



MARYLAND DEPARTMENT OF THE ENVIRONMENT

1800 Washington Boulevard • Baltimore MD 21230

410-537-3000 • 1-800-633-6101

Sora! - Thanks for making this happen! Kirk

Robert L. Ehrlich, Jr., Governor

Kendl P. Philbrick, Secretary

Michael S. Steele, Lt. Governor

Jonas A. Jacobson, Deputy Secretary

OCT 31 2005

PHASE I

CERTIFIED MAIL 7002 0510 0002 0821 5502

Neil J. Pedersen, Administrator
State Highway Administration
Mail Stop C-400
P.O. Box 717
Baltimore MD 21203-0717

Dear Mr. Pedersen:

The Maryland Department of the Environment, Water Management Administration (MDE/WMA) has completed a review of Maryland State Highway Administration's (SHA) application for a National Pollutant Discharge Elimination System (NPDES) municipal separate storm sewer system permit. After discussing permit conditions with your staff and allowing for public comment, we have issued as final the SHA's NPDES stormwater permit. A copy of the permit is enclosed for your information and use.

The NPDES stormwater permit program is an enormous undertaking requiring a huge effort from SHA. The Clean Water Act's stormwater regulations require permit conditions that effectively prohibit non-stormwater discharges and reduce the discharge of pollutants to the "maximum extent practicable." Over the past several years, your staff has worked hard to improve existing stormwater facility maintenance programs and implement innovative restoration projects for improving water quality. MDE believes that this new permit will provide an opportunity to further strengthen the SHA's stormwater programs.

I would like to thank you and your staff for their outstanding efforts. Should you have any questions regarding the permit or the NPDES stormwater program in general, please contact me or Mr. L. Kenneth Pensyl, Program Administrator, Sediment, Stormwater, and Dam Safety Program at (410) 537-3543.

Sincerely,

[Handwritten signature of Robert M. Summers]

Robert M. Summers, Director
Water Management Administration

w/attachment

cc: Karuna Pujara, Chief, Highway Hydraulics Division

**MARYLAND DEPARTMENT OF THE ENVIRONMENT**  
**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**  
**MUNICIPAL SEPARATE STORM SEWER SYSTEM DISCHARGE PERMIT**

**PART I. IDENTIFICATION**

A. **Permit Number:** 99-DP-3313 MD0068276

B. **Permit Area:**

This permit covers stormwater discharges from the Maryland State Highway Administration's (SHA) municipal separate storm sewer system in Anne Arundel, Baltimore, Carroll, Charles, Frederick, Harford, Howard, Montgomery, and Prince George's counties. Other discharges from SHA owned storm drain systems may be added to this permit at the discretion of the Maryland Department of the Environment (MDE).

C. **Effective Date:** October 21, 2005

D. **Expiration Date:** October 21, 2010

**PART II. DEFINITIONS**

Terms used in this permit are defined in relevant chapters of the Code of Federal Regulations (CFR) or the Code of Maryland Regulations (COMAR). Terms not defined in CFR or COMAR shall have the meanings attributed by common use unless the context in which they are used clearly requires a different meaning.

**PART III. STANDARD PERMIT CONDITIONS**

A. **Administration of Permit**

The SHA shall designate a National Pollutant Discharge Elimination System (NPDES) coordinator to act as a liaison with MDE and provide the coordinator's name, title, address, phone number, and email address. Additionally the SHA shall submit to MDE an organizational chart detailing personnel and groups responsible for major NPDES program tasks. MDE shall be notified promptly and in subsequent annual reports of any changes in personnel or organization of program tasks.

B. **Legal Authority**

The SHA shall maintain adequate legal authority, in accordance with NPDES regulations, 40 CFR 122.26(d)(2)(i), throughout the term of this permit. In the event that any

provisions of its legal authority are found to be invalid, the SHA shall make the necessary changes to maintain adequate legal authority.

**C. Source Identification**

Sources of pollutants in stormwater runoff shall be identified and linked to specific water quality impacts on a highway district basis. Data collected as a result of source identification shall be shared with surrounding NPDES counties and used for watershed restoration planning. The SHA has completed geographic information system (GIS) recording of its storm drain system in Howard, Montgomery, Prince George's, Anne Arundel, and Baltimore Counties. The SHA shall complete the identification of its storm drain system for Harford, Frederick, Charles, and Carroll Counties by the end of this permit term. As part of this task, the SHA shall:

1. Describe SHA's Storm Drain System: Data collected shall cover all aspects of SHA property and operations that may affect stormwater runoff as specified in SHA's *Geographic Information System Standard Procedures Manual* [e.g., inlets, outfalls, best management practices (BMPs)]. At a minimum, SHA shall:
  - a. Complete source identification requirements by October 21, 2009;
  - b. Address source identification data compatibility issues with each jurisdiction where data are collected. Data shall be organized and stored in formats compatible for use by all governmental entities involved;
  - c. Continually update its source identification data for new projects and from data gathered during routine inspection and repair of its municipal separate storm sewer system; and
  - d. Submit an example of source identification for each jurisdiction where source identification is being compiled.
2. Submit BMP Data: In support of Maryland's urban BMP tracking efforts, the SHA shall submit stormwater management facility data annually as detailed in Part IV of this permit; and
3. Create an Impervious Surface Account: Annually, the SHA shall provide a detailed account of its impervious surfaces by highway district including acres of impervious surfaces owned by SHA and those acres controlled by stormwater management. The Impervious Surface Account shall be used to assess current stormwater management status and identify potential areas for implementing restoration activities.

**D. Discharge Characterization**

The SHA and ten other municipalities in Maryland have been conducting discharge characterization monitoring since the early 1990s. From this expansive monitoring, a Statewide database has been developed that includes hundreds of storms across numerous land uses. Summaries of this dataset and other research performed nationally effectively

characterize stormwater runoff in Maryland for NPDES municipal stormwater purposes. These data shall be used by SHA for guidance to improve stormwater management programs and develop watershed restoration projects. Monitoring required under this permit is now designed to assess the effectiveness of stormwater management programs and watershed restoration projects developed by SHA. Details on this monitoring can be found in PART III. H.

**E. Management Program**

The SHA shall continue to implement a management program for controlling stormwater runoff to the maximum extent practicable. This management program shall include provisions for environmental design, erosion and sediment control, stormwater management, industrial facility maintenance, illicit connection detection and elimination, and personnel and citizen education. An outline of the program components and minimum requirements for each are provided below.

1. Environmental Design Practices

The SHA shall ensure that all necessary steps are taken when planning, designing, and constructing highway projects in order to avoid or minimize any adverse effects to the environment and adjacent communities. Additionally, the SHA shall fully engage the public and accept comments throughout the highway planning, design, and construction processes so that transportation needs can be met and reasonable provisions for safeguarding or improving the environment are implemented.

2. Erosion and Sediment Control

The SHA shall continue to implement an effective erosion and sediment control program in accordance with the Environment Article, Title 4, Subtitle 1, Annotated Code of Maryland. At a minimum, the SHA shall:

- a. Use MDE's 1994 Standards and Specifications for Soil Erosion and Sediment Control, or any subsequent revisions, evaluate new products for erosion and sediment control, and assist MDE in developing new standards; and
- b. Perform responsible personnel ("green card") certification classes to educate highway construction contractors regarding erosion and sediment control requirements. Program activity shall be recorded on MDE's "green card" database and submitted as required in PART IV of this permit.

