Virginia Stormwater BMP Clearinghouse Committee Meeting

Virginia Department of Forestry (DOF) Building, Training Room
Charlottesville, VA
July 25, 2011

Meeting minutes by Jane Walker

Committee Members Present
Colleen Collins, Vanasse Hangen Brustlin, Inc. (VHB)
Joanna Curran, Department of Civil & Environmental Engineering, University of Virginia
John McCutcheon, Virginia Department of Conservation and Recreation (DCR)
Greg Johnson, Patton Harris Rust and Associates (PHR&A)
Chris Kuhn, Williamsburg Environmental Group (WEG)
Roy Mills, Virginia Department of Transportation (VDOT)
Craig Moore, Site and Infrastructure Development (SID), Virginia Tech
Scott Perry, Inbrium Systems
David Powers, Department of Civil and Environmental Engineering, Virginia Tech
David Sample, Biological Systems Engineering and Occoquan Watershed Monitoring Laboratory, Virginia Tech
James Talian, City of Lynchburg
Jenny Tribo, Hampton Roads Planning District Commission

Department of Conservation and Recreation (DCR) Staff Present
Jan Briedé
Scott Crafton

Virginia Water Resources Research Center (VWRRC) Staff Present
Jane Walker

Others Present
Jacob Dorman, City of Lynchburg, alternate for Jim Talian
Lauren Grimes, SID, Virginia Tech
Christine Horner, SID, Virginia Tech
Randy Hardman, Hanover County
Edward Kay, Filterra
John Olenik, VDOT, alternate for Roy Mills
Steve Rossi, Concrete Spec.
Brian Rustia, ADS/StormTech
Mark Williams, Luck Stone
Dan Wilson, Imbrium Systems, alternate for Scott Perry

Call to Order and Introductions
John McCutcheon of the DCR called the meeting to order and thanked everyone for coming. Each person introduced herself or himself.

Minutes from Meeting on April 18, 2011

No changes were suggested regarding the draft meeting minutes from the April 18, 2011 meeting. One member voiced support for the minutes including the suggestion not to list specific versions of the standards and specifications of approved BMPs on the Clearinghouse website but instead, specify a particular version plus any later approved versions. Once reviewed and approved by the director's office at DCR, the official minutes will be posted on the Virginia Regulatory Town Hall Website: http://townhall.virginia.gov/.

Stormwater Regulations Updates

Jan Briedé of DCR summarized the progress being made towards development of new stormwater regulations. Jan announced that the proposed stormwater regulations were adopted by the Soil and Water Conservation Board on May 24, 2011. The regulations are currently under executive review. They will likely be published in the *Virginia Register of Regulations* in August 2011.

Final adoption of the regulations is expected by October 5, 2011 to meet the deadline of establishing the regulations within 280 days after adoption of the Chesapeake Bay TMDL (total maximum daily load). Although the new regulations will become effective on or before October 2011, they will not be implemented until July 1, 2014. During the time prior to July 1, 2014, local governments are to establish their programs and ordinances for approval by the Virginia Soil and Water Conservation Board in preparation of implementing the new regulations. All localities within the Chesapeake Bay watershed as well as localities operating a Municipal Separate Storm Sewer System must administer a program under the new regulations. The non-Bay localities in Virginia may implement the new regulations, but they are not required to do so. However, if they choose not to, the Department will operate a program in that jurisdiction.

The DCR is in the process of pulling together a workgroup to develop model ordinances and is establishing a means by which the Board will review and approve local ordinances. Staff from DCR or possibly staff from a partnering organization, such as the Center for Watershed Protection, will provide training to local governments on the new regulations.

By October 5, 2011, DCR also plans to finalize the second edition of the *Virginia Stormwater Management Handbook*, called the "Blue Book." The handbook provides guidance for stormwater BMP design and efficiency. This publication will be available online only.

DCR is considering having all information that pertains to the Chesapeake Bay Act, Erosion and Sediment Control Act, and the Virginia Stormwater Management Act on one website to make for a "one-stop shop" for information.

