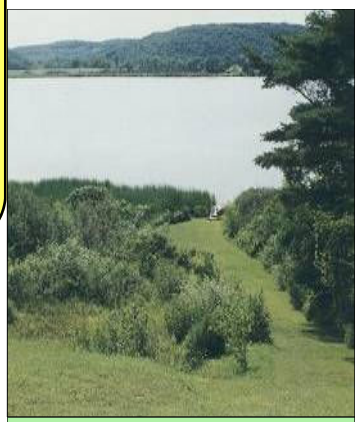
A winding path was created and covered with crushed stone.

Sides of the path were covered with bark mulch and planted with attractive shrubs and flowers.

**Mulch—**Place mulch such as P&K Gravel's "fine erosion control mix" on bare soil.



**Waterbars—**Place timbers or log "speed bumps" across paths to slow runoff and trap soil.



**Buffers—**Plant trees and shrubs along the shoreline or let them grow back naturally.

**Residential areas were associated with over a quarter (26%) of the identified sources of polluted runoff. These problems pose a significant threat to lake water quality. Fortunately, most of these sites can be corrected with easy, low cost fixes.**

# Next Steps ~ Where Do We Go From Here?

Fixing the sites identified in this survey will require efforts by individuals, the Saturday Pond Watershed Association, road associations and municipal officials.

**Saturday Pond Watershed Association**

- Distribute copies of the survey report or summary survey report to property owners, road associations and towns with identified erosion problems and encourage them to make improvements.
- Continue to increase and empower the association's membership, and provide educational materials and guidance to members of the Saturday Pond watershed community.
- Continue to partner with the Town of Otisfield, Oxford County SWCD, Maine DEP, and others to seek funding and implement projects to protect lake water quality.
- Organize workshops and volunteer "work parties" to start fixing identified erosion problems and teach citizens how to fix similar problems on their own properties.
- Educate municipal officials about lake issues and work cooperatively to find solutions.

**Individual Landowners**

- Look in the report or contact the SPWA to see if you have a identified erosion problem. If so, try to start fixing it.
- Stop mowing and raking your shoreline and parts of your property. Let lawn and raked areas revert back to natural plants. Deep shrub and tree roots help hold the soil.
- Avoid exposing bare soil. Seed and mulch bare areas.
- Read "Permitting ABCs" on page 12 and call the Town Code Enforcement Officer and DEP before starting doing any cutting or soil disturbance projects.
- Maintain septic systems properly. Pump septic tanks (every 2 to 3 years for year round residences; 4-5 years if seasonal) and upgrade marginal systems.
- Join the Saturday Pond Watershed Association and get involved with their activities.

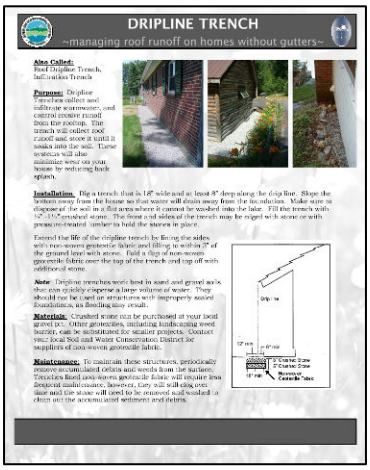
**Municipal Officials**

- Enforce shoreland zoning and other ordinances to ensure the protection of Saturday Pond.
- Conduct regular maintenance on town roads in the watershed.
- Participate in and support long term watershed management projects and watershed protection grant applications.
- Promote training for road crews, boards, commissions, and other decision-makers.

# Conservation Practices for Homeowners

After reading this report you probably have a general idea about how to make your property more lake-friendly. However, making the leap from concept to construction may be a challenge.

The Maine DEP and Portland Water District recently completed a series of fact sheets that answer many common how-to questions. The fact sheets profile 20 common conservation practices and include detailed instructions, diagrams and color photos about installation and maintenance. The series includes the following:

