

2011 Best Management Practice Site Visit Summary Report



Improving and protecting water quality in New Hampshire's watersheds



*Funding for this project was provided by the US Environmental Protection Agency
under Section 319 of the Clean Water Act*

Introduction

Each year the Environmental Protection Agency provides states with grant funding to address nonpoint pollution issues through Section 319 of the Clean Water Act. Since 1993, the New Hampshire Department of Environmental Services has provided financial and technical support to local organizations that wish to implement nonpoint source related Best Management Practices (BMP's). The BMP's are designed to improve and/or maintain the water quality of a water body and ultimately the entire watershed that the water body lies within. BMP's may be behaviors or on the ground structures designed to reduce the amount of nonpoint source pollution entering a water body. The functions of BMP's include but are not limited to; reducing the amount of sediment, nutrients, bacteria or pollutants entering a water body, erosion control or reducing the volume of runoff entering a water body.



Rip rap swale along road to dissipate stormwater volume, reduce erosion and stop harmful pollutants and nutrients from entering the surface water.

In 2008 the NH DES Watershed Assistance Section began conducting BMP site visits as part of the implemented Section 319 projects. The purpose of a site visit is to monitor the success of structural BMP's and track any required maintenance and repairs. In addition, site visit results will aid in future BMP selection decisions. Site visit methodologies were developed in 2008 and revised in 2009, 2010 and 2011. In 2011, minor changes to the site visit methodologies were to improve the overall efficiency and accuracy of BMP site visits by eliminating redundancies, in particular eliminating unnecessary photo points or unnecessary field sheets within a project.

2011 Site Visit Results

During the 2011 season, 68 BMP projects were visited by a field technician (see figure 1). The field technician found 12 projects that required contacting the town or

organization about a problem with a site. The technician found eight sites that will require a follow up visit.

The field technician concluded that most problems with the BMP's were due to lack of maintenance. The most common issue due to lack of maintenance was sediment accumulation in catch basins, rip rap swales, retention gardens or other constructed BMP's. Although these issues were evident due to non maintenance, no pervasive problems or issues exist with the 68 BMP's visited in 2011. Because of maintenance issues, NH DES found that BMP's that do not require regular maintenance function better over the long term than BMP's that do require regular maintenance. This also highlights the need for careful consideration of maintenance requirements when developing operation and maintenance plans.

The majority of BMP's were in good condition and functioning well. Many showed increased vegetation growth that will increase the BMP's capability to reduce the amount of nutrients and pollutants entering the water.

Site visits this year found that some of the older BMP's (completed between 1993 and 1998) were starting to deteriorate. This could in part be due to the aforementioned lack of regular maintenance. Structures showed signs of deterioration from rotting or accumulation of sediment that covers the structure. Conversely, older BMP's that were constructed as landscape changes such as wetland creation, grass swales or other natural structures continue to function effectively.

In conclusion, results from site visits during 2011 showed most of the 68 BMP's to be functioning properly. In several cases where a problem did exist, the appropriate person was contacted and the problem was resolved shortly thereafter. Continued inspections of BMP's and maintaining working relationships with towns and organizations will ensure that implemented BMP's continue to function properly.

A number of BMP's were repaired or maintained in 2011 based on site visit reports from 2008 through 2011. DES staff found many catch basins and swirler BMP's full of sediment and debris. The appropriate grantees were contacted and had them emptied (one swirler had three cubic yards removed). One grantee corrected road grading to divert stormwater runoff and reduce erosion. In 2010, DES staff noted that a constructed wetland at one site had eroding banks and the adjacent forebay and level spreader were full of sediment. The grantee worked with their contractor to have the wetland repaired by stabilizing the bank with rip rap and removing the sediment from the forebay and level spreader (54.5 cubic yards removed). At another site, DES staff found two culverts eroding at their outfall. The grantees had the culverts repaired and stabilized to stop any further erosion and ensure the longevity of the BMP.

