

# Branch Lake Watershed Improvement Project- Phase I #2007RR01 Final Project Report March 2009



Grantee: Hancock County Soil & Water Conservation District  
190 Bangor Road, Ellsworth, ME 04605  
(207) 667-8663

Contact Person: Megan Facciolo  
Project Start Date: April 2007  
Project Completion Date: March 2009

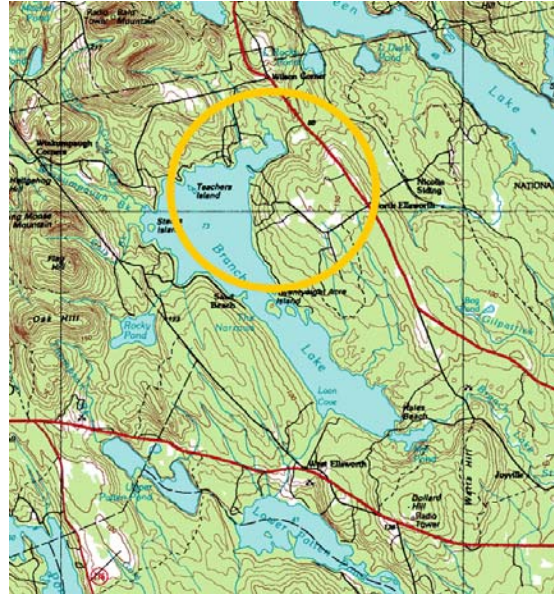
This project was funded in part by the Maine DEP through a US EPA Nonpoint Source Grant under Section 319 of the federal Clean Water Act



## I. Project Overview

### **Purpose**

The purpose of the Branch Lake Watershed Improvement Project was to significantly reduce erosion and the export of sediment and phosphorus in the northeast region of the Branch Lake watershed and help protect water quality. This was accomplished by implementing a variety of best management practices on road sites and residential sites, updating the watershed survey, and developing a long-range watershed outreach plan.



### **Key Personnel**

The key project staff included Megan Facciolo, Hancock County Soil and Water Conservation District (HCSWCD) District Manager; Greg Beane, Department of Environmental Protection (DEP) Agreement Administrator; and Laura Wilson, University of Maine Cooperative Extension (UMCE) Water Quality Program. Community project support was provided by the City of Ellsworth, Branch Lake 319 Steering Committee members, Ellsworth Water Supply Commission, members of the Branch Pond Association, the Phillips Beach Road Association, the Wilson Way Road Association, residents of Reed Way, the Cove Way Road Association, the Sargent Drive Road Association, and residents of the Branch Lake watershed.

### **Highlights**

- This project addressed 26 road sites and 7 residential sites in the northeastern section of the watershed to reduce erosion and help protect water quality. Some of the best management practices (BMPs) installed included vegetative buffers, new culverts, ditching, open-top culverts, and turnouts.
- An estimated reduction of over 180 tons of sediment, over 159 pounds of phosphorus, and over 318 pounds of nitrogen from entering Branch Lake per

year.

- The development of a long-range plan for education/outreach needs in the Branch Lake Watershed (see Appendix A).
- 8 public outreach activities were held including Gravel Road Maintenance workshops, a Watershed Stewards Program, a Low-Impact Development workshop, Watershed Survey Trainings, and Buffer Boat Cruises for the City of Ellsworth staff and City Council.
- Update of the watershed survey and the creation of a Watershed Survey Report which identifies remaining erosion issues around the lake.

### **Project Successes**

- This project forged good relationships between landowners, municipal officials, road commissioners, and professionals to work together towards protecting the water quality of Branch Lake.
- The total non-federal match for this project was \$69,517, which is over \$17,000 more than workplan estimates. On top of this, many hours were donated by NRCS and UM Coop. Ext. for technical assistance during the project.
- This project fueled interest in residents of other lakes who have contacted us to work with them on their water quality issues.

### **Project Challenges**

- The District employee who wrote the initial grant left the District in April and a new District Manager was not hired until the end of June. Due to this transition, grant work was not started until July, which dramatically reduced the amount of time available to install practices during the first year. However, all deadlines were met throughout this project.
- It was difficult to keep steering committee meetings going during the winter because so many Branch Lake residents leave the area. Some work was able to continue via email.

## Task Summary

### **Task 1: Project Management**

*Workplan:* Sign contract with DEP, track project progress, expenses, matching funds, and submit semi-annual progress reports, pollutants controlled reports, and the final report.

*Completed:* All of the above, detailed in the Deliverables Summary section.

*Notes:* All items in the workplan were turned in on time as scheduled.

### **Task 2: Steering Committee**

*Workplan:* Organize a Steering Committee, including representatives from the Branch Pond Association (BPA), residents of the Branch Pond watershed, the City of Ellsworth, the Ellsworth Water Supply Commission, the University of Maine Cooperative Extension Water Quality Program, and the MDEP. The Committee will meet 6 times during the project.

*Completed:* The Steering Committee met 6 times during this project- July 2007, September 2007, October 2007, July 2008, September 2008, and February 2009. All above groups/organizations were represented on the Steering Committee.