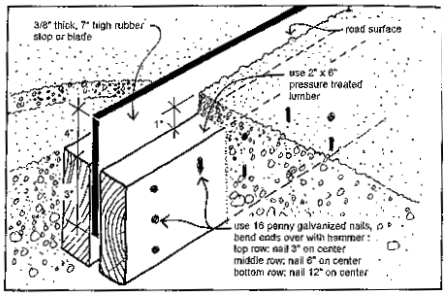

DRIPLINE TRENCH
~managing roof runoff on homes without gutters~

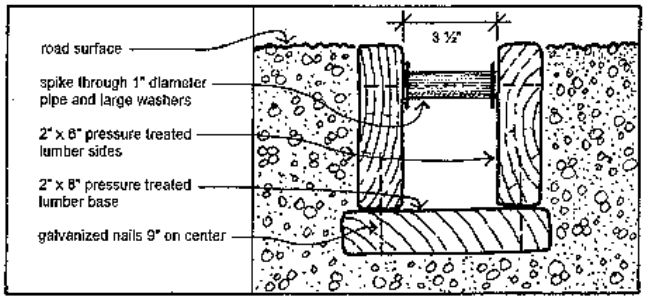
| | | |
|---|---|---|
| Construction Practices | Live Plant Staking | Rain Barrels |
| Dripline Trench | Native Plant Lists (6) | Rain Gardens |
| Drywells | Open-Top Culverts | Rubber Razors |
| Erosion Control Mix | Paths and Walkways | Turnouts |
| Infiltration Steps (2) | Permitting | Waterbars |
| Infiltration Trench | Planting Vegetation | |

The series includes six native plant lists. Each one is tailored to different site conditions (e.g., full sun and dry soils). The lists include plant descriptions from the DEP's *Buffer Handbook* and small color photos of each plant to make plant selection easier.

**Fact sheets are available to help you install conservation practices on your property. Download at http://www.maine.gov/dep/blwq/docwatershed/materials.htm.**

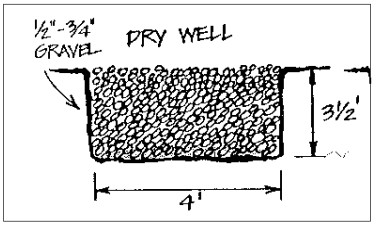
**Rubber Razor Blade:** Use this structure in a gravel driveway or camp road. It can be plowed over only if the plow operator is aware of its presence and lifts the plow blade slightly. Place it at a 30 degree angle to the road edge and direct the outlet toward a stable vegetated area.




**Open Top Culvert:** Use this structure in a gravel driveway or camp road that does not get plowed in the winter. Place it at a 30 degree angle to the road edge and point the outlet into stable vegetation. Remove leaves and debris as needed.

**Drywell:** Use a drywell to collect runoff from roof gutter downspouts. Drywells can be covered with sod, or left exposed for easy access and cleanout. Drywells and infiltration trenches work best in sandy or gravelly soils.



# Permitting ABC's

Protection of Maine's watersheds is ensured through the goodwill of lake residents and through laws and ordinances created and enforced by the State of Maine and local municipalities. The following laws and ordinances require permits for activities adjacent to wetlands and waterbodies.

***Shoreland Zoning Law—***Construction, clearing of vegetation and soil movement within 250 feet of lakes, ponds, and many wetlands, and within 75 feet of most streams, falls under the Shoreland Zoning Act, which is administered by the Town through the Code Enforcement Officer and the Planning Board.

***Natural Resources Protection Act (NRPA) -*** Soil disturbance & other activities within 75 feet of the lakeshore or stream also falls under the NRPA, which is administered by the DEP.

Contact the DEP and Town Code Enforcement Officer if you have any plans to construct, expand or relocate a structure, clear vegetation, create a new path or driveway, stabilize a shoreline or otherwise disturb the soil on your property. Even if projects are planned with the intent of enhancing the environment, contact the DEP and town to be sure.