3. Stormwater Management

The SHA shall continue to implement an effective stormwater management program in accordance with the Environment Article, Title 4, Subtitle 2, Annotated Code of Maryland. At a minimum, the SHA shall:

- a. Implement the stormwater management design policies, principles, methods, and practices found in the *2000 Maryland Stormwater Design Manual* and COMAR;
- b. Implement a BMP inspection and maintenance program to inspect all stormwater management facilities at least once every three years and perform all routine maintenance (e.g., mowing, trash removal, tarring risers, etc.) within one year of the inspection; and
- c. Document BMPs in need of significant maintenance work and prioritize these facilities for repair. The SHA shall provide in its annual reports detailed schedules for performing all significant BMP repair work.

#### 4. Highway Maintenance

The SHA shall ensure that maintenance activities for its rights-of-way and mechanic shops are managed effectively for minimizing stormwater pollutants. A comprehensive manual developed by SHA, "Environmental Guidelines for Maintenance Activities (November 2003)" shall be followed as routine operating procedures. As part of this program, the following items shall be emphasized:

- a. Clean inlets and sweep streets;
- b. Reduce the use of pesticides, herbicides, and fertilizers through the use of integrated pest management (IPM);
- c. Manage winter weather deicing operations through continual improvement of materials and effective decision making;
- d. Ensure that all SHA facilities identified by the Clean Water Act (CWA) as being industrial activities have NPDES industrial general permit coverage; and
- e. Develop a "Statewide Shop Improvement Plan" for SHA's vehicle maintenance facilities to address pollution prevention and treatment requirements.

#### 5. Illicit Discharge Detection and Elimination

The SHA shall continue implementing procedures for the detection and control of illicit connections, spills, and dumping to its storm drain system. As part of this program, the SHA shall:

- a. Conduct visual inspections of stormwater outfalls as part of its source identification and BMP inspection protocols;
- b. Document each outfall's structural, environmental, and functional attributes;

- c. Investigate outfalls suspected of having illicit connections by using storm drain maps, chemical screening, dye testing, or other viable means;
- d. Use appropriate enforcement procedures for eliminating illicit connections or refer violators to MDE for enforcement and permitting;
- e. Coordinate with surrounding jurisdictions when illicit connections originate from beyond SHA's rights-of-way; and
- f. Annually report illicit discharge detection and elimination activities as specified in PART IV of this permit. Annual reports shall include any requests and accompanying justifications for proposed modifications to the detection and elimination program.

6. Environmental Stewardship

The SHA shall develop an Environmental Stewardship Plan for educating citizens and employees regarding stormwater management. At a minimum, this plan shall promote:

a. Environmental Stewardship by Motorists

- i. Provide stream, river, lake, and estuary name signs and environmental stewardship messages where appropriate and safe;
- ii. Create opportunities for volunteer roadside litter control and native tree plantings; and
- iii. Promote combined vehicle trips, ozone alerts, fueling after dark, mass transit, and other pollution reduction actions for motorist participation.

b. Environmental Stewardship by Employees

- i. Provide classes regarding stormwater management and erosion and sediment control;
- ii. Participate in field trips that demonstrate links between highway runoff and stream, river, and Chesapeake Bay health;
- iii. Provide an environmental awareness training module for all areas of SHA;
- iv. Provide pollution prevention training for vehicle maintenance shop personnel;
- v. Ensure IPM instruction and certification by the Maryland Department of Agriculture for personnel responsible for roadside vegetation maintenance; and
- vi. Promote pollution prevention by SHA employees by encouraging combined vehicle trips, carpooling, mass transit, and compressed work weeks.

**F. Watershed Assessment**

The SHA shall continue to assess its highway drainage areas for stormwater management retrofit opportunities and coordinate these activities with local NPDES watershed restoration plans in an effort to maximize water quality benefits. As part of this assessment, the SHA shall:

1. Continue providing available geographic information system (GIS) highway data to permitted NPDES municipalities and MDE;
2. By the fourth annual report, complete SHA's Impervious Surface Account as described in Part III.C. (Source Identification);
3. Select for retrofitting impervious areas with poor or no runoff control infrastructure. These projects shall be implemented where water quality improvements can be achieved; and
4. Work with Maryland's NPDES municipalities to maximize water quality improvements in areas of local concern.

**G. Watershed Restoration**

The SHA shall continue to construct stormwater management retrofits for controlling pollutants associated with highway runoff and aiding in local watershed restoration activities. As part of this program, the SHA shall:

1. Construct or fund 25 significant stormwater management retrofit projects during the course of this permit for impervious areas with poor or no runoff control infrastructure. These projects shall be implemented where water quality improvements can be achieved and shall not include typical stormwater management maintenance. Innovative alternatives to conventional stormwater management methods will be considered by MDE. Examples may include wetlands creation, stream buffer plantings, reforestation, or any other practices providing significant water quality benefits. Alternative practices shall be submitted to MDE for approval prior to implementation;
2. Contribute to local watershed restoration activities by constructing or funding stormwater management retrofits in watersheds targeted by local NPDES municipalities when feasible; and
3. Submit annual reports containing pertinent information on its watershed restoration activities such as stormwater management retrofit proposals, costs, schedules, implementation status and impervious acres proposed for management.

**H. Assessment of Controls**

Assessment of controls is critical for determining the effectiveness of the NPDES stormwater management program and progress toward improving water quality. Therefore, the SHA shall perform chemical, biological, and physical monitoring in order to determine the effectiveness of the watershed restoration efforts required under this permit. Site selection and timing will be crucial so that all aspects of a watershed restoration project can be monitored from beginning to end.

1. Site Selection: By October 21, 2006, the SHA shall select and submit for MDE's approval a watershed restoration project for monitoring. Ample time shall be

provided so that pre-restoration, or characterization monitoring can take place. Priority shall be given to new practices where little monitoring data exist or for larger comprehensive watershed restoration projects where the cumulative effect of numerous management strategies can be assessed.

2. Monitoring Requirements: Once a watershed restoration project has been selected for monitoring, the SHA shall begin monitoring an outfall and associated in-stream monitoring station, or other monitoring locations based on an approved study design. The minimum criteria for chemical, biological, and physical monitoring are as follows:

a. Chemical Monitoring:

- i. Twelve (12) storm events shall be monitored per year at each monitoring location with at least three occurring per quarter. Quarters shall be based on the calendar year. If extended dry weather periods occur, baseflow samples shall be taken at least once per month at the monitoring stations if flow is observed;
- ii. Discrete samples of stormwater flow shall be collected at the monitoring stations using automated or manual sampling methods. Measurements of pH and water temperature shall be taken;
- iii. At least three (3) samples determined to be representative of each storm event shall be submitted to a laboratory for analysis according to methods listed under 40 CFR Part 136 and event mean concentrations (EMC) shall be calculated for:

|   |                  |
|---|------------------|
| Biochemical Oxygen Demand (BOD <sub>5</sub> ) | Total Lead       |
| Total Kjeldahl Nitrogen (TKN)                 | Total Copper     |
| Nitrate plus Nitrite                          | Total Zinc       |
| Total Suspended Solids                        | Total Phosphorus |
| Total Petroleum Hydrocarbons (TPH)            | Oil and Grease*  |
| Fecal Coliform or E. coli                     | (*Optional).     |

- iv. Continuous flow measurements shall be recorded at the in-stream monitoring station or other practical locations based on an approved study design. Data collected shall be used to estimate annual and seasonal pollutant loads and for the calibration of watershed assessment models.

b. Biological Monitoring:

- i. Benthic macroinvertebrate samples shall be gathered each Spring between the outfall and in stream stations or other practical locations based on an approved study design; and
- ii. The SHA shall use the U.S. Environmental Protection Agency's (EPA) Rapid Bioassessment Protocols (RBP), Maryland Biological Stream Survey (MBSS), or other similar method approved by MDE.



c. Physical Monitoring:

- i. A geomorphologic stream assessment shall be conducted between the outfall and in stream monitoring locations or in a reasonable area based on an approved study design. This assessment shall include an annual comparison of permanently monumented stream channel cross-sections and the stream profile;
- ii. A stream habitat assessment shall be conducted using techniques defined by the EPA's RBP, MBSS, or other similar method approved by MDE; and
- iii. A hydrologic and/or hydraulic model shall be used (e.g., TR-20, HEC-2, HSPF, SWMM, etc.) to analyze the effects of rainfall; discharge rates; stage; and, if necessary, continuous flow on channel geometry.

