Stormwater Management and Compliance with Ohio EPA Stormwater Permitting

Written for Elected Officials,
Administrators, and… You!

A Publication of the Stormwater Coalition

TMACOG
Toledo Metropolitan Area Council of Governments

The Stormwater Coalition

The Stormwater Coalition is a group of environmental professionals who help communities deal with stormwater problems and regulations. We can help elected officials and administrators, builders and engineers. The coalition is comprised of staff members from local jurisdictions, agencies, and TMACOG's Environmental Planning department. We hold bi-monthly meetings to stay current on stormwater management concerns. Your community is invited to join the Stormwater Coalition. You will gain improved access to resources which can be a great benefit as you and your constituents manage stormwater issues.

The Stormwater Management Standards Manual, third edition, published by TMACOG and the Stormwater Coalition, is a resource for any jurisdiction dealing with stormwater issues. It is free, and you don't have to be a member to use it. The complete stormwater manual contains definitions for stormwater terms, model ordinances and resolutions for stormwater management, and directions for designing and implementing construction and post-construction runoff controls. This quick guide condenses the most critical information from the full manual. To view or print the full manual, go to the Environment section of www.tmacog.org.

The Importance of Stormwater Management

Clean water resources, such as the Maumee River and Swan Creek, are essential to our region. Stormwater runoff has added significant pollution to our waters, which limits the use of the streams and harms the environment. To address runoff pollution, the U.S. EPA issues stormwater permits to jurisdictions. A list of jurisdictions required to have stormwater permits, known as Phase I or Phase II communities, is shown on page 2.

Regional Jurisdictions Required to Have Stormwater Permits and Plans

	Phase II Community	County	Stormwater Coalition Member
Villages	Harbor View	Lucas	
	Holland	Lucas	•
	Millbury	Wood	•
	Ottawa Hills	Lucas	•
	Walbridge	Wood	•
	Waterville	Lucas	•
Townships	Jerusalem	Lucas	•
	Lake	Wood	•
	Middleton	Wood	•
	Monclova	Lucas	•
	Perrysburg	Wood	•
	Spencer	Lucas	•
	Springfield	Lucas	•
	Sylvania	Lucas	•
	Washington	Lucas	•
	Waterville	Lucas	•
Cities	Bowling Green	Wood	•
	Fostoria	Wood	
	Maumee	Lucas	
	Northwood	Wood	•
	Oregon	Lucas	•
	Perrysburg	Wood	
	Rossford	Wood	•
	Sylvania	Lucas	•
	Toledo	Lucas	•

*Additional Stormwater Coalition members: Lucas County OH, Wood County OH, Haskins (non-Phase II), ODOT (MS4), and Associated General Contractors of NW Ohio

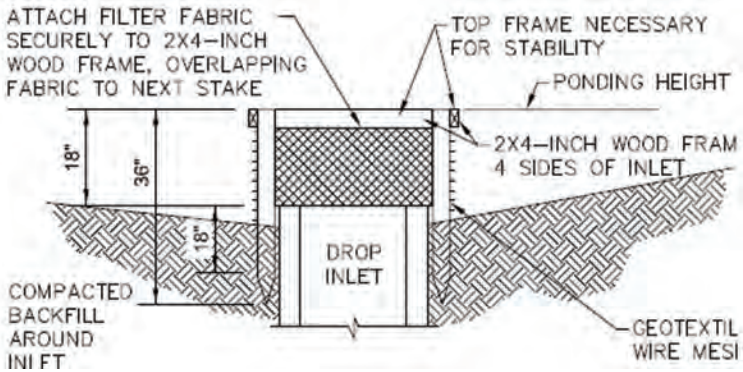
Stormwater Management Standards Manual Guidance

The Stormwater Management Standards Manual, third edition, is divided into ten chapters. Here we present brief summaries of chapters that will be most useful for elected officials.

Stormwater Management Submittal Requirements

Under current Federal law and current Ohio EPA stormwater regulations, any construction activity (defined in the Stormwater Management Standards Manual) requires compliance with the stormwater permitting program. Part of this requirement is to complete a Stormwater Pollution Prevention Plan (SWP3) for any development activity, as well as submit a site plan for review. Site plans should include:

- A general description of the site,
- A grading plan,
- A drainage plan,
- Calculations of disturbed area, drainage, and detention,
- A drainage area map showing where development is located in the watershed, and
- A Stormwater Pollution Prevention Plan (SWP3) and Notice of Intent.

