

Meeting Minutes  
2023 Virginia Stormwater Management Handbook  
Stakeholder Advisory Group (SAG) Meeting #9  
Friday, March 17, 2023  
Location: DEQ Headquarters  
1111 East Main Street  
Richmond, VA 23219  
Start - 9:30 AM

Attendees:

- SAG Members
  - Chris French, Hydro International
  - Dale Chestnut, James Madison University
  - Darrell Marshall, Virginia Department of Agriculture and Consumer Services (VDACS)
  - Doug Moseley, GKY & Associates
  - Gavin Pellitteri, City of Alexandria
  - Hannah Zegler, Dominion
  - Jack Dawson, City of Charlottesville
  - James Taylor, Balzer & Associates
  - Jared Webb, American Electric Power
  - Jason Franti, TRC
  - Jerry Stonefield, Fairfax County
  - Joe Davis, Strata Clean Energy
  - John Burke, Montgomery County
  - Justin Doyle, James River Association
  - Kateri Simon, Luck Ecosystems
  - KC Filippino, Hampton Roads Planning District Commission (HRPDC)
  - Kevin Young, Virginia Tech
  - Liz Scheessele, Timmons Group
  - Matthew Huston, City of Harrisonburg
  - Mike Hogan, ACEC Virginia
  - Mike Huggins, City of Danville – alternate
  - Norm Goulet, NOVARC
  - Raj Bidari, Prince William County
  - Richard Jacobs, Culpeper SWCD
  - RV Wilder, Henrico County – alternate
  - Scott Jackson, Henrico County
  - Wil Orndorff, Virginia Department of Conservation and Recreation (DCR) — alternate
- Members of the Public
  - Adam While, S3
  - Joe Belmonte, Mid-Atlantic IECA
  - Joe Caterioc, RES
- DEQ Staff
  - Mike Rolband, DEQ Director

- Evan Branosky, Chief Stormwater Policy Advisor
- Meghan Mayfield, Division of Water Permitting Director
- Rebeccah Rochet, Division of Water Permitting Deputy Director
- Nelson Daniel, Policy Analyst
- Joseph Crook, Regulatory Analyst
- Arcadis / Contractor for Handbook Development
  - Fernando Pasquel
  - Mike Devuono
  - Shandor Szalay
  - Chris Solden

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- Welcome

- Mike Rolband welcomed members of the SAG and public to the meeting, thanked everyone for their efforts, and congratulated the entire group for keeping the development process on schedule.
  - Director Rolband asked SAG members to submit pictures of both good and bad erosion and sediment control and stormwater management structures / techniques/ facilities that ARCADIS can incorporate in the Handbook as examples. Additionally, DEQ is asking for sample CAD drawings for BMPs that could be included in the Handbook.
  - Director Rolband asked the SAG members to work with ARCADIS and other trade associations as we continue to incorporate multiple designs, drawings, and examples in the Handbook. This includes information about manufactured treatment devices.
  - Director Rolband talked about including more uniform standards and specifications in the Handbook that state agencies, federal entities, and linear utilities could follow – instead of each entity submitting its individual standards and specifications to DEQ annually for review and approval. He asked holders of standards and specifications to submit recommendations for what more universally applicable / uniform standards and specifications should include. He also invited holders of standards and specs to provide information about BMPs that they are using that are not already included in DEQ’s current manuals. Because local governments will need an opportunity to review proposed uniform standards and specifications, this is a time-sensitive issue.
- SAG members asked about challenges with linear development – saying that the existing guidance focuses on large developments and is problematic when applying the guidance to smaller linear projects. Director Rolband suggested many of the issues encountered stem from design details that are incompatible with current building techniques and oftentimes are incapable of being built. He suggested that members review these updates to the handbook with commonsense in mind, and make these suggested improvements where they make the most sense.
- SAG members also asked about the Virginia Runoff Reduction Method. Director Rolband explained that DEQ is collaborating with Virginia Tech to update parts of the model make calculations using data that is more representative of current practices and

conditions, particularly with respect to phosphorus. DEQ needs to get information and feedback from EPA before it can complete revisions to the VRRM.