3. Annual Data Submittal: The SHA shall describe in detail its monitoring activities for the previous year and include the following:

- a. EMCs submitted on MDE's long-term monitoring database as specified in PART IV below;
- b. Chemical, biological, and physical monitoring results and a combined analysis for the approved monitoring study; and
- c. Any requests and accompanying justifications for proposed modifications to the monitoring program.

**I. Program Funding**

1. Annually, a fiscal analysis of the capital, operation, and maintenance expenditures necessary to comply with all conditions of this permit shall be submitted as required in PART IV below; and
2. Adequate program funding to comply with all conditions of this permit shall be maintained.

**J. Total Maximum Daily Loads**

Stormwater BMPs and programs implemented as a result of this permit must be consistent with available waste load allocations (WLA) [see 40 CFR 122.44(d)(1)(vii)(B)] developed under a Total Maximum Daily Load (TMDL). MDE has determined that owners of storm drain systems that implement the requirements of this permit will be controlling stormwater pollution to the maximum extent practicable. Therefore, satisfying the conditions of this permit will meet WLAs specified in TMDLs developed for impaired water bodies. If assessment of the stormwater management program indicates TMDL WLAs are not being met, additional or alternative stormwater controls must be implemented to achieve WLAs.

## **PART IV. PROGRAM REVIEW AND ANNUAL PROGRESS REPORTING**

### **A. Annual Reporting**

1. Annual progress reports will facilitate the long-term assessment of the SHA's NPDES stormwater program. The SHA shall submit annual reports on or before the anniversary date of this permit that include:
  - a. The status of implementing the components of the stormwater management program that are established as permit conditions;
  - b. A narrative summary describing the results and analyses of data, including monitoring data that is accumulated throughout the reporting year;
  - c. Annual expenditures and budget for the year following each annual report;
  - d. A summary describing the number and nature of enforcement actions, inspections, and public education programs; and
  - e. The identification of water quality improvements or degradation.
2. To further evaluate the effectiveness of specific program elements, the following information shall be submitted on databases (in a format) consistent with Attachment A. Annually, except where noted, the following shall be submitted:
  - a. Storm drain system mapping (PART III. C.1.);
  - b. Urban BMP locations (PART III. C.2.);
  - c. Impervious surfaces (PART III. C.3.);
  - d. Watershed restoration project locations (PART III. G.1.);
  - e. Chemical monitoring (PART III. H.);
  - f. Illicit Discharge Detection and Elimination activities (PART III. E.5.);
  - g. Responsible personnel certification information (PART III. E.2.);
  - h. Fiscal analyses - cost for NPDES related implementation (PART III. I.).

### **B. Program Review**

In order to assess the effectiveness of the SHA's NPDES program for eliminating non-stormwater discharges and reducing the discharge of pollutants to the maximum extent practicable, MDE will review program implementation, annual reports, and periodic data

submittal on an annual basis. Procedures for the review of local erosion and sediment control and stormwater management programs exist in Maryland's Sediment Control and Stormwater Management Laws. Additional periodic evaluations will be conducted to determine compliance with permit conditions.

**C. Reapplication for NPDES Stormwater Discharge Permit**

Continuation or reissuance of this permit beyond October 21, 2010 will require the SHA to reapply for NPDES stormwater discharge permit coverage in its fourth year annual report. As part of this application process, SHA shall submit to MDE an executive summary of its NPDES stormwater management program that specifically describes how water quality goals set by the SHA are being achieved. This application shall be used to gauge the effectiveness of the SHA's NPDES stormwater program and will provide guidance for developing future permit conditions. At a minimum, the application summary shall include:

1. SHA's NPDES stormwater program goals;
2. Program summaries for the permit term regarding:
  - a. Illicit connection detection and elimination results;
  - b. Watershed restoration status including SHA totals for impervious acres, impervious acres controlled by stormwater management, and the current status of watershed restoration projects and acres managed;
  - c. Pollutant load reductions as a result of this permit; and
  - d. Other relevant data and information for describing SHA programs;
3. Program operation and capital improvement costs for the permit term; and
4. Descriptions of any proposed permit condition changes based on analyses of the successes and failures of the SHA's efforts to comply with the conditions of this permit.

**PART V. SPECIAL PROGRAMMATIC CONDITIONS**

Since the signing of the Chesapeake Bay Agreement in 1983, Maryland has been working toward reducing the discharge of nutrients and sediments to Chesapeake Bay. SHA's highway network traverses all ten of the Bay's major tributaries in Maryland. This NPDES permit encourages the SHA to coordinate with localities specified in Part I.B. of this permit and assist with the implementation of the Tributary Strategies designed to meet the nutrient and sediment reduction goals.

## **PART VI. ENFORCEMENT AND PENALTIES**

### **A. Discharge Prohibitions and Receiving Water Limitations**

The SHA shall effectively prohibit non-stormwater discharges through its municipal separate storm sewer system. NPDES permitted non-stormwater discharges are exempt from this prohibition. Discharges from the following will not be considered a source of pollutants when properly managed: water line flushing; landscape irrigation; diverted stream flows; rising ground waters; uncontaminated ground water infiltration to separate storm sewers; uncontaminated pumped ground water; discharges from potable water sources; foundation drains; air conditioning condensation; irrigation waters; springs; footing drains; lawn watering; individual residential car washing; flows from riparian habitats and wetlands; dechlorinated swimming pool discharges; street wash water; and fire fighting activities. The discharge of stormwater containing pollutants, which have not been reduced to the maximum extent practicable, is prohibited.

The SHA shall not cause the contamination or other alteration of the physical, chemical, or biological properties of any waters of the State, including a change in temperature, taste, color, turbidity, or odor of the waters or the discharge or deposit of any organic matter, harmful organism, or liquid, gaseous, solid, radioactive, or other substance into any waters of the State, that will render the waters harmful to:

1. Public health, safety, or welfare;
2. Domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses;
3. Livestock, wild animals, birds; or
4. Fish or other aquatic life.

### **B. Duty to Mitigate**

The SHA shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment.

### **C. Duty to Comply**

The SHA must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the CWA and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. The SHA shall comply at all times with the provisions of the Environment Article, Title 4, Subtitles 1, 2, and 4; Title 7, Subtitle 2; and Title 9, Subtitle 3 of the Annotated Code of Maryland.

The SHA shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances), which are installed or used by the

SHA to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the SHA only when the operation is necessary to achieve compliance with the conditions of the permit.

**D. Sanctions**

1. Penalties Under the CWA - Civil and Criminal

The CWA provides that any person who violates any permit condition is subject to a civil penalty not to exceed \$27,500 per day for each violation. Any person who negligently violates any permit condition is subject to criminal penalties of \$2,750 to \$27,500 per day of violation, or imprisonment of not more than 1 year, or both. Any person who knowingly violates any permit condition is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than 3 years, or both.