In response to a question by a committee member, Jan Briedé stated that the new stormwater regulations will require that phosphorus loads at new development sites not exceed 0.41 pounds per acre per year.

DCR Updates

John McCutcheon announced that the DCR Division of Stormwater has a new Division Director, Reese Peck. Reese comes to DCR with experience working in a state agency, Department of

Housing and Community Development, and has worked with watershed protection in upstate New York. DCR is also looking to fill a manager's position. This individual would report directly to Reese Peck and would manage issues related to stormwater regulations. John McCutcheon's and Doug Fritz's positions would report to the person in this new position. In addition, DCR is also looking to hire an individual to provide management to the regional operations.

Status of DCR Review of the *Virginia Technology Assessment Protocol* (VTAP)

John McCutcheon explained that the VTAP was finalized by the Clearinghouse Committee at the previous meeting. Jane Walker, with the VWRRC, developed a summary of the changes made to the VTAP following the April 18, 2011 meeting (Appendix A). This summary was provided to the Clearinghouse Committee members prior to the meeting.

One member proposed that within the document, the term "installation" be defined. He thought some might interpret installation as a project (or a site) instead of as a single unit (device) or BMP. John McCutcheon offered to make this change in the VTAP.

Another member asked if DCR has made any changes to the VTAP with regard to the fees to be assessed for review of submittals. He added that much discussion at previous meetings focused on this topic. John McCutcheon explained that the VTAP still has "place-holder" dollar figures for assessment fees that have not changed since the last meeting. John added that local manufacturers have voiced concern that the fees would be too high for them to participate in the process. DCR continues to examine the costs of the program to get a better handle on what the fee costs will be.

The final version of the VTAP and the written comments received in 2011 about the VTAP are currently being reviewed by the director's office at DCR and new management within the Stormwater Division.

John McCutcheon also explained that Lee Hill reviewed the highpoints of the VTAP with DCR's director, David Johnson. Thus Director Johnson has been kept apprised of the progress of the VTAP and is familiar with it so that review by the director should be a relatively short process. John suggested that the VTAP Development Subcommittee reconvene after receiving comments from David Johnson to finalize the VTAP. John projected that a finalized version of the VTAP will be approved prior to the next Clearinghouse Committee meeting set for October 24, 2011.

Registry of BMPs in Virginia

Jane Walker distributed a handout for use in discussing the purpose and proposed questions to include in a registry of stormwater manufactured treatment devices (MTDs) to be posted on the Clearinghouse (Appendix B). The representatives of manufacturers in the room indicated that they intend to participate in the registry.

There was general consensus for an open-ended time limit on how long the registry will remain active. After much discussion, it was suggested to alter the wording in the introductory paragraph to read: The registry will exist on the Virginia Stormwater Best Management Practice (BMP) Clearinghouse website (www.vwrrc.vt.edu/swc) during the time period prior to BMPs

being approved through the Virginia Technology Assessment Protocol (VTAP) process. Once MTDs are able to be assessed through the VTAP process, only certified MTDs will be listed on the Virginia Stormwater BMP Clearinghouse website.

As an alternative, it was suggested that instead of limiting the time that the entire registry remain active on the website, time for each individual MTD to remain on the registry could be limited. It was suggested that new MTDs could be listed on the registry page of the Clearinghouse website for a period of two years. At the end of that time, the MTD would be removed. Another member suggested that upon approval by the Clearinghouse Committee, the two-year period for remaining on the registry could be extended.

One member stated that he thought the disclaimer needs to be stronger. It was suggested to have someone with a legal background review the statement or use the same statement used in other DCR documents.

Question 1 – Both comments were approved without discussion.

Question 2 – The committee decided to remove all of the sub-categories.

Question 4 – It was decided to keep the requested information at a minimum for this section. Users would need to contact the manufacturer or vendor for more information.