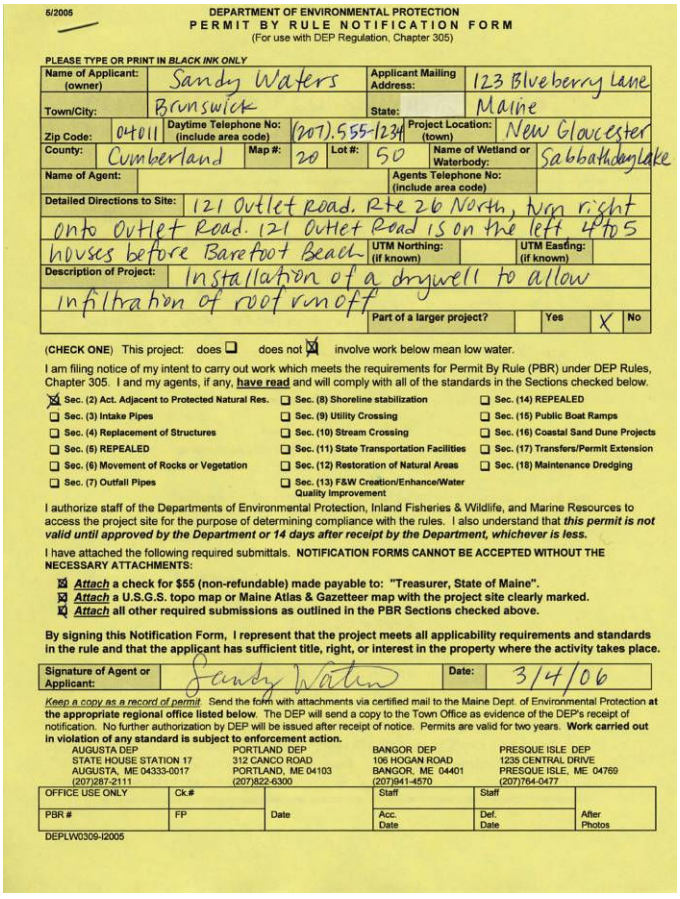
**How to apply for a Permit by Rule with DEP:**

To ensure that permits for small projects are processed swiftly, the DEP has established a streamlined permit process called **Permit by Rule**. These one page forms (shown here) are simple to fill out and allow the DEP to quickly review the project.

- Fill out a notification form before starting any work. Forms are available from your town code enforcement officer, Maine DEP offices, or online at http://www.state.me.us/dep/blwq/docstand/nrpa/pbrform.pdf

- The permit will be reviewed by DEP within 14 days. If you do not hear from DEP in 14 days, you can assume your permit is approved and you can proceed with work on the project.

- Follow all standards required for the specific permitted activities to keep soil erosion to a minimum. It is important that you obtain a copy of the standards so you will be familiar with the law's requirements.



5/2005

DEPARTMENT OF ENVIRONMENTAL PROTECTION
PERMIT BY RULE NOTIFICATION FORM
(For use with DEP Regulation, Chapter 305)

PLEASE TYPE OR PRINT IN *BLACK INK ONLY*

| | | | |
|---|---|---|---|
| Name of Applicant: (owner) | Sandy Waters | Applicant Mailing Address: | 123 Blueberry Lane |
| Town/City: | Brunswick | State: | Maine |
| Zip Code: 04011 | Daytime Telephone No: (include area code) (207).555-1234 | Project Location: (town) | New Gloucester |
| County: Cumberland | Map #: 20 | Lot #: 50 | Name of Wetland or Waterbody: Sabbathday Lake |
| Name of Agent: | | Agents Telephone No: (include area code) | |
| Detailed Directions to Site: | 121 Outlet Road. Rte 26 North, turn right onto Outlet Road. 121 Outlet Road is on the left 4 to 5 houses before Barefoot Beach | UTM Northing: (if known) | UTM Easting: (if known) |
| Description of Project: | Installation of a drywell to allow infiltration of roof runoff | Part of a larger project? | Yes X No |

(CHECK ONE) This project: does ☐ does not ☒ involve work below mean low water.

I am filing notice of my intent to carry out work which meets the requirements for Permit By Rule (PBR) under DEP Rules, Chapter 305. I and my agents, if any, have read and will comply with all of the standards in the Sections checked below.

- ☒ Sec. (2) Act. Adjacent to Protected Natural Res.
- ☐ Sec. (3) Intake Pipes
- ☐ Sec. (4) Replacement of Structures
- ☐ Sec. (5) REPEALED
- ☐ Sec. (6) Movement of Rocks or Vegetation
- ☐ Sec. (7) Outfall Pipes
- ☐ Sec. (8) Shoreline stabilization
- ☐ Sec. (9) Utility Crossing
- ☐ Sec. (10) Stream Crossing
- ☐ Sec. (11) State Transportation Facilities
- ☐ Sec. (12) Restoration of Natural Areas
- ☐ Sec. (13) F&W Creation/Enhance/Water Quality Improvement
- ☐ Sec. (14) REPEALED
- ☐ Sec. (15) Public Boat Ramps
- ☐ Sec. (16) Coastal Sand Dune Projects
- ☐ Sec. (17) Transfers/Permit Extension
- ☐ Sec. (18) Maintenance Dredging

I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules. I also understand that ***this permit is not valid until approved by the Department or 14 days after receipt by the Department, whichever is less.***

I have attached the following required submittals. **NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS:**

