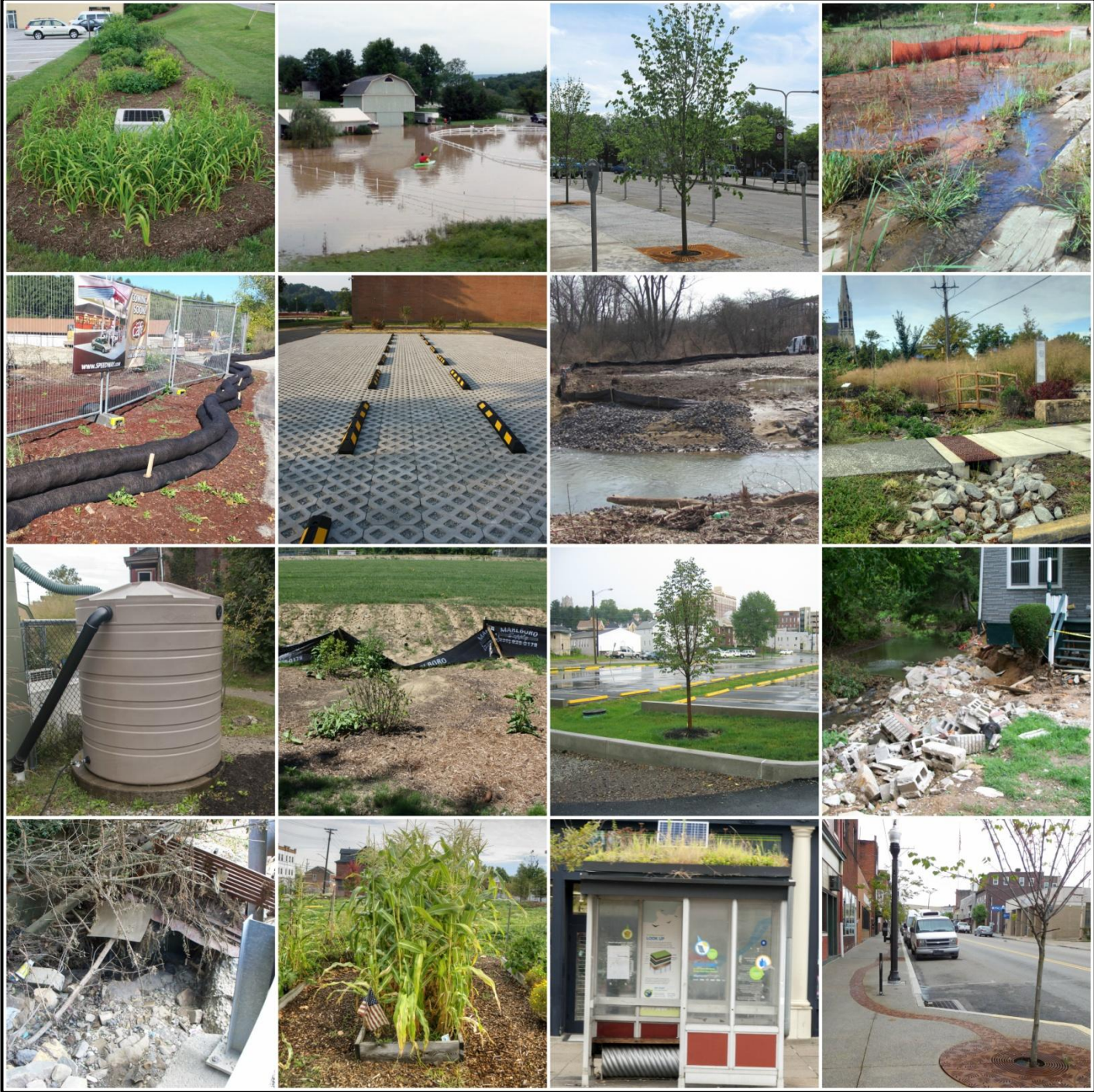


# Quick Resource Guide to the MS4 Program



WATER RESOURCE CENTER



pennsylvania  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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This guide is provided exclusively for general educational and informational purposes. This guide does not in any way replace or supersede any municipal, county, state, or federal requirements or regulations related to stormwater management. This guide is not intended to be a substitute for professional design and implementation services. The management of stormwater is a complex and site specific issue and that the general information contained in this guide may not be sufficient to assess any and all particular site conditions. Any stormwater management practice should be installed with the consultation of an experienced professional who can address specific site conditions.

**Cover photo credits: Etna Borough, Southwestern Pennsylvania Commission, and the Westmoreland Conservation District**



## How to Use This Guide

This guide was written for municipalities that own and operate **Municipal Separate Storm Sewer Systems (MS4s)**. Stormwater regulations associated with the Federal Clean Water Act (CWA) are administered under the MS4 Program by the Environmental Protection Agency (EPA). In Pennsylvania, the MS4 program is managed by the Pennsylvania Department of Protection (PADEP). The PADEP General Permit PAG-13 provides a streamlined process to meet the state and federal stormwater requirements. Operators of a regulated MS4 must obtain a National Pollutant Discharge Elimination System (NPDES) permit and develop and implement a stormwater management plan (SWMP) according to the details of their specific permit. Mandatory elements of the SWMP include six (6) Minimum Control Measures (MCMs); each MCM has a number of associated BMPs.

In this guide, we begin with the history and background of MS4s and regulations. Then we provide an overview of the six (6) **Minimum Control Measures (MCMs)** of the **NPDES MS4 permit** and their associated **Best Management Practices (BMPs)**. Examples provided of BMPs are not meant to be the only available solution – there are many other BMPs, and we have listed a few examples from our region within the MCM section and in the Resources section.

**This booklet will provide an overview on the following topics:**

1. Keys to developing your SWMP
2. Record keeping strategies for each MCM
3. What to expect during an inspection
4. Resource directory of essential contacts

## History and Background



**Figure 1: A polluted waterway (Source: wwf.panda.org)**

### Why Do We Regulate Stormwater?

The MS4 program requires the MS4 owner/operator to implement a series of programs to reduce the discharge of pollutants from the storm sewer system to the maximum extent practicable in a manner that protects water quality. The Pennsylvania Code Chapter 93 sets the water quality standards for surface waters of the Commonwealth and these standards seek to protect the waters for aquatic life, water supply, recreation and fish consumption, and areas that need special protection. The MS4 program focuses on managing discharges into the waters of the Commonwealth by educating and implementing proper control measures and best management practices (BMPs).

Total maximum daily loads (TMDLs) are in place to reduce pollutants in impaired waterways so that they meet water quality standards. TMDLs focus on identifying sources of impairment and implementing corrective work based on the best available data and information. Additional monitoring and data collection will occur to track progress and better characterize pollutant sources, loadings and the effectiveness of control measures and BMPs.

### What is an MS4?

**MS4s are conveyances or systems of conveyances including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains that are owned or operated by a public entity, are designed or used for collecting or conveying stormwater, and are not a combined sewer or part of a publicly-owned treatment works.**

**A municipality is bound by US Environmental Protection Agency (EPA) regulations for an MS4 when all or a portion of a municipality lies within an urbanized area (UA), as determined by the US Census Bureau (see glossary).**

See the DEP's municipal stormwater NPDES permits page at <http://www.dep.pa.gov/Pages/default.aspx#NPDES> for more information.

## Stormwater Management Program

Each MS4 permittee must create a **Stormwater Management Program (SWMP)** to minimize the impacts from runoff. A SWMP must be completed to comply with the NPDES MS4 General Permit. The SWMP requires municipalities to focus on six Minimum Control Measures (MCMs). In the permit application, the permittee indicates whether the BMPs and Measurable Goals under each of the six MCMs follow Appendix A in the permit, or whether alternative BMPs and Measurable Goals for any of the MCMs are provided. The permittee is required to satisfy all requirements of the Stormwater Management Program as a condition of the permit during the term of your permit.

**To the right is an outline of a typical SWMP, which will give you an idea of what should be included in this plan. All plans should be reviewed/updated annually.**

An introduction may be written to tie the document together that provides background information, the goal of the plan, and how they plan to assess the progress/value of plan implementation.

The introduction could include, but is not limited to: land area total, population, number of acres of urbanized area for the permit, a breakdown of the residential, industrial, commercial and undeveloped land, where the stormwater discharges go, impaired waterways, any TMDL pollutants, and/or how to assess the effectiveness of the SWMP.

Each surface water in the state has designated use(s) to be protected. Each designated use has water quality standards and criteria assigned to protect the designated use(s). Water quality standards for all Pennsylvania surface waters can be found in Pa Code: Chapter 93 - Water Quality Standards and Chapter 16 - Water Quality Toxics Management Strategy.

Surface waters that do not meet water quality standards for the designated uses are commonly called “impaired” and are placed on the federal Clean Water Act (CWA) Section 303(d) List. Once on the 303 (d) List, a TMDL will be developed to address the pollutant(s) of concern.

Identifying impairments allows you to focus your program efforts on improving water quality prior to a TMDL being issued. Water quality impairments and/or TMDLs within the MS4 permittee boundaries need to be incorporated into the plan and MS4 program.

**It is anticipated that the new PAG13 will be released March 2018, so check the DEP Program Updates section often for any changes or additional guidance.**

### Sample SWMP Outline

- ◆ Introduction
- ◆ MCM 1: Public Education and Outreach
  - BMPs 1-4
    - Measurable Goals
- ◆ MCM 2: Public Involvement and Participation
  - BMPs 1-3
    - Measurable Goals
- ◆ MCM 3: Illicit Discharges Controls
  - BMPs 1-6
    - Measurable Goals
- ◆ MCM 4: Construction Site Runoff Control
  - BMPs 1-4
    - Measurable Goals
- ◆ MCM 5: Post-Construction Stormwater Management
  - BMPs 1-6
    - Measurable Goals
- ◆ MCM 6: Pollution Prevention and Good Housekeeping
  - BMPs 1-3
    - Measurable Goals
- ◆ Outfall Inventory Checklist
- ◆ TMDL Plan (if applicable)

*Refer to Sample Appendix A in your individual permit for more information regarding the Stormwater Management Program.*

**One common issue found in audits is that the SWMP does not identify pollutants of concern, “impairments” or address TMDLs.**

For more information about the 303(d) List and TMDLs:

#### 303(d) List

<http://www.dep.pa.gov/Business/Water/PointNonPointMgmt/WaterQuality/Pages/Integrated-Water-Quality-Report-2014.aspx#.V0btMXLD9aQ>

#### TMDLs

<http://www.dep.pa.gov/Business/Water/PointNonPointMgmt/StormwaterMgmt/Stormwater/Pages/default.aspx>

## Minimum Control Measures (MCMs)

As part of the terms of your permit, you must include the six MCMs in your SWMP in order to meet the conditions of your NPDES permit.