For the volume-based MTDs, it was suggested to specify a range of size limitations among the different units available (smallest and largest, e.g., pipe diameter). Others thought it better to keep the registry questions simple to avoid interpretation issues. It was further suggested to change the term "water quality volume" (WQV) to "treatment volume" since WQV will go away in Virginia's regulations in 2014. Someone else suggested using the word "runoff" to avoid specific terms with specific definitions. This question becomes:
"Volume based (captures and treats part or all of the runoff volume)"

For the section about MTDs based on flow rate, delete the subcategories. Some manufacturers may have 20 different models and various configurations. It was suggested to include the range of maximum treated flow rates (model that treats the smallest flow to the model that treats the largest flow). It was strongly recommended by one member to specify how the flow rate was established, e.g., specify the surface loading rate used for settling devices or the flux rate through the medium. Include the description of design features used to prevent resuspension of captured particles/pollutants.

"Specify how the maximum treatment flow rate was determined, e.g., particle size distribution used; scaling principles used; surface loading rate or flux rate; etc. (Specify the corresponding model number if different testing methods were used for different models):

Provide documentation for the treated flow:

Specify design features to prevent resuspension of captured particles/pollutants:"

Question 5 – Allen Davis' suggestions were accepted. Rishi Baral's comment was addressed earlier when the committee specified that localities would need to contact the manufacturer or vendor to obtain more detailed information.

Question 6 – The committee decided to specify "particles larger than 63 microns"

Question 8 – Add "or verification" to the question: "Independent Performance Certification or Verification." It was suggested that the questionnaire may need to be updated as approval processes change, e.g., New Jersey. The changes proposed by Scott Perry and Joe Battiata were accepted. A representative of a manufacturer requested that certifications from other TARP states be included; it was suggested to remove "NJ only" by "TARP" (replaced with "list state(s)"). Also, under TAPE, remove "approval" and "performance certified." The PLD, CUD, and GULD designations would become main headings under TAPE.

Question 9 – The suggestion by David Powers was accepted. Change the question instructions to: "To be completed by the company president or responsible officer of the organization." It was suggested to have the document reviewed by someone with a legal background. Staff from DCR offered that similar wording could be used in this document as is used in the certification in the construction permit (except remove references to locality officials).

Finalize Subcommittee Formation: "References and Tools" Webpage

Jane Walker stated that several individuals have already offered to serve on the References and Tools Webpage Development Subcommittee: Colleen Collins, Greg Johnson, Chris Kuhn, David Powers, and Dan Wilson. Jan Briedé and John McCutcheon will also serve on the subcommittee. The goal of the subcommittee is to identify what information is needed and available and to provide links to the websites with this information.

Several useful web links were suggested including those of EPA, New Jersey, West Virginia, and Virginia Tech. A link to some of the databases available was suggested, e.g., the International BMP Database. Other sites suggested included links to the Center for Watershed Protection and the American Society of Civil Engineers (ASCE). Someone recommended linking to journal websites instead of linking to specific journal articles and suggest search terms to use. Members suggested also linking to the webpages of individuals who are conducting stormwater research. Some Clearinghouse Committee members offered to send their ideas to Jane Walker via email for inclusion in the discussions by the subcommittee members.

John McCutcheon asked if a separate "Frequently Asked Questions" (FAQ) webpage is needed on the BMP clearinghouse website. He wondered if it could be incorporated into the References and Tools webpage. Scott Crafton commented that he sees a need for a FAQ page because he has received a file full of questions that people have asked about the non-proprietary BMPs as he has been working on the handbook. He further added that people need to have a place where they can ask questions so that DCR can know what information people have in reference to the standards and specifications. John McCutcheon concluded that we maintain a separate FAQ webpage.

General Comments

A member of the Clearinghouse Committee asked what is expected to be accomplished by the next meeting. John McCutcheon offered that the director may recommend changes to the VTAP, which would need to be updated so that finalization of the VTAP is possible. A Committee member requested that by the October meeting, the vendors would like enough detail to start work on the process with confidence.

Steps towards posting the online questionnaire for the BMP registry are to take place in the coming months. In addition, the subcommittee will make progress in developing the "References and Tools" webpage.