- ☒ ***Attach*** **a check for $55 (non-refundable) made payable to: "Treasurer, State of Maine".**
- ☒ ***Attach*** **a U.S.G.S. topo map or Maine Atlas & Gazetteer map with the project site clearly marked.**
- ☒ ***Attach*** **all other required submissions as outlined in the PBR Sections checked above.**

**By signing this Notification Form, I represent that the project meets all applicability requirements and standards in the rule and that the applicant has sufficient title, right, or interest in the property where the activity takes place.**

| Signature of Agent or Applicant: | Sandy Waters | Date: | 3/4/06 |
|---|---|---|---|

*Keep a copy as a record of permit* Send the form with attachments via certified mail to the Maine Dept. of Environmental Protection **at the appropriate regional office listed below**. The DEP will send a copy to the Town Office as evidence of the DEP's receipt of notification. No further authorization by DEP will be issued after receipt of notice. Permits are valid for two years. **Work carried out in violation of any standard is subject to enforcement action.**

| AUGUSTA DEP | PORTLAND DEP | BANGOR DEP | PRESQUE ISLE DEP |
|---|---|---|---|
| STATE HOUSE STATION 17 | 312 CANCO ROAD | 106 HOGAN ROAD | 1235 CENTRAL DRIVE |
| AUGUSTA, ME 04333-0017 | PORTLAND, ME 04103 | BANGOR, ME 04401 | PRESQUE ISLE, ME 04769 |
| (207)287-2111 | (207)822-6300 | (207)941-4570 | (207)764-0477 |

| OFFICE USE ONLY | Ck.# | | Staff | Staff | |
|---|---|---|---|---|---|
| PBR # | FP | Date | Acc. Date | Def. Date | After Photos |

DEPLW0309-I2005

**Appendix A: Saturday Pond Watershed Survey Data**
*May 2008*

| Mapsite # | Land Use | Type of Problem | Area | Recommendations | Impact | Cost |
|---|---|---|---|---|---|---|
| BT1 | Boat Access | Moderate road shoulder erosion/undercut; slight surface erosion; shoreline undercut | 10' x 15' | Vegetate shoulder; install runoff diverter uphill of launch; establish buffer | Medium | Low |
| CS1 | Construction Site | Severe surface erosion; bare soil; uncovered pile; failing silt fence | ~250' x ~1,000' | Add new surface material; reshape and grade driveway; vegetate shoulder; use erosion control mulch, silt fence, or seed/hay; cover piles; minimize lawn area; vegetate/landscape very soon to minimize impact on pond; could use roof run-off for irrigation | High | High |
| CS2 | Construction Site | Unstable culvert inlet/outlet; severe ditch erosion; moderate surface erosion; uncovered soil pile; failing silt fence | 100' x 20' | Remove culvert clog; vegetate ditch; repair silt fence; cover pile of dirt | Medium | Low |
| D1 | Driveway | Severe surface erosion | 10' x 300' | Add new surface material; reshape and grade; install runoff diverters such as rubber razors | Medium | Low |
| D2 | Driveway | Severe surface erosion | 50' x 200' | Vegetate shoulder at the end of driveway; install runoff diverters; establish buffer/vegetation | Medium | Low |
| D3 | Driveway | Moderate surface erosion; bare soil | 12' x 200' | Install runoff diverters such as broad-based dip or waterbar; near house by exposed roots - add more crushed stone and surround with mulch | Medium | Low |
| D4 | Driveway | Slight ditch erosion; moderate surface erosion | | Install 2 broad-based dips - one at top of driveway & one on right before culvert to direct water towards culvert; use erosion control mulch in ditch areas; add 1 1/4" gravel in driveway; use erosion control mulch by trash barrels; take rise off left hand side of driveway by left cabin (where parking area is) | Medium | High |
| PR1 | Private Road | Clogged culvert; inadequate ditch size; moderate shoulder erosion; winter sand | 5' x 5' | Remove clog; enlarge culvert; install ditch and armor with stone; remove winter sand | Low | Medium |
| PR2 | Private Road | Clogged culvert; inadequate ditch size; moderate shoulder erosion; winter sand | 5' x 800' | Remove clog; reshape ditch; install check dams; remove winter sand | Low | Medium |
| PR3 | Private Road | Moderate surface erosion | 2-4' x 800' | Reshape/crown road; vegetate shoulder; install runoff diverters | Low | Medium |
| PR4 | Private Road | Unstable culvert inlet/outlet; severe road shoulder erosion | 10' x 20' | Armor culvert inlet/outlet | Low | Low |

