



## Storm Water Program Technical Quarterly

Issue: TQ 9.2



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### Web Links of Interest:

- [USEPA Urban BMP Performance Tool](#)
- [USEPA Storm Water Management Model \(SWMM\)](#)
- [USEPA Sample SWP3](#)
- [USEPA MS4 Overview](#)
- [OCAPP—Compliance & Prevention Quarterly](#)
- [University of New Hampshire Stormwater Center BMP Fact Sheets](#)

## Long-Term Maintenance & Operation

Each Municipal Separate Storm Sewer System (MS4) permittee or permit holder has a responsibility to ensure that annual long-term operation and maintenance (O&M) inspections are being performed on all permanent post-construction water quality Best Management Practices (BMPs). Every post-construction water quality BMP, whether it is structural, like a bio-retention cell, or non-structural, like a riparian and wetland setback, have long-term O&M needs to ensure they are serving their intended function. Each MS4 should begin receiving these monitoring reports in the early spring for their post-construction portfolio documentation.

Why is it recommended that assessments be performed in the early spring? This provides the site owner/operator ample time to perform any identified maintenance needs on an established BMP. For more detailed requirements, please refer to your MS4 National Pollution Discharge Elimination System (NPDES) [Permit OHQ000002](#).

Remember, that "an ounce of prevention is worth a pound of cure." It is easier and less expensive to perform maintenance needs as they arise rather than the high cost associated with repairing neglected practices.

## Why Moses Picked Cleveland: A Pedologist's Perspective

As one of the initial directors of the Connecticut Land Company, Revolutionary War General, Moses Cleaveland was sent out as the company's agent to land survey and map their lands along the south shore of Lake Erie. July 4, 1796, Moses arrived at the mouth of Conneaut Creek; however, he sought better ground! On July 22, 1796, he landed at the mouth of the Cuyahoga River. As he climbed the bank, Moses must have been impressed as he peered across the permeable river delta and beach ridge soils that allow good water infiltration. Later, these soils were classified and mapped by soil surveyors, as **Elнора** loamy fine sand and **Oshtemo** sandy loam. One can imagine

that as he stood with the river on the west, Lake Erie on the north, and rich woodlands over wetter, fertile soils later to be classified and mapped as **Mahoning** silt loam, etc., and going south Moses must have thought that "this is a good place to build." Today, as a flourishing metropolitan area, Cleveland is not only a good place to build, but a good place to rebuild. So, if you are thinking about redevelopment, start planning from the ground up; specifically, start with the [Web Soil Survey](#).

**Pedology** (from *Pedon*, ground + *logos*, word, science) is a collective term used to refer to the entire subfield of soil genesis and classification, morphology, survey and interpretations.

## NPDES Phase II Regulations and Riparian Setback Ordinances

Zoning regulations are one of the most powerful tools communities have to promote sustainable and balanced growth. Riparian and wetland setback zoning ordinances can reduce conflicts by clearly defining areas appropriate for growth, as well as areas where growth should be discouraged or prohibited. To maximize its legal power, zoning regulations should provide clear rationale as to why your community wishes to prohibit growth in riparian setback zones. The community, needs to consistently apply these regulations across all permitting boards and departments, and utilize a clear and consistent variance methodology.

### NPDES Phase II Regulation:

The community's Municipal Separate Storm Sewer System (MS4) Permit (OHQ000002) places additional requirements on the community over those contained in Ohio EPA's Construction General Permit.

Under Ohio EPA's Construction General Permit, the developer is **not** required to minimize the burden on the community after all construction is over. **Nor** is the developer specifically prohibited from

disrupting wetlands or riparian areas.

However, the community's MS4 Permit **does** hold the community responsible for maintaining all structures put in place as part of development/redevelopment actions. The community's MS4 permit also specifically **requires** the community to maintain the function of sensitive areas including wetlands and riparian areas.

Therefore, if the community does not prohibit the developer from removing these areas, then the **community is responsible** for mitigating for their loss.

In Northeast Ohio, many communities

have used the model ordinances developed by [Northeast Ohio Regional Storm Water Task Force](#).