As a next step, it was suggested that the Clearinghouse Committee update the VTAP to be applicable for assessing non-proprietary BMPs. Scott Crafton offered that he has several ideas and suggestions related to this topic.

David Sample stated that he and another Clearinghouse Committee member, Kevin Young, will be having a workshop in Washington D.C. on choosing BMPs in the light of uncertainty. The workshop will be July 26, 2011.

One member offered that the Clearinghouse Committee could work on issues related to nutrient trading in the coming months.

Next Meeting Dates

The next scheduled meetings of the Clearinghouse Committee include

October 24, 2011
January 23, 2012.

Meetings will begin at 10:00 a.m. and may continue until 3:00 p.m. The meeting location will be determined closer to the time of the meeting.

With no further business, the meeting was adjourned.

Appendix A

Summary of Changes to VTAP following April 18, 2011 Clearinghouse Committee Meeting

Acronyms and Abbreviations Used in this Document

Added: NJCAT – New Jersey Corporation for Advanced Technology

3 -- BMP Certification Designations

Table 3.1. Summary of the testing requirements for stormwater BMPs to receive Pilot Use Designation (PUD), Conditional Use Designation (CUD), and General Use Designation (GUD) in Virginia

Use-Level Designation	Minimum Testing Required to Receive Designation	Test Parameter Required to Receive TP Certification	Accepted Protocols
PUD	1 Full-scale Lab or Field	TP or TSS or SSC	Lab: NJCAT or other protocol accepted by DCR evaluator(s) Field: VTAP, NJ TARP, TAPE or other protocol accepted by DCR evaluator(s)
CUD	2 Field	TP or TSS or SSC (TSS or SSC accepted only until July 1, 2014)	VTAP, NJ TARP, TAPE or other protocol accepted by DCR evaluator(s)
GUD	2 Field	TP	VTAP

Updated the minimum number of testing required throughout the VTAP document.

3.1 -- Pilot Use Designation (PUD)

The **Pilot Use Designation** (**PUD**) allows limited use of stormwater BMPs for the purpose of collecting field performance data according to the VTAP when the performance data do not meet the standards of applying for **CUD** or **GUD**. ….To receive a **PUD**, laboratory testing needs to follow the NJCAT protocol or other laboratory protocol accepted by the DCR evaluators, and field testing needs to follow the VTAP, NJ TARP, TAPE or other established protocol accepted by the DCR evaluators….

…**PUD** certification allows for up to 20 installations in Virginia, after which the practice may not be installed in Virginia until monitoring has been completed, and the BMP has been approved. Once the proponent evaluates the data, the proponent has three options: (1) submit a technical evaluation report (TER); (2) conduct additional testing; or (3) cancel the certification request.

3.2 -- Conditional Use Designation (CUD)

…. To receive a **CUD**, field testing needs to follow the VTAP, NJ TARP, TAPE or other established protocol accepted by the DCR evaluators.

… Proponents of technologies not granted a **CUD** may request to have their BMP immediately considered at the **PUD** level (**PUD** review fees waived) or resubmit the application at a later date at the **CUD** level (and pay all associated **CUD** review fees).

…. **CUD** certification allows for up to 40 installations of the BMP in Virginia, after which the practice may not be installed in Virginia until monitoring has been completed, and the BMP has been approved. Once the proponent evaluates the data, the proponent has three options: (1) submit a technical evaluation report (TER); (2) conduct additional testing; or (3) cancel the certification request. At the completion of the test period, the test results from the field sites will be used to determine a TP removal credit.

Until July 1, 2014, applications that show a reliable 80% removal or greater of TSS or SSC using field data ~~or laboratory data (Benchmark Particle-Size Distribution Sil-Co-Sil 106)~~ will be granted a reciprocal TP credit of 25% removal at the **CUD** level until field testing is performed for TP removal and BMP specific results are obtained….

