

Annual Reporting for VA0088617

The permittee shall submit the annual report to the Department in accordance with the following schedule:

Reporting Period	Annual Report Due Date
April 1, 2015 through December 31, 2015	March 31, 2016
January 1, 2016 through December 31, 2016	March 31, 2017
January 1, 2017 through December 31, 2017	March 31, 2018
January 1, 2018 through December 31, 2018	March 31, 2019
January 1, 2019 through December 31, 2019	March 31, 2020
January 1, 2020 through March 31, 2020	March 31, 2021

Each annual report shall include the following background information:

The permittee and permit number of the program submitting the annual report;

Henrico County / VA0088617

Any modifications to the MS4 Program Plan as a result of the annual report;

None

The reporting dates for which the annual report is being submitted; and


January 1, 2018 through December 31, 2018

Certification as per Part II.K.

"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 persons 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."

John A. Vitthoulkas, County Manager
Name / Title

 3/25/2019
Signature / Date

For a municipality, state, federal, or other public agency signature by either a principal executive officer or ranking elected official. For purposes of this subsection, a principal executive officer of a public agency includes:

- 1) The chief executive officer of the agency, or*
- 2) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.*

A summary of the implementation of each of the components established under Part I.B. and an evaluation of the effectiveness of each component. Additionally, the annual report shall include a summary of progress toward development of new MS4 Program components developed in accordance with the due dates as specified in the permit. The permittee should attempt to limit any component's narrative summary to no longer than two-pages plus any necessary tables and figures.

Part I.B.1 - Planning

A stormwater retrofit project summary that includes potential stormwater management projects to be completed during the term of the permit is posted on the County's website. The information Annual Report Supplement adequately addresses the permit requirements.

Part I.B.2.a - Construction Site Runoff and Post Construction Runoff from Areas of New Development and Development on Prior Developed Lands

The County implements an Erosion and Sediment Control Program and a Stormwater Management Program that have been determined to be consistent with state law and regulations. Implementation of the programs listed in this section will adequately address the permit concerns for this MS4 program element.

Part I.B.2.b - Retrofitting on Prior Developed Lands

The status of the retrofit projects listed in part I.B.1 that are being conducted during this permit term is provided in the Annual Report Supplement. The information included in the summary adequately addresses the permit requirements.

Part I.B.2.c - Roadways

The various Departments / Divisions that are responsible for maintaining roads, streets, and parking lots are aware of proper management goals / objectives. Inventories of County-maintained roads, streets and parking lots have also been developed as well as the stormwater treatment details required by the MS4 Permit. Implementation of the programs listed in this section will adequately address the permit concerns for this MS4 program element.

Part I.B.2.d - Pesticide, Herbicide, and Fertilizer Application

County-maintained lands have been evaluated to determine where nutrients are applied to more than one contiguous acre and the Departments / Divisions responsible for the County-maintained lands have been made aware of proper management goals / objectives. Summaries of the implementation details are included in the Annual Report Supplement as required by the MS4 Permit. Implementation of the programs listed in this section will adequately address the permit concerns for this MS4 program element.

Part I.B.2.e - Illicit Discharges and Improper Disposal

The County continues to implement programs to identify and eliminate illicit discharges. The County also has a program to inspect sanitary sewer system. Community cleanups, litter prevention and collection programs, and development design requirements are in place to reduce floatables. Summaries of the implementation details are included in the Annual Report Supplement as required by the MS4 Permit. Implementation of the programs listed in this section will adequately address the permit concerns for this MS4 program element.

Part I.B.2.f - Spill Prevention and Response

The County continues to implement programs to prevent, contain, and respond to spills that may discharge into the MS4. These programs involve cooperation with various Departments / Divisions. The results of the implementation of these programs are included in the Annual Report Supplement as required by the MS4 Permit. Implementation of the programs listed in this section will adequately address the permit concerns for this MS4 program element.

Part I.B.2.g - Industrial and High Risk Runoff

The County continues to implement a program to identify and control pollutants in stormwater discharges to the MS4 from industrial and high risk runoff facilities. Summaries of the implementation details are included in the Annual Report Supplement as required by the MS4 Permit. Implementation of the programs listed in this section will adequately address the permit concerns for this MS4 program element.

Part I.B.2.h - Stormwater Infrastructure Management

The County continues to implement programs to maintain the County's stormwater infrastructure and to update the accuracy and inventory of the storm sewer system. The Departments / Divisions responsible for County maintained lands are aware of the management goals / objectives and summaries of the implementation details are included in the Annual Report Supplement as required by the MS4 Permit. Implementation of the programs listed in this section will adequately address the permit concerns for this MS4 program element.

Part I.B.2.i - County Facilities

County-maintained facilities have been evaluated to determine which ones are High Priority Municipal Facilities and the Departments/Divisions responsible for County facilities are aware of proper management goals / objectives. Summaries of the implementation details are included in the Annual Report Supplement as required by the MS4 Permit. Implementation of the programs listed in this section will adequately address the permit concerns for this MS4 program element.

Part I.B.2.j - Public Education / Participation

The various Departments / Divisions in the County implement many public education programs with the goal of increasing the stormwater knowledge of target audiences and changing behavior to result in pollutant reductions. Summaries of the program activities and the audiences reached are listed in the Annual Report Supplement as required by the MS4 Permit. Implementation of the programs listed in this section will adequately address the permit concerns for this MS4 program element.

Part I.B.2.k - Training

The various Departments / Divisions in the County conduct and makes available to County staff many training opportunities to address the topics required by the MS4 Permit. Summaries of the training opportunities and the number of staff attending are listed in the Annual Report Supplement as required by the MS4 Permit. Implementation of the programs listed in this section will adequately address the permit concerns for this MS4 program element.

Part I.B.2.l - Water Quality Screening Programs

The County implements both dry and wet weather screening programs in accordance with the requirements of the MS4 permit. Summaries of the implementation details are listed in the Annual Report Supplement as required by the MS4 Permit. Implementation of the programs listed in this section will adequately address the permit concerns for this MS4 program element.

Part I.B.2.m - Infrastructure Coordination

The Annual Infrastructure Coordination meeting between County and VDOT representatives occurred on November 20, 2018. During the meeting, all topics required by the MS4 Permit were discussed and the meeting summary is included in the Annual Report Supplement as required by the MS4 Permit.

A summary report of the monitoring programs listed under Part I.C

Summaries of the results of the monitoring programs listed under Part I.C are included in the Annual Report Supplement.

A summary of the implementation of each component listed under Part I.D.

The TMDL Action Plans required by Part I.D have been developed and are posted on the County's website. A summary of projects implemented during this reporting period are included in the Annual Report Supplement.

The Specific Reporting Requirements identified in this state permit.

The Specific Reporting Requirements are addressed in the Annual Report Supplements included in the MS4 Program Plan.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.A.1
AUTHORIZED DISCHARGES

There are no Specific Reporting Requirements associated with this part of the MS4 Permit.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.A.2 PERMITTEE RESPONSIBILITIES

Each annual report shall include a current list of roles and responsibilities.

The roles and responsibilities for the appropriate Departments and Divisions have been established and are provided in the applicable part of the MS4 Program Plan. Given the extent of the tasks associated with the MS4 Permit and the numerous Departments and Divisions that have a role in implementing the requirements of the MS4 Permit, the roles and responsibilities have not been repeated here. Please refer to the MS4 Program Plan for the current list of roles and responsibilities.

Each annual report shall include a list of those circumstances of non-compliance outside of the permittee's control.

Circumstance of Non-Compliance Outside County's Control From January 1, 2018 through December 31, 2018	Date
None	

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.A.3
LEGAL AUTHORITY

There are no Specific Reporting Requirements associated with this part of the MS4 Permit.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.A.4 MS4 PROGRAM RESOURCES

A copy of the fiscal year's budget including its proposed capital and operation and maintenance expenditures necessary to accomplish the activities required by this state permit shall be submitted with each annual report.

The County's Approved Budget for Fiscal Year 2018 - 2019 can be found at <https://henrico.us/public-data/approved-budget-2018-2019/>. Given the size of the document, the budget has not been included in this Annual Report Supplement.

	Approved Overall Budget	Approved Funding for MS4 Program Compliance	Source(s) of Funding
CAPITAL	\$123,224,328	\$2,436,689	General Fund Enterprise Funds
OPERATION AND MAINTENANCE	\$294,796,648	\$8,477,795	General Fund Internal Service Fund Enterprise Funds

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.A.5

PERMIT MAINTENANCE FEES

A statement regarding payment of the applicable MS4 permit maintenance fee, including check date and check number shall be included with each annual report. Note: Please do not include copies of checks or other bank records.

A check (check # 011295081, dated August 14, 2018) for the MS4 Permit Maintenance Fee (\$8,800.00) was submitted on August 20, 2018 to:

VA DEQ
Treasurer of Virginia
P. O. Box 1104
Richmond, VA 23218

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.A.6 MS4 PROGRAM PLAN

Utilizing the last annual report prior to this state permit effective date as a baseline, the permittee's first annual report submitted under this state permit (Initial Report) shall include the necessary updates to describe implementation of this MS4 Program Plan and meet the conditions described in this section.

The current MS4 Program Plan can be found at <http://henrico.us/works/engineering-environmental-services/2015-ms4-permit-and-ms4-program-plan/>.

NOTE: For purposes of the next permit cycle, the fourth annual report submitted under this state permit will be considered the updated MS4 Program Plan to be reviewed as part of permit reissuance.

Noted.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.A.7 MS4 PROGRAM REVIEW AND UPDATES

All modifications and proposed modifications shall be reported in accordance with this section of the permit.

The current MS4 Program Plan can be found at <http://henrico.us/works/engineering-environmental-services/2015-ms4-permit-and-ms4-program-plan/>.

The MS4 Permit was modified in March 2018 to revise the MS4 infrastructure inspection requirements. The revised requirement is now to inspect no less than 15% of the MS4 annually. The goal of inspecting 100% over the course of the permit was eliminated. A copy of the approval letter is attached.

HENRICO COUNTY MS4 PROGRAM PLAN



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 1111 East Main Street, Suite 1400, Richmond, VA 23219

Mailing address: P.O. Box 1105, Richmond, Virginia 23218

www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

March 7, 2018

Mr. John A. Vithoulkas
County Manager
Henrico County
P.O. Box 90775
Henrico, Virginia 23273-0775

**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

Transmitted electronically: vjt@henrico.us

RE: VA000088617 Major Modification
Municipal Separate Storm Sewer System (MS4) Permit No. VA0088617
Henrico County

Dear Mr. Vithoulkas:

A major modification draft for your Virginia Stormwater Management Program (VSMP) MS4 permit is enclosed. This major modification was requested by Henrico County to change the minimum infrastructure inspection requirement as listed in the Henrico County MS4 permit.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have thirty days after the service of this permit which to appeal this decision by filing a notice of appeal in accordance with the Rules of the Supreme Court of Virginia with the Director, Department of Environmental Quality. In the event that this decision is served on you by mail, three days are added to that period.

Alternatively, any owner under §62.1-44.15:44 of the Storm Water Control Law aggrieved by any action of the State Water Control Board taken without a formal hearing, or by inaction of the Board, may demand in writing a formal hearing of such owner's grievance, provided a petition requesting such hearing is filed with the Board. Said petition must meet the requirements set forth in 9VAC25-230-130 (Procedural Rule No. 1 – Petition for formal hearing). In cases involving actions of the Board, such petition must be filed within thirty days after notice of such action is mailed to such owner by certified mail.

If you have any questions about the permit, please call Ms. Ruth Minich-Hobson at (804) 698-4490 or ruth.minich-hobson@deq.virginia.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Allan Brockenbrough, II".

Allan Brockenbrough, II, P.E.
Manager - Office of Water Permits

Enclosures: Permit
Fact Sheet

cc: Jen Cobb, Engineering & Environmental Services Division Director(Jen.Cobb@henrico.us)

HENRICO COUNTY MS4 PROGRAM PLAN PART I.A.7 ANNUAL REPORT SUPPLEMENT JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.1

PLANNING

The permittee shall provide a current web link to the analysis no later than 12 months after the effective date of this state permit with each annual report.

The stormwater management retrofit project summary can be found at <http://henrico.us/works/engineering-environmental-services/stormwater-retrofit-projects-summary/>.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.a

MS4 PROGRAM IMPLEMENTATION
CONSTRUCTION SITE RUNOFF AND POST CONSTRUCTION
RUNOFF FROM AREAS OF NEW DEVELOPMENT AND
DEVELOPMENT ON PRIOR DEVELOPED LANDS

Each annual report shall contain the number of regulated land disturbing activities approved and the total number of acres disturbed.

Number of Regulated Land Disturbing Activities Approved between January 1, 2018 and December 31, 2018	Total Number of Acres Disturbed
134	449.81

Each annual report shall contain the number of land disturbing activity inspections conducted and the number and type of each enforcement action taken.

ESC and SWM Inspection and Enforcement Actions conducted between January 1, 2018 December 31, 2018	Number of Actions
ESC Inspection - Complete	6,386
ESC Inspection - Follow-Up	769
PreConstruction Meeting	115
SWPPP - Complete	516
SWPPP - Follow-Up	131
Notice to Comply	197
Stop Work Order	7

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.a

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

Each annual report shall include a summary of actions taken by the permittee to implement Part I.B.2.a)1) through 3) of this state permit.

No actions such as ordinance revisions, additional staff, revised roles/responsibilities, etc. were taken between January 1, 2018 and December 31, 2018 to implement the local ESC and SWM programs.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.b

MS4 PROGRAM IMPLEMENTATION
RETROFITTING ON PRIOR DEVELOPED LANDS

Each annual report shall include a status update for those projects for which implementation began during the reporting period.

**Retrofit Projects for which Implementation* began
between January 1, 2018 and December 31, 2018**

None

* For purposes of this reporting requirement, implementation means the construction or installation of the retrofit project.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.c
MS4 PROGRAM IMPLEMENTATION
ROADWAYS

The permittee shall include a copy of the written protocols identified in Part I.B.2.c)(2) with the annual report due March 31, 2019.

The written protocols are included in the following Appendix.

PART I.B.2.c
MS4 PROGRAM IMPLEMENTATION
ROADWAYS

APPENDIX

PART I.B.2.c
MS4 PROGRAM IMPLEMENTATION
ROADWAYS

GENERAL SERVICES

PART I.B.2.c
MS4 PROGRAM IMPLEMENTATION
PROTOCOL FOR MAINTENANCE OF ROADS, STREETS
AND PARKING LOTS

General Services (DGS) will maintain roads, streets, and parking lots to minimize discharge of pollutants into the County's Municipal Separate Storm Sewer System (MS4) by practicing good housekeeping and pollution prevention measures.

Identification: DGS-maintained roads, streets, and parking lots are identified on "DGS Parking Lots & Roadways 1/30/2019".

Equipment Maintenance: There is no active equipment maintenance performed openly on DGS-maintained roads, streets, and parking lots.

Trash Removal: Visible trash will be removed and properly disposed during daily custodial rounds, and during landscape related activities.

Material Storage: Materials utilized for deicing and sanding activities shall remain covered from precipitation until application in areas other than roads, streets and parking lots.

Deicing and Sanding: DGS will not apply deicing agents containing urea or other forms of nitrogen or phosphorus to parking lots, roadways, and sidewalks or other paved surfaces. DGS will utilize spreader trucks and walk-behind spreaders with calibration devices or volume controls.

Landscaping and Mowing: Chemical applications near roads, streets, and parking lots will be made by persons with valid certification, and according to manufacturer's guidelines. When mowing grass areas, proper care will be taken to remove clippings,

HENRICO COUNTY MS4 PROGRAM PLAN

debris and leaves as necessary to keep drains clear. Leaf and debris removal will be conducted at regular intervals.

Sweeping: DGS-maintained roads, streets and parking lots will be swept by mechanical means when observation identifies accumulated sediment, debris, trash, road salt, trace metals, and loose aggregates.

Inspections: Evaluations of asphalt, concrete, or paved roadways, streets and parking lots will be made regularly to identify conditions such as degraded surfaces, accumulated soil or vegetative growth, indications of petroleum or hazardous material releases likely to impact storm sewers or surface water.

Material Spills: When roadways, driveways or parking lots are identified to have releases of petroleum or hazardous materials, prompt cleanup will be performed using appropriate means to absorb, contain and properly dispose of contaminants.

Pavement Repair: Pavement repair will be performed as necessary and in a manner that minimizes contaminants.

PART I.B.2.c
MS4 PROGRAM IMPLEMENTATION
ROADWAYS

RECREATION & PARKS



County of Henrico

Verification	Originator	Revised	Issued
Initials	BF		
Date	3.2.18		

Standard Operating Procedure Part I.B.2.c Roadways, Driveways and Parking Lots

Persons responsible:	Recreation & Parks' Employees
Area of application:	Henrico County Recreation & Park Locations
Document location:	All Rec & Park Facilities; Rec & Parks' Administration
Revisions	
Rev. No.	Date
	Description

1.0 Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide maintenance and management requirements to Rec & Park staff or any hired contractors to properly operate and maintain parking lots, streets and driveways to minimize discharge of pollutants into the County's Municipal Separate Storm Sewer System (MS4).

2.0 Scope:

This SOP applies to the Henrico Rec and Park roadways, driveways and parking lots identified in **Attachment 1**.

3.0 Exclusions:

N/A

4.0 Responsibility:

Property Services Division Supervisor

5.0 Definitions:

- Petroleum – Any grade of chemical petroleum (e.g., diesel, gasoline, hydraulic fluid, motor oil, etc.) or vegetative petroleum (e.g., vegetable oil).
- Hazardous Materials – Any non-petroleum materials that could adversely impact surface water (e.g., road salt, oil or latex-based paints, PVC bonding cement, etc.)
- Sweeping - Parking lot sweeping of pollutants, including sediment, debris, trash, road salt, trace metals, and loose aggregates.
- Maintenance – periodic stabilization and revegetation of eroded areas beside driveways, streets or parking lots; periodic removal of trash and sediment within driveways, streets or parking lots. Periodic removal of overgrowth within the storm sewer system along driveways, streets or parking lots.

6.0 Operational Requirements:

6.1 Routine Operations



County of Henrico

Verification	Originator	Revised	Issued
Initials	BF		
Date	3.2.18		

Standard Operating Procedure Part I.B.2.c Roadways, Driveways and Parking Lots

6.1.1 Asphaltic or Concrete Surfaces

6.1.1.1 General

All asphaltic, concrete, or otherwise paved roadways, driveways and parking lots identified in **Attachment 1** are to be designed, constructed and maintained to minimize the uptake of sedimentation or other pollutants (e.g., hazardous materials) that could then be carried into the Henrico County Municipal Separate Storm Sewer System (MS4).

6.1.1.2 Sweeping

All asphaltic, concrete, or otherwise paved roadways, driveways and parking lots identified in **Attachment 1** are to be swept by mechanical means when deemed appropriate by site personnel. Sweeping is deemed necessary when routine observation or the Biennial Inspections noted in **Section 6.1.1.3** or routine observation identifies accumulated sediment or other pollutants that are likely to lead to excessive sediment loading or pollutant loading to the MS4. Sweeping may be performed by the Henrico County Department of Public Works (DPW) or by contractor as appropriate.

6.1.1.3 Inspections

All asphaltic, concrete, or otherwise paved roadways, driveways and parking lots identified in **Attachment 1** are to be evaluated every two years, or more often as necessary, to identify conditions that could adversely impact storm sewers or surface water using the *Roadways, Driveways and Parking Lots Biennial Inspection Form* in **Attachment 2**. Such conditions include:

- Degraded paved surfaces that could result in excessive sedimentation in runoff;
- Excessive accumulated soil that could result in excessive sedimentation in runoff or could facilitate the growth of vegetation (e.g., along curbs or in low-lying areas);
- Vegetative growth in cracks, larger exposed soil surfaces or areas with soil accumulation over the pavement that could enable further degradation of the paved surface.
- Accumulated trash or other debris that could be conveyed into storm sewers or surface water; and
- Indications of petroleum or hazardous material releases that have not been properly cleaned up (see **Section 6.2.4** for more details on response to these situations).

6.1.2 Unpaved Surfaces

6.1.2.1 General

All unpaved roadways, driveways and parking lots identified in **Attachment 1** are to be designed, constructed and maintained to minimize the uptake of sedimentation or other pollutants (e.g., hazardous materials) that could then be carried into the MS4. Earthen surfaces are to be maintained as compacted soil with no substantial evidence of erosion and are to be graded as discussed in **Section 6.2.3**. Gravel surfaces are to be maintained to minimize the uptake of sedimentation, with gravel resurfacing as required and discussed in **Section 6.2.3**.



County of Henrico

Verification	Originator	Revised	Issued
Initials	BF		
Date	3.2.18		

Standard Operating Procedure Part I.B.2.c Roadways, Driveways and Parking Lots

6.1.2.2 Inspections

All dirt or gravel roadways, driveways and parking lots identified in **Attachment 1** are to be evaluated every two years, or more often as necessary, to identify conditions that could adversely impact storm sewers or surface water using the *Roadways, Driveways and Parking Lots Biennial Inspection Form* in **Attachment 2**. Such conditions include:

- Eroded or loose earthen surfaces that could result in excessive sedimentation in runoff or facilitate vegetative growth;
- Accumulated trash or other debris that could be conveyed into storm sewers or surface water; and
- Indications of petroleum or other hazardous material releases that have not been properly cleaned up (see **Section 6.2.4** for more details on response to these situations).

6.1.3 Material Storage

6.1.3.1 General

Petroleum and hazardous materials are to be stored indoors or under cover when practical. If stored outdoors and not under cover, they should be in containers with firmly affixed lids, clearly labeled as to their contents and with no significant rusting, dents or other indication that the integrity of the containerized are compromised. Piles of soil or other erodible materials should be covered, or stored with silt fencing or equivalent surrounding the perimeter to avoid sediment-laden runoff.

6.1.3.2 Inspections

All petroleum and hazardous materials and soil or other erodible piles that are stored outdoors are to be inspected annually using the *Roadways, Driveways and Parking Lots Petroleum and Hazardous Materials Storage Annual Inspection Form* in **Attachment 3**.

6.1.4 Equipment Maintenance

6.1.4.1 Any equipment maintenance that is performed on roadways, driveways and parking lots identified in Attachment 1 should be performed so as to minimize or eliminate the possibility of petroleum or hazardous materials releases to the area.

6.1.4.2 When possible, maintenance should be performed indoors. If outdoor maintenance on equipment is required, drip pans should be used to collect any released liquids (e.g., petroleum or antifreeze).

6.1.4.3 Equipment that is in poor condition and releases petroleum or hazardous materials should be repaired in an expeditious fashion and should not be stored outdoors until repaired, if practical.

6.1.4.4 Equipment that has is no longer in use or is not serviceable should be disposed or removed to a protected area.

6.2 Non-Routine Operations



County of Henrico

Verification	Originator	Revised	Issued
Initials	BF		
Date	3.2.18		

Standard Operating Procedure Part I.B.2.c Roadways, Driveways and Parking Lots

6.2.1 Deicing and Sanding

Any application of sand, road salt or deicing liquids (e.g., magnesium chloride) to paved roadways, driveways and parking lots identified in **Attachment 1** should be performed in an efficient manner and not to excess. These materials should be stored under cover until use. The use of deicing agents containing urea or other forms of nitrogen and phosphorus is prohibited. After application of sand the site should be evaluated to determine if sweeping is necessary.

6.2.2 Pavement Repair

Pavement repair of roadways, driveways and parking lots identified in **Attachment 1** is to be performed as necessary, but in such a manner as to minimize the uptake of contaminants (e.g., petroleum associated with asphalt). Upon completion of the repair activities the site should be evaluated to determine if sweeping is necessary (e.g., excess asphalt not compacted into the repaired surface).

6.2.3 Regrading or Resurfacing of Unpaved Surfaces

Regrading of dirt or gravel roadways, driveways and parking lots identified in **Attachment 1** should be performed as required, but in such a manner as to minimize the uptake of sediments. Surfaces, upon regrading, should be evaluated for compaction as appropriate.

6.2.4 Material Spill Response

Any releases of petroleum or hazardous materials to roadways, driveways or parking lots identified in **Attachment 1** should be promptly cleaned up (i.e., within 24 hours). If absorbent is used to manage free liquids it should be immediately swept up, containerized and properly disposed. All petroleum impacted absorbent (with the exception of gasoline) may be disposed as a solid waste assuming all free liquids have been absorbed. Gasoline-impacted absorbent must have a hazardous waste characterization performed to determine whether the waste is a hazardous waste due to toxicity from benzene content. Petroleum releases that are cleaned up within 24 hours are not required to be reported to regulatory authorities as long as documentation is generated that identifies the release and the cleanup work performed.

It should be noted that petroleum releases that result in a sheen on surface water, including water in the MS4, are required to be reported immediately (interpreted to mean within 15 minutes of becoming aware of the release) to the National Response Center and other regulatory agencies.

6.2.5 Vegetation Removal

Any vegetation that is growing in cracks or surficial soil should be manually removed to reduce the likelihood of further degradation from growth. If a contractor is hired to apply an herbicide, such application should be performed in accordance with *Standard Operating Procedure Part I.B.2.d – Pesticide, Herbicide & Fertilizer Application*.

6.2.6 Trash Removal



County of Henrico

Verification	Originator	Revised	Issued
Initials	BF		
Date	3.2.18		

Standard Operating Procedure Part I.B.2.c Roadways, Driveways and Parking Lots

Any visible trash observed on the roadways, driveways and parking lots identified in **Attachment 1** should be promptly removed and properly disposed.

7.0 Training:

Recreation & Parks personnel working at sites with roadways, driveways and parking lots identified in **Attachment 1** must be trained on the contents of this Procedure.

8.0 Recordkeeping

8.1 Training records associated with **Section 7.0** of this Procedure should be maintained for the duration of the employee's employment by the County.

8.2 Routine inspections and spill response activities identified in **Section 6.0** above should be maintained for a period of 3 years.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the contractor's responsibility to ensure all rules and regulations are identified and followed.

PART I.B.2.c
MS4 PROGRAM IMPLEMENTATION
ROADWAYS

PUBLIC UTILITIES



County of Henrico

Verification	Originator	Revised	Issued
Initials	MRS		MRS
Date	12/31/15		12/31/15

Standard Operating Procedure Part I.B.2.c Roadways, Driveways and Parking Lots

Persons responsible:	Public Utilities Employees
Area of application:	Henrico County Public Utilities
Document location:	All DPU Facilities; DPU Administration
Revisions	
Rev. No.	Date
	Description

1.0 Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide maintenance and management requirements to DPU staff or any hired contractors to properly operate and maintain parking lots, streets and driveways to minimize discharge of pollutants into the County's Municipal Separate Storm Sewer System (MS4).

2.0 Scope:

This SOP applies to the Henrico DPU roadways, driveways and parking lots identified in **Attachment 1**.

3.0 Exclusions:

N/A

4.0 Responsibility:

All Staff and Contractors – Responsible for ensuring that all relevant and applicable components of this SOP are followed.

Community Liaison or his Designated Representative – Responsible for ensuring reporting requirements to the Department of Public Works (DPW) are met and for updating this procedure as necessary.

5.0 Definitions:

- Petroleum – Any grade of chemical petroleum (e.g., diesel, gasoline, hydraulic fluid, motor oil, etc.) or vegetative petroleum (e.g., vegetable oil).
- Hazardous Materials – Any non-petroleum materials that could adversely impact surface water (e.g., road salt, oil or latex-based paints, PVC bonding cement, etc.)
- Sweeping - Parking lot sweeping of pollutants, including sediment, debris, trash, road salt, trace metals, and loose aggregates.



County of Henrico

Verification	Originator	Revised	Issued
Initials	MRS		MRS
Date	12/31/15		12/31/15

Standard Operating Procedure Part I.B.2.c

Roadways, Driveways and Parking Lots

- Maintenance – periodic stabilization and revegetation of eroded areas beside driveways, streets or parking lots; periodic removal of trash and sediment within driveways, streets or parking lots. Periodic removal of overgrowth within the storm sewer system along driveways, streets or parking lots.

6.0 Operational Requirements:

6.1 Routine Operations

6.1.1 Asphaltic or Concrete Surfaces

6.1.1.1 General

All asphaltic, concrete, or otherwise paved roadways, driveways and parking lots identified in **Attachment 1** are to be designed, constructed and maintained to minimize the uptake of sedimentation or other pollutants (e.g., hazardous materials) that could then be carried into the Henrico County Municipal Separate Storm Sewer System (MS4).

6.1.1.2 Sweeping

All asphaltic, concrete, or otherwise paved roadways, driveways and parking lots identified in **Attachment 1** are to be swept by mechanical means when deemed appropriate by site personnel. Sweeping is deemed necessary when routine observation or the Biennial Inspections noted in **Section 6.1.1.3** or routine observation identifies accumulated sediment or other pollutants that are likely to lead to excessive sediment loading or pollutant loading to the MS4. Sweeping may be performed by the Henrico County Department of Public Works (DPW) or by contractor as appropriate.

6.1.1.3 Inspections

All asphaltic, concrete, or otherwise paved roadways, driveways and parking lots identified in **Attachment 1** are to be evaluated every two years, or more often as necessary, to identify conditions that could adversely impact storm sewers or surface water using the *Roadways, Driveways and Parking Lots Biennial Inspection Form* in **Attachment 2**. Such conditions include:

- Degraded paved surfaces that could result in excessive sedimentation in runoff;
- Excessive accumulated soil that could result in excessive sedimentation in runoff or could facilitate the growth of vegetation (e.g., along curbs or in low-lying areas);
- Vegetative growth in cracks, larger exposed soil surfaces or areas with soil accumulation over the pavement that could enable further degradation of the paved surface.
- Accumulated trash or other debris that could be conveyed into storm sewers or surface water; and
- Indications of petroleum or hazardous material releases that have not been properly cleaned up (see **Section 6.2.4** for more details on response to these situations).



County of Henrico

Verification	Originator	Revised	Issued
Initials	MRS		MRS
Date	12/31/15		12/31/15

Standard Operating Procedure Part I.B.2.c Roadways, Driveways and Parking Lots

6.1.2 Unpaved Surfaces

6.1.2.1 General

All unpaved roadways, driveways and parking lots identified in **Attachment 1** are to be designed, constructed and maintained to minimize the uptake of sedimentation or other pollutants (e.g., hazardous materials) that could then be carried into the MS4. Earthen surfaces are to be maintained as compacted soil with no substantial evidence of erosion and are to be graded as discussed in **Section 6.2.3**. Gravel surfaces are to be maintained to minimize the uptake of sedimentation, with gravel resurfacing as required and discussed in **Section 6.2.3**.

6.1.2.2 Inspections

All dirt or gravel roadways, driveways and parking lots identified in **Attachment 1** are to be evaluated every two years, or more often as necessary, to identify conditions that could adversely impact storm sewers or surface water using the *Roadways, Driveways and Parking Lots Biennial Inspection Form* in **Attachment 2**. Such conditions include:

- Eroded or loose earthen surfaces that could result in excessive sedimentation in runoff or facilitate vegetative growth;
- Accumulated trash or other debris that could be conveyed into storm sewers or surface water; and
- Indications of petroleum or other hazardous material releases that have not been properly cleaned up (see **Section 6.2.4** for more details on response to these situations).

6.1.3 Material Storage

6.1.3.1 General

Petroleum and hazardous materials are to be stored indoors or under cover when practical. If stored outdoors and not under cover, they should be in containers with firmly affixed lids, clearly labeled as to their contents and with no significant rusting, dents or other indication that the integrity of the containerized are compromised. Piles of soil or other erodible materials should be covered, or stored with silt fencing or equivalent surrounding the perimeter to avoid sediment-laden runoff.

6.1.3.2 Inspections

All petroleum and hazardous materials and soil or other erodible piles that are stored outdoors are to be inspected annually using the *Roadways, Driveways and Parking Lots Petroleum and Hazardous Materials Storage Annual Inspection Form* in **Attachment 3**.

6.1.4 Equipment Maintenance

6.1.4.1 Any equipment maintenance that is performed on roadways, driveways and parking lots identified in **Attachment 1** should be performed so as to minimize or eliminate the possibility of petroleum or hazardous materials releases to the area.



County of Henrico

Verification	Originator	Revised	Issued
Initials	MRS		MRS
Date	12/31/15		12/31/15

Standard Operating Procedure Part I.B.2.c Roadways, Driveways and Parking Lots

6.1.4.2 When possible, maintenance should be performed indoors. If outdoor maintenance on equipment is required, drip pans should be used to collect any released liquids (e.g., petroleum or antifreeze).

6.1.4.3 Equipment that is in poor condition and releases petroleum or hazardous materials should be repaired in an expeditious fashion and should not be stored outdoors until repaired, if practical.

6.1.4.4 Equipment that has is no longer in use or is not serviceable should be disposed or removed to a protected area.

6.2 Non-Routine Operations

6.2.1 Deicing and Sanding

Any application of sand, road salt or deicing liquids (e.g., magnesium chloride) to paved roadways, driveways and parking lots identified in **Attachment 1** should be performed in an efficient manner and not to excess. These materials should be stored under cover until use. The use of deicing agents containing urea or other forms of nitrogen and phosphorus is prohibited. After application of sand the site should be evaluated to determine if sweeping is necessary.

6.2.2 Pavement Repair

Pavement repair of roadways, driveways and parking lots identified in **Attachment 1** is to be performed as necessary, but in such a manner as to minimize the uptake of contaminants (e.g., petroleum associated with asphalt). Upon completion of the repair activities the site should be evaluated to determine if sweeping is necessary (e.g., excess asphalt not compacted into the repaired surface).

6.2.3 Regrading or Resurfacing of Unpaved Surfaces

Regrading of dirt or gravel roadways, driveways and parking lots identified in **Attachment 1** should be performed as required, but in such a manner as to minimize the uptake of sediments. Surfaces, upon regrading, should be evaluated for compaction as appropriate.

6.2.4 Material Spill Response

Any releases of petroleum or hazardous materials to roadways, driveways or parking lots identified in **Attachment 1** should be promptly cleaned up (i.e., within 24 hours). If absorbent is used to manage free liquids it should be immediately swept up, containerized and properly disposed. All petroleum impacted absorbent (with the exception of gasoline) may be disposed as a solid waste assuming all free liquids have been absorbed. Gasoline-impacted absorbent must have a hazardous waste characterization performed to determine whether the waste is a hazardous waste due to toxicity from benzene content. Petroleum releases that are cleaned up within 24 hours are not required to be reported to regulatory authorities as long as documentation is generated that identifies the release and the cleanup work performed.



County of Henrico

Verification	Originator	Revised	Issued
Initials	MRS		MRS
Date	12/31/15		12/31/15

Standard Operating Procedure Part I.B.2.c Roadways, Driveways and Parking Lots

It should be noted that petroleum releases that result in a sheen on surface water, including water in the MS4, are required to be reported immediately (interpreted to mean within 15 minutes of becoming aware of the release) to the National Response Center and other regulatory agencies.

6.2.5 Vegetation Removal

Any vegetation that is growing in cracks or surficial soil should be manually removed to reduce the likelihood of further degradation from growth. If a contractor is hired to apply an herbicide, such application should be performed in accordance with *Standard Operating Procedure Part I.B.2.d – Pesticide, Herbicide & Fertilizer Application*.

6.2.6 Trash Removal

Any visible trash observed on the roadways, driveways and parking lots identified in **Attachment 1** should be promptly removed and properly disposed.

7.0 Training:

DPU personnel working at sites with roadways, driveways and parking lots identified in **Attachment 1** must be trained on the contents of this SOP. This is a biennial training requirement which must be updated upon revision of this SOP.

8.0 Recordkeeping:

8.1 Training records associated with **Section 7.0** of this Procedure should be maintained for the duration of the employee's employment by the County.

8.2 Routine inspections and spill response activities identified in **Section 6.0** above should be maintained for a period of three years.

9.0 Reporting:

9.1 DPU will identify and provide DPW with the following **no later than February 28th of each year** for the previous permit year:

- A list of circumstances of non-compliance outside its control that occurred;
- A list of any spills, the source and a description of the follow up activities; and
- Training documentation related to this SOP including the date of the event and the number of DPU staff attending the training events.

9.2 DPU will develop and maintain an accurate list of DPU-maintained roads, streets and parking lots that includes the street name, the miles of roadway not treated by BMPs and miles of roadways treated by BMPs as described in **Attachment 1 no later than February 28, 2016 and whenever changes to Attachment 1 are made.**



County of Henrico

Verification	Originator	Revised	Issued
Initials	MRS		MRS
Date	12/31/15		12/31/15

Standard Operating Procedure Part I.B.2.c

Roadways, Driveways and Parking Lots

9.2 DPU will submit this SOP to DPW for inclusion in the annual report due March 31, 2018 and the MS4 Program Plan **no later than February 28th 2016**.

PART I.B.2.c
MS4 PROGRAM IMPLEMENTATION
ROADWAYS

DIVISION OF FIRE

**County of Henrico
Division of Fire**

By order of:

Anthony E. McDowell

Anthony E. McDowell
Chief, Division of Fire



**Directive: AD-17
Municipal Storm Sewer
Protection**

Date: March 1, 2016

Replaces: N/A

Purpose

To comply with the Virginia Stormwater Management Act, this permit was established to eliminate the illicit discharge of substances, other than rain water, into the county's Municipal Separate Storm Sewer System (MS4). This guideline will further layout the requirements the permit places on the Division of Fire for protecting the MS4 system through maintenance of existing infrastructure and the response to illicit spills that may take place at our facilities. The Division of Fire is designating the station captains to be the responsible parties for purposes of compliance with this permit for their respective fire stations. Henrico County is obligated by law to follow the procedures and requirements set forth in the MS4 Permit approved by the Virginia Department of Environmental Quality.

Directive

Glossary:

Municipal Separate Storm Sewer System (MS4)- Specifically defined in the federal rules (Title 40 Code of Federal Regulations Part 122.2). An MS4 includes ditches, curbs, gutters, storm sewers, and similar means of collecting or conveying runoff that do not connect with a wastewater collection system or treatment plant. To be an MS4, the system must be owned or operated by a public agency.

Best Management Practices (BMP)- Infrastructure such as bio-retention basins, grassed swales, rain barrels and cisterns are a few examples of storm water BMPs. These BMPs allow for the temporary storage of storm run-off until it can be absorbed into the ground or discharged following treatment.

Procedure:

Effective immediately, there will be no vehicle washing of any kind outside the fire stations, to include personal vehicles. All fire apparatus must be washed inside the fire station or at a commercial vehicle washing location. Our vehicle washing can produce oil and sediment in their run-off which is forbidden to enter the MS4.

All cleaning water used to clean floors or equipment may be disposed of by pouring into the floor drain of the vehicle bay, ensuring that if an absorbent boom is present, allowing the water to pass through the

boom before entering the drain. Do not pour sediment laden cleaning water into any sink drain; this may cause blockages of the drain line.

Vehicle parking areas and ramps shall not be washed utilizing hose lines or hydrant flow. Alternative measures of cleaning are being researched up to and including commercial parking lot cleaning vendors. This would include sand and salt left over from winter weather conditions.

The Division of Fire will no longer apply nutrients /weed control to the lawns of fire stations. This includes fertilizer, lime and other weed control chemicals. The application of these substances is highly regulated in this permit and must be applied by licensed applicators.

Allowable Discharges and Flows

1. Discharges from potable water sources.
 - a. Water that overflows from your tank during fill operations is allowed to flow into the MS4.
 - b. Water used to test fire hose is allowed to flow into the MS4.
 - c. Water that flows from draining fire hose is allowed.
2. Street washing water
 - a. Water used to wash down a street or sidewalk during the performance of fire/EMS operations is allowed. It is still inappropriate to wash petroleum products or any other chemical into the MS4 as a means of cleanup. As always, if immediate life safety is a concern, water can be used to mitigate the risk without violating the permit intent.
3. Discharges or flows from firefighting activities.
 - a. This includes any incident related water flow or flows resulting from training/testing activities.

Protection of Wash Bay Drains

In order to comply with Henrico Public Utilities Sanitary Sewer Standards we must take some precautionary measures in fire stations to clean up leaks and sediment before washing. The importance of sweeping the floor and cleaning up oil spills and drips from the floor prior to washing activities cannot be overstated. This cleanup does not have to be reported as part of this SOG, and normal disposal procedures can be used. This should extend the life of the boom material and give additional protection to the sanitary sewer system.

Illicit Spills of Chemicals or Petroleum Products

In the event of a spill on any fire station ramp or parking area, the normal methods of control must be initiated immediately. Absorbent material should be used to absorb any liquids before it runs to a stormwater inlet. The following steps must be taken on each occurrence:

1. Control of the spill
2. Documentation of the spill
 - a. Name of material spilled. When did it occur?
 - b. How much?

- c. Where was the spill? Did it reach the MS4?
 - d. How was it cleaned up?
 - e. Who cleaned it up?
 - f. What method of disposal was used?
3. Take pictures of spill, method of cleanup/control.

Each step of this process must be documented with a picture of the spill, one with how it was cleaned up, and one of the spill locations after cleanup. Pictures must accompany a written report for each occurrence, kept on site for inspection. Failure to properly clean up or document the spill will constitute a violation of the MS4 permit and be subject to fines. The Division of Fire is required to report to Public Works the number of spills, with proper documentation, each year as an annual compliance report.

Best Management Practices (BMP) Maintenance

In cooperation with General Services, the Division of Fire has agreed to maintain the BMP's currently in place at our fire stations. This maintenance includes grass cutting and picking up of trash, the normal yard maintenance done at our facilities. This agreement does not extend to infrastructure repair or replacement on or in the BMP.

As with other activities required by the MS4 permit, when maintenance is performed on a BMP, there must be documentation to verify it was done. Each fire station with a BMP will be supplied with a master copy of the form that must be filled out for each maintenance activity. The station can reproduce this form as much as needed. The completed form is to be kept in a file at the station for inspection and a copy submitted to the MS4 Permit folder on the server. Failure to provide periodic maintenance of the BMP constitutes a violation of the MS4 permit and may be subject fines.

Fire stations with BMP's that will require this level of maintenance are Glen Allen Station 15 and Virginia Center Station 21. Other stations have mechanical BMP's that require maintenance beyond the scope of this SOG. General Services has agreed to retain responsibility for those facilities.

PART I.B.2.c
MS4 PROGRAM IMPLEMENTATION
ROADWAYS

DIVISION OF POLICE



County of Henrico

Verification	Originator	Revised	Issued
Initials	Henrico PD		Henrico PD
Date	4/4/18		4/4/18

Environmental Standard Operating Procedure 001 Stormwater Infrastructure Management

Persons responsible:	Henrico County Police Division
Area of application:	Henrico County Police Division Facilities
Document location:	Maintained in the office of the Henrico Police Division MS4 Coordinator
Revisions	
Rev. No.	Date
	Description

1.0 Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide written inspection and maintenance procedures that provide adequate long term operation and maintenance of Henrico County Police Division (HPD)-maintained stormwater conveyances.

2.0 Scope:

This SOP applies to stormwater conveyances on HPD-managed properties, as identified in **Attachment 1**.

3.0 Exclusions:

N/A

4.0 Responsibility:

- All Staff and Contractors are responsible for ensuring that all relevant and applicable components of this SOP are followed.
- Henrico Police Division MS4 Coordinator is responsible for ensuring reporting are met, maintaining records and for updating this procedure as necessary.

5.0 Definitions:

- Best Management Practice (BMP) - Schedules of activities, prohibitions of practices, including both structural and nonstructural practices, maintenance procedures, and other



County of Henrico

Verification	Originator	Revised	Issued
Initials	Henrico PD		Henrico PD
Date	4/4/18		4/4/18

Environmental Standard Operating Procedure 001 Stormwater Infrastructure Management

management practices to prevent or reduce the pollution of surface waters and groundwater systems from the impacts of land-disturbing activities.

- Conveyances – Elements of the storm sewer system designed or used to collect or convey stormwater runoff, including culverts, ditches, man-made channels or drop inlet storm drains that convey stormwater to facility discharge outfalls.
- Maintenance – Periodic stabilization and revegetation of eroded areas; periodic removal of trash, sediment and overgrowth within stormwater infrastructure.
- Runoff – Any water (rainfall or otherwise) that enters the stormwater conveyances. This includes any sheet flow or inlet channel/piping flow.
- Sediment – Any soil, rock, dirt or other inorganic or organic fine solids accumulated in the stormwater infrastructure.

6.0 Operational Requirements:

These requirements apply to stormwater conveyances located on HPD-managed properties listed in **Attachment 1**.

6.1 Inspection Requirements

Stormwater conveyances must be inspected annually (every year). These inspections may be performed by HPD personnel or by a designated third party that is trained in the content of this SOP. These inspections are to be documented on a *Maintenance Inspection Form for Stormwater Infrastructure* which is included in **Attachment 2**.

The annual stormwater conveyance inspections should evaluate the following, as applicable:

- Adequate vegetative cover;
- Erosion, side slope slumping or inadequate or dying vegetative cover;
- Eroded or loose earthen surfaces causing excessive sedimentation or facilitating unacceptable vegetative growth;
- Confirm that all BMPs are functional and all stormwater grates/drains are clear of debris;
- Presence of sediment accumulation in stormwater conveyance infrastructure;
- Presence of debris and trash accumulation in stormwater conveyance infrastructure;
- Excessive standing water in stormwater conveyance infrastructure;
- Presence of non-stormwater drainage;
- Presence of oil staining/sheens or other conditions indicative of a hazardous material release; and,
- Confirm that outlet structures and channels adequate (no erosion, free of litter/debris, no excessive vegetative growth and no excessive sedimentation).



County of Henrico

Verification	Originator	Revised	Issued
Initials	Henrico PD		Henrico PD
Date	4/4/18		4/4/18

Environmental Standard Operating Procedure 001 Stormwater Infrastructure Management

6.2 Maintenance Requirements

Stormwater conveyances must be maintained to ensure they operate in a manner consistent with their design. Any maintenance activities triggered by these inspections, or otherwise performed, are to be documented on a *Maintenance Inspection Form for Stormwater Infrastructure* which is included in **Attachment 2**.

- Vegetated Areas: Maintaining a permanent vegetative cover (e.g. grass) is an ideal method for controlling erosion and sediment transport.
 - A permanent vegetative cover shall be established over all non-paved and non-graveled surfaces and maintained in accordance with the *Virginia Erosion and Sediment Control Handbook Chapter 3.32 – Permanent Seeding*.
 - Particular attention should be given to establishing a permanent vegetative cover on and adjacent to high traffic, high-slope and other erosion prone areas (e.g., Firing Range Safety Berms).
 - All vegetated areas should be mowed periodically, as appropriate, to prevent unmanageable overgrowth and encroachment of woody plant species.
- Stormwater Conveyance Structures:
 - Applicable stormwater conveyance structures include but are not limited to curb and drop inlets, grate covers, culverts, concrete lined channels and grass swales.
 - Stormwater conveyance structures, such as drop/curb inlets, concrete culverts, ditches and channels with significant sediment accumulation must be cleaned and accumulated litter and debris removed.
 - Stormwater conveyance structures that are damaged or structurally compromised (e.g., cracked or damaged steel grating or concrete) must be repaired in a timely manner. Any cracked, spalled, broken or loose concrete should be repaired with an appropriate patching material. A professional engineer should be consulted with in the event that extensive damaged and associated leakage is observed.
 - Grass lined swales and other earthen structures must be maintained to ensure excessive vegetation, litter or sediment deposition doesn't compromise effectiveness.
 - Cleared vegetation and sediment should be removed and disposed in a manner that will not compromise the stormwater conveyances in the future. For example, sediment should not be piled immediately adjacent to the conveyance. Cleared vegetation, or vegetation generated during landscaping activities (e.g., grass clippings) should not be deposited in the stormwater conveyances.
 - Any sediment removed from the BMPs must be managed in accordance with applicable federal, state and local regulations. Specifically, the removed sediment must be dewatered and either transported to a landfill for disposal or managed on-site if it has met the applicable on-site disposal requirement,



County of Henrico

Verification	Originator	Revised	Issued
Initials	Henrico PD		Henrico PD
Date	4/4/18		4/4/18

Environmental Standard Operating Procedure 001 Stormwater Infrastructure Management

including not being impacted by oil above VA Dept. of Environmental Quality standards or other hazardous materials at actionable levels.

- Erosion Prone Areas:
 - All areas prone to erosion related damaged shall be inspected as part of the annual inspection and appropriate BMPs installed as necessary. Erosion prone areas include gravel and grass stormwater conveyance structures, high traffic areas, and high slope areas.
 - Acceptable BMPs for preventing erosion related damage includes, but is not limited to establishment of a permanent vegetative cover, installation of erosion matting, silt fencing, hay bales or equivalent types of protection.
 - All erosion related damage must be repaired in a timely manner.
- Hazardous Material and Oil Release Prevention and Spill Response:
 - Refer to *HPD Environmental Standard Operating Procedure 003 – Oil and Hazardous Materials Spills* for HPD operational and emergency response procedures related to oil and hazardous materials.

7.0 Training:

HPD personnel managing, maintaining or inspecting stormwater conveyances must be trained biennially on the contents of this SOP. This biennial training program must be updated upon revision of this SOP.

8.0 Recordkeeping:

- Training records associated with **Section 7.0** of this Procedure should be maintained for the duration of the employee's employment by the County.
- Routine inspections and responses to inadequate conditions identified during the inspections should be maintained for a period of three years.
- All inspection records, as applicable, should be submitted to the Henrico County MS4 Program Manager annually:
 - A list of any incidents of non-compliance with the MS4 permit conditions that were outside the control of the HPD;
 - A list of all activities related to the maintenance of stormwater infrastructure including inspections, maintenance and repair of stormwater infrastructure;
 - A summary of all training activities;
 - A list of any modifications to the MS4 Program; and,
 - A list of planning work related to any modifications to the stormwater management program.

Attachment 1



County of Henrico

Henrico County Police Division MS4 Compliance Matrix Henrico County, Virginia

Regulated Area	Location/Address						
	Villa Park Substation 7850 Villa Park Henrico, VA 23228	Radio Tower 3451 Cox Rd Richmond VA 23233	Radio Tower 3808 Nine Mile Rd Richmond VA 23233	Animal Shelter 10421 Woodman Rd Glen Allen, VA 23060	K-9 Facility 420 Dabbs House Rd Richmond, VA 23223	Forensics Garage and Storage Lot 10441 Woodman Rd Glen Allen, VA 23060	Firearms Range 6440 LaFrance Rd Sandston, VA 23150
HPMF (1)	No	No	No	No	No	Yes	Yes
SWPPP	Not Required	Not Required	Not Required	Not Required	Not Required	Required	Required
Quarterly Site Inspection	Not Required	Not Required	Not Required	Not Required	Not Required	Required	Required
Annual Stormwater Infrastructure Inspection	Required	Required	Required	Required	Required	Required	Required
Annual Roadway, Parking Lot, Sidewalk Inspection	Required	Not Required	Not Required	Required	Required	Required	Required
Outfall Labeling (2)	Not Required	Not Required	Not Required	Not Required	Not Required	Required	Required
Stormwater Infrastructure Management SOP (3)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Roadway Parking Lot Sidewalk SOP (3)	Yes	No	No	Yes	Yes	Yes	Yes
Oil and Hazardous Materials Spill SOP(3)	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(1): High Priority Municipal Facility

(2): Outfall labelling required for HPMF and sites with more than 2 acres of impervious area

(3): SOP: Standard Operating Procedure

April 2018

Attachment 2



County of Henrico

Attachment 2 Henrico County Police Division MS4-Regulated BMPs

Maintenance Inspection Form for Stormwater Infrastructure

Date: _____ Completed By: _____

Location: _____

Inspection Item	√ If Ok	√ Issue	Comments (and Resolutions to Noted Problems) ⁽¹⁾
Adequate vegetative cover (e.g., grass) in the non-paved areas? Note: All areas with excessive areas of bare/exposed soil should be noted.			
Erosion in non-paved areas? This includes: <ul style="list-style-type: none">• Gravel area• Vegetated areas• High Slope Areas			
All BMPs functional and all storm grates/drains are clear of debris?			
Presence of debris and trash accumulation in stormwater conveyance infrastructure including: <ul style="list-style-type: none">• Litter or vegetative debris• Accumulated sediment			
Excessive standing water in immediate vicinity of stormwater conveyance infrastructure indicating of inadequate drainage?			
Presence of non-stormwater drainage?			
Presence of oil staining, sheen or other indicators of hazardous materials spills or releases in stormwater conveyances?			
Outlet channel conditions adequate? (e.g., no erosion, excessive vegetative growth, sedimentation, etc.)			

(1) Use additional forms as needed



County of Henrico

Verification	Originator	Revised	Issued
Initials	Henrico PD		Henrico PD
Date	4/4/18		4/4/18

Environmental Standard Operating Procedure 002 Roadways, Driveways and Parking Lots

Persons responsible:	Henrico County Police Davison
Area of application:	Henrico County Police Division Facilities
Document location:	Maintained in the office of the Henrico Police Division MS4 Coordinator
Revisions	
Rev. No.	Date
	Description

1.0 Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide maintenance and management requirements for all Henrico County Police Division (HPD)-maintained parking lots, streets and driveways to minimize discharge of pollutants into the County's Municipal Separate Storm Sewer System (MS4).

