

**TOWN OF CHRISTIANSBURG  
STORMWATER MANAGEMENT PROGRAM  
ANNUAL REPORT FOR 2011-2012  
NPDES PHASE II: SMALL MS-4 (MUNICIPAL SEPARATE STORM SEWER SYSTEM)  
VPDES PERMIT NO. VAR 040025**



27 September 2012

Prepared For:

**MR. DOUG FRITZ  
MS-4 PROGRAM MANAGER  
900 E Main Street  
8th Floor, Pocahontas Building  
Richmond Va, 23219-3558**

Prepared By:

**TOWN OF CHRISTIANSBURG  
ENGINEERING DEPARTMENT  
100 East Main Street  
Christiansburg, Virginia 24073  
(540) 382-6120  
(540) 381-7238 FAX**

## Table of Contents

Minimum Control Measure No. 1: Public Education and Outreach.....	3
Minimum Control Measure No. 2: Public Involvement and Participation.....	4
Minimum Control Measure No. 3: Illicit Discharge Detection and Elimination .....	5
Minimum Control Measure No. 4: Construction Site Runoff Control .....	6
Minimum Control Measure No. 5: Post Construction Storm Water Management.....	6
Minimum Control Measure No. 6: Good Housekeeping.....	7
Authorized Program Signature .....	11

## Appendices

Stormwater Mailer, BMP 1.2.....	Appendix A
Aquatic Center Bioretention East Photos, BMP 1.3 .....	Appendix B
Aquatic Center Bioretention West Photos, BMP 1.3.....	Appendix C
TMDL Meeting Sign-in Sheet and Photos, BMP 2.1 .....	Appendix D
TMDL Meeting Newspaper Article, BMP 2.1 .....	Appendix E
Stormwater Quality Design / E-Permitting Meeting, BMP 2.2 .....	Appendix F
MS4 Outfall Inspections, BMP 3.2.....	Appendix G
Disturbed Acreage Reports, BMP 4.1.....	Appendix H
Stormwater BMP Inspections, BMP 5.2.....	Appendix I
Street Sweeper Log, BMP 6.2.....	Appendix J
Employee SWPP Training Sign In Sheets, BMP 6.4.....	Appendix K
Public Works Facility Stormwater Inspection Memo, BMP 6.4 .....	Appendix L
MS4 Program Review using EPA Guide, BMP 6.6 .....	Appendix M
Annual Characterization, BMP 6.8.....	Appendix N

**The following is a summary of the Six Minimum Control Measures that the Town of Christiansburg has implemented in accordance with the Town's MS-4 Program Plan. This report covers the period July 1, 2011 – June 30, 2012.**

**Minimum Control Measure No. 1: Public Education and Outreach**

**A. BMP 1.1 : Stormwater Webpage**

Annual Goals for Reporting Year: Evaluate the stormwater webpages for content and design. Update as needed.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. The webpages have been evaluated for content and design and have been deemed sufficient. The webpage is viewable at: <http://www.christiansburg.org/index.aspx?nid=148>.

Next Year's Annual Goals: Evaluate the stormwater webpages for content and design. Update as needed.

**B. BMP 1.2 : Educational Mailers**

Annual Goals for Reporting Year: Create new mailer, or update a previous mailer. Send to all addresses in Christiansburg. Record any feedback and file.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. A copy of the 2011-2012 mailer is included as Appendix A. No feedback was received during the reporting period.

Next Year's Annual Goals: Create new mailer, or update a previous mailer. Send to all addresses in Christiansburg. Record any feedback and file.

**C. BMP 1.3 : Model Stormwater System**

Annual Goals for Reporting Year: Retrofit infiltration basin to bio-retention filter. Install informational sign once reconstruction is complete Maintain BMPs and signs.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. The retrofit bioretention filter (Bioretention East) was installed along with an informational sign. The existing bioretention filter (Bioretention West) was maintained as needed. Photos of the Bioretention East and the information sign are included as Appendix B and photos of the Bioretention West and its informational sign are included as Appendix C.