*Notes:* Meetings during the winter proved to be difficult because many folks left the area and we had three meetings get canceled due to snowstorms. Email became an option and was somewhat effective in getting responses and sharing ideas.

### **Task 3: NPS Mitigation Projects**

*Workplan:* Plan and implement 18 high and medium priority road sites and 1 public boat launch. Cost-share and operation/maintenance agreements will be prepared and signed. Develop NPS summary reports for each site where NPS mitigation work was done.

*Completed:* A total of 26 sites were treated with BMPs, including 2 at the public boat launch. Cost-share and operation/maintenance agreements were prepared and signed and site reports were completed for each site.

*Notes:* We completed 7 more sites than what was listed in the workplan. All items in the workplan were turned in on time as scheduled.

**Chart of road sites treated with BMPs**

| <b>Road</b>                      | <b># of Sites</b> | <b>BMPs Installed</b>   |
|----------------------------------|-------------------|---|
| Phillips Way                     | 6                 | New culverts, creation of culvert inlet & outlet areas, bringing up road grade, ditching (fabric and rock), rock culvert faces, regrading, resloping roads.                             |
| Wilson Way                       | 4                 | Ditching (fabric and rock), creation of plunge pools, new culverts, regrading, bringing up road grade.  |
| Reed Way                         | 1                 | Ditching (seed and mulch), resloping the road, regrading, turnouts.   |
| Cove Way                         | 7                 | New culverts, creation of culvert inlet & outlet areas, bringing up road grade, regrading, ditching (fabric and rock or seed and mulch), rock culvert faces, resloping roads, turnouts. |
| Sargent Drive                    | 3                 | New culverts, road grade brought up, ditching (seed and mulch), culvert inlet & outlet areas created, regrading.  |
| Ellsworth Boat Launch            | 2                 | Bringing up road grade, slanted launch using large surface material, fabric and rock swale, rubber razors, resloping the adjacent bank and installation of new sod.                     |
| Walls Farm Way                   | 1                 | Ditching (fabric and rock), new culvert, creation of culvert inlet & outlet plunge pools.   |
| Wilson Way- 2 <sup>nd</sup> half | 2                 | Turnouts, bringing up road grade, tilting the road, ditching (seed and mulch).  |
| <b>Total:</b>                    | <b>26</b>         |   |

**Task 4: Residential Property NPS Mitigation Projects**

*Workplan:* A matching grants program will be established awarding up to 20 residential properties up to \$300 (1:1 funding match) for conservation practices. Each recipient will sign a formal agreement which will specify the proper work to be done.

*Completed:* 7 residential sites were addressed through this grant for practices including the installation of open-top culverts, stone lined ditches, and vegetative buffers. Each recipient signed a formal work and cost-share agreement.

*Notes:* More assistance was offered, but some residents chose not to go ahead with work or they chose to do the fixes on their own after technical assistance was provided by the District.

**Chart of residential properties treated with BMPs**

| <b>Name</b>  | <b>Site</b>      | <b>BMPs Installed</b>   |
|--------------|------------------|---|
| J. Blood     | 15 Eben's Way    | Installation of two open top culverts, brought in new driveway material, the driveway was crowned, and buffer plantings were added between the driveway and the lake. |
| Cate/Wilkins | 215 Phillips Way | Resloped the existing channel and installed geotextile fabric and rock.   |
| A. Hayes     | 297 Phillips Way | Repaired an existing retaining wall (less than 50% needed work).  |

| Name       | Site               | BMPs Installed   |
|------------|--------------------|--|
| T. Houston | 160 Old County Way | Catch basin installed, the driveway was regraded and sloped, installed two vegetated/rocked swales, and installed plantings. |
| J. Blair   | 109 Sargent Drive  | Redirected stormwater flow beside the camp by excavating the channel and stabilizing it with fabric and rock.                |
| M. Blair   | 115 Sargent Drive  | Installed an open top culvert and recrowned the driveway.  |
| B. Weiland | 79 Wildwood Drive  | Installed a shoreline vegetative buffer of trees and shrubs and they stopped mowing as close to the water.                   |

### **Task 5: Education and Outreach**

*Workplan:* An outreach planning session for Steering Committee members will be held to identify outreach priorities. These sessions will produce a long-range plan for education/outreach needs in the Branch Lake watershed which will identify and guide the implementation of at least 3 public education activities. UMCE will also offer a Watershed Stewards Program and a “Hey You” Boat Cruise will be organized for the Ellsworth City Council. Project updates will be prepared for the BPA and UMCE Water Quality Program newsletters, and for HCSWCD’s newsletters and website.

*Completed:* Three outreach planning sessions were held and a long-range outreach plan was developed (see Appendix A). 8 Public education activities were held including: A Watershed Stewards Program (23 attendees), 2 Watershed Survey Trainings (33 attendees), 2 Gravel Road Maintenance and Road Association Workshops (83 attendees), a Low-Impact Development workshop for the Ellsworth City Council was organized, and 2 Boat Cruises- one for City of Ellsworth staff and one for Ellsworth City Council members.

*Notes:* The workplan required 3 education activities and we accomplished 8. I think our success is due to the outreach plan which really helped focus our educational programs and workshops.

