

MCM 5:POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

The Town of Vinton and Roanoke County recognize that addressing water quality in post construction runoff is an important way to prevent deposition of sediment and other pollutants into our streams and river. On April 5, 2016, a resolution was adopted by Vinton Town Council to adopt the County of Roanoke's revisions to the Stormwater Management Design Manual, by reference, as amended. On April 19, 2016, Vinton Town Council adopted an ordinance by amending the Town's Stormwater ordinance, to adopt the County of Roanoke Stormwater Ordinance by reference, as amended.

On the same date of April 5, 2016, a resolution was adopted by the Vinton Town Council for the establishment of a Memorandum of Understanding (MOU) agreement between the County of Roanoke Board of Supervisors and the Vinton Town Council for the County to continue to administer the Virginia Erosion and Sediment Control Program (VESCP) and to administer the Virginia Stormwater Management Program (VSMP) for the Town of Vinton. The County became the Town's VSMP administrator as of June 1, 2016, with the approval of the State Water Control Board, as indicated in the DEQ correspondence dated, May 27, 2016.

The programs that continue to be established to complete this measure are listed below:

BMP 5-1. Stormwater Management Ordinance and Manual

The Town of Vinton has adopted a Stormwater Management Ordinance and Design Manual, which complies with the July 1, 2014 state requirements.

BMP 5-2. Stormwater Management Plan Review

Develop and maintain written procedures for site plan review which addresses post-construction stormwater.

BMP 5-3. Stormwater Management Facility Construction Inspection

Develop and maintain written procedures for site construction inspections to confirm that construction complies with approved plans.

BMP 5-4. Stormwater Management Facility Post-Construction Inspection

Develop and maintain written procedures for post-construction inspections of privately owned and Town-owned stormwater management facilities.

BMP 5-5. Stormwater Management Facility Tracking

Develop and maintain a GIS based system to track Stormwater Management Facilities to ensure that proper post-construction inspection and maintenance is occurring.

BMP 5-6. Strategies to Encourage Long-Term Maintenance of Stormwater Control Measures for Individual Residential Lots

Develop and implement strategies to promote the long-term maintenance of stormwater control measures that are designed to treat stormwater runoff solely from the individual residential lot. These strategies would be used to replace recorded maintenance agreements and required Town/County post-construction inspections.

BMP 5-1. Stormwater Management Ordinance and Manual

Goal: The goal of this BMP is to adopt and enforce an ordinance and design manual that both require stormwater runoff to be addressed. These documents ensure that controls are in place that would prevent or minimize water quality and quantity impacts due to new development and redevelopment projects.

Measurable Goal: The Town started enforcing the stormwater ordinance and manual after adopting by reference Roanoke County Stormwater Management Ordinance and Manual on January 1, 2008. The stormwater management design manual details structural and non-structural best management practices (BMPs) that are appropriate for Roanoke Valley region. The ordinance requires the designation of a responsible party who is legally bound to inspect and maintain the best management practices for the life of the BMP.

Beginning July 2015, Roanoke County/Town of Vinton stormwater ordinances and design manual have been updated and presented to the Roanoke Homebuilders Association for their review and input. The revised documents were adopted by Roanoke County Board of Supervisors on February 23, 2016, and on April 5, and April 19, 2016, the Vinton Town Council adopted the County's ordinance and design manual by reference. As of June 1, 2016, the County became the Town's VSMP administrator with the approval of the State Water Control Board as indicated in the DEQ correspondence dated, May 27, 2016.

TMDL Consistency: The stormwater management ordinance and stormwater design manual goal is to reduce the quantity of stormwater runoff and improving the quality of stormwater runoff from new development, redevelopment, and existing developed areas. This manual and ordinance protects against erosion from stream banks, construction sites, developed areas, and redeveloped area (SED, EC/FC).

Evaluation and Modification: The materials associated with this BMP were revised to align with the new Virginia Stormwater Management Law and Regulations and subsequent revisions to same. The latest revisions to the County's ordinance added the use of civil penalties to the enforcement options and incorporated minor changes previously requested by the Virginia DEQ. Revisions to the design manual were made to clarify and correct minor issues that became apparent after initially implementing the VSMP.

