



# PROGRESS & THE ENVIRONMENT

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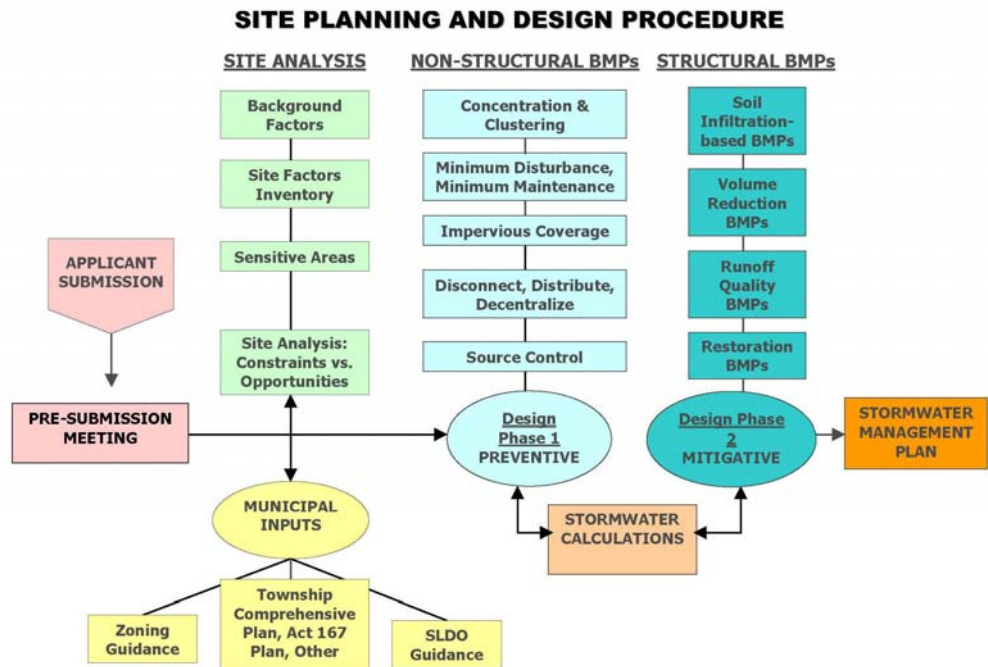
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## Complying With Pennsylvania's Current NPDES Stormwater Requirements



Since 1978, Pennsylvania has regulated stormwater management. However, until several years ago, the rules were not widely enforced. These regulations were born of the U.S. Environmental Protection Agency's (U.S. EPA) Clean Water Act, enacted in 1977. In 1987, Congress amended the Clean Water Act to implement a comprehensive national program to address stormwater discharges. This became the National Pollutant Discharge Elimination System (NPDES) stormwater program, which was to be enacted in two phases. This first phase, commonly referred to as NPDES Phase I, was promulgated in November 1990. Phase I required NPDES permits for municipal separate storm sewer systems (MS4's) that serve populations greater than 100,000 and several industrial categories including construction sites greater than 5 acres.

During the 1990s, many environmental groups pressured the U.S. EPA to move forward with NPDES Phase II. In December 1999, the U.S. EPA published additional stormwater management requirements for states to enact by December 2002 (Federal Register: Vol. 64, No. 235). The U.S. EPA provided Congress with several studies showing a general decline in water quality due to urbanization and development. Phase II lowered the threshold requirement for permitting. Now, MS4's for communities with populations less than 100,000 are required to have NPDES permit coverage as well as development sites greater than one acre.

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Until promulgation of these regulations, no uniform policy was implemented by the Pennsylvania Department of Environment Protection (PA DEP). In *Valley Creek Coalition v. DEP, Docket No. 98-228-MG* (December 15, 1999), a southeastern watershed organization alleged that PA DEP failed to protect Valley Creek from impairment during development. The stream is designated as Exceptional Value under Pennsylvania Code, Title 25, and Chapter 93. As a result of this and other legal action, PA DEP released its Comprehensive Stormwater Management Policy in September 2000. The building community unsuccessfully attempted to challenge the policy in Commonwealth Court (*Home Builders Association of Chester and Delaware Counties v. Commonwealth of Pennsylvania Department of Environmental Protection, June 4, 2003*).

Even with the stormwater policy in place, guidance from PA DEP was initially very limited. Stormwater manuals from neighboring states were cited for use in design. The final version of Pennsylvania's *Stormwater Management Manual* was released in December 2006. PA DEP states that the manual is guidance, not regulation; however, adherence to the manual will reduce the probability that an applicant's permit will be returned as administratively incomplete.

Recommended guidance can be found in Chapter 3 of PA DEP's final *Stormwater Management Manual*. There are two guidelines known as CG-1 and CG-2, described in the following paragraphs, to which particular attention needs given.

### 3.3.3 Volume Control Guideline 1

Control Guideline 1 (CG-1) is applicable to any size of the Regulated Activity. Use of CG-1 is recommended where site conditions offer the opportunity to reduce the increase in runoff volume as follows.

