Department of the Environment

Post Construction Stormwater Controls

MDE, Water Management Administration

Sediment, Stormwater, and Dam Safety Program

MS4 Permit

Post Construction Stormwater Controls:

- Because Maryland has a stormwater management program in place that regulates new and redevelopment projects, MDE considers compliance with the State statute to be compliance with this minimum control measure, this general permit, and CFR.

Compliance with MD Stormwater Regulations:

Local Stormwater Programs:

- Some municipalities have adopted their own stormwater programs.

Qualifying Local Programs:

- Some smaller municipalities have agreements with their surrounding County to perform plan review, approval, and inspection and enforcement.

State and Federal Agencies:

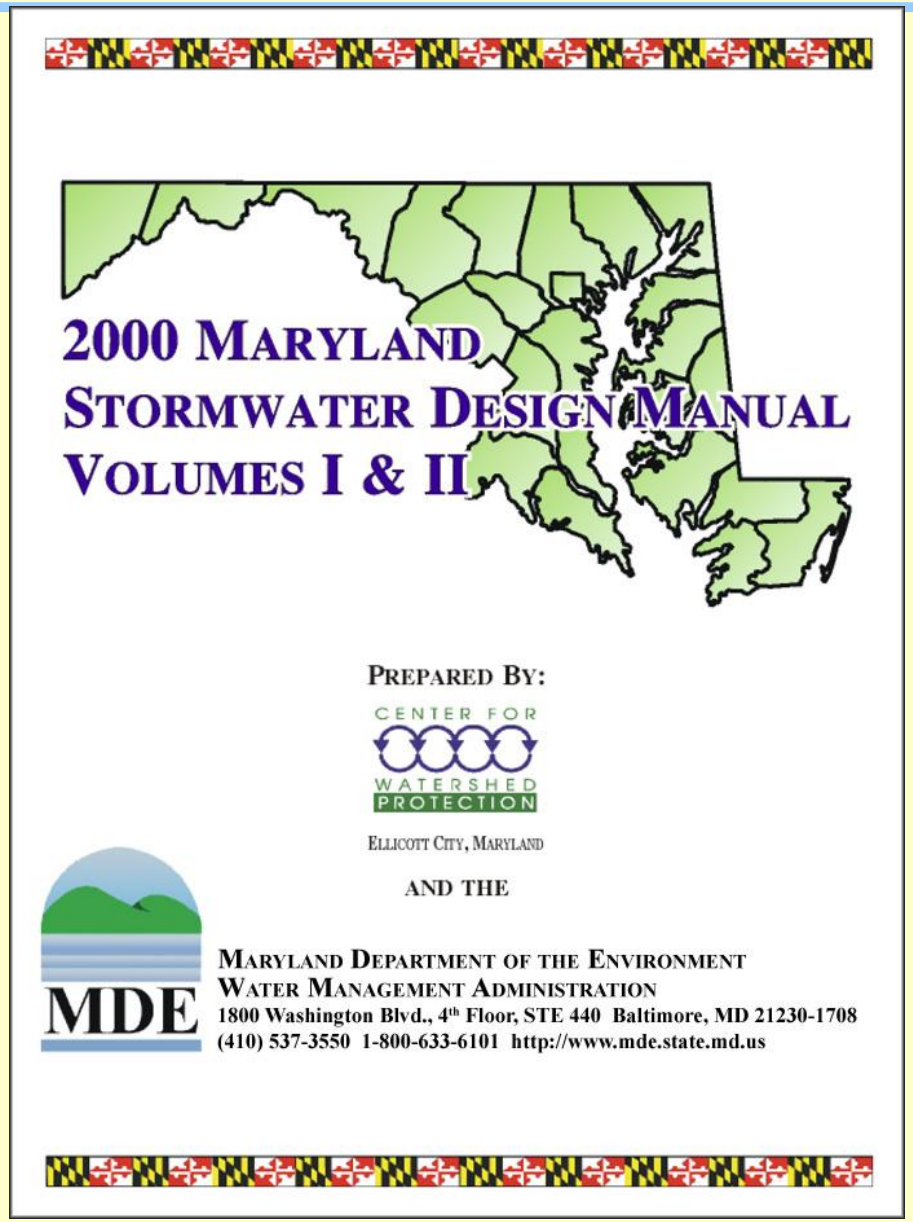
- Stormwater management plans are reviewed, approved, and inspected during construction by MDE.