BMP Examples



Rain garden



Healthy vegetation buffer

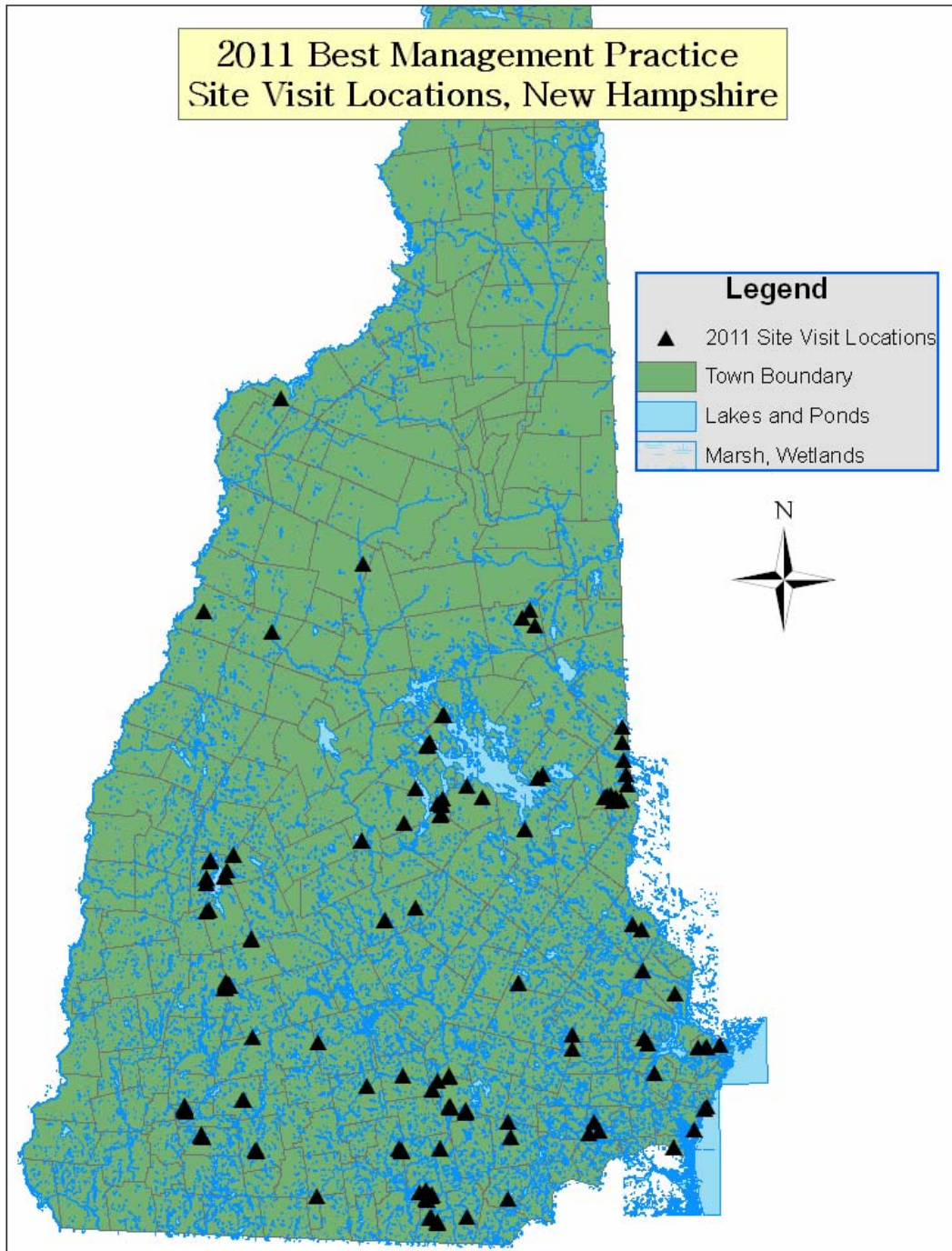


Plunge pool and outlet protection



Tree box filter

Figure 1.



2011 Project Site Visits

Coastal Watershed

Project Number	Project Name	BMP Type	Town
FY 1995	Grafton Ditch Restoration Project	Stream Corridor Improvement	Portsmouth
B-98-C-05	Dover Water Quality Protection and Enhancement Project	Grade Stabilization Structure	Dover
R-99-C-01	Highland Avenue Stormwater BMP Project	Oil and Grit Separator	Hampton
R-99-C-02	Heron Point and Sliding Rock Restoration Project	Recreation Area Improvement, Grassed swale, Vegetative Barrier	Newmarket
R-99-C-04	Little River Salt Marsh Restoration Project	Wetland Enhancement	North Hampton
R-00-C-02	Stratham Circle Mill Pond Restoration Project	Dredging	Stratham
R-01-C-09	Stafford County Canoe Launch	Recreation Area Improvement	Dover
R-02-C-03	Pierce Island Shoreline Stabilization Phase II	Streambank and Shoreline Protection, Recreation Trail and Walkway	Portsmouth
R-05-C-03	Pawtuckaway Lake Watershed Improvement Project	Road Ditch Creation/Improvements, Vegetated Swales	Nottingham
B-06-C-02	Acton Wakefield Watershed Alliance Youth Conservation Corps	Water Bars, Road Ditch Creation/Improvements, Raingardens/Bioretention Basins, Mulching, Infiltration Ditches	Wakefield