<b>MCM 1: Public Education and Outreach</b>
Distributing educational materials and performing outreach to inform the public about the impacts polluted stormwater runoff discharges can have on water quality.
<b>MCM 2: Public Participation/Involvement</b>
Providing opportunities for the public to participate in program development and implementation, including effectively publicizing public hearings and/or encouraging representatives on a stormwater management panel.
<b>MCM 3: Illicit Discharge Detection and Elimination</b>
Developing and implementing a plan to detect and eliminate illicit discharges to the storm sewer system (includes developing a system map and informing the community about hazards associated with illegal discharges and improper disposal of waste).
<b>MCM 4: Construction Site Runoff Control</b>
Developing, implementing, and enforcing an erosion and sediment control program for construction activities that disturb 1 or more acres of land (controls could include silt fences and temporary stormwater detention ponds).
<b>MCM 5: Post-Construction Runoff Control</b>
Developing, implementing, and enforcing a program to address discharges of post-construction stormwater runoff from new development and redevelopment areas. Applicable controls could include preventative actions such as protecting sensitive areas (e.g., wetlands) or the use of structural BMPs such as grassed swales or porous pavement.
<b>MCM 6: Pollution Prevention/Good Housekeeping</b>
Developing and implementing a program with the goal of preventing or reducing pollutant runoff from municipal operations. The program must include municipal staff training on pollution prevention measures and techniques (e.g., regular street sweeping, reduction in the use of pesticides or street salt, or frequent catch-basin cleaning).

### Implementation Options

There are a number of implementation options for regulated MS4 operators. These include sharing responsibility for program development with a nearby regulated MS4 operator; taking advantage of existing local or state programs; or participating in the implementation of an existing MS4's stormwater program as a co-permittee. These options are intended to promote a regional approach to stormwater management coordinated on a watershed basis.

### Program Evaluation and Assessment

Permittees need to evaluate the effectiveness of their chosen BMPs to determine whether the BMPs are reducing the discharge of pollutants from their systems to the "maximum extent practicable" and to determine if the BMPs are satisfying the water quality requirements of the Clean Water Act. Permittees also are required to assess their progress in achieving their program's measurable goals.

### Documentation

Documentation is the required evidence to ensure the MS4 permittee is implementing the SWMP. Failure to properly provide documentation will result in violations and other potential enforcement actions. Although documentation can be time consuming, it will help the permittee in assessing the effectiveness of the SWMP, MCMs, and BMPs. Documentation helps relay information to the regulating community and to the public.

## Minimum Control Measure #1: Public Education & Outreach on Stormwater Impacts

The goal of the Public Education and Outreach MCM is to educate the public about stormwater activities. It aims to build greater support for the stormwater management program (SWMP), increase compliance, and promote environmental awareness in local communities.

**BMP #1** – Develop, implement, and maintain a **Public Education & Outreach Program (PEOP)**. A written plan must be developed for each program. The plan should include goals, strategies, a timeline, and provisions for reviewing and updating annually. See EPA’s “Getting in Step, A Guide for Conducting Watershed Outreach Campaigns”

<https://cfpub.epa.gov/npstbx/files/getnstepguide.pdf>.

**BMP #2** – Develop and maintain lists in a document or a spreadsheet of target audience groups that are served by your stormwater system. Target audiences typically include residents, businesses, developers, schools, and municipal employees.

**BMP #3** – Annually publish at least one issue of a newsletter, a pamphlet, a flyer, or a website that includes general stormwater educational information, a general description of your SWMP, and/or information about your stormwater management activities either in printed form or on your municipal website.

**BMP #4** – Distribute educational materials and/or information to the target audiences identified in BMP #2 using your choice of at least two distribution methods.

**Example options include, but are not limited to:**

- Classroom integration of stormwater education
- Displays, posters, signs, fact sheets
- Pamphlets, booklets, brochures
- Radio, local cable TV, newspaper articles
- Presentations, conferences, meetings
- Promotions/Giveaways

### Helpful Tips

- ◆ Documentation of your public education and outreach actions are important throughout the MCM process and proper records will need to be kept. Keep track of the dates that you publicize a document and when you update them as well.
- ◆ Have a stormwater link on your website for the public to access your information and provide links for more resources.
- ◆ A newsletter should contain information that is exclusively MS4 and stormwater-focused.
- ◆ Be sure to give good rationale as to why you selected your target group and why you chose to educate them on a particular topic.



Figure 2: The water cycle created by Westmoreland Conservation District to educate the public

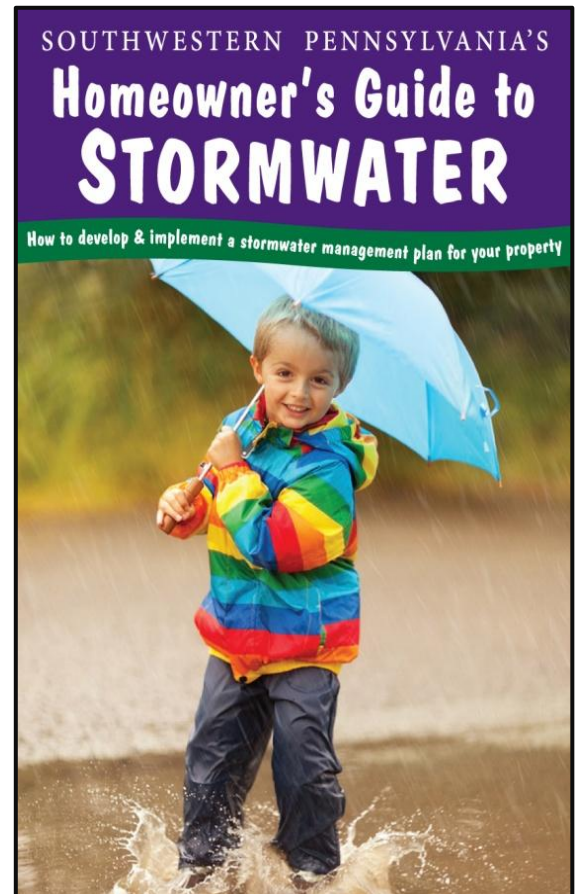


Figure 3: The “Southwestern Pennsylvania's Homeowner's Guide to Stormwater” educates homeowners about stormwater issues



## Minimum Control Measure #2: Public Participation/Involvement



Figure 4: The public participating in a rain barrel workshop in Westmoreland County

The goal of the Public Participation/Involvement is to involve the public in stormwater activities. It should facilitate the successful implementation of your Stormwater Management Program (SWMP) through garnering public support; utilizing expertise and local knowledge; shortening implementation schedules; and, building partnerships with other community and government programs. It goes hand-in-hand with MCM 1.

**BMP #1** – Develop, implement, and maintain a written **Public Involvement and Participation Program (PIPP)**. A written plan must be developed for each program. It can be combined with the Public Education and Outreach Program (PEOP) discussed under MCM 1 BMP #1.

The PIPP should describe various types of participation activities, methods of encouraging involvement and getting input from the public. It should include:

- Opportunities for public participation in decision-making processes associated with the development, implementation and update of programs and activities associated with the permit.
- How you communicate with and update groups in or near your MS4, such as watershed associations, environmental organizations and others.
- Your method of making your MS4 reports available to the public on your website, at municipal offices, or by mail upon request.

**BMP #2** – Provide adequate public notice and opportunities for the public to review a stormwater ordinance and provide their input and feedback prior to adopting any sort of ordinance. You should advertise any proposed MS4 stormwater ordinance, accept public comments, and document how you received and responded to them.

**BMP #3** – Regularly solicit public involvement and participation from target audience groups. One public meeting per year is required, either as a stand-alone MS4 meeting or as part of another public meeting. At these meetings, you should summarize the ongoing implementation of your SWMP, including activities and accomplishments, and allow time and opportunities for public feedback and input.

Active Outreach	Passive Outreach
Active outreach engages the public in learning and is therefore a more effective tool in educating the public. It may be difficult to prove the effectiveness of passive distribution methods.	
<b>Examples</b>	<b>Examples</b>
<ul style="list-style-type: none"> <li>• Community clean-ups</li> <li>• Tours</li> <li>• Workshops</li> <li>• Storm drain stenciling</li> <li>• Interactive public meetings</li> </ul>	<ul style="list-style-type: none"> <li>• Publication of fact sheets, pamphlets, newsletters, etc.</li> <li>• Social media websites</li> <li>• Educational signage</li> </ul>
<b>Pros</b>	<b>Pros</b>
<ul style="list-style-type: none"> <li>• Creates interactive dialogue</li> <li>• Increases critical thinking of participants</li> <li>• Provides an engaged process and requires a conscious effort to make sense of the information</li> </ul>	<ul style="list-style-type: none"> <li>• There is a lot of information and requires a smaller effort to organize it</li> <li>• Very organized and controlled distribution to the public</li> </ul>
<b>Cons</b>	<b>Cons</b>
<ul style="list-style-type: none"> <li>• Time and effort to organize</li> <li>• It can take some time to catch on as an activity</li> </ul>	<ul style="list-style-type: none"> <li>• No opportunity to clarify the information immediately</li> <li>• No direct engagement with the public</li> </ul>

### Helpful Tips

- Documentation is a critical component of the entire MS4 program, including MCM #2 – Public Participation and Involvement. You must be sure to document public involvement, which might include various activities from presentations at municipal meetings to stream clean-ups.
- Keep sign in sheet information from public meetings to show who and how many were in attendance.
- Show your connections and relationships with watershed and other environmental groups in your documentation.
- Properly identify which meetings the public should attend to learn more about MS4 practices and stormwater management.
- There are plenty of issues to discuss, including the stormwater management budget; what is and is not working in your municipality; the topic of a stormwater authority; or even a stormwater fee. Be sure that the public knows which meetings to attend for this information.

## Minimum Control Measure #3: Illicit Discharge Detection & Elimination

The goal of the Illicit Discharge Detection & Elimination (IDD&E) MCM is to locate and stop illicit discharges into your MS4.

DEP recommends that you utilize the 2004 IDD&E Guidance Manual that is referenced in the MS4 NPDES permit to develop or improve your IDD&E Program. Common sources of illicit discharges include sanitary wastewater, improper disposal of auto and household toxins, and car wash wastewaters.