| Mapsite # | Land Use | Type of Problem | Area | Recommendations | Impact | Cost |
|---|---|---|---|---|---|---|
| PR5 | Private Road | Unstable culvert inlet; slight road shoulder erosion; moderate ditch erosion; winter sand | 12' x 5' | Armor culvert inlet; armor ditch with stone; do not plow into culvert outlet; remove winter sand | Low | Low |
| PR6 | Private Road | Moderate ditch erosion | 4' x 150' | Vegetate shoulder; set back telephone pole 5'; remove several large trees and add low vegetation; place erosion control mulch on banks; remove boulder; install stone plunge pool | High | High |
| PR7 | Private Road | Moderate erosion at culvert area | 10' x 25' | Install 2 check dams on either side; add stone plunge pool on both sides of road | Medium | High |
| PR8 | Private Road | Moderate ditch erosion | 3' x 100' | Vegetate shoulder; cut back small trees as necessary | Medium | Medium |
| PR9 | Private Road | Slight to severe road shoulder erosion; slight to moderate surface erosion | | Add new surface material; vegetate shoulder; install runoff diverters | Low | Medium |
| R1 | Residential | Inadequate shoreline vegetation; unstable shoreline access | 10' x 70' | Define foot path; use erosion control mulch; establish buffer/vegetation; stabilize shoreline access | Low | Low |
| R2 | Residential | Severe surface erosion; uncovered pile | 150' x 150' | Vegetate ditch; use erosion control mulch; establish buffer/vegetation; improve and use more silt fence and/or seed/hay | Medium | Medium |
| R3 | Residential | Slight ditch erosion | 2' x 75' | Install rain garden | Low | Low |
| R4 | Residential | Slight surface erosion | 16' x 16' | Install infiltration trench; use erosion control mulch; establish buffer/vegetation | Medium | Low |
| R5 | Residential | Moderate surface erosion; bare soil; undercut shoreline | 25' x 25' | Define foot path; use erosion control mulch; establish vegetation | Medium | Low |
| R6 | Residential | Slight surface erosion generally; moderate surface erosion under roof line; bare soil; inadequate shoreline vegetation | 40' x 10' | Define foot path; install infiltration trench; use erosion control mulch; enhance shoreline with more native plants | Medium | Low |
| TR1 | Town Road | Unstable culvert inlet/outlet; severe ditch erosion; severe road shoulder erosion; winter sand | 5' x 1000' | Armor culvert inlet/outlet; reshape and armor ditch with stone; install check dams; vegetate shoulder; remove winter sand | Medium | Medium |

# Where Do I Get More Information?

## Contacts

**Saturday Pond Watershed Association**
www.saturdaypond.org
Ellen Attaliades—President, eattaliades@saturdaypond.org
Carl Anderson—Vice President, (207) 539-9995

**Maine Department of Environmental Protection**
17 State House Station, Augusta, ME 04333
Toll Free in Maine (800) 452-1942 or (207) 287-7688
www.maine.gov/dep

Provides permit applications and assistance, numerous reference materials, environmental education, funding opportunities, and stewardship activities for lakes.

**Oxford County Soil and Water Conservation District**
1570 Main Street, Suite #10, Oxford, ME 04270
(207) 743-5789 x1, susan.gammon@me.nacdnet.net

Offers assistance with watershed planning, environmental education, engineering support, seminars and training sessions, and education on the use of conservation practices.

## Publications

**Camp Road Maintenance Manual: A Guide for Landowners.** Kennebec County SWCD and Maine DEP. 2000. 54 pgs. www.maine.gov/dep/blwq/docwatershed/materials.htm.

**Conservation Practices for Homeowners.** Maine DEP and Portland Water District. 2006. 20 fact sheets. www.maine.gov/dep/blwq/docwatershed/materials.htm.

**A Homeowner's Guide to Environmental Laws Affecting Shorefront Property in Maine's Organized Towns.** Maine DEP. 2003. DEPLW0320-D2003. Booklet. 42 pgs. www.maine.gov/dep/blwq/docwatershed/materials.htm.

**Maine Shoreland Zoning—A Handbook for Shoreland Owners.** Maine DEP. 1999. DEPLW 1999-2. 34 pgs.

**A Guide to Forming Road Associations.** York County SWCD. 2004. 57 pgs. & CD ROM. www.maine.gov/dep/blwq/docwatershed/roadassociation.htm.