Year	Action	Changes and Modifications
2013 - 2014 (YEAR ONE)	New Stormwater Ordinance and Manual Adopted	New Documents, effective July 1, 2014
2014 - 2015 (YEAR TWO)	New Guidance from the State due to VSMP Changes	Draft ESC, SWM Ordinances, Manual Design under Review
2015 - 2016 (YEAR THREE)	Revised SWM Ordinance and Design Manual	ROCO Revised SWM Ordinance, SWM Design Manual, adopted by TOV on 4/5/16 and 4/19/16
2016 - 2017 (YEAR FOUR)	None	None

BMP 5-2. Stormwater Management Plan Review

As of August 2014, the two Memoranda of Understanding (MOUs) between the County and the Town for the County to provide SWM plan review services and SWM facilities during and after construction services were renewed. On April 5, 2016, a resolution was adopted by the Vinton Town Council for the establishment of a Memorandum of Understanding (MOU) agreement between the County of Roanoke Board of Supervisors and the Vinton Town Council for the County to administer the Virginia Stormwater Management Program (VSMP) for the Town of Vinton.

Goal: To develop and maintain written procedures for site plan review which addresses post-construction stormwater runoff to ensure consistency of reviews.

Measurable Goal: Success for this BMP is measured by the annual evaluation of the written plan review procedures.

TMDL Consistency: Stormwater management plans target reducing sediment in stormwater runoff from construction sites and controlling volume and velocity of peak runoff rates during and after development. Reviewing the plans for consistency to plan review procedures helps to ensure the proper stormwater controls and practices will be employed and properly maintained on the site (SED, EC/FC).

Evaluation and Modification: No modifications are planned for this BMP. Roanoke County believes that maintaining and employing written procedures for stormwater management plan review is a critical component in reducing pollutants in and reducing volume and velocity of stormwater runoff during and after land-disturbing activities.

Year	# of SWM Plans Reviewed: ROCO & TOV	# of Agreement in Lieu of SWM Plans issued: ROCO & TOV
2013 - 2014 (YEAR 1)	37	-
2014 - 2015 (YEAR 2)	185	33
2015 - 2016 (YEAR 3)	162 28 - Commercial; 134 - SFR	32
2016 - 2017 (YEAR 4)	44 - Commercial; 161 SFR	41

SFR = Single Family Residential

NOTE:

VSMP Permits Issued for SFR = 32

VSMP Permits Issued for Commercial = 9

BMP 5-3. Stormwater Management Facility Construction Inspection

As of August 2014, the two Memoranda of Understanding (MOUs) between the County and the Town for the County to provide SWM plan review services and SWM facilities during and after construction services were renewed. On April 5, 2016, a resolution was adopted by the Vinton Town Council for the establishment of a Memorandum of Understanding (MOU) agreement between the County of Roanoke Board of Supervisors and the Vinton Town Council for the County to administer the Virginia Stormwater Management Program (VSMP) for the Town of Vinton.

Goal: To develop and maintain written procedures for construction inspections to confirm that construction complies with approved plans.

Measurable Goal: Success for this BMP will be measured by the annual evaluation of the written site construction inspection procedures.

TMDL Consistency: Stormwater Management Facility inspections help to ensure that the required facilities, as shown on the approved plan, are implemented and properly maintained in the field; such facilities help to reduce sediment in stormwater runoff from construction sites and control volume and velocity of peak runoff rates during and after development (EC/FC, SED).

Evaluation and Modification: No modifications are being planned for this BMP. Roanoke and the Town County believe that maintaining and employing written procedures for stormwater management construction inspections is a critical component in reducing pollutants in and reducing volume and velocity of stormwater runoff during and after land-disturbing activities.

Year	# of SWM Facilities Inspected Under Construction: ROCO & TOV
2013 - 2014 (YEAR 1)	111
2014 - 2015 (YEAR 2)	73
2015 - 2016 (YEAR 3)	53
2016 - 2017 (YEAR 4)	51

BMP 5-4. Stormwater Management Facility Post-Construction Inspection Program

Goal: The goal of this BMP is to develop and maintain written procedures for post-construction inspections to confirm that adequate maintenance is occurring.

Measurable Goal: Success for this BMP will be measured by the annual evaluation of the written post-construction inspection procedures; and completion of the required post-construction inspections.

TMDL Consistency: This program ensures that all permanent stormwater management facilities (SWMFs) are adequately maintained and properly functioning, which is critical for flood protection and erosion prevention (SED).

Evaluation and Modification: Based on the permit requirement to annually inspect all Town-owned stormwater management facilities and to inspect other stormwater management facilities at least once every 5 years, this BMP was modified to reflect the required inspection frequency.