### Why are illicit (illegal) discharges important?

Illicit discharges make their way to our waterways untreated. Illicit discharges such as paint or oil dumped into storm drains, septic effluent, car wash wastewater, and illegally connected wastewater piping into sewers can cause serious pollution issues. These illicit discharges can carry a variety of pollutants, such as heavy metals, bacteria, viruses, nutrients, oil and grease, and solvents. Illicit discharges are dangerous to public and environmental health, it's unsightly, may affect drinking water, and will diminish recreational value.

Dry weather flows need to be sampled to determine if discharge is illicit. Dry weather flow outfalls need to be screen annually.

**BMP #1** – Develop and implement a written IDD&E program for the detection, elimination, and prevention of illicit discharges into your MS4. The program must include dry weather field screening of outfalls for non-stormwater flows, and sampling of dry weather discharges or selected chemical and biological parameters. Test results are to be used as indicators of possible discharge sources.

**BMP #2** – Map streams and outfalls. This map can be combined with BMP #3. The map must show the location of all outfalls and the locations and names of all surface waters of the Commonwealth that receive discharges from those outfalls. Surface waters that should be included are creeks, streams, ponds, lakes, basins, swales, and channels that receive stormwater discharges. Maps should be developed within the first year of permit coverage and updated/maintained from thereafter.

**BMP #3** – The storm sewer collection system including pipes, municipal watershed boundaries and roads (including streets, catch basins, curbs, basins and artificial channels) must be mapped. This map can be created in conjunction with BMP #2.



Figure 5: Illicit discharge (Source: EPA IDDE Manual: [https://www3.epa.gov/npdes/pubs/idde\\_manualwithappendices.pdf](https://www3.epa.gov/npdes/pubs/idde_manualwithappendices.pdf))

### What should be included in your IDD&E Program

- ◆ Identify priority areas with a high likelihood of discharge or dumping. Consider looking at old infrastructure, dumping history, sewage conversion or failing septic systems – put this info on a map.
- ◆ Screen outfalls – check for dry weather flows and sample them for pollutants or pathogens. Two people should do this together for safety reasons.
- ◆ Identify pollution sources. Did you find an illicit discharge? Where is it coming from? Investigate using standard written procedures. Photographic documentation is useful.
- ◆ Eliminate illicit discharge when a contaminated flow is detected. Have a process in place to follow – start by knocking on doors and escalate as necessary.
- ◆ Sewage discharge potential – is your MS4 a retrofit built separately?
- ◆ Access to private property – your ordinance should address this as it is a big issue for MS4s and should provide adequate authority. Include access as a discussion topic in public education and involvement activities (MCMs 1 and 2). Provide instructions to staff to avoid liability and ensure safety.
- ◆ Documentation and evaluation – record who went where, what they found, and what was done (what was the follow-up? was it effective?).
- ◆ Develop and maintain a reporting system for the public to report illicit discharges. Make sure the reporting system is user-friendly so that anyone can understand how to submit the complaint. Also, keep records on what actions were taken and how.





Figure 6: From left to right: A stenciled storm drain in Pittsburgh; Staining which shows some sort of illicit discharge poured down a drain; A "no dumping" stormwater identification marker in Etna; An outfall to a stream (Sources: SPC and Westmoreland Conservation District)

**BMP #4** – Outfall screenings must be done in your MS4. “Screening” means that you physically check your outfalls and report the results as outlined in your SWMP. Documentation is key – write down who went, what they found, include their inspection checklist and any photos taken. New permittees need to screen each outfall twice (screen 40% of outfalls each year of the permit term). During subsequent permit terms, outfalls are to be screened once per permit term (screen 20% of outfalls each year).

**BMP #5** – Enact a stormwater management ordinance to implement and enforce a SWMP. Two model ordinances are included in the DEP permit application. Sections that should be included are prohibitions, right of entry, and enforcement. The ordinance must meet the requirements listed in the MS4 Stormwater Management Ordinance Checklist.

**Ordinance-related BMPs of MCMs 3, 4 and 5 can be combined into a single stormwater management ordinance.**

Ordinances associated with an Act 167 Stormwater Management Plan that was approved by DEP in 2005 or later meet the requirements of BMP #5. You can also meet the ordinance requirement by utilizing DEP’s model MS4 Stormwater Management Ordinance or by developing an ordinance that meets all applicable requirements outlined in the MS4 Stormwater Management Ordinance Checklist.

**BMP #6** – Provide educational outreach on IDD&E to your target audience. Programs should be developed to encourage and facilitate public reporting of illicit discharges, illegal dumping, or outfall pollution.

## Helpful Tips

- ◆ Stay current on IDD&E ordinances. Be sure that they are up to date and check to see if you have multiple ordinances that may make regulating this issue burdensome.
- ◆ When screening 20% of your outfalls each year, make sure that you’re screening different outfalls each year. Don’t screen the same ones year after year.
- ◆ Be sure to be informed on what a proper outfall is. Mapping your outfalls, as well as outfalls maintained by PennDOT, will be helpful in the process.
- ◆ DEP has an MS4 IDD&E Checklist that can be useful for completion of MCM3:  
[http://www.dep.pa.gov/Business/Water/PointNonPointMgmt/StormwaterMgmt/Stormwater/Pages/MS4-Resources.aspx#.VxfJG\\_krKUK](http://www.dep.pa.gov/Business/Water/PointNonPointMgmt/StormwaterMgmt/Stormwater/Pages/MS4-Resources.aspx#.VxfJG_krKUK).

## Minimum Control Measure #4: Construction Site Runoff Control

Sediment is the primary pollutant of concern associated with construction site stormwater runoff. Sediment-polluted stormwater can cause physical, chemical, and biological damage to waterways. The goal of the Construction Site Runoff Control MCM is to protect our waterways from stormwater-related pollution that can result from construction activities.

In your Notice of Intent (NOI) submission (permit application) to DEP for your MS4 NPDES permit, the MS4 permittee decides whether it will be relying on DEP's Qualifying Local Program (QLP) or developing a program in-house. Relying on the QLP means that all BMPs under MCM 4 and BMPs #1 - 3 of MCM 5 are automatically satisfied. County Conservation Districts (CCD) play a major role in implementing the Chapter 102 program. MS4s are encouraged to enter into a Memorandum of Understanding (MOU) with their CCD to oversee stormwater program requirements for construction. Municipalities should have a copy of the MOU to review during an inspection and it is recommended that municipalities develop a written plan for the responsibilities beyond the QLP.

If you will not be relying on DEP's statewide QLP, you must satisfy one of the following statements:

- Enact, implement, and enforce an ordinance from an Act 167 Plan approved by DEP in 2005 or later
- Enact the MS4 Stormwater Management Ordinance
- Enact an ordinance that satisfies all applicable requirements in a completed and signed MS4 Stormwater Management Ordinance Checklist



Figure 7: Filter sock used to provide erosion and sediment control (Source: Westmoreland Conservation District)

**BMP #1** – Develop a written construction site stormwater runoff control program. The purpose is to establish clear roles and responsibilities for this MCM, outlining the procedures necessary for compliance. The program must include construction stormwater permitting, construction inspection, and enforcement of installation and maintenance of erosion and sediment (E&S) controls.

The program should be developed within the first year of permit coverage and reviewed/updated annually. A simple tracking system for active construction sites, inspections, enforcement actions, and other activities related to this MCM can simplify the reporting process while ensuring that all applicable activities are being managed.

**BMP #2** – Write, adopt and enforce an ordinance that requires the implementation of erosion and sediment (E&S) control BMPs, as well as sanctions to ensure compliance. Permittees should adopt the ordinance within the first year of permit coverage.

**BMP #3** – Develop and implement requirements for site operators to control waste at the construction site that may cause adverse impacts to water quality. Sediment is the primary pollutant of concern for MCM 4; however, other pollutants associated with construction are also important and should be addressed. Permittees should establish requirements within the first year. Requirements should be reviewed annually and updated if necessary.

**BMP #4** – Develop and implement procedures for the receipt and consideration of public inquiries, concerns, and information submitted by the public regarding local construction activities. The permittee should demonstrate acknowledgement and consideration of the information submitted. Permittees should establish and implement a tracking system to keep a record of any submitted public information as well as response, actions, and results. If you have TMDL responsibilities, you may choose to regulate disturbances less than one acre and take credit for BMPs serving this purpose. This should be included in your ordinance.



Figure 8: A damaged silt fence which is supposed to provide erosion and sediment control where soil is being disturbed by construction (Source: Allegheny County Conservation District)



## Minimum Control Measure #5: Post-Construction Stormwater Management

The goal of the Post-Construction Stormwater Management MCM is to avoid increased stormwater runoff problems and increased non-point source pollution that often accompanies the development of land and the associated increase in impervious surfaces.

Under Chapter 102, Erosion and Sediment (E&S) Control, County Conservation Districts and/or DEP must issue a permit for earth disturbance activities one acre or greater. If the MS4 permittee elects to use their participation in the Chapter 102 program as a Qualifying Local Program (QLP) under their MS4 permit requirements, then MCM 5 BMPs 1 -3 are automatically accounted for.

Once again, municipalities should have a copy of the MOU to review during an inspection and it is recommended that municipalities develop a written plan for the responsibilities beyond the QLP for MCM5 as well. There should be coordination with the QLP to have copies of your inspection records for documentation.

**BMP #1** – Develop a post-construction stormwater management procedure. This written procedure describes how the permittee will address all required components of the plan. Guidance can be found in the Pennsylvania Stormwater Best Management Practices Manual (source can be found in Appendix 3).

### Minimum requirements of the plan should include:

- Minimum requirements for use of structural and/or non-structural BMPs in plans for development and redevelopment
- Criteria for selecting and standards for sizing stormwater BMPs
- Implementation of an inspection program to ensure that BMPs are properly installed

**BMP #2** – Require the implementation of a combination of structural and/or non-structural BMPs that are appropriate to the local community; minimize water quality impacts; and, are designed to maintain pre-development runoff conditions.



Figure 9: A rain garden in a parking lot to capture stormwater from an impervious parking lot (Source: Westmoreland Conservation District)

**BMP #3** – Ensure that controls are installed that will prevent or minimize water quality impacts. Qualifying development or redevelopment projects should be inspected during construction to ensure proper installation of the approved post-construction stormwater management (PCSM) BMPs. Permittees that do not rely on Chapter 102 as a QLP to fulfill these requirements must summarize construction inspections and results in periodic reports.