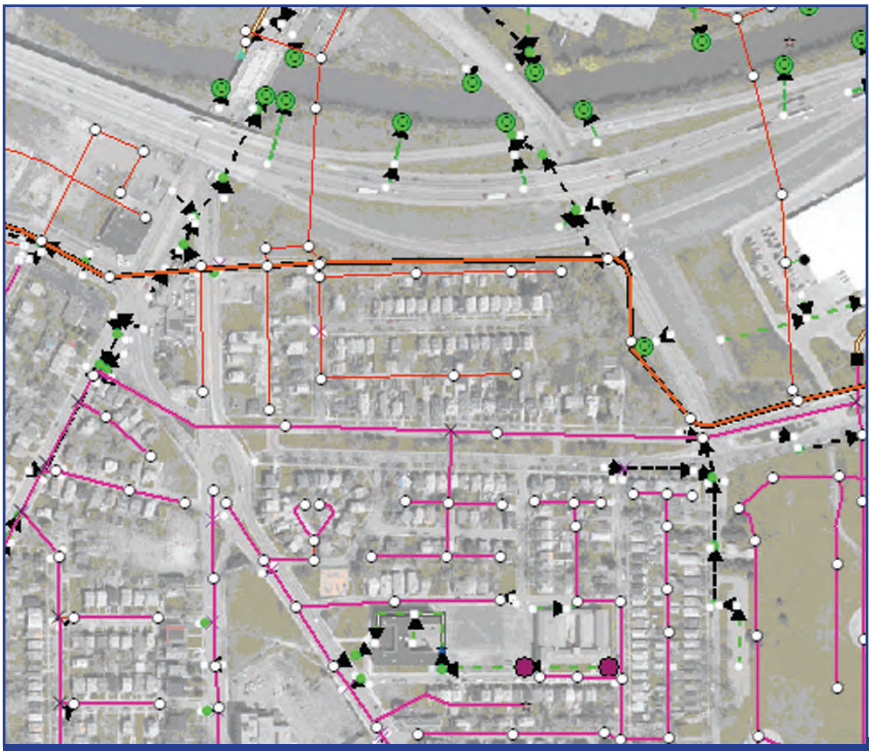


Excerpt from a SWP3. A SWP3 is part of a construction plan that instructs the contractor to prevent water pollution.

Illicit Discharge Detection and Elimination

Stormwater permits are required by Ohio EPA to develop, implement, and enforce programs to detect and eliminate illicit discharges. An illicit discharge is any release into a storm drain or sewer that is not stormwater. Some examples of illicit discharges are pool water that has not been de-chlorinated, oil, yard waste, trash, and anything that is not rainwater.

Stormwater programs are required to develop plans to detect illicit discharges and create enforceable rules to help prevent discharges. A map of outfall locations and the sewer system, which can be paper or GIS-based, is also required. Outfalls are points where storm sewers exit into streams.



A portion of a GIS-based outfall and sewer system map; lines represent sewers and the large green points represent outfalls. An outfall inventory map is critical to monitoring for illicit discharges and eliminating them. GIS-based outfall maps are easier to update than paper maps, but are not currently required.

Model Ordinance/Resolution Guidance

The *Stormwater Management Standards Manual* provides model ordinances and resolutions for adoption by local communities:

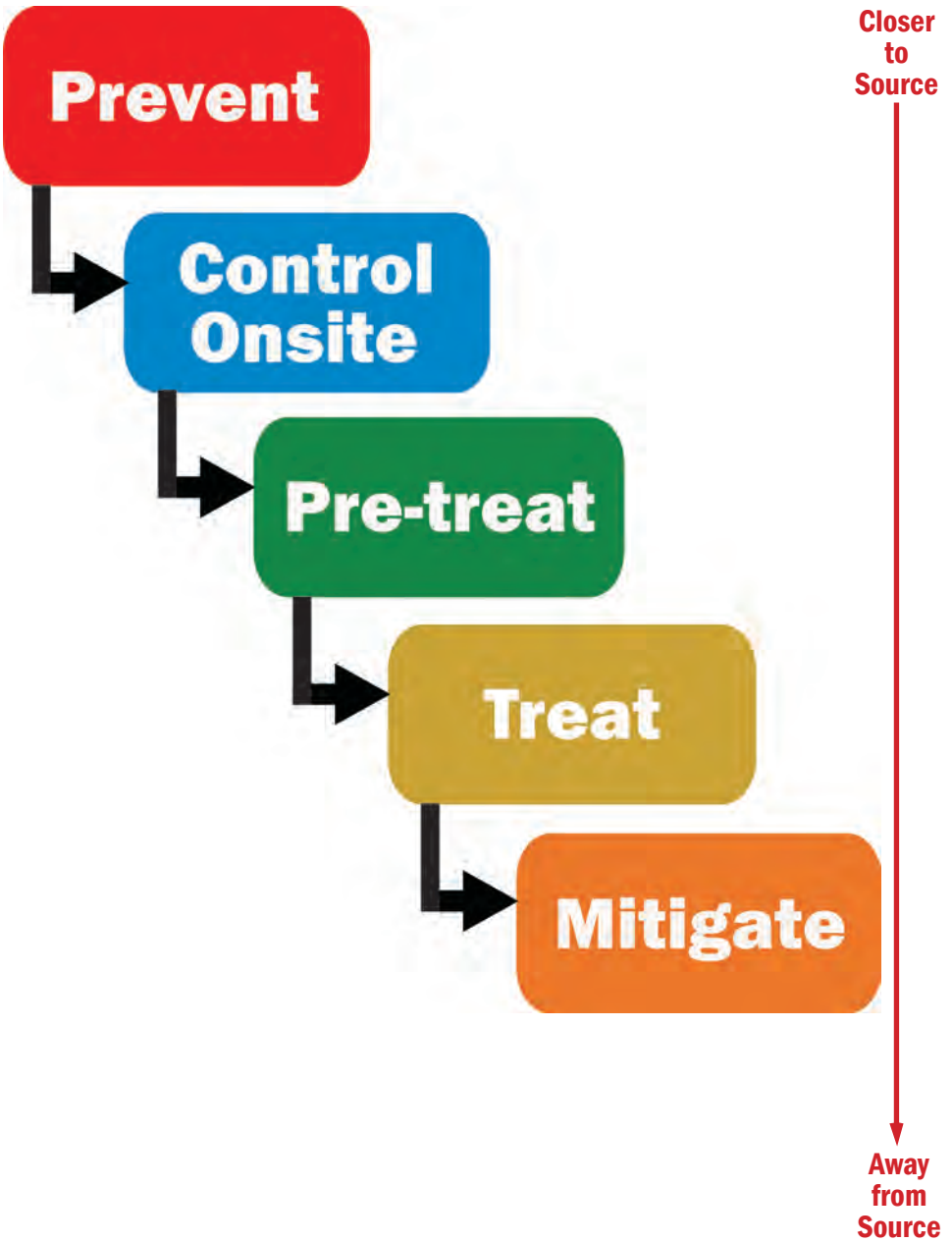
1. Riparian Setbacks
2. Conservation Development
3. Erosion and Sediment Control (ordinance only)
4. Illicit Discharge and Illegal Connection (ordinance only)

Riparian setbacks and conservation development are **recommended** by the Stormwater Coalition for adoption by the governing bodies of local jurisdictions. They are not required under current stormwater regulations.

Jurisdictions are **required** to adopt their own erosion and sediment control rules for construction runoff as well as illicit discharge detection and elimination ordinances. Jurisdictions are encouraged to use the *Stormwater Management Standards Manual* for guidance in creating these.

All model ordinance/resolution documents should be reviewed and revised by the legal authorities of the jurisdiction before being adopted.

Runoff Reduction Hierarchy



The Runoff Reduction Hierarchy is the model for stormwater management. Presented in order of effectiveness, these steps reduce flooding, minimize future mitigation, and restore the quality and stability of natural streams.

1. **Prevent:** Jurisdictions should enact ordinances/resolutions for source controls and provide incentives to preserve the natural environment.

Conservation development and green infrastructure prevent stormwater runoff by preserving the natural environment, which is the most effective stormwater control. Many communities find green spaces to be aesthetically appealing amenities.

Green roofs minimize impervious area and reduce stormwater runoff. Green roofs mimic natural plant processes (evaporation and transpiration). (Photograph taken at University of Toledo, Toledo, OH)

When designed properly, porous pavement has advantages over traditional surfaces and can reduce or eliminate the need for catch basins. Porous pavement reduces overall runoff and removes many pollutants from the stormwater prior to release.

2. **Control Onsite:** If stormwater runoff does occur, it should be controlled as close to the source as possible.

Silt fences around construction sites keep sediment, which can contain heavy metals and other pollutants, from being washed into storm drains during construction activities. Communities are required to regulate sediment and erosion control. Requiring silt fences on construction sites should be part of every jurisdiction's construction ordinance or resolution.

Rain gardens are an option for controlling stormwater runoff onsite and treating contaminated water naturally. Typically, rain gardens incorporate native species that are flood tolerant and allow natural processes to occur. Rain gardens are also useful for controlling sediment and erosion.

Sediment traps and micro-pools are typically used on development sites or around storm drain inlets. Sediments can settle out before stormwater is discharged. Protective fencing may be required and this method only removes large particles.

3. **Pre-treat:** Erosion or lack of onsite control will result in polluted stormwater runoff and pretreatment of runoff will be necessary.