### **Task 6: Pollution Reduction Estimations**

*Workplan:* Pollutant load reduction estimates will be developed and reported for all NPS sites (road and residential). The results will be summarized and submitted to DEP as the Pollutants Controlled Report by December 31<sup>st</sup> of each year until project completion.

*Completed:* Pollutant load reduction estimates were done for all NPS sites and two Pollutant Controlled Reports were turned in on time as scheduled. Total pollutant

control reductions estimates for this project are:

- 181.9 tons of sediment per year
- 159.1 pounds of phosphorus per year
- 318.9 pounds of nitrogen per year
- Over 600' of shoreline/streambank was protected

*Notes:* We feel that the numbers above help to validate the selection of sites that were addressed through this project and we are very proud of the large amount of estimated pollutant reductions.

**Task 7: Provide Technical Assistance**

*Workplan:* Technical assistance will be provided to at least 49 sites. Availability of this assistance will be advertised through a direct mailing to watershed residents and through BPA, UMCE, and District newsletters.

*Completed:* Technical assistance was advertised by a direct mailing to watershed residents (600+), in the BPA and District newsletters, at the BPA Annual Meetings, and on the District website. Technical assistance was provided to 38 watershed residents (see Appendix B). Also, technical assistance on fixing road and driveway issues was provided to the 80+ attendees at the Road workshops.

*Notes:* We fell slightly short of our goal under this category in terms of documented technical assistance, but if you also add in the workshop attendees, many people were educated and/or assisted through this grant. People continue to call the District for technical assistance and we will continue to provide it for interested individuals long after this grant is completed.

**III. Deliverables Summary**

| Deliverable  | Date Submitted                                    | Value  |
|--|---|--|
| 1) Signed Grant Agreement                                | 3/15/07   | Very useful for understanding expectations.  |
| 2) Semi-Annual Progress Reports and Final Project Report | 5/14/07, 10/29/07, 5/1/08, 11/4/08<br><br>3/24/09 | Useful for keeping track of the current status of work and for assessing the overall success of the project. |

|  |  |  |
|--|--|--|
| 3) NPS Site Reports of NPS Projects                  | 10/1/07, 10/26/07, 7/23/08, 9/18/08, 10/17/08, 10/27/08, 12/8/08                 | Very useful for creating a record of site work that was done.                                |
| 4) NPS Site Reports of Residential Property Projects | 9/19/07, 9/18/08, 9/30/08, 10/17/08, 11/3/08                                     | Very useful for creating a record of site work that was done.                                |
| 5) Copy of key Educational and Outreach Materials    | 7/30/07, 9/19/07, 10/10/07, 2/7/08, 7/23/08, 9/18/08, 10/17/08, 2/10/09, 2/24/09 | Useful in documenting what outreach was done and for assessing the outreach.                 |
| 6) Pollutants Controlled Report                      | 12/4/07, 11/25/08  | Useful in trying to give a quantitative number for environmental results.                    |
| 7) Summary of Technical Assistance Provided          | 1/13/09  | Useful for determining how much recorded technical assistance occurred throughout the grant. |
| 8) Copy of the Updated 1998 Watershed Survey Report  | 3/23/09  | Very valuable in determining what erosion issues still remain in the watershed.              |

## IV. Project Outcomes

### **Major Outcomes**

- This project successfully fixed 34 erosion sites in the watershed, keeping an estimated 181 tons of sediment, 159 pounds of phosphorus, and 318 pounds of nitrogen out of the lake each year. Also, over 600' of shoreline/streambank was protected.
- This project incorporated an extensive number and variety of conservation practices including:
 

|                                 |  |
|---------------------------------|--|
| Catch Basins- 1                 | Ditch Installation/Stabilization- 23             |
| Turnouts Installation/Repair- 6 | Road Surface/Driveway Stabilization- 14          |
| Rubber Razors- 1                | Retaining Wall Repairs- 1                        |
| Open Top Culverts- 3            | Infiltration Trench- 1                           |
| Native Buffer Plantings- 3      | Inlet/Outlet Plunge Pool Installation/Repair- 16 |
| New Culverts- 12                |  |
- An update of the 1998 Branch Lake Watershed Survey was completed and a Watershed Survey Report was generated. This report will be used to further target erosion issues in the watershed by both the District and the City of Ellsworth.
- The development of a long-range plan for education and outreach needs in the

watershed: “Outreach Plan for the Branch Pond Watershed” (see Appendix A). This plan serves as a living document that is to be used to guide efforts by partners in the Branch Lake protection effort.

- 8 public education/outreach activities were organized during this grant including:
  - 2- Watershed Survey Trainings- 33 attendees
  - 2- Gravel Road Maintenance Workshops- 83 attendees
  - 1- Watershed Stewards Program- 23 attendees
  - 1- Low-Impact Development Workshop- Ellsworth City Council
  - 2- Buffer Boat Cruises- For Ellsworth City Staff and Ellsworth City Council

**Environmental Results**

- An estimated reduction of 181 tons of sediment, 159 pounds of phosphorus, and 318 pounds of nitrogen from entering the lake each year. Also, over 600’ of shoreline/streambank was protected.