### All MS4 permittees are responsible for implementing BMPs 4, 5 and 6.

**BMP #4** – Enact, implement, and enforce a post-construction stormwater runoff ordinance or other regulatory mechanism to address new development and redevelopment projects, as well as sanctions and penalties associated with non-compliance. PCSM controls apply to disturbances one acre or greater, but can also apply to those less than one acre.



**BMP #5** – Develop and implement measures to encourage and expand the use of Low Impact Development (LID) in new and redevelopment. DEP’s Pennsylvania Stormwater Best Management Practices (BMP) Manual provides guidance on implementing LID practices, including, but not limited to:

- Protect sensitive and special-value features by avoiding floodplains, woods and wetlands
- Cluster and concentrate
- Minimize disturbance
- Reduce impervious cover
- Disconnect, distribute, decentralize
- Source control, such as street-sweeping

An inventory of development and redevelopment projects that discharge stormwater to your regulated MS4 must be kept. In this inventory, note which projects that have been authorized for construction since 3/10/2003 that incorporated LID practices (and specifics on what LID practices were used). Additionally, ordinances should be enacted that are consistent with LID practices.



**Figure 10: Infiltration swale at Westmoreland County Community College (Source: Westmoreland Conservation District)**

**Information required in this inventory includes but is not limited to:**

- Owner
- Location
- Type of BMP
- Installation date
- Required maintenance inspection activities and maintenance
- An annual assessment by you that the BMP operation and maintenance is adequate

**BMP #6** – Ensure adequate operation and maintenance of all post-construction stormwater management BMPs installed at all qualifying development or redevelopment projects (including those owned or operated by the permittee). Within the first year of permit coverage, permittees should develop and implement a written inspection program to ensure that BMPs are properly operated and maintained. An inventory of BMPs should be developed and updated regularly. The inventory should include all BMPs installed since 3/10/2003 that discharge to your regulated MS4.

**Helpful Tips**

- ◆ A single system to record and track the inventory implementation specified in BMPs 3, 5 and 6 of this MCM will be helpful for your MS4 documentation.
- ◆ For MCM5, make sure your SWMP identifies the mechanism that will be used to address post-construction runoff (i.e., ordinance); why that mechanism was chosen; and describe the plan to develop that mechanism.
- ◆ The Pennsylvania Stormwater Best Management Practices Manual can be found here: <http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-8305>

## Minimum Control Measure #6: Pollution Prevention/Good Housekeeping

The goal of the Pollution Prevention/Good Housekeeping MCM is to help ensure a reduction in the amount and type of pollution that is generated from municipally-owned and maintained facilities (e.g., streets, parking lots, and vehicle maintenance areas) and eventually discharged into local waterways. An additional goal of MCM 6 is to reduce the amount of pollution that is discharged to waterways from environmentally damaging land development, flood management practices, and/or poor maintenance of storm sewer systems.

**BMP #1** – Identify and document all facilities and activities that are owned or operated by the permittee and have the potential for generating stormwater runoff to the small regulated MS4. This includes activities conducted by contractors for the permittee. The examples below are not limited to these facilities.

Municipal Facility Examples	Municipal Activity Examples
<ul style="list-style-type: none"> <li>• Streets, roads, highways, and parking lots</li> <li>• Maintenance and storage yards</li> <li>• Waste transfer stations</li> <li>• Parks</li> <li>• Fleet or maintenance shops</li> <li>• Wastewater treatment plants</li> <li>• Stormwater conveyances (open and closed)</li> <li>• Riparian buffers</li> <li>• Stormwater storage or treatment units (e.g., basins, constructed wetlands, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Street sweeping</li> <li>• Snow removal/deicing</li> <li>• Inlet/outlet cleaning</li> <li>• Lawn/grounds care</li> <li>• Storm system maintenance, inspection, and repair</li> <li>• Park and open space maintenance</li> <li>• Municipal building maintenance</li> <li>• New construction and land disturbances</li> <li>• Right of Way maintenance</li> <li>• Vehicle maintenance, operation, fueling, and washing</li> <li>• Material transfer operations, including leaf/yard debris pickup and disposal procedures</li> </ul>



Figure 11: Municipal facilities and activities (Source: SPC and regional partners)



**BMP #2** – Develop, implement, and maintain a written operation and maintenance (O&M) program for all municipal operations and facilities that could contribute to the discharge of pollutants from the regulated small MS4s, as identified under BMP #1. A written plan must be developed within your O&M program. The O&M plan should stress pollution prevention and good housekeeping measures, contain site-specific information, and address the following areas:

- Management practices, policies, and procedures to reduce or prevent the discharge of pollutants to your small regulated MS4. Consider eliminating maintenance-area floor drains.
- Maintenance activities, schedules, and inspection procedures to reduce the potential for pollutants to reach your small regulated MS4.
- Controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, salt/sand (anti-skid) storage locations, and snow disposal areas.
- Procedures for the proper disposal of waste removed from your regulated MS4s and your municipal operations, including dredge spoil, accumulated sediments, trash, household hazardous waste, used motor oil, and other debris.

**BMP #3** – Develop and implement an employee training program that addresses appropriate topics to further the goal of preventing or reducing the discharge of pollutants from municipal operations to your regulated small MS4s. The program may be developed and implemented using any guidance and training materials that are available from federal, state, or local agencies, or other organizations. Any municipal employee or contractor must receive training, including, but not limited to:

- Public works staff
- Building/zoning/code enforcement staff
- Engineering staff (on-site and contracted)
- Administrative staff
- Elected officials
- Police and fire responders
- Volunteers
- Contracted personnel



**Figure 12: Vandergrift streetscape with mature tree and porous concrete to reduce impervious surfaces (Source: Westmoreland Conservation District)**

**Training should cover all relevant parts of the permittees' overall stormwater management program that could affect municipal operations, such as illicit discharge detection and elimination, construction sites, and ordinance requirements.**

## Helpful Tips

- ◆ Even if you contract out your catch basin cleanings, be sure to have records regarding the cleanings.
- ◆ Remember that your municipal garage isn't the only housekeeping you need to do. Good housekeeping applies to your entire permit area/municipality.
- ◆ Be specific regarding the training your employees are receiving. Document the date and topic of the training.
- ◆ Organization is key. Keeping good records and using a tracking software will help with implementation as well as a DEP or EPA audit. Even with a tracking software in place, paper copies/binders still need to be kept.



## Record-Keeping & Reporting Strategies

Record-keeping is a very important aspect of your MS4 permit compliance activities. This is how you will demonstrate to inspectors that you have satisfied the requirements of your permit. There are many resources on the internet and companies that offer tracking, reporting and record-keeping services. This may be the right choice for you, depending on budget constraints and technology preferences. It is also fairly simple to keep your efforts organized and documented by using inexpensive three-ring binders. These binders should be updated, organized, and easily accessible to staff responsible for MS4 compliance.

You should consider networking with other regulated MS4s to compare notes about what types of forms they use for inspections; the templates they use for reports and notices; and, how they interact with their various municipal departments (e.g., public works for fleet maintenance and engineering for building permits) to ensure compliance with the terms of their permit. Regulatory agencies, including DEP and EPA, often have templates and resources available to assist with compliance.

Avoid language that presents uncertainty in your annual reports and documentation, such as “maybe,” “should,” “could,” or “can.” Be specific on the “what,” “when,” “where,” and “how.”

## Documentation Needed by MCM

<p><b>MCMs 1 &amp; 2</b></p>	<ul style="list-style-type: none"> <li>✓ Two written plans are required under these MCMs – the PLOP and the PIPP. These two plans can be combined into one document if you wish. Be prepared to show these plans to the inspector, along with your target audience list.</li> <li>✓ Keep copies or photographic evidence of your stormwater education materials. Also, document how you distributed them to the public and your target audience via at least two methods in past year.</li> <li>✓ Keep documentation that you held at least one meeting in the last year by making a copy of the sign-in sheet or the meeting minutes. The date and time of the meeting and which staff members were present should also be included.</li> <li>✓ Detail the rationale behind your PLOP and PIPP. For example, explain why a certain flyer was selected, the logic behind the timeline for distribution or why you chose your target audience. These descriptions are vital to the documentation and audit processes.</li> <li>✓ If you adopted a stormwater ordinance, show that you provided adequate public notice by copying the newspaper article or keeping a transcript of your PSA. You should document who received comments and how they were responded to.</li> </ul>				
<p><b>MCM 3</b></p>	<ul style="list-style-type: none"> <li>✓ Provide a copy of your written IDD&amp;E Program Plan, which includes:             <ul style="list-style-type: none"> <li>✓ Records of outfall screening and inspections</li> <li>✓ Results, documentation on identified IDD&amp;E and resolutions</li> <li>✓ Maps of all outfalls, receiving waters and stormwater collection system</li> <li>✓ Outfall sampling records</li> <li>✓ Ordinance prohibiting illicit discharges</li> <li>✓ Tracking system for outfall screening (Excel spreadsheet, for example)</li> </ul> </li> <li>✓ Be sure the IDD&amp;E Program Plan describes the processes for screening, tracing, resolution and enforcement.</li> <li>✓ Mapping your MS4 is critical. The map should include your entire stormwater collection system, including all outfalls. Drainage areas feeding each outfall should also be delineated. The map of your MS4 should be completed by the 4<sup>th</sup> year of permit coverage. If you are operating under a renewed permit, your mapping should already be complete.</li> </ul>				
<p><b>MCM 4</b></p>	<p style="text-align: center;"><b>Are you are relying on Pennsylvania’s QLP for stormwater associated with construction activity under Chapter 102?</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;"><b>Yes</b></th> <th style="width: 50%; text-align: center;"><b>No</b></th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;"> <ul style="list-style-type: none"> <li>✓ Be prepared to describe your local approval process of construction-related projects. Explain step-by-step who does what, when it is done, and how your municipality ensures building permits are not issued until Chapter 102 requirements have been satisfied. DEP strongly encourages that you have a Memorandum of Understanding (MOU) in place with your County Conservation District to formalize your roles in this process.</li> <li>✓ It is still your responsibility to outline the processes in the MOU and explain the roles and responsibilities within that process.</li> </ul> </td> <td style="vertical-align: top;"> <ul style="list-style-type: none"> <li>✓ You must show your written program for stormwater associated with construction activities, an ordinance requiring implementation of erosion and sediment control BMPs, and written procedures for managing inquiries of local construction activity.</li> </ul> </td> </tr> </tbody> </table>	<b>Yes</b>	<b>No</b>	<ul style="list-style-type: none"> <li>✓ Be prepared to describe your local approval process of construction-related projects. Explain step-by-step who does what, when it is done, and how your municipality ensures building permits are not issued until Chapter 102 requirements have been satisfied. DEP strongly encourages that you have a Memorandum of Understanding (MOU) in place with your County Conservation District to formalize your roles in this process.</li> <li>✓ It is still your responsibility to outline the processes in the MOU and explain the roles and responsibilities within that process.</li> </ul>	<ul style="list-style-type: none"> <li>✓ You must show your written program for stormwater associated with construction activities, an ordinance requiring implementation of erosion and sediment control BMPs, and written procedures for managing inquiries of local construction activity.</li> </ul>
<b>Yes</b>	<b>No</b>				
<ul style="list-style-type: none"> <li>✓ Be prepared to describe your local approval process of construction-related projects. Explain step-by-step who does what, when it is done, and how your municipality ensures building permits are not issued until Chapter 102 requirements have been satisfied. DEP strongly encourages that you have a Memorandum of Understanding (MOU) in place with your County Conservation District to formalize your roles in this process.</li> <li>✓ It is still your responsibility to outline the processes in the MOU and explain the roles and responsibilities within that process.</li> </ul>	<ul style="list-style-type: none"> <li>✓ You must show your written program for stormwater associated with construction activities, an ordinance requiring implementation of erosion and sediment control BMPs, and written procedures for managing inquiries of local construction activity.</li> </ul>				

