

**TOWN OF CHRISTIANSBURG  
STORMWATER MANAGEMENT PROGRAM  
ANNUAL REPORT FOR 2010-2011  
NPDES PHASE II: SMALL MS-4 (MUNICIPAL SEPARATE STORM SEWER SYSTEM)  
VPDES PERMIT NO. VAR 040025**



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**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, 2010 – June 30, 2011.**

## **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 2010-2011 mailer and a copy of the printing invoice are 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: Produce and erect informational signs. Maintain BMPs as necessary.

Measurable Goals Achieved for Reporting Year: The measurable goals for this reporting year were partially met. An informational sign was installed for the existing bio-retention filter at the Christiansburg Aquatic Center; photographs of the sign are included as Appendix B. The infiltration basin has not functioned as intended, and the Town is planning to retrofit the basin into a bio-retention filter. A copy of the proposed reconstruction sketch is included as Appendix C.

Next Year's Annual Goals: Retrofit infiltration basin to bio-retention filter. Install informational sign once reconstruction is complete.

**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, 2010 a joint TMDL / Stream Restoration Project Input / Information Meeting was held at Christiansburg Town Hall from 5:30-7:00 PM. The meeting was an opportunity for the Town to provide the public with information about an upcoming stream restoration project and TMDL's in general, and to receive input from our citizens. Approximately 20 people attended and handouts from the meeting are included as Appendix D.

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: Due to manpower constraints, the measurable goals for this reporting year were not met; no meetings were held.

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 measureable 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.

**Additional Public Involvement / Participation:**

Although the Town did not meet the measureable goals for BMP 2.2, the Town did take part in another Public Involvement / Participation event. On 15 April 2011 the Town set up a booth at the Christiansburg High School 2011 Energy and Environmental Exposition. This exposition allowed Town staff to interact with students and other attendees and provide them information about the Town's environmentally focused programs.

### **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 E. 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.

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 F 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 not reviewed for compliance

with state law and regulations, because the new stormwater management law and regulations have not been finalized.

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 six completed and operational private facilities with Town maintenance agreements. The Town inspected all six facilities. Attached as Appendix G 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 21 May 2011 at the Mid County Park, just outside of Christiansburg Corporate Limits. The Town advertised, provided personnel to work the event and provided Fire Department and Rescue Squad staffing on site.

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. Included as Appendix H 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 292 loads were picked up sent to the landfill because the local composting facility was at capacity and not accepting leaf litter.

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 77 Public Works employees attended, as shown by Appendix I, the sign in sheets from the training events. Also an inspection of the public works facilities for stormwater pollution prevention was performed, and four concerns were noted. Attached as Appendix J 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 832 feet of ditch, and 2,091 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 partially met. An updated MS4 Program Plan was submitted to DCR on 28 August 2010 in order to make the program more effective. An MS-4 program review using the EPA guide was not performed; it will be carried over as an Annual Goal for the upcoming reporting year.

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 Evaluate the program using the EPA's "Municipal Stormwater Program Evaluation Guide."

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

Annual Goals for Reporting Year: Evaluate the properties for possible pollutant discharge. If it determined that the pollutant may be discharged, take samples 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 partially met. All applicable Town owned / operation facilities were inspected for possible pollutant discharge, and 3 properties were identified as possible pollution sources, in accordance with the General Permit. See Appendix K for a copy of the inspection list. Two properties identified currently have sediment traps installed, so they are possible pollutant sources (sediment) but since the operator is a private developer who has already transferred ownership to the Town, further investigation and analysis is outside the intent and scope of this BMP. The other site identified is the closed Wades Lane Landfill, where the Town stores excess fill dirt. The site was identified as a possible source, but adequate rainfall did not occur to produce runoff samples after the identification was made. Accordingly, this runoff analysis will be performed in the upcoming 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 L 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 25,461,691 cubic feet of stormwater to Crab Creek. This stormwater contained an estimated 42.0 tons of sediment (suspended solids) and 1.23E+10 E. coli cfu. For the reporting year, the Town's MS4 also released an estimated 3,073,593 cubic feet of stormwater to Falling Branch and 2,562,635 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 L.

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.

**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  
Barry D. Helms  
Town Manager  
Town of Christiansburg