

Ohio EPA Storm Water Regulations



Programs that Affect Land Development

Why Storm Water?

Poorly Managed Storm Water = Poor Water Quality



Image Science and Analysis Laboratory, NASA-Johnson Space Center

Ohio EPA Regulates Storm Water Runoff

via National Pollutant Discharge Elimination System

– NPDES Permits for:

- Municipal Separate Storm Sewer System (MS4) Operators
 - All cities, villages, townships, counties within an Urbanized Area
 - Includes "non-traditional" MS4s, e.g., ODOT, parks, universities
 - MS4s designated by the Director of Ohio EPA
- Construction Site Operators
 - All sites which disturb ≥ 1 acre in the larger common plan of development
 - Exceptions: Agriculture, Silviculture, Routine Maintenance < 5 acres disturbed, Combined Sewer Areas, Erosivity Factor "R" < 5
- Industrial Site Operators
 - Extensive list of industries based primarily on SIC code

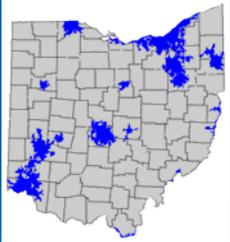
NPDES History:

Address Discharge of Pollutants

- CWA 1972 – NPDES for point sources: sewage treatment plants and industrial wastewater
- 1987 Amendments – phased NPDES storm water requirements
 - 1990 Phase 1 Rules...Large MS4s, Large Construction, and Industries
 - 1999 Phase 2 Rules...Small MS4s, Small Construction
 - See 40 CFR 122.26 & 122.30 thru .37
- ORC 6111 – No discharge of pollutants unless complies w/ NPDES permit
- OAC 3745 – Ohio's Water Quality Standards
- OAC 3745-39 - Small MS4 Rules effective since June 2004

NPDES MS4 Permits

- For MS4 operators
- Develop SWMP (Storm Water Management Program)
 - Submitted w/ application (most 2003)
 - Fully-implemented in 5 years (most 2008)
 - Reduce the discharge of pollutants from the MS4
 - Protect or improve existing water quality
- How?
 - Use Best Management Practices (BMPs) to address 6 Minimum Control Measures
- Send Annual Reports to Ohio EPA




NPDES MS4 Permits

SWMP: Post-Construction Storm Water Management

Must develop, implement, & enforce a program for post-construction storm water management for new or redevelopment projects disturbing 1 ac. or more



NPDES MS4 Permits

SWMP: Post-Construction Storm Water Management

SWMP must include:

- Ordinance (or other regulatory mechanism)
 - Address post-construction runoff from new & redevelopment
 - Why MS4 chose the ordinance/mechanism, include copy of relevant sections. If MS4 needs to develop, describe the plan and the schedule to do so
- MS4 program must ensure controls are in place to prevent or minimize water quality impacts

NPDES MS4 Permits

SWMP: Post-Construction Storm Water Management

SWMP must include:

- Strategies
 - Include a combination of structural & non-structural BMPs
 - Description of any specific priority areas
 - How program is tailored to the community, will minimize WQ impacts, & attempt to maintain pre- development runoff
- Plan to ensure adequate long term O & M

Structural BMPs Complement Non-Structural BMPs

- Non-structural BMPs
 - Preserve natural features and resources
 - Effectively lay out of the site elements to reduce impact
 - Reduce the amount of impervious surfaces
 - Utilize natural features for storm water management
- Structural BMPs
 - Control flow into the stream
 - Remove pollutants before entering the stream

Challenge: Balance structural & non-structural
Reduce the environmental impact "footprint" of the site while retaining and enhancing the owner/developer's purpose and vision for the site

NPDES MS4 Permits

SWMP: Post-Construction Storm Water Management

For MS4s, Ohio EPA recommends:

➤ **Non-Structural BMPs:**

- Policies to direct growth to identified areas; Ordinances that protect sensitive areas; Riparian/Wetland Setbacks; Conservation Easements;
- Low Impact Development Design; Education programs about project design that minimizes water quality impacts;
- Limits on % imperviousness after development; Infill development policies.

NPDES MS4 Permits

SWMP: Post-Construction Storm Water Management

For MS4s, Ohio EPA recommends :

- Structural BMPs outlined in the CGP:
 - Water Quality Ponds, Constructed Wetlands, Filters, Water Quality Swales,
 - Vegetative Filter Strips, Infiltration Trenches/Basins
- Meet the minimum criteria set in the CGP
- Require Structural BMPs to be Selected and Designed in Accordance to Rainwater and Land Development manual or equivalent
- Assure that post-construction BMPs are installed per plan (inspect BMPs upon construction, PE submits as-built drawings)

NPDES MS4 Permits

SWMP: Post-Construction Storm Water Management

For MS4s, Ohio EPA recommends:

- Ordinance require maintenance inspections of BMPs at least 1/yr.
- Ordinance provide enforcement mechanism for lack of maintenance. If post-construction landowner/regional entity to provide maintenance, include mechanism to allow the MS4 to perform/contract the required maintenance should it fail to be done

Which Post Construction BMPs?