- Recap of SAG meeting #8
  - Evan Branosky provided a description of the feedback received from the sub-committees thus far. He advised SAG members the minutes and presentations from the last two SAG meetings (#7 and #8) have been posted on the Virginia Regulatory Town Hall website (<https://www.townhall.virginia.gov/>). Additionally, he noted that interest in the SAG continues to grow as others have contacted DEQ about the possibility of joining the advisory group.
  - Outreach has been happening – Evan and Arcadis staff presented recently at the Virginia Lakes and Watershed Association Annual Conference (Mar 6); and will be presenting at Environment Virginia at the beginning of April.
- Agenda
  - Fernando Pasquel of ARCADIS, provided an update and overview of the agenda. Mr. Pasquel asked the SAG members to consider providing additional details or specifications for the Handbook. Currently, 48 construction BMP specifications are under review and 17 post-construction SW BMP specifications are under review. Mr. Pasquel concluded by providing an overview of the chapters and outline.
- Chapter Rollout
  - Shandor Szalay of ARCADIS provided SAG members an overview of the Chapter rollout schedule, highlighting chapters that will be considered during this meeting and at the next meeting. He provided similar updates and information about the appendices to the Handbook.
    - In April, Arcadis will be working on chapters 1, 9, 10. Work on chapter 3 is on hold pending action on the Consolidated Regulation and bills that passed the 2023 session of the General Assembly. Several are before the Governor for signature.
    - SAG members expressed concern about engaging the public, saying that they did not think chapter 6 adequately addressed karst concerns. Arcadis noted that a task for May will be to consider the appendix that is focused on karst terrain.
    - SAG members raised concern about hotspot data and suggested that federal requirements would need to be incorporated. ARCADIS staff asked the SAG member to send them a link to the relevant federal regulations/requirements.
- BMP Schedule
  - Mike DeVuono of ARCADIS provided SAG members with an overview of the BMP schedule and construction BMP rollout. 28 construction BMP specifications are ready for the second draft review; depending on what DEQ and Arcadis receive from standard and specification holders and Arcadis' review of materials, they expect to provide additional specifications for as many as 60 BMPs.
- Proprietary BMP Specifications
  - Fernando Pasquel reviewed the schedule for drafting and reviewing stormwater (post-construction) BMPs and manufactured treatment devices (MTDs). SAG members expressed concerns about the distinction between the definitions of proprietary and

nonproprietary BMPs and requirements for MTDs / MTD approval. DEQ and Arcadis staff are working to address these concerns.

- DEQ and Arcadis are preparing a letter for MTD companies to ask them to provide specifications for their devices – in a standardized format – to be included in the Handbook. Additional information about each MTD, including data and records DEQ used to approve the MTD, will continue to be available through the BMP Clearinghouse.
- Public Comment, Conclusion
  - SAG members and any member of the public were invited to provide comments. No one offered comments.
  - Evan thanked everyone for attending the meeting and advised SAG members that following the break, SAG members should break up into groups based on the material they had reviewed to provide feedback on the draft Handbook content to ARCADIS staff. The meeting concluded at approximately 10:45 am. Breakout sessions began after the 15 minute break.
  - The presentation DEQ and Arcadis used for the meeting follows the minutes.



# **2023 Virginia Stormwater Handbook**

## **Stakeholder Advisory Group**

### **Meeting #9 (March 17, 2023)**

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# Agenda

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- **Welcome & 8<sup>th</sup> Meeting Recap**

- ✓ FOIA Information
- ✓ 8<sup>th</sup> Meeting Content and Outcomes
- ✓ General Update

Evan Branosky, DEQ

- **Handbook Development Tasks**

- ✓ Detailed Chapter Outlines - Summary
- ✓ Planned Work and Production Schedule
  - Review Updated Schedule
  - Discussion/Feedback
- ✓ Content Update – Plans
  - Annual Standards & Specifications
  - MTDs
- ✓ Outreach Plan Update
- ✓ SAG Subcommittees

Arcadis Team

*Break*

# Agenda

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- **Subcommittee Brainstorm: Handbook Content**

- ✓ Subcommittee Discussions
- ✓ Report Out

- **Outline, Chapters & Handbook Planning, Production, and Outreach**

**Subcommittee:** Review draft chapter detailed outlines and content sent to SAG members. Provide feedback and identify SAG members that can contribute content.