2. Penalties Under the State's Environment Article - Civil and Criminal

Nothing in this permit shall be construed to preclude the institution of any legal action nor relieve the SHA from civil or criminal responsibilities and/or penalties for noncompliance with Title 4, Title 7, and Title 9 of the Environment Article, Annotated Code of Maryland, or any federal, local, or other State law or regulation. The Environment Article, §9-342, Annotated Code of Maryland, provides that any person who violates a permit condition is subject to a civil penalty up to \$1,000 for each violation, but not exceeding \$50,000 total. The Environment Article, §9-343, Annotated Code of Maryland, provides that any person who willfully or negligently violates a permit condition is subject to a criminal penalty not exceeding \$25,000 or imprisonment not exceeding 1 year, or both.

The Environment Article, §9-343, Annotated Code of Maryland, provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or both.

The Environment Article, §9-343, Annotated Code of Maryland, provides that any person who knowingly makes any false statement, representation, or certification in any records or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or both.

**E. Permit Revocation and Modification**

1. Permit Actions

This permit may be modified, revoked, or terminated for cause. The filing of a request by the SHA for a permit modification, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. A permit may be modified by MDE upon written request by the SHA and after notice and opportunity for a public hearing in accordance with and for the reasons set forth in COMAR 26.08.04.10.

After notice and opportunity for a hearing and in accordance with COMAR 26.08.04.10., MDE may modify, suspend, or revoke and reissue this permit in whole or in part during its term for causes including, but not limited, to the following:

- a. Violation of any terms or conditions of this permit;
- b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
- c. A change in any condition that requires either a temporary reduction or elimination of the authorized discharge; or
- d. A determination that the permitted discharge poses a threat to human health or welfare or to the environment and can only be regulated to acceptable levels by permit modification or termination.

2. Duty to Provide Information

The SHA shall furnish to MDE, within a reasonable time, any information that MDE may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit; or to determine compliance with this permit. The SHA shall also furnish to MDE, upon request, copies of records required to be kept by this permit.

**F. Property Rights**

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, State, or local law or regulations.

**G. Severability**

The provisions of this permit are severable. If any provision of this permit shall be held invalid for any reason, the remaining provisions shall remain in full force and effect. If the application of any provision of this permit to any circumstance is held invalid, its application to other circumstances shall not be affected.

H. Signature of Authorized Administrator and Jurisdiction

All applications, reports, or information submitted to MDE shall be signed as required by COMAR 26.08.04.01-1. As in the case of municipal or other public facilities, signatories shall be either a principal executive officer, ranking elected official, or other duly authorized employee.

A handwritten signature in black ink, appearing to read "Robert M. Summers", written over a horizontal line.

Robert M. Summers, Director  
Water Management Administration

10/31/05

Date

## Attachment A Annual Report Databases

As part of the NPDES annual reporting process, municipalities are required to complete databases for urban best management practice inventory, chemical monitoring, erosion and sediment control responsible personnel training, quarterly grading permit summaries, pollution prevention, storm drain systems, impervious surfaces, and fiscal analyses. Examples of these databases and definitions for each category are provided below. For compatibility purposes, databases should be submitted in any one of the following formats: Access, Excel, Quattro Pro, Lotus 1-2-3, or any file with a .dbf extension (e.g., dBase,). Preferably, any file in a format other than Access or Excel should be submitted in a ".dbf" format. If there are any questions regarding the compatibility of databases, please contact the Water Management Administration's Sediment, Stormwater, and Dam Safety Program at (410) 537-3543.

### A. Storm Drain System Mapping (PART III.C.1.) (associated with GIS coverage)

| Field | Field Name | Field Type | Width | Description  |
|-------|------------|------------|-------|--|
| 1     | OUTFALL ID | Text       | 15    | Outfall ID that can be linked to Pollution Prev. Table |
| 2     | MD NORTH   | Number     | 8     | Maryland Grid Coordinates                              |
| 3     | MD EAST    | Number     | 8     | Maryland Grid Coordinates                              |
| 4     | DIM_OUTFL  | Number     | 3     | Outfall Dimensions in inches                           |
| 5     | TYPE_OUTFL | Text       | 3     | Outfall Type   |
| 6     | DRAIN_AREA | Number     | 4     | Drainage area to outfall                               |

### B. Urban Best Management Practices (BMP) (PART II.C.2.) (associated with GIS coverage)

| Field | Field Name             | Field Type | Width | Description                                 |
|-------|------------------------|------------|-------|---|
| 1     | STRU_NO                | Text       | 4     | Unique structure number                     |
| 2     | PERMIT_NO              | Text       | 10    | Unique permit number                        |
| 3     | STRU_NAME              | Text       | 60    | Structure name                              |
| 4     | ADDRESS                | Text       | 50    | Structure address                           |
| 5     | CITY                   | Text       | 15    | Structure address                           |
| 6     | STATE                  | Text       | 2     | Structure address                           |
| 7     | ZIP                    | Text       | 5     | Structure address                           |
| 8     | MD NORTH               | Number     | 8     | Maryland grid coordinate (NAD 83 meters)    |
| 9     | MD EAST                | Number     | 8     | Maryland grid coordinate (NAD 83 meters)    |
| 10    | ADC_MAP                | Text       | 5     | ADC map book coordinate (optional if 8/9)   |
| 11    | SBASIN_NO              | Text       | 17    | State watershed number                      |
| 12    | STRU_TYPE <sup>1</sup> | Text       | 10    | Structure type                              |
| 13    | LAND_USE <sup>2</sup>  | Text       | 3     | MOP land use/land cover code (attached)     |
| 14    | DRAIN_AREA             | Number     | 8     | Structure drainage area (acres)             |
| 15    | TOT_DRAIN              | Number     | 8     | Total site area (acres)                     |
| 16    | RCN                    | Number     | 8     | Runoff curve number (weighted)              |
| 17    | ON_OFF_SIT             | Text       | 3     | On or offsite structure                     |
| 18    | APPR_DATE              | Date/Time  | 8     | Permit approval date                        |
| 19    | BUILT_DATE             | Date/Time  | 8     | Construction completion date                |
| 20    | GEN_COMNT              | Text       | 60    | General comments (e.g., redundant controls) |
| 21    | LAST_CHANGE            | Date/Time  | 8     | Date last change made to this record        |

<sup>1</sup>Use Attached BMP Structure Codes

<sup>2</sup>Use Attached MdOP Land Use Codes

### C. Impervious Surfaces (PART III.C.3.) (associated with GIS coverage)

| Field | Field Name    | Field Type | Width | Description                        |
|-------|---------------|------------|-------|------------------------------------|
| 1     | ACREAGE       | Number     | 8     | Impervious area acreage            |
| 2     | CONTROLLED    | Number     | 8     | Area controlled by BMPs            |
| 3     | UNCONTROLLED  | Number     | 8     | Area without BMP controls          |
| 4     | RESTORATION_P | Number     | 8     | 10% goal for watershed restoration |
| 5     | RESTORATION_C | Number     | 8     | Watershed restoration completed    |



**D. Watershed Restoration Project Locations (PART III.C.5.)**

| Field | Field Name    | Field Type | Width | Description   |
|-------|---------------|------------|-------|---|
| 1     | PROJECT NAME  | Text       | 30    | Name of project   |
| 2     | PROJECT TYPE  | Text       |       | New BMP, retrofit, street sweeping, inlet cleaning<br>Litter collection, hazardous waste, education |
| 3     | PROJECT CATEG | Text       | 25    | New BMP, Retrofit, Education, SD maint.   |
| 4     | DESCRIPTION   | Text       | 60    | Brief Description of the project  |
| 5     | MD_NORTH      | Number     | 10    | Maryland grid coordinate (NAD 83 meters)  |
| 6     | MD_EAST       | Number     | 10    | Maryland grid coordinate (NAD 83 meters)  |
| 7     | DRAIN_AREA    | Number     | 8     | Drainage area in acres  |