Are you relying on Pennsylvania's QLP for stormwater associated with construction activity under Chapter 102?	
Yes	No
<b>MCM 5</b>	<ul style="list-style-type: none"> <li>✓ You are covered, however, the process should be described with roles and responsibilities if an MOU is not in place.</li> <li>✓ Be prepared to show written Post-Construction Stormwater Management (PCSM) plan, tracking system with post-construction BMPs, and results of post-construction BMP inspections.</li> </ul>
<b>MCM 5</b>	<ul style="list-style-type: none"> <li>✓ In either case, you will need to show the inspector your ordinance for inspecting BMPs and your inspection program that ensures BMPs are properly operated and maintained. Implementation – you will need to maintain an inventory of BMPs, including their location. For private property, you should have maintenance agreements. An MOU with the CCD to help implement MCM 5 is a useful option for many MS4s.</li> <li>✓ Demonstrate to DEP that you understand the SW Management ordinance and are enforcing it. Must provide authority to control, regulate construction activity and inspect BMPs and legal authority to access private land (DEP model ordinance).</li> <li>✓ DEP may request a field visit to verify construction and operation of BMPs, especially when reported in periodic reports, especially if TMDLs are in place. Discuss ongoing O&amp;M needs for BMPs. Design plans or as-built plans should be available.</li> </ul>
<b>MCM 6</b>	<ul style="list-style-type: none"> <li>✓ DEP will ask to see an inventory of municipal facilities and land uses that contribute stormwater to MS4, including all facilities owned and operated by the permittee (e.g., street sweeping, fleet care, storage yards, composting sites, streets, lots). The O&amp;M plan will need to be shown to the inspector, as well as the written employee training program (includes contractors and consultants) and a list of trainings with frequency and participants.</li> <li>✓ DEP will also want to see the activities associated with the listed facilities. These activities can often have greater pollution potential than the facilities. Keep track of these activities and document the actions.</li> </ul>

## Office and Field Inspections

Your MS4 NPDES permit is an authorization to discharge stormwater under specific rules that you must follow. If DEP inspects your MS4, their objective will be make sure you understand what is required and they will expect you have documentation on hand demonstrating compliance for each of the MCMs.

It is important that your records are easily found and well organized for the office portion of the inspection. Documentation of the activities outlined in your SWMP is an important part of demonstrating compliance. If you are routinely inspecting and reporting, this should not become an overwhelming task.

The inspector will need a full day and a space to work in. Consider who from your staff will need to be there and when they will need to be available. The following forms available from DEP (<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-11575>) will provide information on what you can expect during your inspection. Keep in mind that the inspector may ask questions or request documentation not listed here.

## Helpful Tips

- 💧 You can organize your filing system any way you choose, but it must be well-organized and easily accessible. You might consider organizing it by MCMs of the permit in a three-ring binder. This keeps the information organized and attainable for you and your inspector.
- 💧 Summary spreadsheets in Excel can be a great organization tool for when inspections are done, your outfall information and when public workshops were held. Consider keeping an Excel file for each MCM with the necessary information.
- 💧 Printed maps are the most helpful as they will be needed for the field inspection. Consider this when preparing for your audit and have plenty of maps prepared.

Inspectors may request additional information, including but not limited to:

Individual tracking sheets should include but are not limited to:	Summary Spreadsheets that may be helpful to develop may include but are not limited to:
<ul style="list-style-type: none"> <li>• Illicit Discharge Complaint Forms</li> <li>• Outfall Screening Forms</li> <li>• PCSM Complaint Forms and PCSM Inspection Forms</li> <li>• Active Construction Complaint Forms and Active Construction Inspection Forms</li> <li>• Snow Removal/De-icing/Anti-icing Logs</li> <li>• Catch Basin Cleaning Logs</li> <li>• Street Sweeping Logs</li> <li>• Housekeeping Inspection Forms</li> <li>• Training Sign-in Sheets</li> <li>• Public Meeting Sign-in Sheets</li> <li>• Public Comments and Municipal Response</li> <li>• Education &amp; Outreach Documents</li> <li>• Etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Illicit Discharge Tracking</li> <li>• Illicit Discharge Complaints</li> <li>• Illicit Discharge Enforcement</li> <li>• PCSM BMPs</li> <li>• PCSM Inspections</li> <li>• PCSM Enforcements</li> <li>• PCSM Complaints</li> <li>• Active Construction Sites</li> <li>• Active Construction Inspections</li> <li>• Active Construction Enforcements</li> <li>• Employee Trainings</li> <li>• Public Meetings</li> <li>• Municipally-Owned Facilities/Activities/Land Uses</li> <li>• Etc.</li> </ul>

Records must be retained for 3 years and at least 1 year after permit termination. A copy of the NOI (the permit application), the MS4 NPDES permit and any other authorization or approval must be kept for at least 1 year after permit termination.

**Items that will need to be available for review during the office inspection:**

- A copy of all past Annual Reports
- A copy of the original and renewal NOI
- A copy of the original and renewal permits
- The Public Education and Outreach Program (PEOP) (written plan)
- The Public Involvement and Participation Program (PIPP) (written plan)
- The Illicit Discharge Detection and Elimination (IDD&E) Program (written plan)
- The inventory of municipal facilities and activities that are owned or operated by the permittee and have the potential for generating stormwater runoff to the regulated small MS4
- The written Operation & Maintenance Plan for municipal facilities and activities
- The written employee training program
- A map of all outfalls, receiving waters, stormwater collection systems, swales, basins, etc.
- Ordinance prohibiting non-stormwater discharges
- The stormwater management ordinance
- The inventory of all Post-Construction BMPs installed since March 10, 2003 that discharge directly or indirectly to your regulated small MS4
- The Memorandum of Understanding between the permittee and the County Conservation District

**Field Inspections**

During the field inspection, BMPs may be inspected to verify their functionality. Previous and active construction sites may also be inspected. Physical operations may be inspected, such as outfalls and maintenance facilities. Stormwater facilities that have been constructed from 2003 on, such as ponds, must be maintained and functioning as originally designed. Common issues to look for may include:

- Erosion may be occurring; remove as needed
- Check DEP and/or the United States Army Corps of Engineers (USACE) about removal of wetland vegetation if not part of original design
- Overflow structures need to function as designed
- Clear trash and debris
- Remove sediment buildup; maintain as designed



## Overview of Stormwater Best Management Practices (BMPs)

BMPs are important, because they can provide some actions that municipalities can take to fulfill some of the required permit obligations. Structural and non-structural BMPs help manage stormwater in our municipalities.

**Structural BMPs** are engineered systems that are designed to mitigate the impacts of stormwater. Structural BMPs are effective tools for stormwater management in both development and retrofit situations.

**Non-Structural BMPs** focus on the prevention of stormwater generation, therefore effectively reducing runoff volume, and decreasing development costs while increasing property value and marketability.

The Pennsylvania Department of Environmental Protection's Stormwater Best Management Practices (BMP) Manual will help guide you as you look into BMPs that might work well for your municipality. Refer to this manual for a comprehensive look at stormwater BMPs.



Figure 13: Local examples of Structural BMPs. Derry Borough parking with porous pavers (top left), a rain garden at Green Forge (top right), a residential rain garden (bottom left), and an adjustment to a parking lot in Greensburg. (Source: Westmoreland Conservation District)

This document can be found here:





<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-8305>.

The purpose of the Pennsylvania Stormwater Best Management Practices (BMP) Manual is to provide guidance, options and tools that can be used to protect water quality, enhance water availability and reduce flooding potential through effective stormwater management. This manual presents design standards and planning concepts for use by local authorities, planners, land developers, engineers, contractors, and others involved with planning, designing, reviewing, approving, and constructing land development projects.

The manual describes a stormwater management approach to the land development process that strives to:

- Prevent or minimize stormwater problems through comprehensive planning and development techniques
- Mitigate any remaining potential problems by employing structural and non-structural BMPs

Structural BMPs provide benefits for **water quality, groundwater-recharge, volume reduction and peak rate control**, but they also provide other benefits beyond stormwater management that are illustrated below.

