

PRIORITIZATION OF GROWING BMP MAINTENANCE RESPONSIBILITIES WITH SHRINKING BUDGETS



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*TRB 2016 Summer Workshop Program
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Regulatory Requirements

July 1, 2014

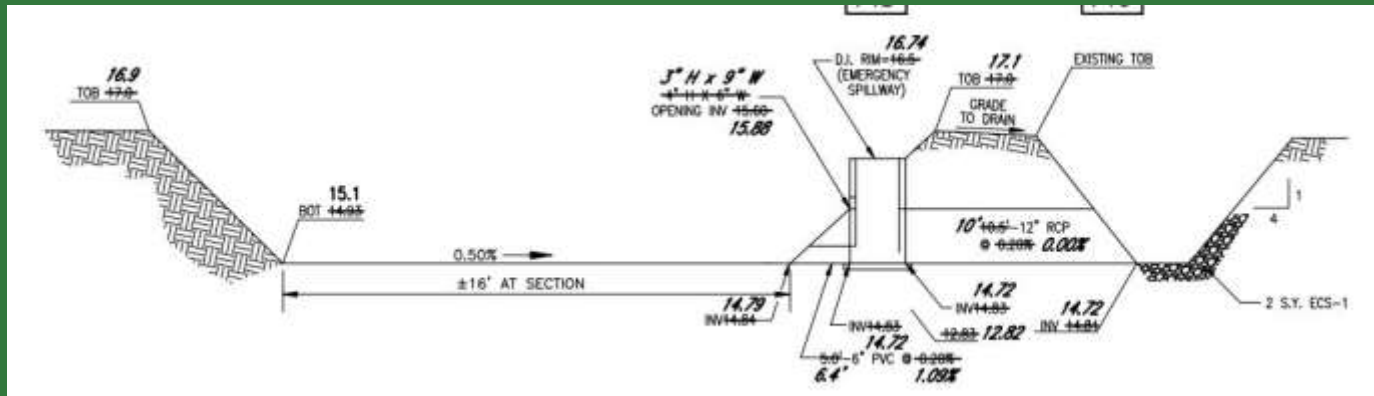
- ❖ Virginia Stormwater Management Act
§ 62.1-44.15:24
- ❖ Virginia Stormwater Management
Program 9VAC25-870
- ❖ Long Term BMP Requirements 9VAC25-870-112
through 114



Long Term BMP Requirements

For State and Localities:

- ❖ Inspect annually (12 calendar months)
- ❖ Within 48 hours of a storm event exceeding the principal spillway i.e. the emergency spillway engaged
- ❖ Record drawings at permit termination



BMP Maintenance Program

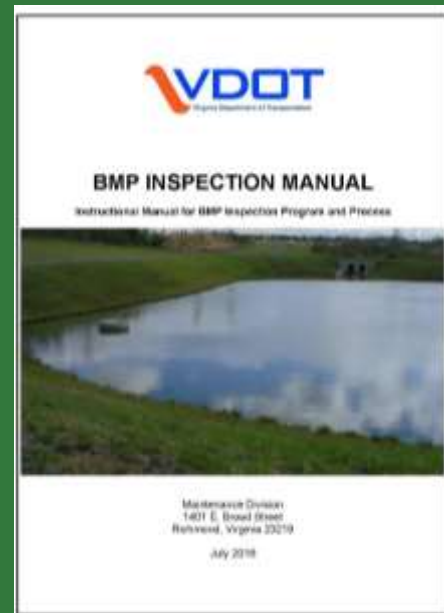
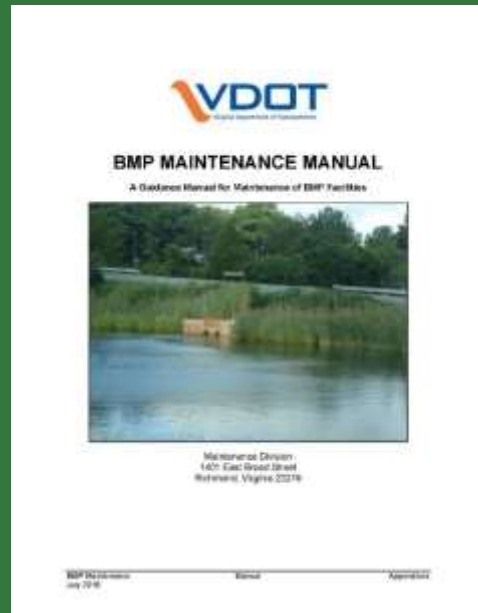
BMP Access Database:

1. Inventory
2. Inspection
3. Operation & Maintenance
4. Reporting Features

The screenshot shows a web application interface for BMP inspections. At the top, there is a navigation bar with a 'Home' icon and the text 'Inspections'. Below this, there is a header section with a 'Go to SWMID:' dropdown menu, a 'BMP Inspection' title, and the ID '888999'. To the right, there is a 'Filtration' section with 'Inspection Date: 6/20/2016', 'Inspection type: Annual', and 'Inspector: KAC'. There are several buttons: 'Add Inspection', 'Delete Inspection', 'View Inspection Report', 'Switchboard', and 'View Inventory'. A 'Rating Help' button is also present. Below the header, there are tabs for 'Non-Basin', 'Maintenance', and 'Rating Help'. The main content area is divided into three columns: 'Vegetation', 'Sediment Deposition', and 'Structural Components'. Each column has a dropdown menu and several checkboxes for inspection criteria. For example, under 'Vegetation', there are checkboxes for 'Erosion at vegetation', 'Area not mowed', and 'Accessibility'. Under 'Sediment Deposition', there are checkboxes for 'Basin full of sediment', 'Sediment in chamber', and 'Sedimentation'. Under 'Structural Components', there are checkboxes for 'Structural deterioration', 'Damaged grates', and 'Cracks or settling'. The VDOT logo is visible in the bottom right corner of the interface.