**E. Chemical Monitoring Site Locations (PART III.C.4.)**

| Field | Field Name           | Field Type | Width | Description   |
|-------|----------------------|------------|-------|---|
| 1     | YEAR                 | Text       | 4     | Annual Report Year  |
| 2     | STATION              | Text       | 30    | Name of station   |
| 3     | TYPE                 | Text       | 10    | Outfall or instream station   |
| 4     | BAY_TRIB             | Text       | 30    | Chesapeake Bay tributary designation  |
| 5     | PHYS_PROV            | Text       | 30    | Maryland physiographic province   |
| 6     | MD_NORTH             | Number     | 10    | Maryland grid coordinate (NAD 83 meters)  |
| 7     | MD_EAST              | Number     | 10    | Maryland grid coordinate (NAD 83 meters)  |
| 8     | DRAIN_AREA           | Number     | 8     | Drainage area in acres  |
| 9     | LU1                  | Text       | 8     | Predominant land use  |
| 10    | DA_LU1               | Number     | 8     | Drainage area in acres  |
| 11    | LU2                  | Text       | 8     | Second most dominant land use   |
| 12    | DA_LU2               | Number     | 8     | Drainage area in acres  |
| 13    | LU3                  | Text       | 8     | Third most dominant land use  |
| 14    | DA_LU3               | Number     | 8     | Drainage area in acres  |
| 15    | SWM1 <sup>1</sup>    | Text       | 10    | Structural BMP #1 in drainage area  |
| 16    | SWM_DA1              | Number     | 8     | Total acres of drainage area treated by structural BMP #1   |
| 17    | SWM2 <sup>1</sup>    | Text       | 10    | Structural BMP #2 in drainage area  |
| 18    | SWM_DA2              | Number     | 8     | Total acres of drainage area treated by structural BMP #2   |
| 19    | SWM3 <sup>1</sup>    | Text       | 10    | Structural BMP #3 in drainage area  |
| 20    | SWM_DA3 <sup>2</sup> | Number     | 8     | Total acres of drainage area treated by structural BMP #3   |
| 21    | NON_STRUCT           | Text       | 30    | List all non-structural BMPs, such as education, which are being intensely focused in drainage area |
| 22    | AREA_NON_STRUCT      | Number     | 8     | Total acres of drainage area treated by non-structural BMPs   |

<sup>1</sup>Use Attached BMP Structure Codes

<sup>2</sup>Create additional SWM fields for additional structures if necessary

## F. Chemical Monitoring (PART III.H.1.)

| Field | Field Name               | Type     | Width  | Description   |  |
|-------|--------------------------|----------|--------|---|--|
| 1     | Jurisdiction             | Text     | 30     | Monitoring Jurisdiction Name                            |  |
| 2     | Date                     | Date     | 10     | Date of storm event                                     |  |
| 3     | Time                     | Time     | 10     | Time monitoring begins                                  |  |
| 4     | Station name             | Text     | 30     | Station name  |  |
| 5     | Restoration or in-stream | Text     | 10     | Restoration or in-stream cross-section                  |  |
| 6     | Storm or Baseflow        | Text     | 10     | Storm or baseflow sample                                |  |
| 7     | Depth                    | Number   | 5      | Depth of rain in inches                                 |  |
| 8     | Duration                 | Time     | 10     | Duration of event in hours and minutes                  |  |
| 9     | Intensity                | Number   | 10     | Intensity = Depth/Duration                              |  |
| 10    | Total Storm Flow Volume  | Number   | 10     | Total Storm Flow Volume in Gallons                      |  |
| 11    | Water Temp               | Number   | 5      | Flow weighted average of water temperature (Fahrenheit) |  |
| 12    | Ph                       | Number   | 8      | Flow weighted average of pH                             |  |
| 13    | BOD                      | dt       | Number | 8   | Record Biological Oxygen Demand detection limit used in analysis |
|       |                          | EMC (0)  | Number | 8   | Enter EMC for Biological Oxygen Demand in mg/l using (0)*        |
|       |                          | EMC (dt) | Number | 8   | Enter EMC for Biological Oxygen Demand in mg/l using (dt)**      |
| 14    | TKN                      | dt       | Number | 8   | Record Total Kjeldahl Nitrogen detection limit used in analysis  |
|       |                          | EMC (0)  | Number | 8   | Enter EMC for Total Kjeldahl Nitrogen in mg/l using (0)*         |
|       |                          | EMC (dt) | Number | 8   | Enter EMC for Total Kjeldahl Nitrogen in mg/l using (dt)**       |
| 15    | Nitrate + Nitrite        | dt       | Number | 8   | Record Nitrate + Nitrite detection limit used in analysis        |
|       |                          | EMC (0)  | Number | 8   | Enter EMC for Nitrate + Nitrite in mg/l using (0)*               |
|       |                          | EMC (dt) | Number | 8   | Enter EMC for Nitrate + Nitrite in mg/l using (dt)**             |
| 16    | Total Phosphorus         | dt       | Number | 8   | Record Total Phosphorus detection limit used in analysis         |
|       |                          | EMC (0)  | Number | 8   | Enter EMC for Total Phosphorus in mg/l using (0)*                |
|       |                          | EMC (dt) | Number | 8   | Enter EMC for Total Phosphorus in mg/l using (dt)**              |
| 17    | TSS                      | dt       | Number | 8   | Record Total Suspended Solids detection limit used in analysis   |
|       |                          | EMC (0)  | Number | 8   | Enter EMC for Total Suspended Solids in mg/l using (0)*          |
|       |                          | EMC (dt) | Number | 8   | Enter EMC for Total Suspended Solids in mg/l using (dt)**        |
| 18    | Total Copper             | dt       | Number | 8   | Record Total Copper detection limit used in analysis             |
|       |                          | EMC (0)  | Number | 8   | Enter EMC for Total Copper in ug/l using (0)*                    |
|       |                          | EMC (dt) | Number | 8   | Enter EMC for Total Copper in ug/l using (dt)**                  |
| 19    | Total Lead               | dt       | Number | 8   | Record Total Lead detection limit used in analysis               |
|       |                          | EMC (0)  | Number | 8   | Enter EMC for Total Lead in ug/l using (0)*                      |
|       |                          | EMC (dt) | Number | 8   | Enter EMC for Total Lead in ug/l using (dt)**                    |
| 20    | Total Zinc               | dt       | Number | 8   | Record Total Zinc detection limit used in analysis               |
|       |                          | EMC (0)  | Number | 8   | Enter EMC for Total Zinc in ug/l using (0)*                      |
|       |                          | EMC (dt) | Number | 8   | Enter EMC for Total Zinc in ug/l using (dt)**                    |
| 21    | TPH                      | dt       | Number | 8   | Record detection limit used in analysis                          |
|       |                          | EMC (0)  | Number | 8   | Enter EMC for Total Petroleum Hydrocarbons in mg/l using (0)*    |
|       |                          | EMC (dt) | Number | 8   | Enter EMC for Total Petroleum Hydrocarbons in mg/l using (dt)**  |
| 22    | Oil & Grease             | dt       | Number | 8   | Record Oil & Grease detection limit used in analysis             |
|       |                          | EMC (0)  | Number | 8   | Enter EMC for Oil & Grease in mg/l using (0)*                    |
|       |                          | EMC (dt) | Number | 8   | Enter EMC for Oil & Grease in mg/l using (dt)**                  |
| 23    | Fecal Coliform           | dt       | Number | 8   | Record Fecal Coliform detection limit used in analysis           |
|       |                          | EMC (0)  | Number | 8   | Enter EMC for Fecal Coliform in MPN/100ml using (0)*             |
|       |                          | EMC (dt) | Number | 8   | Enter EMC for Fecal Coliform in MPN/100ml using (dt)**           |
| 24    | E. Coli                  | dt       | Number | 8   | Record E. Coli detection limit used in analysis                  |
|       |                          | EMC (0)  | Number | 8   | Enter EMC for E. Coli in MPN/100ml using (0)*                    |
|       |                          | EMC (dt) | Number | 8   | Enter EMC for E. Coli in MPN/100ml using (dt)**                  |
| 25    | Local Concern 1          | dt       | Number | 8   | Record detection limit used in analysis                          |
|       |                          | EMC (0)  | Number | 8   | Enter EMC for in mg/l using (0)*                                 |
|       |                          | EMC (dt) | Number | 8   | Enter EMC for in mg/l using (dt)**                               |
| 26    | Local Concern 2          | dt       | Number | 8   | Record detection limit used in analysis                          |
|       |                          | EMC (0)  | Number | 8   | Enter EMC for in mg/l using (0)*                                 |
|       |                          | EMC (dt) | Number | 8   | Enter EMC for in mg/l using (dt)**                               |
| 27    | Comments                 | Text     | 50     | Monitoring comments/documentation                       |  |