The Rationale

1. Land Use
2. Physical Feasibility
3. Climate/ Regional Factors
4. Watershed Factors
5. Stormwater Management Capability
6. Pollutant Removal
7. Community and Environmental Factors

Source: CWP Approaches to Stormwater Treatment ©2001

Storm Water Permits for Construction Activities

Swan Creek – Monclova Twp.



NPDES Construction General Permit

- Applies to Construction Site “Operators”
 - Developers
 - Home Builders
 - General Contractors
- Larger Common Plan of Development or Sale disturbs ≥ 1 acre
- BMPs in a Storm Water Pollution Prevention Plan (SWP3)
 - Sediment & Erosion Control during Construction
 - Controls for Other Pollutants during Construction
 - **Post-Construction Runoff Controls**

Sediment & Erosion Control



Other Sources of Pollutants on Construction Sites



NPDES Construction General Permit

SWP3: Post-Construction Storm Water Management

- Required of all sites under the CGP
 - "Larger Common Plan" disturbs ≥ 1 acre
 - Except linear projects that create no impervious area
- Two types
 - Non-Structural BMPs
 - Ordinances, zoning codes and other measures that limit the creation of runoff, protect water resources
 - Structural BMPs
 - Devices that remove pollutants and control the discharge rate of the Water Quality Volume (WQV)
- Use the first, before the second!!!
- Include Rationale

Non-Structural Post-Construction BMPs



NPDES Construction General Permit

SWP3: Post-Construction Storm Water Management

Non-Structural BMPs

- Ohio EPA encourages a minimum stream setback of 25 feet
 - More stringent requirements apply to sites in Darby Creek watershed
- Communities (MS4s) will establish additional requirements
 - Through implementation of their SWMP
 - By adopting best local land use practices

NPDES Construction General Permit

SWP3: Post-Construction Storm Water Management

Structural BMPs:

- Grass Filter Strips
- Enhanced (Water Quality) Swales
- Bioretention Cells
- Water Quality Ponds
 - Dry Extended Detention Basin
 - Wet Extended Detention Basin
 - Constructed Wetland
- Sand Filters
- Infiltration Trenches



NPDES Construction General Permit

SWP3: Post-Construction Storm Water Management

Structural BMPs:

- Must be used on sites where "larger common plan" disturbs ≥ 5 ac
 - But, appropriate on all sites
- Incorporate into the permanent drainage system
- Must treat Water Quality Volume (WQv)
 - Based on 0.75-inch rainfall
 - Outlet designed per target "drawdown time"
 - Designed per ODNR Rainwater Manual
- Reduced requirements for redevelopment projects
 - Encourage non-structural approach, i.e., reduce impervious area
 - If not, treat 20% of WQv

Traditional vs Water Quality BMPs

- Traditional Structures
 - Detain runoff only from large, infrequent storm events (5, 10, 25 yr.)
 - Do not provide significant pollutant removal
 - Do not protect the integrity of the receiving channel
- Water Quality Structures
 - Detain 85% of all storm events which occur
 - Remove pollutants from the "first flush", i.e., WQv
 - Release the WQv over a 24 - 48 hour period



Extended Detention Outlet



OUTSIDE VIEW



INSIDE VIEW

Which Post Construction BMPs?

The Rationale

1. Land Use
2. Physical Feasibility
3. Climate/ Regional Factors
4. Watershed Factors
5. Stormwater Management Capability
6. Pollutant Removal
7. Community and Environmental Factors

Source: CWP Approaches to Stormwater Treatment ©2001

Summary

- Municipal NPDES Permits require
 - Communities to pass ordinances and establish a local program to require best local land use practices
- Construction Activity NPDES Permits require
 - Developer to incorporate them into site design
- Goals
 - Develop compatible state and local programs
 - Local may be more stringent than Ohio EPA requirements
 - Review by local community
 - SWP3
 - Site Inspections
 - Enforcement

Summary

- Post-construction BMPs affect site design
 - Plan up-front to avoid conflicts later
 - Provide easements to access BMPs so that maintenance can be performed
 - Must name entity that will be responsible for maintenance
 - BMPs often require deed restrictions or conservation easements (non-structural BMPs) to assure their long-term viability
- Everyone is on a learning curve
 - You may get conflicting information
 - Do not be afraid to contact the Ohio EPA and ask questions
 - Ohio EPA Post-Construction Q&A Document
<http://www.epa.state.oh.us/dsw/storm/CGP-PC-Q&A.html>

For More Information

Ohio EPA Contacts

NW District Office

Lynette Hablitzel (419) 373-3009

lynette.hablitzel@epa.state.oh.us

Lucas, Erie, Huron, Seneca, Ashland, Richland, Crawford, Wyandot, Marion, Hardin, Allen, Putnam & Hancock

Patricia Tebbe (417) 373-3016

patricia.tebbe@epa.state.oh.us

Ottawa, Sandusky, Wood, Henry, Fulton, Williams, Defiance, Paulding, Van Wert, Mercer & Auglaize

Websites

USEPA http://cfpub.epa.gov/npdes/home.cfm?program_id=6

Ohio EPA www.epa.state.oh.us/dsw/storm/index.html