2.0 Scope:

This SOP applies to the roadways, driveways and parking lots at all HPD-managed facilities identified in **Attachment 1**.

3.0 Exclusions:

N/A

4.0 Responsibility:

- All Staff and Contractors are responsible for ensuring that all relevant and applicable components of this SOP are followed.
- Henrico Police Division MS4 Coordinator is responsible for ensuring reporting requirements are met, maintaining records and for updating this procedure as necessary.



County of Henrico

Verification	Originator	Revised	Issued
Initials	Henrico PD		Henrico PD
Date	4/4/18		4/4/18

Environmental Standard Operating Procedure 002 Roadways, Driveways and Parking Lots

5.0 Definitions:

- Petroleum – Any grade of chemical petroleum (e.g., diesel, gasoline, hydraulic fluid, motor oil, etc.).
- Regulated Substance – An element, compound, mixture or solution (i.e., petroleum or hazardous material) that may present a danger to human health or the environment when released into the environment.
- Stormwater Pollutants – Any non-petroleum materials that could adversely impact surface water (e.g., vegetable oil, road salt, oil or latex-based paints, PVC bonding cement, etc.)
- Sweeping – Parking lot sweeping of pollutants, including sediment, debris, trash, road salt, trace metals and loose aggregates.
- Maintenance – Periodic stabilization and revegetation of eroded areas beside driveways, streets or parking lots. Periodic removal of trash and sediment within driveways, streets or parking lots. Periodic removal of overgrowth within the storm sewer system along driveways, streets or parking lots.

6.0 Operational Requirements:

6.1 Inspection Requirements

- All asphaltic, concrete, or otherwise paved roadways, driveways and parking lots identified in **Attachment 1** are to be evaluated annually, or more often as necessary, to identify conditions that could adversely impact storm sewers or surface water using the *Roadways, Driveways and Parking Lots Annual Inspection Form* in **Attachment 2**. Such conditions include:
 - Degraded paved surfaces that could result in excessive sedimentation in runoff;
 - Excessive accumulated soil that could result in excessive sedimentation in runoff or could facilitate the growth of vegetation (e.g., along curbs or in low-lying areas);
 - Vegetative growth in cracks, larger exposed soil surfaces or areas with soil accumulation over the pavement that could enable further degradation of the paved surface;
 - Accumulated trash or other debris that could be conveyed into storm sewers or surface water;
 - Indications of petroleum stormwater pollutants or hazardous material releases that have not been properly cleaned up;
 - Equipment that is not covered and visible release of petroleum or hazardous materials; and
 - Evidence of excessive salt or sand residue from application due to freezing conditions.



County of Henrico

Verification	Originator	Revised	Issued
Initials	Henrico PD		Henrico PD
Date	4/4/18		4/4/18

Environmental Standard Operating Procedure 002 Roadways, Driveways and Parking Lots

- All dirt or gravel roadways, driveways and parking lots are to be evaluated annually, or more often as necessary, to identify conditions that could adversely impact storm sewers or surface water using the *Roadways, Driveways and Parking Lots Annual Inspection Form* in **Attachment 2**. Such conditions include:
 - Eroded or loose earthen surfaces that could result in excessive sedimentation in runoff or facilitate vegetative growth;
 - Accumulated trash or other debris that could be conveyed into storm sewers or surface water;
 - Indications of petroleum, stormwater pollutants or other hazardous material releases that have not been properly cleaned up;
 - Equipment that is not covered and visible release of petroleum or hazardous materials; and
 - Evidence of excessive salt or sand residue from application due to freezing conditions.

6.2 Maintenance Requirements

- Asphaltic or Concrete Surfaces:
 - Sweeping: All asphaltic, concrete, or otherwise paved roadways, driveways and parking lots identified in **Attachment 1** are to be swept by mechanical means when deemed appropriate by site personnel. Sweeping is deemed necessary when routine observation or the annual inspections identify accumulated sediment or other pollutants that are likely to lead to excessive sediment loading or pollutant loading to the MS4. Sweeping may be performed by a contractor as appropriate.
- Unpaved roadways, driveways and parking lots
 - All earthen surfaces (gravel/unpaved roadways, driveways and parking lots) are to be maintained as compacted soil with no substantial evidence of erosion and are to be graded. Gravel surfaces are to be maintained to minimize the uptake of sedimentation, with regrading and gravel resurfacing as required. This maintenance may be performed by a contractor as appropriate.
- Trash Removal
 - Any visible trash observed on the roadways, driveways and parking lots identified in **Attachment 1** should be promptly removed and properly disposed.



County of Henrico

Verification	Originator	Revised	Issued
Initials	Henrico PD		Henrico PD
Date	4/4/18		4/4/18

Environmental Standard Operating Procedure 002 Roadways, Driveways and Parking Lots

- Deicing and Sanding
 - Any application of sand, road salt or deicing liquids (e.g., magnesium chloride) to paved roadways, driveways and parking lots identified in **Attachment 1** should be performed in an efficient manner and not to excess. These materials should be stored under cover until use. The use of deicing agents containing urea or other forms of nitrogen and phosphorus is prohibited. After application of sand the site should be evaluated to determine if sweeping is necessary.
- Vegetation Removal
 - Any vegetation that is growing in cracks or surficial soil should be manually removed to reduce the likelihood of further degradation from growth. If a contractor is hired to apply an herbicide, the HPD will confirm that the contractor is appropriately licensed and that all work is completed in strict accordance with local, state and federal requirements.
- Material Storage
 - All materials (e.g. sand, top soil, fill material) stored at the locations identified in **Attachment 1** that can adversely impact stormwater should be stored under cover, or otherwise protected from stormwater, prior to use.
- Pavement Repair
 - Pavement repair of roadways, driveways and parking lots identified in **Attachment 1** is to be performed as necessary, but in such a manner as to minimize the uptake of contaminants (e.g., petroleum associated with asphalt). Upon completion of the repair activities, the site should be evaluated to determine if sweeping is necessary (e.g., excess asphalt not compacted into the repaired surface).

7.0 Training:

HPD personnel working at sites with roadways, driveways and parking lots identified in **Attachment 1** must be trained biennially on the contents of this SOP. This biennial training program must be updated upon revision of this SOP.

8.0 Recordkeeping:

- Training records associated with **Section 7.0** of this Procedure should be maintained for the duration of the employee's employment by the County.
- Routine inspections and spill response activities identified in **Section 6.0** above should be maintained for a period of three years.



County of Henrico

Verification	Originator	Revised	Issued
Initials	Henrico PD		Henrico PD
Date	4/4/18		4/4/18

Environmental Standard Operating Procedure 002 Roadways, Driveways and Parking Lots

- All inspection records, as applicable, should be submitted to the Henrico County MS4 Program Manager annually:
 - A list of any incidents of non-compliance with the MS4 permit conditions that were outside the control of the HPD;
 - A list of all activities related to the maintenance of stormwater infrastructure including inspections, maintenance and repair of stormwater infrastructure;
 - A summary of all training activities;
 - A list of any modifications to the MS4 Program; and,
 - A list of planning work related to any modifications to the stormwater management program.
- HPD will develop and maintain an accurate list of HPD-maintained roads, streets and parking lots that includes the street name, the miles of roadway not treated by BMPs and miles of roadways treated by BMPs.

Attachment 1



County of Henrico

Henrico County Police Division MS4 Compliance Matrix Henrico County, Virginia

Regulated Area	Location/Address						
	Villa Park Substation 7850 Villa Park Henrico, VA 23228	Radio Tower 3451 Cox Rd Richmond VA 23233	Radio Tower 3808 Nine Mile Rd Richmond VA 23233	Animal Shelter 10421 Woodman Rd Glen Allen, VA 23060	K-9 Facility 420 Dabbs House Rd Richmond, VA 23223	Forensics Garage and Storage Lot 10441 Woodman Rd Glen Allen, VA 23060	Firearms Range 6440 LaFrance Rd Sandston, VA 23150
HPMF (1)	No	No	No	No	No	Yes	Yes
SWPPP	Not Required	Not Required	Not Required	Not Required	Not Required	Required	Required
Quarterly Site Inspection	Not Required	Not Required	Not Required	Not Required	Not Required	Required	Required
Annual Stormwater Infrastructure Inspection	Required	Required	Required	Required	Required	Required	Required
Annual Roadway, Parking Lot, Sidewalk Inspection	Required	Not Required	Not Required	Required	Required	Required	Required
Outfall Labeling (2)	Not Required	Not Required	Not Required	Not Required	Not Required	Required	Required
Stormwater Infrastructure Management SOP (3)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Roadway Parking Lot Sidewalk SOP (3)	Yes	No	No	Yes	Yes	Yes	Yes
Oil and Hazardous Materials Spill SOP(3)	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(1): High Priority Municipal Facility

(2): Outfall labelling required for HPMF and sites with more than 2 acres of impervious area

(3): SOP: Standard Operating Procedure

April 2018

Attachment 2



Attachment 2
Henrico County Police Division
MS4-Regulated BMPs

Roadways, Driveways and Parking Lots Annual Inspection Form

Date: _____ **Completed By:** _____

Location: _____

Inspection Item	√ If Ok	√ If Problem	Comments (and Resolutions to Noted Problems)
Degraded paved surfaces that could result in excessive sedimentation in runoff?			
Excessive accumulated soil that could result in excessive sedimentation in runoff or could facilitate the growth of vegetation (e.g., along curbs or in low-lying areas)?			
Vegetative growth in cracks, larger exposed soil surfaces or areas with soil accumulation over the pavement that could enable further degradation of the paved surface?			
Accumulated trash or other debris that could be conveyed into runoff?			
Indications of petroleum stormwater pollutants or hazardous material releases that have not been properly cleaned up?			
Eroded or loose earthen surfaces that could result in excessive sedimentation in runoff or facilitate vegetative growth?			
Equipment with visible releases of petroleum or hazardous materials?			
Evidence of excessive salt or sand following application in response to snowfall or freezing conditions?			



County of Henrico

Verification	Originator	Revised	Issued
Initials	Henrico PD		Henrico PD
Date	4/4/18		4/4/18

Environmental Standard Operating Procedure 003 Oil and Hazardous Material Spills

Persons responsible:	Henrico County Police Division
Area of application:	Henrico County Police Division Facilities
Document location:	Maintained in the office of the Henrico Police Division MS4 Coordinator
Revisions	
Rev. No.	Date
	Description

1.0 Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide instructions on how to respond to and who to notify in the event of a release of a regulated substance from Henrico County Police Division (HPD)-maintained facilities.

2.0 Scope:

This SOP applies to all HPD-managed properties identified in **Attachment 1**.

3.0 Exclusions:

N/A

4.0 Responsibility:

- All Staff and Contractors are responsible for ensuring that all relevant and applicable components of this SOP are followed.
- Henrico Police Division MS4 Coordinator is responsible for ensuring reporting requirements are met, maintaining records and for updating this procedure as necessary.

5.0 Definitions:

- Regulated Substance - An element, compound, mixture or solution (i.e. petroleum or hazardous material) that may present a danger to human health or the environment when released into the environment.



County of Henrico

Verification	Originator	Revised	Issued
Initials	Henrico PD		Henrico PD
Date	4/4/18		4/4/18

Environmental Standard Operating Procedure 003 Oil and Hazardous Material Spills

- Release - Any spilling, leaking, discharging or escaping of a regulated substance into the environment (i.e. a spill not contained within a building or structure).
- Reportable Release - Any release that is required to be reported to a regulatory agency (e.g., a petroleum spill in excess of 25 gallons or that causes that causes an oil sheen on surface water).

6.0 Operational Requirements:

These requirements apply to regulated substances used or stored on HPD-managed properties listed in **Appendix 1**.

6.1 Operational Requirements

- Use appropriate methods to prevent releases and collect and contain oil and hazardous material releases from containers, equipment and impounded vehicles. The following methods will be applied where practicable:
 - Keep oil/hazardous materials container lids securely fastened at all times;
 - Do not leave portable oil containers unattended (outside);
 - Use pads, drip pans and funnels when transferring petroleum products from a container;
 - Protect oil sources from damage inflicted by moving equipment;
 - Do not store oil sources near catch basins or floor drains;
 - Store leaking equipment under cover until a release can be repaired or all the hazardous substance is recovered; and
 - Use drip pans, sorbent materials (e.g. oil dry, sorbent booms/pads) to collect and contain any oil/hazardous material release.
- Maintain oil spill response equipment (e.g., oil dry, oil sorbent pads/booms) in the immediate vicinity of all areas where there is a likelihood that oil spills may occur. This includes but is not limited to the HPD Firing Range, the HPD Forensics Garage and Storage Lot and service vehicles that are used by HPD staff to maintain HPD operations (e.g., radio towers). Ensure that staff is trained in the use of oil spill response equipment.
- Regularly inspect oil/hazardous material storage locations as well as vehicles and equipment suspected of leaking to ensure that any release is promptly discovered and addressed.
- Protect stormwater conveyances from oil releases. Options for protecting stormwater conveyances include but are not limited to the following options:
 - Implement release prevention strategies at potential oil/hazardous material leak locations;
 - Install oil sorbent materials or booms around all stormwater infrastructure inlets to filter oil impacted; and



County of Henrico

Verification	Originator	Revised	Issued
Initials	Henrico PD		Henrico PD
Date	4/4/18		4/4/18

Environmental Standard Operating Procedure 003 Oil and Hazardous Material Spills

- Install additional control measures where prevention and sorbent materials are deemed to not provide adequate protection to stormwater conveyances.

6.2 Emergency Response Requirements

- Refer to and follow all response and reporting requirements set forth in *County of Henrico Spill Response and Notification Environmental Standard Operating Procedure 003. (Attachment 2)*
- Promptly respond all oil/hazardous material releases as soon as practicable and within 24 hours of discovery:
 - If the site is unsafe, evacuate and move to a safe distance away from the release and complete all petroleum spill notification steps as defined in the *County of Henrico Spill Response and Notification Environmental Standard Operating Procedure 003. (Attachment 2)*; and
 - Respond to oil/hazardous material releases if safe to do so and in full accordance with *County of Henrico Spill Response and Notification Environmental Standard Operating Procedure 003. (Attachment 2)*
- Complete all spill notification requirements listed in the *County of Henrico Spill Response and Notification Environmental Standard Operating Procedure 003. (Attachment 2)*
- Coordinate with the Henrico County Environmental Coordinator (804/501-5659) to properly containerize and dispose of all spill cleanup material, impacted soil and debris.
 - All absorbents, impacted soil and other spill response wastes will be containerized in 55-gallon drums with firmly affixed lids.
 - Gasoline spill cleanup waste should be labelled as "Hazardous Waste - Gasoline Spill Response Waste" on a Hazardous Waste Label. If more than 220 pounds of gasoline spill cleanup waste has been containerized (approximately one 55-gallon drum), mark the Start Accumulation Date on the drums pending disposal as a Hazardous Waste within 180 days of waste generation.
 - Diesel, oil and used oil cleanup waste is considered to be non-hazardous waste, unless it contains other wastes that would cause it to be hazardous (e.g., chlorinated solvents). These drums will be marked as "Non-Hazardous Waste - Petroleum Spill Response Waste" on a Non-Hazardous Waste Label and placed in a covered location for temporary storage.
 - Coordinate directly with the Henrico County Environmental Coordinator when addressing other hazardous materials releases.
 - Coordinate directly with the Henrico County Environmental Coordinator to coordinate the proper disposal of all spill cleanup material, impacted soil and debris.



County of Henrico

Verification	Originator	Revised	Issued
Initials	Henrico PD		Henrico PD
Date	4/4/18		4/4/18

Environmental Standard Operating Procedure 003 Oil and Hazardous Material Spills

7.0 Training:

HPD personnel managing, maintaining or inspecting stormwater conveyances must be trained on the contents of this SOP. This is a one-time training requirement which must be updated upon revision of this SOP.

8.0 Recordkeeping:

- Training records associated with **Section 7.0** of this Procedure shall be maintained for the duration of the employee's employment by the County.
- All records associated with this SOP shall be maintained for a period of three years.
- All the following records, as applicable, should be submitted to the Henrico County MS4 Program Manager annually:
 - A list of any incidents of non-compliance with the MS4 permit conditions that were outside the control of the HPD;
 - A list of all spills, the source and description of the response actions taken to address the release; and
- All spill records completed as part of the *County of Henrico Spill Response and Notification Environmental Standard Operating Procedure 003*

Attachment 1



County of Henrico

Henrico County Police Division MS4 Compliance Matrix Henrico County, Virginia

Regulated Area	Location/Address						
	Villa Park Substation 7850 Villa Park Henrico, VA 23228	Radio Tower 3451 Cox Rd Richmond VA 23233	Radio Tower 3808 Nine Mile Rd Richmond VA 23233	Animal Shelter 10421 Woodman Rd Glen Allen, VA 23060	K-9 Facility 420 Dabbs House Rd Richmond, VA 23223	Forensics Garage and Storage Lot 10441 Woodman Rd Glen Allen, VA 23060	Firearms Range 6440 LaFrance Rd Sandston, VA 23150
HPMF (1)	No	No	No	No	No	Yes	Yes
SWPPP	Not Required	Not Required	Not Required	Not Required	Not Required	Required	Required
Quarterly Site Inspection	Not Required	Not Required	Not Required	Not Required	Not Required	Required	Required
Annual Stormwater Infrastructure Inspection	Required	Required	Required	Required	Required	Required	Required
Annual Roadway, Parking Lot, Sidewalk Inspection	Required	Not Required	Not Required	Required	Required	Required	Required
Outfall Labeling (2)	Not Required	Not Required	Not Required	Not Required	Not Required	Required	Required
Stormwater Infrastructure Management SOP (3)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Roadway Parking Lot Sidewalk SOP (3)	Yes	No	No	Yes	Yes	Yes	Yes
Oil and Hazardous Materials Spill SOP(3)	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(1): High Priority Municipal Facility

(2): Outfall labelling required for HPMF and sites with more than 2 acres of impervious area

(3): SOP: Standard Operating Procedure

April 2018

Attachment 2



County of Henrico

Verification	Originator	Revised	Issued
Initials	Risk Management	Risk Management	Risk Management
Date	09/13/2010	08/03/2016	08/03/2016

Environmental Standard Operating Procedure 003 Spill Response and Notification

Persons Responsible:	Facility Operational Managers	
Area of Application:	Henrico County	
Document Location:	http://virtual.henrico/hr/risk/env_sops.html	
Revisions		
Rev. No.	Date	Description
001	08/24/2011	Petroleum and Hazardous Material Spill Response modified; Added additional Spill Response Training requirement.
002	01/31/2014	Added requirement to submit a copy of the completed Spill Notification Form to the County's Environmental Manager.
003	08/03/2016	Added notification requirements for suspected releases. Added 15 and 30 minute time limits to notify regulatory agencies and County personnel, respectively. Modified petroleum and hazardous substance reporting requirements. Added LEPC and Deputy Coordinator of Emergency Management notification requirements.

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide instructions on how to respond to and who to notify in the event of a release of a regulated or hazardous substance.

Scope:

This SOP applies to all Henrico County operations.

Exclusions:

If facility is covered by a Spill Prevention Control and Countermeasure (SPCC) Plan, follow the Spill Response and Notification guidelines in the SPCC Plan and make any additional notifications not specified in the SPCC Plan but included in this SOP and complete the Henrico County Spill Notification Form.

Responsibility:

The facility operational manager will ensure this SOP is followed in the event of a release of a regulated or hazardous substance.

Definitions:

Regulated or Hazardous Substance – Any material that may present a danger to human health or the environment when released into the environment, as defined by CERCLA, EPCRA, the Clean Water Act and other state and federal regulations.

Release - Any spilling, leaking, discharging or escaping of a regulated or hazardous substance into the environment (i.e. a spill not contained within a building or structure).

Reportable Quantity (RQ) – Amount of a hazardous substance that when released into the environment requires reporting to various regulatory agencies. RQs are listed in 40 CFR Part 302.4 and 40 CFR Part 355.



County of Henrico

Verification	Originator	Revised	Issued
Initials	Risk Management	Risk Management	Risk Management
Date	09/13/2010	08/03/2016	08/03/2016

Environmental Standard Operating Procedure 003

Spill Response and Notification

Spill Response for Petroleum and Hazardous Materials:

- If site is unsafe:
 - Evacuate and move to a safe distance away from the release; then
 - Follow Spill Notification and Reporting steps for type of product released.
- If safe to do so (based on specifications from safety data sheet (SDS) and product technical manual and considering external factors):
 - Wear appropriate personal protective equipment per SDS specification;
 - Take action to prevent any further release of the substance;
 - Contain the release with spill response materials and equipment; then
 - Follow Spill Notification and Reporting steps for type of product released.
- Ensure spill debris is properly managed and disposed of.



County of Henrico

Verification	Originator	Revised	Issued
Initials	Risk Management	Risk Management	Risk Management
Date	09/13/2010	08/03/2016	08/03/2016

Environmental Standard Operating Procedure 003 Spill Response and Notification

Petroleum Spill Notification and Reporting

Note: Notification should be made for both suspected and confirmed releases.

- Contact 911 to respond to releases that cannot be safely controlled using on-site resources.
- Contact an Emergency Response Contractor to respond to releases that cannot be safely controlled and cleaned up using on-site resources.
 - A list of emergency response contractors is available through the Emergency Resource List at: <http://virtual.henrico/genserv/vendorlist.pdf> subtitle "Environmental Contractors - Emergency Response Services".
- Notify the senior person on-site.
- The senior person on-site (or a designee) will make the following notifications to Regulatory Agencies within 15 minutes of the discovery of a suspected or confirmed release.
 - For a release in excess of 25 gallons that does not impact surface water, or a release not cleaned up within 24 hours:
 - Virginia Department of Environmental Quality (DEQ) at 1-804-527-5020 during normal business hours (8:15 a.m.-5:00 p.m.).
 - Virginia Department of Emergency Management (VDEM) at 1-800-468-8892 on nights/weekends/holidays plus follow up with DEQ during normal business hours.
 - For a release that causes a sheen or otherwise impacts surface water:
 - National Response Center (NRC) at 1-800-424-8802.
 - DEQ at 1-804-527-5020 during normal business hours (8:15 a.m.-5:00 p.m.).
 - VDEM at 1-800-468-8892 on nights/weekends/holidays plus follow up with the DEQ during normal business hours.
 - For all releases:
 - The Local Emergency Planning Committee (LEPC) / County Hazardous Material Coordinator at 1-804-501-7310 or 1-804-310-0803.
- The senior person on-site (or a designee) will make the following notifications to County Personnel within 30 minutes of the discovery of a suspected or confirmed release.
 - County Environmental Manager at 1-804-501-5659 or 1-804-551-3169.
 - County Deputy Coordinator of Emergency Management at 1-804-501-7183 or 1-804-822-6201.
 - For a release that enters a storm drain, contact the County NPDES Engineer at 1-804-501-7319 or 1-804-349-3204.
- Make any additional notifications required by site specific environmental permits or plans.
- Complete the Henrico County Spill Notification Form, submit a copy to the County Environmental Manager, and maintain the original with Facility records.
- A Release Investigation Report may be required by the DEQ to investigate a suspected release and an Initial Abatement and/or Site Characterization Report may be required by the DEQ to investigate a confirmed release. Determine if DEQ will require these reports and, if they are required, submit them on schedule.



County of Henrico

Verification	Originator	Revised	Issued
Initials	Risk Management	Risk Management	Risk Management
Date	09/13/2010	08/03/2016	08/03/2016

Environmental Standard Operating Procedure 003 Spill Response and Notification

Hazardous Substance Spill Notification and Reporting:

Note: Notification should be made for both suspected and confirmed releases.

- Contact 911 to respond to releases that cannot be safely controlled using on-site resources.
- Contact an Emergency Response Contractor, to respond to releases that cannot be safely controlled and cleaned up using on-site resources.
 - A list of emergency response contractors is available through the Emergency Resource List at: <http://virtual.henrico/genserv/vendorlist.pdf> subtitle "Environmental Contractors - Emergency Response Services".
- Notify the senior person on-site.
- The senior person on-site (or a designee) will make the following notifications to Regulatory Agencies within 15 minutes of the discovery of a suspected or confirmed release.
 - For a release of a reportable quantity (RQ) of a hazardous substance (listed in 40 CFR Part 302.4 and 40 CFR Part 355), contact:
 - Virginia Department of Emergency Management (VDEM) at 1-800-468-8892
 - National Response Center (NRC) at 1-800-424-8802.
 - Virginia Department of Environmental Quality (DEQ) at 1-804-527-5020
 - For all releases:
 - Local Emergency Planning Committee (LEPC) / County Hazardous Material Coordinator at 1-804-501-7310 or 1-804-310-0803.
- The senior person on-site (or a designee) will make the following notifications to County Personnel within 30 minutes of the discovery of a suspected or confirmed release.
 - County Environmental Manager at 1-804-501-5659 or 1-804-551-3169.
 - County Deputy Coordinator of Emergency Management at 1-804-501-7183 or 1-804-822-6201.
 - For a release that enters a storm drain, contact the County NPDES Engineer at 1-804-501-7319 or 1-804-349-3204.
- Make any additional notifications required by site specific environmental permits or plans
- Complete the Henrico County Spill Notification Form, submit a copy to the County Environmental Manager, and maintain the original with Facility records.
- Within 30 days after a release of an RQ, submit a written report to the Virginia Emergency Response Council (VERC) (address listed below) and the LEPC (via interoffice mail to the County Hazardous Material Coordinator and the County Deputy Coordinator of Emergency Management) detailing the release (product, quantity, time, duration, and cause), health risks, emergency response, contact information, and abatement.

Virginia Department of Environmental Quality
Attn: VERC
P.O. Box 1105
Richmond, Virginia 23218



County of Henrico

Verification	Originator	Revised	Issued
Initials	Risk Management	Risk Management	Risk Management
Date	09/13/2010	08/03/2016	08/03/2016

Environmental Standard Operating Procedure 003 Spill Response and Notification

Additional Requirements:

- Conduct and document training on this SOP for all personnel that may be involved in spill response and notification.
- Conduct and document spill response training based on specifications from SDS and product technical manuals for all personnel that may be involved in spill response.

References and Regulatory Statutes:

Environmental Protection Agency: Designation, Reportable Quantities, and Notification – 40 CFR Part 302

Environmental Protection Agency: Emergency Planning and Notification – 40 CFR Part 355

Environmental Protection Agency: RCRA, Superfund & EPCRA Hotline Training Module

Virginia Department of Environmental Quality: Underground Storage Tanks Technical Standards and Corrective Action Requirements – 9 VAC 25-580

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the facility operational manager's responsibility to ensure all rules and regulations are identified and followed.

The regulatory requirements included in this SOP provide a summary of the Federal and State requirements, further explanation and regulatory details can be found in 40 CFR Parts 302 and 355 and 9 VAC 25-580.

Henrico County Spill Notification Form

Part A: Basic Spill Data

Facility: _____ Telephone: _____ Person Completing Form: _____	
Location of Spill: _____ Type of Spilled Substance: _____ Quantity Released: _____ Discovery Date and Time: _____ Spill Date and Time: _____ Spill Duration: _____	Released to: <input type="checkbox"/> air <input type="checkbox"/> water <input type="checkbox"/> soil <input type="checkbox"/> well <input type="checkbox"/> storm sewer <input type="checkbox"/> containment <input type="checkbox"/> other _____
Nature of spill and any environmental or health effects: <input type="checkbox"/> Injuries <input type="checkbox"/> Fatalities <input type="checkbox"/> Impacts to soil/surface water <input type="checkbox"/> Other _____ _____ _____	
Steps taken to clean up substance and impacted soils/surface water: _____ _____ _____	

Part B: Petroleum Spill Notification Checklist

Notification should be made for both suspected and confirmed releases

Notify Regulatory Agencies within *15 minutes* of the discovery of a suspected or confirmed release

Notify County Personnel within *30 minutes* of the discovery of a suspected or confirmed release

If notifying DEM after hours, follow up with DEQ during normal business hours

Spill Type:	Notification Person:	Notification Date and Time:	Person Receiving Notification:
Release that cannot be safely controlled and cleaned up with on-site resources:			
911			
Emergency Response Contractor List of contractors is available at: http://virtual.henrico/genserv/vendorlist.pdf Environmental Contractors – Emergency Response Services			
Release in excess of 25 gallons that does not impact surface water or release not cleaned up within 24 hours:			
<u>Normal Business Hours (8:15 a.m.-5:00 p.m.):</u> Virginia Department of Environmental Quality 1-804-527-5020 <u>Nights/Weekends/Holidays:</u> Virginia Department of Emergency Management 1-800-468-8892			
Release that causes a sheen or otherwise impacts surface water:			
National Response Center 1-800-424-8802			Report #:
<u>Normal Business Hours (8:15 a.m.-5:00 p.m.):</u> Virginia Department of Environmental Quality 1-804-527-5020 <u>Nights/Weekends/Holidays:</u> Virginia Department of Emergency Management 1-800-468-8892			
Release that enters storm drain:			
County's NPDES Engineer 1-804-501-7319 or 1-804-349-3204			
All releases regardless of size:			
Senior On-Site Representative			
Local Emergency Planning Committee / County Hazardous Material Coordinator 1-804-501-7310 or 1-804-310-0803.			

County Environmental Manager 1-804-501-5659 or 1-804-551-3169			
County Deputy Coordinator of Emergency Management 1-804-501-7183 or 1-804-822-6201			
Site specific notifications (if applicable):			

Part C: Hazardous Substance Spill Notification Checklist

Notification should be made for both suspected and confirmed releases

Notify Regulatory Agencies within *15 minutes* of the discovery of a suspected or confirmed release

Notify County Personnel within *30 minutes* of the discovery of a suspected or confirmed release

Spill Type:	Notification Person:	Notification Date and Time:	Person Receiving Notification:
Release that cannot be safely controlled and cleaned up with on-site resources:			
911			
Emergency Response Contractor List of contractors is available at: http://virtual.henrico/genserv/vendorlist.pdf Environmental Contractors – Emergency Response Services			
Release of a Reportable Quantity (RQ):			
Virginia Department of Emergency Management 1-800-468-8892			
National Response Center 1-800-424-8802			Report #:
Virginia Department of Environmental Quality 1-804-527-5020			
Release that enters storm drain:			
County NPDES Engineer 1-804-501-7319 or 1-804-349-3204			
All releases regardless of size:			
Senior On-Site Representative			
Local Emergency Planning Committee / County Hazardous Material Coordinator 1-804-501-7310 or 1-804-310-0803.			
County Environmental Manager 1-804-501-5659 or 1-804-551-3169			
County Deputy Coordinator of Emergency Management 1-804-501-7183 or 1-804-822-6201			
Site specific notifications (if applicable):			

Part D: Written Reports

Submittal Type:	Submittal Person:	Submittal Date:	Agency Receiving Submittal:
Petroleum Release (submit to DEQ if required):			
Release Investigation Report			
Initial Abatement			
Site Characterization			
Hazardous Substance Release (submit to VERC and LEPC within 30 Days of a release of a RQ):			
Release Details, Health Risks, Emergency Response, Contact Information, and Abatement			

- Maintain this form in your Facility records and submit a copy to the County Environmental Manager.

PART I.B.2.c
MS4 PROGRAM IMPLEMENTATION
ROADWAYS

**MENTAL HEALTH AND
DEVELOPMENTAL SERVICES**

HENRICOCOUNTY MS4 PROGRAM PLAN

PART I.B.2.c

MS4 PROGRAM DESCRIPTION ROADWAYS

Henrico Mental Health Standard Operating Procedure Roadways, Driveways, and Parking Lots

Henrico Mental Health does not directly maintain any streets or roadways, with the exception of blowing grass clippings and lawn debris from the roadway as required by contracted landscaper at the end of each lawn mowing.

Henrico Mental Health does not directly maintain any facilities where nutrients are applied to a contiguous area greater than one acre.

Parking lots, driveways, curbs, and walkways that are maintained by Henrico Mental Health will be operated and maintained in a manner to minimize discharge of pollutants into the County's Municipal Separate Storm Sewer System (MS4). Additionally, lawn care and deicing will be conducted in a manner to minimize discharge of pollutants into the storm water and sewer system.

Mental Health Facilities Department will work in partnership with the landscaping contractors or any other contractors to ensure good housekeeping and pollution preventive measures in the application of herbicides and fertilizers, as well as the disposal of pollutants and yard wastes.

No herbicides or fertilizers are to be stored on Mental Health grounds or facilities.

Mental Health facilities will be inspected on an annual basis to ensure good housekeeping and pollution preventive measures are taken to minimize discharge of pollutants into the County's Municipal Separate Storm Sewer System (MS4). Inspections will be documented and maintained on file electronically for at least 8 years or longer.

Selected Mental Health employees are to attend County sponsored MS4 Informational Meetings as well as required Municipal Site Housekeeping and Illicit Discharge Recognition and Reporting trainings

Driveways and Concrete or Asphalt Surfaces

The driveways, sidewalks or asphalt and concrete services are not on any regular schedule for repair or resurfacing. They are assessed every two (2) years in the summer to ensure the

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.c

ANNUAL REPORT SUPPLEMENT

APRIL 1, 2018 THROUGH DECEMBER 31, 2018

HENRICOCOUNTY MS4 PROGRAM PLAN

surfaces are not breaking or cracking away, there is no vegetation growing in the cracks of surfaces, and to determine the need for necessary repairs or resurfacing. If repair or resurfacing is necessary, it is to be conducted by an experience contractor. Preventive measures are to be taken to minimize any discharge of illicit pollutants into the County's Municipal Separate Storm Sewer System (MS4).

Snow Removal and Deicing

Snow removable and deicing functions are handled by a contractor that is acquired by Henrico Mental Health via a public and competitive bid process. The contractor handles deicing of parking lots, driveways, and walkways. Deicers are not to be applied in an excessive manner by contractors.

Ice melt /deicer may be applied by employees in small quantities to treat small iced areas on driveways, and walkways at group homes. The contractor is required to provide a 50lb bag of ice melt at each location as requested by Henrico Mental Health.

Deicers are not to be applied in an excessive manner by employees.

Deicer will remain covered from precipitation until application. Deicing materials containing urea or other forms of nitrogen or phosphorus shall not be applied to parking lots, driveways, curbs, walkways, or other paved surfaces. MSD sheets for deicing materials are to be provided by the contractor and maintained on file by Henrico Mental Health.

The use of sand is not permitted for deicing at Mental Health.

Landscaping and Lawn Care

Lawn maintenance functions are handled by an experienced landscaping contractor that is acquired by Henrico Mental Health via a public and competitive bid process. The contracted landscaper handles mowing and removal of leaves and yard debris. Grass clippings from mowing, leaves, or any other yard waste or debris must be swept or blown from paved and hard surfaces during each visit by the landscaping contractor at the end of each work day. This is to include driveways, sidewalks, walkways, roadways, curbs, parking lots, gutters, signs, patios, and decks. Blowing debris from sidewalks, parking areas, patios, and mulch areas back onto freshly cut lawn areas is not permitted.

The contracted landscaper must collect and remove all yard debris from the grounds immediately upon collection.

Soft Edging shall be performed during each mowing and cutting operation with the use of power edger (power weed eater type) for the edging of all accessible sidewalks, patios, curbs, all mulched areas, tree wells and flower beds at each mowing. Soft edging shall be performed by using the weed eater in a vertical position to create a groove. Chemical edging is not permitted.

HENRICOCOUNTY MS4 PROGRAM PLAN

Leaf collection and removal will be performed as needed, and will include all grass areas, mulched beds, curbs, gutters, and parking areas.

The experienced landscaping contractor shall supply and apply the fertilizer, in pellet form, on the grass areas two times per year in March and October. The application will be at the manufacturers recommended rate based upon a unit of 1,000 square feet. The landscaper shall spread the fertilizer (4-1-2 ratio) at the required agronomic rate for turf type tall fescue grass. Information regarding the nutrient content of the fertilizer, amount used (pounds) and where it was applied shall be documented on the Work Checklist which will be provided to the landscaping contractor.

The landscaper must supply and apply pre-emergent/crabgrass control in March at the manufacturer's suggested rate. The landscaper must supply and apply post-emergence/crabgrass control in March and a weed herbicide in August at the manufacturer's suggested rate.

The landscaper must trim shrubs and bushes two (2) times a year to control growth and to maintain a neat, uniform appearance. All dead limbs, dead leaves or undesired vegetation in the shrubbery or the border shall be removed after. The clippings and other wastes produced from these trimming operations shall be collected and disposed of as described in I.B.4.

Herbicides shall be used in accordance with the manufacturer's instructions and the use of herbicides performed in accordance with Part I.B.2.d – Pesticide, Herbicide & Fertilizer Application. The landscaping contractor shall provide and document the chemical name and the amount used on the Work Checklist provided. Dead vegetation from chemical spraying shall be swept and/or collected on the first subsequent return trip, where there is evidence that the chemical applied has produced the effect of killing the vegetation and is now considered debris.

The landscaper is required to visit each facility to perform the following services as outlined in the schedule below. All Mental Health Facilities are subject to the same lawn and grounds maintenance schedule.

Lawncare Service	Frequency (during each fiscal year)
Mowing, weed control, soft edging	28
Hard Edging	3
Leaf Removal	3
Aeration	2
Fertilizing	2
Pre-emergent	1
Post-emergent	2

HENRICO COUNTY MS4 PROGRAM PLAN
PART I.B.2.c
ANNUAL REPORT SUPPLEMENT
APRIL 1, 2018 THROUGH DECEMBER 31, 2018

HENRICOCOUNTY MS4 PROGRAM PLAN

Shrub Timing	2
Mulching	1

Use of chemicals by landscaping contractor shall be in compliance with all State & Federal regulations, local laws, ordinances and regulations for safe handling and application of hazardous chemicals including the requirements of the Virginia Department of Agriculture for licensing and certification and OSHA. Any contractor engaged in these activities on Mental Health grounds must possess a valid Virginia Pesticide Business License. A copy of this license must be provided and filed with bid documents during the bidding process. The landscaping contractor and all employees or subcontractors engaging in these activities on behalf of the landscaping contractor must possess a Commercial Pesticide Applicator Certificate that is valid in the following categories: Category 3A Ornamental Pest Control, Category 3B Turf and Category 6 Right-of Way Pest Control. The landscaping contractor and all employees or subcontractors engaging in these activities on behalf of the landscaping contractor must also be certified as a certified fertilizer applicator (CFA). Copies of a Commercial Pesticide Applicator Certificate and a CFA Certificate must be provided and filed with bid documents during the bidding process. MSD sheets for landscaping chemicals being used are to be provided by the contractor to the Henrico Mental Health facilities coordinator and maintained on file by Henrico Mental Health.

LIST OF PAVED SURFACES MAINTAINED BY HENRICO MENTAL HEALTH

Henrico Mental Health and Developmental Services does not directly maintain any streets or roadways.

Location	Facility Type	Paved Surfaces Maintained
Allenshaw Group Home	Residential Group Home	driveway, walkway <i>(No parking lots, streets, or roadways)</i>
Danray Group Home	Residential Group Home	driveway, walkway <i>(No parking lots, streets, or roadways)</i>
Gayton Group Home	Residential Group Home	driveway, parking lot, walkway <i>(No streets, or roadways)</i>
Green Run Group Home	Residential Group Home	driveway, walkway <i>(No parking lots, streets, or roadways)</i>
Irisdale Group Home	Residential Group Home	driveway, walkway <i>(No parking lots, streets, or roadways)</i>
Lakeside Center	Day Services Program	driveway, parking lot, walkway <i>(No streets, or roadways)</i>
Mormac Group Home	Residential Group Home	driveway <i>(No parking lots, streets, or roadways)</i>
Morningside Group Home	Residential Group Home	driveway, walkway <i>(No parking lots, streets, or roadways)</i>
Sherbrooke Group Home	Residential Group Home	driveway, walkway <i>(No parking lots, streets, or roadways)</i>
Shurm Heights Group Home	Residential Group Home	driveway, walkway <i>(No parking lots, streets, or roadways)</i>
Walton Farms Group Home	Residential Group Home	driveway, walkway <i>(No parking lots, streets, or roadways)</i>

PART I.B.2.c
MS4 PROGRAM IMPLEMENTATION
ROADWAYS

PUBLIC LIBRARY

13. SUPPORT SERVICES – FACILITIES MANAGEMENT AND SECURITY

13.1 REPORTING FACILITIES CONCERNS

A. Policy

The Henrico County Public Library expects all employees to be alert for facilities problems and safety concerns. The Library designates contacts, either persons or organizations, for employees to contact when they have facilities concerns.

B. Procedures

1. BUILDING REPAIRS

- a. For needed repairs that create an immediate and serious danger of injury to staff or customers, the manager/supervisor in charge calls 911 or the non-emergency police or fire telephone numbers. If necessary, arrange evacuation of the appropriate area and contact County General Services 501-5392 (or the security console at 501-4555, after hours.) The Library Director should be notified as soon as safely possible.
- b. For minor repairs or inadequate cleaning services, the building manager or backup designee calls One Stop (501-5392) at Henrico County's General Services. When appropriate, staff will create signs to protect staff and patrons in areas waiting repair.

2. TELEPHONE MAINTENANCE

Submit a helpdesk ticket to trackitadmin@henricolibrary.org. To escalate during the day, or in the event of weekend and evening hour problems, call the IT hotline at 804-290-9080.

3. LAWN CARE

Call General Services One Stop Shopping, 501-5392.

4. DUMPSTER CONCERNS

Contact the Business Controller at 290-9003 and he/she will directly coordinate with the vendor to resolve dumpster concerns.

5. RECYCLING

HCPL participates in recycling. Recyclable material is dropped off at the recycle container, located at the Libbie Mill Library site. The recycling service is provided by the County's waste management supplier.

6. PARKING LOT

For cleaning, snow removal, or emergency spills, call One Stop Shopping at General Services, 501-5392.

7. ABANDONED VEHICLES ON LIBRARY PROPERTY

If you have such a vehicle, call Police Communications (501-5000) to report it. If the vehicle is not removed within 48 hours after a tag has been placed on it, the vehicle will be towed by a County approved wrecker service.

PART I.B.2.c
MS4 PROGRAM IMPLEMENTATION
ROADWAYS

**ECONOMIC DEVELOPMENT
AUTHORITY**

Henrico County MS4 Program

Economic Development Authority

4060 Innslake Drive:

Parking lots, driveways and sidewalks are maintained by tenant of the property. The tenant contracts for landscaping services, waste pickup services, elevator repair if needed, fire sprinkler system repair if needed, plumbing repairs if needed, and fire alarm repairs if needed. For snow removal, the tenant provides for services by hiring a removal company or by removing snow themselves, depending on the amount of snowfall. Tenant purchases small quantities of deicing as needed to treat small iced areas on walkways. No materials are stored onsite.

White Oak Technology Park:

The land owned by the EDA at White Oak Tech Park is wooded with mature trees, natural ground cover, does not have roads, and has not been disturbed or developed. Maintenance is not required for this land. The EDA no longer provides maintenance services in White Oak Tech Park in the common areas. The White Oak Technology Park Owners Association, Inc. was incorporated and began operating with its first Board of Directors meeting in September 2017. The Owners Association provides for professional landscaping in the common areas of White Oak Tech Park that includes trash pickup, leaf removal, lawn care from the entrance of the Park along Technology Blvd to Portugee Road, Engineered Wood Way, and White Oak Creek Drive. Lawn care includes mowing, seeding, mulching, weed control, irrigation system, fertilizer, and tree service. Debris from mowing and leaves are blown from paved surfaces. The debris is collected and removed from the grounds. These services are provided to the Owners Association, Inc. by Thalhimer property management services.

PART I.B.2.c
MS4 PROGRAM IMPLEMENTATION
ROADWAYS

REAL PROPERTY



County of Henrico

Verification	Originator	Revised	Issued
Initials	Dept of Real Property		Dept of Real Property
Date	5/17/18		5/17/18

Environmental Standard Operating Procedure 002 Roadways, Driveways and Parking Lots

Persons responsible:	Henrico County Department of Real Property
Area of application:	Henrico County Department of Real Property Properties
Document location:	Maintained in the office of the Henrico County Department of Real Property MS4 Coordinator
Revisions	
Rev. No.	Date
	Description

1.0 Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide maintenance and management requirements for all Henrico County Department of Real Property (DRP)-maintained parking lots, driveways and sidewalks to minimize discharge of pollutants into the County's Municipal Separate Storm Sewer System (MS4).

2.0 Scope:

The DRP does not maintain and streets or roadways. This SOP applies to the parking lots, driveways and sidewalks at all DRP-managed facilities identified in **Attachment 1**.

3.0 Exclusions:

N/A

4.0 Responsibility:

- All Staff and Contractors are responsible for ensuring that all relevant and applicable components of this SOP are followed.
- Henrico County Department of Real Property MS4 Coordinator is responsible for ensuring reporting requirements are met, maintaining records and for updating this procedure as necessary.



County of Henrico

Verification	Originator	Revised	Issued
Initials	Dept of Real Property		Dept of Real Property
Date	5/17/18		5/17/18

Environmental Standard Operating Procedure 002 Roadways, Driveways and Parking Lots

5.0 Definitions:

- Petroleum – Any grade of chemical petroleum (e.g., diesel, gasoline, hydraulic fluid, motor oil, etc.).
- Regulated Substance – An element, compound, mixture or solution (i.e., petroleum or hazardous material) that may present a danger to human health or the environment when released into the environment.
- Stormwater Pollutants – Any non-petroleum materials that could adversely impact surface water (e.g., road salt, oil or latex-based paints, PVC bonding cement, etc.)
- Sweeping – Parking lot sweeping of pollutants, including sediment, debris, trash, road salt, trace metals and loose aggregates.
- Maintenance – Periodic stabilization and revegetation of eroded areas beside driveways, streets or parking lots. Periodic removal of trash and sediment within driveways, streets or parking lots. Periodic removal of overgrowth within the storm sewer system along driveways, streets or parking lots.

6.0 Operational Requirements:

6.1 Inspection Requirements

- All asphaltic, concrete, or otherwise paved roadways, driveways and parking lots identified in **Attachment 1** are to be evaluated annually, or more often as necessary, to identify conditions that could adversely impact storm sewers or surface water using the *Roadways, Driveways and Parking Lots Annual Inspection Form* in **Attachment 2**. Such conditions include:
 - Degraded paved surfaces that could result in excessive sedimentation in runoff;
 - Excessive accumulated soil that could result in excessive sedimentation in runoff or could facilitate the growth of vegetation (e.g., along curbs or in low-lying areas);
 - Vegetative growth in cracks, larger exposed soil surfaces or areas with soil accumulation over the pavement that could enable further degradation of the paved surface;
 - Accumulated trash or other debris that could be conveyed into storm sewers or surface water;
 - Indications of petroleum or hazardous material releases that have not been properly cleaned up;
 - Equipment or material storage areas that are not covered and visible release of petroleum or hazardous materials; and
 - Evidence of excessive salt or sand residue from application due to freezing conditions.



County of Henrico

Verification	Originator	Revised	Issued
Initials	Dept of Real Property		Dept of Real Property
Date	5/17/18		5/17/18

Environmental Standard Operating Procedure 002 Roadways, Driveways and Parking Lots

- All dirt or gravel roadways, driveways and parking lots are to be evaluated annually, or more often as necessary, to identify conditions that could adversely impact storm sewers or surface water using the *Roadways, Driveways and Parking Lots Annual Inspection Form* in **Attachment 2**. Such conditions include:
 - Eroded or loose earthen surfaces that could result in excessive sedimentation in runoff or facilitate vegetative growth;
 - Accumulated trash or other debris that could be conveyed into storm sewers or surface water;
 - Indications of petroleum or other hazardous material releases that have not been properly cleaned up;
 - Equipment or materials storage areas that are not covered and visible release of petroleum or hazardous materials; and
 - Evidence of excessive salt or sand residue from application due to freezing conditions.

6.2 Maintenance Requirements

- Asphaltic or Concrete Surfaces:
 - Sweeping: All asphaltic, concrete, or otherwise paved roadways, driveways and parking lots identified in **Attachment 1** are to be swept by mechanical means when deemed appropriate by site personnel. Sweeping is deemed necessary when routine observation or the annual inspections identify accumulated sediment or other pollutants that are likely to lead to excessive sediment loading or pollutant loading to the MS4. Sweeping may be performed by a contractor as appropriate.
- Unpaved roadways, driveways and parking lots
 - All earthen surfaces (gravel/unpaved roadways, driveways and parking lots) are to be maintained as compacted soil with no substantial evidence of erosion and are to be graded. Gravel surfaces are to be maintained to minimize the uptake of sedimentation, with regrading and gravel resurfacing as required. This maintenance may be performed by a contractor as appropriate.
- Trash Removal
 - Any visible trash observed on the roadways, driveways and parking lots identified in **Attachment 1** should be promptly removed and properly disposed.



County of Henrico

Verification	Originator	Revised	Issued
Initials	Dept of Real Property		Dept of Real Property
Date	5/17/18		5/17/18

Environmental Standard Operating Procedure 002 Roadways, Driveways and Parking Lots

- Deicing and Sanding
 - Any application of sand, road salt or deicing liquids (e.g., magnesium chloride) to paved roadways, driveways and parking lots identified in **Attachment 1** should be performed in an efficient manner and not to excess. These materials should be stored under cover until use. The use of deicing agents containing urea or other forms of nitrogen and phosphorus is prohibited. After application of sand the site should be evaluated to determine if sweeping is necessary.
- Vegetation Removal
 - Any vegetation that is growing in cracks or surficial soil should be manually removed to reduce the likelihood of further degradation from growth. If a contractor is hired to apply an herbicide, DRP will confirm that the contractor is appropriately licensed and that all work is completed in strict accordance with local, state and federal requirements.
- Material Storage
 - All materials (e.g. sand, top soil, fill material) stored at the locations identified in **Attachment 1** that can adversely impact stormwater should be stored under cover, or otherwise protected from stormwater, prior to use.
- Pavement Repair
 - Pavement repair of roadways, driveways and parking lots identified in **Attachment 1** is to be performed as necessary, but in such a manner as to minimize the uptake of contaminants (e.g., petroleum associated with asphalt). Upon completion of the repair activities the site should be evaluated to determine if sweeping is necessary (e.g., excess asphalt not compacted into the repaired surface).

7.0 Training:

DRP personnel managing, maintaining or inspecting parking lots, driveways and sidewalks will participate in County-wide biennial (every two years) MS-4 training that addresses the following topics.

- Recognition and reporting of illicit discharges; and,
- Good housekeeping and pollution prevention practices.

The DRP staff will also review the contents of this SOP as part of biennial training.



County of Henrico

Verification	Originator	Revised	Issued
Initials	Dept of Real Property		Dept of Real Property
Date	5/17/18		5/17/18

Environmental Standard Operating Procedure 002 Roadways, Driveways and Parking Lots

8.0 Recordkeeping:

- Training records associated with **Section 7.0** of this Procedure should be maintained for the duration of the employee's employment by the County.
- Routine inspections and spill response activities identified in **Section 6.0** above should be maintained for a period of three years.
- All inspection records, as applicable, should be submitted to the Henrico County MS4 Program Manager annually by February 28 of each calendar year:
 - A copy of this SOP;
 - A list of all activities related to the maintenance of parking lots, driveways and sidewalks including inspections, maintenance and repairs; and,
 - A summary of all training activities.
- DRP will develop and maintain an accurate list of DRP-maintained parking lots that includes the street name, the miles of roadway not treated by BMPs and miles of roadways treated by BMPs.