\* EMC (0) = Flow weighted averages for three discrete samples representative of a storm using zero (0) for any discrete samples recorded less than the detection limit.

## Chemical Monitoring (continued)

\*\* EMC (dt) = Flow weighted averages for three discrete samples representative of a storm using the detection limit value (dt) for any discrete samples recorded less than the detection limit.

mg/l = milligrams per liter

ug/l = micrograms per liter

MPN = most probable number per 100 milliliters

## G. Illicit Discharge Detection and Elimination (PART III.E.3)

| Field | Field Name           | Field Type | Width | Description                                       |
|-------|----------------------|------------|-------|---|
| 1     | OUTFALL ID           | Text       | 15    | Outfall ID that can be linked to storm drain map  |
| 2     | SCREENDATE           | Date/Time  | 8     | Field Screening Date                              |
| 3     | TEST_NUM             | Number     | 2     | Initial screening, follow-up test, 3rd, etc.      |
| 4     | LAST_RAIN            | Date/Time  | 8     | Date of Last Rain > 0.10"                         |
| 5     | TIME                 | Date/Time  | 8     | Field Screening Time                              |
| 6     | MD_NORTH             | Number     | 8     | Maryland Grid Coordinates (NAD 83 meters)         |
| 7     | MD_EAST              | Number     | 8     | Maryland Grid Coordinates (NAD 83 meters)         |
| 8     | DIM_OUTFL            | Text       | 10    | Outfall Dimensions in inches                      |
| 9     | TYPE_OUTFL           | Text       | 3     | Outfall Type                                      |
| 10    | OBSERV_FLOW          | Logical    | 1     | Was flow observed?                                |
| 11    | CFS_FLOW             | Number     | 5     | Flow rate in cubic feet per second (CFS)          |
| 12    | WAT_TEMP             | Number     | 5     | Water Temperature (Fahrenheit)                    |
| 13    | AIR_TEMP             | Number     | 3     | Air Temperature in (Fahrenheit)                   |
| 14    | CHEM_TEST            | Logical    | 1     | Was chemical test performed?                      |
| 15    | PH                   | Number     | 3     | pH meter reading                                  |
| 16    | PHENOL               | Number     | 6     | Milligrams per Liter (mg/L)                       |
| 17    | CHLORINE             | Number     | 6     | mg/L  |
| 18    | DETERGENTS           | Number     | 6     | mg/L  |
| 19    | COPPER               | Number     | 6     | mg/L  |
| 20    | ALGAEGROW            | Logical    | 1     | Was algae growth observed?                        |
| 21    | ODOR                 | Text       | 2     | Type of odor <sup>2</sup>                         |
| 22    | COLOR                | Text       | 2     | Discharge color <sup>2</sup>                      |
| 23    | CLARITY              | Text       | 2     | Discharge clarity <sup>2</sup>                    |
| 24    | FLOATABLES           | Text       | 2     | Floatables in discharge <sup>2</sup>              |
| 25    | DEPOSITS             | Text       | 2     | Deposits in outfall area <sup>2</sup>             |
| 26    | VEG_COND             | Text       | 2     | Vegetative condition in outfall area <sup>2</sup> |
| 27    | STRUCT_COND          | Text       | 2     | Structural condition of outfall <sup>2</sup>      |
| 28    | EROSION              | Text       | 2     | Erosion in outfall area <sup>2</sup>              |
| 29    | LANDUSE <sup>1</sup> | Text       | 2     | Predominant land use draining to outfall          |
| 30    | DRAIN_AREA           | Number     | 4     | Drainage area to outfall                          |
| 31    | COMPLAINT            | Logical    | 1     | Is screening complaint driven?                    |
| 32    | ILLICIT_Q            | Logical    | 1     | Was illicit discharge found?                      |
| 33    | ILLICIT_ELIM         | Logical    | 1     | Was illicit discharge eliminated?                 |

<sup>1</sup>Use Attached MdOP Land Use Codes

<sup>2</sup>Use Attached Pollution Prevention Activities Codes

## H. Responsible Personnel Certification Information (PART III.E.3.b.)

| Field | Field Name   | Field Type | Width | Description                             |
|-------|--------------|------------|-------|---|
| 1     | PREFIX       | Text       | 2     | MR, MS                                  |
| 2     | FIRSTNAME    | Text       | 15    | First Name                              |
| 3     | LASTNAME     | Text       | 15    | Last Name                               |
| 4     | ADDRESS      | Text       | 50    | Full Address                            |
| 5     | CITY         | Text       | 35    | City                                    |
| 6     | STATE        | Text       | 2     | State                                   |
| 7     | ZIP          | Number     | 9     | Zip Code                                |
| 8     | PHONE        | Number     | 10    | Phone number                            |
| 9     | DATE         | Date/Time  | 8     | Date of class                           |
| 10    | CERTNUM      | Number     | 6     | Certification number as provided by MDE |
| 11    | COMPANY      | Text       | 30    | Employer                                |
| 12    | COMP_ADDRESS | Text       | 30    | Employer Address                        |
| 13    | COMP_PHONE   | Number     | 10    | Employer Phone                          |
| 14    | INSTRUCTOR   | Text       | 20    | Instructor's Last Name                  |