Next Year's Annual Goals: Maintain BMPs and signs

**D. BMP 1.4 : Storm Drain Labeling**

Annual Goals for Reporting Year: Place or paint message on 100 inlet structures. Update GIS database to reflect inlets' status as 'marked'.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. The Town installed 100 storm drain markers during the reporting year. Also, the GIS database has been updated.

Next Year's Annual Goals: Place or paint message on 100 inlet structures. Update GIS database to reflect inlets' status as 'marked'.

**Minimum Control Measure No. 2: Public Involvement / Participation**

**A. BMP 2.1 : TMDL Sessions**

Annual Goals for Reporting Year: Hold at least one TMDL session. Record discussion topics and file.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. On June 29, 2011 a TMDL Meeting was held at the Christiansburg Aquatic Center from 1:00-3:00 PM. The meeting was an opportunity for Town Staff to engage in dialog with citizens on the TMDL's for streams located in the Town's corporate limits. Pictures of the meeting displays, a copy of the sign-in sheet, and meeting advertisement from the website are included as Appendix D. Included as Appendix E is a copy of the newspaper article based on the meeting information.

Next Year's Annual Goals: Hold at least one TMDL session. Record discussion topics and file.

**B. BMP 2.2 : Developer / Engineer Stormwater Quality Treatment Design and Construction Information Session**

Annual Goals for Reporting Year: Hold at least one Stormwater Quality Treatment Design session. Record discussion topics and file.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. The Town held a meeting with the local development community on the new E-Permitting system, which will be implemented in the coming years for issuance of VSMP Construction General Permit coverage. Gerry Seely with DCR provided a presentation on the new system and answered questions about its applicability and features. Included as Appendix F is a copy of the sign-in sheet and a photo of the session.

Next Year's Annual Goals: Hold at least one Stormwater Quality Treatment Design Session. Record discussion topics and file.

**C. BMP 2.3 : Provide MS4 Annual Report to Town Council**

Annual Goals for Reporting Year: Provide MS4 Annual Report to Town Council and general public once the report has been completed.

Measurable Goals Achieved for Reporting Year: The measurable goals for this BMP were met; the report was provided to Town Council but there was no discussion. Also, the Annual Report was posted on the Town's webpage as a PDF file for anyone to download.

Next Year's Annual Goals: Provide MS4 Annual Report to Town Council and general public once the report has been completed. Document any resulting discussion and file.

**Minimum Control Measure No. 3: Illicit Discharge Detection and Elimination**

**A. BMP 3.1: Storm Sewer System Mapping**

Annual Goals for Reporting Year: Maintain GIS database, and update the database whenever new facilities are accepted as Town infrastructure.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. The Town's GIS database was maintained and updated throughout the course of the year. As new infrastructure was installed and accepted by the Town, it was added to the GIS database.

Next Year's Annual Goals: Maintain GIS database, and update the database whenever new facilities are accepted as Town infrastructure.

**B. BMP 3.2 : Illicit Discharge Detection and Elimination Plan**

Annual Goals for Reporting Year: Complete written IDDE Plan (the plan and procedures had been developed and implemented, but not fully documented). Continue to operate within the IDDE Plan. Inspect at least 50% of the Town's MS4 outfalls. Create and maintain records of any illicit discharge events.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were partially met. The written IDDE plan was not completed during the reporting year. The Town inspected 100% of the known MS4 outfalls, and those inspections are included as Appendix G. Illicit discharge records were created and maintained as needed.

Next Year's Annual Goals: Complete written IDDE plan and continue to operate within the IDDE Plan. Inspect at least 50% of the Town's known MS4 outfalls. Create and maintain records of any illicit discharge events.

**C. BMP 3.3 : Inflow and Infiltration Reduction Program**

Annual Goals for Reporting Year: Continue to develop and execute the I & I Reduction Program. This will include sanitary sewer manhole inspections, sanitary sewer pipeline inspections, and flow monitoring.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. The Town continued to execute the I & I Reduction Program, and performed sanitary sewer manhole and line inspections and flow monitoring. The Town also replaced 37 manhole frame and covers that were contributing excessive I & I.

Next Year's Annual Goals: Continue to develop and execute the I & I Reduction Program. This will include sanitary sewer manhole inspections, sanitary sewer pipeline inspections, and flow monitoring.