Attachment 1



County of Henrico

Henrico County Department of Real Property MS4 Compliance Matrix Henrico County, Virginia

Location/ Address (GPIN)	Regulated Area							
	HPMF (1)	SWPPP	Annual Stormwater Infrastructure Inspection	Annual Roadway, Parking Lot, Sidewalk Inspection	Outfall Labeling (3)	Stormwater Infrastructure Management SOP (2)	Oil Spill SOP (2)	Sidewalk Parking Lot Cleaning SOP (2)
2413 PLEASANT RUN DR (729-751-8319)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
3021 GREGORY AVE (773-774-3997)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
3001 GREGORY AVE (773-775-7621)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
10715 ASHLAND LN (779-767-9465)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
10734 ASHLAND LN (779-767-9892)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
10703 ASHLAND LN (779-767-9754)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
ASHLAND LN (780-767-0569)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
10739 ASHLAND LN (779-767-8789)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
10735 ASHLAND LN (779-767-8885)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
10719 ASHLAND LN (779-767-9171)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
ASHLAND LN (780-767-0473)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
10235 GREENWOOD RD (780-764-2252)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
9520 ELBURN ST (780-761-8322)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
9510 JACKSON ST (780-760-8395)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
9524 NORTH RUN RD (781-760-0275)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No



County of Henrico

Henrico County Department of Real Property MS4 Compliance Matrix Henrico County, Virginia

Location/ Address (GPIN)	Regulated Area							
	HPMF (1)	SWPPP	Annual Stormwater Infrastructure Inspection	Annual Roadway, Parking Lot, Sidewalk Inspection	Outfall Labeling (3)	Stormwater Infrastructure Management SOP (2)	Oil Spill SOP (2)	Sidewalk Parking Lot Cleaning SOP (2)
9523 ELBURN ST (780-761-8810)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
9521 JACKSON ST (780-760-9787)	No	Not Required	Not Required	Required	Not Required	No	Yes	Yes
8611 DIXON POWERS DR (769-754-8113)	No	Not Required	Required	Required	Not Required	Yes	Yes	Yes
8799 MOUNT OLIVE AVE (781-760-9509)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
5405 EDGEWOOD AVE (787-749-2281)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
1401 N LABURNUM AVE (808-731-7728)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
3900 NINE MILE RD (807-723-2803)	No	Not Required	Required	Required	Not Required	Yes	Yes	Yes
321 LIBERTY AVE (816-729-7406)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
309 LIBERTY AVE (816-728-7885)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
908 E NINE MILE RD (824-722-6337)	No	Not Required	Not Required	Required	Not Required	No	Yes	Yes
48 BRICK DR (826-719-2119)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
519 PIEDMONT AVE (830-714-9623)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
424 PIEDMONT AVE (830-714-4751)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
445 PIEDMONT AVE (830-714-6428)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
407 PIEDMONT AVE (830-714-3134)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No



County of Henrico

Henrico County Department of Real Property MS4 Compliance Matrix Henrico County, Virginia

Location/ Address (GPIN)	Regulated Area							
	HPMF (1)	SWPPP	Annual Stormwater Infrastructure Inspection	Annual Roadway, Parking Lot, Sidewalk Inspection	Outfall Labeling (3)	Stormwater Infrastructure Management SOP (2)	Oil Spill SOP (2)	Sidewalk Parking Lot Cleaning SOP (2)
NANDUN RD (817-710-6814)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
4801 STONEWALL AVE (814-715-5088)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
7014 WOODSIDE ST (803-697-9736)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
4922 STONEWALL AVE (814-714-0894)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
4938 STONEWALL AVE (814-714-0273)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No
7010 WOODSIDE ST (803-697-9449)	No	Not Required	Not Required	Not Required	Not Required	No	Yes	No

(1): High Priority Municipal Facility

(2): SOP: Standard Operating Procedure

(3): Outfall labelling required for HPMF and sites with more than 2 acres of impervious area

Attachment 2



Attachment 2
Henrico County Department of Real Property
MS4-Regulated BMPs

Roadways, Driveways and Parking Lots Annual Inspection Form

Date: _____ **Completed By:** _____

Location: _____

Inspection Item	√ If Ok	√ If Problem	Comments (and Resolutions to Noted Problems)
Degraded paved surfaces that could result in excessive sedimentation in runoff?			
Excessive accumulated soil that could result in excessive sedimentation in runoff or could facilitate the growth of vegetation (e.g., along curbs or in low-lying areas)?			
Vegetative growth in cracks, larger exposed soil surfaces or areas with soil accumulation over the pavement that could enable further degradation of the paved surface?			
Accumulated trash or other debris that could be conveyed into runoff?			
Indications of petroleum or hazardous material releases that have not been properly cleaned up?			
Eroded or loose earthen surfaces that could result in excessive sedimentation in runoff or facilitate vegetative growth?			
Equipment with visible releases of petroleum or hazardous materials?			
Evidence of excessive salt or sand following application in response to snowfall or freezing conditions?			

PART I.B.2.c
MS4 PROGRAM IMPLEMENTATION
ROADWAYS

PUBLIC WORKS



County of Henrico

Verification	Originator	Revised	Issued
Initials	B Mc	MMC	
Date	03/13/2013	02/01/2018	

Environmental Standard Operating Procedure 100

Facility SOP Training

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Operations	
Document location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description
1	2/1/18	All members of road maintenance to be trained; new hires to be trained upon hire.

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide instructions on how maintain and document SOP Training.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operations that own or operate a facility.

Exclusions: None

Responsibility:

The facility operational manager will ensure this SOP is followed.

Definitions:

Training- direct, prepare, tutor, instruct, or teach

Regulatory Requirements:

- All members of road maintenance must be trained in proper SOP techniques and methods at least once yearly; new hires will be trained upon hire.
- All training must be documented, and documentation must be maintained on site or at a readily available alternative site.

Record Keeping Requirements:

Note: All requirements are satisfied by completing an "[SOP Training Sign-In Sheet Form](#)"

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the facility operational manager's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	B Mc	B Mc	MMC	
Date	03/13/2013	10/20/2014	2/5/2018	

Environmental Standard Operating Procedure 101 Facility Sweeping

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Operations	
Document location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description
1	2/6/18	Added regulatory language from MS4 permit; added language referring to contractor sweeping under reporting requirements.

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide maintenance and management requirements to owners and operators who sweep their facility of pollutants that contribute to stormwater pollutant runoff to surface water.

Scope:

This SOP applies to all DPW Henrico County operations that own or operate a facility.

Exclusions: none

Responsibility:

The Sweeping operator will ensure this SOP is followed and implemented.

Definitions:

Sweeping - Facility sweeping of pollutants, including sediment, debris, trash, road salt, trace metals, and loose aggregates.

Regulatory Requirements:

I.B.2.c: "Streets, roads, and parking lots maintained by the permittee shall continue to be operated and maintained in a manner to minimize discharge of pollutants, including those pollutants related to deicing or sanding activities."

Reporting Requirements: Sweeping must be performed bi-weekly or as needed by a mechanical or vacuum sweeper. Note: this requirement may be satisfied by a sweeper contractor or county sweeper.

Sweeper Procedures:

- All sweeper material to be disposed of at the Water Reclamation Facility located at 9101 WRVA Rd. Henrico, VA 23231 (WRF).
- Sweeper must weigh in upon arrival at WRF and weigh out after disposal of sweeping material.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	B Mc	B Mc	MMC	
Date	03/13/2013	10/20/2014	2/5/2018	

Environmental Standard Operating Procedure 101 Facility Sweeping

- DPW environmental inspectors to maintain sweeping log of disposal at WRF.
- DPW will characterize solid waste as part of compliance with landfill disposal at the request of WRF.

Record Keeping Requirements:

- Generate work order bi-weekly to track sweeping events at both road maintenance facilities.
- Maintain monthly documentation of WRF log for tonnages and disposal of sweeper spoils.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the sweeping operator's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	B Mc	B Mc	MMC	
Date	03/13/2013	11/06/2014	2/6/2018	

Environmental Standard Operating Procedure 102 Erodible Stockpiles

Persons responsible: DPW Operators

Area of application: Henrico County Public Works Operations

Document location: Pw share/pw rd main/depot environmental main

Revisions

Rev. No.	Date	Description
----------	------	-------------

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide maintenance and management requirements to owners and operators who store and maintain stockpiles.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operations that own or operate a facility.

Exclusions: None

Responsibility:

The operator and environmental inspectors will ensure this SOP is followed and implemented.

Definitions:

- Stockpiles - Stone, top soil, fill dirt, waste dirt, sand, and salt, ~~and 50/50~~.
- Cover - tarp, vegetation, salt dome, and metal/plastic/wooden roof structures.
- Containment - earth berm, stone berm, sediment pit, sediment basin
- Erodible - able to wear or wash away gradually by natural forces such as water, wind, or ice.
- Non-Erodible - opposite of erodible, not able to wear or wash away gradually.

Regulatory Requirements

- **All Erodible Stockpiles must be covered and have acceptable containment.**
 - This requirement is satisfied by covering the erodible stockpile with a tarp, roof structure, or established vegetation, and containing indoors or with a berm.
 - The covered erodible stockpile must be checked at the end of each work day by the Loader Operator.
 - In the event that the stockpile is uncovered for the purpose of adding or removing material, it may remain uncovered until the last bit of material for the day has been handled.
 - Stockpiles must be kept free of litter and debris.
 - If possible, only conduct loading and unloading operations of stockpiles in dry weather.
 - Ensure cleanup of stockpile residual following use or loading/unloading operations by sweeping or calling contractor to sweep within 96 hours.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	B Mc	B Mc	MMC	
Date	03/13/2013	11/06/2014	2/6/2018	

Environmental Standard Operating Procedure 102 Erodible Stockpiles

Overfill Control Requirements:

- Ensure the volume of the stockpile is not greater than the cover capacity.
- Ensure the stockpile operation is monitored constantly.
- Ensure stockpile has a suitable sized containment.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the operator's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials	B Mc	MC	
Date	03/13/2013	2/8/2017	

Environmental Standard Operating Procedure 103 Deliveries

Persons responsible:	DPW Operators
Area of application:	Henrico County Public Works Operations
Document location:	Pw share/pw rd main/depot environmental main
Revisions	
Rev. No.	Date Description

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide maintenance and management requirements to owners and operators who receive deliveries to their facility of supplies and materials.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operations that own or operate a facility.

Exclusions: None**Responsibility:**

The Loader Operator/ Management will ensure this SOP is followed and implemented.

Definitions:

Deliveries – Oils/chemicals, tools, equipment, supplies, road materials, and all items delivered into the facility.

Regulatory Requirements: All deliveries must be monitored and received by a DPW employee.*Record Keeping Requirements:*

- Maintain documentation of the following items at the delivery site or at a readily available alternative site:
 - Date and Time of delivery
Note: when more than one load of material is being delivered, only the first and last load of the day must be documented.
 - Carrier of delivery
 - Type of cargo delivered
 - Did any spills occur
 - Before and after pictures of any spills-follow Spills SOP

Note: This requirement is satisfied by completing a "Deliveries Check Sheet Form".



County of Henrico

Verification	Originator	Revised	Issued
Initials	B Mc	MC	
Date	03/13/2013	2/8/2017	

Environmental Standard Operating Procedure 103 Deliveries

Spill Requirements:

- ALL spills must be managed as required by the "Spill Response & Notification SOP" and documented in the "Spill or Incident Report Form."

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the operator's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials	B Mc	MMC	
Date	03/13/2013	02/06/2018	

Environmental Standard Operating Procedure 104

Spill Response and Notification

Persons responsible:	Maintenance Technician, Shop Supervisor, Management Technician, Environmental Inspectors	
Area of application:	Henrico County Public Works Operations	
Document location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description
1	2/6/18	Altered language in purpose to include SPCC plan; changed exclusions to “none.”

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide instructions on how to respond to and whom to notify in the event of a release of a regulated substance. This SOP does not replace response and notification procedures covered in the SPCC plan for the Woodman Road facility. In the event of a release, both notifications outlined in the SPCC plan, as well as in this SOP, apply.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operations.

Exclusions: None

Responsibility:

The facility operational manager and environmental inspectors will ensure this SOP is followed in the event of a release of a regulated or hazardous substance.

Definitions:

Regulated or Hazardous Substance – Any material that may present a danger to human health or the environment when released into the environment, as defined by CERCLA, EPCRA, the Clean Water Act, and other state and federal regulations.

Release - Any spilling, leaking, discharging or escaping of a regulated substance into the environment (i.e. a spill not contained within a building or structure).

Reportable Quantity (RQ) – Amount of a hazardous substance that when released into the environment requires reporting to various regulatory agencies, RQs are listed in 40 CFR Part 302.4 and 40 CFR Part 355. Any release that is required to be reported to a regulatory agency (i.e. a petroleum spill over 25 gallons, or released into surface waters).



County of Henrico

Verification	Originator	Revised	Issued
Initials	B Mc	MMC	
Date	03/13/2013	02/06/2018	

Environmental Standard Operating Procedure 104 Spill Response and Notification

Spill Response for Petroleum and Hazardous Materials:

- If site is unsafe:
 - Evacuate and move to a safe distance away from the release.
 - Follow Spill Notification and Reporting steps for type of product released.
- If safe to do so (based on specifications from safety data sheet (SDS) and product technical manual or Emergency Response Guide (ERG) and considering external factors):
 - Wear appropriate personal protective equipment per SDS specification;
 - Take action to prevent any further release of the substance;
 - Contain the release with spill response materials and equipment;
 - Follow Spill Notification and Reporting steps for type of product released.
- Ensure spill residual/debris is properly managed and disposed.

Small oil spills on the yard

- Take a picture of the spill.
- Put oil dry on the spill
- If needed, put snakes and pads around spill to contain and put oil dry inside of these to absorb the liquid.
 - Snakes and pads are located in Oil Spill Kits stationed in shop and outside at multiple locations in marked barrels.
- Notify senior on-site representative or environmental inspectors immediately so that proper notifications can be made within required timeframes.
- Take another picture to show what was done to contain spill.
- Document spill by completing a spills form and including pictures to be scanned and kept with environmental records.
- When materials are absorbed, clean up within 24 hours and put in Clean Harbor sealed barrels.
- Notify Road Maintenance Management Technician or Road Maintenance Shop Supervisor so they can reorder supplies and call Clean Harbor so barrels can be picked up.
- Road Maintenance Shop personnel and Maintenance Superintendent will monitor this daily.
- Road Maintenance Shop personnel will inform Management Technician or Road Maintenance Shop Supervisor when products need to be restocked and Clean Harbor barrels need to be replaced or hauled away.
- Environmental inspectors will keep record of spill events and pictures with annual Road Maintenance Environmental binder.

Small hazardous or non-oil based material spills on the yard

- Take a picture of the spill.
- Put universal absorbent on the spill.
- If needed, put universal/chemical snakes and pads around to contain and put universal absorbent inside of these to absorb the liquid.
 - Snakes and pads are located in Universal Spill Kits stationed in shop and outside at multiple locations in marked barrels.
- Notify senior on-site representative or environmental inspectors immediately so that proper notifications can be made within required timeframes.
- Take another picture to show what was done to contain spill.



County of Henrico

Verification	Originator	Revised	Issued
Initials	B Mc	MMC	
Date	03/13/2013	02/06/2018	

Environmental Standard Operating Procedure 104

Spill Response and Notification

- Document spill by completing a spills form and including pictures to be scanned and kept with environmental records.
- When materials are absorbed, clean up within 24 hours and put in Clean Harbor sealed barrels.
- Notify Road Maintenance Management Technician or Road Maintenance Shop Supervisor so they can reorder supplies and call Clean Harbor so barrels can be picked up.
- Road Maintenance Shop personnel and Maintenance Superintendent will monitor this daily.
- Road Maintenance Shop personnel will inform Management Technician or Road Maintenance Shop Supervisor when products need to be restocked and Clean Harbor barrels need to be replaced or hauled away.
- Environmental inspectors will keep record of spill events and pictures with annual Road Maintenance Environmental binder.

Petroleum Spill Notification and Reporting

Note: Notification should be made for both suspected and confirmed releases.

- Contact 911 to respond to releases that cannot be safely controlled using on-site resources.
- Contact an Emergency Response Contractor to respond to releases that cannot be safely controlled and cleaned up using on-site resources.
 - A list of emergency response contractors is available through the Emergency Resource List at: <http://virtual.henrico/genserv/vendorlist.pdf> subtitle "Environmental Contractors - Emergency Response Services".
- Notify the senior person on-site.
- The senior person on-site (or a designee) will make the following notifications to Regulatory Agencies within **15 minutes** of the discovery of a suspected or confirmed release.
 - For a release in excess of 25 gallons that does not impact surface water, or a release not cleaned up within 24 hours:
 - Virginia Department of Environmental Quality (DEQ) at 1-804-527-5020 during normal business hours (8:15 a.m.-5:00 p.m.).
 - Virginia Department of Emergency Management (VDEM) at 1-800-468-8892 on nights/weekends/holidays plus follow up with DEQ during normal business hours.
 - For a release that causes a sheen or otherwise impacts surface water:
 - National Response Center (NRC) at 1-800-424-8802.
 - DEQ at 1-804-527-5020 during normal business hours (8:15 a.m.-5:00 p.m.).
 - VDEM at 1-800-468-8892 on nights/weekends/holidays plus follow up with the DEQ during normal business hours.
 - For all releases:
 - The Local Emergency Planning Committee (LEPC) / County Hazardous Material Coordinator at 1-804-501-7310 or 1-804-310-0803.
- The senior person on-site (or a designee) will make the following notifications to County Personnel within **30 minutes** of the discovery of a suspected or confirmed release.
 - County Environmental Manager at 1-804-501-5631 or 1-804-698-0221.
 - County Deputy Coordinator of Emergency Management at 1-804-501-7183 or 1-804-822-6201.



County of Henrico

Verification	Originator	Revised	Issued
Initials	B Mc	MMC	
Date	03/13/2013	02/06/2018	

Environmental Standard Operating Procedure 104

Spill Response and Notification

- For a release that enters a storm drain, contact the County NPDES Engineer at 1-804-501-7319 or 1-804-349-3206.
- Make any additional notifications required by site specific environmental permits or plans.
- Complete the Henrico County Spill Notification Form, submit a copy to the County Environmental Manager, and maintain the original with Facility records.
- A Release Investigation Report may be required by the DEQ to investigate a suspected release and an Initial Abatement and/or Site Characterization Report may be required by the DEQ to investigate a confirmed release. Determine if DEQ will require these reports and, if they are required, submit them on schedule

Hazardous Substance Spill Notification and Reporting:

Note: Notification should be made for both suspected and confirmed releases.

- Contact 911 to respond to releases that cannot be safely controlled using on-site resources.
- Contact an Emergency Response Contractor to respond to releases that cannot be safely controlled and cleaned up using on-site resources.
 - A list of emergency response contractors is available through the Emergency Resource List at: <http://virtual.henrico/genserv/vendorlist.pdf> subtitle "Environmental Contractors - Emergency Response Services".
- Notify the senior person on-site.
- The senior person on-site (or a designee) will make the following notifications to Regulatory Agencies within **15 minutes** of the discovery of a suspected or confirmed release.
 - For a release of a reportable quantity (RQ) of a hazardous substance (listed in 40 CFR Part 302.4 and 40 CFR Part 355), contact:
 - Virginia Department of Emergency Management (VDEM) at 1-800-468-8892
 - National Response Center (NRC) at 1-800-424-8802
 - Virginia Department of Environmental Quality (DEQ) at 1-804-527-5020
 - For all releases:
 - Local Emergency Planning Committee (LEPC)/ County Hazardous Material Coordinator at 1-804-501-7310 or 1-804-310-0803.
- The senior person on-site or designee will make the following notifications to County Personnel within **30 minutes** of the discovery of a suspected or confirmed release.
 - County Environmental Manager at 1-804-501-5631 or 1-804-698-0221.
 - County Deputy Coordinator of Emergency Management at 1-804-501-7183 or 1-804-822-6201.
 - For a release that enters a storm drain, contact the County NPDES Engineer at 1-804-501-7319 or 1-804-349-3206.
- Make any additional notifications required by site specific environmental permits or plans
- Complete the Henrico County Spill Notification Form, submit a copy to the County Environmental Manager, and maintain the original with the Facility records.
- Within 30 days after a release of a reportable quantity (RQ), submit a written report to the Virginia Emergency Response Council (VERC) (address listed below) and the LEPC (via interoffice mail to the County Hazardous Material Coordinator and the County Deputy Coordinator of Emergency Management) detailing the release (product, quantity, time, duration, and cause), health risks, emergency response, contact information, and abatement.

Virginia Department of Environmental Quality



County of Henrico

Verification	Originator	Revised	Issued
Initials	B Mc	MMC	
Date	03/13/2013	02/06/2018	

Environmental Standard Operating Procedure 104 Spill Response and Notification

Attn: VERC
P.O. Box 1105
Richmond, Virginia 23218

Additional Requirements:

- Conduct and document training on this SOP for all personnel that may be involved in spill response and notification.
- Conduct and document spill response training based on specifications from MSDS and product technical manuals for all personnel that may be involved in spill response.

References and Regulatory Statutes:

Environmental Protection Agency: Designation, Reportable Quantities, and Notification – 40 CFR Part 302

Environmental Protection Agency: Emergency Planning and Notification – 40 CFR Part 355

Environmental Protection Agency: RCRA, Superfund & EPCRA Hotline Training Module

Virginia Department of Environmental Quality: Underground Storage Tanks Technical Standards and Corrective Action Requirements – 9 VAC 25-580

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the facility operational manager's responsibility to ensure all rules and regulations are identified and followed.

The regulatory requirements included in this SOP provide a summary of the Federal and State requirements, further explanation and regulatory details can be found in 40 CFR Parts 302 and 355 and 9 VAC 25-580.



County of Henrico

Verification	Originator	Revised	Issued
Initials Date	B Mc 03/13/2013	MMC 02/05/2018	

Environmental Standard Operating Procedure 105

Washing Equipment

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Operations	
Document location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description
1	2/5/18	Added regulatory language; added language under “procedures” to reflect Spreader Cleaning and Leaf Machine Cleaning SOPs

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide instructions on how and where to wash equipment.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operations that own or operate a facility.

Responsibility:

The facility operational manager will ensure this SOP is followed.

Regulatory requirements:

I.B.2.i)1):

"The discharge of permittee vehicle wash water into the MS4 at permittee facilities without authorization from a separate VPDES permit shall be prohibited."

"The discharge of wastewater into the MS4 at permittee facilities without authorization by a separate VPDES permit shall be prohibited."

Procedures:

- Any washing of vehicles must be performed at CAM large vehicle wash facility or at a location where the discharge can be collected and prevented from entering the MS4.
- Following emergency winter operations or leaf season, equipment may be washed in designated areas provided that all storm drains are blocked and appropriate SOPs are followed. See "Spreader Cleaning SOP" and "Leaf Machine Cleaning SOP."

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the



County of Henrico

Verification	Originator	Revised	Issued
Initials	B Mc	MMC	
Date	03/13/2013	02/05/2018	

Environmental Standard Operating Procedure 105

Washing Equipment

Facility operational manager's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	B Mc	B Mc	MMC	
Date	03/13/2013	10/20/2014	2/6/2018	

Environmental Standard Operating Procedure 106

Oil Water Separator

Persons responsible: DPW Operators

Area of application: Henrico County Public Works Operations

Document location: Pw share/pw rd main/depot environmental main

Revisions

Rev. No.	Date	Description
1	2/6/2018	Edited purpose to reflect West End location of oil/water separators; edited language under regulatory requirements.

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide instructions on proper maintenance of the oil water separators located at the West End Road Maintenance facilities.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operations that own or operate a facility.

Exclusions: None

Responsibility:

The facility operational manager will ensure this SOP is followed.

Definitions:

Oil Water Separator- a device designed to separate gross amounts of oil and suspended solids from the wastewater liquids.

Regulatory Requirements:

- All Oil Water Separators must be cleaned once every six months or as needed by a qualified contractor.
 - Generate a work order for record keeping purposes.
 - Document the contractor responsible for cleaning, where the material was taken for disposal, before and after cleaning pictures, date and time of cleaning, and cost to clean in the "Oil Water Separator Log."
 - Maintain a copy of the invoice.

Record Keeping Requirements:

- Maintain maintenance documentation at the Oil Water Separator / Sediment Basin site or at a readily available alternative site.

Note: this requirement is satisfied by generating a work order and completing an "Oil Water Separator Log."



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	B Mc	B Mc	MMC	
Date	03/13/2013	10/20/2014	2/6/2018	

Environmental Standard Operating Procedure 106

Oil Water Separator

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the Facility operational manager's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials	B Mc	JK	
Date	03/13/2013	01/29/2019	

Environmental Standard Operating Procedure 107 Facility Grass Cutting

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Operations	
Document location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description
1	2/5/18	Added language to regulatory requirements concerning contractors; added language regarding work order generation to record keeping requirements.
2	1/29/19	Added language to regulatory requirements concerning the MS4 program.

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide instructions on how to maintain the vegetated areas within the facility.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operations that own or operate a facility.

Exclusions: None

Responsibility:

The facility operational manager will ensure this SOP is followed.

Definitions:

Vegetation – grass, weeds, saplings, voluntary overgrowth.

Regulatory Requirements:

All vegetation over 18" must be cut.

- This requirement is met by mowing once a month or as needed during the growing season and is handled either by the permittee or a permittee contractor.
- All cut vegetation is to be detained on site via sediment and stormwater control methods.

Record Keeping Requirements:

- A work order is generated for mowing and other vegetative maintenance.
- All documentation must be maintained at the facility or at a readily available alternative site.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the facility operational manager's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Revised	Revised	Issued
Initials	B Mc	B Mc	MMC	DS	
Date	03/13/2013	10/20/2014	2/8/2017	12/06/17	

Environmental Standard Operating Procedure 108 Facility Salt Dome

Persons responsible: DPW Operators
Area of application: Henrico County Public Works Operations and Gaskins Rd. Park & Ride
Document location: Pw share/pw rd main/depot environmental main

Revisions

Rev. No.	Date	Description
1	12/06/17	Changed Gaskins inspection schedule to quarterly (site inactivity)
2	04/12/18	Added beyond April 1 exception (DS)

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide instructions on how to maintain and inspect the facility salt domes.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operations that own or operate a salt dome.

Exclusions: None

Responsibility:

The facility operational manager will ensure this SOP is followed.

Regulatory Requirements:

- All dome entrances (April 1 - November 1) as a minimum time frame must have some type of opening closure in place.
 - If there is a forecast of snow beyond the April 1 date, entrance protection will be installed after salt replenishment occurs at the end of the event.
- All domes must be inspected on a monthly basis and after all heavy rain storms.
 - This excludes the Gaskins Road salt dome, which will be inspected on a quarterly basis, due to site inactivity. In the event the site is required for a snow event, the dome will be inspected after the event has been deemed as complete.
- All discharges must be swept within 96 hours following loading/unloading operations, emergency operations, or other events that result in salt leakage from the dome (see Salt Replenishment SOP)

Exterior

Dome cap is in place and doesn't appear to leak
All dome vent covers are in place
Shingles are in place and not curled
Exhaust fan housing-look for rotted wood, shingles, siding and louvers



Verification	Originator	Revised	Revised	Revised	Issued
Initials	B Mc	B Mc	MMC	DS	
Date	03/13/2013	10/20/2014	2/8/2017	12/06/17	

Environmental Standard Operating Procedure 108 Facility Salt Dome

Interior

Entrance is protected
Entrance shed roof is not damaged
Concrete wall has not been hit/damaged
No apparent leaks in roof
Lights work
Fan works (very important)

Record keeping requirements:

- Generate a work order for sweeping conducted by road maintenance sweepers and contractor; maintain invoices from contractor sweeping
- All inspections and repairs must be documented at the facility site or at a readily available alternative site.

Note: This requirement is satisfied by completing a "Salt Dome Inspection Form" or "Yard Inspection Form."

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the Facility operational manager's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials	B Mc	MMC	
Date	03/13/2013	02/05/2018	

Environmental Standard Operating Procedure 109 Waste Containment Dumpster

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Operations that Own, Rent, or Operate Waste Containers Used to Store Waste Products	
Document location:	pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description
1	2/5/18	Changed language of exclusions from “smaller capacity” to “any” dumpsters.

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide maintenance and management requirements to owners, renters, and operators of waste containment dumpsters used to store waste products by outlining the applicable State and Federal environmental regulations and additional Henrico County Requirements.

Scope:

This SOP applies to all Henrico County Public Works Road Maintenance operations that own, rent, or operate dumpsters, including roll off dumpsters, used to store waste products.

Exclusions:

If the dumpster capacity is less than 25 gallons, then all Regulatory Requirements of this SOP are optional except the type of waste that may be disposed (i.e. no hazardous wastes in any dumpsters).

Responsibility:

The dumpster operator will ensure this SOP is followed and implemented.

Definitions:

Release - Any spilling, leaking, discharging, or escaping, from a dumpster onto ground surface or subsurface surrounding the dumpster.

Cover – Any lid, top, door, tarp, roof, used to cover the dumpster.

Hazardous waste-waste that poses substantial of potential threats to public health or the environment.

Solid waste- means any garbage, refuse, sludge and other discarded material, including solid, liquid, semisolid or contained gaseous material, resulting from industrial, commercial, mining and agricultural operations, or community activities but does not include (i) solid or dissolved material in domestic sewage, (ii) solid or dissolved material in irrigation return flows or in industrial discharges which are sources subject to a permit from the State Water Control Board, or (iii) source, special nuclear, or by-product material as defined by the Federal Atomic Energy Act of 1954, as amended.



County of Henrico

Verification	Originator	Revised	Issued
Initials	B Mc	MMC	
Date	03/13/2013	02/05/2018	

Environmental Standard Operating Procedure 109 Waste Containment Dumpster

Regulatory Requirements:

- Daily review of dumpsters.
- Doors and lids are checked by Road Maintenance Technician I's at 4am every day and by the foreman on call at 4:30pm.
- All loose trash needs to be picked up daily around dumpsters by loader operator and Road Maintenance Technician I's.
- Only products that are classified as solid waste by State and Federal laws may be placed in dumpster; no hazardous wastes are to be placed in dumpster under any circumstances.

Record Keeping Requirements:

- Prior to installing a new dumpster or upgrading an existing dumpster; an inspection of the new dumpster must be performed and documented indicating its specific location, date, and time of installation and condition of the dumpster.
Note: this requirement is satisfied by completing a "Dumpster Installation, Damage and Repair Form."
- All specific dumpster locations must be documented.
- All damages and repairs of dumpsters must be documented.
Note: this requirement is satisfied by completing a "Dumpster Installation Damage and Repair Form."
- Daily inspections (twice a day) must be performed to ensure the dumpster is covered and is not releasing its contents.
- All loose trash needs to be picked up and placed in dumpster daily.
Note: This inspection must be documented on the "Dumpster Daily Check Sheet Form."

Spill and Overfill Control Requirements:

- Ensure the volume available in the dumpster is greater than the volume of product to be placed inside of the dumpster.
- Ensure the dumpster is not leaking and/or damaged (i.e. rusted or in danger of rupturing).
- Follow "Spills SOP" in the event of a spill.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the operator's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials	B Mc	MMC	
Date	03/13/2013	2/8/2017	

Environmental Standard Operating Procedure 110

Park & Rides

Persons responsible:	DPW Operators
Area of application:	Henrico County Public Works Operations; Gaskins Rd, & Glenside Dr.
Document location:	Pw share/pw rd main/depot environmental main
Revisions	
Rev. No.	Date Description

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide instructions on how to maintain Park & Ride facilities.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operations that own or operate a facility.

Exclusions: None

Responsibility:

The facility operational manager will ensure this SOP is followed.

Definitions:

Park & Ride – public parking area reserved for car pooling.

Regulatory Requirements:

- All guardrail weeds to be sprayed as needed by a certified sprayer.
- All pavements to be swept bi-monthly or as needed to remain free of debris and stone.
- All inlets must be cleaned as needed.
- All grass to be cut monthly during growing season or as needed.
- All gates to remain locked unless in use by DPW or a DPW contractor.

Record Keeping Requirements:

- Generate a work order for bi-monthly sweeping.
- Maintain documentation of the maintenance on site or at a readily available alternative site:
 - Date and time of maintenance.
 - Type of maintenance performed.
 - Before and after pictures of maintenance.

Note: this requirement is satisfied by completing a "Park & Ride Maintenance Form."

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the sweeping operator's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials	B Mc	MMC	
Date	03/13/2013	2/5/2018	

Environmental Standard Operating Procedure 111

Magnesium Chloride Tanks

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Operations East and West	
Document location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description
1	2/5/18	Edited frequency of tank inspections; added delivery specifications; added spill language.

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide instructions on how maintain the magnesium chloride tanks.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operations that own or operate a facility.

Exclusions: None

Definitions:

Magnesium chloride- the name for the chemical compounds with the formulas $MgCl_2$ and its various hydrates $MgCl_2(H_2O)_x$. These salts are typical ionic halides, being highly soluble in water. The hydrated magnesium chloride can be extracted from brine or sea water. It is an irritant and is non-flammable.

Responsibility:

The facility operational manager will ensure this SOP is followed.

Regulatory Requirements:

- Inspection of the tanks will be performed with every yard inspection, but at a minimum of once a month; hoses and connections will also be reviewed at this time.
- Pump house and spray operator's house will be reviewed for conditions, leaks, and sound structure.
- $MgCl_2$ deliveries will be logged on "Deliveries Check Sheet Form."
- Any spills or releases will be properly reported and documented by following the "Spills SOP."

Record Keeping Requirements:

- Maintain documentation of the following at the tank site or at a readily available alternative site:
 - Date and time of inspection
 - Findings of inspection

Note: this requirement is satisfied by completing a "Magnesium Chloride Tank Maintenance Form" and a "Yard Inspection Form."



County of Henrico

Verification	Originator	Revised	Issued
Initials	B Mc	MMC	
Date	03/13/2013	2/5/2018	

Environmental Standard Operating Procedure 111 Magnesium Chloride Tanks

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the sweeping operator's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials Date	MC 06/12/2015		

Environmental Standard Operating Procedure 114 Hazardous and Waste Materials Management

Persons responsible:	DPW Operators
Area of application:	Henrico County Public Works Operations
Document location:	Pw share/pw rd main/depot environmental main
Revisions	
Rev. No.	Date Description

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to ensure that hazardous waste materials are properly managed.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operations that own or operate a facility.

Exclusions: None

Responsibility:

The facility operational manager will ensure that this SOP is followed.

Definitions:

Hazardous waste-a solid waste or combination of solid waste which, because of its quantity, concentration or physical, chemical, or infectious characteristics, may:

- Cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating illness; or
- Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Waste material-any solid, hazardous, or radioactive waste.

Procedures:

- Stored materials must be kept in closed, labeled containers; if outside, containers must be sheltered from weather and have proper secondary containment.
- Inspections must be performed regularly and recorded.
- Hazardous materials must be stored in a location away from floor drains if inside and storm inlets if outside.
- Stocks of materials must be reduced when possible; empty containers and residual waste must be picked up by a licensed professional (e.g. Clean Harbors) for proper disposal.
- Dissimilar wastes must not be mixed in the same containers.
- All spills must be documented according to "Spill and Hazardous Materials SOP."



County of Henrico

Verification	Originator	Revised	Issued
Initials	MC		
Date	06/12/2015		

Environmental Standard Operating Procedure 114

Hazardous and Waste Materials Management

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the Facility operational manager's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials	MC		
Date	10/24/16		

Environmental Standard Operating Procedure 115

Illegal Dumping or Hazardous Materials in ROW

Persons responsible:	DPW Operators/ Contractor	
Area of application:	Henrico County Public Works Road Maintenance Operations	
Location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide instructions on proper response to situations involving illegal dumping or dumping in the County right-of-way to ensure the safety of employees and the protection of the environment

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operators who own or operate a facility.

Exclusions: None

Responsibility:

The facility operational manager, contractor, and environmental inspectors will ensure that this SOP is followed.

Regulatory requirements:

- MS4 Permit reduction of pollutants
- US DOT safety regulations
- OSHA regulations

Procedures:

- All employees will be given spill cards with detailed information on whom to contact in the event of various spills; if an employee encounters a spill in the right-of-way, the Spills SOP will be referenced and followed.
- Use proper PPE.
- In the event of illegal dumping, employees will (from a distance) use their sight and hearing to determine if a situation is safe.
- If the situation is unsafe or there is an active uncontained spill of an unknown material or a large volume of a known material, 911 will be called immediately (see Spills SOP).
- If an act of illegal dumping is encountered involving an uncontained spill, and the situation is safe to proceed, employee will notify the senior person on-site to call First Call Environmental or other clean-up contractor for proper transport and disposal of material.
- Employee will wait with material for First Call to respond.
- Each vehicle in the East and West fleet will be assigned an Emergency Response Guide (ERG) that will remain in the vehicle at all times for reference.



County of Henrico

Verification	Originator	Revised	Issued
Initials	MC		
Date	10/24/16		

Environmental Standard Operating Procedure 115

Illegal Dumping or Hazardous Materials in ROW

- Both the East and West maintenance yards will have 4-gas monitors in-house for use in identifying potentially harmful materials encountered in operations; DPW will conduct trainings on the use of monitors and maintenance them yearly.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the Facility operational manager's, contractor's, and environmental inspectors' responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials	MC		
Date	10/24/16		

Environmental Standard Operating Procedure 116

Pre and Post Trip SOP

Persons responsible:	DPW Operators/ Contractor
Area of application:	Henrico County Public Works Road Maintenance Operations
Document Location:	Pw share/pw rd main/depot environmental main
Revisions	
Rev. No.	Date Description

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide instructions on proper driver vehicle inspection reporting both pre and post trip for all equipment use in order to ensure safety and minimize pollutant discharge from equipment.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operators who own or operate a facility.

Exclusions: None

Responsibility:

The facility operational manager, contractor, and environmental inspectors will ensure that this SOP is followed.

Regulatory requirements:

- MS4 Permit reduction of pollutants
- US DOT safety regulations

Procedures:

- Each vehicle in the East and West fleet will be assigned a Driver's Vehicle Inspection Report to be filled out both pre and post trip and handed in at the end of each day
- Copies of all reports will be kept on file in respective crew buildings
- In addition to the following check lists, all leakages from vehicles will be addressed with oil dry or a similar absorbent and cleaned up within 24 hours of application.
- Vehicles with leaks will be recorded and serviced if needed; problematic equipment will be addressed with pools or other containment to prevent pollutant runoff to the MS4.

Pre-Trip and Post Check List to include:

- Air compressor
- Air lines
- Battery
- Belts and Hoses
- Body
- Brake Accessories



County of Henrico

Verification	Originator	Revised	Issued
Initials	MC		
Date	10/24/16		

Environmental Standard Operating Procedure 116

Pre and Post Trip SOP

- Brakes, Parking
- Brakes, Service
- Clutch
- Coupling Devices
- Defroster/Heater
- Drive Line
- Engine
- Exhaust
- Fifth Wheel
- Fluid levels
- Frame and Assembly
- Front Axle
- Fuel Tanks
- Generator
- Horn
- Lights
 - Head-stop
 - Tail-dash
 - Turn indicators
- Mirrors
- Muffler
- Oil level
- Radiator level
- Rear end
- Reflectors

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the Facility operational manager's, contractor's, and environmental inspectors' responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials	MC		
Date	01/6/2016		

Environmental Standard Operating Procedure 118

Vactor SOP

Persons responsible:	DPW Operators
Area of application:	Henrico County Public Works Road Maintenance Operations
Document Location:	Pw share/pw rd main/depot environmental main
Revisions	
Rev. No.	Date Description

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide instructions on proper vacuum truck decanting procedures.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operators who own or operate a facility.

Exclusions: None

Responsibility:

The facility operational manager, vactor operators, and environmental inspectors will ensure that this SOP is followed.

Procedures for Decanting and Dumping Solids:

- Use proper PPE.
- Once vactor truck has reached its maximum capacity, will drive to WRF and enter WRF via 2601 Kingsland Road Entrance.
- Vactor operator will check in with attendant, indicate which division they are with (East or West) and weigh in on scales.
 - If truck has not yet been dewatered, vactor operator will be directed to Septic Receiving Station and utilize the valve on the back of the vehicle to dewater as much free liquid as possible.
 - If vehicle contains ONLY liquid waste, vactor operator will discharge entire contents into Septic Receiving Station.
- If truck has been dewatered, vactor operator will proceed to far end of Biosolids Pad to discharge in open jersey-walled drying area.
- Following discharge, vactor operator will use DPW-provided loader to clean up all remaining solids (including those around sewer grate inlet) and place them in the open jersey-walled drying area.
- Vactor operator will work dry material daily to expedite drying time using DPW-provided loader
- Vactor operator will check dumpster each trip; once dumpster is halfway full, vactor operator will notify DPW to contact Republic for dumpster removal.
- Vactor operator will ensure cover is placed back on dumpsters securely.
- Vactor operator will clean loader properly before returning it to designated storage location.



County of Henrico

Verification	Originator	Revised	Issued
Initials	MC		
Date	01/6/2016		

Environmental Standard Operating Procedure 118

Vactor SOP

- Once solids have been emptied into designated drying area and dumpsters have been checked, vactor operator will drive through the truck wash and proceed to scales for final weigh-in before exiting the facility via Kingsland Road.

Additional DPW Responsibilities:

- DPW will maintain a vactor log.
- DPW will have dumpsters removed and replaced by Republic.
- DPW will have solid removed inside sewer grate inlet as necessary.
- DPW will characterize solid waste as part of compliance with landfill disposal.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the Facility operational manager's, vactor operator's, and environmental inspectors' responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials Date	MMC 06/12/2015	MMC 2/5/2018	

Environmental Standard Operating Procedure 119

Vehicle/ Equipment Maintenance

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Operations	
Document location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description
1	2/5/18	Vehicle maintenance to be performed indoors when possible; East facility will perform maintenance away from storm drains and in areas where possible spills can be contained; Spills SOP to be followed in event of any release; use proper PPE.

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide instructions on how to properly maintain vehicles and equipment.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operations that own or operate a facility.

Exclusions: None

Responsibility:

The facility operational manager will ensure that this SOP is followed.

Procedures:

- Vehicle inspections must be performed and recorded daily (see Pre- and Post-trip SOP).
- Use proper PPE.
- All vehicle maintenance must be performed indoors whenever possible, where spill kits are stocked and drainage from maintenance will drain to the oil/water separator. In East End, when shop size does not allow for maintenance indoors, all maintenance will be performed away from inlets and in an area where materials can be contained and properly disposed.
- Spill materials must be cleaned up immediately and properly disposed of in sealed containers for pick-up by Clean Harbors or another licensed disposal company.
- All spills must be photo-documented and reported following the instructions identified in the "Spill Response and Notification SOP."

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the Facility operational manager's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	MMC	MMC	DS	
Date	10/17/16	8/31/17	12/06/17 & 01/29/18	

Environmental Standard Operating Procedure 120 Environmental Yard & Bridge Maintenance SOP

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Operations	
Document location:	pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description
1	8/31/17	Task list no longer put into outlook; work order generated only.
2	12/06/17	Changed yard inspection frequency.
3	01/29/18	Changed name and added information on bridges.

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide instructions and procedures for conducting facility yard inspections at both the East and West End Road Division complexes and bridge inspections throughout the county to ensure that MS4 permit requirements are being met.

Scope:

This SOP applies to all Henrico County Public Works Road Maintenance operations that own or operate a facility and county-owned bridges. This SOP addresses Road Maintenance activity numbers 409 – DPW Yard Maintenance (Environmental), 410 – DPW Bridge Maintenance (Environmental), 410S – DPW Bridge Maintenance (Sweeper – Environmental), and 410V – DPW Bridge Maintenance (Vactor – Environmental).

Exclusions: None

Responsibility:

The facility operators, environmental inspectors, and personnel involved with bridge inspections will ensure that this SOP is followed.

Yard Inspection Procedures:

- Yard inspections on each facility must be performed (at a minimum) monthly. All spills noted during these inspections will be addressed in accordance with guidelines set forth in the MS4 permit and the Spills SOP.

Record Keeping Requirements:

- Maintain documentation of East End inspections in the East and West End inspections in the West in the Environmental Inspectors' offices respectively.
- Date, time, and inspectors will be recorded as well as results of the inspection.
Note: This requirement will be satisfied by filling out an *East or West End Yard Inspection Form*.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	MMC	MMC	DS	
Date	10/17/16	8/31/17	12/06/17 & 01/29/18	

Environmental Standard Operating Procedure 120

Environmental Yard & Bridge Maintenance SOP

- Following each yard inspection, the Environmental Inspectors will generate a task list necessary to correct any findings that are or could become permit violations.
- A work order including all tasks that need to be completed will be queued following the inspection.
- Environmental Inspectors will follow up on work order to ensure tasks are completed.

Bridge Inspection Procedures:

- Bridges for which the county is responsible will be inspected on an annual basis.
- Work orders will be created on an as-needed basis to address any bridges or box culverts that require sweeper, vactor, vegetative, or other maintenance.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the operator's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials Date	DS 07/25/2016	DS 01/30/17	

Environmental Standard Operating Procedure 121 Sediment Trap and Inlet Protection SOP

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Road Maintenance Operations	
Document Location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description
1	01/30/17	Added inlet protection.

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to set a frequency for sediment trap and inlet protection (West End) cleaning.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operators who own or operate a facility.

Exclusions: None

Responsibility:

The facility operational manager, any personnel involved with maintaining and cleaning sediment traps/inlet protection, and environmental inspectors will ensure that this SOP is followed.

Procedure for Sediment Trap Cleaning:

The sediment trap cleaning process on both maintenance yards and the Gaskins Road salt dome will adhere to the following procedure:

- When sediment traps are half full, a vacuor will be used to remove the accumulated sediment.
- The removed material will be hauled to the Water Reclamation Facility (WRF) with other vacuor solids or sweeping materials.

Procedure for Inlet Protection Cleaning:

The inlet protection cleaning process on the West End maintenance yard will adhere to the following procedure:

- On a quarterly basis, the inlet protection for the inlet behind the shop will be cleaned or replaced.
- If only cleaning is needed, the gravel will be replaced and new booms will be placed inside.

Additional DPW Responsibilities:

- DPW will utilize the task list to document when sediment trap cleaning occurs.
- DPW will maintain photo documentation of before and after sediment removal.
- DPW will utilize the task list to document when inlet protection cleaning/replacement occurs.



County of Henrico

Verification	Originator	Revised	Issued
Initials	DS	DS	
Date	07/25/2016	01/30/17	

Environmental Standard Operating Procedure 121 Sediment Trap and Inlet Protection SOP

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the Facility operational manager's, field operator's, and environmental inspectors' responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Revised	Revised
Initials	DS	MMC	MMC	JK
Date	07/08/2016	8/31/17	12/19/17	2/25/19

Environmental Standard Operating Procedure 122 Spreader Cleaning SOP

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Road Maintenance Operations	
Document Location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description
1	8/31/17	No longer channel next to East spreader rack; new inlet will be blocked instead.
2		Spreaders to be washed initially in large vehicle wash; place oil and universal booms at edge of sediment basin and edge of channel by front gate in East prior to washing to treat sheet flow; vactor pooled saltwater around blocked inlets; sweep following spreader cleaning to collect any residual product.
3	2/25/19	Update East End preliminary washing location and operations.

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide instructions on proper spreader cleaning procedures after winter use.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operators who own or operate a facility.

Exclusions: None

Responsibility:

The facility operational manager, any personnel involved with maintaining and cleaning spreaders, and environmental inspectors will ensure that this SOP is followed.

Procedures for Cleaning Spreaders:

- Each facility will follow different procedures due to structural difference.
- **East Facility:**
 - Spreaders will be taken to the low-lying area beside the heated indoor storage for preliminary washing.
 - Using the hydrant by the pipe lay-down area, a hose will be run to the wash down area to spray each truck.
 - A vactor will be used to remove any salt residual from the preliminary washing.
 - Haul collected liquid to the Water Reclamation Facility (WRF) to dispose at the septic receiving station OR use designated manhole at East End facility to decant liquid portion of waste.
 - Limited to 15,000 gal/day.
 - Spreaders will then be placed on spreader racks for subsequent cleaning to access underbody of spreader to prevent corrosion.



County of Henrico

Verification	Originator	Revised	Revised	Revised
Initials	DS	MMC	MMC	JK
Date	07/08/2016	8/31/17	12/19/17	2/25/19

Environmental Standard Operating Procedure 122

Spreader Cleaning SOP

- Ensure that inlet next to spreader rack is sealed off with polyurethane inlet mat (stored in East End shop).
- Block edge of sediment basin with oil and universal booms to treat sheet flow off of asphalt from spreader rack.
- Block edge of channel by front entrance with oil and universal booms to treat sheet flow from old spreader rack and new portion of bay by CDL training area.
- Use vactor to collect all of the pooled salt and water around the drop inlet.
- Haul collected liquid to the Water Reclamation Facility (WRF) to dispose at the septic receiving station OR use designated manhole at East End facility to decant liquid portion of waste.
 - Limited to 15,000 gal/day.
- Sweep with vacuum sweeper following cleaning to remove and residual salt or other product following cleaning.
- **West Facility:**
 - Spreaders will be taken to large vehicle wash for preliminary cleaning after a winter storm event.
 - Spreaders will then be placed on spreader racks for subsequent cleaning to access underbody of spreader to prevent corrosion.
 - Ensure that the four storm drains around spreader racks and the oil/water separator drains are sealed with polyurethane mats (stored in West End Shops).
 - Hanging spreaders are sprayed with water, and the salt and water mixture will pool around the sealed oil/water separator drain.
 - Station a vactor next to the spreader rack to remove any pooled/standing water.
 - Haul collected liquid to the Water Reclamation Facility (WRF) to dispose at the septic receiving station.
 - Limited to 15,000 gal/day.
 - Have sweeping contractor use vacuum sweepers remove any residual salt while cleaning the lot area around spreader racks.

Additional DPW Responsibilities:

- DPW may document when spreader cleaning occurs, including photo documentation.
- DPW will use this process in addition to the Large Vehicle Wash Facility or if it is non-operational at any point.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the Facility operational manager's, vactor operator's, and environmental inspectors' responsibility to ensure all rules and regulations are identified and followed.



Verification	Originator	Revised	Revised	Revised	Issued
Initials	DS	MMC	DS	MMC	
Date	08/30/2016	6/6/2017	06/23/2017	1/16/18	

Environmental Standard Operating Procedure 123 Waste Tire Recycling SOP

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Road Maintenance Operations	
Document Location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description
1	06/23/17	Changed tire quantity to reflect one dump truck load instead of 100 between yards.
2	1/16/18	Separate tires in the load per Tire Recyclers specifications; give Tire Recyclers PO.

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide written procedures for recycling waste tires removed from the right-of-way (ROW).

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operators who own or operate a facility.

Exclusions: None

Responsibility:

The facility operational manager, any personnel involved with removing tires from the ROW, and environmental inspectors will ensure that this SOP is followed.

Procedures for Waste Tire Recycling:

- After illegally dumped tires are removed from the ROW, they will be stored on both the East and West yards.
- Once the quantity of tires reaches one dump truck load (usually 50-100 tires):
 - A work order is generated to take them to the approved recycling center and a PO for the order will be given to the vendor on arrival:
Tire Recyclers Inc
 2640 Roxbury Road
 Charles City, VA 23030
 Permit - VA PBR #556
 (804) 966-9770
mmfeva@verizon.net
- Tires must be separated according to Tire Recyclers Inc. specifications by size and otherwise (i.e. small to the front of load, large to the back).
- Track tires for large equipment must be separated out to be weighed separately, as these are a high charge per ton.
- Once the work order is closed out, any receipts or documentation will be attached to the work order.



Verification	Originator	Revised	Revised	Revised	Issued
Initials	DS	MMC	DS	MMC	
Date	08/30/2016	6/6/2017	06/23/2017	1/16/18	

Environmental Standard Operating Procedure 123 Waste Tire Recycling SOP

Additional DPW Responsibilities:

- DPW will document when tires are hauled to the recycler.
- DPW will maintain all records of waste tire recycling via work orders.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the Facility operational manager's and environmental inspectors' responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials Date	DS 10/11/2016		

Environmental Standard Operating Procedure 124 BMP Inspection and Maintenance SOP

Persons responsible:	DPW Management
Area of application:	Henrico County Public Works Road Maintenance Operations
Document Location:	Pw share/pw rd main/depot environmental main
Revisions	
Rev. No.	Date Description

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide written instruction for annual inspections and follow-up maintenance activities, pursuant to I.B.2.h of the MS4 Permit.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operators who own or manage a stormwater management (SWM) facility.

Exclusions: None

Responsibility:

The facility operational manager, any personnel involved with decision-making, and environmental inspectors will ensure that this SOP is followed.

Procedures for BMP Inspection:

- The environmental inspectors will coordinate with DPW BMP inspectors to conduct annual inspections for the three BMPs for which DPW is responsible.
- After an inspection has been conducted for each facility, DPW will generate work orders to address any concerns on the inspection checklist.
- If any work is outside of the ability of the division, a contractor will be used.

Additional DPW Responsibilities:

- DPW will document BMP inspections and work occur.
- DPW will maintain photo documentation of any required work. This is to be on kept with the work order.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the Facility operational manager's, vactor operator's, and environmental inspectors' responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials Date	DS 02/09/2017		

Environmental Standard Operating Procedure 125 Salt Replenishment SOP

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Road Maintenance Operations	
Document location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide an outline for salt replenishment operations and the required sweeping maintenance after completion.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operators who own or operate a facility with salt domes.

Exclusions: None

Responsibility:

The facility operational manager, any personnel involved with loading salt into the salt domes, and road maintenance environmental inspectors will ensure that this SOP is followed.

Procedure for Salt Replenishment Operations:

The salt replenishment procedure on both maintenance yards and the Gaskins Road salt dome will adhere to the following procedure:

- The capacities of all four salt domes are as follows (with tons of salt typically found in each dome):
 - West (2) – approximately 5000 tons (maintain ~4000 tons in each).
 - East (1) – approximately 4500 tons (maintain ~4000 tons).
 - Gaskins (1) – approximately 5000 tons (maintain ~4000 tons).
 - This dome is only used for major snowstorms.
- After salt is used for a storm event, the current salt supply contractor is called and their haulers bring salt to the required domes.
 - Depending on the current levels of salt in the domes and the vehicle type used by the haulers, they will either directly place the salt in the dome, or it will be dumped on the ground near the dome for loading.
 - All facilities will ensure the salt is dumped in a containment area located away from storm drains to prevent salt migration:
 - West – temporary jersey barriers (location may vary).
 - East – permanent jersey barriers with gravel at bottom to prevent salt seepage (to right of dome).
 - Gaskins – temporary hay bales wrapped with filter fabric (location may vary).



County of Henrico

Verification	Originator	Revised	Issued
Initials	DS		
Date	02/09/2017		

Environmental Standard Operating Procedure 125

Salt Replenishment SOP

- When salt is scheduled to arrive, facility operators will ensure that a loader operator and the conveyor are available.
- By the end of the day, all salt delivered during standard business hours will be placed in the dome or properly covered and contained to prevent salt migration.