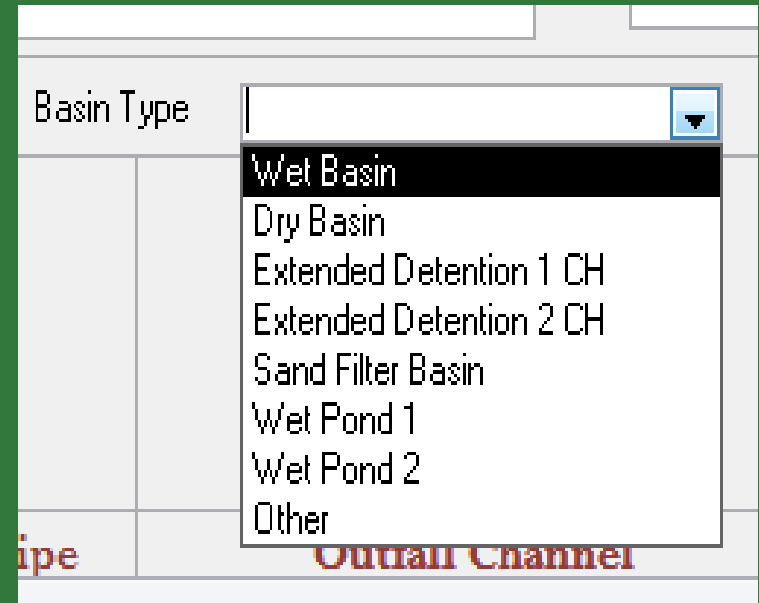
Database Revisions

- ❖ Preserve existing BMP classifications
- ❖ Add the new BMP types from the Virginia BMP Clearinghouse as referenced in regulation
- ❖ Clearinghouse BMP's have a "CH" at the end.
- ❖ Develop a BMP Inspection Manual.
- ❖ Develop a Maintenance Manual.



Facility Types

- ❖ 6 BMP Classifications:
 - Filtration
 - Infiltration
 - Basins
 - Manufactured
 - LID
 - Miscellaneous
- ❖ Total of 46 Facility Types



Heading Rankings

- ❖ Headings Ranked 1-5
 - Examples of ratings in Manual for each check box inspection item and associated rating.
- ❖ Heading Rankings Generate Overall Basin Ranking A – E
 - Logic Built into Database Code
 - Inspector can Upgrade Rating but not Downgrade

Dam Embankment	Rating:	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Dam is largely overgrown with non-woody vegetat		1	No problem
<input type="checkbox"/> Trees or woody vegetation growing on embankme		2	Minor
<input checked="" type="checkbox"/> Inadequate cover on dam slopes.		3	Moderate
<input checked="" type="checkbox"/> Erosion was noted on the dam.		4	Major
<input type="checkbox"/> Settlement was noted on the dam.		5	Failure

Bioretention Headings

- ❖ Accessibility
- ❖ Debris
- ❖ Sediment Traps, Forebays and Pretreatment Swales
- ❖ Vegetation
- ❖ Clogging
- ❖ Inlets, Outlets and Overflow Spillway
- ❖ Aggregates
- ❖ Sediment Deposition
- ❖ Overall Function of Facility



Varied BMP Impacts



Bioretention Headings

Inspection Heading and Rating Value	Overall Facility Rating				
	A	B	C	D	E
Accessibility	1-2	2-3	4-5	NA	NA
Debris	1-2	2-3	4-5	NA	NA
Sediment Traps, Forebays and Pretreatment Swales	1-2	2-3	4-5	NA	NA
Vegetation	1-2	2-3	4-5	NA	NA
Overall Function	1-2	2-3	4-5	NA	NA
Clogging	1	2	3	4	5
Inlets, Outlets or Overflow Spillways	1	2	3	4	5
Aggregates	1	2	3	4	5
Sediment Deposition	1	2	3	4	5

Overall Facility Rating

❖ Rating A

- Fully functional with no problem conditions.
- Preventative routine maintenance.
- No headings that affect functionality rate above a 1.

❖ Rating B

- Minor problems, but properly functioning.
- Routine maintenance is capable of repairs.
- Maintenance Work Plan: **12-26 weeks.**

❖ Rating C

- Moderate problems and minor changes in functionality with no impacts to water level or structures.
- Routine maintenance cannot fix all issues
- Maintenance Work Plan: **6-12 weeks.**

How would you rate this?



3e



Overall Facility Rating

❖ Rating D

- Major problems and moderate changes in
- Functionality.
- Water Level is raised and structural integrity compromised with signs of impending deterioration. Deficiencies require repair and restoration.
- Maintenance Work Plan: **2-6 weeks.**
Immediate mitigation measures to prevent further deterioration may be required.

How would you rate this?



3e



Overall Facility Rating

❖ Rating E

- Severe problems and not properly functioning, further deterioration and/or failure is imminent.
- Repairs and Restoration needed.
- Supervisor inspection required to verify work requirements and determine appropriate
- Maintenance work plan: **within 2 weeks.**
Immediate mitigation measures to prevent further deterioration may be required.

Overall Facility Rating



3e

Any Dam Questions?



Thank you.



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