- **E&S Controls Group** – Members of the E&S and SWM BMPs Subcommittee that specialize on E&S controls are requested to participate in this work group to review the E&S specifications and provide feedback. Identify SAG members that can contribute content.

SAG  
Arcadis Team

- **SWM BMPs Group and Calculations Subcommittee** – Members of the Calculations Subcommittee and the E&S and SWM BMPs Subcommittee that specialize on SWM BMPs are requested to participate in this work group to review the stormwater BMP specifications and provide feedback. Identify SAG members that can contribute content.

*Lunch Break*

- **Subcommittee Brainstorm: Handbook Content (continued)**

All

- **Public Comment**

- **Wrap-Up**

Evan Branosky, DEQ

# Welcome & 8<sup>th</sup> Meeting Recap

## *FOIA Information*

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1. The SAG is a public body subject to the Freedom of Information Act (FOIA). As such, all business of the group must be conducted in a public forum that has been noticed in accordance with the Act and minutes must be prepared.
2. Emails may be considered as the conduct of business. Thus, individual members of the SAG should not use "reply to all" when receiving emails from DEQ. Also, any member of the SAG that wants to provide information to the group should send it to the DEQ Project Manager for distribution.
3. If more than two members of the SAG serve on a subcommittee, those subcommittees are also public bodies and thus subject to FOIA rules.



# Other Handbook Progress Update

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## Drafted and Circulated

- **Specifications**

- 48 Construction BMP Specifications
- 17 Post Construction SW BMP Specifications

- **Chapters**

- HB Outline
- 8 Detailed Outline for Chapters
- 18 Chapter Sections
- 4 Appendices

- **AS&S**

- BMPs from all AS&S entities are included

**Thank You!**

# Draft Handbook Outline V5 - Chapters

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- Chapter 1 – Introduction
- Chapter 2 – Why Erosion and Sediment Control and Stormwater Management Matter
- Chapter 3 – Laws and Regulations
- Chapter 4 – Regulatory Compliance Process
- Chapter 5 – Erosion and Sediment Control and Stormwater Management Requirements
- Chapter 6 – Site Design and BMP Selection
- **Chapter 7 – Design Specifications for Erosion and Sediment Control**
- **Chapter 8 – Design Specifications for Stormwater Management**
- Chapter 9 – BMP Construction
- Chapter 10 – BMP Inspection and Maintenance
- Appendices

# Stormwater Handbook Chapters Rollout

6 – Dec 2022

7 – Jan 2023

8 – Feb 2023

9 – Mar 2023

10 – Apr 2023

11 – May 2023

Chapter 5 Section 5.1	Chapter 1 Outline	Chapter 2 Outline	Chapter 2 Content	Chapter 1 Content	Chapter 3 Content
Chapter 6 Outline	Chapter 4 Section 4.1	Chapter 4 Section 4.2.3 Section 4.2.4 Section 4.2.5	Chapter 6 Section 6.3.1, 6.3.2 6.3.4	Chapter 3 Outline	Chapter 9 Content
	Chapter 4 Section 4.2.1 Section 4.2.2 Section 4.2.3	Chapter 5 Section 5.3	Chapter 10 Outline	Chapter 9 Outline	Chapter 6 Karst Appendix
	Chapter 5 Section 5.2	Chapter 6 Section 6.3.3		Chapter 10 Content	
	Chapter 6 Section 6.1, 6.2				