R-06-C-06	Cains Brook/Mill Creek Restoration Project	Oil and Grit Separator	Seabrook
B-08-C-02	Watershed Based Plans for High Quality Waters in the AWWA Region	Water Bars, Road Ditch Creation/Improvements, Raingardens/Bioretention Basins, Mulching, Infiltration Ditches	Wakefield
R-08-C-03	Cains Pond Restoration-Dredging to Remove Navigation Impairment	Dredging	Seabrook
R-09-C-04	Reducing the Effective Impervious Surface in the Lower Hodgson Brook Watershed Through LID	Critical Area Planting, Urban Vegetated Filter	Portsmouth
R-09-C-05	Introducing LID in the Willow Brook Watershed	Raingarden/Bioretention Basin	Rochester

Connecticut Watershed

Project Number	Project Name	BMP Type	Town
B-99-CT-09	Beck Brook Runoff Response Program	Grade Stabilization Structure	Newbury
B-03-CT-01	Sunapee Roadways NPS Reduction, Phase II	Stream Channel Restoration, Urban Catch Basin, Ditch Stabilization, Urban Infiltration Basin	Newbury and Sunapee
R-05-CT-02	Partridge Lake NPS Phosphorus Load Reduction Project	Road Ditch Creation/Improvements	Littleton
B-05-CT-04	Silver Lake Stormwater Management	Ditch Stabilization, Stream Channel Stabilization	Harrisville

Merrimack Watershed

Project Number	Project Name	BMP Type	Town
FY 1993	Beaver Lake/Rowenfare Farm	Barnyard Runoff Management, Road Ditch Creation/Improvements	Derry
FY 1994	Bodwell	Pretreatment Cell, Receiving Pond, Berms, Lagoon Chambers	Kingston
FY 1996	Lake Opechee Stormwater System	Constructed Wetland, Critical Area Planting, Cistern, Salt or Deicer Storage Facility	Laconia
FY 1997	Crystal Lake Stormtreatment Systems	Oil and Grit Separator	Manchester
FY 1997	Pennichuck Brook NRPC	Urban Stormwater Wetland	Nashua
B-97-M-01	Dorrs Pond Water Quality Improvements	Urban Filtration Basin	Manchester
B-98-M-01	Sunapee Watershed NPS Reduction Program	Ditch Stabilization, Vegetated Swales, Wetland Enhancement, Vegetative Barrier, Stream Channel Stabilization	Newbury
R-99-M-01	Gunstock and Poor Farm Brook Restoration and Remediation Project	Stream Channel Stabilization	Gilford
R-99-S-01	The Chocorua Lake Project	Ditch Stabilization	Tamworth
R-99-M-02	Veasey Park Commission Town Beach Erosion Control Plan	Recreation Land – grading and shaping	Deerfield
R-99-M-03	NPS Pollution Reduction for Center Harbor Bay, Lake Winnepesaukee	Grassed Waterway, Urban Catch Basin, Porous Pavement	Center Harbor