Structural BMPs	Additional Benefits
<p><b>Floodplain Restoration</b> aims to restore a floodplain to conditions present prior to development. It is a system-based BMP that strives to mimic undisturbed conditions between stream system elements: groundwater, stream surface flow, soils, and root systems of vegetation.</p>	<ul style="list-style-type: none"> <li>◆ Increased aquatic and terrestrial habitats</li> <li>◆ Increased wetland areas and native plants in floodplain</li> <li>◆ Reduction of invasive plants</li> <li>◆ Thermal cooling of stream baseflow</li> </ul>
<p><b>Rain Gardens</b> are excavated shallow depressions, planted with native vegetation that can withstand dry and wet periods. Stormwater is collected in the rain garden and is both infiltrated into the ground and evapotranspired by the vegetation.</p>	<ul style="list-style-type: none"> <li>◆ Enhances aesthetic appeal of homes, neighborhoods and commercial or industrial sites</li> <li>◆ Provides a wildlife habitat</li> </ul>
<div style="display: flex; justify-content: space-around;">   </div> <div style="text-align: center; margin-top: 10px;"> <p><b>Rain garden</b> in Mt. Pleasant. Photos: Westmoreland Conservation District</p> </div>	
<p><b>Riparian Buffer Restoration (RBR)</b> is the restoration of the area surrounding streams, lakes, ponds, and wetlands.</p>	<ul style="list-style-type: none"> <li>◆ Provides a wildlife habitat</li> <li>◆ Provides aesthetic value</li> </ul>
<p><b>Vegetated Swales</b> are shallow channels, planted densely with vegetation, designed to reduce the rate of stormwater and encourage infiltration.</p>	<ul style="list-style-type: none"> <li>◆ Enhances aesthetic appeal of streets, neighborhoods and commercial or industrial sites</li> </ul>
<div style="display: flex; justify-content: space-around;">   </div> <div style="text-align: center; margin-top: 10px;"> <p><b>Infiltration/Vegetated swale</b> at Westmoreland County Community College. Photos: Westmoreland Conservation District</p> </div>	
<p><b>Wet Ponds (WPs)</b>, also called <b>Retention Basins</b>, are stormwater basins that include a permanent pool of water as well as additional capacity for temporary storage of stormwater. They are effective at controlling peak stormwater rates and also provide water quality benefits.</p>	<ul style="list-style-type: none"> <li>◆ Provides a wildlife habitat</li> <li>◆ Provides aesthetic value</li> </ul>



Non-Structural BMPs	Additional Benefits
<p><b>Cluster Uses at Each Site/Build on Smallest Area Possible (CUES/BSAP)</b> is a design and development strategy which reduces site disturbance through clustering proposed uses together, building vertically, and moving uses closer together.</p>	<ul style="list-style-type: none"> <li>◆ Preservation of open space</li> <li>◆ Improved aesthetics</li> <li>◆ Increased recreation opportunities</li> <li>◆ Improved air quality</li> <li>◆ Temperature moderation</li> </ul>
<p><b>Minimize Disturbed Area – Grading (MDA-G)</b> focuses on minimizing grading and site disturbance while maximizing soil restoration and the conservation of existing site vegetation. MDA-G includes practices such as modifying the alignment of roads and disturbance areas to minimize necessary grading.</p>	<ul style="list-style-type: none"> <li>◆ Maximized soil restoration</li> <li>◆ Preservation of open space</li> <li>◆ Protection of open space and wildlife habitat</li> </ul>
<p><b>Protect/Conserve/Enhance Riparian Areas (PCERA)</b> preserves and enhances vegetated areas that are adjacent to streams and rivers.</p>	<ul style="list-style-type: none"> <li>◆ Provides a food supply, habitat, and thermal protection for fish and other wildlife</li> </ul>
<p><b>Protect/Utilize Natural Flow Pathways in Overall Stormwater Planning and Design</b> minimizes stormwater impacts associated with site development. Protecting natural drainage features such as swales, depressions, and ephemeral streams during site development can provide a variety of stormwater management functions.</p>	<ul style="list-style-type: none"> <li>◆ Protection of open space and wildlife habitat</li> <li>◆ Potential to increase property values</li> <li>◆ Provides aesthetic value</li> </ul>
<p><b>Reducing Street Imperviousness (RSI) and Reducing Parking Imperviousness (RPI):</b> RSI includes minimizing street widths and lengths; RPI includes reducing the impervious area associated with parking through practices such as designating overflow parking on an area that is pervious.</p>	<ul style="list-style-type: none"> <li>◆ Increased neighborhood livability, traffic conditions, and pedestrian safety</li> </ul>



New parking at Valley High School with permeable pavers. Photos: Westmoreland Conservation District

(Disclaimer: The BMP examples and references included are not intended to be comprehensive. This list of BMPs is not all-inclusive, nor does it preclude MS4 permittees from using other technically sound practices.)



## Appendix 1: Glossary of Terms and Acronyms

**BMP** - A BMP is a term used to describe “Best Management Practices” for reducing quantity and improving quality of stormwater, either through physical structures and practices or through planning and outreach (non-structural). BMPs are typically divided into two categories: structural or non-structural. They describe control measures taken to control stormwater changes caused by changes to land use (development or re-development). Generally, BMPs focus on water quality problems caused by increased impervious surfaces from land development.

**Combined Sewer Overflow (CSO)** - Discharge from a combined sewer system that is caused by snowmelt or stormwater runoff.

**DEP** – Pennsylvania Department of Environmental Protection.

**EPA** – United States Environmental Protection Agency.

**Green Infrastructure (GI)** - Reduces and treats stormwater at its source while delivering environmental, social, and economic benefits.

**Illicit (illegal) discharge** - All discharges other than authorized discharges listed in your permit.

**Minimum Control Measure (MCM)** - MS4 permits call for the development and implementation of a stormwater management program that addresses six “minimum control measures” (MCMs). Implementing these minimum control measures means identifying **Best Management Practices (BMPs)** and measurable goals the MS4 permittee can implement to satisfy the CMC. MS4 permittees must satisfy the six MCMs in their permit. These are six elements that your **Stormwater Management Plan (SWMP)** must address.

**MS4 - MS4** stands for **Municipal Separate Storm Sewer System**. It is any conveyance or system of conveyances (including streets, ditches, and pipes) that is: owned by a municipality; designed or used for collecting or conveying stormwater; not a combined sewer (i.e., not intended for both sewage and stormwater); AND not part of a Publicly Owned Treatment Works (POTW). It is a separate stormwater collection system owned and operated by a municipality. (When a municipality only has one system for sewage and stormwater, it is called a combined sewer system.)

**NPDES Permit** - A **National Pollutant Discharge Elimination System (NPDES) permit** is a permit authorized by the Clean Water Act, a federal law. In Pennsylvania, it is administered by the state’s Department of Environmental Protection (DEP). It is required for any point source discharge to waters of the Commonwealth, including stormwater. The NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States, including stormwater.

**Stormwater** - Water on the surface of the ground resulting from rain or melting snow (precipitation). It is also called “runoff”

**Urbanized Area (UA)** – Land area comprising one or more places (central places) and the adjacent densely-settled surrounding area (urban fringe) that together have a residential population of at least 50,000 and an overall population density of at least 1,000 people per square mile, as defined by the United States Bureau of the Census, and as determined by the latest available decennial census. The UA outlines the extent of automatically regulated areas.

## Appendix 2: Directory of Public and Non-Profit Partners

State, regional, and local partners are essential to the MS4 process. If you have questions, for example, regarding your permit or regarding MS4 BMPs, find the appropriate contact in the list below.

Southwestern Pennsylvania Commission Water Resource Center	
Two Chatham Center, Suite 400 112 Washington Place Pittsburgh, PA 15210 412-391-5590 <a href="http://www.spcwater.org">www.spcwater.org</a>	
Counties: Allegheny, Armstrong, Beaver, Butler, Fayette, Greene, Indiana, Lawrence, Washington and Westmoreland	
Pennsylvania Department of Environmental Protection offices	
<b>DEP Southwest Region</b> 400 Waterfront Drive Pittsburgh, PA 15222-4745 412-442-4000 Counties: Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington and Westmoreland	<b>DEP Northwest Region</b> 230 Chestnut St. Meadville, PA 16335-3481 814-332-6984 Counties: Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango and Warren
Local US Environmental Protection Agency office	
<b>EPA Region 3</b> 1650 Arch Street Philadelphia, PA 19103-2029 215-814-5122 States: Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia	
County Conservation Districts	
<b>Allegheny County Conservation District</b> River Walk Corporate Centre 33 Terminal Way, Suite 325B Pittsburgh, PA 15219 412-241-7645 <a href="http://www.accdpa.org">www.accdpa.org</a>	<b>Armstrong Conservation District</b> Armsdale Administration Building 124 Armsdale Road, Suite B-2 Kittanning, PA 16201-3738 724-548-3425 <a href="http://www.armstrongcd.org">www.armstrongcd.org</a>
<b>Beaver County Conservation District</b> 156 Cowpath Road Aliquippa, PA 15001 724-378-1701 <a href="http://www.beavercountyconservationdistrict.org">www.beavercountyconservationdistrict.org</a>	<b>Butler County Conservation District</b> 122 McCune Drive Butler, PA 16001 724-284-5270 <a href="http://www.bccdonline.org">www.bccdonline.org</a>
<b>Fayette County Conservation District</b> 10 Nickman Plaza Lemont Furnace, PA 15456 724-438-4497 <a href="http://www.fayettecd.org">www.fayettecd.org</a>	<b>Greene County Conservation District</b> Ben Franklin Building, Suite 204 22 West High Street, Waynesburg, PA 15370 724-852-5278 <a href="http://www.co.greene.pa.us/secured/gc2/depts/gccd/GCCD-index.htm">www.co.greene.pa.us/secured/gc2/depts/gccd/GCCD-index.htm</a>
<b>Indiana County Conservation District</b> 625 Kolter Drive, Suite 8 Indiana, PA 15701-3571 724-471-4751 <a href="http://www.iccdpa.org">www.iccdpa.org</a>	<b>Lawrence County Conservation District</b> Lawrence County Government Center 430 Court Street New Castle, PA 16101 724-652-4512 <a href="http://www.lawrencecd.org">www.lawrencecd.org</a>
<b>Washington County Conservation District</b> 2800 North Main Street, Suite 105 Washington, PA 15301 724-705-7098 <a href="http://www.pawccd.org/index.html">www.pawccd.org/index.html</a>	<b>Westmoreland Conservation District</b> J. Roy Houston Conservation Center 218 Donohoe Road Greensburg, PA 15601 724-837-5271 <a href="http://www.wcdpa.com">www.wcdpa.com</a>

In addition to the organizations listed above, nonprofits such as watershed groups can also work cooperatively to help with various tasks such as MCM2 and general baseline water quality sampling.