# Stormwater Handbook Appendices Rollout

7 – Jan 2023

8 – Feb 2023

9 – Mar 2023

10 – Apr 2023

11 – May 2023

12 – June 2023

**Hydrologic and Hydraulic Methods and Computations**  
Outline

**VRRM Guidance/Link**  
Outline

**Hydrologic and Hydraulic Methods and Computations**  
Pt 1 Content

**Example Site Plans**  
Outline

**Soil and Geotech**  
Outline

**VRRM Guidance/Link**  
Content

**BMP Design, Construction & Maintenance**  
Outline

**Standard Worksheets for E&S Controls**  
Outline

**CADD Standard Details (ESC and BMPs)**  
Outline

**Hydrologic and Hydraulic Methods and Computations**  
Pt 2 Content

**Example Site Plans**  
Pt 1 Content

**Soil and Geotech**  
Pt 1 Content

**“Hot Spot” Procedures**  
Outline

**Planting List**  
Outline

**BMP Design, Construction & Maintenance**  
Outline

**Standard Worksheets for E&S Controls**  
Pt 1 Content

**Example Site Plans**  
Pt 2 Content

**Soil and Geotech**  
Pt 2 Content

**“Hot Spot” Procedures**  
Content

**Planting List**  
Content

**Future of Stormwater**  
Outline

**Standard Worksheets for E&S Controls**  
Pt 2 Content

**BMP Design, Construction & Maintenance**  
Content

**CADD Standard Details (ESC and BMPs)**  
Content

**VRRM Guidance/Link**  
Content

**Future of Stormwater**  
Content

# Construction BMP Rollout

6 – Dec 14, 2022

7 – Jan 20, 2023

8 – Feb 17, 2023

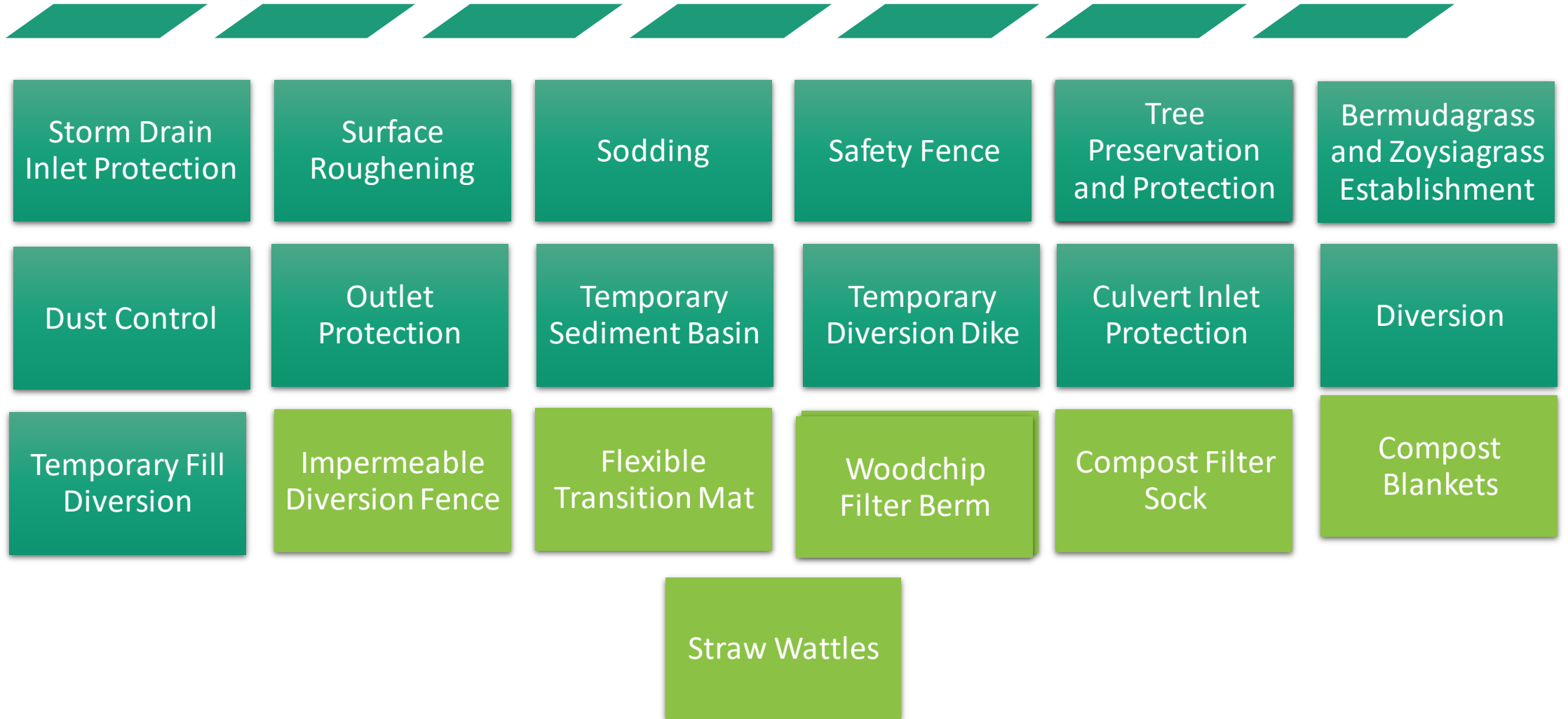
9 – March 17, 2023

10 – Apr 12, 2023

<p><b>“New” BMPs</b> Compost Sock Super Silt Fence</p>	3.21 – Level Spreader	3.05 – Silt Fence	3.27 – Turbidity Curtain	3.36 – Soil Stabilization & Matting
	3.34 – Bermudagrass and Zoysiagrass Est.	3.17 – Storm Conveyance Channel	3.25 – Utility Stream Crossing	3.37 – Trees, Shrubs, Vines, Groundcover
	3.14 – Temporary Sediment Basin	3.23 – Struct. Streambank Stabilization	3.28 – Subsurface Drain	3.04 – Straw Bale Barrier
	3.18 – Outlet Protection	3.22 – Veg. Streambank Stabilization	3.24 – Temporary Vehicular Stream Crossing	3.31 – Temporary Seeding