Bioswales or grass swales filter stormwater and can serve as temporary retention. Water not used by the grasses or plants is infiltrated into the ground.

4. **Treat:** Polluted stormwater runoff can be treated before entering storm drains with infiltration devices (devices that allow water to pass through) or detention/retention ponds.

Stormwater wetlands and wet detention ponds temporarily store stormwater runoff. Unlike wet detention ponds, stormwater wetlands require an additional consideration for suitable growing conditions for plants. Stormwater wetlands mimic natural wetlands, but require periodic maintenance for them to work properly. (Note: uncontrolled stormwater should never be directed to natural wetlands).

5. **Mitigate:** If the previous four controls are done properly, mitigation is less likely to be needed. Stream restoration and sediment disposal are possible mitigation methods.

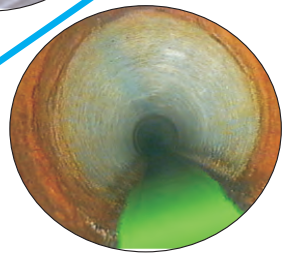
For more practical information regarding effective stormwater management, see the TMACOG *Stormwater Management Standards Manual*, third edition.

Six Required Measures for Stormwater Permits

1. Public Education and Outreach
Target households and businesses with information they can use and explain why stormwater management is important.

2. Public Participation/Involvement
Involve community members in water protection or clean up efforts

3. Illicit Discharge Detection and Elimination
Your stormwater programs must include;
1. a map of outfall locations and storm system,
2. enforceable rules that prohibit discharges of anything other than stormwater,
and 3. a plan to detect illicit discharges.



4. Construction Site Stormwater Runoff Control
Establish enforceable rules and monitor construction sites to ensure compliance.

5. Post-construction Stormwater Runoff Control
Ensure post-construction stormwater runoff controls (both structural and non-structural) are installed during development and are properly maintained.

6. Pollution Prevention/Good Housekeeping
Municipalities are required to maintain stormwater control measures, maintain a regular program to reduce discharges, and practice safe handling procedures during their operations.

Additional Information and Resources

Detailed information on the NPDES requirements and model ordinances:

- TMACOG, Stormwater Management Standards Manual, third edition, http://www.tmacog.org/Environment/TMACOG_Stormwater_Standards_Manual_.pdf
- Center for Watershed Protection, Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments, http://cfpub.epa.gov/NPDES/stormwater/idde.cfm
- American Rivers, Local Water Policy Innovation: A Road Map for Community Based Stormwater Solutions, http://www.americanrivers.org/library/reports-publications/local-water-policy-innovation.html

Stormwater Phase II: Final Rule Factsheets,
http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm?program_id=6

Measureable Goals Guidance,
U.S. EPA http://cfpub.epa.gov/npdes/stormwater/measurablegoals/parameters.cfm

Green Infrastructure and Low Impact Development Factsheets and Guidance

- U.S. EPA, Low Impact Development, http://www.epa.gov/nps/lid/
- Ohio Lake Erie Commission, Balanced Growth Program, http://www.lakeerie.ohio.gov/BalancedGrowth.aspx
- Rain Garden Initiative, www.raingardeninitiative.org

Image Sources

Cover:

- Image Science and Analysis Laboratory, NASA – Johnson Space Center 10 Jul. 2006. "Astronaut Photography of Earth – Display Record." http://eol.jsc.nasa.gov/

Pages 3-4:

- Andy Stepnick, City of Toledo

Pages 7-10:

- (Green infrastructure photo) http://planning.co.cuyahoga.oh.us/infrastructure/pdf/cawrse.pdf
- (Green roof photo) Jennifer English, Defiance Soil & Water Conservation District
- (Rain garden photo) ftp://ftp-fc.sc.egov.usda.gov/ MT/www/technical/water/ Bioswale.pdf
- All other photos: Dan Ross, Natural Resources Conservation Service

Pages 11-12 (clockwise, beginning at top left):

- http://www.ecy.wa.gov/programs/wq/stormwater/municipal/public_outreach_resources.html
- Toledo-Lucas County Rain Garden Initiative, http://www.raingardeninitiative.org/Pilot-Sofia.html
- Eric Jones, Wood County Engineer's Office
- Kurt Erichsen, TMACOG
- http://www.gangbusters.net/images/dye%20testing.jpg
- Dan Ross, Natural Resources Conservation Service
- Dan Ross, Natural Resources Conservation Service
- Toledo-Lucas County Rain Garden Initiative, http//www.raingardeniniative.org
- Dan Ross, Natural Resources Conservation Service
- Lauren Saulino, Institute of Environmental Sciences, Miami University
- Ann-Drea Hensley, TMACOG

Disclaimer: All websites and resources are accurate as of April 2010.

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