**Lessons Learned**

- It is very difficult to hold Steering Committee meetings during the winter because of cancellations due to snowstorms and many residents leave the area for the winter. Some planning is able to be done via email. Lessons: Make sure to have everyone’s current email addresses and try to have a majority of planning work done by the fall or save it for the Spring.

*V. Summary of Total Expenditures*

|                        | NPS Grant | Non-Federal Match |
|------------------------|-----------|-------------------|
| Grant Agreement Amount | \$73,165  | \$51,941          |
| Funds Expended         | \$73,165  | \$69,517          |
| Funds Balance          | \$0       | ( \$17,576)       |

*VI. Non-Federal Match Documentation/Certification*

All non-federal match is outlined in Appendix C.

**Grantee Information:**

Name: Hancock County Soil and Water Conservation District  
 Address: 190 Bangor Road  
 Ellsworth, ME 04605

Telephone: (207) 667-8663 ext. 3  
Contact Person: Megan Facciolo, District Manager

**Project Information**

Project Title: Branch Lake Watershed Improvement Project- Phase I

Project ID#: 2007RR01

Match Amount planned under the Grant Agreement \$51,941

Match Amount Claimed \$69,517

**Certification Statement:**

I certify that the non-federal match detailed in the attached information were expended in the course of completing work described in the Grant Agreement for the Project referenced above, and that detailed documentation of the match information is on file and available for review at the Grantee address shown above.



2/1/09

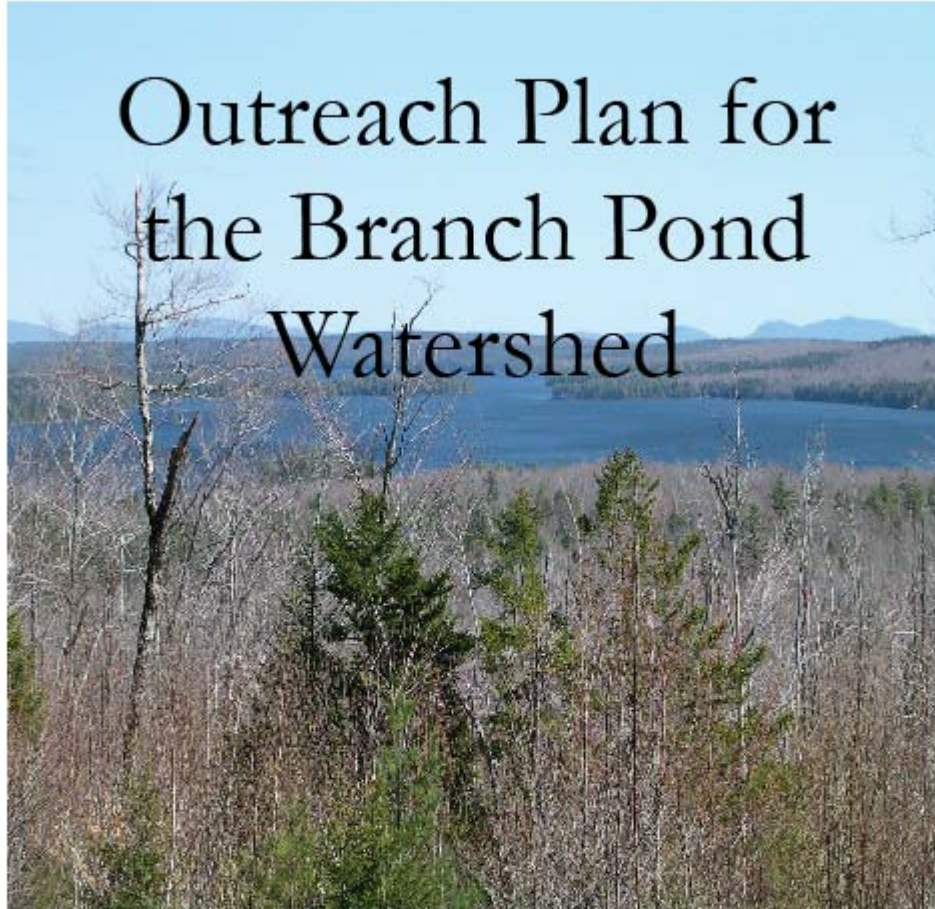
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Signature of Grantee- Authorized Official

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Date

**Appendix A- Long-range education/outreach plan**



2009—2011

January, 2009



**Introduction:**

Branch Pond (also known as Branch Lake) is a 2942 acre lake located in the City of Ellsworth, Maine. The average depth of Branch is 39 feet, with a maximum depth of 124 feet.

Branch is a clear lake, with average Secchi disk transparencies of over eight meters. The lake is divided into two basins. For water quality purposes, these are called basin 1 (locally known as the “upper lake”) and basin 2 (the “lower lake”).