	3.07 – Storm Drain Inlet Protection	3.08 – Culvert Inlet Protection	3.26 – Dewatering Structure	3.32 – Permanent Seeding
	3.01 – Safety Fence	3.38 – Tree Preservation & Protection	3.20 – Rock Check Dams	3.16 – Paved Flume
	3.06 – Brush Barrier	3.09 – Temporary Diversion Dike	3.19 – Riprap	3.15 – Temp. Slope Drain
	3.33 – Sodding	3.11 – Temporary ROW Diversion	3.03 – Construction Road Stabilizations	3.35 – Mulching
3.30 – Topsoiling	3.39 – Dust Control	3.10 – Temporary Fill Diversion		
3.29 – Surface Roughening				
AS&S Release 1/4	AS&S Release 2/4	AS&S Release 3/4	AS&S Release 4/4	Graphics / Details

**SAG Schedule**

# Construction BMP Specifications Ready for Second Draft



# Construction BMPs Undergoing Edits

TOPSOILING

SODDING

TEMPORARY  
RIGHT-OF-WAY  
DIVERSION /  
WATERBAR

LEVEL SPREADER

SILT FENCE

CONSTRUCTION  
ROAD  
STABILIZATION

TEMPORARY  
SEDIMENT TRAP

STORMWATER  
CONVEYANCE  
CHANNEL

STRUCTURAL  
STREAMBANK  
STABILIZATION

VEGETATIVE  
STREAMBANK  
STABILIZATION

ROCK FILTER  
OUTLET

CONCRETE  
WASHOUT PIT



Construction BMPs Drafted for SAG 9

Temporary  
Vehicle Stream  
Crossing

Utility Stream  
Crossing

Turbidity Curtain

Riprap

Rock Check  
Dams

Temporary Stone  
Construction  
Entrance

Dewatering  
Structure

Subsurface Drain

Gabions /  
Gabion  
Deflectors

Pump-Around  
Bypass

Cofferdam  
Crossing

Overnight  
Channel  
Protection

Stable Wetland  
Crossing



## Upcoming Construction BMPs Drafted for SAG 10 (April)

Soil Stabilization Blankets and Matting	Trees, Shrubs, Vines, and Ground Cover	Straw Bale Barrier	Temporary Seeding	Permanent Seeding
Paved Flume	Temporary Slope Drain	Mulching	Trenchless Silt Fence (Wetland / Stream Application)	Wetland Berm
Wetland Weir Outlet	Wetland Cell Sediment Trap	Modified Turbidity Curtain for Streams	Seeding, Mulching, and Soil Stabilization (Wetlands / Streams)	Tree Preservation and Protection (Wetlands / Streams)