Procedure for Sweeping Maintenance:

The sweeping procedure on both maintenance yards and the Gaskins Road salt dome will adhere to the following procedure:

- Within 24 hours of salt replenishment completion, a work order will be created for a sweeping contractor or County crews to sweep any areas with salt.
 - The work order will schedule the sweeping within a three day timeframe.
 - If County crews sweep the area, the recovered salt will either be placed in the salt dome or will be properly disposed of at the Water Reclamation Facility (WRF).

Additional DPW Responsibilities:

- DPW facility operators will notify the environmental inspectors at completion of salt replenishment, and the environmental inspectors will create a work order and contact the sweeper contractor if necessary.
 - In the absence of the environmental inspectors, the facility operators will ensure that this process is completed.
- After the winter season has ended, the facility operators will ensure that proper containment measures are placed at the dome entrances to prevent salt migration (see Facility Salt Dome SOP).

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the Facility operational manager's, field operator's, and environmental inspectors' responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials Date	DS 02/20/2017		

Environmental Standard Operating Procedure 126

Leaf Machine Cleaning SOP

Persons responsible:	DPW Operators
Area of application:	Henrico County Public Works Road Maintenance Operations
Document location:	Pw share/pw rd main/depot environmental main
Revisions	
Rev. No.	Date Description

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide instructions on leaf machine cleaning procedures on an as-needed basis.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operators who own or operate a facility.

Exclusions: None

Responsibility:

The facility operational manager, any personnel involved with maintaining and cleaning leaf machines, and environmental inspectors will ensure that this SOP is followed.

Procedures for Cleaning Leaf Machines:

- Both facilities will follow the same procedures for cleaning the leaf machines.
- Until there is an appropriate area at the west facility, all leaf vacuum machines will be taken to the east facility.
- **East Facility:**
 - A truck with an attached leaf box will park in the low-lying area where the covered sand pile used to be stored.
 - Using the hydrant located by the pipe lay-down area, a long hose will run to the leaf machine.
 - Crews will spray the inside and outside of the machine until it is clean.
 - Station a vactor next to this area to collect all of the pooled organic material and water.
 - Vactor material will be decanted in the designated manhole for the sanitary sewer for proper treatment OR taken to WRF septic receiving as needed.

Additional DPW Responsibilities:

- DPW will document when leaf machine cleaning occurs through work orders.
- DPW maintains photo documentation of the initial leaf machine cleaning process.
- DPW – West will use this process at the east facility until an adequate area is constructed.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the



County of Henrico

Verification	Originator	Revised	Issued
Initials	DS		
Date	02/20/2017		

Environmental Standard Operating Procedure 126

Leaf Machine Cleaning SOP

Facility operational manager's, vector operator's, and environmental inspectors' responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials Date	DS 08/04/17			

Environmental Standard Operating Procedure 128 Vacuum Leaf Collection Program SOP

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Operations	
Document location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to ensure that DPW Road Maintenance operations are effectively completing vacuum leaf orders and addressing and removing improperly disposed leaves in the MS4 or right-of-way (ROW).

Scope:

This SOP applies to all Henrico County DPW employees and contractors who remove leaves in the right-of-way (ROW). This SOP addresses Road Maintenance activity numbers 173 – Leaf Vacuum Service, 173W – Wetting Down Leaves, and 176 – Leaf Vacuum Ditch and/or Curb & Gutter.

Exclusions: None

Responsibility:

The environmental inspectors and other leaf personnel will ensure that this SOP is followed.

Regulatory Requirements:

Henrico County Municipal Separate Storm Sewer System (MS4) Permit No. VA0088617:

1.B.2.i: DPW will prohibit the dumping of collected yard waste and grass clippings into the MS4.

1.B.2.j: No later than December 31, 2015, DPW will develop descriptions of the public education program(s) it implements to increase the stormwater knowledge and change behavior of target audiences to reduce pollutants. The public outreach activities must be designed to meet the following public education and outreach goals:

- (a) Promote, publicize, and facilitate public reporting of the presence of illicit discharges or improper disposal of materials into the MS4;
 - (b) Continue to promote individual and group involvement in local water quality improvement initiatives including the promotion of local restoration and clean-up projects, programs, groups, meetings and other opportunities for public involvement;
 - (c) Promote and publicize the proper disposal of pet waste and household yard waste;
 - (d) Promote and publicize methods for residential car washing that minimize water quality impacts;
- and



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	DS			
Date	08/04/17			

Environmental Standard Operating Procedure 128 Vacuum Leaf Collection Program SOP

(e) *Target strategies towards local groups of commercial, industrial, and institutional entities likely to have significant stormwater impacts.*

Vacuum Leaf Collection Procedures:

- All leaf orders will be placed through the Department of Public Utilities (DPU) using the Customer Information Billing & Software (CIS) program, or generated as work orders in Access if leaves have fallen naturally.
- Orders will be printed each morning and will be sorted by area and distributed to work crews.
- County crews and contractors will use leaf boxes and leaf vacuum machines to remove all leaves from ditches or the ROW.
- After orders are complete, the foreman or contractor will sign and date the order sheet and provide any relevant information to be turned in.
- Leaf interns and environmental inspectors will use the signed and returned orders to complete the order status in CIS.
 - Customers will be charged \$30 for each vacuum leaf order.
- Leaf brochures containing information on bagged leaf collection and vacuum leaf collection will be sent to all county residents prior to the start of each leaf season.
- Collected leaves will be taken to appropriate disposal facilities (documented and updated on the Road Maintenance Waste Generation and Disposal list)

Leaf Violation Procedures:

- Leaf personnel will work throughout the leaf season to field calls pertaining to leaf violations and to address any concerns with improperly disposed leaves.
 - Other departments have been provided with the appropriate phone number and email addresses to forward leaf complaints.
 - Road Maintenance employees will report violations to leaf personnel or determine if a letter has been sent to address the issue.
- Neighborhoods that have historically had a high volume of leaves in the ROW or ditches without orders in CIS will be targeted first.
 - Depending on the volume of violations, leaf personnel will determine whether to send violation letters or neighborhood violation postcards.
 - **Violation letters** are geared towards individual houses that have leaves in the ROW without having a vacuum service order in place. The leaves must be removed from the ROW or an order for vacuum service must be placed by the end of the day of the date marked in the letter. All letters will include a copy of that season's leaf brochure.
 - **Neighborhood violation postcards** means that a neighborhood has a high volume of leaf piles placed in the ROW without a vacuum order in place. These postcards will either provide a date by which the leaves must be removed at the end of the day, or they will state that the leaves must be removed by the end of the day on the tenth day from the postmarked date.
- Leaf violations will be logged in spreadsheets for East and West locations and will provide information obtained from CIS including the resident name, street name, city and state, zip code, date leaf pile seen/complaint received, date violation letter send, date required for leaf removal, and verification date.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	DS			
Date	08/04/17			

Environmental Standard Operating Procedure 128 Vacuum Leaf Collection Program SOP

- This same information will be logged in the ArcOnline Leaf Collection page with any photos obtained.
- Residents who do not place an order or move the leaves by the date provided will have an order placed for them by leaf personnel, and they will be charged \$30.
 - These violation orders will be sorted and distributed in the same manner as the standard orders.

Wetting Down Leaves:

- Leaf piles at a high fire risk will be sprayed with water from a vactor.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the sweeping operator's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	DS			
Date	08/07/17			

Environmental Standard Operating Procedure 129 Pesticide and Fertilizer Application SOP

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Operations	
Document location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to ensure that DPW Road Maintenance operations and/or contractors are applying pesticides and fertilizers in accordance with the guidelines and rules set forth in the MS4 permit and Nutrient Management Plan (NMP) developed for the county.

Scope:

This SOP applies to all Henrico County DPW employees and contractors who apply pesticides and fertilizers at county facilities and in the right-of-way (ROW).

Exclusions: None

Responsibility:

The environmental inspectors, facility operators, and management personnel will ensure that this SOP is followed.

Definitions: None.

Regulatory Requirements:

Henrico County Municipal Separate Storm Sewer System (MS4) Permit No. VA0088617:

I.B.2.d - Pesticide, Herbicide, and Fertilizer Application

The permittee shall continue to control the discharge of pollutants related to the storage and application of pesticides, herbicides, and fertilizers applied to permittee rights of way, parks, and other permittee property, as follows:

1) The permittee shall develop and implement turf and landscape nutrient management plans that have been developed by a certified nutrient management planner in accordance with § 10.1-104.2 of the Code of Virginia on all lands owned or operated by the MS4 permittee where nutrients are applied to a contiguous area greater than one acre in accordance with the following schedule:

(a) No later than 12-months after the effective date of this state permit the permittee shall identify all permittee lands where nutrients are applied to a contiguous area of more than one acre. A latitude and longitude shall be provided for each such piece of permittee land.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	DS			
Date	08/07/17			

Environmental Standard Operating Procedure 129 Pesticide and Fertilizer Application SOP

(b) The permittee shall develop and implement turf and landscape nutrient management plans on all permittee lands where nutrients are applied to a contiguous area of more than one acre. The following measurable goals are established for the development and implementation of turf and landscape nutrient management plans.

(1) No later than 24-months after the effective date of this state permit, not less than 15% of all identified acres will be covered by turf and landscape nutrient management plans.

(2) No later than 36-months after the effective date of this state permit, not less than 40% of all identified acres will be covered by turf and landscape nutrient management plans.

(3) No later than 48-months after the effective date of this state permit, not less than 75% of all identified acres will be covered by turf and landscape nutrient management plans.

(c) The permittee shall annually track the following:

(1) The total acreage of permittee lands upon which nutrients are applied and controlled using general County guidelines or standard operating procedures;

(2) The acreage of permittee lands where turf and landscape nutrient management plans are required; and

(3) The acreage of permittee lands covered by turf and landscape nutrient management plans that have been implemented.

2) The permittee shall continue to employ good housekeeping/pollution prevention measures in the application, storage, transport and disposal of pesticides, herbicides and fertilizers.

3) The permittee may regulate the use, application, or storage of fertilizers pursuant to §3.2-3602 of the Code of Virginia.

4) The permittee shall track the acreage of permittee lands managed under Integrated Pest Management Plans

I.B.2.k - Pesticide, Herbicide, and Fertilizer Application

4) The permittee shall ensure that employees, and require that contractors, who apply pesticides and herbicides are properly trained or certified per the Virginia Pesticide Control Act (§3.2-3900 et seq. of the Code of Virginia). The requirements of the Virginia Pesticide Control Act are established by the Virginia Pesticide Control Board.

Pesticide and Fertilizer Application Procedures:

- County contractors will apply pesticides and fertilizers to county facilities and the ROW as necessary.
- Certification records for contractor pesticide applicators are kept on file with the environmental inspectors.
- Records of pesticide application, including the date, applicator initials, location, plants treated, area treated, pesticide name, and total amount of product applied, are maintained by the contractor and sent to the environmental inspectors on an annual basis.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	DS			
Date	08/07/17			

Environmental Standard Operating Procedure 129 Pesticide and Fertilizer Application SOP

Disclaimer:
Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the sweeping operator’s responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	DS			
Date	01/08/17			

Environmental Standard Operating Procedure 130 Winter Maintenance SOP

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Operations	
Document location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to ensure that DPW Road Maintenance, other DPW staff, and contractors clear roadways after a winter storm event.

Scope:

This SOP applies to all DPW Henrico County employees and contractors who participate in snow removal activities. This SOP addresses Road Maintenance activity numbers 210 – Pre/Post Snow Preparation and 211 – Snow Removal.

Exclusions: None

Responsibility:

The truck operators, management personnel, and contractors will ensure that this SOP is followed.

Regulatory Requirements:

Henrico County Municipal Separate Storm Sewer System (MS4) Permit No. VA0088617:

I.B.2.c - Roadways

- Materials utilized for deicing and sanding activities shall remain covered from precipitation until application.*
- The permittee shall not apply any deicing agent containing urea or other forms of nitrogen or phosphorus to parking lots, roadways, and sidewalks or other paved surfaces.*

Pre/Post Snow Preparation:

- County dump trucks will be loaded with a spreader and a plow.
- The maintenance shop will adjust and calibrate all equipment to the appropriate settings designated for each snow event.
- After the work necessary for each storm has been completed, the spreaders and plows will be removed, and the spreaders will be cleaned (see Spreader Cleaning SOP) and placed back on the spreader rack.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials Date	DS 01/08/17			

Environmental Standard Operating Procedure 130 Winter Maintenance SOP

Snow Removal Procedures:

- County crews and contractors will begin their assigned snow routes when the designated foreman/supervisor directs them to do so.
 - Drivers will notify their foreman when their routes have been completed, and the foreman will verify the status of the routes.
- Each driver should keep track of the number of loads, half loads, and quarter loads that he/she uses.
 - Remaining salt in spreaders after event completion will be spun off into the salt domes.
 - Salt is stored in salt domes (see Salt Replenishment SOP).

Truck/Equipment Procedures:

- At the start of the shift, a pre-trip inspection will be done, all fluids will be checked, and any necessary operational materials (flashlight, ice scraper, shovel, and map) will be selected (operational materials distributed in West only).
- At the end of the shift, the truck will be re-fueled, air tanks drained, operational materials will be returned, and the truck should be parked in assigned stall and turned off.
- The foreman will let drivers know at what height the spreader gate should be set, and it will not be changed unless the foreman relays a new height.
 - Flaps on spreader will be adjusted to ensure proper lane coverage to cover the entire lane and not the roadside ditch.
- Conveyor speed and spinner speed are set by the maintenance shop and should not be changed.
- The recommended speed when spreading is 25-35 mph.

Magnesium Chloride (MgCl₂):

- Magnesium Chloride is used when temperatures will be consistently in the mid-20s (degrees Fahrenheit).
 - It is applied to the salt load in the spreader and the treated salt is applied to the road and left to work until the road begins to run water.
 - Once water is running, if there is a large enough accumulation that cannot be handled by salt only, it is then pushed off with the plow.
- During heavy snow falls, salt will be spread as snow is pushed to help prevent additional accumulation on the roads.
- Employees operating the MgCl₂ tanks record the total number of gallons used during the shift.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the sweeping operator's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	DS			
Date	01/08/18			

Environmental Standard Operating Procedure 131 Roadway Sweeping SOP

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Operations	
Document location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide maintenance and management requirements to operators who sweep pollutants that compose stormwater runoff to surface water from roadways.

Scope:

This SOP applies to all Henrico County DPW employees and contractors who sweep the roadways. This SOP addresses Road Maintenance activity number 119 – Street Sweeping.

Exclusions: none

Responsibility:

The sweeper operator, environmental inspectors, and management personnel will ensure this SOP is followed and implemented.

Regulatory Requirements:

Henrico County Municipal Separate Storm Sewer System (MS4) Permit No. VA0088617:

I.B.2.c - Roadways

- *Streets, roads, and parking lots maintained by the permittee shall continue to be operated and maintained in a manner to minimize discharge of pollutants, including those pollutants related to deicing or sanding activities.*

Sweeper Procedures:

- Roads will be swept based on work order generation.
- County crews and/or contractors will sweep the materials on the assigned roads and properly dispose of the materials.
 - The contractor is responsible for disposal of their own sweeper materials.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	DS			
Date	01/08/18			

Environmental Standard Operating Procedure 131 Roadway Sweeping SOP

Disposal Procedure:

- All sweeper material to be disposed of at the Water Reclamation Facility located at 9101 WRVA Rd. Henrico, VA 23231 (WRF).
- Sweeper must weigh in upon arrival at WRF and weigh out after disposal of sweeping material.
- DPW environmental inspectors to maintain sweeping log of disposal at WRF.
- DPW will characterize solid waste as part of compliance with landfill disposal at the request of WRF.

Record Keeping Requirements:

- Generate work order bi-weekly to track sweeping events at both road maintenance facilities.
- Maintain monthly documentation of WRF log for tonnages and disposal of sweeper spoils.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the sweeping operator's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	DS	MMC	DS	
Date	01/29/18	2/5/18	09/14/18	

Environmental Standard Operating Procedure 132 Storm Sewer Installation SOP

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Operations	
Document location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description
1	2/5/18	Altered language in reference to proper determination of pipe size and material to be used; inlet junction will be handled by DPW contractor.
2	09/14/18	

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide maintenance and management requirements to operators who install stormwater infrastructure.

Scope:

This SOP applies to all Henrico County DPW employees and contractors who install storm sewer infrastructure. This SOP addresses Road Maintenance activity numbers 161 – D/W Pipe Installation, 162 – Road Pipe Installation, 163 – Install 18" RCP or Less, and 164 – Install 21" – 48" RCP.

Exclusions: none

Responsibility:

The equipment operators, environmental inspectors, and management personnel will ensure this SOP is followed and implemented.

Regulatory Requirements:

Henrico County Municipal Separate Storm Sewer System (MS4) Permit No. VA0088617:

I.B.2.h – Stormwater Infrastructure Management

DPW will continue to maintain and implement programs to maintain the stormwater conveyance systems located within the lands the DPW maintains

D/W Pipe and Road Pipe Installation Procedures:

- Grade will be established for existing pipe to be replaced.
- Cut asphalt/concrete if necessary and then excavate and load digout material on truck to be hauled to appropriate disposal facility (See Road Maintenance Waste Generation and Disposal list).
- Establish sub-grade and place required stone (varies depending on sub-grade conditions) in excavated ditch.
- Install new RCP pipe with gasket and joint lube, then backfill with select material and compact.



County of Henrico

Verification	Originator	Revised	Revised	Issued
Initials	DS	MMC	DS	
Date	01/29/18	2/5/18	09/14/18	

Environmental Standard Operating Procedure 132 Storm Sewer Installation SOP

- Install new CMP pipe with bands, then backfill with select material and compact.
- Replace asphalt/concrete and clean inlet/outlet side as needed.
- Existing pipe conditions, drainage maps, or drainage calculations will determine the pipe diameter and material to be used.

Note: Inlet junctions will be handled by DPW contractor.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the sweeping operator's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials	MMC		
Date	01/29/18		

Environmental Standard Operating Procedure 133

Paving SOP

Persons responsible:	DPW Operators
Area of application:	Henrico County Public Works Operations
Document location:	Pw share/pw rd main/depot environmental main
Revisions	
Rev. No.	Date Description

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide information on standard paving procedures and operations.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operations that own or operate a facility. This SOP addresses Road Maintenance activity numbers 111, 113A, 115, 116, 116A, 117, 118, 118A, 121, 122, 122A, 123, 124, and 126A.

Exclusions: None

Responsibility:

The facility operational manager will ensure this SOP is followed.

Regulatory requirements:

All spills or illicit discharges that occur during paving operations will be recorded and reported per the Spills SOP.

Procedures:

- All county roadways will be inspected annually for deficiencies; any issues and the type of repair required will be identified.
- Drainage or construction will be contacted to determine if underdrains are necessary.
- Miss Utilities will be contacted as necessary for deeper repairs.
- Use proper PPE.
- Equipment will be operated per specifications.
- Remove excessive asphalt application and address any spills or illicit discharges per "Spills SOP."
- Sweep as needed following slurry application, typically within two weeks of application.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the Facility operational manager's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials	MMC		
Date	01/29/18		

Environmental Standard Operating Procedure 134 Pothole SOP

Persons responsible:	DPW Operators
Area of application:	Henrico County Public Works Operations
Document location:	Pw share/pw rd main/depot environmental main
Revisions	
Rev. No.	Date Description

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide information on standard pothole procedures and operations.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operations that own or operate a facility. This SOP addresses Road Maintenance activity numbers 113 and 211P.

Exclusions: None

Responsibility:

The facility operational manager will ensure this SOP is followed.

Regulatory requirements:

All spills or illicit discharges that occur during paving operations will be recorded and reported per the Spills SOP.

Procedures:

- All county roadways will be inspected annually for deficiencies; locations of potholes and required repairs will be identified.
- All potholes generated through work orders will be identified and repaired as required.
- Use proper PPE.
- Equipment will be operated per specifications.
- Remove excessive material application and address any spills or illicit discharges per "Spills SOP."
- Document repairs through work orders.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the Facility operational manager's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials Date	MMC 01/29/18		

Environmental Standard Operating Procedure 135 Ditch Maintenance SOP

Persons responsible:	DPW Operators
Area of application:	Henrico County Public Works Operations
Document location:	Pw share/pw rd main/depot environmental main
Revisions	
Rev. No.	Date Description

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide information on procedures for cleaning, paving, and repairing ditches.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operations that own or operate a facility. This SOP addresses Road Maintenance activity numbers 134, 152, 152A, 153, 153, and 157.

Exclusions: None

Responsibility:

The facility operational manager will ensure this SOP is followed.

Regulatory requirements:

I.B.2.h: *"The permittee shall continue to maintain and implement programs to maintain the permittee's stormwater infrastructure and to update the accuracy and inventory of the storm sewer system."*

All spills or illicit discharges that occur during ditch maintenance operations will be recorded and reported per the Spills SOP.

Procedures:

- Use proper PPE.
- Remove sediment and debris from ditch to allow for adequate flow and dispose of spoils properly.
- Seed and topsoil or seed and cover with filter material (jute, etc.) as necessary in situations where erosion is evident or suspected.
- Where erosion continues following seed and topsoil or jute application, asphalt or install riprap (in extenuating circumstances) to prevent erosion.
- Properly dispose of all waste material collected during cleaning or maintenance operations.
- In the event of spills or illicit discharge, follow "Spills SOP."

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the Facility operational manager's responsibility to ensure all rules and regulations are identified and followed.



County of Henrico

Verification	Originator	Revised	Issued
Initials	MMC		
Date	01/29/18		

Environmental Standard Operating Procedure 136

Mowing SOP

Persons responsible:	DPW Operators	
Area of application:	Henrico County Public Works Operations	
Document location:	Pw share/pw rd main/depot environmental main	
Revisions		
Rev. No.	Date	Description

Purpose:

The purpose of this Standard Operating Procedure (SOP) is to provide information on procedures for mowing.

Scope:

This SOP applies to all DPW Henrico County Road Maintenance operations that control vegetation in the right-of-way. This SOP addresses Road Maintenance activity numbers 201, 202, 203, and 204.

Exclusions: None

Responsibility:

The facility operational manager will ensure this SOP is followed.

Regulatory requirements:

All vegetation over 18" must be cut.

Procedures:

- Mowing operations, including weed eating, will be completed by County crews or a certified contractor.
- In the event of spills, the spills SOP will be followed.
- All materials will be properly disposed.

Disclaimer:

Although every effort has been made to ensure this SOP addresses all applicable regulations, it is the Facility operational manager's responsibility to ensure all rules and regulations are identified and followed.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.d

MS4 PROGRAM IMPLEMENTATION PESTICIDE, HERBICIDE, AND FERTILIZER APPLICATION

Each annual report submitted after March 31, 2016 shall report on compliance with the turf and landscape nutrient management plan implementation schedule and include a list of the permittee's properties for which turf and landscape nutrient management plans have been implemented during the reporting year and the cumulative total of acreage under turf and landscape nutrient management plans.

MS4 Municipal Management Areas (MMMA's) on which Turf and Landscape Nutrient Management Plans were implemented between January 1, 2018 and December 31, 2018		
MMMA	MMMA Description (if applicable)	Acreage Covered
	None	
TOTAL		

Turf and Landscape Nutrient Management Compliance	
Total acres requiring coverage by a Turf and Landscape Nutrient Management Plan	279.18
Total acres managed by a Turf and Landscape Nutrient Management Plan	279.18
Percentage of identified acres requiring coverage by a Turf and Landscape Nutrient Management Plan that is covered by a Turf and Landscape Nutrient Management Plan	100

Each annual report shall include the number of acres managed under Integrated

HENRICO COUNTY MS4 PROGRAM PLAN

Pest Management Plans.

Acres managed under Integrated Pest Management Plans	64.503
--	--------

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.e

MS4 PROGRAM IMPLEMENTATION ILLICIT DISCHARGES AND IMPROPER DISPOSAL

Each annual report shall include a list of illicit discharges identified, the source, a description of follow-up activities and whether the illicit discharge has been eliminated.

Illicit Discharges Identified between January 1, 2018 and December 31, 2018		
IDDE00363		
Chlorine odor and oily sheen	1/2/2018 Received notification about a strong chlorine odor and possible oily sheen in an inlet. Observations were made during routine MS4 inspections. 1/2/2018 DPW staff forwarded the information to Public Utilities to check for a water leak and upon further investigation, no oily sheen was observed.	Illicit discharge eliminated
IDDE00364		
Dumped mattress	1/2/2018 Received notification via online spill reporting form about a mattress dumped on the side of the road. 1/5/2017 DPW requested that the Road Dept. create a work order to remove the mattress from the right of way.	Illicit discharge eliminated
IDDE00365		
Sewage leak	1/2/2018 Received notification via online spill reporting form that sewage is seeping through a parking lot. 1/2/2018 DPW staff made a site visit and observed raw sewage seeping and flowing across the parking	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.e

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>lot. A small amount had entered the stormwater inlet but most of the liquid was frozen due to very cold temperatures. The operations manager of this business was aware of the blocked sewer line and planned to make the repair once the threat of snow and freezing temperatures subsided. Booms were placed inside the inlet and aboveground where any flow (if it melts) would drain toward the inlet.</p> <p>1/3/2018 DPW received an email from the Operations Manager that a contractor is on site using a heated power washer to melt the ice and a septic company is vacuuming the liquid so it does not reach the inlet. The water in the building was shut off so there is no additional discharge.</p> <p>1/5/2018 DPW received an email that the repair is being made.</p> <p>1/11/2018 DPW made a follow up site visit to confirm the repair was made and parking lot cleanup was complete.</p>	
IDDE00366		
Sediment flowing into inlets	<p>1/3/2018 Received notification from DEQ that they received a complaint about a contractor using a water truck to clean the road and the water is flowing into unprotected road inlets.</p> <p>1/3/2018 DPW staff inquired with the Erosion and Sediment Control supervisor because the complaint seems to be associated with an active construction site. This concern was an issue approximately three weeks prior and has since been resolved.</p>	Illicit discharge eliminated
IDDE00367		
Possible leaking drum	<p>1/8/2018 Received notification about a rusted chemical drum on vacant property that is possibly leaking.</p> <p>1/8/2018 DPW contacted the Fire Marshal to further</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>investigate the drum and DEQ was notified that there may be an illicit discharge to state waters.</p> <p>1/9/2018 DEQ made a site visit and determined the puddles with a slight sheen were from roof gutter drainage. No illicit discharge was identified. The drum was not leaking and DEQ notified the company to request they remove the drum.</p>	
IDDE00368		
Oily sheen and strong odor	<p>1/9/2018 Received notification about an oily sheen and strong diesel fuel odor in the creek.</p> <p>1/9/2018 DPW made a site visit and observed an oily sheen and strong odor. The oil appeared to be leaking from an underground heating oil storage tank. The homeowner agreed to further investigate by contacting the company who had delivered oil that same day and they put the owner in touch with a contractor who can investigate potential leaks. DEQ was notified because the oil was discharging into state waters. A boom was placed in the creek to contain free product,</p> <p>1/10/2018 DPW met with homeowner, cleanup contractor and DEQ and it was determined that the home heating oil was leaking and flowing underground before seeping into the creek. Two additional booms were placed in the creek. The heating company returned to provide a temporary storage tank so the contents of the underground tank could be pumped. The homeowner will continue to work with DEQ and the cleanup contractor to have the tank removed, necessary remediation performed, and the tank replaced.</p> <p>2/28/2018 Site visit revealed the tank had been replaced.</p> <p>3/19/2018 DPW received a call from the</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>downstream neighbor that oil is still present in the creek and the odor is unbearable at times. DPW contacted DEQ for an update and made a site visit. Oil was still seeping into the creek and the odor was strong. The booms are still in place and another boom was placed in the creek.</p> <p>3/23/2018 DPW spoke with the homeowner who said the contractor had been there to install solvent tubes throughout the yard.</p>	
IDDE00369		
Dumped paint	<p>1/12/2018 Received notification about paint draining into an inlet.</p> <p>1/12/2018 DPW staff made a site visit and observed green paint that had mostly been dumped/sprayed along the grassy edges of the parking lot. A very small amount was evident on the pavement and because it was raining, this puddle was draining toward an inlet. The pavement around the inlet had settled so most of the paint was settling at the bottom of a puddle adjacent to the inlet as opposed to flowing into the inlet. The paint was not oil-based. DPW spoke with DEQ because the parking lot drains to state waters.</p> <p>1/16/2018 DEQ made a site visit and met with the owner. It is suspected that what was originally thought to be paint may be some sort of dye. The owner agreed to shovel and dispose of the sediment that had accumulated around the inlet.</p>	Illicit discharge eliminated
IDDE00370		
Potential water leak	<p>1/16/2018 Received notification about dry weather flow that tested positive for chlorine. This was discovered during routine MS4 inspections.</p> <p>1/16/2018 DPW staff forwarded this location to DPU to investigate as a potential water leak.</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

IDDE00371		
Potential oil discharge	<p>1/18/2018 Received notification about a restaurant sand trap spilling oil into the parking lot.</p> <p>1/18/2018 DPW staff made a site visit and met with the restaurant manager. The contractor who cleans their grease trap and hood from the inside, a day prior, had mistakenly opened a gas valve and the odor caused tenants in the building to call the Fire Department. While the Fire Department was there they noticed the sand trap and it appeared grease was spilling out of the trap and into the parking lot. DPW did not observe evidence of grease overflowing. There is water running out of the rain gutter and a substantial amount of snow melt draining into nearby inlets but there is no evidence of a sheen or odor in the saturated parts of the parking lot. The grease is contained in the trap. Recommended to the manager that they continue to watch it to ensure no grease overflows into the parking lot.</p> <p>1/24/2018 DPW staff visited the site again because the snow has melted and there is evidence of grease splattering onto the pavement. DPW will meet with Building Inspections to take another look. Will recommend a different containment system for the grease that is draining from the hood/vent.</p> <p>2/6/2018 Spoke with the manager (Alex) who will install a closed system that can be accessed once or twice per month to properly dispose of the grease. Shared information with the Health Dept. The manager will contact me once the new system is installed.</p> <p>2/28/18 DPW made a site visit to confirm the alteration has been made.</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

IDDE00372		
Soap discharge	<p>1/22/2018 Received notification from Road Department that a mobile car wash vehicle was washing a resident's car and the soapy water was draining into an inlet.</p> <p>1/22/2018 Residential car washing is an approved activity under the VPDES permit. DPW spoke with the company owner and shared Henrico County's residential car washing guidelines. The owner understands soapy water should not enter the storm drain system and he will take measures in the future to prevent this type of discharge.</p>	Illicit discharge eliminated
IDDE00373		
Dumping of chemicals	<p>1/14/2018 Building Inspections received notification via their on-line reporting system that a warehouse has several building code violations. One stated violation is that chemicals are being dumped into the sewer.</p> <p>1/24/2018 DPW staff met with representatives from Building Inspections and Fire to investigate the list of received complaints. The sewer referred to is an inside floor drain that drains to the sanitary sewer. There was no obvious evidence chemicals are being dumped into this floor drain. Some cleaning chemicals are stored close to the drain and DPW will speak with the Warehouse Manager and recommend they use best practices to avoid spilling excess chemicals onto the floor or into the drain. Overall, the warehouse was clean.</p>	Illicit discharge eliminated
IDDE00374		
Broken pipe and sewage odor	<p>1/25/2018 Received notification via online spill reporting form about a broken pipe and strong sewage odor.</p> <p>1/26/2018 The phone number provided is not in service. DPW emailed the homeowner and told her she could send the picture she had taken and she</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>can also call Public Utilities Operations. DPW spoke with DPU and there is a lot of history with one of the sanitary manholes near this property, so they will send an Inspector to investigate. Emailed the homeowner again to let her know.</p> <p>1/30 Received an update that the homeowner's cleanout cap was missing.</p>	
IDDE00375		
Dirt and debris	<p>1/31/2018 Received a complaint about a concrete facility tracking debris and dirt on the road.</p> <p>1/31/2018 DPW staff made contact with VDEQ because the site of concern is a state-permitted facility and Henrico County's MS4 permit states that these types of issues be directed to the State. VDEQ will conduct an inspection and coordinate with the facility to correct any violations.</p>	Illicit discharge eliminated
IDDE00376		
Leaves and debris in stream	<p>1/29/2018 DPW received notification from Community Maintenance about a landscaper who is blowing leaves and yard debris into the stream.</p> <p>1/31/2018 DPW contacted the complainant and informed her that the county does not have authority over this activity because it is not part of our MS4. The stream is considered state waters but DEQ would only pursue it if the dumping resulted in a fish kill or flooding. DPW offered to contact the owner of the landscape company.</p> <p>2/1/2018 DPW spoke with the owner of the landscape company and he was appreciative of the information and will tell his crew to not blow leaves and debris into the stream. He also asked that DPW provide the complainant with his phone number, so she can contact him directly.</p>	Illicit discharge eliminated
IDDE00377		

HENRICO COUNTY MS4 PROGRAM PLAN

Dry weather flow	<p>2/1/2018 Received notification of an unusual dry weather flow. The flow was discovered during routine MS4 inspections.</p> <p>2/2/2018 DPW staff made a site visit. The water has no odor or sheen and old aerial photographs show evidence that a ditch was dug across the property. DPW concluded it is groundwater flowing to the inlet through an installed underdrain system. The water was chlorine negative.</p>	Illicit discharge eliminated
IDDE00378		
Soap discharge	<p>2/2/2018 Received notification from Community Maintenance that someone has complained about a mobile car wash. CM Inspector believes the washwater is flowing into the roadside ditch.</p> <p>2/2/2018 DPW staff made a site visit but the mobile car wash was not present. The temperatures are freezing and it is not likely the mobile car wash operates under certain temperatures.</p> <p>2/22/2018 DPW staff visited the mobile car wash and spoke with Willy, the owner. The water running down the parking lot gets trapped in the corner by a small berm and it collects in the grass. DPW did not observe evidence of the discharge entering the roadside ditch. The ponded water in the pavement at the entrance is from the rain. Therefore, there are no county water quality violations. The owner has a tarp collection system he uses for extra dirty cars and he properly pumps and disposes of this wastewater. The owner stated he visited the Henrico County government center when he was starting his business and he was told that if the water settled in the grass it is fine (not sure with whom he spoke).</p>	Illicit discharge eliminated
IDDE00379		
Dump site	2/16/2018 Received notification of a dump site on County property. There is a drum and it is unclear if	Illicit discharge

HENRICO COUNTY MS4 PROGRAM PLAN

	it is empty. It appears to be punctured. DPW staff notified Recreation and Parks who agreed to have the site cleaned up.	eliminated
IDDE00380		
Washwater discharge	<p>2/21/2018 Received notification about a car wash discharging dirty water across the parking lot and into the woods.</p> <p>2/21/2018 DPW staff made a site visit and observed soapy water being pumped through a hose across the rear parking lot and into the woods. The manager on site explained that their plumbing system is clogged, and they have already contacted roto roter. The discharge is not a permanent practice and it was not entering any stormwater inlets or streams.</p> <p>2/28/2018 Follow up inspection confirmed the repair has been made. There is no evidence of a discharge.</p>	Illicit discharge eliminated
IDDE00381		
Leaking vehicle	<p>2/20/2018 Received notification that a maintenance worker is rinsing wheelbarrows full of pea gravel and it is flowing into a stormwater inlet.</p> <p>2/20/2018 DPW staff contacted the Department that oversees maintenance of buildings and grounds to remind them this is not allowed. The activity was stopped, and staff will continue to be educated about preventing illicit discharges.</p>	Illicit discharge eliminated
IDDE00382		
Sewage overflow	<p>2/21/2018 Received notification that a manhole in an apartment complex parking lot is overflowing with raw sewage and draining into a nearby stormwater inlet.</p> <p>2/21/2018 DPW made a site visit and observed sewage flowing down the curb and gutter and into</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	an inlet. A plumbing contractor was present and actively working to remove the blockage in the sanitary sewer system. The apartment complex or plumber did not have a pump to help create a bypass for the sewage entering the inlet but were prepared to rent one if the blockage was not fixed in a timely manner, which it was.	
IDDE00383		
Oily sheen	<p>2/21/2018 Received notification about an oily sheen in a grass channel on county property.</p> <p>2/21/2018 DPW made a site visit and determined the sheen was oil. Absorbent pads were placed in the ditch and a boom was placed at the outfall to the BMP. Sorbent material was also applied to the parking lot spill. First Call Environmental was called to finalize the clean-up.</p>	Illicit discharge eliminated
IDDE00384		
Water with odor	<p>2/22/2018 Received notification about seeping water with a bad odor.</p> <p>2/23/2018 DPW made a site visit and determined the seepage is groundwater with some ferrous oxide staining. No odor was apparent. This area remains wet throughout the year. There are water lines near the seepage, so a chlorine test will be conducted.</p> <p>3/23/2018 No chlorine detected.</p>	Illicit discharge eliminated
IDDE00385		
Grease in inlet	<p>2/26/2018 Received notification that an employee at a fast food restaurant is dumping grease into the storm drain.</p> <p>2/26/2018 DPW staff made site visit and observed grease stains around the inlet and grease inside the inlet. It appears confined to the one inlet. Spoke with the shift manager, provided a violation letter</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>and asked that the general manager call to discuss clean up requirements. Spoke with the GM who will coordinate with the corporate office to get a clean up contractor. He will notify DPW once the grease has been removed.</p> <p>2/27/18 Received a call from the District Manager to notify DPW that a cleanup contractor has removed the grease from the inlet.</p>	
IDDE00386		
Grease spill	<p>3/1/2018 Received notification about a grease spill that is flowing across a parking lot and into a county storm drain inlet.</p> <p>3/1/2018 DPW Road Department staff who noticed the spill contacted a cleanup contractor. First Call was present when DPW's IDDE Inspector arrived. Booms were placed at the inlet and in the roadside ditch. It was raining and there was evidence of some grease from the restaurant's grease trap flowing into the parking lot. Most of the discharge was the result of clumps of grease that had been dumped in the parking lot. The restaurant contractor had been there that morning (4am, in the dark) to clean the vents and the manager suspects the contractor dumped the extra grease. He noted his employees know to dispose of the grease in the trap. The restaurant manager signed the cleanup contract and is aware he is financially responsible for the cleanup costs. DPW advised him to clean the grease trap and to keep the lid shut. The cleanup contractor vacuumed free product from the ditch. They also power washed the parking lot, contained the wash discharge via booms and vacuumed the free product. DPW followed up with a violation letter.</p>	Illicit discharge eliminated
IDDE00387		
Grease in inlet	3/2/2018 Received notification about a restaurant dumping grease into the stormwater inlet.	Illicit discharge

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>3/2/2018 DPW made a site visit and observed recent and what appears to be long-term dumping into a stormwater inlet (IN43410). Spoke with the kitchen manager and advised that this is a code violation and the restaurant needs to hire a cleanup contractor to clean the inlet. There are several hundred feet of underground storm sewer prior to the system out falling into a private BMP. The BMP inlet was clear.</p> <p>3/5/2018 The manager phoned to say they are in the process of hiring a cleanup contractor.</p> <p>3/6/2018 The inlet has been cleaned out. DPW spoke again with the kitchen manager to make sure employees properly dispose of grease.</p>	eliminated
IDDE00388		
Leaking truck	<p>3/6/2018 Received notification via online form that liquid waste is leaking from a trash truck and rainwater washes the liquid into the storm drains.</p> <p>3/8/2018 Per the complaint, the trash trucks are present Mondays and Thursdays. DPW visited the site Thursday morning but no trucks were present and no obvious staining was observed. The maintenance manager will notify DPW the next time the trucks are on site. DPW recommended pictures and/or video.</p> <p>3/19/2018 DPW conducted a site visit but did not observe the trash trucks.</p> <p>3/22/2018 DPW emailed the HOA contact to ask if the issue is still prevalent. The HOA seems to think the issue has improved and he will keep an eye on it and contact me if needed.</p> <p>8/2/2018 DPW received a call from the HOA that</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	the trash truck is present and is leaking/discharging leachate to the storm drain. DPW made a site visit and observed the leaking truck. Spoke with the driver who called the owner. The owner was informed that the discharge to the storm drain is not allowed and that the leak needs to be fixed. A follow up email with a video was sent to the owner.	
IDDE00389		
Dumping of pink liquid	<p>3/9/2018 Received notification that a truck drained pink liquid into a stormwater management pond on a construction site.</p> <p>3/9/2018 DPW staff made a site visit and there was no evidence of staining or discolored water in the pond or at the outfall. Spoke with the complainant who resides nearby and he will keep an eye on the area.</p>	Illicit discharge eliminated
IDDE00390		
White foam at outfall	<p>3/27/2018 Received notification during routine MS4 inspections about suds and soap at an outfall.</p> <p>3/27/2018 DPW made a site visit and observed the flowing outfall. The plunge pool contained what appeared to be soap suds. However, there was no odor and a similar scenario was observed at a smaller upstream plunge pool where there was clearly no illicit discharge. The water flows underneath the road and the bubbles and lots of algae were observed. The bubbles appear to be naturally occurring bacteria that form with the presence of consistent flow into the plunge pool. This outfall is known to contain a lot of iron bacteria in drier and warmer weather. No illicit discharge.</p>	Illicit discharge eliminated
IDDE00391		
Staining in parking lot	<p>3/28/2018 Received notification about white staining in a parking lot.</p> <p>3/28/2018 DPW contacted DEQ and met with them</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	on site. The chemical totes storing the product that had spilled across the parking lot were labeled as propylene glycol. Staff met with the building maintenance manager who said the product is brine solution that is used by a contractor to treat the parking lot during snow. DPW spoke with the contractor who said the original container labels had never been removed and the product is granular salt diluted with water (the same product used by VDOT). It appeared the spill had been washed into one of the stormwater inlets but the contractor stated it had been carried by the rain the day before. DPW encouraged the contractor to update the container label immediately and to educate drivers about preventing spills when transferring the product to the trucks. The parking lot and associated outfall to a creek is not part of the county MS4 so DEQ will officially handle this case. There was no evidence of the brine solution in nearby inlets or the downstream outfall.	
IDDE00392		
Leaking truck	3/27/2018 Received notification from DPU about a hydraulic leak from a refuse collection truck. The spill was tracked over several streets and it is assumed about 25 gallons spilled. First Call Environmental was called to conduct clean-up services.	Illicit discharge eliminated
IDDE00393		
Sheen in sediment pond	<p>3/29/2018 Received notification about a sheen in a sediment pond.</p> <p>3/29/2018 DPW staff at the East End Road Department cleaned up the apparent spill with booms and pads. It was determined that the residual product was likely from a leaking vehicle in the parking lot and the rain carried the product into the pond.</p>	Illicit discharge eliminated
IDDE00394		

HENRICO COUNTY MS4 PROGRAM PLAN

Potential water leak	3/29/2018 Received notification of a potential water leak. The potential leak was observed during routine MS4 inspections. 3/29/2018 DPW forwarded the location to Public Utilities for further investigation.	Illicit discharge eliminated
IDDE00395		
Potential water leak	4/3/2018 Received notification of a potential water leak. The potential leak was observed during routine MS4 inspections. 4/3/2018 DPW forwarded the location to Public Utilities for further investigation.	Illicit discharge eliminated
IDDE00396		
Trash	4/5/2018 Received notification via online spill reporting form about bags of trash along the road. 4/5/2018 DPW forwarded the information to the East End Road Department. Eastgate Blvd. is not a county road. It is owned and maintained by the adjacent shopping center. No bags of trash were observed and DPW was later notified the new owner of this parcel had picked up trash with a volunteer group and that is why the bags of trash were lined up along the road.	Illicit discharge eliminated
IDDE00397		
Dumped concrete	4/6/2018 Received notification via online spill reporting form about dumped concrete. 4/6/2018 DPW made a site visit and observed large chunks of concrete dumped far beyond the road right-of-way and on a 35-acre private property parcel. This is not considered an illicit discharge and the resident will keep his eyes out for suspicious trucks.	Illicit discharge eliminated
IDDE00398		
Sewage discharge	4/10/2018 Received notification about possible sewage flowing into the creek.	Illicit discharge

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>4/10/2018 DPW made a site visit and observed sewage flowing through a stormwater outfall and into the creek. The Department of Public Utilities was notified, and their jet truck was used to unclog the suspected blockage in the sanitary sewer line. Once the blockage was removed the flow into the creek stopped. DPU will flush the stormwater pipe and creek with dechlorinated water from the nearby fire hydrant. DPU will also televise the sanitary line to identify any needed repairs.</p> <p>4/11/2018 DPU called to follow up about the televised sanitary line. An open cross-connection between the sanitary sewer line and the stormsewer main was observed and the open sanitary sewer line has since been covered/closed so sewage can no longer flow through the stormsewer.</p>	eliminated
IDDE00399		
Debris in ditch	<p>4/13/2018 Received notification about a drainage ditch filled with debris and having a bad odor.</p> <p>4/13/2018 DPW made a site visit and determined there is no illicit discharge. This is an outfall scour that has an accumulation of sediment and because the water does not drain well, there is a slight odor. The concern was forwarded to the Road Department who may be able to dig the area out to allow for better drainage.</p>	Illicit discharge eliminated
IDDE00400		
Paint in road	<p>4/16/2018 Received notification through on-line spill reporting form about white paint at the street intersection.</p> <p>4/16/2018 DPW inquired with the Traffic Division because the complainant stated that white paint from the intersection stopbar splashed all over her car. Traffic's reply was as follows: Our pavement marking crews apply either a tape material or a</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	preformed thermoplastic-type material for stopbars at intersections. These materials are of a solid state and do not splatter. Our crews were not working Sunday, 15 Apr, the reported date of the incident. The complainant was notified by phone.	
IDDE00401		
Potential water leak	<p>4/17/2018 Received notification about a potential water leak. Chlorinated water was detected during routine MS4 inspections</p> <p>4/17//2018 DPW forwarded the location to Public Utilities for further investigation.</p>	Illicit discharge eliminated
IDDE00402		
Potential water leak	<p>4/17/2018 Received notification about a potential water leak. Chlorinated water was detected during routine MS4 inspections</p> <p>4/17//2018 DPW forwarded the location to Public Utilities for further investigation.</p>	Illicit discharge eliminated
IDDE00403		
Anti-freeze dumping	<p>4/19/2018 Received notification from Fire Marshal's office about an anti-freeze spill.</p> <p>4/19/2018 DPW and Fire Marshal staff responded and observed Illegal anti-freeze dumping in an inlet on Landmark (possibly county inlet IN18116 or a private inlet in the parking lot of an abandoned bank). Free product was flowing into an approximately 400-foot long concrete channel (MN28802). Estimated volume is 2-5 gallons. First Call Environmental was contracted to conduct the cleanup which included removal of the debris in the ditch, power washing of affected inlets and concrete channel and vacuuming of remaining free product. Earthen berms were used to trap the free product from flowing further downstream and the berms were removed and properly disposed of once all free product was eliminated.</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

IDDE00404		
Oily sheen	<p>4/18/2018 Received notification about an oily sheen in a roadside ditch.</p> <p>4/18/2018 DPW made a site visit and determined the material that looked like oil was iron oxidizing bacteria. No illicit discharge found.</p>	Illicit discharge eliminated
IDDE00405		
Dumping of solvent	<p>4/23/2018 Received notification of a strong odor in the neighborhood.</p> <p>4/23/2018 DPW staff and Fire responded and noted a strong, solvent-like odor. Free product was observed in the downstream creek and several stormdrain inlets were inspected to try to find the source of the dumping. A contractor was contacted to assist with cleanup which included placing oil absorbent booms in the creek. The responsible party was not identified.</p> <p>4/24/2018 DPW made a follow up site visit and observed free product bypassing the existing booms. An additional boom was placed in the creek. Booms were collected and properly disposed of by the cleanup contractor.</p>	Illicit discharge eliminated
IDDE00406		
Oil spill	<p>4/26/18 Received notification of an oil spill.</p> <p>4/26/2018 DPW staff made a site visit to find approximately 5-10 gallons of motor oil in the curb and gutter. No storm drains were affected and First Call Environmental was contracted to conduct the cleanup. Cleanup included applying absorbent material and proper disposal. The road on which the spill occurred is in an industrial area where various and random tractor trailers park. DPW spoke with an employee at the nearby business to ask if he knew or saw anything related to the spill. He mentioned there had been a tractor trailer parked</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>near the spill for several days and a drum was also observed next to the truck, on the grass. Someone had already applied some absorbent material to the road, but it was not anyone from the adjacent business. While cleanup was being conducted, a tractor trailer driver stopped to say the owner of the truck parked where the spill occurred was the one who applied the absorbent material because he did not want to contaminate his own truck. This driver said it was not the owner of the truck that was responsible for the spill. He also mentioned the drum and that it was likely contents from the drum that spilled, perhaps when someone was trying to remove it. The cleanup contractor recovered the dumped drum from the woods across the street. They noted the drum appeared it had been punctured (intentionally or by a forklift). The drum was disposed of properly and contained about 20 gallons of oil. The Fire Department was notified of the details of this spill, so they can keep an eye on the area.</p>	
IDDE00407		
Tar-like substance	<p>4/30/2018 Received notification about a tar-like substance seeping out of the ground. The substance was discovered by an Erosion and Sediment Control Inspector while conducting a final inspection of a recently created BMP.</p> <p>4/30/2018 DPW conducted a site visit to determine the potential for the substance to enter the nearby roadside ditch. The seeping material was very thick and not flowing. Due to the distance from the roadside ditch it was not considered an illicit discharge. The site superintendent and DEQ were notified and will work together to be sure the material is removed and properly disposed of. Several additional areas with material seeping up through the ground surface were discovered the following day. DEQ suspects it may be #6 fuel oil.</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	This site was historically used for military operations decades ago.	
IDDE00408		
Fuel spill	<p>4/13/2018 Received notification about a county dump truck crash that spilled approximately 45 gallons of diesel fuel.</p> <p>4/13/2018 Several departments responded to the vehicle crash and a cleanup contractor was hired to contain the spill with oil absorbent booms and by removing contaminated soil.</p>	Illicit discharge eliminated
IDDE00409		
Sanitary overflow	<p>4/27/2018 Received notification from Public Utilities about a sanitary sewer manhole overflowing and entering a storm drain.</p> <p>4/27/2018 DPW staff made a site visit and did not find any adverse effects to the private storm drain system. Starnie Lytle was hired by the owner to pump the system down and they will pump it down each day until the underlying issue is repaired. It is suspected that the pump(s) in the private pump house are not functioning.</p>	Illicit discharge eliminated
IDDE00410		
Possible paint spill	<p>5/3/2018 Received notification about paint being dumped in the street.</p> <p>5/3/2018 DPW responded to this and there was a very small amount of what appeared to be a petroleum-based roof mastic spilled in the curb line. A neighbor had covered the spot with dirt and the material and the dirt was cleaned up and disposed of. The material had not migrated in the curb line and virtually all of it was removed.</p>	Illicit discharge eliminated
IDDE00411		
Sewage odor	5/11/2018 Received notification via online spill reporting form about a strong raw sewage odor.	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	5/11/2018 The location of the odor was in a laundromat. No evidence of a sewage backup was observed and there was a slight odor. DPW phoned the number for additional information and spoke with the owner who said they had no sewer problems and the odor was likely from the dumpster at the seafood place next door. None of the outside manholes showed evidence of a sewer overflow.	
IDDE00412		
Oil-like substance	<p>5/16/2018 Received notification about an oil-like substance in the curb and gutter.</p> <p>5/16/2018 DPW conducted a site visit and determined the material in the curb and gutter is iron-oxidizing bacteria and green algae. It is discharging from a sump pump and because this area is flat the water tends to stand in the curb and gutter. Suggested to the resident that he periodically scrape the accumulated material, so it can continue to flow toward the intended inlet. It was also suggested that the resident could phone the road department to request a street sweeper.</p>	Illicit discharge eliminated
IDDE00413		
Dumping of medical waste	<p>5/17/2018 Received notification that medical waste was dumped in the median.</p> <p>5/17/2018 DPW made a site visit and confirmed that medical waste was dumped (likely fell out of a moving vehicle). First Call Environmental was contracted to clean it up and dispose of the waste properly. The site was scoured for any evidence about the responsible party. Product labels indicated the waste was associated with dialysis injections and there is a Dialysis Center located directly adjacent to the dump site. DPW will speak with the Dialysis Center and share the pictures of the waste that was scattered along the road. DPW will emphasize the importance of the waste hauler securing the waste so this will not happen again.</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	5/23/18 DPW stopped by the suspected dialysis center. The photos were shared, including one of a drug label, but this center pointed out they do not use that drug. They also stated their waste is packaged in red bags and hauled by a contractor. The owner of the waste remains unknown.	
IDDE00414		
Hypodermic needles	<p>5/23/2018 Received notification that hypodermic needles had washed down into the ditch in front of a residence's property.</p> <p>5/23/2018 DPW made a site visit and did not observe hypodermic needles. Some trash had accumulated at the outfall. The trash was picked up and disposed of.</p>	Illicit discharge eliminated
IDDE00415		
Beer flowing through inlet	<p>5/21/2018 Received notification that beer was flowing through an inlet. This was discovered during a wet weather screening inspection.</p> <p>5/21/2018 The MS4 Inspector observed employees at the adjacent National Distributing Co. dumping beer into the private parking lot inlet. The Inspector spoke with the employees and educated them that dumping extra beer into the storm sewer system is a code violation and they agreed to find an alternative disposal method.</p> <p>5/30/2018 DPW conducted a follow up site visit. No free product was observed in the inlet. Spoke by phone with the Operations Manager about proper rinsing of coolers and ensuring that free product is not being dumped or rinsed into their parking lot inlet.</p>	Illicit discharge eliminated
IDDE00416		
Muddy water	5/24/2018 Received notification that sediment laden water is being pumped from a manhole into a	Illicit discharge