3.3 -- General Use Designation (GUD)

…. Proponents of technologies not granted a **GUD** may specify to have their BMP immediately considered either at the **PUD** or **CUD** level (**PUD** or **CUD** review fees waived, respectively) or resubmit the application at a later date at the **GUD** level (and pay all associated **GUD** review fees).

4.1 -- Overview of Virginia Technology Assessment Protocol

… Proponents of technologies not granted the use-level designation for which they applied may request to have their BMP immediately considered at a lower level if applicable (review fees waived) or resubmit an updated application at the initially submitted level at a later date (and pay all associated review fees).

4.2 -- Requesting a Use Designation

The following may be helpful guidance in selecting the most appropriate use designation level for which to apply:

- Proponents of BMPs with full-scale laboratory performance data …
- Proponents of BMPs with field performance data that
  (a) were collected from at least two field sites representing urban stormwater conditions in Virginia, and
  (b) conform to an established protocol such as NJ TARP, TAPE, or other protocol accepted by the DCR's evaluators

  should submit a **CUD** application. BMPs seeking **CUD** status for total phosphorus treatment should have performance data showing TP removal (Until July 1, 2014, proponents may submit performance data showing TSS/SSC removal as described above to receive a **CUD**).
- Proponents of BMPs with field performance data that
  (a) were collected from at least two field sites representing urban stormwater conditions in Virginia, and
  (b) conform to the VTAP

  should submit a **GUD** application. TP data are required to receive TP certification at the **GUD** level.

Proponents seeking a use-level designation by the DCR will need to submit an application and application fee (Table 4.1). ….

4.3 -- Assessment Timeline

The timeline below includes required deadlines in bold-type font. Failure to meet these deadlines may result in a suspension or cancellation of a designation. The remaining items provide guidelines for the amount of time expected for a given step in the process. The evaluators will review submittals as quickly as possible and will communicate with the proponent of the technology if delays or problems arise.

1. Submit application package, including the TER and appropriate fee (checks should be made to "Treasurer of Virginia").
2. Application is reviewed for completeness – Within 15 calendar days
3. If application is complete, application is reviewed by DCR's evaluators (contracted and/or internal staff) – Within 60 calendar days
4. If recommended by DCR's evaluators, interim TER is listed on the Clearinghouse for peer review – 30 calendar days
5. DCR's evaluators comment on peer reviews – 30 calendar days
6. DCR and Clearinghouse Committee review application and recommendations – The Clearinghouse Committee meets quarterly and will review applications in the order they were received. Depending on the number of applications and TERs to be reviewed, the submitted application will be assessed at the earliest possible Clearinghouse Committee meeting.
7. DCR makes final decision – Within 15 calendar days
8. Proponents of technologies not granted the use-level designation for which they applied may request to have their BMP immediately considered at a lower level if applicable (review fees waived) or resubmit an updated application at the initially submitted level at a later date (and pay all associated review fees). If approved by DCR, the BMP is listed on the Clearinghouse – Within 7 calendar days

For BMPS with approval at the **GUD** level, the process stops here. For BMPs with approval at the **PUD** or **CUD** levels, the process continues as described below:

9. Reporting time begins once granted the **PUD** or **CUD**. **Quarterly status reports are due to DCR for the preceding three-month period, specifically:**
   - **May 1st for the period January 1 – March 31;**
   - **August 1st for the period April 1 – June 30;**
   - **November 1st for the period July 1 – September 30; and**
   - **February 1st for the period October 1 – December 31**.

   Continue submitting progress reports until TER is submitted.
10. Submit QAPP that meets the VTAP's requirements
11. QAPP is reviewed by DCR's evaluators – Within 60 calendar days
12. QAPP reviewed by Clearinghouse Committee members and DCR. If QAPP is approved by DCR, monitor field installation.
13. Submit TER at the conclusion of testing and data analysis.
14. The TER is reviewed for completeness – Within 15 calendar days
15. If TER is complete, DCR's evaluators review the TER – Within 60 calendar days
16. If recommended by DCR's evaluators, interim TER is included on the Clearinghouse for peer review – 30 calendar days
17. DCR's evaluators review and respond to peer comments – 30 calendar days
18. Clearinghouse Committee and DCR review TER and recommendations – The Clearinghouse Committee meets quarterly and will review applications in the order they were received. Depending on the number of applications and TERs to be reviewed, the submitted TER will be assessed at the earliest possible Clearinghouse Committee meeting.
19. Once reviewed by the Clearinghouse Committee, the DCR issues a higher use-level designation, revokes the current use-level designation, or allows for continued testing at the present level – Within 15 calendar days