Setback distance recommendations:

Watershed Size	Setback Distance
<0.5 sq. miles	25 feet
0.5-20 sq. miles	75 feet
20-300 sq. miles	120 feet
>300 sq. miles	300 feet

Wetland Class	Setback Distance
1	Not mandatory
2	75 feet
3	120 feet

(From the Northeast Ohio Regional Model Ordinances)



Setbacks and proper stabilization can reduce costly erosion maintenance issues.

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## Local MS4 Program Alert!

**Ohio EPA** expectations for local **MS4 Programs** include using the same review standards for **all public** projects as for **all private** development when reviewing and approving Storm Water Pollution Prevention Plans. Be sure that your standard operating procedures and organizational flow chart are complete and documented.

## Draft Storm Water Rule

### (OAC 3745-39)

OEPA is soliciting comments on draft revisions to rules addressing storm water requirements for small MS4s. Comment deadline: 5:00 p.m. on May 15, 2009.

**True or False:** Cuyahoga County is too urban to have enough wetlands to matter...

**False:** Even though Cuyahoga County has the highest population and density of any Ohio county, and wetland losses for Ohio (90%) are ranked only 2<sup>nd</sup> to California (91%), studies (2003 and 2006) have inventoried 781 wetlands (totaling 1,406 acres) within the Cuyahoga River watershed and 1,687 wetlands (totaling 3,356 acres) for all other watersheds within Cuyahoga County. That's pretty good for an old metropolitan area!

## Advantages of Riparian and Wetland Setback Ordinances

Healthy, well-vegetated riparian zones and wetlands benefit a community by:

- Minimize encroachments on riparian zones, wetlands, and stream channels; thereby, reduce the need for costly engineering solutions such as dams or riprap to protect structures
- Riparian zones are a factor in improving a communities' quality of life by contributing to the scenic beauty, recreational benefits by providing green space and increasing property values

- Water stored in wetland and floodplains offers protection against flood damage. Riparian zones trap sediment, reduce dredging costs, and decrease stream flow energy, thereby, reducing stream bank erosion rates, property damage and threats to the safety of watershed residents
- Minimize complaints and requests for community funded stream bank erosion projects, and the liability of costly downstream damage mitigation



Cuyahoga SWCD

## U.S.EPA Recommends "Green Infrastructure"

Post-construction storm water management is intended to minimize impacts from developed areas on our rivers and streams. Post-construction Best Management Practices (BMPs) are most effective when combinations of structural and non-structural practices are implemented. The permit post-construction measure requires communities to develop and implement strategies which include a combination of locally appropriate structural and/or non-structural BMPs.

Communities are required to adopt:

- Legally permissible regulatory mechanisms to address post-

construction runoff from new development and redevelopment

- Guarantee BMPs are in place that will ensure minimal water quality impacts
- Ensure long-term maintenance of BMPs, and
- Attempt to maintain pre-development runoff conditions

Traditionally, post-construction BMPs have focused on structural controls such as extended detention basins. While these practices have their place they cannot fully compensate for the natural processes that are lost through urbanization. Currently, US EPA is encouraging local communities to

implement "Green Infrastructure" practices. These practices, which include riparian corridor buffers, mimic natural hydrologic processes, such as infiltration and evapotranspiration, and are superior in performance and less costly to maintain when compared to structural practices. To learn more about green infrastructure, please visit [US EPA's web site](#).

George Elmaraghy, P.E., Chief  
USEPA - Division of Surface Water  
March 30, 2009

## What Is OCAPP?

The [Office of Compliance Assistance and Pollution Prevention](#) (OCAPP) is an independent office within Ohio EPA established with a goal of providing information and resources to help businesses achieve compliance with environmental regulations. Included is a wide range of environmental regulations from air and water pollution to waste management. Another primary goal of the office is to help its customers identify and implement pollution prevention

measures that can save money, increase business performance and benefit the environment.

OCAPP is a not a regulatory program at Ohio EPA. This means that information obtained by the office is not shared with Ohio EPA inspection or enforcement staff.

OCAPP Hotline:  
(800) 329-7518  
Weekdays, 8 a.m.—5 p.m.