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>stormwater inlet.</p> <p>5/24/2018 A Verizon contractor was conducting maintenance in a manhole in the road and the excess water and sediment/rust was being pumped into the curb and gutter where it was flowing into a nearby inlet. Public Works' Construction Division responded to notify the contractor that they needed to immediately stop the discharge and clean up the material.</p>	eliminated
IDDE00417		
Oily sheen	<p>5/29/2018 Received notification of an oil-like substance flowing into a stormwater inlet. This was observed during routine MS4 inspections.</p> <p>5/29/2018 The oily sheen was iron-oxidizing bacteria. No illicit discharge found.</p>	Illicit discharge eliminated
IDDE00418		
Vacuum truck	<p>6/1/2018 Received notification about a vacuum truck dumping material in the creek.</p> <p>6/1/2018 DPW notified DEQ about the report because the suspected dumping is in state waters. DPW made an initial site visit and did not see evidence of vacuum truck material dumped in the creek. The complainant stated he was suspicious about the truck because it had been cleaning the community storm drains the same day and when he saw it parked in the rear of the parking lot near the creek he suspected they were dumping the collected material. DEQ worked with the townhome management in the past to install dechlorination on their pool backwash pipe.</p>	Illicit discharge eliminated
IDDE00419		
Construction dirt	<p>6/4/2018 Received notification via on-line spill reporting form about dirt spilling over from a construction site into a neighborhood. This occurred during a heavy rainstorm.</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	6/4/2018 DPW's Erosion and Sediment Control Inspector met with the complainant and is working with Ryan Homes to have the area cleaned up.	
IDDE00420		
Paving trucks	<p>6/4/2018 Received notification via on-line spill reporting form about paving trucks releasing debris from their loads.</p> <p>6/4/2018 The location is a state road so the information was forwarded to VDOT.</p>	Illicit discharge eliminated
IDDE00421		
Cloudy water	<p>6/6/2018 Received notification about a pipe discharging cloudy water into the roadside ditch. This was discovered during routine MS4 inspections.</p> <p>6/6/2018 The discharge from the pvc pipe is groundwater from a sump pump. No illicit discharge.</p>	Illicit discharge eliminated
IDDE00422		
Concrete spill	<p>6/8/2018 Received notification about a concrete spill.</p> <p>6/8/2018 DPW made a site visit to the construction site of a single-family home and observed evidence that concrete has spilled into the curb and gutter and had flowed toward a storm drain. The inlet protection associated with the construction had prevented the concrete from entering the storm drain. DPW phoned the contractor in charge to let him know the spilled concrete needed to be removed from the curb and gutter and that precautions need to be taken to prevent a reoccurrence.</p> <p>6/14/2018 Follow up site visit confirmed the curb and gutter had been cleaned.</p>	Illicit discharge eliminated
IDDE00423		

HENRICO COUNTY MS4 PROGRAM PLAN

Paint/ Concrete spill	<p>6/8/2018 Received notification about a paint/concrete spill.</p> <p>6/8/2018 DPW made a site visit to the single-family home construction site and observed evidence that concrete/paint had flowed down the curb and gutter and into the storm drain. Notified the homebuilder to let him know it needed to be cleaned up immediately and that if they planned to wash it down with water the water would need to be collected and properly disposed of. The storm sewer drains to a nearby lake. The homebuilder ensured they had a plan in place for quick cleanup while avoiding down grade contamination. They will use gutter buddies, shovels and other methods.</p> <p>6/12/18 Conducted follow up inspection and can noted the curb and gutter was cleaned up. However, it appears some additional product from the construction site (concrete ?) may have drained back into the curb and gutter during the weekend rain. The homebuilder was notified, and the product was cleaned up.</p>	Illicit discharge eliminated
IDDE00424		
Pool water	<p>6/8/2018 Received notification via online spill reporting form that a residence is draining their pool water onto another property.</p> <p>6/8/2018 DPW made a site visit and did not see evidence of flowing water nor is the location in a place that would impact the county's MS4. The complainant had tried to contact the neighbor who was draining the pool and the Police also tried knocking on the door but they were unable to speak with anyone. No illicit discharge identified. This is a private property issue.</p>	Illicit discharge eliminated
IDDE00425		
Grass clippings in ditch	6/12/2018 Received notification that a landscape service dumped their grass clippings in the roadside ditch.	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	6/12/2018 DPW conducted a site visit and observed some small branches in the ditch across the street from the home. A nearby resident walking his dog told me the home is a rental and nobody lives there but when he showed the dumping to the owner (who is selling the home), she called the company and told them they needed to come remove the 2 trash bags and they did. I spoke with a couple other residents who keep a daily eye on the neighborhood and gave them my card in the event they see something similar again.	
IDDE00426		
Trash in storm drain	<p>6/13/2018 Received notification that a resident is dumping trash into the storm drain.</p> <p>6/13/2018 DPW made a site visit and did not observe trash in the suspected inlet or in any of the downstream inlets and creek. DPW will send a letter to the neighborhood if DPW sees evidence of the trash and/or inquire with the guilty party if he/she can be seen dumping trash.</p>	Illicit discharge eliminated
IDDE00427		
White powder and grease near storm drain	<p>6/13/2018 Received notification about white powder and grease staining near/in the storm drain.</p> <p>6/13/2018 Observed a white powder (concrete dust) around the inlet opening and traced it back to the adjacent yard. I left my card and the homeowner called back. She had a patio built recently and will notify the contractor that spilling this material near the inlet was not allowed. DPW cleaned up the powder. Also spoke with the next-door neighbor who was sitting on his porch. He admitted he was the one who poured grease down the inlet and he is now educated to not do it again.</p>	Illicit discharge eliminated
IDDE00428		
Dumping of	6/19/2018 Received notification via on-line reporting	Illicit

HENRICO COUNTY MS4 PROGRAM PLAN

yard debris	<p>form about dumped yard debris.</p> <p>6/19/2018 The dumping appears to be outside of the right-of-way and it is not impeding drainage nor entering the storm sewer system. Forwarded to Community Maintenance.</p>	discharge eliminated
IDDE00429		
Leaking bus	<p>6/27/2018 Received notification about a parked charter bus leaking human waste into curblane,</p> <p>6/27/2018 Sewage leaking from back of charter bus parked on Goodell Road. This was forwarded to me from the Roads Department after they received a complaint. Sewage leak was very slow and was evaporating before reaching storm sewer. Complainant stopped me at site and said they have cleaned toilet paper out of the street previously and they believe the company is releasing the septage tank into the storm sewer. I removed the manhole cover and did not see anything but any previous contamination would have washed away in recent rain storms. I called the number for Premier Travel LLC and left a message informing them of the violation. I also called the non-emergency police number and asked if they could do a dot inspection on the bus; however, based on the presence of human waste, dispatch said they were required to send fire. Fire responded and when they arrived the put down some kitty litter. I called Greg Nuckols and left a message. At this time the bus driver was present, and fire spoke with him. I also spoke with him and he said he would take care of having the tank emptied. I informed him that he was not allowed to park the bus on the street and allow it to leak sewage and that he was also not allowed to empty the septage tank into the storm sewer. He stated that he would not do that. He then removed the bus from the street. The kitty litter was removed and disposed of by property manager that</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	complained. An educational letter was sent to the owner of Premier Travel LLC via certified mail.	
IDDE00430		
Dumping of oil	<p>7/5/2018 Received notification about a truck dumping a water/fish oil mixture into the storm sewer.</p> <p>7/5/2018 DPW conducted a site visit and did not observe any free product or oily residue in the storm drain or creek outfall, but a fish odor was noted. The person who reported the dumping was told by the driver of the truck that the water came from a nearby construction site and that discharging extra product to a storm drain was a normal operation.</p> <p>7/6/2018 DPW spoke with Tommy Johnson from Gummenick (239-3842, operator for the nearby construction site) and he explained that the gas contractor uses an EPA-approved water/fish oil/bentonite mixture as a lubricant for their gasoline bores. Mr. Johnson notified and put the county in touch with the T&D Services supervisor, so he could be notified to use an alternative method of disposal, such as a sanitary sewer manhole.</p>	Illicit discharge eliminated
IDDE00431		
Dumping of yard debris	<p>7/11/2018 Received notification via spill report form that someone is dumping yard debris into a storm drain.</p> <p>7/11/2018 The complainant is concerned that the storm drain is clogged and stated his basement recently flooded during the abnormally high rainfall event. The East End Road Department was notified and a work order to remove the leaves from the storm drain was created on 7/6/2018. The complainant was notified of the pending work order to remove the leaves and was given the contact info for the East End Road Department in case he wants to check on the status of when the work will be</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>completed.</p> <p>7/12/2018 Site visit revealed the leaves appear to be flowing toward the inlet during rain events as opposed to being deliberately dumped.</p>	
IDDE00432		
Tree debris	<p>7/17/2018 Received notification about tree debris that was dumped in the roadside ditch.</p> <p>7/17/2018 DPW made a site visit and observed a large amount of tree debris across the yard, in the roadside ditch, covering the fire hydrant, and a large stump in the road that is a vehicle safety issue. The home is vacant, but I spoke with a neighbor who shared the contact information for the new owner (Tim Parent, Cava Capital). The owner stated he is working with the tree removal contractor and the debris should be cleared by 7/18/2018. He will let me know once it has been removed. DPW contacted Community Maintenance prior to calling the homeowner to see if CM already had an open case for the debris. CM was unaware of the site and they planned to conduct an inspection as well.</p> <p>7/19/2018 Received a call from the owner that the debris is being removed.</p>	Illicit discharge eliminated
IDDE00433		
Leaking trash truck	<p>7/17/2018 Received notification about a county trash truck leaking oil on the road.</p> <p>7/17/2018 DPW made a site visit and observed some staining on the road. A request was sent to DPU to identify the truck and have it serviced to fix the leak. The spill was less than one gallon. Oil-dri was applied and disposed of properly.</p>	Illicit discharge eliminated
IDDE00434		
Oil spill	7/18/2018 Received notification from Road Department about a hydraulic oil spill and debris in	Illicit discharge

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>the road because of a vehicle accident.</p> <p>7/18/2018 DPW made a site visit and cleaned up the spill with oil-dri. The closest storm drain was 75 feet away and no fluid reached the storm drain. The spill was less than 1 gallon.</p>	eliminated
IDDE00435		
Dumping of household items	<p>7/18/2018 Received notification about dumping of household items.</p> <p>7/18/2018 The dump site is located on county property and within the right-of-way. DPW staff emailed Community Maintenance to check if there was history of dumping at this location to find out that yes, community maintenance is aware of the dumping and a work order has already been created by the road department to have the items removed.</p>	Illicit discharge eliminated
IDDE00436		
Dumping in creek	<p>7/20/2018 Received notification from images on a trail camera that a white substance was released into a creek a few weeks prior.</p> <p>7/20/2018 DPW staff determined the most likely point of discharge is an upstream apartment complex (8500 Aldeburgh Dr) that has a maintenance area and an area with uncovered dumpsters and trash.</p> <p>7/24/2018 DPW staff made a follow up visit and spoke with the maintenance supervisor. An inlet with an aged white substance was observed and the supervisor was made aware that dumping anything other than stormwater into the inlet is not allowed. He plans to educate his staff. A large dumpster area is also present on site. The trash is overflowing outside the dumpster and there are numerous flies and mosquitoes. Community Maintenance (CM) was informed and made a site</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	visit. CM will issue a notice of violation for the dumping area and the dumping that occurs around the maintenance shop.	
IDDE00437		
Trash	<p>7/25/2018 Received notification via online spill form about household items and trash dumped in the yard of a vacant home.</p> <p>7/25/2018 DPW staff spoke with the complainant to get specific details. The dumping is occurring on private property, so this was forwarded to Community Maintenance.</p>	Illicit discharge eliminated
IDDE00438		
Tires	<p>7/25/2018 Received notification about a tire dump site.</p> <p>7/25/2018 Henrico Police received a complaint about tires being dumped on county property. The site has a long history of habitual tire dumping and Police will pursue installing a camera in hopes of identifying the party responsible for the dumping. The Road Department removed the tires.</p>	Illicit discharge eliminated
IDDE00439		
Grease dumping	<p>7/28/2018 Received notification from the Fire Department that they responded to a call about chicken grease dumped into a storm drain.</p> <p>7/28/2018 The owner of the business that dumped the grease admitted to doing it. The owner was provided with a list of clean up contractors and he called one of the contractors to come clean up the grease.</p> <p>7/30/2018 Fire made a follow up site visit to confirm the grease had been cleaned up.</p>	Illicit discharge eliminated
IDDE00440		
Transmission fluid leak	7/31/2018 Received notification about transmission fluid leaking into the curb and gutter and drainage	Illicit discharge

HENRICO COUNTY MS4 PROGRAM PLAN

	toward the storm drain. 7/31/2018 DPW made a site visit and observed less than 1 gallon of transmission fluid. Oil-dri was applied. DPW contacted the plumbing contractor who owned the truck to request he fix the leak and the vehicle had already been taken to a shop to be repaired.	eliminated
IDDE00441		
Grass clippings	7/31/2018 Received notification about a lawn service company blowing grass clippings into the middle of the road. 8/1/2018 DPW made a site visit and did not observe an unusual amount of grass clippings but it had rained heavily overnight. A work order request was submitted to the Road Department to have the street swept. Spoke with the resident who notified the county to get more information about the exact location so DPW can monitor the area.	Illicit discharge eliminated
IDDE00442		
Pipe discharge	8/1/2018 Received notification about a plastic pipe discharging to a stormwater inlet. This was discovered during routine MS4 inspections. 8/8/2018 This is a sump pump that discharges groundwater.	Illicit discharge eliminated
IDDE00443		
Yard waste	8/2/2018 Received notification that residents are dumping yard waste in the median next to the creek. 8/2/2018 DPW conducted a site visit and observed a couple piles of yard debris in the median. A letter was sent to the surrounding residents.	Illicit discharge eliminated
IDDE00444		
Grass clippings	8/2/2018 Received notification that grass clippings are being blown into the road and causing down	Illicit discharge

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>gradient yard flooding because the storm drain gets clogged.</p> <p>8/3/2018 DPW investigated and did not observe evidence that the grass clippings are creating a flooding issue, nor are they blocking the curb inlet. The gutter is uneven, and it appears with all the heavy rain, the water likely jumps the curb prior to draining to the inlet and creates undercutting/cave-ins around the concrete structure. The resident noted the county had been there before to fix the "cracked" storm drain structure. Spoke with the resident and forwarded the concern to the Road Department (cave-in) and the Construction Division (uneven gutter). This lot is the lowest point and receives a lot of runoff. The grass clippings are coming from 1724 Havenwood. DPW staff left a business card and a written request to please not blow the grass clippings into the road.</p> <p>8/9/18 Received update from Construction Division that they will replace the curb and gutter in front of 1720 Havenwood.</p>	eliminated
IDDE00445		
Grass clippings	<p>8/8/2018 Received notification about grass clippings blown into the road.</p> <p>8/8/2018 DPW made a site visit and spoke with the owner of the property. The grass clippings were excessive compared to the several areas that this type of practice occurs. The owner will speak with the mowing contractor and ask that they are more aware about blowing the grass clippings into the road and down the storm drain.</p>	Illicit discharge eliminated
IDDE00446		
Chlorinated water	<p>8/10/2018 Received notification from a resident draining non-chlorinated pool water to the curb and gutter. He is inquiring about the rules.</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	8/10/2018 DPW made a site visit and met with the owner who is draining pool water to the curb and gutter. It flows about 1100 feet before entering the woods and a creek. The owner stated his pool is not chlorinated but given all the heavy rain we have had this year, he needs to periodically drain the pool for about 10 minutes, so it will not overflow and flood his property. His entire backyard is concrete. Each time he drains the pool, a neighbor calls the police and the police tell him he is not allowed to drain the pool water. DPW shared the DEQ guidelines about draining pool water and during our site visit we searched for the sanitary sewer cleanout point but were unable to find it. The chlorine test showed very negligible amounts of chlorine (old) and the chlorine test performed using the homeowner's test kit showed no chlorine. It was suggested the owner ask his neighbor if the pool water can be directed across a lawn area prior to entering the curb and gutter. The pool water is not considered an illicit discharge given the non-chlorinated content.	
IDDE00447		
Debris in ditch/road	<p>8/10/2018 Received notification via online form about a clogged culvert and residents dumping debris in the street.</p> <p>8/12/2018 DPW forwarded this concern to the East End Road Department. There is a pending work order to clean the ditch and culvert at the caller's address and the Road Dept. will create a new work order regarding the debris across the street.</p> <p>8/14/2018 Site visit to confirm debris in the ditch is too large to remove by hand and the debris across the street is likely for the upcoming community cleanup.</p>	Illicit discharge eliminated
IDDE00448		
Chlorinated water	8/20/2018 Received notification that chlorinated pool water is being drained into a storm drain.	Illicit discharge

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>8/20/2018 DPW staff made a site visit and observed chlorinated pool water draining across the apartment parking lot and into a stormwater inlet. The Maintenance Director is out of the office so office staff was notified of the illicit discharge and a letter was sent to the Maintenance Director by email so he will receive it upon his return to work the next day.</p> <p>8/22/18 Left a message with Maintenance Director because a reply to the email/letter was not received.</p> <p>8/23/18 DPW conducted another site visit and verified the discharge is still occurring.</p> <p>8/24/18 Left another message with Maintenance Director.</p> <p>8/27/18 Received voicemail from Maintenance Director that he received the violation letter in the mail and he is working to correct the problem. The pool will only be open for 1 more week and he will drain it at that point if it is necessary to be able to fix an underlying issue. He had been told the drainage was normal ground seepage and he was unaware it was pool water. Phoned Maintenance Director back and left another message about the possibility of temporarily pumping the discharge to a nearby sanitary sewer inlet until the problem can be fixed.</p> <p>8/29/18 Received an email that the chlorinated water is being pumped to the sanitary sewer until the pool can be drained and the problem fixed.</p> <p>8/30/18 DPW conducted a site inspection but did not observe the discharge was being pumped. An email was sent asking for the schedule of when the water is being pumped.</p>	eliminated
--	---	------------

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>9/6/18 No reply to my email. DPW made a site visit to capture evidence of the chlorinated water being pumped but the pump was not running.</p> <p>9/11/18 Follow up inspection to see if the pump is activated but no evidence that the discharge is being pumped. Phoned Maintenance Director and left a message to call me to let me know how many hours per day the discharge is being pumped and when the pool will close for the season so the underlying issue can be repaired.</p> <p>9/20/18 Follow up site visit. Contractors are working to install an underdrain system at the base of the hill where the chlorinated water was previously discovered. Advised that what they were intending to pipe into the stormdrain is chlorinated water and not allowed and that the Maintenance Director had been notified. The water was still discharging from a couple areas at the base of the hill, but the chlorine tests ranged from negative to very faint. The pool is not in use and therefore not being treated as regularly so this may be why the levels of chlorine have disappeared. The sample of the pool water had clear evidence of chlorine. Maint. Director was present on site and DPW staff reiterated the underlying issue of a potential crack in the pool liner needs to be addressed. Maint. Director stated he is concerned with the amount of water that flows across the parking lot and he does not want freezing temperatures and ice to be a liability.</p> <p>10/8/18 Underdrain work is complete and there is no evidence of water flowing out of the corrugated pipes at the base of the hill. The pool still has water in it but it is not being treated. The water in the plastic drain box was sampled for chlorine but none was detected.</p>	
--	--	--

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.e

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

IDDE00449		
Chlorinated water	<p>8/23/2018 Received notification of a potential water leak. This was discovered during routine MS4 inspections.</p> <p>8/23/2018 Notified Public Utilities for further investigation.</p>	Illicit discharge eliminated
IDDE00450		
Sediment in road	<p>8/28/2018 Received notification about a resident with a large dirt pile in the front yard and when it rains, the dirt washes across and down the road into the storm drain.</p> <p>8/28/2018 DPW made a site visit and observed that dirt is washing down the driveway and into the street. There was some evidence that some gravel and dirt had washed into the storm drain. Most of the dirt appears to be from the erosion in the gravel/dirt driveway as opposed to the small pile of dirt next to the driveway. The owner appears to have dug a hole to provide an opening for a foundation drain or sump pump outfall. The hole fills with water and is being pumped out onto the driveway and causing erosion. DPW left a business card in the door and the owner phoned back and left a message. DPW phoned back and left a message that he needs to find a way to prevent the erosion of dirt into the street because it is washing into the storm drain.</p> <p>8/30/18 Owner phoned to say he has cleaned up the road and will place straw bales at the base of his driveway to help prevent further erosion into the storm drain. He is working with a contractor to resolve the drainage issue and the pipe will eventually outfall to the gutter instead of across his driveway. The current condition of the driveway will also be repaired. He will notify DPW when the work is complete.</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>9/5/18 Follow up site visit. The area has been cleaned up a little and a straw bale is present.</p> <p>9/10/18 Follow up phone call to the owner asking for a time frame on when the driveway/drainage issue will be repaired due to pending hurricane and heavy rain conditions. Owner stated he would add more straw bales given the pending hurricane and that the erosion issue should be resolved within 2 weeks.</p> <p>9/21/18 Site visit. Drainage project appears to be almost complete. There is still some sediment in the curb and gutter likely from rain/tornado on 9/17 but the straw bale appears to be functioning.</p> <p>10/8/18 The driveway appears complete but there is still some exposed dirt along the side of the driveway. The owner has placed a straw bale to try to prevent the dirt from running into the road.</p> <p>10/17/18 Driveway is complete and dirt piles have been graded along the sides of the driveway. A straw bale is still in place.</p>	
IDDE00451		
Oily sheen	<p>9/17/2018 Received notification about a rainbow sheen along Wilkinson Rd.</p> <p>9/17/2018 DPW made a site visit and observed a rainbow sheen along the shoulder of Wilkinson Road, from Antionette to the power easement right-of-way. It was raining at the time of the site visit and the oil was flowing into an adjacent creek and into a storm drain (IN20354). The product was diluted because of the rain and it did not have a strong odor. A leaking vehicle had likely traveled this road earlier in the day. Several booms were placed at various locations to minimize the amount of product</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	entering the county's MS4 and state waters. DEQ was also notified. The booms were removed the following day and properly disposed of.	
IDDE00452		
Oily sheen	<p>9/18/2018 DPW staff observed a rainbow sheen flowing into a stormdrain. This was discovered during routine infrastructure screening.</p> <p>9/18/2018 During DPW's site visit, it was noted that a business had likely washed their vehicles/equipment and the wash water was flowing into the curb and gutter and into the inlet (IN44428). DPW staff showed the discharge to an employee at the landscaping company and spoke about why they needed to be more careful when they washed their equipment. A boom was placed at the storm drain, picked up the next day and properly disposed of. DPW requested that the owner call as soon as possible and he did. The illegal discharge was explained to the owner and he advised they wash their vehicles/equipment about once/month and in the future, he will be sure employees are aware of any residual product reaching the curb and gutter. He will purchase oil absorbent pads in the event they need to place them on the pavement and will check for leaking equipment/vehicles.</p> <p>10/4/2018 Follow up site visit. Curb and gutter was free of free product/staining.</p>	Illicit discharge eliminated
IDDE00453		
Sediment in creek	<p>9/18/2018 Received notification about polluted water in Horsepen Branch. This was forwarded from a county employee who noted the Twitter post and picture.</p> <p>9/18/2018 DPW made a site visit and based on the color of the water discharging into Horsepen Branch, it was suspected to be sediment from a nearby construction site. An active and denuded</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>construction site was noted at the corner of Dickens Rd and Broad St and the Erosion and Sediment Control Inspector was also notified to investigate the site further. It was suspected that given the high flow rate of the sediment-laden water discharging into Horsepen Branch, perhaps the contractor at the site was installing utilities and pumping elevated groundwater. Once it was determined this was not the case, Public Utilities was notified to check the area for a possible water main break. DPU phoned back within the hour to say there was not a water main break but that a sediment basin at the Altria Expansion project was being pumped down and this was the likely source. The Sr. Erosion and Sediment Control Inspector phoned the contractor of this site immediately and told him to cease pumping operations. The contractor was notified to use filter bags and to place the pump at the surface of the basin (as opposed to the bottom) next time they need to pump the sediment basin.</p>	
IDDE00454		
Paint in stormdrain	<p>9/18/2018 DPW observed paint in a swale and stormdrain at an active project site. This was discovered during a DEQ audit.</p> <p>9/18/2018 DPW staff noted that the painters at a home construction site had washed out their paint buckets which subsequently entered a storm drain. DPW staff phoned the builder to convey that the paint needed to be cleaned up immediately. No paint was observed in the downgradient storm drain nor in the sediment trap and the paint was cleaned up. This subdivision is currently under construction and not yet part of the county's MS4 so the paint spill is considered a SWPPP violation. DEQ has also been notified because at this point it is a private (not county) issue.</p>	Illicit discharge eliminated
IDDE00455		
Leaning tree	9/27/2018 Received notification via online spill	Illicit

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>reporting form about trees on county property posing a safety threat to an adjacent residence. This is not a spill nor illicit discharge but DPW will provide guidance to the complainant.</p> <p>9/27/2018 The properties adjacent to this home are not county property and therefore, this remains a private property issue. There is no contact information for the complainant so DPW will plan a site visit to try to speak with them in person and/or search on-line white pages for a phone number.</p> <p>9/28/2018 Found a listing for Rodger Biney in an on-line search and left a message. Also left my card in his door asking him to call.</p> <p>10/4/18 No return call from owner.</p> <p>10/15/18 Received phone call from owner inquiring about the property next door. Upon further investigation, the listed property owner (LLC) no longer exists. Shared this information with homeowner.</p>	discharge eliminated
IDDE00456		
Leaking trash truck	<p>10/1/2018 Received notification that a trash truck was leaking along county roads. The complaint was originally filed with DEQ who forwarded it to DPW.</p> <p>10/1/2018 DPW had an email exchange with Republic Services and they agreed to check the truck and repair any leaks.</p> <p>10/2/2018 DPW spoke by phone with the complainant who stated this has been going on for years and he feels like Republic Services nor the county cares to address it. DPW will try to capture evidence of the leaking truck and speak directly with the driver and follow up with the Republic Services contact, if necessary. There is no current evidence</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	the fluid is entering the MS4 system.	
IDDE00457		
Water running down street	<p>10/3/18 Received notification about water running down the street.</p> <p>10/8/2018 DPW made a site visit and determined that the water standing in the curb and gutter is ground water, likely being discharged from a sump pump. No chlorine was detected and there was no odor.</p>	Illicit discharge eliminated
IDDE00458		
Black pipe draining to street	<p>10/19/2018 Received notification from Building Inspections about a long, black tube draining water to the street.</p> <p>10/19/2018 DPW made a site visit and determined the water is ground water likely being pumped by a sump pump. DPW left a card for the owner requesting that they call back to verify the water is groundwater. The owner promptly phoned back and verified it is ground water being pumped with a sump pump and that they have plans to bury the pipe.</p>	Illicit discharge eliminated
IDDE00459		
Standing water	<p>10/23/18 Received notification about ponded water in the yard, near a plastic pipe that was recently capped to prevent washing machine water from discharging to the roadside ditch. This call was received by an adjacent homeowner who recently repaired her home plumbing by tying in the washing machine drain line to the main system that connects to the county system. The washing machine was previously draining through a 2" plastic pipe into the roadside ditch (IDDE00353).</p> <p>10/23/18 DPW made a site visit and observed gray water ponding in the front yard. It is suspected that the neighbor also failed to tie in the washing</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>machine drain line when a previous owner made the connection to the county system (PLM2002-02164). DPW left a business card in the door requesting a call back. DPW also spoke at length with the owners at 4005 Harvie Rd and showed them why the county suspects that 3813 Harvie Rd. also has a washing machine drain line that is not hooked up to the main system. There is likely a break in the line (observed through video on 8/31/2018), which is why the water is accumulating in the yard and not backing up in the home.</p> <p>10/23/18 Lewis Hatch (owner) phoned back and left a message during evening hours.</p> <p>10/24/18 DPW returned the call and left an afterhours contact number if he is unable to talk during normal working hours.</p> <p>10/26/18 Phoned Mr. Hatch and left message with more details about what DPW suspects is happening and to let him know I will be off work for the next couple weeks but that we need to work toward a solution/repair. It was recommended he speak with the neighbor (Ms. Robinson) because she can explain how she made her plumbing repair.</p> <p>11/14/2018 Phoned owner to follow up and left message. Also contacted Building Inspections to update them on the history and to request they make a field inspection. Received return phone call from Mr. Hatch stating he had hired a plumber and the necessary repair had been made and that he has removed the cap at the end of the pipe because it also discharges his sump pump groundwater.</p>	
IDDE00460		
Sewage in creek	10/24/18 Received notification about a strong sewage odor and discolored water in a creek.	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	10/25/2018 DPW conducted a site visit and confirmed there is sewage in the creek. The source was identified upstream where a main sanitary sewer line crosses the creek. DPU was notified and they are working to get bypass pumping set up so the repair can be made. Access to the discharge location is very limited.	
IDDE00461		
Paint spill	<p>11/6/2018 The Road Department was notified of a paint spill.</p> <p>11/6/2018 DPW made a site visit and based on site observations, the paint appeared to be latex (sinking in water, mixing evenly) and less than 5 gallons spilled. Someone had either washed the road clean or the rain had cleaned the paint from the road. The paint had collected in the curb inlet IN0000008216 and in the forebay for BMP00797. First Call Environmental responded. While waiting for vacuum truck to arrive, it poured rain. The spill, which had been contained in the storm sewer and forebay to the BMP00797, reached the BMP. At this point DEQ arrived onsite and it was determined that an attempt to vacuum the paint would no longer be successful. The order for the vacuum truck was canceled. Two booms were used to try to contain the spill, but they were unsuccessful due to the heavy rains and the nature of the suspected latex paint. At the time of the spill, no dead fish or animals were present in the BMP.</p>	Illicit discharge eliminated
IDDE00462		
Dumping	<p>11/12/2018 Received notification through the online spill reporting form about a dump site.</p> <p>11/13/2018 DPW forwarded this to the East End Road Dept. because the dumping occurred in the right-of-way and it is not considered an illicit discharge (sofa).</p>	Illicit discharge eliminated
IDDE00463		

HENRICO COUNTY MS4 PROGRAM PLAN

Leaking sewage	<p>11/14/2018 Received notification via on-line spill reporting form about raw sewage discharging to a creek from a broken sewer lateral.</p> <p>11/14/2018 DPW phoned the resident who reported the incident because there was not an address included on the submission form. DPW learned the details of when the incident occurred, which was 10/11/2018, during a hurricane. A large tree fell from the bank of a creek and broke the sewer lateral. According to the homeowner, the on-call DPU representative who responded the evening of 10/11 stated the county would be making the repair to the sewer lateral. The homeowner became concerned when nothing had been done a month later. DPW informed DPU that DPW was just made aware of the situation and DPW needs to respond, as this is an illicit discharge. DEQ was notified because the discharge to the creek falls under the state's authority.</p> <p>11/15/2018 DPW and DPU met with the owner on site. DPU informed the owner the broken lateral is beyond DPU's area of maintenance responsibility (it is too far from the connection to the main line) and therefore, the repair is the responsibility of the homeowner. DPW spoke at greater length with the homeowner informing him that he would be contacted by DEQ. DPW also advised the homeowner that no environmental permits would be required from the county in order to make the repair. DEQ will update DPW with the status of the repair.</p>	Illicit discharge eliminated
IDE00464		
White substance	<p>11/15/2018 Received notification about a white substance draining down the road and ditch.</p> <p>11/15/2018 DPW made a site visit. It was raining heavily all day and no evidence of free product was</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	observed at the reported location nor downstream. The complainant's pictures did show evidence of what appeared to be soap suds/cleaning solution.	
IDDE00465		
Leaves dumped in ditch	<p>11/16/2018 Received notification about a large pile of leaves dumped in a drainage channel that caused flooding during rainfall.</p> <p>11/16/2018 DPW made a site visit and observed a concrete-lined ditch that carries road water. The ditch is located behind the homes. The complainant's leaf service had removed the large pile earlier that day but it was evident where the pile had been and the complainant described it as being about 5 feet high. The complainant is concerned the neighbor behind her is dumping the leaves in the channel. I spoke with the neighbor at 27 Countryside Ln. who mentioned her leaf service blows the leaves toward the back and spreads them out like mulch. DPW requested she tell the leaf service to not blow the leaves toward the channel because there was a large blockage. Complainant would like the county to clean out the remaining leaves. DPW shared the Director's letter regarding maintenance responsibilities of drainage easements and a work order was requested through the West End Road Maintenance Dept. An Inspector will have to make the determination whether or not the county will remove the leaves.</p>	Illicit discharge eliminated
IDDE00466		
Leaves in storm drain	<p>11/21/2018 Received notification via online reporting form about a homeowner blowing leaves into the storm drain.</p> <p>11/26/2018 DPW made a site visit and talked to the owner of the home. DPW explained a complaint was received and asked that they not blow leaves into the storm drain. The owner said they absolutely do not blow leaves into the storm drain.</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

IDDE00467		
Oil tank in creek	<p>11/26/2018 Received notification about an oil tank dumped in a creek.</p> <p>11/26/2018 The location of the tank is outside Henrico County's MS4 so DEQ was notified. It appears the tank has been in this location for a long time. No odor or sheen was observed by the DPW employee who found it.</p>	Illicit discharge eliminated
IDDE00468		
Paint spill	<p>11/26/2018 Received notification about a paint spill.</p> <p>11/26/2018 DPW made a site visit and observed about one gallon of paint spilled in the road. No free product had entered any storm drains. First Call Environmental was notified and they cleaned up the spill. The paint was washed down, collected, vacuumed and properly disposed of.</p>	Illicit discharge eliminated
IDDE00469		
Leaves	<p>12/5/2018 Received notification via online spill reporting form about leaves being blown/swept into a stormdrain.</p> <p>12/5/2018 DPW made a site visit and observed what appears to be evidence that leaves were blown or swept into the inlet. DPW left a business card at the door (they were not home) with a written request to find an alternative method of disposal. The affected stormdrain is IN2765. A work order request was submitted to the Road Department to have the leaves vacuumed.</p>	Illicit discharge eliminated
IDDE00470		
Hydraulic fluid leak	<p>12/11/2018 Received notification that a Public Works snow plow had a hydraulic line rupture and approximately 0.5 gallons spilled into the street and possibly into a nearby storm drain.</p> <p>12/11/2018 DPW made a site visit and observed a</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>small amount of free product in the storm drain (IN51936). The driver of the truck had placed oil absorbent pads in the curb and gutter to prevent the fluid from entering the storm drain. The pads were then replaced with an oil absorbent boom. The storm sewer system had a good amount of flow so another boom was placed downstream in the concrete channel (MN66794). A follow up site visit will follow.</p> <p>10/12/2018 DPW conducted a follow up inspection to ensure the booms were still in place and functioning. The downstream creek crossing on Gayton Road was inspected and there was no evidence of an oily sheen.</p> <p>12/14/2018 DPW conducted the final inspection, removed the booms and properly disposed of contaminated materials. No free product was observed.</p>	
IDDE00471		
White, chalky substance	<p>12/7/2018 DPW received notification about a white, chalky substance flowing out of a stormwater outfall.</p> <p>12/7/2018 DPW conducted a site visit to the two stormwater ponds on Old School Road. Based on the voicemail from the resident, the white substance sounded like it was associated with the paint spill that occurred in this area on 11/6/2018 (IDDE00461). After further communication with the caller, it was evident the reported discharge was at another, nearby location (EN6215). The county received 12-13 inches of snow since this report and will investigate when conditions allow access.</p> <p>12/13/2018 DPW conducted a follow up site visit and observed sediment-laden water flowing out of EN6214. The discharge was traced to an active</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.e

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

	construction site at 5000 Shady Grove Rd. The Erosion and Sediment Control Inspector was notified.	
IDDE00472		
Dump site	<p>12/16/2018 Received notification via online spill reporting form about a dump site.</p> <p>12/17/2018 DPW conducted a site visit and determined the dump site was in the right-of way. There are about 100 tires, a TV, a mattress, etc... The East End Road Department was notified and they already had a pending work order to remove the items. The Hazardous Material Coordinator in the Fire Dept. was also notified to see if they would investigate the site as an environmental crime.</p> <p>12/18/2018 Received a reply from the Fire Marshall's office that they had visited and documented the site as an environmental crime and will continue to monitor it.</p>	Illicit discharge eliminated
IDDE00473		
Hydraulic oil spill	<p>12/17/2018 Received notification that a Public Utilities trash truck had a hydraulic line rupture.</p> <p>12/17/2018 DPW notified DPU to be sure they were aware of the spill and they had already contacted a cleanup contractor. The leaking trash truck drove approximately 1.2 miles along county roads. DPW made a site visit and did not observe any free product in the road. Heavy staining was observed. It was recommended that booms be placed at each inlet along the road to capture any oil that may runoff during the next rain event (predicted in 3 days). The cleanup contractor proposed adding absorbent material and sweeping the road, which would require lane closures. After DPU received reports that the road was slippery through an intersection, DPU decided to move forward with cleaning the road with absorbent material followed</p>	Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

	by sweeping. The cleanup contractor conducted all necessary cleanup and traffic control and properly disposed of contaminated material.	
IDDE00474		
	<p>12/22/2018 Received notification via online spill reporting form about a tire dump site.</p> <p>12/27/2018 DPW conducted a site visit and observed a tire dump site. It appears it is on private property. The East End Road dept. will verify this.</p> <p>1/3/2019 East End Road dept. verified this area is outside the right-of-way so the information was forwarded to Community Maintenance. This site was also forwarded to the Fire Marshal's office because there are numerous illegal tire dumping events in this general vicinity.</p>	Illicit discharge eliminated
IDDE00475		
	<p>12/28/2018 Received notification via online spill reporting form about trash and debris along the road.</p> <p>1/2/2019 DPW conducted a site visit to confirm the trash is located in the right-of-way and submitted a work order request to the West End Road Dept. to have the trash picked up.</p>	Illicit discharge eliminated
IDDE00476		
		Illicit discharge eliminated

HENRICO COUNTY MS4 PROGRAM PLAN

Sewage Discharges between January 1, 2018 and December 31, 2018		
1/20/2018	A stoppage between MH #395NE038 and MH #395NE024, located in easement at 10021 River Road. The stoppage caused sewage to overflow from the MH #395NE038 & MH #395NE030 into a surrounding grass area and a nearby stream. Spill of approximately 1,350 gallons.	A cleanup and wash down of the area was performed; lime was applied.
1/22/2018	A stoppage between MH #327NW046 and MH #327NW050, located in easement behind 3900 Gaskins Road. The stoppage caused sewage to overflow from the MH #327NW046 into a surrounding grass area and a nearby stream. Spill of approximately 1,500 gallons.	A cleanup and wash down of the area was performed; lime was applied.
2/13/2018	A stoppage between MH #070NW028 and MH #070NW026, located in easement at 602 E. Laburnum Ave. The stoppage caused sewage to overflow from the MH #070NW028 into a surrounding grass area and a nearby stream. Spill of approximately 1,670 gallons.	A cleanup and wash down of the area was performed; lime was applied.
2/20/2018	A stoppage between MH #397SW042 and MH #397SW054, located in front of 1501 Edenburry Dr. The stoppage caused sewage to overflow from the MH #397SW042 onto surrounding pavement and a nearby drainage structure. Spill of approximately 756 gallons.	A cleanup and wash down of the area was performed; lime was applied.
2/21/2018	A stoppage between MH #39NE038 and MH #395NE024, located in easement on the property of 10021 River Rd. The stoppage	A cleanup and wash down of the area was

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.e

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

	caused sewage to overflow from the MH #395NE038 onto surrounding grass area and into a nearby creek. Spill of approximately 810 gallons.	performed; lime was applied.
2/22/2018	During a quarterly SWPPP inspection, I found an oil sheen in MN000000082134 (grass channel). I placed boom and absorbent pillows near outfall to prevent from leaving the area.	First Call Environmental responded and cleaned up all oil sheen and soil affected.
3/21/2018	A stoppage between MH #328SW024 and MH #328SW013, located in front of 3804 Francistown Road. The stoppage caused sewage to overflow from the MH #328SW024 onto surrounding pavement and into a nearby drainage structure. Spill of approximately 1,200 gallons.	A cleanup and wash down of the area was performed.
4/10/2018	A stoppage between MH #197SE071 and MH #197SE078, located in easement on the property of 2000 Parma Rd. The stoppage caused sewage to overflow from the sanitary sewer main into an intersecting storm drainage and into a nearby creek. Spill of approximately 410 gallons.	A cleanup and wash down of the area was performed.
4/12/2018	A stoppage between MH #261SW022 and MH #261SW021, located in easement behind 4300 E Parham Rd. The stoppage caused sewage to overflow from the MH #261SW022 onto surrounding grass area and into a nearby creek. Spill of approximately 700 gallons.	A cleanup and wash down of the area was performed
4/28/2018	A stoppage between MH #260NE115 and MH #260NE100, located in easement	A cleanup and wash down of the

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.e

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

	behind 5621 Bethnal Green Dr. The stoppage caused sewage to overflow from the MH #260NE119 onto surrounding pavement area and into a nearby drainage structure. Spill of approximately 2,210 gallons.	area was performed
5/17/2018	Due to heavy rain, a high volume of water caused surcharges in several sanitary sewer mains. The surcharges caused a cleanout located at 8015 Wilkinson Road to overflow. Spill of approximately 14,100 gallons.	A wash down of the area was performed and lime applied.
5/18/2018	Due to heavy rain, a high volume of water caused surcharges in several sanitary sewer mains. The surcharges caused a cleanout located at 5505 Smith Ave to overflow. Spill of approximately 4,500 gallons.	A wash down of the area was performed and lime applied.
5/19/2018	Due to heavy rain, a high volume of water caused surcharges in several sanitary sewer mains. The surcharges caused a MH #SMH009844, MH #SMH009845 & MH #263NE022, located in easement near 1530 Cross Keys Ct to overflow. Spill of approximately 29,655 gallons.	A wash down of the area was performed and lime applied.
5/19/2018	Due to heavy rain, a high volume of water caused surcharges in several sanitary sewer mains. The surcharge caused a MH #SMH010041, located in easement near 5801 Bloomingdale Ave to overflow. Spill of approximately 22,140 gallons.	A wash down of the area was performed and lime applied.
6/2/2018	Due to heavy rain from a tropical system on saturated soil caused high flows and 4	All areas were cleaned and lime

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>sewage spills:</p> <p>1 manhole at Gillies Creek SPS overflowed and spilled approximately 812,000 gallons. The surrounding area was cleaned.</p> <p>1 manhole at River Rd SPS overflowed and spilled approximately 325,000 gallons. The surrounding area was cleaned.</p> <p>1 manhole and 4 flow equalization basins at Strawberry Hill SPS overflowed. We estimate approximately 646,000 gallons spilled from the MH and approximately 998,000 gallons spilled from the flow equalization basins. The surrounding area was cleaned.</p> <p>1 manhole at Strawberry Hill SPS was originally reported to be a break in a 60" force main was revealed to have originated from a crack in the manhole casing. Repairs to the manhole are in progress.</p>	applied.
6/22/2018	Due to heavy rain and saturated soil, a sewage spill occurred from 3 manholes at Broadwater I SPS. Spill of approximately 58,000 gallons.	The area surrounding the spill was cleaned.
7/18/2018	A broken main between MH #083NW017 and MH #083NW016, located in easement behind 6705 Northbury Court. The broken main caused sewage to flow out of the main and into a creek. Spill of approximately 144,495 gallons.	Our annual contractor made repair to the mainline.
8/12/2018	Due to heavy rain and saturated soil, a sewage spill occurred from 3 manholes at River Rd SPS. Spill of approximately	The area surrounding the spill was cleaned

HENRICO COUNTY MS4 PROGRAM PLAN

	178,000 gallons.	and lime applied.
8/18/2018	A stoppage between MH #050NW013 and MH #050NW012, located in easement at 1700 Acton St. The stoppage caused sewage to overflow from the MH #050NW013 onto surrounding grass area and into a nearby creek. Spill of approximately 12,740 gallons.	A cleanup and wash down of the area was performed. Lime was applied to the area.
9/17/2018	Due to heavy rain from Hurricane Florence and saturated soil, a sewage spill occurred from 3 manholes at River Rd SPS. Spill of approximately 1,875,000 gallons.	The area surrounding the spill was cleaned and lime applied.
9/17/2018	Due to heavy rain from Hurricane Florence and saturated soil, a sewage spill occurred from a cleanout at 5505 Smith Avenue. Spill of approximately 3,300 gallons.	The area surrounding the spill was cleaned and lime applied.
9/17/2018	Due to heavy rain from Hurricane Florence and saturated soil, a sewage overflow occurred from MH #SMH009844, located at 1538 Cross Keys Court. Spill of approximately 2,850 gallons.	The area surrounding the spill was cleaned and lime applied.
9/17/2018	Due to heavy rain from Hurricane Florence and saturated soil, a sewage overflow occurred from MH #SMH009688, located at 6000 Club Road. Spill of approximately 7,425 gallons.	The area surrounding the spill was cleaned and lime applied.
9/17/2018	Due to heavy rain from Hurricane Florence and saturated soil, a sewage overflow occurred from a cleanout, located at 8015 Wilkinson Road. Spill of approximately 5,840 gallons.	The area surrounding the spill was cleaned and lime applied.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.e

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

9/17/2018	Due to heavy rain from Hurricane Florence and saturated soil, a sewage overflow occurred from MH #105NW003, located at 5410 Gillespie Avenue. Spill of approximately 5,700 gallons.	The area surrounding the spill was cleaned and lime applied.
10/7/2018	Due to a tree that fell and broke a sanitary sewer main, MH #193SW063 to MH #193SW011, located in the easement behind 300 Berwickshire Drive. Spill of approximately 40,375 gallons.	Bypass pumping set up until repairs could be made on 10/10/18.
10/11-12/2018	<p>Due to heavy rain 6 sewage spills occurred:</p> <p>One sanitary sewer manhole, MH #042SE505, located in the alley behind 3523 Mechanicsville Turnpike, overflowed spilling approximately 2,550 gallons.</p> <p>Five sanitary sewer manholes, MH #021NE019, #021NE018, #21NW023, #21NW021 and #021SW024, located in the street at Yeadon Road, overflowed spilling approximately 12,750 gallons.</p> <p>One sanitary sewer manhole, MH #141SW021 located in the easement on the property of 237 Ross Road overflowed spilling approximately 10,500 gallons.</p> <p>A cleanout, located on the property of 8015 Wilkinson Road, overflowed spilling approximately 1,325 gallons.</p> <p>One sanitary sewer manhole, MH #021SE056, located in the street in front of 2013 Hobson Lane overflowed spilling approximately 5,100 gallons.</p>	All areas were cleaned and lime applied.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.e

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

	One sanitary sewer manhole, MH #203NW044 located in an easement on the property of 1700 Lakeside Ave, spilled approximately 5,175 gallons.	
10/24/2018	A broken sewer main spilled from MH #143NE086 to MH #143NE007, located in an easement on the property of Hillside Avenue. Spilled approximately 4,014 gallons	Bypass pumping was set up. Point repair on the sewer main was completed on 10/26/18.
10/27/2018	Due to heavy rain a sewage overflow occurred from a cleanout at 8015 Wilkinson Road. Spill of approximately 2,400 gallons.	After televising and evaluating area, one of the following will be implemented, as appropriate: emergency repair, rehab or replacement; non-emergency repair, rehab or replacement. Added this location to our scheduled cleaning program.
11/5/2018	Due to heavy rain a cleanout located at 8015 Wilkinson Road overflowed. Spill of approximately 1,275 gallons.	After televising and evaluating area, one of the following will be implemented, as appropriate: emergency repair, rehab or replacement; non-

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.e

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

		emergency repair, rehab or replacement. Added this location to our scheduled cleaning program.
11/15/2018	Due to heavy rain a cleanout located at 8015 Wilkinson Road overflowed. Spill of approximately 3,975 gallons.	After televising and evaluating area, one of the following will be implemented, as appropriate: emergency repair, rehab or replacement; non-emergency repair, rehab or replacement. Added this location to our scheduled cleaning program.
12/5-20/2018	<p>A series of mechanical failures at River Road SPS caused several sewage spills. These spills of approximately 4,782,900 gallons occurred.</p> <ul style="list-style-type: none"> • A full bypass occurred at Gambles Mill SPS on or about October 24, 2018 in order to complete a \$1.5 million project. The contractor began this work on December 3, 2018. • On December 5, 2018 a valve failure at Gambles Mill SPS caused the drywell to be flooded. One of the 	Detailed information on this situation can be found in a letter to Mr. Patrick Bishop (DEQ) dated December 28, 2018.

HENRICO COUNTY MS4 PROGRAM PLAN

	<p>buried valves in the station yard could not be closed completely.</p> <ul style="list-style-type: none">• On December 6, 2018 discovered that the 36" force main valve at Gambles Mill SPS was partially open. Bypass pumps were started up and began to vibrate. All but 2 bypass pumps were turned off.• On December 7, 2018, DPU staff excavated the 36" valve to find the valve actuator was damaged.• On December 8-10, 2018, DPU staff continued discussions with Greeley and Hansen, LLC. These discussions were regarding options to minimize overflows upstream at River Rd SPS.• On December 11, 2018, DPU staff coordinated with Greeley and Hansen on several options to reconfigure bypass pumps at Gambles Mill SPS• On December 12, 2018, DPU staff began coordinating with GL Howard the removal of the 36" force main valve and replacement of piping to return Gambles Mill SPS to full bypass pumping capacity.• On December 13, 2018, DPU staff had a phone conversation with Mr. Patrick Bishop (DEQ) regarding the situation. Site meetings occurred with DEQ staff.• On December 14, 2018, DEQ staff met with DPU staff at River Road SPS for a Recon Inspection.• On December 17, 2018, GL Howard began excavation of the valve.	
--	--	--

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.e

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

	<ul style="list-style-type: none"> On December 18, 2018, GL Howard began removing the buried valve. On December 19, 2018, the valve removal and piping replacement at Gambles Mill SPS was completed with bypass pumping restarted. On December 20, 2018, bypass pumping at Gambles Mill SPS is fully operational and normal pumping operations have resumed at River Road SPS. The overflow at River Road SPS stopped at approximately 10:30 pm. 	
12/13/2018	A stoppage between MH #259SW054 and MH #198NW020, located in easement on the property of 2811 N Parham Road. The stoppage caused sewage to overflow from a cleanout on the property onto surrounding pavement area and into a nearby drainage ditch. Spill of approximately 625 gallons.	A cleanup of the area was performed; lime was applied.
12/17/2018	A stoppage in a sewer lateral that serves 1412 Starling Drive. The stoppage caused sewage to overflow from a cleanout located in front of 9003 Quioccasin Road onto surrounding pavement area and into a nearby drainage ditch. Spill of approximately 118 gallons.	After televising and evaluating area, one of the following will be implemented, as appropriate: emergency repair, rehab or replacement; non-emergency repair, rehab or replacement. Added this location to our scheduled cleaning program

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.e

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

12/17/2018	Hydraulic leak on a refuse truck spilled on Hungary Rd & Woodman Rd. Spill amount is unknown.	First Call Environmental responded to clean up. HyTech swept the impacted areas.
12/19/2018	Mechanical failure of bypass pumps at Gambles Mill SPS led to a sewage spill of MH #SMH141SW021. Spill of approximately 78,000 gallons.	All pumps have been repaired and the station is operating at full capacity. The area was cleaned and lime applied.
12/20/2018	A stoppage between MH #070NW030 and MH #070NW500, located in easement on the property of 602 E Laburnum Ave. The stoppage caused sewage to overflow from a cleanout on the property onto surrounding grass area and into a nearby creek. Spill of approximately 1,600 gallons.	The stoppage was caused by a buildup of grease. After televising and evaluating area, one of the following will be implemented, as appropriate: emergency repair, rehab or replacement; non-emergency repair, rehab or replacement. Added this location to our scheduled cleaning program

HENRICO COUNTY MS4 PROGRAM PLAN

12/28/2018	Series of sewage spills occurred at River Road SPS. The spills were a result of heavy rainfall and saturated soils causing high flows to this station. Spill of approximately 11,400 gallons.	The area was cleaned of debris and limed.
------------	---	---

Each annual report shall include the amount of linear feet of sanitary sewer inspected during the reporting year.

Length of Sanitary Sewer Inspected between January 1, 2018 and December 31, 2018	418,243.04 feet
---	-----------------

The initial annual report shall include a description of the procedures the permittee will implement to reduce floatables as required by Part I.B.2.e)3).

Public Works

DPW requires trash racks on all curb inlets in proposed shopping centers, fast food restaurants, convenience stores, auto parts stores, and other facilities where significant trash, debris and other contaminants may be generated. Due to flooding and safety issues, trash racks are not permitted on any inlets in the public right-of-way. The minimum design standards for the trash racks are specified in Chapter 15 of the Henrico County Environmental Compliance Manual.