4.4 -- Approval of a Quality Assurance Project Plan (QAPP)

…Once approval is granted for a specific use-level designation (**PUD** or **CUD**), a quality assurance project plan (QAPP) *must be submitted to DCR and approved by DCR before* initiating performance testing. …

4.6 -- Granting a Use Designation

…Proponents of technologies not granted a **CUD** may request to have their BMP immediately considered at the **PUD** level (**PUD** review fees waived) or resubmit the application at a later date at the **CUD** level (and pay all associated **CUD** review fees). Likewise, proponents of technologies not granted a **GUD** may specify to have their BMP immediately considered either at the **PUD** or **CUD** level (**PUD** or **CUD** review fees waived, respectively) or resubmit the application at a later date at the **GUD** level (and pay all associated **GUD** review fees).

Appendix E -- Use Designation Application Form

7 Basis for Treatment (check all that apply and fill in blanks)

☐ **Volume-based** (captures & treats Water Quality Volume [WQV]) – Specify WQV: cubic feet
☐ **Flow rate-based** (provides treatment up to a set rate of flow) – Specify treatment flow rates and hydrologic methods used. Specify the flow rates that are treated and provide documentation:
- ☐ i. All flows up to the year, 24-hour storm event.
- ☐ ii. Peak flows associated with water quality storm event (inches of rainfall; cfs)
- ☐ iii. Other (specify):

If flow rate-based system, specify design features to prevent resuspension of captured particles/pollutants:
☐ **Other** (describe):

Appendix B

Virginia Stormwater Manufactured Treatment Device Registry

Disclaimer: The individual who certifies this document (Question 9) bears the sole responsibility for the presented information. The inclusion of trade names, commercial products, or services does not constitute an endorsement or recommendation by the Virginia Department of Conservation and Recreation, Virginia Water Resources Research Center, or the Virginia Stormwater BMP Clearinghouse Committee.

The purpose of this registry is to provide information about stormwater manufactured treatment devices (MTDs) installed in Virginia. The registry will be posted on the Virginia Stormwater Best Management Practice (BMP) Clearinghouse website (www.vwrrc.vt.edu/swc) until XXX XX, 201X, after which the registry will be removed and only certified MTDs will be listed. MTDs certified in Virginia are listed on the Virginia Stormwater BMP Clearinghouse website.

Comment [WJ1]: Battiata suggests indicating a time limit in the introduction or cover letter for how long the product will be listed in the registry without formal enrollment into the VTAP process.

1 Basic Technology Information

BMP Manufacturer
Company name:
Address – Street: City: State: Zip:

Contact Information
Name (to whom questions should be addressed):
Address – Street: City: State: Zip:
Phone number:
Fax number:
E-mail address:

BMP Technology
BMP common (marketing) name:
Specific size/capacity of BMP(include units):
Drainage area ranges served by BMP:
Media used (if applicable):

Comment [WJ2]: Davis Comment: Include units, gallons or CFS or what?

Comment [WJ3]: Baral suggestion

2 Treatment for which the Technology is Designed (check all that apply)

☐ Stormwater Runoff Volume Reduction
☐ Stormwater Runoff Peak Rate Control
- ☐ ~~Flood control~~
- ☐ ~~Channel protection~~

☐ Water Quality Treatment
- ☐ ~~Pre-treatment for downgradient BMP~~
- ☐ Primary Treatment

☐ Other:

Comment [jlw4]: Talian suggestion

Comment [jlw5]: Talian suggestion

Comment [jlw6]: Talian/Battiata suggestion

Comment [WJ7]: Perry suggests removing "for downgradient BMP" as it is understood to be downgradient.

