

Wet Pond

Alternative Names: Wet Basin, Wet Retention Pond, Retention Pond



MDE Water Management Administration
<http://dnrweb.dnr.state.md.us/watersheds/surf/bmp/info/wetponds.html>
Retrieved June 10, 2008

DESCRIPTION

Wet ponds are man-made ponds specially designed for the storage and treatment of stormwater runoff. Unlike, dry ponds, these ponds continually hold a certain volume of water, even during dry weather. As stormwater is held in the pond particles settle to the bottom and nutrients are taken up by pond vegetation. Over the long-term, microorganisms breakdown petroleum hydrocarbons and pond vegetation takes up metals that have settled out into the sediment. When stormwater enters the pond, it displaces a portion of the existing water, which flows out to a stormwater drainage system or receiving waterway. Wet ponds are typically lined or sited in areas with impermeable soils and therefore do not infiltrate stormwater into the ground as groundwater. Wet ponds are usually paired with a pretreatment sediment forebay (a requirement in Massachusetts³).

BENEFITS

Overall

- Treats stormwater runoff
- Reduces peak stormwater flows
- Reduces runoff volume and flow rate
- Provides local flood control
- Improves quality of local surface waterways
- Enhances the beauty of residential, commercial or industrial sites
- Provides wildlife habitat
- Reduces soil erosion
- Suitable for use in areas with higher potential pollutant loads (as long as pond bottom is adequately sealed)

Pollutant Removal

Properly designed wet ponds can be very effective at eliminating many pollutants that are of concern in the Charles River watershed:

- Total Suspended Solids: 55% - 90% (with pre-treatment forebay)^{1,6}
- Total Phosphorus: 10% - 75%^{1,6}
- Total Nitrogen: 10% - 50%³
- Total Zinc: 40% - 70%¹
- Total Copper: 45% - 75%¹

Volume Attenuation/Flow Reduction

Wet ponds reduce peak flows by approximately 80%.⁶ Wet ponds are typically designed to reduce overall stormwater runoff volume through evaporation. They provide no groundwater recharge as they are usually sealed to prevent drawdown of the pond's permanent water quality volume.¹

MAINTENANCE

Although wet ponds can function with minimal maintenance, regular inspections and maintenance are important for ensuring a pond's water quality treatment benefits.⁶

- Inspect pond regularly to make sure bottom sediment is not resuspending during storm events or other disturbances and flowing out of the system
- General care of landscaped areas on pond side slopes, embankment and surrounding areas including removal of invasive plant species
- Remove and properly dispose of sediment from sediment forebay, floating debris, and trash biannually
- Remove and properly dispose of sediment from pond, at least once every 10 years
- Inspect inlet and outlet structures to make sure they are operational

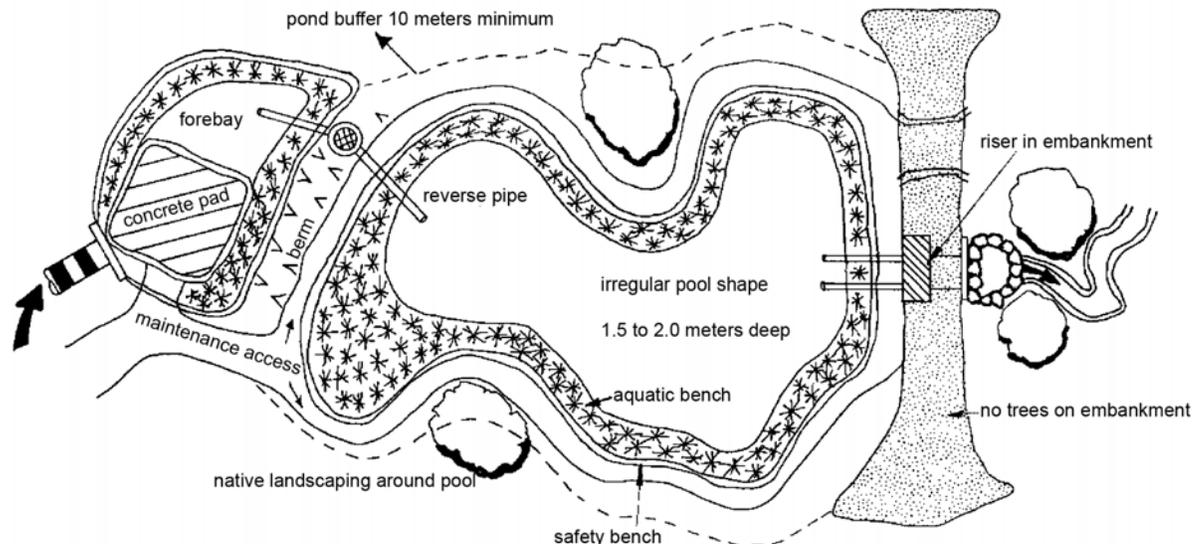
INSTALLATION COST

Approximately \$4/square foot⁶



High Point Wet Pond - Seattle, WA
©CRWA May 2008



PLAN

Source:
Massachusetts Stormwater Handbook (February 2008)

EXAMPLE PROJECTS**Farrell Street Stormwater Treatment System**

South Burlington, VT

The City of South Burlington, the State of Vermont and local land owners worked together to develop and install a suite of stormwater best management practices (BMPs) to treat runoff in the Potash Brook watershed. The project includes a wet extended detention pond as well as four additional BMPs, which work together to effectively treat stormwater runoff.⁵

Cottages of Clam Cove

Rockport, ME

A wet pond was incorporated into the stormwater treatment plan of this condominium community.^{2,7}

ADDITIONAL CONCERNS OR UNKNOWNs

- Landscaping, grading and, if required, fencing may be needed to limit access to ensure safety.
- Mosquito breeding can be an issue in wet ponds, however, this can often be addressed using a composite approach which considers siting and design techniques, water quality issues and biological controls.
- Invasive species can be an issue in wet ponds and may require control measures.
- Wet ponds can raise water temperatures and may not be appropriate for use upgradient of cold water fisheries.
- It is important to provide maintenance access to every vital part of the pond system.
- In cold climates ponds need to be designed to prevent freezing and clogging of inlets and outlets.

SOURCES

¹Center for Watershed Protection. (2007, August). Urban Stormwater Retrofit Practices Appendices. Urban Subwatershed Restoration Manual Series.

²Gartley & Dorsky Engineering and Surveying. (2006). Projects - Cottages at Clam Cove. <http://www.gartleydorsky.com/Projects.html>. Accessed June 16, 2008.

³Massachusetts Department of Environmental Protection (MA DEP). (2008, February). Massachusetts Stormwater Handbook. Available at: <http://www.mass.gov/dep/water/laws/policies.htm#storm>.

⁴Minnesota Stormwater Steering Committee. (2006, September). Chapter 12-6: Filtration Practices. Minnesota Stormwater Manual, Version 1.1. Available at: <http://www.pca.state.mn.us/water/stormwater/stormwater-manual.html>.

⁵South Burlington Stormwater Utility. Projects - Farrell Street Stormwater Treatment System. South Burlington Stormwater Services. http://www.south-burlington.com/stormwater/projects/farrell_street.shtml. Accessed June 16, 2008.

⁶University of New Hampshire Stormwater Center (UNHSC). (2007). UNHSC 2007 Annual Report. Available at: http://www.unh.edu/erg/cstev/2007_stormwater_annual_report.pdf.

⁷UNHSC-NEMO. Innovative Stormwater Management Inventory. Accessed June 16, 2008. www.erg.unh.edu/lid/index.asp.