**I. Grading Permit Information - quarterly (PART III.E.3.c.)**

| Field | Field Name            | Field Type | Width | Description                                     |
|-------|-----------------------|------------|-------|---|
| 1     | SITE_NAME             | Text       | 60    | Construction site name                          |
| 2     | SITE_OWNER            | Text       | 60    | Construction site owner                         |
| 3     | OWNER_ADDRESS         | Text       | 50    | Owner address                                   |
| 4     | OWNER_CITY            | Text       | 15    | Owner address                                   |
| 5     | OWNER_ZIP_CODE        | Number     | 10    | Owner zip code                                  |
| 6     | SITE_ADDRESS          | Text       | 50    | Site address                                    |
| 7     | SITE_CITY             | Text       | 15    | Site address                                    |
| 8     | SITE_ZIP_CODE         | Number     | 10    | Site zip code                                   |
| 9     | MD_NORTH              | Number     | 8     | Maryland grid coordinate (NAD 83 meters) – site |
| 10    | MD_EAST               | Number     | 8     | Maryland grid coordinate (NAD 83 meters) – site |
| 11    | DIST_AREA             | Number     | 6     | Disturbed area of site in acres                 |
| 12    | GRAD_PERM             | Text       | 10    | Local grading permit number                     |
| 13    | APPR_DATE             | Date/Time  | 8     | Grading Permit approval date                    |
| 14    | LAND_USE <sup>1</sup> | Text       | 3     | MOP land use/land cover code (attached)         |

<sup>1</sup>Use Attached MdOP Land Use Codes

**J. Fiscal Analyses (PART III.I.)**

| Permit Condition                     | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|--------------------------------------|--------|--------|--------|--------|--------|
| B. Legal Authority                   | \$     |        |        |        |        |
| C. Source Identification             |        |        |        |        |        |
| 1. GIS                               | \$     |        |        |        |        |
| 2. Database maintenance              | \$     |        |        |        |        |
| D. Management Programs               |        |        |        |        |        |
| 1. Stormwater Management             | \$     |        |        |        |        |
| 2. Pollution Prevention              | \$     |        |        |        |        |
| 3. Erosion and Sediment              | \$     |        |        |        |        |
| 4. Public Education                  | \$     |        |        |        |        |
| 5. Road Maintenance                  | \$     |        |        |        |        |
| Street Sweeping                      | \$     |        |        |        |        |
| Inlet Cleaning                       | \$     |        |        |        |        |
| E. Watershed Assessment and Planning |        |        |        |        |        |
| 1. Assessment/evaluation             | \$     |        |        |        |        |
| 2. Restoration Projects              | \$     |        |        |        |        |
| F. Watershed Restoration             | \$     |        |        |        |        |
| 1. 10% restoration                   | \$     |        |        |        |        |
| 2. Water quality improvement monit.  | \$     |        |        |        |        |
| G. Assessment of Controls            | \$     |        |        |        |        |
| 1. Chemical Monitoring               | \$     |        |        |        |        |
| 2. Biological Monitoring             | \$     |        |        |        |        |
| 3. Physical Stream Assessment        | \$     |        |        |        |        |
| 4. Design Manual Monitoring          | \$     |        |        |        |        |
| <b>TOTAL</b>                         | \$     |        |        |        |        |

**Glossary of Stormwater BMP Structure Types and Practices Reported to MDE**

| <b>Structure Name</b>   | <b>Structure Code</b>      | <b>Structure Function</b>  | <b>CBP Urban Stormwater Workgroup (USWG) Categories</b>  |
|---|----------------------------|--|--|
| Artificial Wetlands   | SM                         | See Shallow Marsh Structures   | Wet Pond & Wetlands  |
| Attenuation swale or dry swale  | AS                         | Open drainage channel designed to detain and promote the filtration of stormwater runoff through underlying fabricated soil media (see Grassed Swale or SW)  | Filtering Practice   |
| Bio-retention   | BIO or BR                  | Landscape designed such that stormwater runoff collects in shallow depressions before filtering through fabricated planting soil media   | Filtering Practice   |
| Check Dam   | CD                         | A small dam constructed in a gully or other small waterway to decrease flow velocity (by reducing the channel gradient), minimize scour, & promote deposition of sediment  | Filtering Practice   |
| Detention Structure (Dry Pond)  | DP                         | Designed to store runoff without a permanent pool  | Dry Detention Ponds & Hydrodynamic Structure   |
| Dry Well  | DW                         | An infiltration trench variant designed to exclusively accommodate rooftop runoff  | Infiltration Practice  |
| Exemption   | EXEMPT                     | Land development activities that are not subject to the stormwater management requirements   | Not a SWM BMP  |
| Extended Detention Structure (Two types):<br><br>1) Extended Detention Structure, Dry<br><br>2) Extended Detention Structure, Wet | ED<br><br>EDSD<br><br>EDSW | Designed to temporarily detain a portion of runoff for 24 hrs after a storm using a fixed orifice to regulate outflow at a specific rate, allowing solids & associated time to settle out<br><br>Designed for the temporary storage of runoff associated with at least a 24 hr 1-year storm without creating a permanent pool of water<br><br>Designed for the storage of runoff associated with at least a 24 hr 1-year storm. The detained water drains partially & the remaining portion creates a permanent pool | Dry Extended Detention Pond<br><br>Dry Extended Detention Pond<br><br>Depending upon structure design, this could be classified as a Dry Extended Detention Ponds or Wet Pond & Wetlands |
| Filter Strip  | FS                         | Vegetated land designed to intercept sheet flow from upstream development  | Filtering Practice   |
| Flow Splitter<br>(Only Montgomery County reports this practice)   | FISp                       | Hydraulic structure designed either to divert a portion of stream flow to a BMP located away from a channel, direct stormwater to a parallel pipe system or bypass a portion of base flow around a pond  |  |
| Flood Management Area   | FLOOD                      | 10 year storm overbank flood protection  | Not a WQ BMP   |
| Forebay   | FOREBAY                    | Storage structure adjoining a SWM BMP inlet designed to trap coarse sediments and thereby lessen their accumulation in the main treatment area *   | Dry Detention Ponds & Hydrodynamic Structure   |
| Gabion  | GABION                     | A large rectangular box made of heavy  | Filtering Practice   |

|  |   |  |   |
|--|---|--|---|
|  |   | gauze wire mesh which holds cobbles and boulders for changing stream flow patterns, bank stabilization, and erosion control.   |   |
| Grass Swale  | SW                                      | Open vegetated channel used to convey runoff and provide treatment by filtering pollutants and sediment  | Filtering Practice  |
| Hydrodynamic Structure<br>aka:<br><br>1) Oil_grit separator<br>2) Bay Saver©<br>3) Stormceptor©  | OGS<br>BS<br>SC                         | An engineered structure used to separate sediments and oils from stormwater runoff using gravitational separation and/or hydraulic flow  | Dry Detention Ponds & Hydrodynamic Structure  |
| Infiltration Basin   | IB                                      | Designed to allow stormwater to infiltrate into permeable soils. It differs from a retention structure in that it may include a back-up underdrain pipe to ensure eventual removal of standing water   | Infiltration Practice   |
| Infiltration Trench (Three types):<br><br>1) Complete Exfiltration<br><br>2) Partial Exfiltration<br><br>3) Water Quality Exfiltration | IT<br><br>ITCE<br><br>ITPE<br><br>ITWQE | An excavated trench that has been backfilled with exposed or unexposed stones to form an underground reservoir (Also see Dry Well)<br><br>Runoff can only exit the trench by exfiltrating through the stone reservoir into the underlying ls<br><br>Runoff exits the trench by exfiltrating a) through the stone reservoir into the underlying soil, and b) via a perforated underdrain at the bottom of the trench that diverts runoff to a central outlet<br><br>Storage volume is set to receive only the first ½" of runoff (first flush) from an impervious area of the watershed | Infiltration Practice   |
| Landscape  | LANDSCAP<br>E                           | Impervious area reduction (Only Prince Georges County has reports this SWM practice thus far)  | Filtering Practice  |
| Level Spreader   | LS                                      | A device for distributing stormwater uniformly over the ground surface as sheet flow to prevent concentrated, erosive flow and promote infiltration  | Not a SWM BMP – Level Spreader  |
| Micropool<br>(Reported by jurisdictions before standardization of codes)   | MP                                      | A smaller permanent pool used in stormwater pond to mitigate the thermal impacts of a larger pond, impacts on existing wetlands, or compensate for lack of topographic relief  | Wet Pond & Wetlands   |
| Observation well   | OBS_WELL                                | A test well installed in an infiltration trench to monitor draining time after installation  | Not a SWM BMP – Observation Well  |
| Porous Pavement  | PP                                      | A porous asphalt surface designed to have bearing strength similar to conventional asphalt but provides a rapid conduit for runoff to reach a subsurface stone   | Not a SWM BMP – Porous Pavement (MDE Non-Point Program experts do not regard this as a BMP) |