R-99-M-04	Depot Street Stormwater Runoff Project	Critical Area Planting, Urban Grassed Swale	Merrimack
R-99-M-05	Mast Landing	Vortech Units	Wolfeboro
B-99-M-07	Baker River Watershed Erosion Control Project	Stream Channel Stabilization	Wentworth
R-00-M-01	The Waterfront at Glen Lake	Grade Stabilization Structure	Goffstown
B-00-M-02	Great Pond Watershed Protection	Ditch Stabilization, Kiosk	Kingston
R-00-S-02	Chocorua Lake Restoration Phase II	Road Crowning/ Ditching	Chocorua
B-00-M-03	Mill Pond Restoration Project	Storm Drain Stenciling	Nashua
R-00-M-04	Mine Falls Park Bank Erosion	Grade Stabilization Structure	Nashua
R-00-M-05	Mill Street: Install Stormwater Treatment & Replace Stormwater Drains	Urban Filtration Basin	Wolfeboro
R-00-M-06	Watershed Sensitive Parking Area and Educational Kiosk	Urban Porous Pavement, Kiosk	Manchester
R-00-M-07	Union Cemetery	Stream Channel Stabilization	Laconia
R-00-M-08	Stormwater Infiltration Trench, Meredith	Urban Infiltration Trench	Meredith
B-01-M-05	Boire Field Brook Subwatershed Project	Storm Drain Stenciling	Nashua
R-01-M-06	Dorrs Pond Tributary Improvement Project	Urban Filtration Basin, Wetland Detention	Manchester
R-01-M-07	Keewaydin Dredging Project	Dredging	Londonderry
R-01-M-08	Batchelder Hill Road Drainage Improvements	Ditch Stabilization	Meredith
B-01-M-09	Piscataquog River Riparian Restoration	Stream Channel Stabilization	New Boston
R-02-M-04	Crystal Lake Water Quality Improvement Projects	Urban Catch Basin, Urban Grassed Swale, Urban Filtration Basin	Manchester

B-02-M-05	Dublin Lake Shoreline Erosion Control Project	Critical Area Planting, Recreation Trail and Walkway, Grade Stabilization Structure	Dublin
R-02-M-06	Swain Farm Nutrient Loading from Hunkins Pond	Heavy Use Area Protection Area	Sanbornton
R-02-M-11	Breezy Point Shoreline Stabilization	Grade Stabilization Structure	Antrim
B-03-M-03	New Bathhouse and Drainage Management at Veasey Park, Deerfield	Alternative Septic System	Deerfield
B-03-M-11	Gillingham Drive Stormwater Improvements, Phase II	Road Ditch Creation/Improvements	Newbury
R-04-M-01	Lake Horace Marsh Restoration Project	Wetland Enhancement	Weare
B-04-M-03	Nashua Wetlands Buffer Outreach Project	Outreach and Education	Nashua
B-05-M-P2A	Water Quality Mitigation Project and Community Outreach in the Lake Waukegan Watershed	Raingarden/Bioretenion Basin, Streambank and Shoreline Protection	Meredith
R-05-M-01	Nutts Pond Watershed Improvement Project	Sediment Forebay, Water and Sediment Control basin, Urban Stormwater Wetland, Water and Sediment Control Basin	Manchester
R-05-M-04	Pemigewasset River Restoration Plan Implementation	Stream Channel Stabilization	Woodstock
B-05-M-05	Gillingham Drive Stormwater Management (2005)	Runoff Management System	Newbury
R-05-M-05	Baboosic Lake Stormwater Management	Urban Infiltration Trench, Ditch Stabilization	Amherst
R-06-M-02	Maxwell Pond Dam Removal and Black Brook Restoration	Stream Channel Restoration (Dam Removal)	Manchester

B-06-M-03	Contoocook River Stormwater Improvements and LID Demonstration	Urban Porous Pavement	Peterborough
B-06-M-04	Jamie Welch Car-Top Access Erosion Control Project	Recreation Area Improvement, Recreation Land Grading and Shaping, Kiosk	Boscawen
B-07-S-02	Chocorua Village Area Bio-Retention Stormwater Treatment Project	Urban Filtration Basin	Tamworth
B-07-M-04	Hancock Village Stormwater Management and Water Quality Improvement Project	Water and Sediment Control Basin, Recreation Area Improvement	Hancock
R-07-M-04	Town of Washington-East Washington Mill Pond Project	Fence, Alternative Septic System, Urban Infiltration Basin	Washington
R-08-M-02	Griffin Beach Sedimentation Restoration Project	Urban Porous Pavement, Critical Area Planting, Recreation Area Improvement	Franklin
R-08-M-04	Pennichuck Water Works Tinker Road BMPs	Drainage Water Management, Sediment Forebay, Stormwater/ Wet Detention/ Chemical Treatment System	Nashua
R-10-M-05	Cobbetts Pond-Watershed Restoration Plane Implementation-Phase II: Fossa Road BMP's	Sediment Basin	Windham