Henrico County employs ARC to remove litter from County rights-of-way. The pick-up is performed daily and progress is tracked in tons of litter removed as well as the number of bags of litter removed. ARC is also used bi-weekly on the West and East End maintenance yards to reduce floatables from entering the MS4. Program effectiveness is evaluated based on the tons of litter removed, as this decreases the quantity of floatables entering the MS4. Between 1/1/2018 and 12/31/2018, ARC removed 384,583.5 pounds or 12,811.5 bags worth of litter and 271 tires from County rights-of-way and maintenance facilities.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.e

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

Public Utilities

- Division of Solid Waste implemented programs:
 - Neighborhood clean-ups are a program designed to allow neighborhoods with homeowner associations an opportunity to remove trash/debris from their property. There is no qualification process for neighborhoods to be selected.
 - Community clean-ups are a program designed to allow older neighborhoods with an opportunity to remove trash/debris from their property. There is a qualification process for neighborhoods to be selected.
 - Hazardous Material Disposal is a program where residents can bring their oil/antifreeze/paints/solvents to the public use areas for disposal.
 - Bulky Waste Program is a program where residents can request a pickup of large items, brush, etc. from their property for a fee.
- Keep Henrico Beautiful implemented programs:
 - Because We Care Program is a program where groups or individuals can sign up to adopt any County road, park community, or school within the County.
 - Yard Waste Disposal Education is a program where we discuss how to get rid of all your yard waste.
 - Litter Removal Education is a program where we discuss the importance of Keeping Henrico Beautiful by not littering.
 - Pet Waste Education is a program where we discuss the importance of picking up after your pets.
 - "Magic of Recycling" – Litter prevention program that targets kids ages 4-7.
 - Watershed Education Partnership – We now partner with NOAA BWISE grant that trains teachers in watershed education and teaches 6th graders watershed education.

Each following annual report shall include a list of sites monitored, a summary of the monitoring protocols used, and a summary of the monitoring results and analyses.

This reporting language was originally included in a draft version of the MS4 Permit and was related to a "floatables monitoring" condition. Prior to finalization of the MS4 Permit, the "floatables monitoring" condition was eliminated after DEQ reviewed the federal rule making document and determined this condition was not required. However, the reporting language was moved to Part I.B.2.e without

HENRICO COUNTY MS4 PROGRAM PLAN

being edited to remove reference to the "monitoring" that was no longer required. When this oversight was discovered, DEQ agreed that the reporting element could be interpreted to read:

Each following annual report shall include a summary of the County's efforts to reduce floatables and an evaluation of the effectiveness of those efforts.

Therefore, the following revised Specific Reporting Requirement is addressed in this Annual Report.

Each following annual report shall include a summary of the County's efforts to reduce floatables and an evaluation of the effectiveness of those efforts.

Although the reductions can't be quantified, observations of several sites on which trash racks have been installed display that the County's trash rack program appears to be effective at reducing floatables.

DPW removed 192 tons of litter from the County ROW using ARC.

Department of Public Utilities views its program to reduce floatables as a success. During this reporting period, Public Utilities have removed the following from our community:

- Community cleanups have removed 3,288.1 tons of trash and debris from our older communities.
- Neighborhood cleanups have removed 251 tons of trash and debris from selected neighborhoods.
- Our bulky waste program has removed 671.7 tons of trash and debris from the County.
- Public Utilities has collected 346 tons of tires.
- Solid Waste division has collected 28,225 gallons of used oil/antifreeze at our public use areas.
- Solid Waste division has collected 3,790 gallons of oil-based paint & solvents at our public use areas.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.e

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

- Keep Henrico Beautiful has collected 383 bags of trash from our roadsides, communities, schools and parks with their programs.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.f

MS4 PROGRAM IMPLEMENTATION SPILL PREVENTION AND RESPONSE

Each annual report shall include a list of spills, the source (identified to the best of the permittee's ability), and a description of follow-up activities taken.

Spills that Occurred between January 1, 2018 and December 31, 2018	
01/03/2018	Hydraulic oil leak from snow contractor trucks (KP Glass & Glen Allen Mech.) Put oil dry on spill; swept and placed used oil dry in Clean Harbors barrel.
01/03/2018	WRF - Less than 0.5 gallons of sodium bisulfite was released from a vendor's truck in front of the administration building. No material reached the storm drain and the spill was contained on the road. Area was properly cleaned.
01/03/2018	WRF - Approximately 40 gallons of aerobically digested sludge was released at the blend tank off loading area. No material reached the storm drain and the spill was contained on the road. Area was properly cleaned.
01/06/2018	WRF – Less than 5 gallons of heating oil was spilled at the secondary process building. No material reached the storm drain and the spill was isolated to the asphalt and curb. Area was properly cleaned.
01/09/2018	Hydraulic spill from Truck 785– line broke in Salt Dome Treated with oil dry and sorbent pads; cleaned and placed in Clean Harbors barrel.
02/20/2018	Hydraulic oil spill from Sweeper 791. Treated with oil dry; disposed of in Clean Harbors barrel.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.f

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

02/27/2018	Hydraulic oil spill from Gradall 771- on work site. Contained with oil dry, sorbent pads, and booms before First Call Environmental came and disposed of the material.
03/01/2018	Oil sheen in rain water on East End yard. Used oil dry and sorbent pads to collect the material; disposed of in Clean Harbors barrel.
03/23/2018	Hydraulic spill from Truck 724- line broke in Large Vehicle Wash Facility Placed spill pads, boom, and used pool under truck; placed used materials in Clean Harbors barrel
03/23/2018	Hydraulic Spill from Truck 724 Put oil dry on spill; swept and placed used oil dry in Clean Harbors barrel
03/27/2018	A hydraulic leak spilled from a refuse truck at 5814 S Crestwood Avenue. Area was properly cleaned.
03/29/2018	Oil sheen on pond in East End yard. Treated with sorbent pads and booms; disposed of in Clean Harbors barrel.
04/02/2018	Oil spill from Backhoe 749 on work site. Treated spill with oil dry and reclaimed shoulder dirt effected by spill; disposed of in Clean Harbors barrel.
04/03/2018	WRF - approximately 75 gallons of backwash waste was released North of the filter influent channel. No material reached the storm drains and the spill was contained on the road. The material was cleaned up and containers will be used to catch material when draining pipes.
04/04/2018	WRF - less than 10 gallons of anthracite filter media was released at the North side of filter basin #1. No material reached the storm drains and the spill was contained on the road. The material was cleaned up by the contractor and the contractor repaired their hose.

HENRICO COUNTY MS4 PROGRAM PLAN

04/04/2018	WRF - approximately 20 gallons of Biocarb was released on the South side of ENRs 11 & 12. No material reached the storm drains and the spill was contained. The Biocarb line was shutdown, material recovered, and lime applied. The line was repaired by a contractor before being put back in service.
04/17/2018	Oil Leak from Backhoe 656 Put pads oil dry on spill; swept and placed used oil dry and pads in Clean Harbors barrel
05/02/2018	Hydraulic oil spill from Tractor at work site. Put oil dry on spill; swept and placed into Clean Harbors barrel for disposal.
06/15/2018	Antifreeze Leak from Truck 605 Pool placed under truck to capture material, booms and pads used to contain; CAM handled clean-up
06/29/2018	Administration Building 4301 E. Parham Road 6-29-18 On 6/29/18 a spill of unknown origin or substance was noticed on the sidewalk in front of the Administration building. Total amount of product was estimated to be less than one gallon. County staff put down sta-dri and swept up the product once the fluid was absorbed. Everything was contained to the sidewalk. All materials were properly disposed of and there was no impact to the storm water.
07/20/2018	Hydraulic line rupture from truck 569 on yard. Put oil dry on spill; swept and placed used oil dry in Clean Harbors barrel.
08/03/2018	Oil sheen on storm water flow by refuse collector truck on yard. Oil booms and sorbent pads used to contain the spill; disposed of in Clean Harbors barrel.
08/10/2018	Diesel spill from Tractor 662

HENRICO COUNTY MS4 PROGRAM PLAN

	Put oil dry on spill; swept and placed used oil dry in Clean Harbors barrel
08/22/2018	Hydraulic leak from Truck 727 Put oil dry on spill; swept and placed used oil dry in Clean Harbors barrel
08/27/2018	Diesel spill from Tractor 677 Put oil dry on spill; swept and placed used oil dry in Clean Harbors barrel
08/27/2018	Oil leak from unknown vehicle/equipment Put oil dry on spill; swept and placed used oil dry in Clean Harbors barrel
08/31/2018	Operations – Hydraulic hose broke upon starting up a backhoe. Less than 1 gallon of 15-40 motor oil spilled on the parking lot. Absorbent pads and speedy dry were used for cleanup. Proper disposal occurred of used pads and speedy dry.
09/05/2018	Residual petroleum product mixed w/rainwater from Paver 711 Put oil dry on spill; swept and placed used oil dry in Clean Harbors barrel
09/11/2018	Operations – Antifreeze was leaking from a vehicle in the storage area. Less than 1 gallon leaked. Absorbent pads and speedy dry were used for cleanup. Proper disposal occurred of used pads and speedy dry.
09/12/2018	WTF – Delivery driver had a hose come loose during delivery. Less than 1 gallon of Sodium Hydroxide spilled. Driver washed down area and allowed it to enter the storm inlet in the parking lot. First Call Environmental responded and neutralized the chemical.
09/12/2018	Hydraulic leak from backhoe Put oil dry on spill; swept and placed used oil dry in Clean Harbors barrel

HENRICO COUNTY MS4 PROGRAM PLAN

09/15/2018	Oil residual from a wrecked vehicle in the Police Impound Lot. A 4' x 6' area was dug out to a depth of 3-4" and the area was backfilled with new gravel.
09/16/2018	Hydraulic spill from Sweeper 751 Put oil dry on spill; swept and placed used oil dry in Clean Harbors barrel
09/19/2018	Hydraulic rupture from Truck 573 on yard. First Call Environmental called to retrieve contaminated material; First Call Environmental disposed of all collected material.
09/19/2018	Operations – Approximately 1 quart of Hydraulic fluid leaked onto the parking lot. Used a containment pool under vehicle to collect any leaking fluid until the vehicle can be removed. Used speedy dry to clean up fluid off pavement. Speedy dry was collected and disposed of properly.
09/28/2018	Antifreeze leak from Truck 747 Put dirt and boom on spill; swept and placed used material in Clean Harbors barrel
10/29/2018	Hydraulic leak from Truck at work site. Treated with sorbent pads and oil dry; swept up and disposed of in Clean Harbors barrel.
11/03/2018	1207 Hilliard Road – Approximately 10 gallons of hydraulic fluid leaked from a refuse truck. Leak was stopped, and gravel was recovered for proper disposal.
11/06/2018	Diesel fuel - Shop spill w/ hose Put oil dry on spill; swept and placed used oil dry in Clean Harbors barrel
11/20/2018	Public Safety Building 7721 E. Parham Road 11-20-18 On 11-20-18 a contractor's boom truck ruptured a hydraulic line in the parking lot of the Public Safety building. Approximately one gallon of hydraulic fluid spilled

HENRICO COUNTY MS4 PROGRAM PLAN

	onto the asphalt and sprayed some of the cars nearby. The contractor with assistance from Henrico Fire put down sta-dri to absorb the liquid. The affected cars were wiped down and the sta-dri was swept up. All materials were properly disposed of and there was no impact to the storm water.
12/06/2018	Operations – Less than 1 pint of hydraulic fluid leaked from a backhoe. Used speedy dry to cleanup. Speedy dry was collected and disposed of properly.
12/16/2018	Hydraulic Oil from unknown vehicle/equipment Used pillows to absorb oil; placed used materials in Clean Harbors barrel
12/18/2018	Diesel fuel spill from line rupture on Gradall 771 at work site. Sorbent pads and collection pool used to contain material; disposed of in Clean Harbors barrel.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.g

MS4 PROGRAM IMPLEMENTATION INDUSTRIAL AND HIGH RISK RUNOFF

The annual report due March 31, 2016 shall include a list of all known industrial and high risk dischargers including any non-VPDES regulated industrial and commercial stormwater dischargers determined by the permittee as contributing a significant pollutant load and that discharge to the MS4 system, a schedule of inspections and procedures for inspecting outfalls.

Industrial and High Risk Dischargers Determined to be Contributing a Significant Pollutant Load to the MS4 between January 1, 2018 and December 31, 2018		
Industrial and High Risk Discharger	VPDES Permit (Permit # or None)	Outfalls to the following to MS4 Structure(s)
No Industrial and High Risk Dischargers were found to be contributing a significant pollutant load to the MS4.		

No fewer than fifty MS4 structures that Industrial and High Risk Runoff Facilities discharge into will be inspected during each permit year and each will be inspected at least once during the permit cycle. In addition, Industrial and High Risk Runoff Facilities outfalls with a history of contributing significant pollutant loading to the MS4 during the previous permit year will be re-inspected the following permit year. These outfalls will be subject to the established inspection procedure, including evaluations of identified flows and maintenance and repair needs.

Each annual report shall report on implementation of the inspection schedule and include a list of the facilities and/or facility outfalls inspected during the reporting period.

During the permit year, fifty outfalls from Industrial and High Risk Dischargers were inspected.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.g

ANNUAL REPORTING REQUIREMENTS

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

Inspections of Outfalls from Industrial and High Risk Dischargers conducted between January 1, 2018 and December 31, 2018			
Industrial and High Risk Discharger	Outfall Location	Inspection Date	Determined to be Contributing Significant Pollutant Load to the MS4?
IC0001	IN000000024676	08/14/2018	No
IC0001	MH00000003732	08/14/2018	No
IC0005	IN000000025371	08/14/2018	No
IC0007	IN000000016227	06/28/2018	No
IC0007	IN000000016228	06/28/2018	No
IC0020	IN000000009823	10/22/2018	No
IC0024	IN000000021671	10/19/2018	No
IC0036	MH000000008764	02/17/2018	No
IC0056	IN000000046417	10/17/2018	No
IC0062	IN000000019558	10/19/2018	No
IC0062	IN000000019561	10/19/2018	No
IC0063	IN000000009874	10/22/2018	No
IC0072	IN000000005559	10/22/2018	No
IC0164	IN000000040144	07/09/2018	No
IC0172	MH000000007378	07/09/2018	No
IC0187	IN000000023550	07/18/2018	No
IC0239	IN000000025087	05/21/2018	No
IC0246	IN000000016873	04/18/2018	No
IC0303	IN000000025486	08/14/2018	No
IC0303	IN000000025487	08/14/2018	No
IC0347	IN000000026555	05/21/2018	No
IC0384	MN000000091672	07/18/2018	No
IC0393	MN000000083917	07/18/2018	No
IC0534	IN000000025441	05/21/2018	No
IC0561	IN000000046361	04/17/2018	No
IC0611	IN000000019109	04/17/2018	No
IC0611	IN000000019110	04/17/2018	No
IC0651	IN000000047290	07/26/2018	No
IC0700	IN000000044187	05/17/2018	No

HENRICO COUNTY MS4 PROGRAM PLAN

IC0763	IN000000025123	03/15/2018	No
IC0859	IN000000016891	04/18/2018	No
IC0921	IN000000043824	04/17/2018	No
IC1290	IN000000046594	04/18/2018	No
IC1382	IN000000014640	04/17/2018	No
IC1545	IN000000025567	05/21/2018	No
IC1578	MN000000038881	05/17/2018	No
IC1578	IN000000025454	05/17/2018	No
IC1631	IN000000020881	07/09/2018	No
IC1631	MH000000003352	07/09/2018	No
IC1858	IN000000025351	05/23/2018	No
IC2102	IN000000026556	05/21/2018	No
IC2188	IN000000019140	06/28/2018	No
IC2188	MN000000028802	06/28/2018	No
IC2193	IN000000017272	07/09/2018	No
IC2400	IN000000046567	06/28/2018	No
IC2461	IN000000051945	05/21/2018	No
IC2578	IN000000002927	07/25/2018	No
IC2580	IN000000013085	07/09/2018	No
IC2581	MN000000038722	08/14/2018	No
IC2581	IN000000025535	08/14/2018	No

Inspections of Industrial and High Risk Dischargers determined to be contributing significant pollutant load to the MS4
conducted between January 1, 2018 and December 31, 2018

Industrial and High Risk Discharger ID#	Inspection Date	Results of Inspection
No Industrial and High Risk Dischargers were found to be contributing a significant pollutant load to the MS4. Therefore, no Industrial and High Risk Dischargers were inspected during the permit year.		

Each annual report shall include a list of referrals to the Department.

HENRICO COUNTY MS4 PROGRAM PLAN
PART I.B.2.g
ANNUAL REPORTING REQUIREMENTS
JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

Industrial and High Risk Dischargers referred to
the Virginia Department of Environmental Quality
between January 1, 2018 and December 31, 2018

Industrial and High Risk Discharger	Referral Date	Reason for Referral
No Industrial and High Risk Dischargers were referred to the Virginia Department of Environmental Quality during the permit year. VPDES Industrial Stormwater Permitted Facilities located in Henrico County are listed below.		

DMRs received from VPDES Industrial Stormwater Permitted Facilities*
as of December 31, 2018

Permitted Facility	VPDES Permit #	DMR	
		Date	Received
Alfa Laval Incorporated	VAR051131	No DMRs Received	
BFI Old Dominion Landfill	VAR052236	08/24/2018	
Bunge Oils Incorporated	VAR050595	No DMRs Received	
CHEP Recycled Pallet Solutions LLC	VAR052375	No DMRs Received	
Coca Cola Refreshments USA Inc.	VAR050709	No DMRs Received	
CSX Transportation Inc. – Bryan Park Terminal	VAR051056	No DMRs Received	

HENRICO COUNTY MS4 PROGRAM PLAN
PART I.B.2.g
ANNUAL REPORTING REQUIREMENTS
JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

Ennis Paints Incorporated	VAR051550	No DMRs Received
Federal Express Corporation – Sandston	VAR051169	No DMRs Received
Gillies Creek Industrial Recycling	VAR052249	No DMRs Received
Henkel Corporation	VAR050574	No DMRs Received
Henrico County DPU Springfield Road Waste Management	VAR051025	No DMRs Received
Henrico County Water Reclamation Facility	VAR051633	No DMRs Received
Hilex Poly Company LLC	VAR051636	No DMRs Received
IR Engraving LLC	VAR051142	No DMRs Received
Johns Manville	VAR051167	No DMRs Received
Lee Hy Paving Corporation	VAR051024	No DMRs Received
Mondelez Global LLC	VAR051209	No DMRs Received
Republic Services of Richmond	VAR051152	08/24/2018
Rolling Frito Lay	VAR051607	No DMRs Received

HENRICO COUNTY MS4 PROGRAM PLAN
PART I.B.2.g
ANNUAL REPORTING REQUIREMENTS
JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

San J International	VAR050623	No DMRs Received	
S.B. Cox Recycling Center MRF	VAR051869	No DMRs Received	
The East End Landfill	VAR050624	No DMRs Received	
S.B. Cox Recycling Center MRF	VAR051869	No DMRs Received	
The East End Landfill	VAR050624	No DMRs Received	
TRANSFLO Terminal Services TTSI	VAR051821	No DMRs Received	
WestRock CP LLC – Laburnum	VAR052154	01/10/2018	03/06/2019
		12/14/2018	
San J International	VAR050623	No DMRs Received	
S.B. Cox Recycling Center MRF	VAR051869	No DMRs Received	

* The list of Permitted Facilities was obtained on April 11, 2018 from VDEQ's website <http://www.deq.virginia.gov/Programs/Water/PermittingCompliance/PollutionDischargeElimination/PermitsFees.aspx#GGPs>

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.h

MS4 PROGRAM IMPLEMENTATION STORMWATER INFRASTRUCTURE MANAGEMENT

Each annual report shall include a progress report on efforts to repair failed storm sewer outfalls.

Progress Reports on Efforts to Repair Failed Storm Sewer Outfalls		
Outfall ID	Identified Problem	Repair Status
EN000000000486	Evaluate for cleanout and regrading.	Forwarded to Road Maintenance 12/18/18
EN000000000569	Cleanout EN filled with sediment	Forwarded to Road Maintenance 12/18/18
EN000000000575	Below EN there's significant erosion and sedimentation	Forwarded to Road Maintenance 11/13/18
EN000000000709	Sinkhole and erosion above end treatment	Fill in washouts near EN with topsoil and remove debris blocking pipe
EN000000000711	Washout is preventing flow from going further downstream	No work by Road Maintenance, washout is outside of County-maintained area.
EN000000001704	Cracked concrete next to pipe	Seal around EN with concrete to prevent washout
EN000000001705	Cracked concrete next to pipe.	No work by Road Department outlet okay
EN000000002259	Rebar exposed and concrete deterioration on south end of pipe.	No work by Road Department outlet okay
EN000000002260	Rebar exposed, concrete deterioration.	No work by Road Department outlet okay

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.h

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

EN000000002262	Rebar exposed, concrete deterioration.	No work by Road Department outlet okay
EN000000002438	Cleanout- Willow tree down across channel, blocking flow.	Forwarded to Road Maintenance 11/13/18
EN000000002440	Cleanout sediment buildup at end of pipe	No work by Road Department outlet is open
EN000000002617	Cleanout sediment build up at end treatment.	No work by Road Department, EN is not county-maintained
EN000000002819	Cleanout of sediment required.	No work by Road Department, EN is not county-maintained
EN000000003151	SINKHOLE - scouring and erosion at the end treatment	Forwarded to Road Maintenance 12/18/18
EN000000003268	Debris blocking end treatment	Removed debris from ditch and jet x-pipe.
EN000000003291	Sediment and leaves blocking more than half the pipe height at the end treatment.	No work by Road Department outlet okay
EN000000003292	Sediment washed out around pipe	Forwarded to Road Maintenance 09/05/18
EN000000003305	Concrete deterioration blocking EN drainage.	No work by Road Department outlet okay
EN000000003316	Concrete deterioration on pipe	Forwarded to Road Maintenance 03/01/2018
EN000000003731	Channel past rip rap has significant erosion along banks.	Forwarded to Road Maintenance 11/13/18
EN000000004033	Tree in channel blocking pipe on left side	Cleared- no action needed.
EN000000004060	CLEANOUT - Sediment build up is only allowing water to enter from 1 of the 2 pipes	Forwarded to Road Maintenance 01/03/19
	Significant erosion around	Forwarded to Road

HENRICO COUNTY MS4 PROGRAM PLAN

EN000000004145	pipe and both banks of channel	Maintenance 04/04/18
EN000000005169	Trash and vegetation blocking end treatment	No work needed
EN000000005171	Sinkhole on south side, erosion next to road.	Place rip rap under guardrail where eroding
EN000000005362	Sediment filling 3/4 of pipe	Jet pipe main and outlet
EN000000005364	Tree branches obstructing flow.	Forwarded to Road Maintenance 10/01/18
EN000000005416	Large trees, debris, and trash blocking flow.	Blockage removed at outlet
EN000000005431	Sinkholes on both sides of EN	No work by Road Department outlet okay
EN000000005431	SINKHOLE - sinkhole north of end treatment.	Forwarded to Road Maintenance 01/03/19
EN000000005838	Sinkhole inches from street, directly above pipe.	Forwarded to Road Maintenance 11/13/18
EN000000006005	Citizen complained that power company cut trees for power lines and left trees in creek.	No work by Road Department trees not blocking flow
EN000000006829	Cracked concrete near pipe.	No work by Road Department outlet okay
EN000000007154	Concrete deterioration of the road around pipe. Erosion around pipe leading to a large sinkhole around pipe.	Add stone to cross pipe end section
EN000000007409	End treatment is blocked	Forwarded to Road Maintenance 8/01/18
EN000000007419	cleanout- evaluate for clearing vegetation	Forwarded to Road Maintenance 01/03/19
EN000000007455	Erosion of side of road along channel.	Repair washout with rip rap
EN000000007783	End treatment is clogged	1. No work by road department pending work

HENRICO COUNTY MS4 PROGRAM PLAN
PART I.B.2.h
ANNUAL REPORT SUPPLEMENT
JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

		order EN000000007783
EN000000007786	Road has started to erode away where the ditch goes into the end treatment.	Repair washout with rip rap
EN000000007885	EN is clogged with gravel	No work by Road Department, not county-maintained
EN000000008082	EN pipe detached from rest of pipe causing erosion around pipe.	Forwarded to Road Maintenance 11/13/18
EN000000008320	Large sinkhole filled with trash and a bike	Place rip rap at EN
EN000000008474	Washout about 7" deep at EN as it turns to vegetated channel.	Clean ditch and debris out
EN000000008541	Leaves/sediment collected at the end treatment causing water to back up.	Forwarded to Road Maintenance 09/05/18
EN000000010578	Evaluate for stabilization of ground between EN headwall and street	Forwarded to Road Maintenance 12/18/18
EN000000010691	Cleanout sediment and tree branches in one of the pipes.	Forwarded to Road Maintenance 09/05/18
EN000000010691	Cleanout- sediment, leaves, tree branch in eastern pipe	Forwarded to Road Maintenance 01/03/19
EN000000010927	Cleanout- sediment and lawn debris in pipe blocking flow.	Forwarded to Road Maintenance 01/03/19
EN000000011545	Cleanout- unable to access due to vegetation overgrowth. sediment inside pipes requires cleanout.	Forwarded to Road Maintenance 01/03/19
	Exposed rebar and concrete	Road Maintenance does not

HENRICO COUNTY MS4 PROGRAM PLAN
 PART I.B.2.h
 ANNUAL REPORT SUPPLEMENT
 JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

EN000000011606	deterioration	maintain basin which is where EN is located.
EN000000012034	Erosion on east bank. water is infiltrating behind silt fence and eroding area behind concrete wing of EN	No work by road department
EN000000012047	Erosion above EN	Forwarded to Road Maintenance 04/04/18
EN000000012047	Erosion leading to caving in of roadside	Forwarded to Road Maintenance 01/03/19
EN000000012987	Leaf and lawn debris blocking flow through	Forwarded to Road Maintenance 11/13/18
EN000000013080	CLEANOUT - submerged in sediment	Forwarded to Road Maintenance 12/18/18
EN000000013105	Sediment build up at end treatment. Sinkhole at adjacent pipe. Hole is about 4 feet deep and goes through to bottom of pipe.	No work by Road Department, not county-maintained
EN000000013106	Cleanout- end treatment and pipe exiting inlet are filled with sediment and leaves/lawn debris. blocking flow of water.	Forwarded to Road Maintenance 12/18/18
EN000000013164	Extreme concrete deterioration; tree growing in end treatment; clogged with large amounts of debris	Clean top of end section
EN000000013180	asphalt deterioration caused by washout around pipe	Forwarded to Road Maintenance 12/18/18
EN000000013190	cleanout- sediment from EN/pipe	Forwarded to Road Maintenance 01/03/19
EN000000013183	Cleanout- sediment blocking flow though pipe.	Forwarded to Road Maintenance 12/18/18
EN000000013246	Sediment cleanout submerged in sediment	Forwarded to Road Maintenance 01/03/19
EN000000013268	Erosion next to EN pipe and	

HENRICO COUNTY MS4 PROGRAM PLAN

	roadside.	Repair washout
EN000000013387	Bulky waste- tree, branches, etc. blocking flow.	Open mouth of pipe
EN000000013464	Concrete deterioration and rebar exposed	No work by Road Department outlet okay
EN000000013469	Lawn debris and sediment	No work by Road Department outlet belongs to Schools
EN000000013470	Sediment and leaves in end treatment	Forwarded to Road Maintenance 10/01/18
EN000000013474	Erosion along banks and quite a bit of sediment in channel.	Forwarded to Road Maintenance 11/13/18

Each annual report shall include a list of activities including inspections, maintenance, and repair of stormwater infrastructure operated by the permittee as required in Part I.B.2.h)1), including the total number of stormwater facilities operated by the permittee, the type and number of stormwater facilities inspected and maintained; the linear feet of storm sewer system owned and/or operated by the permittee, and the linear feet of storm sewer system inspected.

MS4 Infrastructure Inspected* between January 1, 2018 and December 31, 2018		
MS4 Infrastructure Type	Unit	Inspected
Inlets	each	4,011
Manholes	each	586
Junction Boxes	each	47
End Treatments	each	1,440
Mains	linear feet	1,850,200

* includes Screening Inspections, Screening Inspection Follow-Ups, Construction Acceptance Inspections, Maintenance Evaluations, and Repair and/or Maintenance Activities

HENRICO COUNTY MS4 PROGRAM PLAN
PART I.B.2.h
ANNUAL REPORT SUPPLEMENT
JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

During this permit year (January 1, 2018 and December 31, 2018), 21.48% of the MS4 infrastructure was inspected.

Since the effective date of the MS4 Permit (April 1, 2015), 70.01% of the MS4 infrastructure has been inspected.

Inspection, Maintenance, and Repair Actions conducted on MS4 Infrastructure between January 1, 2018 and December 31, 2018			
MS4 Infrastructure Type	Inspections	Maintenance	Repair
Inlets	3,628	217	166
Manholes	586	11	9
Junction Boxes	41	3	3
End Treatments	1,336	98	6
Mains	17,635	1,849	132

On-Line* County-Operated SWM Facilities Inspected and/or Maintained between January 1, 2018 and December 31, 2018			
Type	Total	Inspected	Maintained
50/10 BASIN (5)	10	10	6
50/10 UNDERGROUND (6)	7	7	2
BAYFILTER (200)	1	1	1
BAYSEPARATOR (205)	1	1	1
BIORETENTION 1 (145)	3	3	2
BIORETENTION BASIN/TRENCH (10)	9	9	6
DRY DETENTION - UNDERGROUND (178)	1	1	
DRY SWALE 2 (151)	2	2	
EXTENDED DETENTION BASIN (15)	31	31	31

HENRICO COUNTY MS4 PROGRAM PLAN

EXTENDED DETENTION BASIN W/A SHALLOW MARSH (16)	2	2	1
EXTENDED DETENTION POND 1 (175)	1	1	
FILTERRA (215)	27	27	12
GRASSED SWALE (20)	3	3	1
IMBRIUM JELLYFISH (250)	1	1	1
INFILTRATION BASIN/TRENCH (25)	7	7	1
PERMEABLE PAVEMENT 1 (135)	3	3	
RETENTION BASIN (WET POND) (30)	8	8	6
SHEETFLOW TO VEGETATED FILTER OR CONSERVED OPEN SPACE 2 (106)	2	2	
STORMCEPTOR (225)	1	1	1
STORMFILTER (220)	4	4	
STORMTREAT (230)	1	1	1
STORMWATER360 (235)	5	5	1
TOTAL	130	130	72

* Facilities with either an Active or Accepted status as of December 31, 2018

On-Line Privately-Operated SWM Facilities Discharging to the MS4 that were Inspected and/or Maintained between January 1, 2018 and December 31, 2018			
Type	Total	Inspected	Maintained
50/10 BASIN (5)	55	5	0
50/10 UNDERGROUND (6)	63	1	0
BAYSAVER (210)	1	0	0
BIORETENTION BASIN/TRENCH (10)	23	1	0
DRY DETENTION - POND (177)	1	0	0
DRY DETENTION - UNDERGROUND (178)	4	0	0
DRY SWALE 1 (150)	1	0	0
EXTENDED DETENTION BASIN (15)	199	24	1
EXTENDED DETENTION BASIN W/A SHALLOW MARSH (16)	48	5	0
FILTERRA (215)	203	16	1
GRASSED SWALE (20)	6	0	0

HENRICO COUNTY MS4 PROGRAM PLAN
PART I.B.2.h
ANNUAL REPORT SUPPLEMENT
JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

IMBRIUM JELLYFISH (250)	2	0	0
INFILTRATION BASIN/TRENCH (25)	8	0	0
RETENTION BASIN (WET POND) (30)	64	6	0
SAND FILTER (35)	64	5	0
STORMCEPTOR (225)	1	0	0
STORMTREAT (230)	4	0	0
STORMWATER360 (235)	19	0	0
VEGETATED FILTER STRIP (40)	1	0	0
VORTEXSEPARATOR (245)	2	0	0
Totals	769	63	2

* Facilities with either an Active or Accepted status

County-Owned/Operated Culverts and Pipes Inventoried as of December 31, 2018 and Inspected between January 1, 2018 and December 31, 2018	
Culverts and Pipes Inventoried (miles)	Culverts and Pipes Inspected between January 1, 2018 and December 31, 2018 (miles)
1,142.9	135.2

Each annual report shall provide a summary of actions taken by the permittee to address failure of privately maintained SWM facilities owners to abide by maintenance agreements.

The number of privately-maintained SWM facilities that: 1) discharge to the MS4, 2) needed <i>required</i> maintenance and/or repair based on a previous inspection, and 3) are subject to a recorded maintenance agreement,	0
---	---

HENRICO COUNTY MS4 PROGRAM PLAN

where the owner(s) failed to perform <i>required</i> maintenance and/or repair as directed by the County.	
---	--

Each annual report shall include a list of activities including inspections performed and notifications of needed maintenance and repair of stormwater facilities not operated by the permittee as required by Part I.B.2.h)2).

Facility ID	Action Date	Action Type
BMP00637	1/8/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00647	1/8/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00993	1/8/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00994	1/8/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00995	1/8/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01333	1/8/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01846	1/8/2018	ACCEPTANCE INSPECTION
BMP00103	1/9/2018	MAINTENANCE INSPECTION
BMP00381	1/9/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00405	1/9/2018	MAINTENANCE INSPECTION
BMP00410	1/9/2018	MAINTENANCE INSPECTION
BMP00834	1/9/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00835	1/9/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01844	1/9/2018	ACCEPTANCE INSPECTION
BMP01844	1/9/2018	RECEIPT OF CERTIFICATION
BMP01839	1/10/2018	RECEIPT OF CERTIFICATION
BMP01190	1/11/2018	MAINTENANCE INSPECTION
BMP00827	1/16/2018	MAINTENANCE INSPECTION
BMP01516	1/16/2018	RECEIPT OF CERTIFICATION
BMP01839	1/16/2018	ACCEPTANCE INSPECTION
BMP01846	1/16/2018	INVENTORIED
BMP00834	1/17/2018	EDUCATION
BMP00827	1/18/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01028	1/18/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01847	1/18/2018	MAINTENANCE INSPECTION

HENRICO COUNTY MS4 PROGRAM PLAN
PART I.B.2.h
ANNUAL REPORT SUPPLEMENT
JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

BMP01847	1/18/2018	INVENTORIED
BMP01848	1/18/2018	MAINTENANCE INSPECTION
BMP01848	1/18/2018	INVENTORIED
BMP01849	1/18/2018	MAINTENANCE INSPECTION
BMP01849	1/18/2018	INVENTORIED
BMP01516	1/19/2018	ACCEPTANCE INSPECTION
BMP01825	1/19/2018	RECEIPT OF CERTIFICATION
BMP00090	1/23/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00290	1/23/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00291	1/23/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00661	1/23/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01787	1/24/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00397	1/26/2018	EDUCATION
BMP00398	1/26/2018	EDUCATION
BMP01853	1/31/2018	ACCEPTANCE INSPECTION
BMP01844	2/6/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00337	2/7/2018	MAINTENANCE INSPECTION
BMP00863	2/7/2018	MAINTENANCE INSPECTION
BMP00864	2/7/2018	MAINTENANCE INSPECTION
BMP00865	2/7/2018	MAINTENANCE INSPECTION
BMP01781	2/8/2018	RECEIPT OF CERTIFICATION
BMP01844	2/9/2018	RECEIPT OF CERTIFICATION
BMP01851	2/9/2018	INVENTORIED
BMP01852	2/9/2018	INVENTORIED
BMP01933	2/11/2018	MAINTENANCE INSPECTION
BMP01936	2/11/2018	MAINTENANCE INSPECTION
BMP01761	2/12/2018	RECEIPT OF CERTIFICATION
BMP01761	2/14/2018	ACCEPTANCE INSPECTION
BMP01761	2/15/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01312	2/20/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01313	2/20/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01314	2/20/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00082	2/21/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00114	2/21/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.h

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

BMP01147	2/21/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01148	2/21/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01327	2/21/2018	MAINTENANCE INSPECTION
BMP01328	2/21/2018	MAINTENANCE INSPECTION
BMP01329	2/21/2018	MAINTENANCE INSPECTION
BMP01330	2/21/2018	MAINTENANCE INSPECTION
BMP01331	2/21/2018	MAINTENANCE INSPECTION
BMP01761	2/21/2018	RECEIPT OF CERTIFICATION
BMP01458	2/22/2018	ACCEPTANCE INSPECTION
BMP01459	2/22/2018	ACCEPTANCE INSPECTION
BMP01781	2/22/2018	ACCEPTANCE INSPECTION
BMP00647	2/26/2018	MAINTENANCE INSPECTION
BMP00978	2/28/2018	MAINTENANCE INSPECTION
BMP00979	2/28/2018	MAINTENANCE INSPECTION
BMP01458	3/1/2018	RECEIPT OF CERTIFICATION
BMP01459	3/1/2018	RECEIPT OF CERTIFICATION
BMP00114	3/5/2018	EDUCATION
BMP01853	3/5/2018	RECEIPT OF CERTIFICATION
BMP00483	3/6/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00828	3/6/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00829	3/6/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00108	3/7/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00518	3/7/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00519	3/7/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00520	3/7/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00521	3/7/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00522	3/7/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01287	3/7/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01519	3/7/2018	ACCEPTANCE INSPECTION
BMP00407	3/9/2018	MAINTENANCE INSPECTION
BMP01147	3/9/2018	EDUCATION
BMP01148	3/9/2018	EDUCATION
BMP00114	3/14/2018	MAINTENANCE ACTIVITY
BMP01853	3/15/2018	INVENTORIED

HENRICO COUNTY MS4 PROGRAM PLAN
 PART I.B.2.h
 ANNUAL REPORT SUPPLEMENT
 JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

BMP00108	3/16/2018	EDUCATION
BMP00523	3/19/2018	MAINTENANCE INSPECTION
BMP00524	3/19/2018	MAINTENANCE INSPECTION
BMP00962	3/19/2018	MAINTENANCE INSPECTION
BMP00963	3/19/2018	MAINTENANCE INSPECTION
BMP01214	3/19/2018	MAINTENANCE INSPECTION
BMP01215	3/19/2018	MAINTENANCE INSPECTION
BMP01216	3/19/2018	MAINTENANCE INSPECTION
BMP00264	3/20/2018	MAINTENANCE INSPECTION
BMP00846	3/22/2018	MAINTENANCE INSPECTION
BMP00905	3/22/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01374	3/22/2018	RECEIPT OF CERTIFICATION
BMP00082	3/27/2018	EDUCATION
BMP00144	3/29/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00145	3/29/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00269	3/29/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00303	3/29/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00606	3/29/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00430	3/30/2018	MAINTENANCE INSPECTION
BMP00464	3/30/2018	MAINTENANCE INSPECTION
BMP00707	3/30/2018	MAINTENANCE INSPECTION
BMP00877	3/30/2018	MAINTENANCE INSPECTION
BMP01696	4/2/2018	ACCEPTANCE INSPECTION
BMP00430	4/3/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00877	4/3/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01026	4/3/2018	ACCEPTANCE INSPECTION
BMP01026	4/4/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00111	4/5/2018	MAINTENANCE INSPECTION
BMP00111	4/5/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00241	4/5/2018	MAINTENANCE INSPECTION
BMP00707	4/5/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00034	4/9/2018	MAINTENANCE INSPECTION
BMP01522	4/9/2018	MAINTENANCE INSPECTION
BMP01837	4/9/2018	ACCEPTANCE INSPECTION

HENRICO COUNTY MS4 PROGRAM PLAN
PART I.B.2.h
ANNUAL REPORT SUPPLEMENT
JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

BMP01345	4/10/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01837	4/10/2018	RECEIPT OF CERTIFICATION
BMP00241	4/11/2018	RECEIPT OF CERTIFICATION
BMP00618	4/11/2018	MAINTENANCE INSPECTION
BMP01227	4/11/2018	MAINTENANCE INSPECTION
BMP01844	4/11/2018	ACCEPTANCE INSPECTION
BMP00885	4/12/2018	MAINTENANCE INSPECTION
BMP01374	4/12/2018	ACCEPTANCE INSPECTION
BMP00512	4/16/2018	MAINTENANCE INSPECTION
BMP01855	4/16/2018	INVENTORIED
BMP01560	4/17/2018	MAINTENANCE INSPECTION
BMP00828	4/18/2018	EDUCATION
BMP00829	4/18/2018	EDUCATION
BMP00499	4/23/2018	RECEIPT OF CERTIFICATION
BMP00618	4/26/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00619	4/26/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01028	4/27/2018	MAINTENANCE INSPECTION
BMP00499	4/30/2018	ACCEPTANCE INSPECTION
BMP00926	5/1/2018	MAINTENANCE INSPECTION
BMP01257	5/1/2018	MAINTENANCE INSPECTION
BMP01787	5/1/2018	MAINTENANCE INSPECTION
BMP00499	5/2/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01079	5/8/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01283	5/8/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01284	5/8/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00241	5/9/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00405	5/9/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00410	5/9/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01275	5/9/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01858	5/9/2018	INVENTORIED
BMP01859	5/9/2018	INVENTORIED
BMP00071	5/15/2018	MAINTENANCE INSPECTION
BMP00885	5/15/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00071	5/16/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.h

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

BMP01861	5/16/2018	INVENTORIED
BMP01863	5/16/2018	INVENTORIED
BMP01864	5/16/2018	INVENTORIED
BMP01865	5/16/2018	INVENTORIED
BMP00103	5/17/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00337	5/17/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01866	5/17/2018	INVENTORIED
BMP01867	5/17/2018	INVENTORIED
BMP01868	5/17/2018	INVENTORIED
BMP01869	5/17/2018	INVENTORIED
BMP01283	5/18/2018	EDUCATION
BMP01284	5/18/2018	EDUCATION
BMP01870	5/18/2018	INVENTORIED
BMP01871	5/18/2018	INVENTORIED
BMP00863	5/24/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00864	5/24/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00865	5/24/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01327	5/24/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01328	5/24/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01329	5/24/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01330	5/24/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01782	5/29/2018	ACCEPTANCE INSPECTION
BMP01806	5/29/2018	RECEIPT OF CERTIFICATION
BMP00537	5/30/2018	MAINTENANCE INSPECTION
BMP00538	5/30/2018	MAINTENANCE INSPECTION
BMP00539	5/30/2018	MAINTENANCE INSPECTION
BMP01191	6/4/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01192	6/4/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00915	6/11/2018	MAINTENANCE INSPECTION
BMP00920	6/12/2018	MAINTENANCE INSPECTION
BMP00241	6/13/2018	ACCEPTANCE INSPECTION
BMP01696	6/13/2018	RECEIPT OF CERTIFICATION
BMP01806	6/18/2018	ACCEPTANCE INSPECTION
BMP01806	6/18/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.h

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

BMP01824	6/18/2018	RECEIPT OF CERTIFICATION
BMP00429	6/20/2018	MAINTENANCE INSPECTION
BMP00545	6/20/2018	MAINTENANCE INSPECTION
BMP00575	6/20/2018	MAINTENANCE ACTIVITY
BMP00576	6/20/2018	MAINTENANCE ACTIVITY
BMP00598	6/20/2018	MAINTENANCE INSPECTION
BMP00599	6/20/2018	MAINTENANCE INSPECTION
BMP00600	6/20/2018	MAINTENANCE INSPECTION
BMP00601	6/20/2018	MAINTENANCE INSPECTION
BMP01709	6/21/2018	RECEIPT OF CERTIFICATION
BMP01782	6/21/2018	RECEIPT OF CERTIFICATION
BMP01812	6/22/2018	MAINTENANCE INSPECTION
BMP00241	6/25/2018	MAINTENANCE INSPECTION
BMP01824	6/25/2018	ACCEPTANCE INSPECTION
BMP00321	6/26/2018	MAINTENANCE INSPECTION
BMP00321	6/26/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01428	6/26/2018	MAINTENANCE INSPECTION
BMP01429	6/26/2018	MAINTENANCE INSPECTION
BMP01360	6/27/2018	MAINTENANCE INSPECTION
BMP01361	6/27/2018	MAINTENANCE INSPECTION
BMP01362	6/27/2018	MAINTENANCE INSPECTION
BMP00711	6/28/2018	MAINTENANCE INSPECTION
BMP00554	7/1/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00748	7/1/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01812	7/2/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01147	7/3/2018	MAINTENANCE INSPECTION
BMP01148	7/3/2018	MAINTENANCE INSPECTION
BMP01782	7/3/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00711	7/6/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00711	7/6/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00523	7/11/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00978	7/11/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00979	7/11/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01709	7/11/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.h

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

BMP01428	7/12/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01429	7/12/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01782	7/16/2018	RECEIPT OF CERTIFICATION
BMP00321	7/17/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00962	7/17/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00963	7/17/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00554	7/18/2018	MAINTENANCE INSPECTION
BMP00748	7/18/2018	MAINTENANCE INSPECTION
BMP01782	7/18/2018	ACCEPTANCE INSPECTION
BMP01822	7/19/2018	RECEIPT OF CERTIFICATION
BMP00661	7/20/2018	EDUCATION
BMP00863	7/20/2018	MAINTENANCE INSPECTION
BMP00920	7/23/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01709	7/25/2018	RECEIPT OF CERTIFICATION
BMP01822	7/25/2018	ACCEPTANCE INSPECTION
BMP01782	7/27/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01730	7/30/2018	RECEIPT OF CERTIFICATION
BMP01861	7/30/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01861	7/30/2018	RECEIPT OF CERTIFICATION
BMP01875	7/31/2018	INVENTORIED
BMP01876	7/31/2018	INVENTORIED
BMP01877	7/31/2018	INVENTORIED
BMP01878	7/31/2018	INVENTORIED
BMP01879	7/31/2018	INVENTORIED
BMP00555	8/1/2018	MAINTENANCE INSPECTION
BMP01880	8/1/2018	INVENTORIED
BMP01730	8/2/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00407	8/3/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00962	8/3/2018	MAINTENANCE INSPECTION
BMP00963	8/3/2018	MAINTENANCE INSPECTION
BMP01810	8/6/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01810	8/6/2018	RECEIPT OF CERTIFICATION
BMP01881	8/6/2018	INVENTORIED
BMP01882	8/6/2018	INVENTORIED

HENRICO COUNTY MS4 PROGRAM PLAN
 PART I.B.2.h
 ANNUAL REPORT SUPPLEMENT
 JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

BMP00430	8/7/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00877	8/7/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01214	8/7/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01215	8/7/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01216	8/7/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01782	8/7/2018	ACCEPTANCE INSPECTION
BMP01810	8/7/2018	ACCEPTANCE INSPECTION
BMP01883	8/7/2018	INVENTORIED
BMP01884	8/7/2018	INVENTORIED
BMP01885	8/7/2018	INVENTORIED
BMP01886	8/8/2018	INVENTORIED
BMP00337	8/9/2018	MAINTENANCE INSPECTION
BMP00555	8/10/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00111	8/13/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00707	8/13/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00962	8/13/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00963	8/13/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01487	8/13/2018	ACCEPTANCE INSPECTION
BMP01861	8/13/2018	RECEIPT OF CERTIFICATION
BMP00430	8/16/2018	MAINTENANCE INSPECTION
BMP01058	8/20/2018	ACCEPTANCE INSPECTION
BMP01861	8/20/2018	ACCEPTANCE INSPECTION
BMP01885	8/20/2018	ACCEPTANCE INSPECTION
BMP01058	8/21/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01861	8/21/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01058	8/22/2018	RECEIPT OF CERTIFICATION
BMP00523	8/28/2018	MAINTENANCE INSPECTION
BMP01056	8/29/2018	MAINTENANCE INSPECTION
BMP01709	8/31/2018	ACCEPTANCE INSPECTION
BMP01888	9/6/2018	INVENTORIED
BMP01889	9/7/2018	INVENTORIED
BMP01890	9/7/2018	INVENTORIED
BMP01891	9/7/2018	INVENTORIED
BMP01730	9/11/2018	ACCEPTANCE INSPECTION

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.h

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

BMP01730	9/11/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01863	9/11/2018	RECEIPT OF CERTIFICATION
BMP01892	9/13/2018	INVENTORIED
BMP01893	9/13/2018	INVENTORIED
BMP01900	9/13/2018	INVENTORIED
BMP01901	9/14/2018	INVENTORIED
BMP01902	9/17/2018	INVENTORIED
BMP01903	9/17/2018	INVENTORIED
BMP01904	9/17/2018	INVENTORIED
BMP01905	9/17/2018	INVENTORIED
BMP01907	9/17/2018	INVENTORIED
BMP01695	9/18/2018	RECEIPT OF CERTIFICATION
BMP01861	9/20/2018	ACCEPTANCE INSPECTION
BMP01861	9/20/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01863	9/20/2018	ACCEPTANCE INSPECTION
BMP01861	9/21/2018	ACCEPTANCE INSPECTION
BMP00300	9/24/2018	MAINTENANCE INSPECTION
BMP00301	9/24/2018	MAINTENANCE INSPECTION
BMP01885	9/24/2018	RECEIPT OF CERTIFICATION
BMP01806	9/25/2018	ACCEPTANCE INSPECTION
BMP01806	9/25/2018	RECEIPT OF CERTIFICATION
BMP01807	9/25/2018	ACCEPTANCE INSPECTION
BMP01807	9/25/2018	RECEIPT OF CERTIFICATION
BMP00462	9/26/2018	MAINTENANCE INSPECTION
BMP01695	9/26/2018	ACCEPTANCE INSPECTION
BMP01695	9/27/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00001	9/29/2018	MAINTENANCE INSPECTION
BMP01728	10/3/2018	RECEIPT OF CERTIFICATION
BMP01729	10/3/2018	RECEIPT OF CERTIFICATION
BMP01809	10/4/2018	RECEIPT OF CERTIFICATION
BMP00462	10/9/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00711	10/9/2018	MAINTENANCE INSPECTION
BMP01729	10/10/2018	ACCEPTANCE INSPECTION
BMP01910	10/11/2018	INVENTORIED

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.h

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

BMP01911	10/11/2018	INVENTORIED
BMP01912	10/11/2018	INVENTORIED
BMP01913	10/11/2018	INVENTORIED
BMP01914	10/11/2018	INVENTORIED
BMP01915	10/11/2018	INVENTORIED
BMP01200	10/12/2018	MAINTENANCE INSPECTION
BMP01201	10/12/2018	MAINTENANCE INSPECTION
BMP01202	10/12/2018	MAINTENANCE INSPECTION
BMP01203	10/12/2018	MAINTENANCE INSPECTION
BMP01204	10/12/2018	MAINTENANCE INSPECTION
BMP01206	10/12/2018	MAINTENANCE INSPECTION
BMP01207	10/12/2018	MAINTENANCE INSPECTION
BMP01208	10/12/2018	MAINTENANCE INSPECTION
BMP00048	10/16/2018	MAINTENANCE INSPECTION
BMP00048	10/17/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01728	10/17/2018	ACCEPTANCE INSPECTION
BMP01740	10/17/2018	RECEIPT OF CERTIFICATION
BMP00244	10/18/2018	MAINTENANCE INSPECTION
BMP01916	10/19/2018	INVENTORIED
BMP01917	10/19/2018	INVENTORIED
BMP01918	10/19/2018	INVENTORIED
BMP01919	10/19/2018	INVENTORIED
BMP00244	10/22/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00618	10/22/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00368	10/23/2018	MAINTENANCE INSPECTION
BMP01710	10/25/2018	RECEIPT OF CERTIFICATION
BMP01026	10/26/2018	RECEIPT OF CERTIFICATION
BMP01710	10/29/2018	ACCEPTANCE INSPECTION
BMP01883	10/29/2018	RECEIPT OF CERTIFICATION
BMP00593	10/31/2018	MAINTENANCE INSPECTION
BMP00866	10/31/2018	MAINTENANCE INSPECTION
BMP00866	10/31/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01275	10/31/2018	MAINTENANCE INSPECTION
BMP01710	10/31/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION

HENRICO COUNTY MS4 PROGRAM PLAN
PART I.B.2.h
ANNUAL REPORT SUPPLEMENT
JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

BMP01740	10/31/2018	ACCEPTANCE INSPECTION
BMP01740	10/31/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01883	10/31/2018	ACCEPTANCE INSPECTION
BMP01883	10/31/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00593	11/1/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01257	11/1/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01026	11/2/2018	ACCEPTANCE INSPECTION
BMP01155	11/6/2018	MAINTENANCE INSPECTION
BMP00866	11/8/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01921	11/12/2018	INVENTORIED
BMP01922	11/12/2018	INVENTORIED
BMP01923	11/12/2018	INVENTORIED
BMP01924	11/12/2018	INVENTORIED
BMP01925	11/12/2018	INVENTORIED
BMP00026	11/13/2018	MAINTENANCE INSPECTION
BMP00027	11/13/2018	MAINTENANCE INSPECTION
BMP01915	11/13/2018	RECEIPT OF CERTIFICATION
BMP00395	11/14/2018	MAINTENANCE INSPECTION
BMP00396	11/14/2018	MAINTENANCE INSPECTION
BMP00462	11/19/2018	EDUCATION
BMP00805	11/19/2018	MAINTENANCE INSPECTION
BMP01915	11/19/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00805	11/20/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP00576	11/28/2018	MAINTENANCE INSPECTION
BMP01915	11/28/2018	RECEIPT OF CERTIFICATION
BMP01730	12/4/2018	RECEIPT OF CERTIFICATION
BMP00048	12/5/2018	EDUCATION
BMP00593	12/5/2018	EDUCATION
BMP01730	12/7/2018	ACCEPTANCE INSPECTION
BMP01522	12/12/2018	PUNCHLIST DEVELOPMENT AND DISTRIBUTION
BMP01926	12/14/2018	INVENTORIED
BMP01915	12/19/2018	ACCEPTANCE INSPECTION
BMP01277	12/27/2018	MAINTENANCE INSPECTION
BMP01278	12/27/2018	MAINTENANCE INSPECTION

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.h

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

BMP00575	12/28/2018	MAINTENANCE INSPECTION
BMP01279	12/28/2018	MAINTENANCE INSPECTION

The MS4 service area map including outfalls and information included in Part I.B.2.h)3) shall be submitted no later than 18 months after the effective date of this state permit. The information shall be submitted as an electronic file in one of the following formats shapefile, geodatabase, .xls, .xlsx, .csv, .mdx, .dbf, delimited text, XML, or other file approved by the Department.