Comment [WJ8]: Battiata suggests replacing pre-treatment with primary treatment. Assume he has no problems including "flood control and channel protection" listed above.

3 BMP History

How long has this specific model/design been on the market?

List all localities where one or more of the device is installed in Virginia.
Towns:
Cities:
Counties:

4 Basis for Treatment (check all that apply and fill in blanks)

☐ **Volume based** (captures & treats Water Quality Volume [WQV]) – ~~Specify WQV: cubic feet~~
☐ **Flow rate based** (provides treatment up to a set rate of flow) – ~~Specify treatment flow rates and hydrologic methods used.~~ Specify the maximum treatment flow rate for each model of this specific BMP:

Model Number: Maximum treated flow rate:
Model Number: Maximum treated flow rate:
Model Number: Maximum treated flow rate:
Model Number: Maximum treated flow rate:
Model Number: Maximum treated flow rate:
Model Number: Maximum treated flow rate:
Model Number: Maximum treated flow rate:
Model Number: Maximum treated flow rate:
Additional models: Maximum treated flow rates for each additional model:

Specify how the maximum treatment flow rate was determined, e.g., particle size distribution used, scaling principles used, etc. (Specify the corresponding model number if different testing methods were used for different models):

Provide documentation for the treated flow rate(s) listed above:

☐ ~~i. All flows up to the year, 24-hour storm event.~~
☐ ~~ii. Peak flows associated with water quality storm event (inches of rainfall; cfs)~~
☐ ~~iii. Other (specify):~~

~~If flow rate-based system, s~~Specify design features to prevent resuspension of captured particles/pollutants:

☐ **Other** (describe):

5 Water Quality Treatment Mechanisms (check all that apply and provide brief description. Include pollutant of interest.)

☐ Sedimentation/settling:
☐ Infiltration:
☐ Filtration (specify filter media):
☐ Adsorption/cation exchange:
☐ Chelation/precipitation:
☐ Chemical treatment:
☐ Biological transformation ~~uptake~~:
☐ Other (describe):

6 Design Features of Interest (answer each of the following questions.)

Pre-treatment/removal of larger particles achieved via which of the following?
☐ No pre-treatment
☐ Internal settling/sedimentation chamber
☐ Upgradient (separate) settling/sedimentation device
☐ Other (describe):

By-pass/diversion of larger flows (not designed for treatment) via which of the following?
☐ No by-pass/diversion
☐ Internal by-pass verified to prevent re-suspension captured particles/pollutants during larger flows
☐ Upgradient flow splitter used to divert water quality storm to device
☐ Other (describe):

Comment [WJ9]: Perry Comment: Most likely to be site and design specific, and this information would offer little relevance for a general registry. Suggest making this just a box to check

Comment [WJ10]: Perry Comment: Most likely to be site and design specific, and this information would offer little relevance for a general registry. Suggest making this just a box to check.

Comment [WJ11]: Battiata suggests allowing for multiple model numbers and corresponding peak rates.

Comment [WJ12]: Battiata suggests specifying how the maximum treatment flow was determined (particle size distribution used and/or scaling principles to verify adequate performance at increasing flow rates).

Comment [jlw13]: Talian

Comment [WJ14]: Baral comment:
If processes such as cation exchange, chelation and chemical treatment are a part of quality control for stormwater runoff, it warrants more detailed discussion.

Comment [WJ15]: Davis Comment: Add "Include pollutant of interest."

Comment [WJ16]: Davis suggestion.

Comment [WJ17]: Perry Comment: Definition of larger particles is needed, as this can be interpreted many ways, by many different people. Is this 50-microns (very fine sands), 100-microns (sand) or 2,000 microns (gravel) particles?