Year	Post-Construction Stormwater Facilities Inspected: ROCO & TOV	Total Number of Stormwater Facilities*: ROCO & TOV	BMP Maintenance Guides Given Out; ROCO & TOV
2013 - 2014 (YEAR 1)	23 - Public 184 - Private	71 - Public 661 - Private	120
2014 - 2015 (YEAR 2)	49 Public 97 Private	71 - Public 700 - Private	0
2015 - 2016 (YEAR 3)	67- Public 95 - Private	67- Public 681- Private	30
2016 - 2017 (YEAR 4)	66- Public 254 - Private	66- Public 678- Private	8

Total # of SWM Facilities has changed slightly due to more accurate accounting using the County's GIS

BMP 5-5. Stormwater Management Facility Tracking

Goal: To develop and maintain a GIS based system to track stormwater management facilities to ensure that proper inspection and maintenance is occurring.

Measurable Goal: Success for this BMP will be measured by the annual evaluation of any additions or modifications to the GIS stormwater database. In this Permit Year 4, there were 11 new Stormwater Management Facilities brought online in the MS4 area of the County and the Town, serving 16.81 acres.

TMDL Consistency: Proper maintenance of permanent stormwater management facilities is vital for the long term success of the facilities and the prevention of sediment and other pollutants from leaving the site and being transported into the local streams and river. Tracking permanent SWMFs helps to ensure that all permanent stormwater management facilities are inspected, adequately maintained, and properly functioning, which is critical for flood protection and erosion prevention(SED, EC/FC).

Evaluation and Modification: The County is currently implementing a new software program (Cityworks®) to assist with facility and inspection tracking, and its Department of Community Development has added an additional staff position to assist with data organization. The County and the Town believe that these actions will improve this BMP. Roanoke County also believes that tracking permanent SWMFs helps to ensure that these facilities are routinely inspected, adequately maintained, and properly functioning, which is critical for flood protection and erosion prevention.

Table 8. New Stormwater Facilities in ROCO & TOV Brought Online

HUC	#	Acres Treated
30101010301	1	2.00
30101010402	2	3.47
30101010403	1	4.44
30101010404	7	6.90
Total	11	16.81

BMP 5-6. Strategies to Encourage Long-Term Maintenance of Stormwater Control Measures for Individual Lots

Develop and implement strategies to promote the long-term maintenance of stormwater control measures that are designed to treat stormwater runoff solely from the individual residential lot. These strategies would be used to replace recorded maintenance agreements and required Town/County post-construction inspections.

Goal: The goal of this BMP is to implement strategies to promote the long-term maintenance of stormwater control measures that are designed to treat stormwater runoff solely from the individual residential lot. These strategies will be used to replace recorded maintenance agreements and the required County/Town post-construction inspections.

Measurable Goals: Success for this BMP will be measured by tracking the number of new single-family residential lots each year that are covered by the strategies, annually reaching 100% of the total number of single-family residential lots covered under the strategies with homeowner outreach and education materials using direct mail, maintaining maintenance information for the stormwater practices on the Town’s website, and evaluating the effectiveness of the strategies in promoting the long-term maintenance of stormwater control measures.

TMDL Consistency: Stormwater management techniques target reducing sediment in stormwater runoff from developed sites and are designed to reduce volume and velocity of peak runoff rates during and after development. By implementing strategies to promote the long-term maintenance of stormwater control measures that are designed to treat stormwater runoff solely from the individual residential lot, this BMP helps to assure that such sites are not contributing large volumes of sediment to receiving waters (SED).

Evaluation and Modification: The County and Town believe this is an effective BMP to address the maintenance of relatively simple stormwater management practices used on individual single-family residences (SFRs). However, as the County has more experience with it, revisions may be made in the future.

Permit Year 2 was the first year to not require maintenance agreements for individual residential lots. There are 15 residential lots in the Town that used individual stormwater control measures (underground facility) without maintenance agreements. Please see attached information for each single-family lot. 100% of the total individual SFRs were reached with homeowner education and outreach materials using direct mail by Roanoke County. For Permit Year 3, the newsletter entitled *A Stormwater Guide for Homeowners* was

used to satisfy this mailing requirement, along with a new informational Fact Sheet entitled: "Tips for Homeowners – Stormwater Best Practices." For this Permit Year 4, "A Stormwater Guide for Homeowners" was sent to all residences in the County and Town.

The Town's website provide a link to Roanoke County's website on the maintenance information for stormwater practices under "Stormwater Public Education Documents" at: <http://www.roanokecountyva.gov/index.aspx?NID=1648>