The requested information was delivered to DEQ on September 27, 2016.

The fourth annual report shall include an updated list of all information requested in Part 1.B.2.h)5).

Local Watershed	MS4 Service Area Acreage as of March 31, 2019	Regulated Impervious Acreage as of March 31, 2019	Regulated Pervious (Turf) Acreage as of March 31, 2019
1	1400.10	429.25	560.40
2	168.86	30.48	56.72
3	596.22	170.90	241.83
4	2018.23	787.95	702.68
5	130.27	34.93	55.39
6	425.68	152.84	152.58
7	1681.18	658.83	632.59
8	370.37	115.39	163.47
9	1444.74	503.95	572.71
10	737.91	239.98	362.11
11	269.91	57.44	99.44
12	256.84	103.74	99.22
13	812.52	254.03	289.57
14	616.23	165.83	220.89
15	272.04	48.21	107.21
16	884.67	346.95	363.16
17	385.65	89.64	143.26
18	1033.62	357.16	369.27
19	490.45	89.19	187.87

HENRICO COUNTY MS4 PROGRAM PLAN
PART I.B.2.h
ANNUAL REPORT SUPPLEMENT
JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

20	192.62	76.30	63.49
21	850.63	280.99	258.06
22	936.75	487.68	277.60
23	1372.50	536.86	371.02
24	656.25	250.45	180.18
25	416.65	145.51	134.40
26	753.00	304.11	236.74
27	780.57	290.25	253.86
28	331.93	70.32	116.47
29	216.55	41.47	77.18
30	1790.27	356.57	723.49
31	1480.93	528.34	464.37
32	655.10	258.49	175.16
33	234.93	133.65	56.98
34	661.80	223.72	243.08
35	840.20	220.54	263.15
36	525.18	193.65	236.52
37	1660.20	550.60	664.43
38	1154.92	363.07	346.45
39	1075.30	307.37	310.87
40	17.15	2.12	3.37
41	18.55	3.87	1.65
42	758.44	129.57	251.66
43	31.85	3.98	6.24
44	284.50	51.33	88.87
45	120.91	20.89	61.82
46	319.13	37.40	63.98
47	69.10	5.34	2.44
48	260.88	111.05	86.12
49	1228.04	533.23	357.29
50	855.14	322.13	254.08
51	758.52	246.84	238.97
52	1214.62	354.06	398.47
53	657.03	394.80	155.64
54	1108.06	522.08	353.63
55	2350.27	930.38	812.14
56	1285.16	467.03	555.20
57	1342.64	477.90	547.48
58	1504.71	524.59	540.58
59	1830.10	569.88	660.41
60	848.81	346.26	337.72
61	966.70	381.40	355.52
62	368.64	154.66	113.63
63	130.59	106.24	21.18

HENRICO COUNTY MS4 PROGRAM PLAN
 PART I.B.2.h
 ANNUAL REPORT SUPPLEMENT
 JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

64	799.43	312.73	260.01
65	284.93	54.28	119.52
66	246.23	49.92	57.97
67	944.32	204.77	361.48

6 th Order HUC	MS4 Service Area Acreage as of March 31, 2019	Regulated Impervious Acreage as of March 31, 2019	Regulated Pervious (Turf) Acreage as of March 31, 2019
JL01	6739.16	2338.60	2462.76
JL03	1524.07	446.36	557.14
JL04	2338.76	468.36	917.14
JL05	404.00	64.52	99.21
JL06	1094.72	169.09	319.01
JL16	5144.16	1950.74	1907.98
JL17	1649.12	542.87	657.09
JL18	12392.70	4875.22	4453.12
JL19	3051.34	1006.78	1235.73
JL20	1226.72	260.70	462.03
JL21	2274.91	621.69	798.98
JM84	10276.17	3939.46	3110.27
JM85	1915.50	527.91	574.02
JM86	1154.92	363.07	346.45

Chesapeake Bay Segment	MS4 Service Area Acreage as of March 31, 2019	Regulated Impervious Acreage as of March 31, 2019	Regulated Pervious (Turf) Acreage as of March 31, 2019
CHKOH	25738.95	9258.01	9514.93
JMSTF2	25447.30	8317.37	8386.00

Acreage Treated by Stormwater Controls as of March 31, 2019	Impervious Acreage Treated by Stormwater Controls as of March 31, 2019	Pervious (Turf) Acreage Treated by Stormwater Controls as of March 31, 2019
20093.2	6232.6	275.4

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.i
MS4 PROGRAM IMPLEMENTATION
COUNTY FACILITIES

There are no Specific Reporting Requirements associated with this part of the MS4 Permit for this permit year.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.j

MS4 PROGRAM IMPLEMENTATION PUBLIC EDUCATION / PARTICIPATION

Each annual report shall include a list of permittee public outreach and education activities and the estimated number of individuals reached through the activities. An evaluation of program effectiveness, as outlined in the MS4 Program Plan with recommendations for future changes shall also be included.

Public Outreach and Education Goals and Activities			
Department / Division	Activity	Date	# of Individuals / Households / Reaches
Goal: Promote, publicize, and facilitate public reporting of the presence of illicit discharges or improper disposal of materials into the MS4			
DPW - EESD	Illicit Discharge Reporting	01/01/2018 - 12/31/2018	113
DPW – EESD and Maintenance	Henrico County Spring Energy Fair – Attendees were educated on proper pet waste disposal, leaf disposal, car washing, mosquitoes, and Henrico County's spill reporting website: Henrico.us/ReportSpills at the Public Works booth. 78 pet waste bag dispensers and 75 educational pet mats were distributed.	04/27/2018	150
DPW - EESD	Henrico County Job Fair – 55 spill notification rulers were distributed. Attendees were educated on Henrico County's spill reporting website: Henrico.us/ReportSpills .	10/06/2018	320

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.j

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

DPW – EESD and Maintenance	Henrico County Fall Energy Fair – Attendees were educated on proper pet waste disposal, leaf disposal, car washing, mosquitoes, and Henrico County's spill reporting website: Henrico.us/ReportSpills at the Public Works booth. 172 pet waste bag dispensers, 135 spill notification rulers, 150 pet mats, and leaf brochures were distributed.	10/19/2018	300
DPW – EESD and Maintenance	Santa Paws – hosted an educational booth where 28 pet waste bag dispensers, 60 Only Rain Down the Drain Educational Ornaments, 45 spill notification rulers, and 30 educational pet food lids were distributed to attendees.	12/08/2018	250
Fire	MS4 Education Posters in stations in view of public	Always	Unknown
Goal: Continue to promote individual and group involvement in local water quality improvement initiatives including the promotion of local restoration and clean-up projects, programs, groups, meetings and other opportunities for public involvement			
Henricopolis	Soil Test Voucher Program	01/01/2018 - 12/31/2018	775
Henricopolis	Rain Barrel Workshops	05/10/2018	20
		09/22/2018	
DPW - EESD	Middle James Roundtable hosted an educational booth at the Richmond Symphony's Festival of the River. Attendees were educated regarding the environmental health of the Middle James River Watershed, soil testing, and proper pet waste	06/09/2018	1500

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.j

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

	disposal. 177 turtles were made by attendees.		
Henricopolis	Virginia State Fair Water Quality Outreach Exhibit	09/28/2018-10/07/2018	330
DPU/KHB	James River Cleanup	09/08/2018	25
DPW - EESD	Middle James Roundtable (MJRT) Annual Watershed Conference	10/25/2018	63
DPW - EESD	Septic Educational Mailings Sent in 2018	Multiple	874
DPU/KHB	Watershed Education to middle school students	Multiple	281
Goal: Develop an outreach program with public and private golf courses located within Henrico County that discharge to the permittee's MS4 that would encourage implementation of integrated management practice (IMP) plans and techniques to reduce runoff of fertilizer and pesticides			
Rec & Parks	MS4 Outreach for Private Golf Course Owners / Operators	12/03/2018	10
Goal: Promote, publicize, and facilitate the proper management and disposal of used oil and household hazardous wastes			
DPU/ADMIN	Household Hazardous Waste Program – social media campaign	11/15/2018	3,733
Fire	MS4 educational posters in all stations	Always	Unknown
Goal: Promote and publicize the proper disposal of pet waste and household yard waste			
Henricopolis	K-12 Classroom Programs-environmental education sessions with a focus on non-point source pollution, litter and pet waste management.	01/01/2018 – 12/31/2018	4,000
DPW – EESD and Maintenance	Henrico County Spring Energy Fair – Attendees were educated on proper pet waste disposal, leaf disposal, car washing, mosquitoes, and Henrico	04/27/2018	150

HENRICO COUNTY MS4 PROGRAM PLAN

	County's spill reporting website: Henrico.us/ReportSpills at the Public Works booth. 78 pet waste bag dispensers and 75 educational pet mats were distributed.		
DPW – EESD and Maintenance	Celebrate Varina– 87 pet waste bag dispensers, 75 educational pet mats, and leaf brochures were given away	06/02/2018	650
DPU/KHB	Environmental Educators Workshop – all KHB education topics	07/26/2018	6
DPW - EESD	Henrico County Job Fair – 55 spill notification rulers were distributed. Attendees were educated on Henrico County's spill reporting website: Henrico.us/ReportSpills .	10/06/2018	320
DPW – EESD and Maintenance	Henrico County Fall Energy Fair – Attendees were educated on proper pet waste disposal, leaf disposal, car washing, mosquitoes, and Henrico County's spill reporting website: Henrico.us/ReportSpills at the Public Works booth. 172 pet waste bag dispensers, 135 spill notification rulers, 150 pet mats, and leaf brochures were distributed.	10/19/2018	300
DPW – EESD and Maintenance	Santa Paws – hosted an educational booth where 28 pet waste bag dispensers, 60 Only Rain Down the Drain Educational Ornaments, 45 spill notification rulers, and 30 educational pet food lids were distributed to attendees.	12/08/2018	250

HENRICO COUNTY MS4 PROGRAM PLAN

DPW - EESD	Middle James Roundtable Pet Waste Coalition Social Media – Facebook Education on the environmental impacts of pet waste and the importance of picking up after pets	Multiple	2,578
DPW - Maintenance	Leaf brochures containing proper disposal methods and stormwater education accompanying violation letters and postcards	Multiple	3,335
DPW - Maintenance	Leaf insert sent in DPU utility bill	Multiple	98,000
DPU/KHB	Educational booth at events – recycling education, litter prevention, pet waste disposal, waste disposal	Multiple	1,850
DPU/KHB	Watershed Education to middle school students	Multiple	281
Community Revitalization	Attended 39 neighborhood meetings which has been very effective in educating the public in zoning and environmental ordinances (grass & weeds, trash & debris, inoperative vehicles, outside storage, etc...). Meetings are also used to promote opportunities such as volunteer assistance program, enterprise zones, and CDBG fund projects.	Multiple	780
Goal: Promote and publicize the use of the permittee's litter prevention program			
Henricopolis	K-12 Classroom Programs- environmental education sessions with a focus on non-point source pollution, litter and pet waste management.	01/01/2018 – 12/31/2018	4,000

HENRICO COUNTY MS4 PROGRAM PLAN

DPU/KHB	Environmental Educators Workshop – all KHB education topics	07/26/2018	6
DPU/KHB	James River Cleanup	09/08/2018	25
DPU/KHB	Educational booth at events – recycling education, litter prevention, pet waste disposal, waste disposal	Multiple	1,850
DPU/KHB	Green Machine – Litter prevention and recycling education program (targeting ages 4-7)	Multiple	227
DPU/KHB	School presentations to classes on litter prevention/recycling	Multiple	2,333
Goal: Promote and publicize methods for residential car washing that minimize water quality impacts			
DPW – EESD and Maintenance	Henrico County Spring Energy Fair – Attendees were educated on proper pet waste disposal, leaf disposal, car washing, mosquitoes, and Henrico County's spill reporting website: Henrico.us/ReportSpills at the Public Works booth. 78 pet waste bag dispensers and 75 educational pet mats were distributed.	04/27/2018	150
DPW – EESD and Maintenance	Henrico County Fall Energy Fair – Attendees were educated on proper pet waste disposal, leaf disposal, car washing, mosquitoes, and Henrico County's spill reporting website: Henrico.us/ReportSpills at the Public Works booth. 172 pet waste bag dispensers, 135 spill	10/19/2018	300

HENRICO COUNTY MS4 PROGRAM PLAN

	notification rulers, 150 pet mats, and leaf brochures were distributed.		
DPW-EESD	Car-washing Guidelines insert in utility bill	Multiple	98,000
Goal: Promote and publicize the proper use, application, and disposal of pesticides, herbicides, and fertilizers by public, commercial, and private applicators and distributors			
Extension Service	Initial Commercial Pesticide Applicator Certification Workshop - Core Review for Registered Techs (60) <i>Mid Atlantic Horticulture Short Course</i>	01/17/2018	10
Extension Service	Initial Commercial Pesticide Applicator Certification Workshop – Category Reviews for 3A (Ornamentals) and 3B (Turf) <i>Mid Atlantic Horticulture Short Course</i>	01/18/2018	6
Extension Service	Certified Horticulturalist Review for Soils, Fertilizers, Turf Management, and Water Quality Protection <i>Central Virginia Nursery and Landscape Association</i>	01/22/2018	22
Extension Service	“Environmentally-responsible Lawn Care,” Training Session for Henrico Extension Master Gardeners	01/30/2018	25
Extension Service	Initial Commercial Pesticide Applicator Certification Workshop - Core Review for Category 60 (Registered Tech) <i>Virginia Turfgrass Council Mid Atlantic Turf Expo</i>	02/01/2018	16
Extension Service	Commercial Pesticide Applicator Recertification Workshop for Categories 3A (Ornamentals), 3B	02/16/2018	72

HENRICO COUNTY MS4 PROGRAM PLAN

	(Turf), 8 (Public Health), and 60 (Registered Tech) <i>CVNLA Short Course</i>		
Extension Service	Training class for Henrico Master Gardeners, Plant Pathology/Diagnosing Plant Problems	02/22/2018	19
Extension Service	Initial Commercial Pesticide Applicator Certification Workshop - Core Review for Registered Techs (60) <i>Virginia Turfgrass Council Come to the Bay</i>	02/28/2018	10
Extension Service	Training class for Henrico Master Gardeners, Pesticide Safety	03/01/2018	19
Extension Service	SMART Lawns and Landscape Maintenance, Homeowner Workshop with Community Revitalization Program	03/03/2018	35
Extension Service	"Environmentally-responsible Lawn Care," Training Session for Louisa Extension Master Gardeners	03/13/2018	11
Extension Service	"Spring Weed Control," Homeowner Workshop	03/14/2018	6
Extension Service	Composting Display at Strange's Greenhouse, West Broad Location	03/17/2018	167
Extension Service	"Implementing the SMART Lawns Program in Henrico County," Advanced Training Workshop for Henrico Extension Master Gardeners	03/28/2018	18
Extension Service	"Environmentally-responsible Lawn Care," Training Session for Richmond City Extension Master Gardeners	04/04/2018	11

HENRICO COUNTY MS4 PROGRAM PLAN

Extension Service	“Making Your lawn a SMART Lawn”, Homeowner Workshop	04/18/2018	34
Extension Service	Earth Day presentation on Ground Water Safety at Bank of America, St. Joseph’s Villa Bldg.	04/25/2018	75
Extension Service	Water Wise Landscape Display at Lewis Ginter Botanical Garden Spring PlantFest	05/03/2018-04/18/2018	222
Extension Service	“Fall Lawn Care”, Homeowner Workshop to Cedar Grove HOA	08/28/2018	14
Extension Service	Water Quality Display at the Virginia State Fair	09/29/2018	523
Extension Service	“Environmentally-responsible Lawn Care,” Training Session for Hanover County Extension Master Gardeners	10/11/2018	16
Extension Service	Private Pesticide Applicator Recertification Workshops – 3 sessions	11/29/2018	40
		12/04/2018	
		12/08/2018	
Goal: Encourage private property owners to implement voluntary stormwater management techniques and/or retrofits			
Henricopolis	Virginia Conservation Assistance Program	01/01/2018 - Present	42

Evaluations of Program Effectiveness

Public Utilities

DPU believes their outreach program is effective in getting the word out to our citizens. We utilize many different methods to ensure our residents are notified. We utilize social media, we hold programs within our schools, and we attend neighborhood/community functions.

DPU's own Keep Henrico Beautiful Program is excited to be partnering with Henrico County Schools, and Maymont to bring a science education initiative to students in grades K-12. The NOAA Bay Watershed Education and Training (B-

HENRICO COUNTY MS4 PROGRAM PLAN

WET) grant will help Maymont and its partners to implement its Bay Watershed in Science Education (B-WISE) project for 7,200 students and 240 teachers over 3 years, extending to all 12 middle schools in the Henrico County Public Schools system.

Fire

Each station averages 3 citizens a day that interact at the 21 county stations. The posters are in locations and of a bright nature that they should capture the attention of those visiting the facilities. It would be expected that they would read the poster and retain the important nature of the program.

Extension Service

Pesticide Applicator Recertification Sessions

During 2018, 72 commercial pesticide applicators were trained for recertification by the Henrico Extension Office. A total of 72 commercial applicators gained additional knowledge in pesticide safety and Integrated Pest Management (IPM) practices related to ornamental plants and turf. As a result of this pesticide safety education, 72 commercial applicators successfully maintained their pesticide applicator certification to legally apply pesticides in Virginia.

Sixty-five (65) of these participants completed and returned a post-program evaluation. Sixty-three (63) of those responding (97%) agreed or strongly agreed that as a result of attending this session, they (a)"know what I need to do to comply with state and federal laws and regulations"; (b)"learned more about proper use of application equipment"; and (c)"read pesticide labels and use the personal protective equipment they require."

Sixty-one (61) individuals (98%) rated the session as good, very good or excellent. Thirty-six (36) individuals (55%) provided specific written information describing at least one pesticide safety practice they intend to change or improve upon.

Additionally, during 2018, 40 private certification pesticide applicators were

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.j

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

trained for recertification by the Henrico Extension Office. A total of 40 private applicators gained additional knowledge in pesticide safety and Integrated Pest Management (IPM) practices related to ornamental plants and crops. As a result of this pesticide safety education, 40 private category applicators successfully maintained their pesticide applicator certification to legally apply pesticides in Virginia.

Initial Pesticide Applicator Certification Sessions

During 2018, 42 individuals seeking commercial pesticide applicator status were trained for initial certification testing by the Henrico Extension Office through 4 different training programs. A total of 42 individuals seeking commercial pesticide applicator certification gained knowledge in pesticide safety and Integrated Pest Management (IPM) practices related to ornamental plants and turf.

SMART Lawns Program

A total of sixty-three (63) Henrico households with residential lawns were enrolled in the Henrico Extension SMART Lawns program in 2018. One hundred (100) soil samples were submitted, and sixty-five (65) urban nutrient management plans were written and distributed to program participants. A total of 586,481 square feet (13.46 acres) of residential turf in Henrico County were brought under a nutrient management plan that is in full compliance with DCR urban nutrient management planning criteria.

Plant Health Diagnostics

During 2018, the Henrico Extension Office received 277 samples for either problem diagnosis and management recommendations or simple identification. Of the samples, 119 were pest or disease related. Integrated pest management (IPM) recommendations were given for 57 (48%) of these samples, resulting in the promotion of lower-risk pest control products and/or non-chemical pest management strategies.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.j

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

Public Works

DPW believes their outreach program is effective in educating citizens on proper pet waste disposal, our online spill reporting service, local total maximum daily loads that apply to Henrico County, and only rain down the drain messaging through its participation in the Middle James Roundtable and attendance at local community functions. Items with environmental educational messages are distributed to the public at these events.

The Septic Pump-out & Inspection Program notified 874 residents of the five-year pump-out and inspection requirement in 2018. Henrico County reports annually on the Septic Pump-out & Inspection Program in the Chesapeake Bay Act Annual Implementation Report to VDEQ. In 2018, 472 pump-out records and 13 inspection records were submitted to the county for compliance.

DPW Road Maintenance believes the outreach programs are effective in getting information out to our citizens. Various methods are used to notify as many citizens as possible, with the majority of outreach coming from community events and individual notification.

Leaf collection program effectiveness is assessed annually by the total number of customer-placed vacuum leaf orders received and completed, the total number of violation orders processed and completed, and customer feedback. Recommendations for future changes will be based on the assessment of program effectiveness and updates will be made as necessary to improve the program overall.

Henrico County employs ARC to remove litter from County rights-of-way. The pick-up is performed daily, and progress is tracked in tons of litter removed as well as the number of bags of litter removed. ARC is also used bi-weekly on the West and East End maintenance yards to reduce floatables from entering the MS4. Program effectiveness is evaluated based on the tons of litter removed, as this decreases the quantity of floatables entering the MS4. Between 1/01/18 and 12/31/18, ARC removed 384,583.5 pounds or 12,811.5 bags worth of litter and 271 tires from County rights-of-way and maintenance facilities.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.j

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

Each annual report shall provide a summary of voluntary retrofits completed on private property used to demonstrate pollutant reduction requirements. Note that any voluntary project for which the permittee seeks to use for pollutant reduction requirements must be tracked and reported.

Voluntary Retrofits Completed on Private Property Used to Demonstrate Compliance with Pollutant Reduction Requirements	0
--	---

Each annual report shall provide a summary of voluntary stormwater management techniques encouraged on private property.

Voluntary Stormwater Management Techniques Encouraged on Private Property			
Department / Division	Activity	Date	# of Individuals / Households / Reaches
Henricopolis	<p>Below are 11 different voluntary stormwater BMPs that Henricopolis can provide technical and financial assistance for County property owners. For more information, refer to http://henrico.us/services/virginia-conservation-assistance-program/</p> <p style="text-align: center;"> <u>Basic BMPs</u> Impervious Surface Removal <u>Intermediate Level BMPs</u> Conversion Landscaping Rain Gardens Dry Well Rainwater Harvesting Vegetated Stormwater Conveyance <u>Advanced BMPs</u> Bioretention Infiltration Basin </p>		

HENRICO COUNTY MS4 PROGRAM PLAN

	Constructed Wetlands Permeable Pavement Green Roofs		
--	---	--	--

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.k MS4 PROGRAM IMPLEMENTATION TRAINING

Each annual report shall include a list of training events, the date and the estimated number of individuals attending each event.

Training Topics and Events Attended Between January 1, 2018 and December 31, 2018		
Event	Date	# of Individuals
Topic: The permittee shall provide biennial training to appropriate field personnel in the recognition and reporting of illicit discharges		
<p>Stormwater Inspection Team Meetings</p> <p>The purpose of the Stormwater Inspection Team is to educate County staff regarding good municipal site housekeeping and the requirements of the County's Municipal Separate Storm Sewer System (MS4) Permit as they relate to municipal facilities.</p> <p>The Stormwater Inspection Team consists of a coordinator and representatives from Recreation and Parks, General Services, Public Utilities, Fire, Public Works and Public Schools and meets monthly to inspect one municipal facility. The inspections serve as a learning experience so team members become familiar with what is expected on all municipal facilities. Team members can then conduct inspections of the facilities for which their Department or Division is responsible.</p>	01/30/2018	4
	02/21/2018	8
	03/29/2018	4
	04/25/2018	5
	05/31/2018	6
	06/29/2018	4
	07/19/2018	6
	08/30/2018	5
	09/28/2018	7
	10/08/2018	6
	11/09/2018	5
	12/21/2018	3
Illicit Discharge Detection and Elimination (Schools – Career and Technical Education)	02/22/2018	3
Train-the-Trainer – MS4 Compliance (Police)	06/03/2018	1

HENRICO COUNTY MS4 PROGRAM PLAN

DPU Operations Environmental and Sustainability Management System (ESMS) training covers spill kit locations, spill procedures and notifications, good housekeeping and pollution prevention practices, illicit discharge, SOPs, and erosion and sediment control measures	06/22/2018	68
	06/26/2018	
	08/24/2018	
Illicit Discharge Recognition and Reporting	07/11/2018	41
	12/06/2018	48
Spill Card Notification Training – Foremen (DPW Maintenance - West)	07/17/2018	15
Spill Card Notification Training – Crews & Foremen (DPW Maintenance - East)	07/18/2018	11
Spill Card Notification Training – Crews (DPW Maintenance - West)	07/24/2018	36
Sigma Consulting & Training Inc Chemical Spill Response Training Class focused on Local Government compliance with 29CFR 1910.120 (q)	08/09/2018	4
Illicit Discharge Detection and Elimination (Schools – Pupil Transportation)	08/22/2018	602
Illicit Discharge Detection and Elimination (Schools – Nutrition Staff)	08/22/2018	401
SPCC Plan Spill Prevention, Control & Countermeasures (Risk Management)	Multiple	146
HazMat update: All Division of Fire operational personnel are trained to the level of Hazardous Materials Operations (HMO). The initial HMO program consists of 40 hrs. of tested content and is provided in the employee's initial recruit training program. Annual recertification training is mandatory and ensures competency maintenance, including spill response procedures.	Multiple	417

HENRICO COUNTY MS4 PROGRAM PLAN

Hazmat update: Many Division of Fire personnel participate in additional hazardous materials training programs, such as Hazmat Technician and Hazmat Specialist. Initial training for these programs include 80 and 240 hours of tested content, respectfully. These higher levels of certification mandate 24 hours of additional recertification training annually. Personnel at the Hazmat Technician and Hazmat Specialist level provide additionally on-duty resources to respond to spills and emergencies throughout the community.	Multiple	45 Hazmat Technicians & 38 Hazmat Specialists
Division of Fire MS4 Mandatory Online Training – topics include Good Housekeeping/Pollution Prevention, Spill Response, and Illicit Discharge.	Varies	500
Topic: The permittee shall provide biennial training to appropriate employees in good housekeeping and pollution prevention practices that are to be employed in and around County recreation facilities; maintenance and public works facilities; and roads, streets, and parking lots.		
<p>Stormwater Inspection Team Meetings</p> <p>The purpose of the Stormwater Inspection Team is to educate County staff regarding good municipal site housekeeping and the requirements of the County's Municipal Separate Storm Sewer System (MS4) Permit as they relate to municipal facilities.</p> <p>The Stormwater Inspection Team consists of a coordinator and representatives from Recreation and Parks, General Services, Public Utilities, Fire, Public Works and Public Schools and meets monthly to inspect one municipal facility. The inspections serve as a learning experience so team members become familiar with what is expected on all municipal facilities. Team members can then conduct inspections</p>	01/30/2018	4
	02/21/2018	8
	03/29/2018	4
	04/25/2018	5
	05/31/2018	6
	06/29/2018	4
	07/19/2018	6
	08/30/2018	5
	09/28/2018	7
	10/08/2018	6
	11/09/2018	5

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.k

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

of the facilities for which their Department or Division is responsible.	12/21/2018	3
SOP – Vehicles: Washing (Rec & Parks)	01/31/2018	101
Good Housekeeping (Schools – Career and Technical Education)	02/22/2018	3
MMA Annual and Quarterly SWPPP Training (DPW Maintenance)	03/13/2018	9
	06/13/2018	19
	12/05/2018	74
MS4 Quarterly Inspection Training – Operations Facility (DPU)	03/14/2018	9
	12/06/2018	4
SWPPP Training/Meeting (Rec and Parks)	03/15/2018	7
Environmental Sustainability Management System (ESMS) Meeting (Rec and Parks)	03/20/2018	6
	04/25/2018	5
	05/23/2018	5
	06/12/2018	4
	06/27/2018	5
	11/28/2018	8
Good Housekeeping and Pollution Prevention Training (DPW Maintenance)	05/17/2018	79
	07/18/2018	
Train-the-Trainer – MS4 Compliance (Police)	06/03/2018	1
Traffic Engineering ESMS and MS4 New Employee Training - This is in house training and includes: 1) spill kit contents and locations, 2) how to clean up and dispose of clean up materials, and 3) phone numbers of staff to call in case of a spill	06/05/2018	4
DPU Operations Environmental and Sustainability Management System (ESMS) training covers spill kit locations, spill procedures and notifications, good housekeeping and pollution prevention practices, illicit discharge, SOPs, and erosion and sediment control measures	06/22/2018	68
	06/26/2018	
	08/24/2018	

HENRICO COUNTY MS4 PROGRAM PLAN

EESD and Maintenance conducted in-house SWPPP Familiarization Training for Traffic Engineering personnel to train them on the facility SWPPP, spill response materials, spill kit locations, and proper spill notifications.	06/28/2018	28
Municipal Site Housekeeping	07/11/2018	32
	12/05/2018	41
Spill Card Notification Training – Foremen (DPW Maintenance - West)	07/17/2018	15
Spill Card Notification Training – Crews & Foremen (DPW Maintenance - East)	07/18/2018	11
Spill Card Notification Training – Crews (DPW Maintenance - West)	07/24/2018	36
Sigma Consulting & Training Inc Chemical Spill Response Training Class focused on Local Government compliance with 29CFR 1910.120 (q)	08/09/2018	4
Good Housekeeping (Schools – Pupil Transportation)	08/22/2018	602
MS4 Compliance for Police Impound Lot (Police)	09/11/2018	2
Stormwater Pollution Prevention (Rec & Parks)	09/30/2018	101
Traffic Engineering conducted an Environmental Sustainability Management System (ESMS) Senior Management Review	10/23/2018	4
Good Housekeeping (Rec & Parks)	10/31/2018	101
Level II Awareness & ESMS Training – spill response regulatory requirements, SWPPP, ODCP, SW, and spill containment (Water Reclamation Facility)	11/14/2018	26
	11/16/2018	
	11/20/2018	
Level III Awareness Training - spill response regulatory requirements, SWPPP, ODCP, SW, SPCC, spill kit	11/20/2018	6

HENRICO COUNTY MS4 PROGRAM PLAN
PART I.B.2.k
ANNUAL REPORT SUPPLEMENT
JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

locations, and spill prevention (Water Reclamation Facility)		
MS4 Parking Lot SOP Training WebNet Online Training (DPU)	12/2018	13
Environmental Sustainability Management System meetings are held monthly and/or semi-monthly and cover a wide variety of topics including spill prevention, AST/UST operating procedures, stormwater management, waste reduction and recycling, HVAC refrigerant recovery, proper disposal of batteries and kitchen waste oil, safe coil cleaning, BMP maintenance, and proper use of snow removal products. (DGS)	Semi- Monthly or as needed	Varies
Level I Awareness Training Online – spill response and notification methods and Pollution Prevention and Good Housekeeping practices (Water Reclamation Facility)	Varies	30
Division of Fire MS4 Mandatory Online Training – topics include Good Housekeeping/Pollution Prevention, Spill Response, and Illicit Discharge.	Varies	500
Good Housekeeping – Kitchen Practices (Schools)	Ongoing	450
Topic: The permittee shall ensure that employees, and require that contractors, who apply pesticides and herbicides are properly trained or certified per the Virginia Pesticide Control Act (§3.2-3900 et seq. of the Code of Virginia). The requirements of the Virginia Pesticide Control Act are established by the Virginia Pesticide Control Board		
Commercial Pesticide Applicator Recertification for Henrico County General Government and Schools Employees: Categories 3B (Turf), 8 (Public Health), and 60 (Registered Tech)	05/02/2018	50
Pesticide Applicator Training (DGS)	Annual	Varies

HENRICO COUNTY MS4 PROGRAM PLAN

Topic: The permittee shall have a program to ensure that County plan reviewers, inspectors, program administrators and construction site operators (e.g. responsible land disturber) are trained and obtain the appropriate certifications to the extent required under the Virginia Erosion and Sediment Control Law and attendant regulations		
Erosion and Sediment Control Inspector Certification	02/06/2018	1
	03/21/2018	1
	11/21/2018	1
Erosion and Sediment Control Inspector Certification Course	01/17/2018 -01/18/2018	1
	04/18/2018 -04/19/2018	1
	11/14/2018 -11/15/2018	3
Plan Reviewer for Erosion and Sediment Control Certification	06/14/2018	1
DPU Operations Environmental and Sustainability Management System (ESMS) training covers spill kit locations, spill procedures and notifications, good housekeeping and pollution prevention practices, illicit discharge, SOPs, and erosion and sediment control measures	06/22/2018	68
	06/26/2018	
	08/24/2018	
Plan Reviewer for Erosion and Sediment Control Certification Course	03/13/2018 -03/15/2018	1
Topic: The permittee shall have a program to ensure that the applicable County employees obtain the appropriate certifications as required under the Virginia Stormwater Management Act and its attendant regulations to implement the modified stormwater management design criteria		
National Stormwater Center – Certified Stormwater Inspector	01/09/2018 –01/11/2018	1
Stormwater Management Inspector Certification	01/16/2018	1
	02/20/2018	1
	08/03/2018	1
	11/01/2018	1
Combined Administrator for Stormwater Management Certification	01/26/2018	1

HENRICO COUNTY MS4 PROGRAM PLAN

DEQ Regulatory SWPPP Inspections for Localities	02/13/2018	1
	10/05/2018	1
Stormwater Management Inspector Certification Course	03/13/2018 -03/14/2018	1
	06/18/2018 -06/19/2018	1
	07/18/2018 -07/19/2018	2
	10/17/2018 -10/18/2018	1
Where the Water Goes	09/12/2018	1
DEQ - Plants in Stormwater Management & Erosion and Sediment Control	10/04/2018	1
Stormwater Management Plan Reviewer Certification Course	11/06/2018 -11/08/2018	1
Stormwater Management Program Administrator Certification Course	12/05/2018	1
Topic: The appropriate emergency response employees shall have training in spill response.		
Stormwater Inspection Team Meetings	01/30/2018	4
The purpose of the Stormwater Inspection Team is to educate County staff regarding good municipal site housekeeping and the requirements of the County's Municipal Separate Storm Sewer System (MS4) Permit as they relate to municipal facilities.	02/21/2018	8
	03/29/2018	4
	04/25/2018	5
	05/31/2018	6
	06/29/2018	4
The Stormwater Inspection Team consists of a coordinator and representatives from Recreation and Parks, General Services, Public Utilities, Fire, Public Works and Public Schools and meets monthly to inspect one municipal facility. The inspections serve as a learning experience so team members become familiar with what is expected on all municipal facilities. Team members can then conduct inspections of the facilities for which their Department or Division is responsible.	07/19/2018	6
	08/30/2018	5
	09/28/2018	7
	10/08/2018	6
	11/09/2018	5
	12/21/2018	3

HENRICO COUNTY MS4 PROGRAM PLAN

Spill Response (Schools – Career and Technical Education)	02/22/2018	3
Train-the-Trainer – MS4 Compliance (Police)	06/03/2018	1
Traffic Engineering ESMS and MS4 New Employee Training - This is in house training and includes: 1) spill kit contents and locations, 2) how to clean up and dispose of clean up materials, and 3) phone numbers of staff to call in case of a spill	06/05/2018	4
DPU Operations Environmental and Sustainability Management System (ESMS) training covers spill kit locations, spill procedures and notifications, good housekeeping and pollution prevention practices, illicit discharge, SOPs, and erosion and sediment control measures	06/22/2018	68
	06/26/2018	
	08/24/2018	
EESD and Maintenance conducted in-house SWPPP Familiarization Training for Traffic Engineering personnel to train them on the facility SWPPP, spill response materials, spill kit locations, and proper spill notifications.	06/28/2018	28
Spill Card Notification Training – Foremen (DPW Maintenance - West)	07/17/2018	15
Spill Card Notification Training – Crews & Foremen (DPW Maintenance - East)	07/18/2018	11
Spill Card Notification Training – Crews (DPW Maintenance - West)	07/24/2018	36
Sigma Consulting & Training Inc Chemical Spill Response Training Class focused on Local Government compliance with 29CFR 1910.120 (q)	08/09/2018	4
Level II Awareness & ESMS Training – spill response regulatory requirements, SWPPP, ODCP, SW, and spill	11/14/2018	26
	11/16/2018	

HENRICO COUNTY MS4 PROGRAM PLAN

containment (Water Reclamation Facility)	11/20/2018	
Level III Awareness Training - spill response regulatory requirements, SWPPP, ODCP, SW, SPCC, spill kit locations, and spill prevention (Water Reclamation Facility)	11/20/2018	6
SPCC Plan Spill Prevention, Control & Countermeasures (Risk Management)	Multiple	146
Environmental Sustainability Management System meetings are held monthly and/or semi-monthly and cover a wide variety of topics including spill prevention, AST/UST operating procedures, stormwater management, waste reduction and recycling, HVAC refrigerant recovery, proper disposal of batteries and kitchen waste oil, safe coil cleaning, BMP maintenance, and proper use of snow removal products. (DGS)	Semi-Monthly or as needed	Varies
Level I Awareness Training Online – spill response and notification methods and Pollution Prevention and Good Housekeeping practices (Water Reclamation Facility)	Varies	30
Fire: HazMat update: All Division of Fire operational personnel are trained to the level of Hazardous Materials Operations (HMO). The initial HMO program consists of 40 hrs. of tested content and is provided in the employee's initial recruit training program. Annual recertification training is mandatory and ensures competency maintenance, including spill response procedures.	Multiple	417

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.k

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

Division of Fire MS4 Mandatory Online Training – topics include Good Housekeeping/Pollution Prevention, Spill Response, and Illicit Discharge.	Varies	500
Topic: Other		
VLWA Virginia Water Conference	03/04/2018 –03/05/2018	7
Semi-Annual Environmental Meetings	03/13/2018	Varies
In house meetings involving all Departments/Divisions that play a role in the County's MS4 Program and other environmental-related initiatives	09/17/2018	
APWA 2018 Conference and Equipment Show	05/02/2018 –05/04/2018	1
NFWF Project Spotlight Webinar: Nutrient Management Plans	08/01/2018	1
AST/UST Operator Training	Annual	Varies
ESMS R-22 Recovery Training	As needed	Varies

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.I

MS4 PROGRAM IMPLEMENTATION WATER QUALITY SCREENING PROGRAMS

Each annual report shall include the total number of outfalls included as part of the permittee's MS4, the number of outfalls screened during the reporting period, a list of locations upon which dry weather screening was conducted, the results, and any follow-up actions including maintenance and/or repair of infrastructure or outfalls performed as a result of the dry weather screening.

# of MS4 Outfalls	3,166
-------------------	-------

# of Outfalls Screened between 1/1/2018 and 12/31/2018*	1,278
--	-------

* includes all end treatments for which a Screening Inspection was conducted, not just those that are identified as MS4 Outfalls

Dry Weather Screening Conducted between 1/1/2018 and 12/31/2018		
MS4 Outfall	Findings	Follow-Up Action
EN000000000001	No Issues Identified	None Required
EN000000000002	No Issues Identified	None Required
EN000000000003	No Issues Identified	None Required
EN000000000341	No Issues Identified	None Required
EN000000000444	No Issues Identified	None Required
EN000000000535	No Issues Identified	None Required
EN000000001704	No Issues Identified	None Required
EN000000001378	No Issues Identified	None Required
EN000000001379	No Issues Identified	None Required
EN000000001408	No Issues Identified	None Required
EN000000001441	No Issues Identified	None Required
EN000000001446	No Issues Identified	None Required
EN000000001487	No Issues Identified	None Required

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.I

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

EN000000001491	No Issues Identified	None Required
EN000000001581	No Issues Identified	None Required
EN000000001584	No Issues Identified	None Required
EN000000001699	No Issues Identified	None Required
EN000000001705	Concrete Deterioration	Forward to Road Maintenance
EN000000001706	No Issues Identified	None Required
EN000000001712	No Issues Identified	None Required
EN000000002023	No Issues Identified	None Required
EN000000002030	No Issues Identified	None Required
EN000000002038	No Issues Identified	None Required
EN000000002172	No Issues Identified	None Required
EN000000002262	Concrete Deterioration	Forward to Road Maintenance
EN000000002268	No Issues Identified	None Required
EN000000002280	No Issues Identified	None Required
EN000000002404	No Issues Identified	None Required
EN000000002405	No Issues Identified	None Required
EN000000002407	No Issues Identified	None Required
EN000000002408	No Issues Identified	None Required
EN000000002442	No Issues Identified	None Required
EN000000002444	No Issues Identified	None Required
EN000000002467	No Issues Identified	None Required
EN000000002475	No Issues Identified	None Required
EN000000002507	No Issues Identified	None Required
EN000000002510	No Issues Identified	None Required
EN000000002511	No Issues Identified	None Required
EN000000002581	No Issues Identified	None Required
EN000000002764	No Issues Identified	None Required
EN000000002767	No Issues Identified	None Required
EN000000002850	No Issues Identified	None Required
EN000000003009	No Issues Identified	None Required
EN000000003084	No Issues Identified	None Required
EN000000003088	No Issues Identified	None Required
EN000000003142	No Issues Identified	None Required
EN000000003351	No Issues Identified	None Required
EN000000003370	No Issues Identified	None Required
EN000000003735	No Issues Identified	None Required
EN000000003754	No Issues Identified	None Required

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.I

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

EN000000003777	Concrete Deterioration	Forward to Road Maintenance
EN000000004090	No Issues Identified	None Required
EN000000004189	No Issues Identified	None Required
EN000000004547	No Issues Identified	None Required
EN000000004644	No Issues Identified	None Required
EN000000004688	No Issues Identified	None Required
EN000000004826	No Issues Identified	None Required
EN000000004874	No Issues Identified	None Required
EN000000005233	No Issues Identified	None Required
EN000000006104	No Issues Identified	None Required
EN000000006109	No Issues Identified	None Required
EN000000006304	No Issues Identified	None Required
EN000000006323	No Issues Identified	None Required
EN000000006829	Concrete Deterioration	Forward to Road Maintenance
EN000000006960	No Issues Identified	None Required
EN000000006988	No Issues Identified	None Required
EN000000007056	No Issues Identified	None Required
EN000000007405	No Issues Identified	None Required
EN000000007436	No Issues Identified	None Required
EN000000007437	No Issues Identified	None Required
EN000000007453	No Issues Identified	None Required
EN000000007454	No Issues Identified	None Required
EN000000007455	Erosion along road	Forward to Road Maintenance
EN000000007536	No Issues Identified	None Required
EN000000007568	No Issues Identified	None Required
EN000000007579	No Issues Identified	None Required
EN000000007601	No Issues Identified	None Required
EN000000007670	No Issues Identified	None Required
EN000000007688	No Issues Identified	None Required
EN000000008322	No Issues Identified	None Required
EN000000008323	No Issues Identified	None Required
EN000000008324	No Issues Identified	None Required
EN000000008336	No Issues Identified	None Required
EN000000008365	No Issues Identified	None Required
EN000000008366	No Issues Identified	None Required
EN000000008447	No Issues Identified	None Required
EN000000008525	No Issues Identified	None Required

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.I

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

EN000000008576	No Issues Identified	None Required
EN000000008590	No Issues Identified	None Required
EN000000008689	No Issues Identified	None Required
EN000000008783	No Issues Identified	None Required
EN000000009857	No Issues Identified	None Required
EN000000010909	No Issues Identified	None Required
EN000000011523	No Issues Identified	None Required
EN000000011588	No Issues Identified	None Required
EN000000012026	No Issues Identified	None Required
EN000000012167	No Issues Identified	None Required
EN000000013146	No Issues Identified	None Required
EN000000013234	No Issues Identified	None Required
EN000000013268	No Issues Identified	None Required

Follow-Up Actions Performed as a Result of the Dry Weather Screening Conducted between 1/1/2018 and 12/31/2018	
MS4 Structure	Follow-Up Action
EN000000001705	4/11/2018 Road Department said no work needed. Outfall is functioning
EN000000002262	2/8/2018 Road Department said no work needed.
EN000000006829	4/11/2018 Road Department said no work needed.
EN000000007455	4/11/2018 Wash out was repaired with rip rap

HENRICO COUNTY MS4 PROGRAM PLAN

Each annual report shall include a list of locations upon which wet weather screening was conducted, the results, weather conditions at the time sample was collected to include date and approximate time of most recent storm event preceding sample collection, long term trends analyses, and any follow-up actions including maintenance and/or repair of infrastructure or outfalls performed as a result of the wet weather screening.

Wet Weather Screening Conducted between 1/1/2018 and 12/31/2018				
MS4 Structure	Last Significant Rainfall	Findings	Sample Collected	Weather Conditions at the time of Sample
IN000000014640	< 2 days	No Issues	No	N/A
IN000000015539	< 2 days	No Issues	No	N/A
IN000000016465	< 2 days	No Issues	No	N/A
IN000000016873	< 2 days	No Issues	No	N/A
IN000000016875	< 2 days	No Issues	No	N/A
IN000000016891	< 2 days	No Issues	No	N/A
IN000000019109	< 2 days	No Issues	No	N/A
IN000000019110	< 2 days	No Issues	No	N/A
IN000000020626	< 2 days	No issues	No	N/A
IN000000025087	< 2 days	No Issues	No	N/A
IN000000025123	< 2 days	No Issues	No	N/A
IN000000025351	< 2 days	No Issues	No	N/A
IN000000025441	< 2 days	No Issues	No	N/A
IN000000025567	< 2 days	Illicit Discharge	No	N/A
IN000000026556	< 2 days	No Issues	No	N/A
IN000000040144	< 2 days	No issues	No	N/A
IN000000043824	< 2 days	No Issues	No	N/A

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.I

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

IN000000044187	< 2 days	No Issues	No	N/A
IN000000046361	< 2 days	No Issues	No	N/A
IN000000046594	< 2 days	No Issues	No	N/A
IN000000047290	< 2 days	No Issues	No	N/A
IN000000047774	< 2 days	No Issues	No	N/A
IN000000051945	< 2 days	No Issues	No	N/A
MH000000002857	< 2 days	No Issues	No	N/A
MH000000007378	< 2 days	No Issues	No	N/A

The data does not lend itself to an analysis of any long-term trends at this time.

Follow-Up Actions Performed as a Result of the Wet Weather Screening Conducted between 1/1/2018 and 12/31/2018	
MS4 Structure	Follow-Up Action
IN000000025567 (IDDE00415)	<p>5/21/2018 During a wet weather screening inspection, the MS4 Inspector discovered beer flowing into an inlet. Upon further investigation, the Inspector observed employees at the adjacent National Distributing Co. dumping beer into the private parking lot inlet. The Inspector spoke with the employees and educated them that dumping extra beer into the storm sewer system is a code violation and they agreed to find an alternative disposal method. Sampling was not necessary because the beer discharge was easily identified.</p> <p>5/30/2018 DPW conducted a follow up site visit. No free product was observed in the inlet. Spoke by phone with the Operations Manager about proper rinsing of coolers and ensuring that free product is not being dumped or rinsed into their parking lot inlet.</p>

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.B.2.m

MS4 PROGRAM IMPLEMENTATION INFRASTRUCTURE COORDINATION

Annual Coordination Meeting – The permittee shall meet annually with VDOT for purposes of overall coordination on priority issues for the permittee’s MS4 program plan (including operations and maintenance elements) and TMDL action planning relevant to the interconnectivity of the MS4s.

The Annual Coordination Meeting was held on November 20, 2018 at the Virginia Department of Transportation’s central office. In addition to representatives from VDOT and Henrico County, Chesterfield County staff were also present. The following were in attendance:

Chris Swanson	VDOT
Jacob Bauchman	VDOT
Jennifer Lightfoot	VDOT
Scott Crafton	VDOT
Alex Foraste	VDOT
Tracey Harmon	VDOT
Keith White	Henrico County
Lane Carr	Henrico County
David Taylor	Chesterfield County
Scott Flanigan	Chesterfield County

Mapping – The permittee shall inform VDOT of the status of its mapping program, identifying any uncertainty regarding ownership or actual location of MS4 components associated with the physically-interconnected MS4s, and working to resolve such uncertainty. The permittee shall coordinate with VDOT to identify any areas within the permittee’s municipal boundaries that drain to the VDOT MS4.

VDOT, Chesterfield, and Henrico discussed their mapping efforts. All agreed to make their mapping available as requested by the other attendees.

Chesapeake Bay TMDL Action Plans – The permittee shall inform VDOT of the

HENRICO COUNTY MS4 PROGRAM PLAN

means, methods, and schedule by which the permittee will implement the reductions required by the Chesapeake Bay TMDL Special Condition (Part I.D.1) when those means and methods may impact the physically-interconnected MS4s. The parties are encouraged to cooperate with one another where the siting or design of best management practices (BMPs) may be accelerated or otherwise improved by mutual cooperation.

The permittee's Chesapeake Bay TMDL Action Plans were discussed and are available for review upon request.

The permittee shall coordinate with VDOT to identify any areas within the permittee's municipal boundaries that drain to the VDOT MS4 and are unaccounted for in the Chesapeake Bay TMDL Action Plan developed by VDOT or the permittee. The unaccounted areas shall be quantified (acres) in the Chesapeake Bay TMDL Action Plan submitted by the permittee.

Henrico's action plan quantifies the areas accounted for (and unaccounted for) in the load reduction calculations in accordance with its permit.

Other TMDL Action Plans – The permittee shall inform VDOT of TMDL Action Plans and major milestones implemented for other (i.e., non-Chesapeake Bay) TMDLs when those plans may impact the physically-interconnected MS4s. The parties are encouraged to cooperate with one another where the siting or design of BMPs may be accelerated or improved by mutual cooperation.

Henrico's other TMDL Action Plans are available on its website.

Credit for TMDL Implementation – Permit specific BMP retrofit requirements shall not be double-counted in the calculation of load reductions. If the permittee undertakes the project, the permittee shall be entitled to full credit for the project, but may share credit with VDOT on mutually agreeable terms, which shall be in writing.

During the development of the TMDL Action Plans, Henrico did not include any projects that could potentially result in "double-counting" of pollutant reductions achieved in the physically-interconnected MS4.

HENRICO COUNTY MS4 PROGRAM PLAN

Illicit Discharge Detection & Elimination – The permittee shall continue to be responsible for implementing a program for illicit discharge detection and elimination, including dry weather field screening, for the permittee’s portion of the physically-interconnected MS4. As part of the annual coordination meeting, described in item (1) above, the permittee shall coordinate with VDOT on the identification of high risk industrial facilities. The permittee shall establish procedures for notifying VDOT when an illicit discharge is identified in the VDOT MS4.

Henrico discussed its continued implementation of an illicit detection and elimination (IDDE) program. When an illicit discharge that drains to the physically-interconnected MS4 is found, Henrico will notify VDOT and DEQ via email.

Water Quality Monitoring – The permittee shall conduct water quality monitoring as required by Part I.B.2.I) and Part I.C of this state permit. The permittee shall make available to VDOT all monitoring data collected from areas where the physically-interconnected MS4 discharges to the VDOT MS4 or received flow from the VDOT MS4. The permittee and VDOT are encouraged to cooperate with one another to establish a joint monitoring network.

The water quality monitoring data collected from areas that drain into or from the physically-interconnected MS4 will be made available to VDOT.

PART I.C.1
MONITORING REQUIREMENTS
BIOLOGICAL STREAM MONITORING

Each annual report shall include a summary of the monitoring results, analyses, and an interpretation of that data with respect to long-term patterns/trends.

Taxa Richness

Taxa Richness is the number of different taxa represented in an ecological community. Taxa Richness is simply a count of the taxa, and it does not take into account the relative abundances of the taxa. Taxa Richness for the 2017 Sampling Year was similar to previous years' data. At most of the stream sampling sites during 2018, there was no appreciable change in Taxa Richness between the spring sampling event and the fall sampling event. Taxa Richness is expected to decrease with increasing perturbation.

EPT Index

The EPT Index is a subset of the above Richness measure. It is the number of species/taxa in the sample in the generally more environmentally sensitive orders Ephemeroptera, Plecoptera, and Trichoptera. The EPT Index for the 2018 Sampling Year was similar to previous years' data. There was also similarity between the spring sampling event and the fall sampling event. The EPT Index is expected to decrease with increasing perturbation.

Dominant Taxon

The Dominant Taxon is a percentage measurement. It measures the percent abundance of individuals in the single most abundant taxon. In most cases there was no appreciable change in this measurement between the spring sampling event and the fall sampling event. This measurement is expected to increase with increasing perturbation.

