Ohio EPA Storm Water Regulations

Programs that Affect Land Development

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 95 – 5
- Industrial Site Operators
  - Extensive list of industries based primarily on SIC code

Why Storm Water?
Poorly Managed Storm Water = Poor Water Quality

Fecal Coliform
Nutrients
Oil & Grease
Misc Illicit Discharges
Suspended Solids
Accelerated Channel Erosion
Infrastructure Damage

Image Science and Analysis Laboratory, NASA-Johnson Space Center

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
  - 1999 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 2003
NPDES MS4 Permits

- For MS4 operators
- Develop SWMP (Storm Water Management Program)
  - Submitted with 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:

- 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

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

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
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.

- **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)

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

**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

Fuel Tanks & Spills
Cement Washwater
Slag Leachate
Off-Site Tracking
Trash & Debris

NPDES Construction General Permit
SWP 3: 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
SWP 3: 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

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

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

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

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/QP-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, Seneca, Ashland, Richland, Crawford, Wyandot, Marion, Ross, Putnam, Allen, 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