# Post-Construction Stormwater BMP Rollout

6 – Dec 14, 2022

7 – Jan 20, 2023

8 – Feb 17, 2023

9 – Mar 17, 2023

10 – Apr 12, 2023

3 – Grass Channels

11 – Wet Swales

5 – Vegetated Roof

1 – Rooftop Disconnection

4 – Soil Compost Amendment

15 – Extended Detention Pond

10 – Dry Swales

Support Component: Earthen Embankments

2 – Sheet Flow to Veg. Filter Strip/Conserved Open Space

14 – Wet Pond

Support Component: Principal Spillway

Support Component: Vegetated Emergency Spillway

12 – Filtering Practices

“New” BMPs - RSC

13 – Constructed Wetlands

Support Component: Sediment Forebay

Support Component: Pretreatment

“New” BMPs - Trees

6 – Rainwater Harvesting

8 – Infiltration Practices

7 – Permeable Pavement

Support Component: Quantity-Only Approach to BMPs \*

9 – Bioretention (Urban Retention) \*

## SAG Schedule

\* Possibly May Submission

# Post-Construction BMPs Ready for Second Draft

Vegetated  
Roof

Rooftop  
Disconnection

Wet Swales

Earthen  
Embankments

# Post-Construction BMPs Undergoing Edits

- Grass Channels
- Soil Compost Amendment
- ED Pond
- Dry Swales
- Sheet flow to Vegetated Filter Strip
- Principal Spillways
- Vegetated Emergency Spillways



Post-Construction BMPs Drafted for SAG 9

Regenerative Stormwater Conveyance (RSC)

Wet Pond

Constructed Wetlands

Pretreatment

# MTD/Proprietary BMP Spec Rollout

10 – April 2023

11 – May 2023

12 – June 2023

13 – July 2023

14 – Aug 2023

**Manufacturers to  
provide draft specs**

**Manufacturers to provide  
final specs, if needed**

16 – Hydrodynamic  
Devices

17 – Filtering Devices

18 – Biofilter  
Devices

# Content Update - Plans

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- **Annual Standards & Specs**

- ✓ Reviewed and incorporated available spec information
- ✓ Will include a template for future use
- ✓ DEQ planning to send a second request for specs/figures/CADD

- **MTDs**

- ✓ MTDs design links to be include in Chapter 8
- ✓ Conducted meeting with SWEMA on March 16
- ✓ DEQ will send letter to manufacturers requesting design specs in similar format as other Handbook BMPs

# Outreach and Engagement Plan

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- **Stakeholder groups to brief/engage**

- Groups to keep informed

- VAMSA – ongoing briefings at regular quarterly meetings
    - ASCE – coordinating Richmond meeting
    - SWEMA – meeting conducted March 16
    - ACEC – meeting planned for April 5
    - APWA Mid Atlantic Chapter – abstract submitted

- Workshops / presentations

- VWEA – Stormwater Committee; Spring Seminar April 20– focus on O&M
    - WaterJAM 2023 – abstract accepted
    - VA Environment – March 28
    - VA Lakes and Watershed Association Annual Conference – March 6

- Other Groups: VDOT; Planning Districts (HRPDC February); VA Cave Board (Karst); Chesapeake Stormwater Network; Environmental Groups

- **Suggestions and Feedback**



# SAG Subcommittees

*Review and Contribute Content*

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- **SAG Subcommittees**

- ✓ ESC & SWM BMPs (Standards & Specifications)
- ✓ Calculations (H&H, Water Quality)
- ✓ Outline, Chapters & Handbook Planning, Production, Outreach