Water quality has been a concern of the local residents. The local lake association (the Branch Pond Association) has supported several volunteer data collection and outreach efforts in the past decade. These efforts include the University of Maine Cooperative Extension’s (UMCE’s) Watershed Stewards Program, partnerships with the Hancock County Soil and Water Conservation District (HCSWCD) and Maine Department of Environmental Protection (DEP) for funding through the Clean Water Act Section 319 program, The DEP’s LakeSmart program, water quality monitoring through the Maine Volunteer Lake Monitoring Program, and invasive aquatic plant screenings through the Maine Volunteer Lake Monitoring Program’s Center for Invasive Aquatic Plants.

Branch Pond is also the drinking water source for the city of Ellsworth. The City of Ellsworth has become a partner in efforts to protect the lake, and has enacted ordinances and hired a water dis-

trict employee (the Branch Lake Steward) to work on protection issues.

**Outreach Planning:**

The Branch Pond Outreach Plan is a task in the 319 grant awarded in 2007 to the HCSWCD. In addition to construction projects to remediate pollution from camp roads and residential sites in the 30.1 square mile watershed, the steering committee that was formed to guide the grant understands that outreach is necessary for long-term protection.

**Purpose and Use:**

This outreach plan should be used to guide efforts by partners in the Branch Pond protection effort. The outreach campaigns described in this document should not be viewed as the only campaigns necessary to protect the lake—other outreach efforts will likely evolve from these efforts, and be necessary for long-term protection. Other priorities may be identified in the future—therefore this outreach plan is to be viewed as a living document, to be updated at least annually, and to be changed if deemed necessary by the steering committee.

**Outreach Plan Process:**

This plan was developed through the “Outreach Planning Process” developed by the New Hampshire Department of Environmental Services and New Hampshire Sea Grant for their Natural Resources Outreach Coalition, and amended by the University of Maine Cooperative Extension for their Lake Education and Action Project. This process is based on



the US EPA's program, "Getting in Step".

**Situation #1:** While significant progress has been made in the Branch watershed (through education, grants, and the efforts of multiple groups including the City of Ellsworth, the Branch Pond Association, the Branch Watershed Stewards (through UMCE) and local road associations) much needs to be done to address soil erosion and other threats to the water quality of the lake.

The primary threat to Branch is the introduction of phosphorus to the lake via soil erosion from the watershed. Phosphorus is the limiting nutrient in most freshwater aquatic systems—the more phosphorus, the more algae may grow.

**Goal:** To improve the water quality of Branch Lake

In the past few years, much of the focus of remediation efforts has been on camp roads. These roads in some instances remain a threat to water quality—however, the committee believes that the current

grant and opportunities for future funding will provide sufficient enticement for road associations to work with the HCSWCD to correct camp road issues. Therefore, other sources of erosion in the watershed will be targeted.

**Desired Outcome:** By 2010, 25% of the eroding sites on private residential lots are stabilized.

As a result of our efforts, erosion will be reduced on private residences in the watershed. Individuals with erosion issues on their property will be aware of the problem, and will act to reduce the erosion occurring on their property.

This outreach effort has two phases. In phase one, we will identify sources of erosion in the Branch watershed. Then, individuals with erosion occurring on their property will be offered technical assistance from trained volunteers.

**Target Audience:** Landowners in the watershed with erosion on their lots as identified in the 2008 Watershed Survey.

**Messages** (multiple messages to be used, because the motivation of the private residents will vary)... to include:

*Soil erosion is bad for the lake – we can help you fix this problem.*

*Soil erosion is unhealthy for your landscape – we can help you make your land more healthy.*

***Soil erosion is unattractive – we can help you make your landscape more beautiful.***

*(message must include the fact that we can provide assistance – in the form of design assistance, technical assistance or perhaps funding if grant money is available)*

**Method:** One on one personal contact. Members of the BPA, Watershed Stewards, local volunteers will make contact and offer assistance. Assistance will be from the HCSWCD and UMCE. Maine DEP’s LakeSmart program will be marketed to lakefront residents, and people with a lakefront lot and erosion will have buffers marketed to them as “lakefront landscapes”.

**Implementation:** After the audience is identified, through the completion of the 2008 survey, a meeting will be held for all the volunteer marketers. They will be given information on how to approach landowners, and will be given materials to leave with the landowner (homeowner BMPs via Extension and LakeSmart (DEP) publications). They will try to convince the landowner to have either District or Extension staff assist them if necessary, if the volunteer cannot give sufficient guidance. If the problem is extensive, it will be included in the next grant application to Maine DEP from the HCSWCD.

**Indicators:** % of problem residents who are approached 1:1, # who accept information and assistance.



**Situation #2:** Locally, the City of Ellsworth, the Maine Drinking Water Program, and others have been concerned with local regulations to protect the drinking water supply.

**Desired Outcome:** Local ordinances will support the goal of water quality improvement and be consistent with the comprehensive plan and surface water use ordinance.

**Objective:** When updated, the shoreland zoning ordinance will be consistent with lake protection recommendations – the city officials will support this ordinance as developed by city staff.

**Target Audiences:** Municipal officials and local residents.

**Message:** To adequately protect the town’s drinking water supply, it’s up to the city officials to support ordinances that protect Branch.