**Minimum Control Measure No. 4: Construction Site Stormwater Runoff Control**

**A. BMP 4.1 : Construction Site Runoff Control Plan**

Annual Goals for Reporting Year: Continue administering ESC Program and reporting disturbed acreage to DCR monthly. Require VSMP permit coverage be acquired prior to issuance of a land disturbing permit.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. The ESC Program continued to operate, the disturbed acreage was reported to DCR on a monthly basis, and the Town required applicable projects to acquire VSMP permit coverage prior to the issuance of a land disturbing permit. Included as Appendix H are the disturbed acreage reports that have been submitted to DCR.

Next Year's Annual Goals: Continue administering ESC Program and reporting disturbed acreage to DCR monthly. Require VSMP permit coverage be acquired prior to issuance of a land disturbing permit.

**Minimum Control Measure No. 5: Post-Construction Stormwater Management in New Development and Redevelopment**

**A. BMP 5.1 : Stormwater Management Ordinance**

Annual Goals for Reporting Year: Continue to review and approve plans in compliance with Town Code. Review and update Town Code to ensure compliance with current state law and regulations.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. All new plans approved for development or redevelopment were reviewed and approved in compliance with Town Code. The stormwater management portion of Town Code was compliant with state law and

regulations until September 13, 2011 when new regulations were made effective. Town Code was not reviewed for compliance after the new regulations went into effect.

Next Year's Annual Goals: Continue to review and approve plans in compliance with Town Code. Review and update Town Code to ensure compliance with current state law and regulations as needed.

- B. BMP 5.2 : Stormwater Management Pond / Water Quality BMP Inspections**  
Annual Goals for Reporting Year: Inspect all Town-owned stormwater management facilities. Inspect all facilities for which the Town has a recorded maintenance agreement.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. All Town-owned stormwater management facilities were inspected. At the end of the reporting year, there were 9 completed and operational private facilities with Town maintenance agreements. The Town inspected all 9 facilities. Attached as Appendix I are copies of the completed inspection forms and photographs.

Next Year's Annual Goals: Inspect all Town-owned stormwater management facilities. Inspect all complete and operational private facilities for which the Town has a recorded maintenance agreement.

## **Minimum Control Measure No. 6: Pollution Prevention / Good Housekeeping for Municipal Operations**

- A. BMP 6.1 : Household Hazardous Waste Collection**  
Annual Goals for Reporting Year: Participate via advertising and staffing for this event.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. The Household Hazardous Waste Collection event was held on the morning of 19 May 2012 at the Montgomery Regional Solid Waste Authority facility, just outside of Christiansburg Corporate Limits. The Town advertized for the event and provided personnel to work the event.

Next Year's Annual Goals: Participate via advertising and staffing for this event.

- B. BMP 6.2 : Street Sweeping Program**  
Annual Goals for Reporting Year: Sweep streets on a regular basis and whenever specific complaints are taken for debris or sediment in the roadway.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. All the streets in Town were swept at least once and specific areas were swept when complaints were received. Approximately 248

tons of debris was removed from the streets with the sweeper. Included as Appendix J is a copy of the street sweeping log.

Next Year's Annual Goals: Sweep streets on a regular basis, and whenever specific complaints are taken for debris or sediment in the roadway.

**C. BMP 6.3 : Leaf Pickup Program**

Annual Goals for Reporting Year: Pick up leaves in the fall of the year, beginning after the Town's Fall Clean-up activities. Continue picking up leaves as needed through the winter and spring. Take as many loads as feasible to composting facilities rather than the landfill.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. The leaves were picked up following Fall Clean-up, and they were picked up as needed throughout the winter and spring. A total of 309 loads were picked up totaling approximately 613 tons, and the majority (if not all) of the loads were taken to the local composting facility.

Next Year's Annual Goals: Pick up leaves in the fall of the year, beginning after the Town's Fall Clean-up activities. Continue picking up leaves as needed through the winter and spring. Take as many loads as feasible to composting facilities rather than the landfill.