|                     |          |  |  |
|---------------------|----------|--|--|
|                     |          | reservoir  |  |
| Sand Filter         | SF       | A bed of sand to which the first flush of runoff is diverted. Water leaving the filter is collected in underground pipes & returned to a waterway. A layer of peat, limestone, and/topsoil may be added to improve removal efficiency  | Filtering Practice                           |
| Shallow Marsh       | SM       | A structure with a permanent shallow pool planted with wetland vegetation often designed to provide extended detention   | Wet Pond & Wetlands                          |
| Underground Storage | UGS      | Vault like structure designed for the temporary storage of storm flow  | Dry Detention Ponds & Hydrodynamic Structure |
| Variance            | VARIANCE | A modification of the minimum stormwater management requirement if site conditions are such that strict adherence to the Guidelines would impose unnecessary hardship on the applicant without fulfilling the intent of the Guidelines | Not a SWM BMP                                |
| Vegetated Buffer    | VB       | A vegetated protective zone of variable width located along both sides of a waterway   | Filtering Practice                           |
| Waiver              | WAIVER   | Exemption from stormwater management requirements granted to an applicant for a specific project based a review by MDE   | Not a SWM BMP                                |
| Water Quality Inlet | OGS      | See Hydrodynamic Structure-Oil_Grit Separator  | Dry Detention Ponds & Hydrodynamic Structure |
| Wet Pond            | WP       | A structure with a permanent pool of water for treating incoming storm runoff  | Wet Pond & Wetlands                          |

## 1997 MdOP Land Use/Land Cover

### 10 Urban Built-up

- **11 Low Density Residential** – Detached single family/duplex dwelling units, yards, and associated areas. Areas of more than 90 percent single family/duplex dwelling units, with lot sizes less than five acres but at least one-half acres (.2 dwelling units/acre to 2 dwelling units/acre).
- **12 Medium Density Residential** – Detached single family/duplex, attached single unit row housing, yards, and associated areas. Areas of more than 90 percent single family/duplex units and attached single unit row housing, with lot sizes of less than one-half acre but at least one-eighth acre (2 dwelling units/acre to 8 dwelling units/acre).
- **13 High Density Residential** – Attached single unit row housing, garden apartments, high rise apartments/condominiums, mobile home and trailer parks. Areas of more than 90 percent high density residential units, with more than 8 dwelling units/acre.
- **14 Commercial** – Retail and wholesale services. Areas used primarily for the sale of products and services, including associated yards and parking areas.
- **15 Industrial** – Manufacturing and industrial parks, including associated warehouses, storage yards, research laboratories, and parking areas.
- **16 Institutional** – Elementary and secondary schools, middle schools, junior and senior high schools, public and private colleges and universities, military installations (built-up areas only, including buildings and storage, training, and similar areas) churches and health facilities, correctional facilities, and government offices and facilities that are clearly separable from the surrounding land cover.
- **17 Extractive** – Surface mining operations, including sand and gravel pits, quarries, coal surface mines, and deep coal mines. Status of activity (active vs. abandoned) is not distinguished.
- **18 Open Urban Land** – Urban areas whose use does not require structures, or urban areas where non-conforming uses characterized by open land have become isolated. Included are golf courses, parks, recreation areas (except associated with schools or other institutions), cemeteries, and entrapped agricultural and undeveloped land within urban areas.
- **191 Large Lot Subdivision (Agriculture)** – Residential subdivisions with lot sizes less than 20 acres but at least 5 acres, with a dominant land cover of open fields or pasture.
- **192 Large Lot Subdivision (Forest)** - Residential subdivisions with lot sizes less than 20 acres but at least 5 acres, with a dominant land cover of deciduous, evergreen or mixed forest.

### 20 Agriculture

- **21 Cropland** – Field and forage crops.
- **22 Pasture** – Land used for pasture, both permanent and rotated: grass.



- **23 Orchards/Vineyards/Horticulture** – Areas of intensively managed commercial bush and tree crops, including areas used for fruit production, vineyards, sod and seed farms, nurseries, and green houses.
- **24 Feeding Operations** – Cattle or hog feeding lots, poultry houses, and holding lots for animals, and commercial fishing areas (including oyster beds).
- **241 Feeding Operations** – Cattle or hog feeding lots, poultry houses, and holding lots for animals.
- **242 Agricultural Building** – Breeding and training facilities, storage facilities, built-up areas associated with a farmstead, small farm ponds, and commercial fishing areas.
- **25 Row and Garden Crops** – Intensively managed track and vegetable farms and associated areas.

#### **40 Forest**

- **41 Deciduous Forest** – Forested areas in which the trees characteristically lose their leaves at the end of the growing season. Included are such species as oak, hickory, aspen, sycamore, birch, yellow poplar, elm, maple, and cypress.
- **42 Evergreen Forest** - Forested areas in which the trees are characterized by persistent foliage throughout the year. Included are such species as white pine, pond pine, hemlock, southern white cedar, and red pine.
- **43 Mixed Forest** – Forested areas in which neither deciduous or evergreen species dominate, but in which there is a combination of both types.
- **44 Brush** – Areas that do not produce timber or other wood products but may have cut-over timber stands, abandoned agriculture fields, or pasture. These areas are characterized by vegetation types such as sumac, vines, rose, brambles, and tree seedlings.

**50 Water** – Rivers, waterways, reservoirs, ponds, bays, estuaries, and ocean.

**60 Wetlands** – Forested and non-forested wetlands, including tidal flats, tidal and non-tidal marshes, and upland swamps and wet areas.

#### **70 Barren Land**

- **71 Beaches** – Extensive shoreline areas of sand and gravel accumulation, with no vegetative cover or other land use.
- **72 Bare Exposed Rock** – Areas of bedrock exposure, scarps, and other natural accumulations of rock without vegetative cover.
- **73 Bare Ground** – Areas of exposed ground caused naturally, by construction, or other cultural processes.

### **Pollution Prevention Activities Codes**

**21. ODOR:** None(N), Sewage (SE), Sulfur (S), Oil (IL), Gas (G), Rancid-Sour (RS), Other (O)

- 22. **COLOR:** Clear (C), Yellow (Y), Brown (B), Green (GR), Red (R), Gray (G), Other (O)
- 23. **CLARITY:** Clear (C), Opaque (OP), Cloudy (CD), Other (O)
- 24. **FLOATABLES:** None (N), Oil Sheen (OS), Sewage (SE), Trash (T), Other (O)
- 25. **DEPOSITS:** None (N), Sediment (S), Oil (IL), Other (O)
- 26. **VEG\_COND.:** Normal (N), Excessive Growth (EG), Inhibited Growth (IG), Other (O)
- 27. **STRUCT\_COND:** Normal (N), Concrete Cracking (CC), Concrete Spalling (SP), Other (O)
- 28. **EROSION:** None (N), Moderate (M), Severe (S)