**Method:** This message will come via presentations on the lake at buffer cruises

| <b>Desired Outcome 1: Individuals will address erosion issues on their property</b> |  |                  |  |   |
|---|--|------------------|--|---|
| <b>Task and Timeline</b>  |  |                  |  |   |
| <b>Task</b>   | <b>Who</b>   | <b>When</b>      | <b>Needs?</b>  | <b>Partners/Notes</b>   |
| <b>Complete Watershed Survey</b>  | Local volunteers, HCSWCD, UMCE, Ellsworth Water Department                               | Summer 2008      | Training and volunteer time  | Volunteer component completed, report will be completed by January 2009   |
| <b>Identification of all individual landowners with erosion issues</b>              | HCSWCD, UMCE, Steering Committee, Watershed Stewards, Branch Pond Association volunteers | Winter 2008-2009 | Meeting space and time   |   |
| <b>Message and method development</b>   | Volunteers who agree to target individual property owners, UMCE (to train volunteers)    | Spring 2009      | Messages developed for the individual based on their erosion problem, publications to leave with them. | Using information that was previously developed. LakeSmart and Maine DEP factsheets will be used.                           |
| <b>Implement</b>  | Volunteers   | Summer 2009      | Time, willing volunteers   |   |
| <b>Evaluate</b>   | Volunteers with support from UMCE and HCSWCD   | Summer/Fall 2009 |  | Indicators: number of landowners approached, number who accept input, number who correct erosion problems on their property |
| <b>Report</b>   | UMCE   | Fall 2009        |  |   |

and at local workshops from LaMarr Clannon of Maine NEMO (Nonpoint Education for Municipal Officials) via Low Impact Development presentations.

Local residents will show their support by reading and commenting on draft copies of the ordinances, and will convey their

support to their city officials.

**Indicator:** If the shoreland zoning ordinance is developed and supported, and is consistent with the other ordinances and recommendations, we are successful.

**Note:** While not a goal of the nonpoint pollution project, local residents have shown significant interest in protecting Branch from invasive aquatic plants. A current effort by the Branch Pond Water Supply Commission includes educating lake users about the threat of invasive plants, and alerting users to the special steps that must be taken to use Branch.

**Situation:** Invasive aquatic plant infestations would threaten critical habitat, reduce recreational enjoyment of the lake, and lead to higher water treatment costs for the City of Ellsworth's Water Supply.

**Goal:** Branch is not infested by invasive aquatic plants.

**Outcome:** Watercraft entering Branch are inspected according to the provisions of the surface use ordinance.

**Objective:** All users of Branch know:

1. that their boat must be inspected prior to launch in Branch,
2. how to have their boat inspected.

**Message:** Enjoy the lake—here's how! First, get your boat inspected...

**Methods:** currently under development, but to include notice to local lakefront residents, and a product to be left in camps that are used as rentals.

**Indicator:** better compliance with inspection requirements as determined by Branch Lake Steward.

*This outreach plan was developed by Laura Wilson at UMCE with the input and assistance of the Branch 319 steering committee, the City of Ellsworth Water Department, and the Hancock County Soil and Water Conservation District.*



**Appendix B- Summary of Technical Assistance provided**

|    | <b>Name</b> | <b>Location</b>      | <b>Problem(s)</b>   | <b>Recommendation(s)</b>  |
|----|-------------|----------------------|---|---|
| 1  | PD & BD     | Cove Way             | Owners have concerns about making sure their property is not contributing to nonpoint source pollution. | Mulch exposed soil, increase the vegetative buffer along the lake, and have septic system pumped.   |
| 2  | CWRA        | Cove Way             | Road issues- inadequate ditching and failing culverts.  | Install new culverts, install and stabilize ditches.  |
| 3  | EW          | Eben's Way           | Erosion issues along the road and driveway.   | Clean out existing open-top culverts and reslope the road to move water off of road.                |
| 4  | JB          | Eben's Way           | Driveway erosion moving towards lake and lack of vegetative buffer.                                     | Install two open-top culverts and increase vegetative buffer along lake.                            |
| 5  | PJ          | Hanson's Landing Rd. | Large amounts of material are eroding off the neighboring road and ending up in the woods.              | The road issue has been fixed, problem should be alleviated.  |
| 6  | SM & AM     | Old County Way       | Driveway erosion and exposed soil areas.  | Install an open-top culvert and ditching and mulch or plant exposed soil areas.                     |
| 7  | TH          | Old County Way       | Driveway and parking area erosion. Lots of exposed soil areas.  | Install a catch basin/rain garden and reslope parking area.   |
| 8  | WH          | Old County Way       | Road erosion issues.  | Regrade road, bring in new material to bring up road grade. Install open-top culverts and turnouts. |
| 9  | JM          | Peters Way           | Lack of vegetative buffer.  | Spot plantings.   |
| 10 | DC & KW     | Phillips Way         | Ditch erosion along their property into the lake.   | Stabilize the ditch using geotextile fabric and stone.  |
| 11 | AH & DH     | Phillips Way         | Wave action eroding soil.   | Repair existing retaining wall.   |
| 12 | PBRA        | Phillips Way         | Road issues- inadequate ditching and failing culverts.  | Install new culverts, install and stabilize ditches.  |
| 13 | WJ & BJ     | Pickerel Cove Way    | Owners have concerns about making sure their property is not contributing to nonpoint source pollution. | Regrade driveway and slope towards existing buffer.   |
| 14 | BB & KB     | Pickerel Cove Way    | Steep driveway with erosion along the top.  | Install small ditches and regrade the driveway. Mulch or vegetate exposed soil areas.               |
| 15 | PCWR A      | Pickerel Cove Way    | Road issues- culvert backs-up and overflows over road.  | Install a new larger culvert and create inlet and outlet areas.                                     |
| 16 | CE          | Red Bridge Road      | Road issues- erosion towards lake.  | Bring in larger material and install rubber razors.   |
| 17 | JW          | Red Bridge Road      | Road issues- erosion towards lake.  | Bring in larger material and reslope road.  |
| 18 | MD          | Reed Way             | Erosion around driveway and near shore.   | Seed or mulch foot paths and areas of exposed soil and regrade driveway. Install vegetative buffer. |
| 19 | RWR         | Reed Way             | Road issues- erosion due to steep hill.   | Tilt road, install turnouts.  |