**Fact or Fiction:** Water always moves rapidly through sandy soils.

**Fiction:** Studies indicate that compacted sands behave more like materials with slow permeability.

### Contributors

[Cuyahoga SWCD Storm Water Program Staff](#)

Todd Houser—*Storm Water Program Manager*

Lisa Vavro—*Storm Water Specialist II*

Glenn Lingle—*Urban Conservation Specialist*

Patricia Hughes—*Urban Conservation Specialist*

Jim Storer—*NRCS, District Conservationist*

## NRCS Program For Flood Prone Lands

The Natural Resources Conservation Service (NRCS) recently released enrollment for a program for floodplain easement and wetland restoration. The NRCS provided up to \$30 million to eligible landowners in Ohio through the floodplain easement component of its Emergency Watershed Protection (EWP) Program. Sign-up for eligible landowners was from March 9 – 27, 2009, at their local [USDA Service Center NRCS Office](#).

Although the deadline has passed, many of these programs become available at the last minute and registration times are often brief. This makes it important to have updated records and maps of natural resource related problems. When a new program opens up, the problems can then become an opportunity to help your community. The funding, obtained from the American Recovery and Reinvestment Act of 2009, includes both

technical and financial assistance to restore the easements. The EWP Program's floodplain easement component allows the NRCS to purchase easements on lands damaged by flooding. The restored floodplain will generate many public benefits, such as increased flood protection, enhanced fish and wildlife habitat, improved water quality, and a reduced need for future public disaster assistance.

## Care And Maintenance Of Vegetative Cover

Vegetative stabilization is one of the most important and effective methods for controlling soil erosion on construction sites. Proper and timely application of temporary vegetative cover significantly reduces the amount of erosion, and therefore, predictably saves time, money, and minimizes maintenance required on temporary sediment controls, such as silt fence, inlet protection, sediment traps and basins.

Permanent vegetative cover is also an important part of site stabilization, especially in reference to long-term

maintenance of landscaped areas and post-construction water quality features (e.g. bio-retention cells, enhanced water quality swales, storm water wetlands, etc.).

Decisions based on site-specific soil conditions can lead to successful vegetative cover. Stabilization is also dependent on proper soil preparation and amendments, plant selection, application techniques, and monitoring.

When grass and legume vegetation is preferred, mowing should be limited to once a year and planned after August 1

to protect nesting birds. The benefits of periodic mowing include improved rooting, wildlife habitat, and overall effectiveness of stabilization on typically sloped areas.

Good conservation planning will help facilitate proper function and longevity of permanent vegetative cover, including areas within and around post-construction water quality features. More information on stabilization, plantings, and maintenance can be found in [The Rainwater and Land Development Manual](#) and from the [Natural Resource Conservation Service](#) (NRCS).

### 2009 Schedule of Training Opportunities

Find details on our website's [Calendar of Events](#) for the most up-to-date information.

Date	Event
April 6 - May 8	Sign-up period for <a href="#">Environmental Quality Incentive Program (EQIP)</a>
TBA	OEPA—OCAPP <a href="#">University of New Hampshire Post-Construction BMP Performance – Research Results and Design Guidance</a>
June 24	OEPA—OCAPP <a href="#">Field Sessions on Construction – Training for Construction Site Inspectors and MS4 Program Managers</a>
June 11 & 12	<a href="#">Review and Exam for Certified Professional in Erosion and Sediment Control (CPESC)</a> – Registration deadline May 22, 2009, Cleveland, OH
July TBA	OEPA—OCAPP <a href="#">Post-Construction BMPs in Action – Field or Case Study</a>
August TBA	OEPA—OCAPP <a href="#">Pollution Prevention/Good Housekeeping for Municipal Operations</a>
August 13 & 14	<a href="#">Review and Exam for Certified Professional in Erosion and Sediment Control (CPESC)</a> - Registration deadline July 24, 2009, Richfield, OH
September TBA	OEPA—OCAPP <a href="#">Developing Your Long-Term Maintenance Program for Post-Construction BMPs</a>
September 28 & 29	<a href="#">Exam Review and Exam for Certified Erosion, Sediment and Storm Water Inspector (CESSWI)</a> - Registration deadline Sept. 4, 2009, Richfield, OH
November TBA	<a href="#">Implementing Planning Tools for Better Development – Non-Structural BMP Case Studies</a>
November 12 & 14	<a href="#">Review and Exam Certified Professional in Storm Water Quality (CPSWQ)</a> - Registration deadline October 23, 2009, Mansfield, OH