Appendix 3: Sample Checklists (Visit PA DEP MS4 Resources for access to sample checklists)

3800-FM-BCW0521 12/2015  
MS4 Outfall Field Screening Report



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF CLEAN WATER

**MS4 OUTFALL FIELD SCREENING REPORT**

**BACKGROUND INFORMATION**

Permittee Name:	NPDES Permit No.: PA
Date of Inspection:	Outfall ID No.:
Land Uses in Outfall Drainage Area (Select All): <input type="checkbox"/> Industrial <input type="checkbox"/> Urban Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Suburban Residential <input type="checkbox"/> Open Space <input type="checkbox"/> Other:	Latitude: _____ ° _____ ' _____ "
	Longitude: _____ ° _____ ' _____ "
	Dry Weather Inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No
	Date of Previous Precipitation:
	Amount of Previous Precipitation: _____ in
Inspector Name(s):	Were Photographs Taken? <input type="checkbox"/> Yes <input type="checkbox"/> No
	Are Photographs Attached? <input type="checkbox"/> Yes <input type="checkbox"/> No

**OUTFALL DESCRIPTION**

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
<input type="checkbox"/> Closed Pipe	<input type="checkbox"/> RCP <input type="checkbox"/> CMP <input type="checkbox"/> PVC <input type="checkbox"/> HDPE <input type="checkbox"/> Steel <input type="checkbox"/> Other	<input type="checkbox"/> Circular <input type="checkbox"/> Single <input type="checkbox"/> Elliptical <input type="checkbox"/> Double <input type="checkbox"/> Box <input type="checkbox"/> Triple <input type="checkbox"/> Other <input type="checkbox"/> Other	Diameter: _____ in	<input type="checkbox"/> In Water <input type="checkbox"/> With Sediment
<input type="checkbox"/> Open Channel	<input type="checkbox"/> Concrete <input type="checkbox"/> Earthen <input type="checkbox"/> Rip-Rap <input type="checkbox"/> Other	<input type="checkbox"/> Trapezoid <input type="checkbox"/> Parabolic <input type="checkbox"/> Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection?     Yes     No    *(If No, skip to Certification Section)*

Description of Flow Rate:     Trickle     Moderate     Significant     N/A

**DRY WEATHER FLOW EVALUATION**

Does the dry weather flow contain color?     Yes     No    If Yes, provide a description below.

Does the dry weather flow contain an odor?     Yes     No    If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge?     Yes     No  
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits?     Yes     No  
If Yes, provide a description below.



Were sample(s) collected of the dry weather flow?  Yes  No (If Yes, No. Samples: \_\_\_\_\_)

**FIELD / LABORATORY ANALYSIS**

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

**ILLICIT DISCHARGES**

Is the dry weather flow an illicit discharge?  Yes  No  
If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

Inspector Comments:

**RESPONSIBLE OFFICIAL CERTIFICATION**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

\_\_\_\_\_

Responsible Official Name

Signature

Telephone No.

Date

## MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) ILLICIT DISCHARGE DETECTION & ELIMINATION (IDD&E) CHECKLIST

*This checklist may be used by MS4 permittees to ensure complete implementation of MCM #3 of MS4 NPDES permits.*

Requirement	Check if Completed
<b>BMP #1: Develop and maintain a written IDD&amp;E program</b> to detect, eliminate and prevent illicit discharges. The program must be developed within one year of permit coverage for new permittees and updated and evaluated annually for renewal permittees. The program must include:	<input type="checkbox"/>
a. Dry weather field screening of outfalls for non-stormwater flows.	<input type="checkbox"/>
b. Sampling of dry weather discharges for selected chemical and biological parameters.	<input type="checkbox"/>
c. Procedures for identifying priority areas. These are areas with a higher likelihood of illicit discharges, illicit connections or illegal dumping. Priority areas may include areas with older infrastructure, a concentration of high-risk activities, or past history of water pollution problems.	<input type="checkbox"/>
d. Procedures for screening outfalls in priority areas during varying seasonal and meteorological conditions.	<input type="checkbox"/>
e. Procedures for identifying the source of an illicit discharge when a contaminated flow is detected at a regulated small MS4 outfall.	<input type="checkbox"/>
f. Procedures for eliminating an illicit discharge.	<input type="checkbox"/>
g. Procedures for assessing the potential for illicit discharges caused by the interaction of sewage disposal systems (e.g., on-lot septic systems, sanitary piping) with storm drain systems.	<input type="checkbox"/>
h. Mechanisms for gaining access to private property to inspect outfalls (e.g., land easements, consent agreements, search warrants).	<input type="checkbox"/>
i. Procedures for program documentation, evaluation and assessment.	<input type="checkbox"/>
j. Recordkeeping – records must be kept of all outfall inspections, flows observed, results of field screening and testing, and other follow-up investigation and corrective action work performed under this program.	<input type="checkbox"/>
<b>BMPs #2 &amp; #3: Develop and maintain map(s)</b> of your regulated small MS4. The map(s) must be developed by the fourth year of permit coverage for new permittees and be updated as necessary. The map(s) must depict the following:	<input type="checkbox"/>
a. Locations of all outfalls directly or indirectly discharging stormwater from your MS4.	<input type="checkbox"/>
b. Locations and names of all surface waters of the Commonwealth that receive discharges from those outfalls.	<input type="checkbox"/>
c. The entire storm sewer collection system, including roads, inlets, piping, swales, catch basins, channels, basins, etc.	<input type="checkbox"/>
d. Municipal and/or watershed boundaries.	<input type="checkbox"/>
<b>BMP #4: Conduct outfall field screening, identify the source of any illicit discharges, and remove or correct any illicit discharges using procedures developed under BMP #1.</b> Specific requirements include the following:	<input type="checkbox"/>
a. New permittees – screen all identified MS4 outfalls at least twice during dry weather during the permit term; screen at least forty percent of the total number of outfalls per year.	<input type="checkbox"/>
b. Renewal permittees – screen all identified MS4 outfalls at least once during each permit coverage term; for areas where past problems have been reported or known sources of dry weather flows occur on a continual basis, outfalls must be screened annually.	<input type="checkbox"/>

**MS4 IDD&E Checklist**

Requirement	Check if Completed
c. If screening reveals dry weather flow, the discharge from the outfall and the area around the outfall must be inspected visually for color, turbidity, sheen, floating or submerged solids; for adverse effects on plants or animals in proximity to the outfall; and for odor. If the outfall produces any odor, or if the visual inspection shows any indication that the discharge may contain pollutants, then samples of the discharge must be collected for field and/or lab testing of selected chemical and biological parameters as part of a process to determine if the dry weather flow is illicit.	<input type="checkbox"/>
d. Prioritize outfall screenings according to the perceived chance of illicit discharges within the outfall's contributing drainage area.	<input type="checkbox"/>
e. Inspections must be recorded on the Outfall Reconnaissance Inventory/Sample Collection field sheet.	<input type="checkbox"/>
f. Adequate written documentation must be maintained to justify a determination that an outfall flow is not illicit. If an outfall flow is illicit, the actions taken to identify and eliminate the illicit flow must be documented.	<input type="checkbox"/>
g. The results of outfall inspections and actions taken to remove or correct illicit discharges must be summarized in periodic reports.	<input type="checkbox"/>
<b>BMP #5: Enact a stormwater management ordinance</b> to implement and enforce a stormwater management program that includes prohibition of non-stormwater discharges to the regulated small MS4.	<input type="checkbox"/>
a. New permittees – within the first year of coverage under the permit, new permittees must enact and implement an ordinance from an Act 167 Plan approved by the Department in 2005 or later, the MS4 Stormwater Management Ordinance, or an ordinance that satisfies all applicable requirements in a completed and signed MS4 Stormwater Management Ordinance Checklist.	<input type="checkbox"/>
b. New permittees – submit a letter signed by a municipal official, municipal engineer, or the municipal solicitor as an attachment to your first year report certifying the enactment of an ordinance that meets all applicable requirements of this permit.	<input type="checkbox"/>
c. Renewal permittees – continue to maintain, update, implement, and enforce a Stormwater Management Ordinance that satisfies all applicable requirements.	<input type="checkbox"/>
<b>BMP #6: Provide educational outreach</b> to public employees, business owners and employees, property owners, the general public and elected officials (i.e., target audiences) about the program to detect and eliminate illicit discharges.	<input type="checkbox"/>
a. During each year of permit coverage, appropriate educational information concerning illicit discharges shall be distributed to the target audiences using methods outlined under MCM #1 of the MS4 NPDES permit.	<input type="checkbox"/>
b. Establish and promote a stormwater pollution reporting mechanism (e.g., a complaint line with message recording) by the end of the first year of permit coverage for the public to use to notify you of illicit discharges, illegal dumping or outfall pollution.	<input type="checkbox"/>
c. Respond to all complaints in a timely and appropriate manner. Document all responses, include the action taken, the time required to take the action, whether the complaint was resolved successfully.	<input type="checkbox"/>



## MS4 COMPLIANCE INSPECTION REPORT

OFFICE INSPECTION				
Most Recent Annual/Progress Report Due Date:				
Date Most Recent Annual/Progress Report Submitted:				
List all deficiencies identified in the most recent Annual/Progress Report Review:				
Describe the permittee's progress with addressing deficiencies, if applicable:				
Verify the presence of the following documentation; check "Yes" if available, "No" if not available, and "NA" if not applicable.				
MCM	Item	Yes	No	NA
1	Public Education and Outreach Program (PEOP) (written plan)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Lists of target audience groups	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Published stormwater educational materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Two methods of distributing educational materials in past year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Public Involvement and Participation Program (PIPP) (written plan)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Public notice prior to adoption of any ordinance (municipal) or SOP (non-municipal)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	At least one public meeting in past year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Illicit Discharge Detection and Elimination (IDD&E) Program (written plan)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Outfall inspection and illicit discharge tracking system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Complaint tracking system for illicit discharges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Map of all outfalls, receiving waters, stormwater collection system, swales, basins, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Stormwater sampling and monitoring records	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Ordinance (municipal) or SOP (non-municipal) prohibiting non-stormwater discharges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	If not relying on PA's program, a written stormwater associated with construction activities program (written plan)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	If not relying on PA's program, an ordinance (municipal) or SOP (non-municipal) requiring implementation of erosion and sediment control BMPs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	If not relying on PA's program, written procedures for managing public inquiries of local construction activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	If not relying on PA's program, a written post-construction stormwater management plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	If not relying on PA's program, a tracking system containing post-construction BMPs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	If not relying on PA's program, inspection results of post-construction BMPs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	An ordinance (municipal) or SOP (non-municipal) to enforce post-construction BMPs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	An inspection program ensuring stormwater BMPs are properly operated and maintained	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Inventory of municipal facilities and land uses that contribute to stormwater runoff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Written Operation & Maintenance Plan for municipal facilities addressing housekeeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Written employee training program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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 White – Regional Office