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|    | <b>Name</b> | <b>Location</b>      | <b>Problem(s)</b>   | <b>Recommendation(s)</b>   |
|----|-------------|----------------------|---|--|
| 20 | PH          | Sargent Drive        | Erosion issues along his property and along neighbor's shore. | Fill in erosion areas with larger stone to prevent further erosion.                                |
| 21 | JB          | Sargent Drive        | Severe erosion issue next to camp due to stormwater.          | Excavate the land and rocks to change the surface water flow away from the camp.                   |
| 22 | MB          | Sargent Drive        | Driveway erosion moving towards lake.                         | Recrown driveway and install an open-top culvert.  |
| 23 | WBW         | Sargent Drive        | Driveway erosion moving towards lake.                         | Install a rubber razor or open-top culvert.  |
| 24 | RD          | Sargent Drive        | Driveway erosion moving towards lake.                         | Regrade and recrown driveway. If erosion persists add a rubber razor or open-top culvert.          |
| 25 | MH          | Sargent Drive        | Lack of vegetative buffer and driveway erosion.               | Install vegetation along the shore and install an open-top culvert or rubber razor in driveway.    |
| 26 | PH          | Sargent Drive        | Erosion issues due to a pvc drain pipe.                       | Stabilize the outlet of the pipe with stone.   |
| 27 | SDRA        | Sargent Drive        | Road issues- ditching and sink hole problems.                 | Install new culverts, bring up the road grade, install ditches, and stabilize existing ditches.    |
| 28 | GP          | Walls Farm Way       | Lack of vegetative buffer.                                    | Install native vegetation to create a buffer and stop mowing as often and as close to the lake.    |
| 29 | GP          | Walls Farm Way       | Road issues- surface erosion.                                 | Install a new ditch (with fabric and rock), install a new culvert inlet area.                      |
| 30 | MD          | Wildwood Drive       | Driveway erosion.   | Bring in better driveway material and regrade driveway.  |
| 31 | BW & VW     | Wildwood Drive       | Lack of vegetative buffer along lake.                         | Increase the amount of native vegetation- both length and width. Stop mowing as close to the lake. |
| 32 | BJ          | Wilson Way           | Erosion issues on boat launch and near garage.                | Install open-top culverts on the boat launch.  |
| 33 | DJ          | Wilson Way           | Erosion issues in parking area near garage.                   | Reslope driveway area towards the existing vegetative buffer.                                      |
| 34 | WWRA        | Wilson Way           | Road issues- inadequate ditching and failing culverts.        | Install new culverts, install and stabilize ditches.   |
| 35 | GL          | Wilson Way- 2nd half | Road issues- inadequate ditching and severe surface erosion.  | Reslope the road, install new ditches, clean up existing culvert inlets and outlets.               |
| 36 | DY & AY     | Winkumpaugh Road     | Driveway erosion moving towards lake.                         | Recrown driveway.  |
| 37 | JG          | Winkumpaugh Road     | Driveway floods in spring and during times of heavy rains.    | Install a culvert at end of driveway where flooding occurs.  |
| 38 | KP          | Winkumpaugh Road     | Ditch erosion.  | Slope the ditch so it is not as steep, line with fabric and stone.                                 |