- **Do not increase the post-development total runoff volume for all storms equal to or less than the 2-year/24-hour event.**
- **Existing (pre-development) non-forested pervious areas must be considered meadow (good condition) or its equivalent.**
- **20% of existing impervious area, when present, shall be considered meadow (good condition) in the model for existing conditions for redevelopment.**

### 3.3.4 Volume Control Guideline 2

Control Guideline 2 (CG-2) is independent of site constraints and should be used if CG-1 is not followed. This method is not applicable to Regulated Activities greater than one acre or for projects that require design of stormwater storage facilities. For new impervious surfaces, the following are required.

- **Stormwater facilities shall be sized to capture at least the first 2" of runoff from all contributing impervious surfaces.**
- **At least the first 1.0" of runoff from new impervious surfaces shall be permanently removed from the runoff flow (i.e., it shall not be released into the surface Waters of this Commonwealth).**
- **Removal options include reuse, evaporation, transpiration, and infiltration.**
- **Wherever possible, infiltration facilities should be designed to accommodate infiltration of the entire permanently removed**

**runoff; however, in all cases at least the first 0.5" of the permanently removed runoff should be infiltrated.**

In most instances, meeting these volume requirements is not easily accomplished. Extended detention for the 2-year storm with a basin volume capable of holding the net increased runoff for a period not less than 24 hours and no greater than 72 hours is often proposed. Basin controls are developed to discharge the volume slowly or infiltrate into the ground. Project owners can expect the minimum size of their stormwater facilities to dramatically increase in order to achieve the required volume reduction.

Essentially, there are two permit schemes in which a site may fall under the current NPDES Phase II requirements. PA DEP lists a general and individual permit under the NPDES General Permit PAG-2 for "Discharges of Stormwater Associated With Construction Activities." The form for the general and individual permit has been combined. Typically, watersheds that are deemed High Quality or Exceptional Value require an individual permit. Processing of an individual permit is a substantial and lengthy process that may take up to a year to receive final approval. In addition, all individual permits are advertised in the Pennsylvania Bulletin and are subject to a public comment period. Applications for general permits may take up to 60 days to review. The permit application is extensive and applicants must be prepared to provide the following items.

- **Erosion and Sedimentation (E&S) Control Plan**
- **Pennsylvania Natural Diversity Inventory (PNDI) Search**

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- **Post Construction Stormwater Management (PCSM) Plan**
- **Thermal Impact Analysis**
- **Anti-Degradation Analysis (required for Individual NPDES Permits)**

An E&S Control Plan and the PNDI Narrative have been typical requirements for past construction NPDES permits. Not much has changed in the current permit package regarding these items; however, fill materials entering or leaving the site must now be documented and analyzed to complete the application. Any fuels or hazardous substances stored on-site during construction must have an accompanying Preparedness, Prevention & Contingency (PPC) Plan (a.k.a., Environmental Emergency Response Plan). This plan must be kept on-site at all times by the contractor. A copy of the plan should be included with the NPDES submission.

A Post-Construction Stormwater Management Plan has been a requirement since December 2002. The May 2007 NPDES form and checklist further expand and define the required contents of this plan. Most significantly, applicants now must provide geotechnical evaluations and infiltration test results with the permit submission package. Skelly and Loy's AMS Group, with two Certified Professional Soils Scientists on staff, has been conducting testing and supplying results to fulfill the requirements for this part of the application. A detailed description of operation and maintenance procedures is required as part of the Post-Construction Stormwater Management Plan. In addition, many municipalities have been requiring developers or project owners to enter into long-term maintenance agreements for a

facility. As-built and periodic inspections by a professional engineer are often mandated with these agreements. The developer must provide a management entity after the project has been completed to ensure that all maintenance items are performed according to the plan and the agreement.



This is a typical test pit excavated for infiltration. Note that an infiltrometer was placed at the bottom of the pit.

A thermal impact analysis is required and must demonstrate how the project will reduce the effect of increased temperature associated with impervious runoff. The applicant must provide a summary of how thermal impacts are avoided, minimized, or mitigated. Some examples are minimizing impervious surfaces, green roofs, porous pavement, shading and discharging from the bottom of surface impoundments, subsurface impoundments, and maximum use of vegetated areas.

An anti-degradation analysis must be completed for all individual NPDES

permit applications where activities will be conducted in special protected waters (not required for the general NPDES Permit under which most sites fall). Maintaining and protecting existing water quality is critical for High Quality and Exceptional Value water bodies, Exceptional Value wetlands, and protecting designated and existing uses for all surface waters. These performance standards must be met by following the process set out in 25 Pa. Code Section 93.4c(b) as it relates to implementing anti-degradation requirements.

Many counties and municipalities in the southcentral and southeastern regions of Pennsylvania have detailed Act 167 Plans or Stormwater Management Plans. In many cases, these plans supersede the requirements of the NPDES permits. A first step in any site analysis is to determine whether or not the project lies within an Act 167 watershed. These areas often require release rates of 70% to 90% of that determined for predevelopment. Water quality standards may also be stricter. Act 167 facilities tend to be larger. A letter of conformity of the stormwater management plan from the local municipality is required in order to gain final approval of the NPDES permit. In many cases, processing an Act 167 stormwater management plan is similar to that of an individual permit.

In summary, extensive requirements for stormwater management were enacted in May 2007. NPDES post-construction stormwater applicants must plan their developments to include or at least address groundwater recharge and provide testing results to validate their designs for stormwater facilities. More preplanning and longer review cycles should be anticipated with these changes in the permit format.

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To earn a reasonable profit*

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