Date:  
 Yellow – Permittee

Permit No.:  
 Pink – Inspector

## MS4 COMPLIANCE INSPECTION REPORT

FIELD INSPECTION – BMPs	
BMP Description:  Locational Description:  Comments/Deficiencies:	<input type="checkbox"/> Structural BMP <input type="checkbox"/> Non-Structural BMP BMP Reported In: <input type="checkbox"/> Annual/Progress Report <input type="checkbox"/> Other ( _____ ) Property: <input type="checkbox"/> Public <input type="checkbox"/> Private Is BMP Implemented or Being Implemented? <input type="checkbox"/> Yes <input type="checkbox"/> No Who Is Responsible for O&M (Structural BMPs Only)? <input type="checkbox"/> Municipality <input type="checkbox"/> Other (Name: _____ ) Date Installed (Structural BMPs Only): Is BMP Located in Urbanized Area? <input type="checkbox"/> Yes <input type="checkbox"/> No
BMP Description:  Locational Description:  Comments/Deficiencies:	<input type="checkbox"/> Structural BMP <input type="checkbox"/> Non-Structural BMP BMP Reported In: <input type="checkbox"/> Annual/Progress Report <input type="checkbox"/> Other ( _____ ) Property: <input type="checkbox"/> Public <input type="checkbox"/> Private Is BMP Implemented or Being Implemented? <input type="checkbox"/> Yes <input type="checkbox"/> No Who Is Responsible for O&M (Structural BMPs Only)? <input type="checkbox"/> Municipality <input type="checkbox"/> Other (Name: _____ ) Date Installed (Structural BMPs Only): Is BMP Located in Urbanized Area? <input type="checkbox"/> Yes <input type="checkbox"/> No
BMP Description:  Locational Description:  Comments/Deficiencies:	<input type="checkbox"/> Structural BMP <input type="checkbox"/> Non-Structural BMP BMP Reported In: <input type="checkbox"/> Annual/Progress Report <input type="checkbox"/> Other ( _____ ) Property: <input type="checkbox"/> Public <input type="checkbox"/> Private Is BMP Implemented or Being Implemented? <input type="checkbox"/> Yes <input type="checkbox"/> No Who Is Responsible for O&M (Structural BMPs Only)? <input type="checkbox"/> Municipality <input type="checkbox"/> Other (Name: _____ ) Date Installed (Structural BMPs Only): Is BMP Located in Urbanized Area? <input type="checkbox"/> Yes <input type="checkbox"/> No
BMP Description:  Locational Description:  Comments/Deficiencies:	<input type="checkbox"/> Structural BMP <input type="checkbox"/> Non-Structural BMP BMP Reported In: <input type="checkbox"/> Annual/Progress Report <input type="checkbox"/> Other ( _____ ) Property: <input type="checkbox"/> Public <input type="checkbox"/> Private Is BMP Implemented or Being Implemented? <input type="checkbox"/> Yes <input type="checkbox"/> No Who Is Responsible for O&M (Structural BMPs Only)? <input type="checkbox"/> Municipality <input type="checkbox"/> Other (Name: _____ ) Date Installed (Structural BMPs Only): Is BMP Located in Urbanized Area? <input type="checkbox"/> Yes <input type="checkbox"/> No

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 Pink – Inspector

## Appendix 4: Document Sources and Additional Resources

### SPC Water Resource Center

[www.spcwater.org](http://www.spcwater.org)

### DEP MS4 Resources

[http://www.dep.pa.gov/Business/Water/PointNonPointMgmt/StormwaterMgmt/Stormwater/Pages/MS4-Resources.aspx#.VxfJG\\_krKUK](http://www.dep.pa.gov/Business/Water/PointNonPointMgmt/StormwaterMgmt/Stormwater/Pages/MS4-Resources.aspx#.VxfJG_krKUK)

### DEP's Appendix A: Stormwater Management Program. April 2012.

[http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-95044/08\\_3800-PM-BPNPSM0100h-AppendixA.pdf](http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-95044/08_3800-PM-BPNPSM0100h-AppendixA.pdf)

Pennsylvania Stormwater Best Management Practices Manual. December 2006.

<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-8305>

### EPA MS4 Resources

<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#edu>

### StormwaterPA

<http://www.stormwaterpa.org/>

### PA DCNR Parks BMPs

[http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr\\_006535.pdf](http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_006535.pdf)

### 3 Rivers Wet Weather

3 Rivers Wet Weather is a nonprofit environmental organization created in 1998 to support 82 Allegheny County municipalities and the City of Pittsburgh in addressing the region's wet weather overflow problem.

<http://www.3riverswetweather.org/>

### DEP Individual Permit – MS4 Stormwater Operation and Maintenance (O&M) Ordinance Checklist and MS4 Stormwater Management Ordinance Checklist

[http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-94978/11\\_3800-PM-BPNPSM0200k%20Ordinance%20Checklist.pdf](http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-94978/11_3800-PM-BPNPSM0200k%20Ordinance%20Checklist.pdf)

### NPDES Sample Inspection Reports

<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-1575>

### MCM1: Public Education and Outreach on Stormwater Impacts

- ◆ EPA Public Education and Outreach on Stormwater Impacts Resources  
<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#edu>
- ◆ Westmoreland Conservation District Homeowner's Guide to Stormwater  
<http://wcdpa.com/wp-content/uploads/Homeowners-Stormwater-Guide.pdf>
- ◆ EPA "Getting in Step, A Guide for Conducting Watershed Outreach Campaigns"  
<https://cfpub.epa.gov/npstbx/files/getnstepguide.pdf>

### MCM2: Public Involvement/Participation

- ◆ DEP Public Education Plan Template  
<http://www.dep.pa.gov/Business/Water/PointNonPointMgmt/StormwaterMgmt/Stormwater/Pages/MS4-Resources.aspx#.VxfnYfkrKUK>
- ◆ EPA Public Involvement/Participation Resources  
<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#inv>



### **MCM3: Illicit Discharge Detection and Elimination (IDD&E)**

- ◆ DEP MS4 IDD&E Checklist  
Checklist may be used by MS4s to ensure complete implementation of MCM #3 of MS4 NPDES permits.  
[http://www.dep.pa.gov/Business/Water/PointNonPointMgmt/StormwaterMgmt/Stormwater/Pages/MS4-Resources.aspx#.VxfJG\\_krKUK](http://www.dep.pa.gov/Business/Water/PointNonPointMgmt/StormwaterMgmt/Stormwater/Pages/MS4-Resources.aspx#.VxfJG_krKUK)
- ◆ DEP MS4 Outfall Field Screening Report  
<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-12798>
- ◆ EPA Illicit Discharge Detection and Elimination Resources  
<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#ill>
- ◆ Illicit Discharge Detection and Elimination Guidance Manual  
<http://nepis.epa.gov/Exe/ZyNET.exe/20017KFK.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2000+Thru+2005&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C00thru05%5CTxt%5C00000010%5C20017KFK.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p%7Cf&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL>

### **MCM4: Construction Site Stormwater Runoff Control**

- ◆ DEP Erosion and Sediment Pollution Control Program Manual (PDF)  
<http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-88925/363-2134-008.pdf>
- ◆ Construction Site Complaint Form  
This form may be used by MS4s for logging and tracking complaints about construction stormwater issues.  
[http://www.dep.pa.gov/Business/Water/PointNonPointMgmt/StormwaterMgmt/Stormwater/Pages/MS4-Resources.aspx#.VxfJG\\_krKUK](http://www.dep.pa.gov/Business/Water/PointNonPointMgmt/StormwaterMgmt/Stormwater/Pages/MS4-Resources.aspx#.VxfJG_krKUK)
- ◆ EPA Construction Site Stormwater Runoff Control Resources  
<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#constr>
- ◆ Westmoreland Conservation District Typical Best Management Practices for Construction Sites  
<http://wcdpa.com/wp-content/uploads/WCD-BMP-Booklet-2016-web.pdf>

### **MCM5: Post-Construction Stormwater Management**

- ◆ DEP Pennsylvania Stormwater Best Management Practices Manual  
<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-8305>
- ◆ EPA Post-Construction Stormwater Management in New Development and Redevelopment Resources  
<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#post>
- ◆ Westmoreland Conservation District Typical Best Management Practices for Construction Sites  
<http://wcdpa.com/wp-content/uploads/WCD-BMP-Booklet-2016-web.pdf>

### **MCM6: Pollution Prevention/Good Housekeeping for Municipal Operations**

- ◆ Sample Municipal Facilities Operation and Maintenance Program Plan  
Optional MS4 MCM #6 model "Inventory" and "O&M Plan"  
[http://www.dep.pa.gov/Business/Water/PointNonPointMgmt/StormwaterMgmt/Stormwater/Pages/MS4-Resources.aspx#.VxfJG\\_krKUK](http://www.dep.pa.gov/Business/Water/PointNonPointMgmt/StormwaterMgmt/Stormwater/Pages/MS4-Resources.aspx#.VxfJG_krKUK)
- ◆ EPA Pollution Prevention/Good Housekeeping for Municipal Operators Resources  
<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#poll>

\*\*Links are active as of June 2016. Please contact the Water Resource Center with any information on broken links.  
An electronic version of this guide can also be found on the SPC Water Resource Center Website ([www.spcwater.org](http://www.spcwater.org)).

The Southwestern Pennsylvania Commission (SPC) hereby gives public notice that it is the policy of the Commission to assure full compliance with Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, Executive Order 12898 on Environmental Justice, and related statutes and regulations in all programs and activities. Title VI and other related statutes require that no person in the United States of America shall, on the grounds of race, color, sex, national origin, age, or disability, be excluded from the participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which SPC receives federal financial assistance. Any person who believes they have been aggrieved by an unlawful discriminatory practice by SPC under Title VI has a right to file a formal complaint with the Commission. Any such complaint must be in writing and filed with SPC's Title VI Coordinator within one hundred eighty (180) days following the date of the alleged discriminatory occurrence. For more information, or to obtain a Title VI Discrimination Complaint Form, please see our website at: [www.spcregion.org](http://www.spcregion.org) or call 412-391- 5590.



Funding for the development of this booklet was provided by the Southwestern Pennsylvania Commission Water Resource Center and the Pennsylvania Department of Environmental Protection's Environmental Education Grants Program

### **Southwestern Pennsylvania Commission Water Resource Center**

In 2013, SPC formed the Water Resource Center (WRC) to address various water issues within the region. WRC's Mission is to promote regional collaboration on water topics; be a leader in facilitating coordination and education; and provide technical assistance to its member governments.

**For an electronic version of this guide, visit:  
[www.spcwater.org](http://www.spcwater.org)**