History: MD SWM Regulations

- 1983 stormwater regulations first adopted
  - Downstream flood protection
- 2000 regulatory revisions; Design Manual
  - Water Quality and Stream Channel protection
  - Multi-functional ponds, filtering practices, and nonstructural practices
- 2007 SWM Act: ESD to MEP

SWM: Early Implementation

2000 Regulation Changes



2000 MARYLAND
STORMWATER DESIGN MANUAL
VOLUMES I & II

PREPARED BY:

CENTER FOR WATERSHED PROTECTION

ELLICOTT CITY, MARYLAND

AND THE

MDE

MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION
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2007 SWM Act: ESD to the MEP

ESD to the MEP

BMP Maintenance

COMAR 26,17.02.09.E.6.n:

- Construction drawings shall include an inspection maintenance schedule

COMAR 26,17.02.10:

- Checklist of inspections for each BMP at different stages of construction

COMAR 26,17.02.11:

- Regular maintenance to be performed by the owner
- Responsible agency performs triennial inspections

BMP Maintenance Resources

MDE Procedures for State and Federal Projects

Maintenance Schedules for BMP type

Inspection items are tabulated

Frequency of Inspection

Remedial Action

Filtering Practices: What to Look For?

- **Stability of inflow conveyance system**
- **Dewatering after 36 hours**
  - **Signs of standing water (anaerobic conditions)**
  - **Observation wells**
- **Vegetation and mulch layer**
- **Stability of side slopes**
- **Sedimentation, blockage, and debris accumulation**
- **Outlet is stable and structural components are in good condition**

Microbioretention

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Ponds: Where to Begin?

Any BMP that uses an embankment for impounding water is required to follow the latest version of NRCS MD 378 Pond Code Standards and Specifications for Small Pond Design

Refer to As-Built plans during inspections

DAM INSPECTION CHECKLIST

To help the dam owner perform periodic safety inspections of the structure, a checklist is provided. Each item of the checklist should be completed. **Repair** is required when obvious problems are observed. **Monitoring** is recommended if there is potential for a problem to occur in the future. **Investigation** is necessary if the reason for the observed problem is not obvious.

A brief description should be made of any noted irregularities, needed maintenance, or problems. Abbreviations and short descriptions are recommended. Space at the bottom of the form should be used for any items not listed.

The following chart may be used as a guide by the dam owner in determining the frequency of inspections for the dam. Each program is dependant on the particular condition of the dam. The Dam Safety Division is available to assist owners in tailoring a program for their facility.

DAM _____ DATE _____
OWNER _____ WEATHER _____
INSPECTED BY _____ POOL LEVEL _____

Item	Comments	Y/N	MONITOR	REPAIR	INVESTIGATE
1. CREST					
a. Visual settlement?					
b. Misalignment?					
c. Cracking?					
2. UPSTREAM SLOPE					
a. Erosion?					
b. Ground cover in good condition?					
c. Trees, shrubs, or other woody vegetation?					
d. Longitudinal/Vertical cracks?					
e. Adequate riprap protection?					
f. Stone deterioration?					
g. Settlements, depressions, or bulges?					
3. DOWNSTREAM SLOPE					
a. Erosion?					
b. Ground cover in good condition?					
c. Trees, shrubs, or other woody vegetation?					
d. Longitudinal/Vertical cracks?					
e. Riprap protection adequate?					
f. Settlements, depressions, or bulges?					
g. Soft spots or boggy areas?					
h. Movement at or beyond toe?					
i. Boils at toe?					
4. DRAINAGE-SEEPAGE CONTROL					
a. Internal drains flowing?	Est. Left _____ gpm Est. Right _____ gpm				
b. Seepage at toe?	Estimated _____ gpm				
c. Does seepage contain fines?					

Ponds: What to Look For?

- Embankment and slope stability: erosion, slumps, settlement, animal borrows, or seeps
- Riser : vegetation and debris impeding flow, structural condition, locked pond drain
- Concrete structures and conveyance: signs of wear, spalling, cracking, deterioration
- Spillway pipe: signs of settlement indicate failed pipe connections
- Conveyance at inflow and outflow

Routine Inspection and Maintenance: Preventing Major Problems

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Trees on the Embankment

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Tracking Urban BMP Data

- A comprehensive BMP Inventory is essential to track BMP data and inspection and maintenance activities
- New Permit requirements will establish more specific reporting requirements
- MDE is posting a recommended database structure to meet current requirements while also preparing for new permit

See MDE Website for Phase II Database Structure

Questions???