**Appendix C- Non-Federal Match Documentation/Certification**

| Source  | Activity   | Cash Match         | In-Kind Match      | Total Match        |
|---|--|--------------------|--------------------|--------------------|
| Wilson Way Road Association                               | BMP installations on Wilson Way                      | \$0.00             | \$5,231.00         | \$5,231.00         |
| Cove Way Road Association                                 | BMP installations on Cove Way                        | \$5,280.75         | \$3,335.00         | \$8,615.75         |
| Sargent Drive Road Association                            | BMP installations on Sargent Drive                   | \$4,849.92         | \$9,221.50         | \$14,071.42        |
| Phillips Beach Road Association                           | BMP installations on Phillips Way                    | \$0.00             | \$6,312.50         | \$6,312.50         |
| Reed Way Residents  | BMP installations on Reed Way                        | \$400.00           | \$0.00             | \$400.00           |
| Walls Farm Way  | BMP installations on Walls Farm Way                  | \$1,283.00         | \$333.75           | \$1,616.75         |
| Seaside Landscaping, Inc.                                 | Landscape Design for Boat Launch (4 hours @ \$60/hr) | \$0.00             | \$240.00           | \$240.00           |
| Unpaved Road Maintenance Workshop Attendees (2 workshops) | 80 people X 6 hours X \$15/hr                        | \$0.00             | \$7,200.00         | \$7,200.00         |
| Use of driveway for workshop                              | 250 ft @ \$4/ft                                      | \$0.00             | \$1,000.00         | \$1,000.00         |
| Buffer Boat Cruises                                       | Use of City boat and private boat 2 @ \$150          | \$0.00             | \$300.00           | \$300.00           |
| Buffer Boat Cruises                                       | Attendees 12 @ \$30                                  | \$0.00             | \$360.00           | \$360.00           |
| Steering Committee  | 10 people X 2.5 hours @ \$15 X 6 meetings (average)  | \$0.00             | \$2,250.00         | \$2,250.00         |
| Low-Impact Development Workshop Speaker- LaMarr Clannon   | 8 hours (2 hr workshop, 6 hours travel) @ \$30/hr    | \$0.00             | \$240.00           | \$240.00           |
| Low-Impact Development Workshop Attendees                 | 9 @ \$30 X 2 hours                                   | \$0.00             | \$540.00           | \$540.00           |
| Bud & Val Weiland (residential site)                      | Vegetative buffer installation                       | \$84.23            | \$224.00           | \$308.23           |
| Watershed Survey Volunteers                               | 24 volunteers: 257.75 hours @ \$15/hr                | \$0.00             | \$3,866.25         | \$3,866.25         |
| George Lewis (2 <sup>nd</sup> half Wilson Way)            | BMP installations on Wilson Way- 2nd half            | \$458.40           | \$894.00           | \$1,352.40         |
| Janet Blair (residential site)                            | Fabric and rock swale                                | \$1,960.00         | \$180.00           | \$2,140.00         |
| Mark Blair (residential site)                             | Open top culvert, driveway work                      | \$673              | \$195              | \$868.00           |
| Tammy & Will Houston (residential site)                   | Catch basin, driveway work, vegetation               | \$473.80           | \$1,357.75         | \$1,831.55         |
| Diana Cate & Kay Wilkins (res. site)                      | Fabric and rock swale                                | \$1,145            | \$280              | \$1,425.00         |
| Anne & Don Hayes (residential site)                       | Retaining wall                                       | \$665.00           | \$150.00           | \$815.00           |
| Judy Blood (residential site)                             | Installation of 2 open top culverts                  | \$58.68            | \$62.99            | \$121.67           |
| City of Ellsworth (Road Workshop)                         | Pay for speakers and food, room                      | \$2,720.00         | \$0.00             | \$2,720.00         |
| Use of City truck and crew for workshop                   | Demonstration for workshop                           | \$0.00             | \$1,324.80         | \$1,324.80         |
| Ellsworth Water Department                                | Repair to Boat Launch and Dam Access Road            | \$0.00             | \$1,800.00         | \$1,800.00         |
| City of Ellsworth (Boat Launch)                           | Trucks and equipment to do work                      | \$0.00             | \$2,207.36         | \$2,207.36         |
| Boat Launch volunteers                                    | 6 people X 4 hours @ \$15/hr                         | \$0.00             | \$360.00           | \$360.00           |
|   |  | <b>Cash</b>        | <b>In-Kind</b>     | <b>Big Total</b>   |
| <b>TOTAL MATCH:</b>                                       |  | <b>\$20,051.78</b> | <b>\$49,465.90</b> | <b>\$69,517.68</b> |

**Appendix D: Before and After Pictures of some of the road and residential sites:**



Cate/Wilkins Before



Cate/Wilkins After



Cove Way Site 4 Before



Cove Way Site 4 After



Wilson Way Site 2 Before



Wilson Way Site 2 After



Cove Way Site 7 Before



Cove Way Site 7 After



J. Blood Before



J. Blood After



Phillips Way Site 6 Before



Phillips Way Site 6 After



Weiland Before



Weiland After



Cove Way Site 3 Before



Cove Way Site 3 After



Sargent Drive Site 1 Before



Sargent Drive Site 1 After



Cove Way Site 5 Before



Cove Way Site 5 After



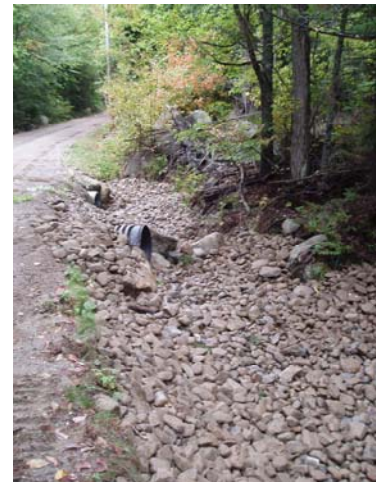
Walls Farm Way Before



Walls Farm Way After



Phillips Way Site 2 Before



Phillips Way Site 2 After