**D. BMP 6.4 : Stormwater Pollution Prevention Measures in use during Municipal Operations**

Annual Goals for Reporting Year: Continue to store salt indoors, use wash bays, and perform at least one employee training session per year. Perform a facilities inspection at the Public Works complex looking for possible improvement for stormwater pollution prevention practices and procedures.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. The Town continued to store salt in the salt dome and use the wash bays for vehicle washing. Stormwater pollution prevention training sessions held and 75 Public Works employees attended, as shown by Appendix K, the employee sign in sheets from the training events. Also an inspection of the public works facilities for stormwater pollution prevention was performed, and two concerns were noted. Attached as Appendix L is a copy of the inspection results memorandum.

Next Year's Annual Goals: Continue to store salt indoors, use wash bays, and perform at least one employee training session per year. Perform a facilities inspection at the Public Works complex looking for possible improvement for stormwater pollution prevention practices and procedures.



**E. BMP 6.5 : Storm Sewer Cleaning Program**

Annual Goals for Reporting Year: Inspect, clean, and verify our storm sewer system in an ongoing manner. As manpower allows, keep a crew detailed to this task.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. The Town cleaned approximately 5,053 feet of storm sewer, and 4,685 feet of ditch were cleaned and reconstructed during this reporting year.

Next Year's Annual Goals: Inspect, clean, and verify our storm sewer system in an on-going manner. As manpower allows, at least one crew will be dedicated to this task.

**F. BMP 6.6 : Town's MS4 Program Updates**

Annual Goals for Reporting Year: At the end of the reporting year, perform a general review to ensure permit compliance, and to gauge the effectiveness of the program. Evaluate the program using the EPA's "Municipal Stormwater Program Evaluation Guide."

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. A screening level program review was self-performed and is included as Appendix M. No major deficiencies were discovered in the program review process.

Next Year's Annual Goals: At the end of the reporting year, perform a general review to ensure permit compliance, and to gauge the effectiveness of the program.

**G. BMP 6.7 Evaluate Properties Owned or Operated by the Town**

Annual Goals for Reporting Year: Take samples of runoff from Wades Lane facility and analyze as specified in the General Permit. If the pollutant is discharged at rates above those allowed in the TMDL WLA, develop plans and a schedule to minimize pollutant discharge in a manner consistent with the approved TMDL.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were not met. Due to manpower constraints and the intermittent timing of rainfall, runoff samples could not be collected for analysis. However, the Town has erosion and sediment control measures in place, and is keeping the site stable as much as possible, therefore there is little concern for excess sediment discharge. Accordingly, sample collection and analysis has been carried over as a goal for the next reporting year.

Next Year's Annual Goals: Take samples of runoff from Wades Lane facility and analyze as specified in the General Permit. If the pollutant is discharged at rates

above those allowed in the TMDL WLA, develop plans and a schedule to minimize pollutant discharge in a manner consistent with the approved TMDL.

#### **H. BMP 6.8 Annual Characterization**

Annual Goals for Reporting Year: Estimate the volume of stormwater discharged by the Town's MS4 in units of cubic feet. Estimate the quantity of pollutants contained in that stormwater volume, in units consistent with any TMDL WLA.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were met. Included as Appendix N are calculations that estimate the volume of stormwater discharged by the Town's MS4, and the pollutants contained in that stormwater. For the reporting year, the Town's MS4 has released an estimated 25,415,518 cubic feet of stormwater to Crab Creek. This stormwater contained an estimated 41.9 tons of sediment (suspended solids) and  $1.23E+10$  E. coli cfu. For the reporting year, the Town's MS4 also released an estimated 3,057,041 cubic feet of stormwater to Falling Branch and 2,561,764 cubic feet of stormwater to Slate Branch. Because Falling Branch and Slate Branch do not have approved TMDLs, the estimated amount pollutants contained in this stormwater will not be stated in this report, but the calculations for these amounts have been performed and are included in Appendix N.

Next Year's Annual Goals: Estimate the volume of stormwater discharged by the Town's MS4 in units of cubic feet. Estimate the quantity of pollutants contained in that stormwater volume, in units consistent with any TMDL WLA.

**2011-2012 MS4 Annual Report Authorized Program Signature Certification:**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for gathering the information, the information submitted, is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed \_\_\_\_\_ 27 Sept 2012

Barry D. Helms  
Town Manager  
Town of Christiansburg