7 Maintenance Considerations (check all that apply and briefly explain maintenance procedures/standards)

What is the generic inspection and maintenance plan/procedure? (attach necessary documents):

What is the expected maintenance frequency, per year?

i. Total life expectancy of BMP:

ii. For media or amendments functioning based on cation exchange or adsorption, how long will the media last before breakthrough (indicator capacity is nearly reached) occurs?

iii. For media or amendments functioning based on cation exchange or adsorption, how has the longevity of the media or amendments been quantified prior to breakthrough (attach necessary performance data or documents)?

Is there a maintenance track record/history that can be documented?

☐ No, no track record.

☐ Yes, track record exists; (provide maintenance track record info):

Maintenance contract and associated costs offered by:

☐ Vendor – Provide current costs:

☐ Other commercial entities – Provide range of current costs:

Is the maintenance procedure and/or are materials/components proprietary?

☐ Yes, proprietary;

- ☐ BMP lends itself to competitive bidding for maintenance
- ☐ Recourse / options exist if the vendor goes out of business

☐ No, not proprietary;

Are local certified contractors available?

- ☐ Yes; provide a list of companies and cities where located.
- ☐ No; local contractors are not available

Does the BMP lend itself to competitive bidding for maintenance?

- ☐ Yes; provide a list of local, certified, maintenance companies and cities where located.
- ☐ No; local competitive bidding not possible because only one maintenance company certified locally.

Maintenance complexity (Check all that apply):

☐ Confined space training required for maintenance

☐ Liquid pumping and transportation

Specify method:

Specify certified disposal locations:

☐ Solids removal and disposal

Specify method:

Specify certified disposal locations:

Other noteworthy maintenance parameter (describe):

8 Independent Performance Certification (check all that apply)

Has the BMP been "certified or performance verified" by any of the organizations below?

- ☐ **No** (skip to next question)
- ☐ **Yes**; Continue below and include date of certification.
  - ☐ **State Agency** (list):
    - ☐ Approved (date awarded:)
    - ☐ Performance certified (date certified:)
    - ☐ Status pending
    - ☐ Other (explain):
  - ☐ **TARP** (NJ only)
    - ☐ Lab Tested (date approval awarded:)
      - Particle Size Tested:
        - ☐ OK-110 PSD (50 to 250 microns) sands only
        - ☐ NJDEP PSD, (1 to 1,000 microns) silts and sands
        - ☐ Other PSD or test methodology (explain and provide details)
        - ☐ Approved for In-Line use (Scour Prevention)
        - ☐ Approved for Off-Line use only
    - ☐ Field Tested (date approval awarded:)
    - ☐ Performance Verified via NJCAT (date verified:)
    - ☐ Other (explain):
  - ~~☐ **TARP** (NJ only)~~
    - ~~☐ Approved:~~
      - ~~☐ Tier I (date awarded:)~~
      - ~~☐ Tier II (date awarded:)~~
    - ~~☐ Performance verifiedvia NJCAT:~~
    - ~~☐ Other (explain):~~
  - ☐ **TAPE** (WA State only)
    - ☐ Approved:
      - ☐ PLD - Pilot Level Designation (date awarded:)
      - ☐ CUD - Conditional Use Designation (date awarded:)
      - ☐ GULD - General Use Level Designation (date awarded:)
    - ☐ Performance Certified (date certified:)
    - ☐ Status pending
    - ☐ Other (explain):
  - ☐ **Other** (provide documentation of testing protocol and status of BMP):

Provide link to the web page where the approval is provided or attach approval letter.

Comment [WJ18]: Perry Comment: Replace original with this. This is all changing significantly, and the wording here will be outdated.

Comment [WJ19]: Perry Comment: Is this needed? If you have one of the 3 below PLD, CUD or GULD, you have been approved. Suggest deleting Approved Box.

Comment [WJ20]: Battiata

9 Certification – To be completed by the company president or responsible party of the organization.

"I certify that all information submitted in this document is true and correct."

Legal Name:

Title/Position:

Phone Number (include area code):

Date:

Signature: _____

Comment [WJ21]: Powers suggestion to be completed by company president or responsible party of the organization.