Hilsenhoff Biotic Index

The Hilsenhoff Biotic Index (HBI) estimates the overall tolerance of the community in a sampling area, weighted by the relative abundance of each taxonomic group (family, genus, etc.). Organisms are assigned a tolerance number from 0 to 10 pertaining to the group's known sensitivity to organic pollutants; 0 being most sensitive, 10 being most tolerant. HBI values range from 0 to 10. Low HBI values reflect a higher

HENRICO COUNTY MS4 PROGRAM PLAN

abundance of sensitive groups, thus a lower level of pollution. While there is much similarity with previous years' data, overall HBI scores decreased between the spring sampling event and the fall sampling event.

% Gatherers

This measures the percent abundance of individuals in the sample whose primary functional mechanism for obtaining food (functional feeding group (FFG)) is to collect/gather depositional organic matter. This percentage is expected to decrease with increasing perturbation for the stream. These measurements increased when compared to data collected in prior years and decreased from the spring sampling event to the fall sampling event.

% Predators

This measures the percent abundance of individuals in the sample whose primary functional mechanism for obtaining food (FFG) is to attack prey and ingest whole organisms or their parts. This measurement is variable and difficult to determine if it should increase or decrease with increasing perturbation. This measurement increased for the spring sampling event to the fall sampling event at 3 out of the 5 monitoring sites.

% Scrapers

This measures the percent abundance of individuals in the sample whose primary functional mechanism for obtaining food (FFG) is to graze on substrate or periphyton-attached algae and associated material. This metric is expected to decrease with increasing perturbation. The majority of the monitoring stations showed an increase in this measurement from the spring sampling event to the fall sampling event.

Summary/Conclusions

Habitat Suitability Data for the 2018 sampling year showed only minor differences between the spring sampling event and the fall sampling event. The Biological Condition Index for the 2018 sampling year showed minor decreases between the spring sampling event and the fall sampling event at three of the five monitoring sites.

The integrity of the Access Database used to calculate prior year's metric scores has become compromised. Therefore, it is difficult to compare this year's Biological Condition Index data with prior years' data. Because of this issue, long term trends cannot be easily determined. Habitat data is readily available within the Access Database, and no significant differences are noted when comparing 2018 habitat data with prior years' habitat data. The following graphs depict the Biological Condition Indices and the Habitat Suitability Indices for the 2015, 2016, 2017, and 2018

HENRICO COUNTY MS4 PROGRAM PLAN

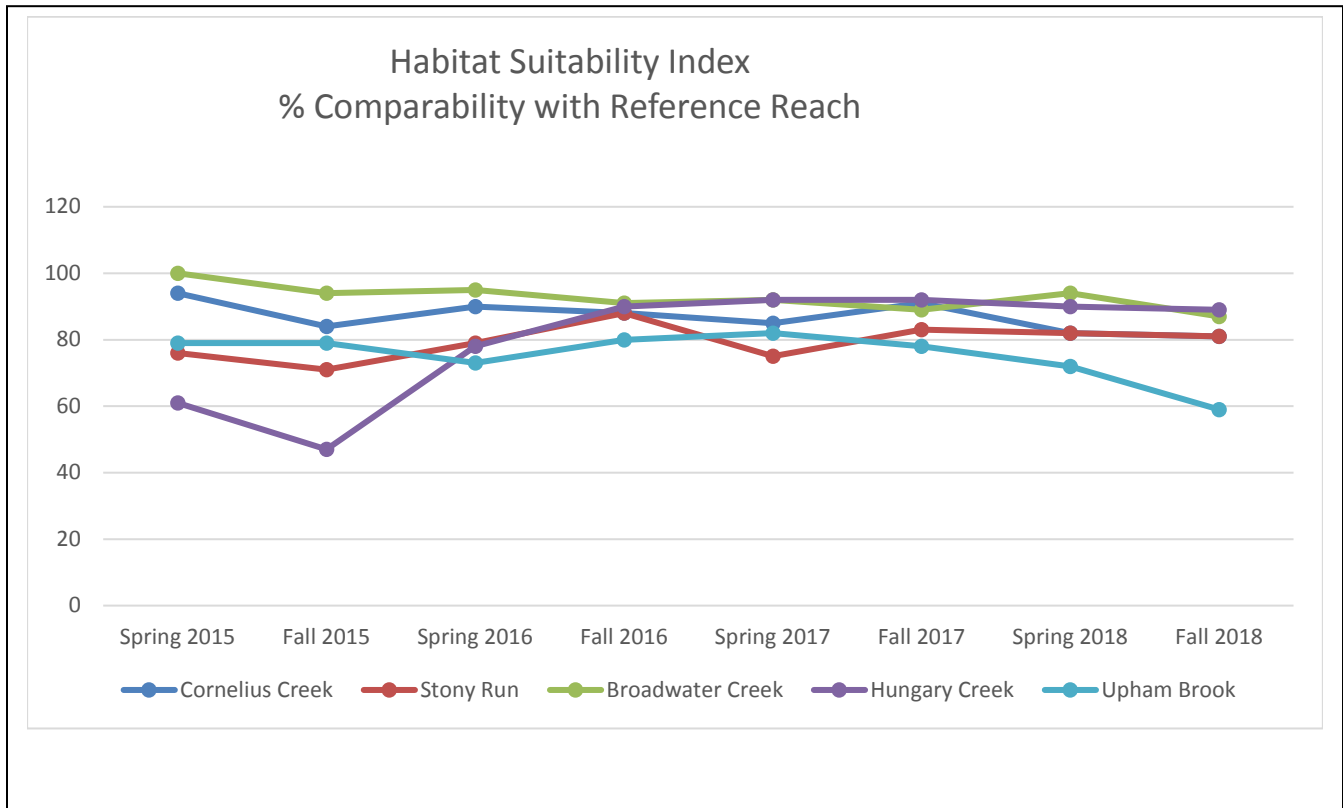
PART I.C.1

ANNUAL REPORT SUPPLEMENT

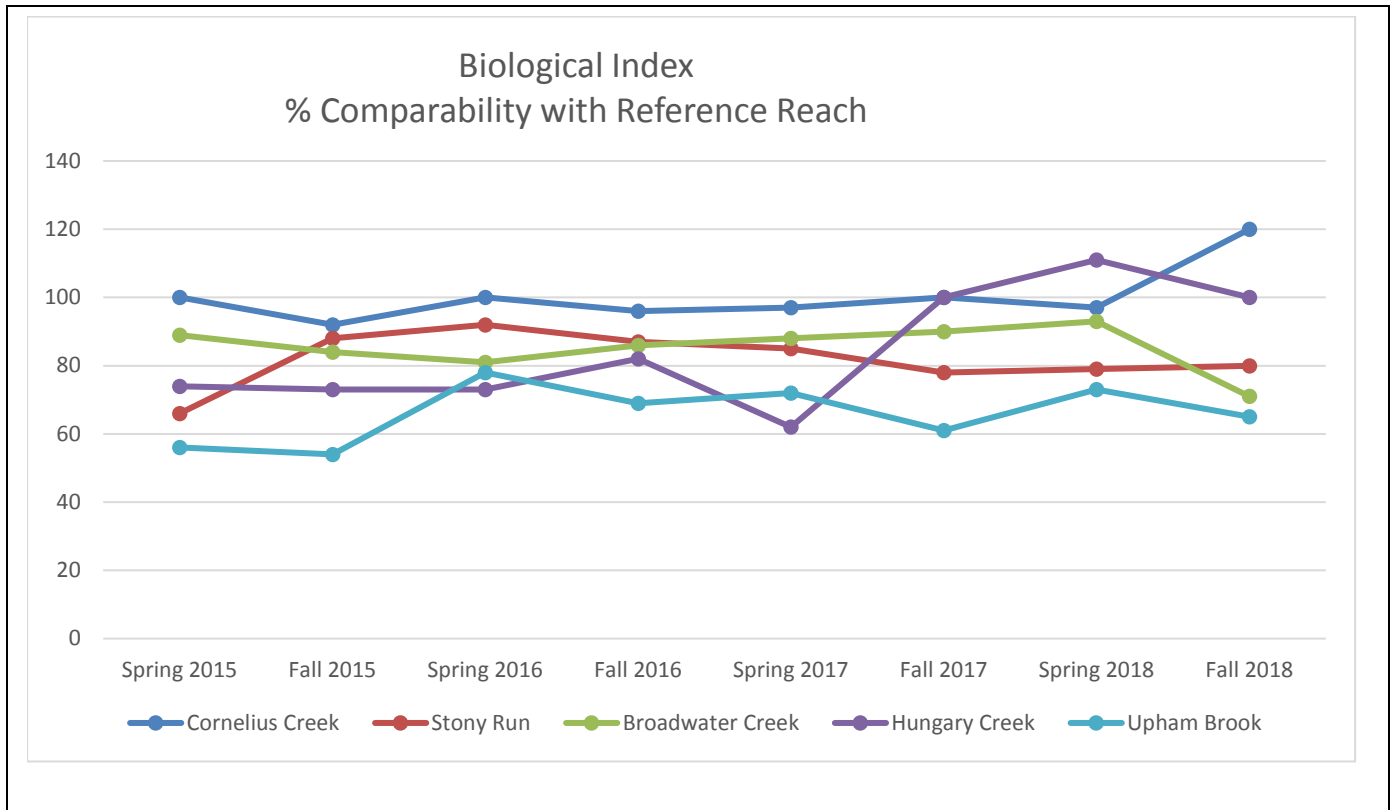
JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

sampling years.



HENRICO COUNTY MS4 PROGRAM PLAN



HENRICO COUNTY MS4 PROGRAM PLAN

Summary of Stream Habitat Assessment Results Henrico County Stream Bioassessment Program 7/1/2018 through 12/31/2018

	Scoring Range		Reference									
	Poor to Optimal		Hnr2001Lo	CRC07.S01	DSR04.S01	HLS17.S02	NHC13.S01	UPB17.S02				
<u>Substrate and Instream Cover</u>												
Epifaunal substrate/available cover	0-20		17	17	12	18	18	5				
Pool substrate characterization	0-20		16	7	12	18	15	7				
Pool variability	0-20		17	12	8	7	8	7				
<u>Channel Morphology</u>												
Sediment deposition	0-20		14	15	15	10	10	7				
Channel flow status	0-20		16	13	14	11	16	11				
Channel alteration	0-20		18	18	14	18	18	16				
Channel sinuosity	0-20		15.5	15	18	18	16	13				
<u>Riparian and Bank Structure</u>												
Bank stability	0-10		8	3	7	6	9	4				
Right Bank	0-10		8.5	4	8	6	9	5				
Left Bank	0-10		7	7	6	6	9	5				
Bank vegetation protection	0-10		8	7	7	6	9	5				
Right Bank	0-10		10	10	3	10	5	2				
Left Bank	0-10		10	5	9	9	5	10				
Riparian vegetative zone width	0-10		10	5	9	9	5	10				
Riparian vegetative zone width	0-10		10	5	9	9	5	10				
Total Score			165	133	133	143	147	97				
Percent of Reference Site			81	81	81	87	89	59				
Resulting Habitat Suitability			Supporting	Supporting	Supporting	Supporting	Supporting	Non-supporting				

Habitat Criteria
 >90% = Comparable to reference
 75-89 = Supporting
 60 - 74 = Partially supporting
 <59 = non-supporting

HENRICO COUNTY MS4 PROGRAM PLAN

Henrico County 2018 Bioassessment Metrics

Spring Bioassessments	Cornelius Creek	Stony Run	Broadwater Creek	Hungary Creek	Upham Brook	Reference Reach
Taxa Richness	28	22	32	20	15	49
EPT Index	10	3	6	5	2	8
% Dominant Taxon	38.7	34.07	32.84	34.66	29.08	14.47
HBI	5.2	5.9	5.83	6.19	5.52	5.52
% Gatherers	49.43	62.59	12.99	62.55	61.22	37.82
% Predators	10.73	4.07	9.65	28.29	2.55	10.77
% Scrapers	17.62	19.26	71.43	4.78	15.82	14.38

Fall Bioassessments	Cornelius Creek	Stony Run	Broadwater Creek	Hungary Creek	Upham Brook	Reference Reach
Taxa Richness	27	13	22	28	13	49
EPT Index	7	4	5	4	2	8
% Dominant Taxon	20.2	50.72	37.06	22.62	29.68	14.47
HBI	5.82	4.86	5.39	6.7	5.59	5.52
% Gatherers	13.13	61.59	16.43	45.23	45.66	37.82
% Predators	40.4	7.61	6.64	34.15	1.37	10.77
% Scrapers	16.16	16.3	33.22	7.1	21.46	14.38

HENRICO COUNTY MS4 PROGRAM PLAN

Henrico County 2018 Bioassessment Metric Scores

Spring Bioassessments	Cornelius Creek	Stony Run	Broadwater Creek	Hungary Creek	Upham Brook	Reference Reach
Taxa Richness	65	51	74	47	35	114
EPT Index	91	27	55	45	18	73
% Dominant Taxon	72	78	79	77	83	101
HBI	71	60	61	56	66	66
% Gatherers	130	165	34	165	161	100
% Predators	89	34	80	236	21	90
% Scrapers	36	39	145	10	32	29
Total:	79	65	76	91	60	82
% Comparability w/ Reference Reach:	97	79	93	111	73	
Biological Condition:	Non-impaired	Non-impaired	Non-impaired	Non-impaired	Slightly Impaired	

Fall Bioassessments	Cornelius Creek	Stony Run	Broadwater Creek	Hungary Creek	Upham Brook	Reference Reach
Taxa Richness	63	30	51	65	30	114
EPT Index	64	36	45	36	18	73
% Dominant Taxon	94	58	74	91	83	101
HBI	61	76	68	49	65	66
% Gatherers	35	162	43	119	120	100
% Predators	337	63	55	285	11	90
% Scrapers	33	33	68	14	44	29
Total	98	66	58	94	53	82
% Comparability w/ Reference Reach:	120	80	71	100	65	
Biological Condition:	Non-impaired	Non-impaired	Slightly impaired	Non-impaired	Slightly Impaired	

Biological Condition Criteria

0-22% - Severely Impaired

23-50% - Moderately Impaired

51-78% - Slightly Impaired

79-100% - Non-impaired

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.C.2 MONITORING REQUIREMENTS IN-STREAM MONITORING

Beginning with the annual report due March 31, 2017, each annual report shall include a summary of the monitoring results and analyses and an interpretation of that data with respect to long-term patterns/trends.

The tables below include the data collected during the 2018 reporting year. BQL means Below Quantification Level.

Cornelius Creek	1/18/2018	3/15/2018	5/16/2018	7/18/2018	9/20/2018	11/14/2018
pH	6.57	6.73	6.74	6.39	6.76	6.87
Dissolved Oxygen (mg/l)	14.13	13.22	7.52	7.91	8.32	11.04
Temperature (°C)	1	4.1	21.9	23	22.2	10.5
Total Suspended Solids (mg/l)	2.3	2.1	5.2	5.4	3.6	7
Ammonia as Nitrogen (mg/l)	BQL	BQL	BQL	0.13	BQL	BQL
Nitrate plus Nitrite Nitrogen (mg/l)	1.81	1.34	0.74	1	0.82	0.81
Total Kjeldahl Nitrogen (mg/l)	0.35	0.12	0.93	0.66	0.56	0.79
Total Nitrogen (calculated) (mg/l)	2.16	1.46	1.67	1.66	1.38	1.6
Dissolved Phosphorus (mg/l)	BQL	BQL	0.01	0.01	0.02	0.02
Total Phosphorus (mg/l)	0.02	0.02	0.05	0.05	0.07	0.1
Escherichia coli (CFU/100ml)	11	10	120	170	2000	270
Air Temperature (°F)	33	38	72	77	78	46

HENRICO COUNTY MS4 PROGRAM PLAN

Broadwater Creek	1/18/2018	3/15/2018	5/16/2018	7/18/2018	9/20/2018	11/14/2018
pH	5.92	6.02	5.78	5.81	6.07	6.07
Dissolved Oxygen (mg/l)	11.84	11.91	7.01	6.87	6.85	9.6
Temperature (°C)	4.4	6.3	18.1	21	20.8	10.6
Total Suspended Solids (mg/l)	1.4	2.7	5.5	4.4	3	7
Ammonia as Nitrogen (mg/l)	BQL	BQL	BQL	BQL	BQL	BQL
Nitrate plus Nitrite Nitrogen (mg/l)	0.9	0.68	0.73	0.76	0.7	0.45
Total Kjeldahl Nitrogen (mg/l)	0.23	0.11	0.78	0.46	1.1	1.05
Total Nitrogen (calculated) (mg/l)	1.13	0.79	1.51	1.22	1.8	1.6
Dissolved Phosphorus (mg/l)	BQL	0.01	0.04	0.03	0.04	0.02
Total Phosphorus (mg/l)	0.03	0.03	0.08	0.07	0.09	0.1
Escherichia coli (CFU/100ml)	20	5	120	150	110	91
Air Temperature (°F)	32	41	72	78	76	46

Upham Brook	1/18/2018	3/15/2018	5/16/2018	7/18/2018	9/20/2018	11/14/2018
pH	6.96	7.13	6.63	6.68	7.09	6.89
Dissolved Oxygen (mg/l)	12.91	13.47	4.19	6.8	7.74	10.53
Temperature (°C)	0.9	5.3	22.9	25	23.1	10.4
Total Suspended Solids (mg/l)	4.4	3.5	5.2	19.2	5.7	15.5
Ammonia as Nitrogen (mg/l)	0.23	BQL	0.29	0.15	0.13	BQL
Nitrate plus Nitrite Nitrogen (mg/l)	0.46	0.47	0.28	0.49	1.29	1.11
Total Kjeldahl Nitrogen (mg/l)	0.62	0.11	1.5	0.49	1.03	0.73
Total Nitrogen (calculated) (mg/l)	1.08	0.58	1.78	0.98	2.32	1.84
Dissolved Phosphorus (mg/l)	0.05	0.03	0.11	0.05	0.06	0.04
Total Phosphorus (mg/l)	0.08	0.05	0.19	0.15	0.12	0.11
Escherichia coli (CFU/100ml)	25	20	170	270	580	1000
Air Temperature (°F)	26	45	74	79	82	40

HENRICO COUNTY MS4 PROGRAM PLAN
PART I.C.2
ANNUAL REPORT SUPPLEMENT
JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

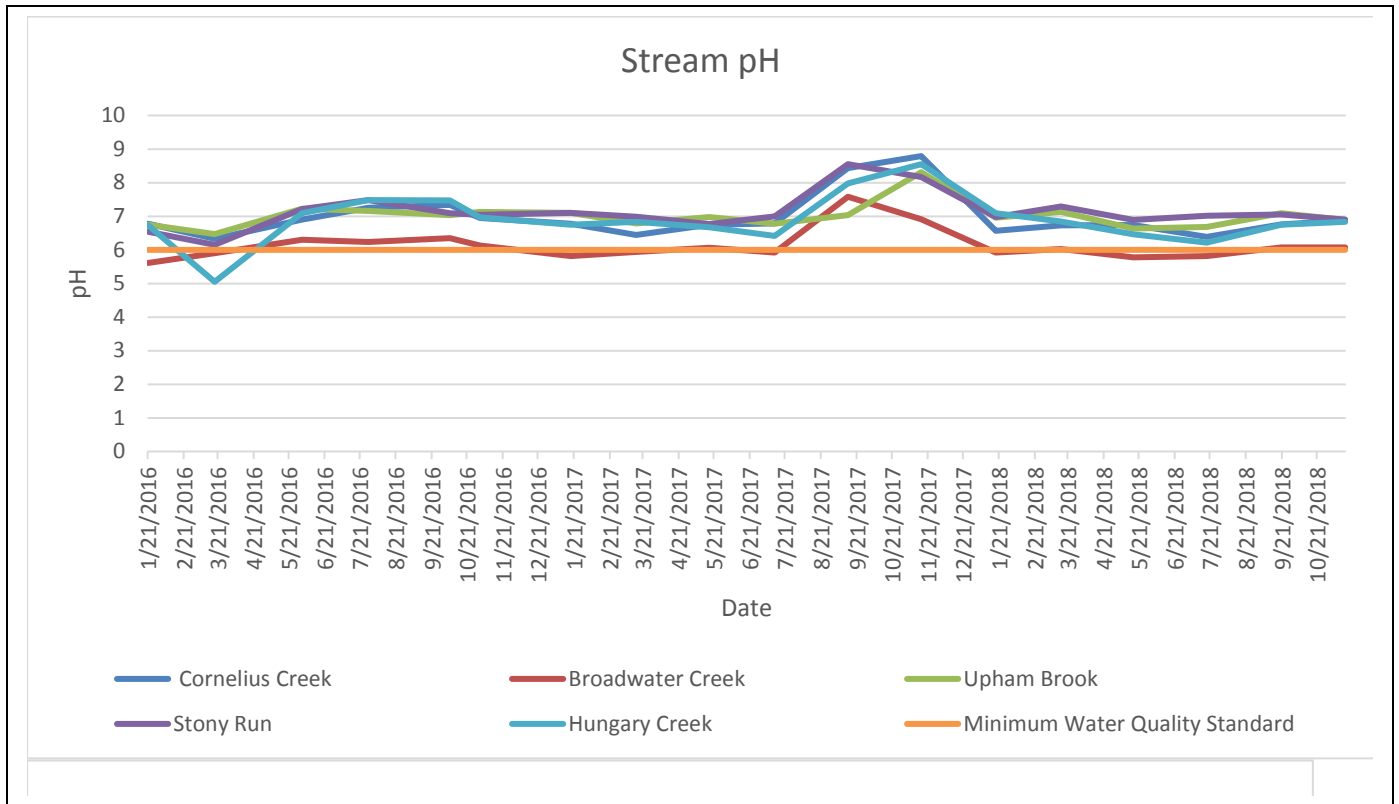
Stony Run	1/18/2018	3/15/2018	5/16/2018	7/18/2018	9/20/2018	11/14/2018
pH	6.98	7.29	6.89	7.01	7.05	6.9
Dissolved Oxygen (mg/l)	13.63	13.48	6.56	6.75	7.49	10.49
Temperature (°C)	0.6	8.6	22.6	26	24.4	10.6
Total Suspended Solids (mg/l)	1.3	1.7	2	2.6	2.6	3
Ammonia as Nitrogen (mg/l)	BQL	BQL	BQL	BQL	BQL	BQL
Nitrate plus Nitrite Nitrogen (mg/l)	0.37	0.37	0.21	0.2	0.69	0.81
Total Kjeldahl Nitrogen (mg/l)	0.31	0.14	0.95	0.47	0.58	0.44
Total Nitrogen (calculated) (mg/l)	0.68	0.51	1.16	0.67	1.27	1.25
Dissolved Phosphorus (mg/l)	BQL	BQL	0.03	0.02	0.05	0.03
Total Phosphorus (mg/l)	0.03	0.02	0.07	0.07	0.08	0.08
Escherichia coli (CFU/100ml)	30	21	230	200	190	280
Air Temperature (°F)	27	53	76	83	83	43

Hungary Creek	1/18/2018	3/15/2018	5/16/2018	7/18/2018	9/20/2018	11/14/2018
pH	7.09	6.84	6.46	6.21	6.75	6.83
Dissolved Oxygen (mg/l)	12.93	12.15	6.18	2.57	6.73	10.13
Temperature (°C)	2.5	12	21.1	25.9	24.5	11.2
Total Suspended Solids (mg/l)	5.5	8.8	9.2	14.3	7.4	9
Ammonia as Nitrogen (mg/l)	BQL	BQL	BQL	BQL	0.11	0.16
Nitrate plus Nitrite Nitrogen (mg/l)	0.3	0.47	0.15	0.26	0.62	1.57
Total Kjeldahl Nitrogen (mg/l)	0.66	0.19	0.45	0.46	0.45	0.95
Total Nitrogen (calculated) (mg/l)	0.96	0.66	0.6	0.72	1.07	2.51
Dissolved Phosphorus (mg/l)	0.01	0.02	0.05	0.05	0.07	0.02
Total Phosphorus (mg/l)	0.08	0.06	0.11	0.1	0.1	0.07
Escherichia coli (CFU/100ml)	71	39	290	180	590	360
Air Temperature (°F)	29	53	75	84	82	40

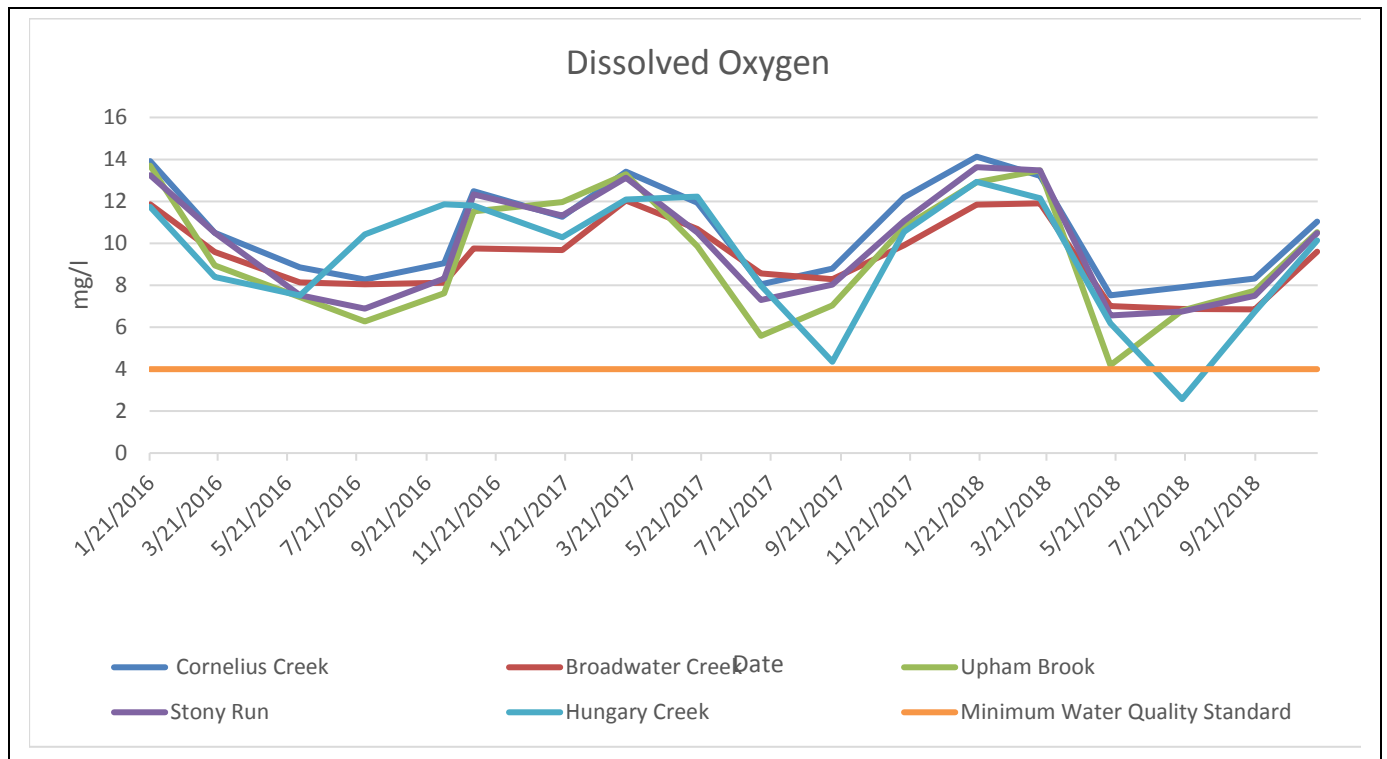
HENRICO COUNTY MS4 PROGRAM PLAN
PART I.C.2
ANNUAL REPORT SUPPLEMENT
JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

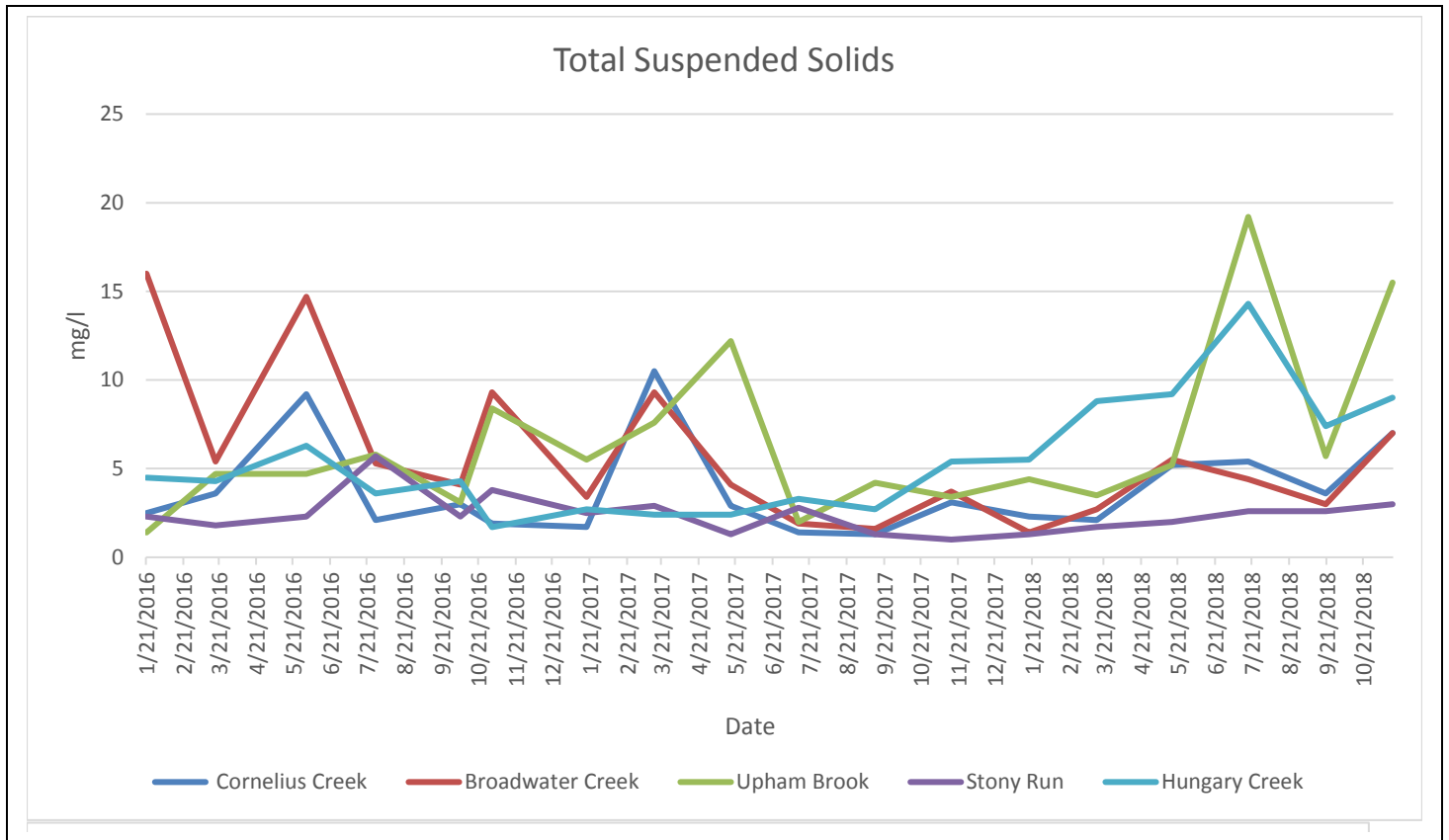
Each data point on the following graphs represents the data collected during this permit's reporting period. Where available, the appropriate Water Quality Standard is also included on the graph. Not enough data have been collected to show statistically significant trends since monitoring began under the NPDES MS4 monitoring plan. Additional monitoring over time will be needed to move toward statistical relevance of the data.



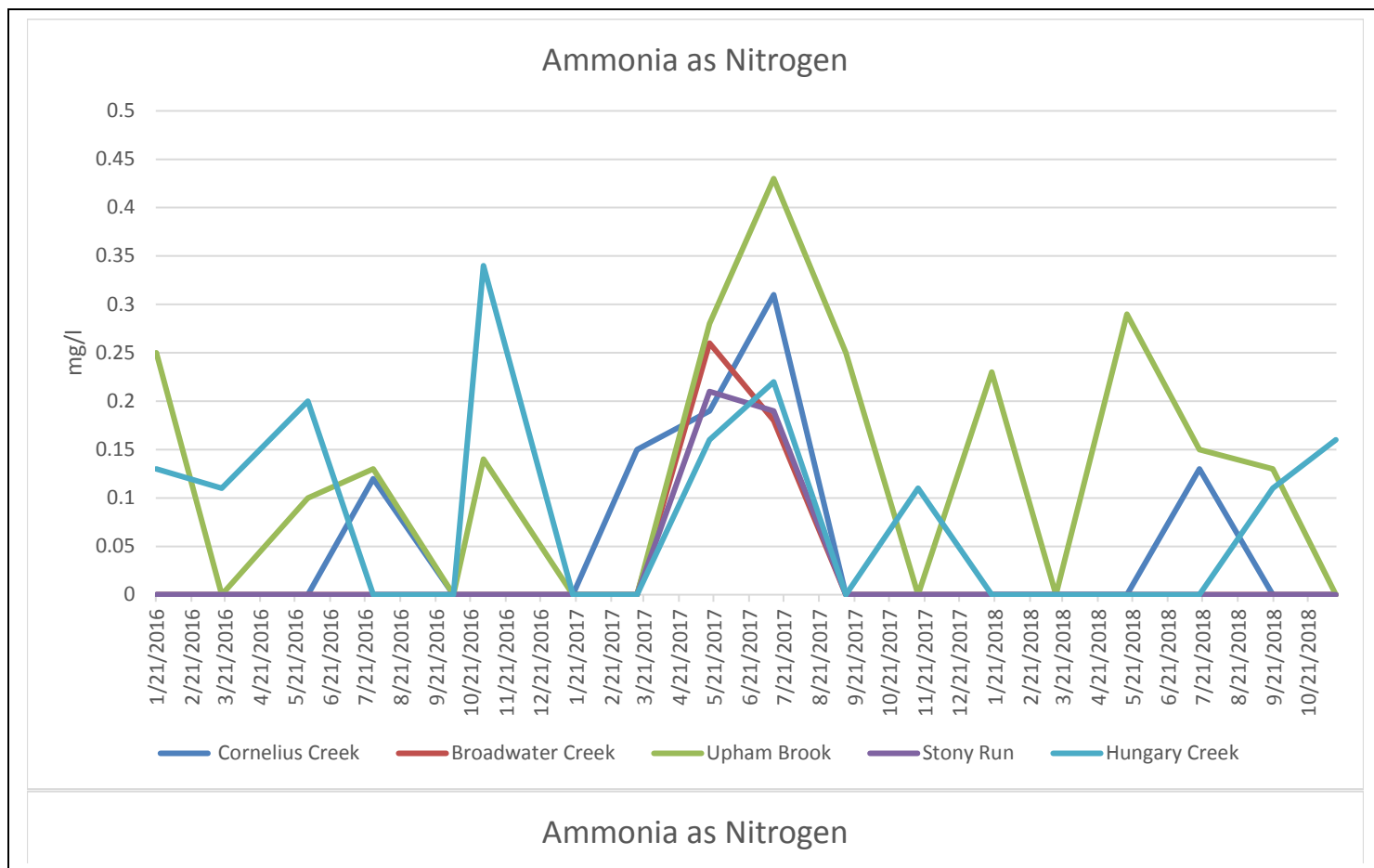
HENRICO COUNTY MS4 PROGRAM PLAN



HENRICO COUNTY MS4 PROGRAM PLAN

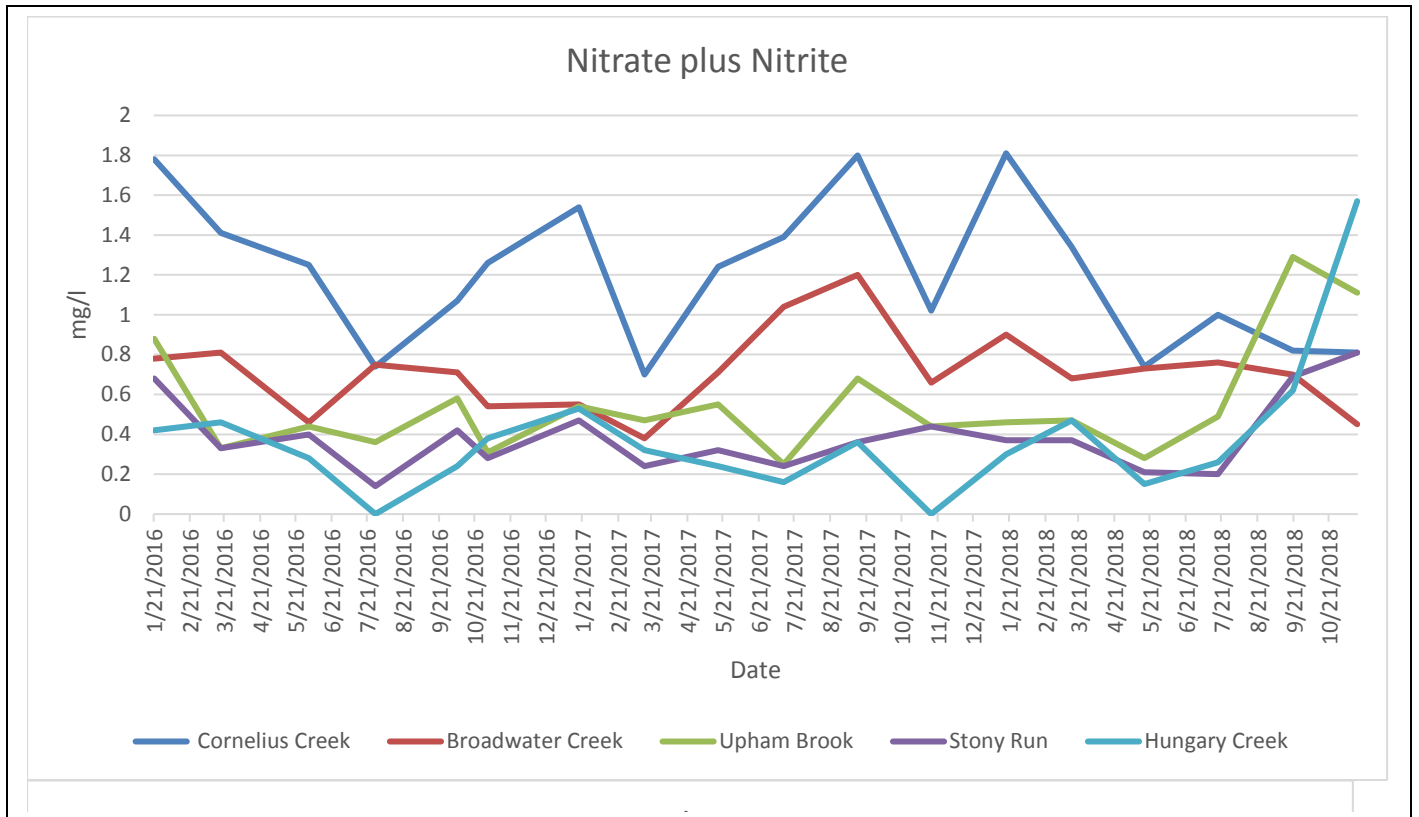


HENRICO COUNTY MS4 PROGRAM PLAN

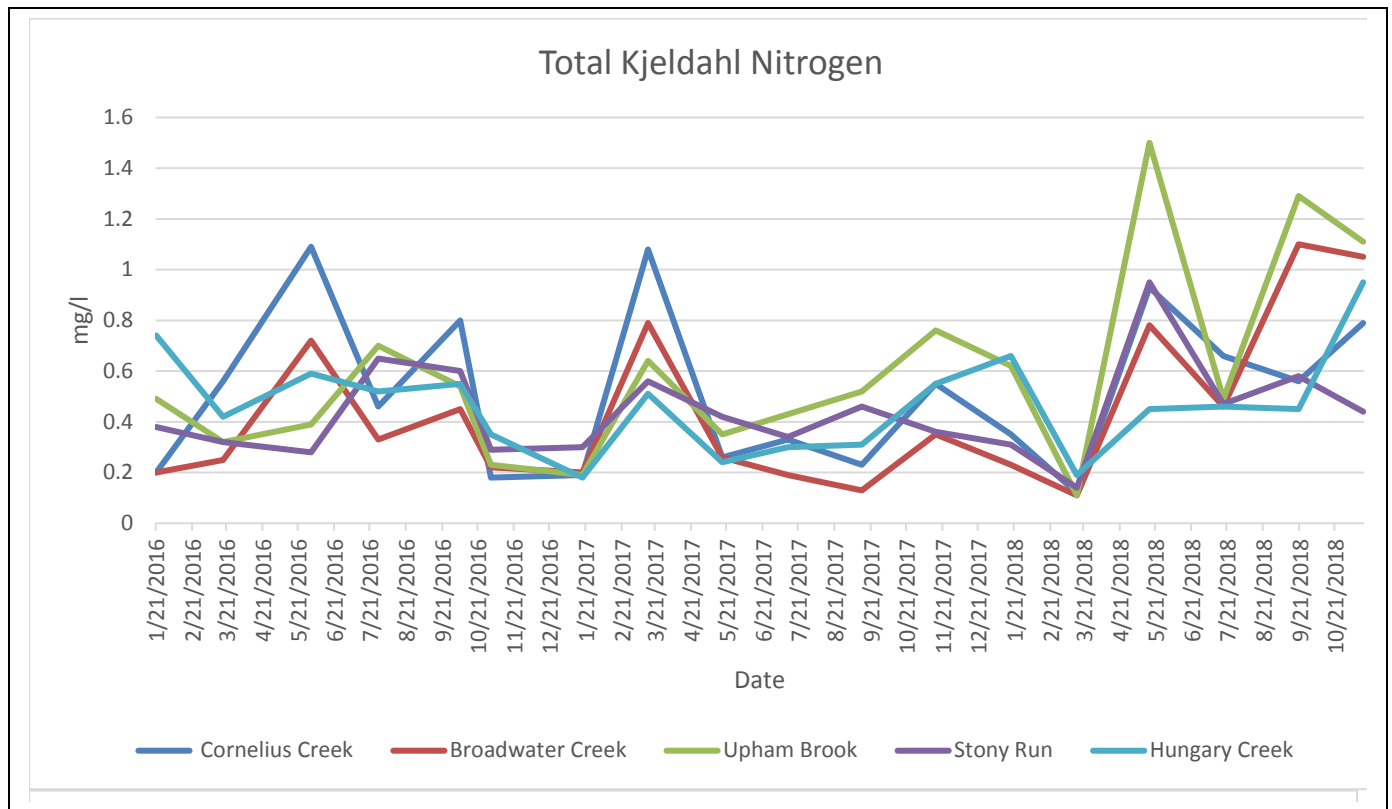


Note: Many Ammonia as Nitrogen measurements were Below Quantitation Limits and have been recorded for this graph as Zero.

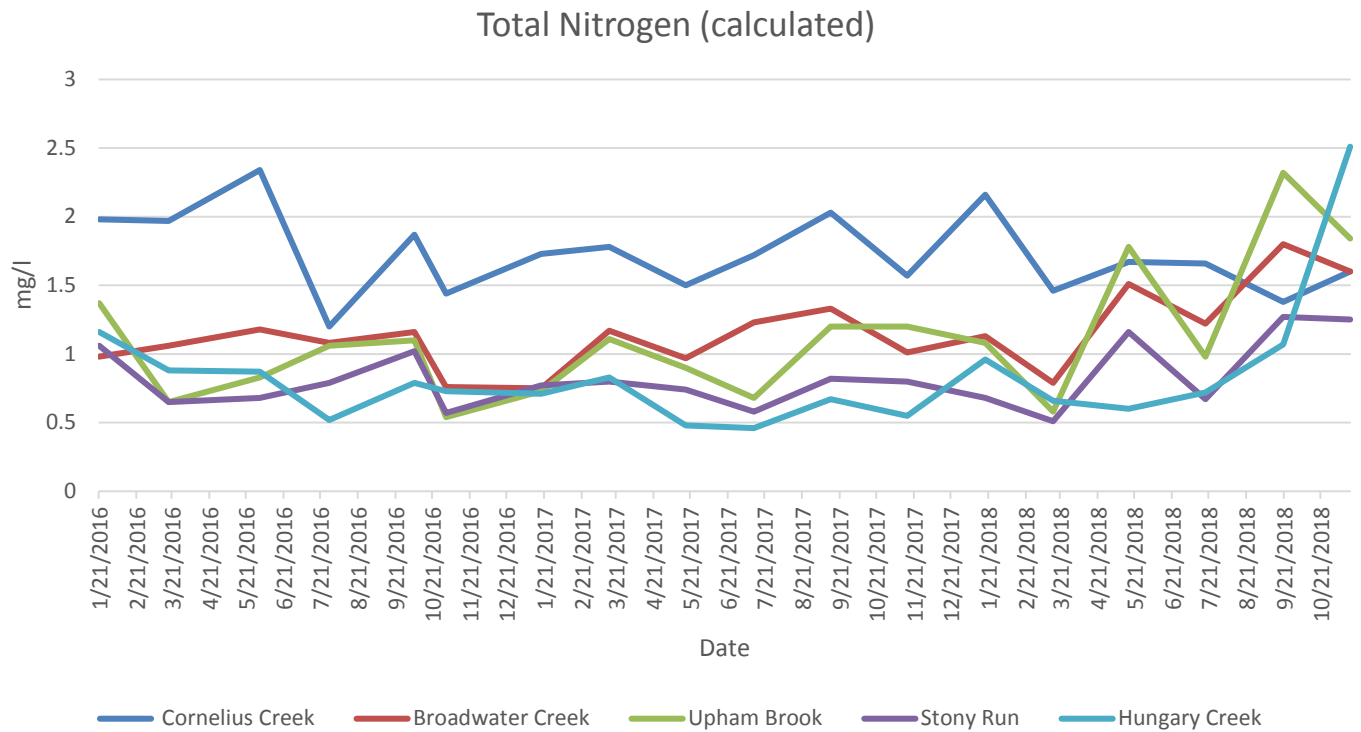
HENRICO COUNTY MS4 PROGRAM PLAN



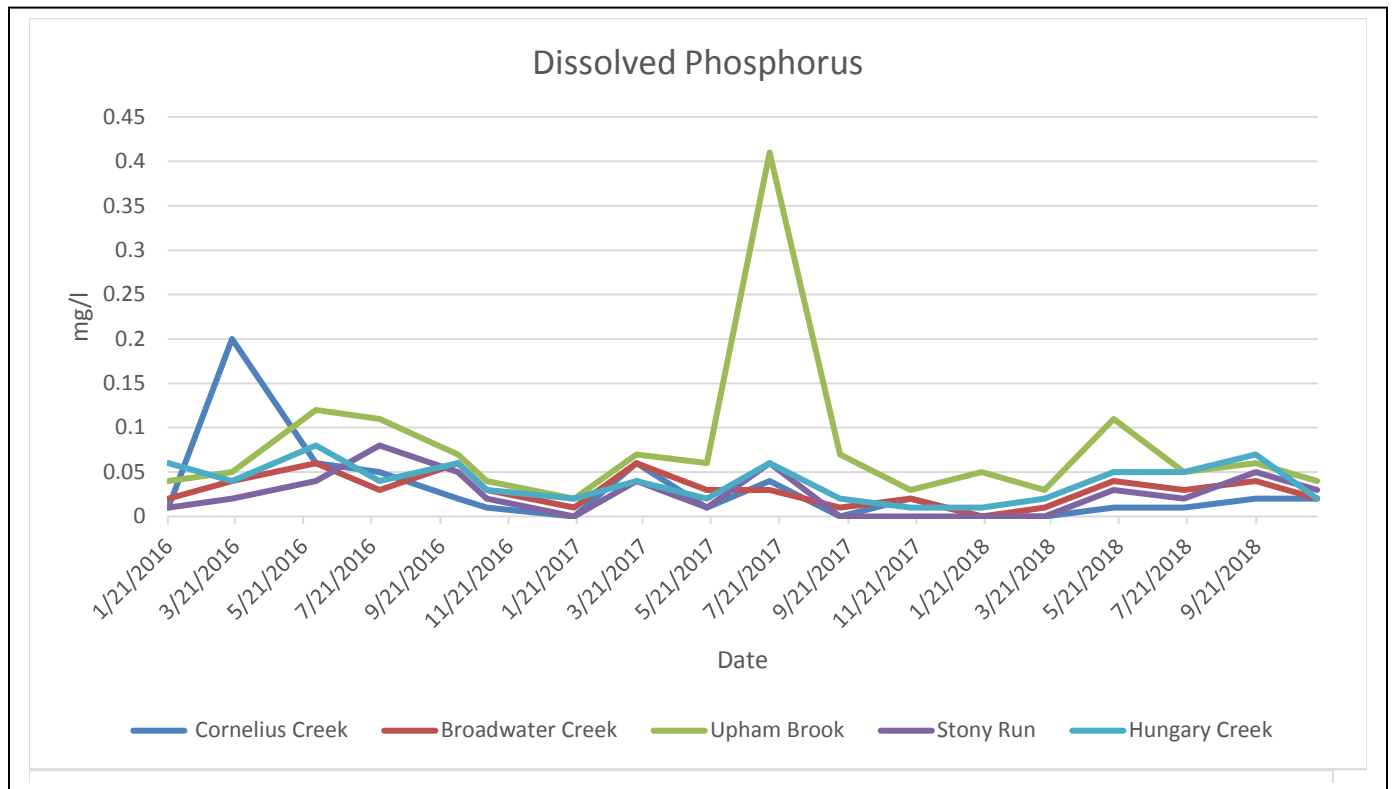
HENRICO COUNTY MS4 PROGRAM PLAN



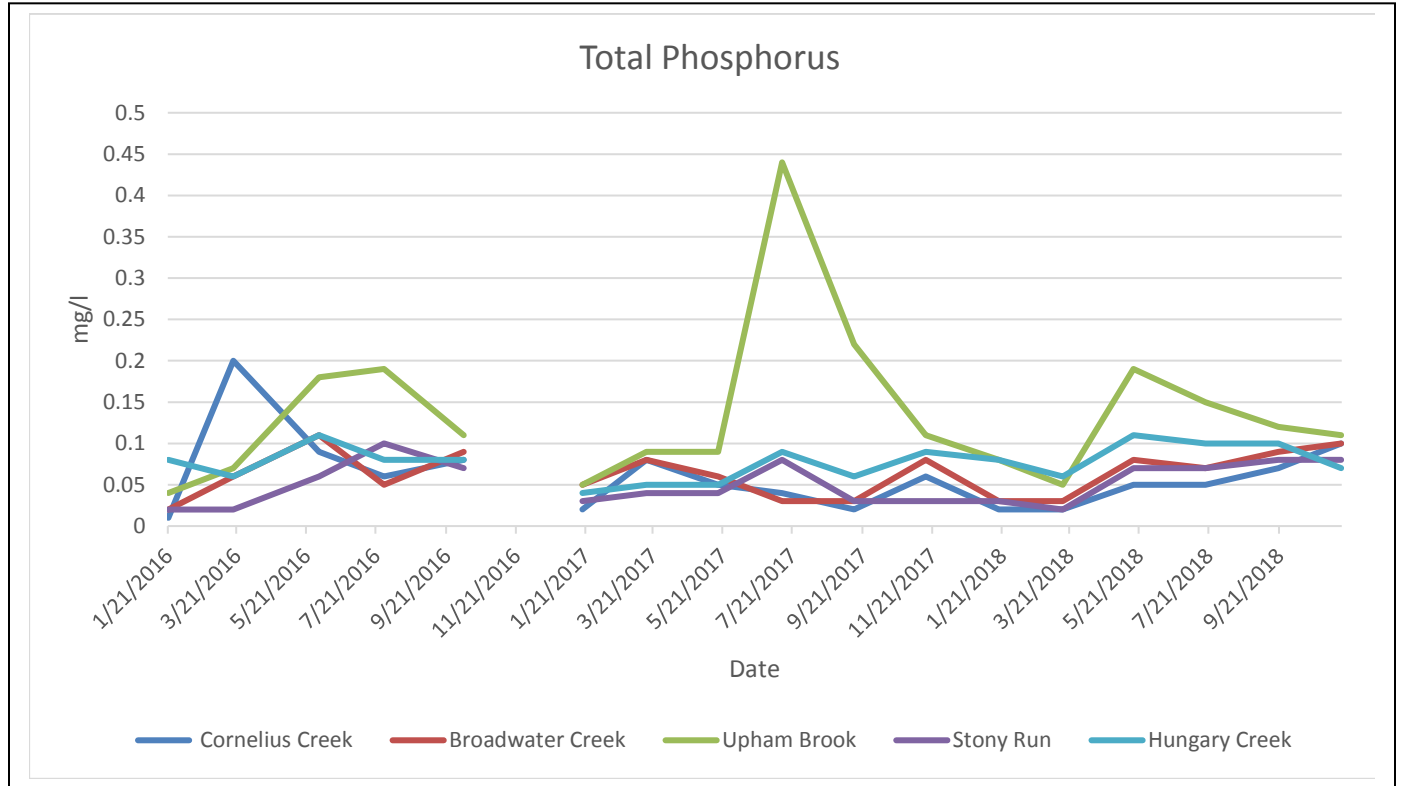
HENRICO COUNTY MS4 PROGRAM PLAN



HENRICO COUNTY MS4 PROGRAM PLAN

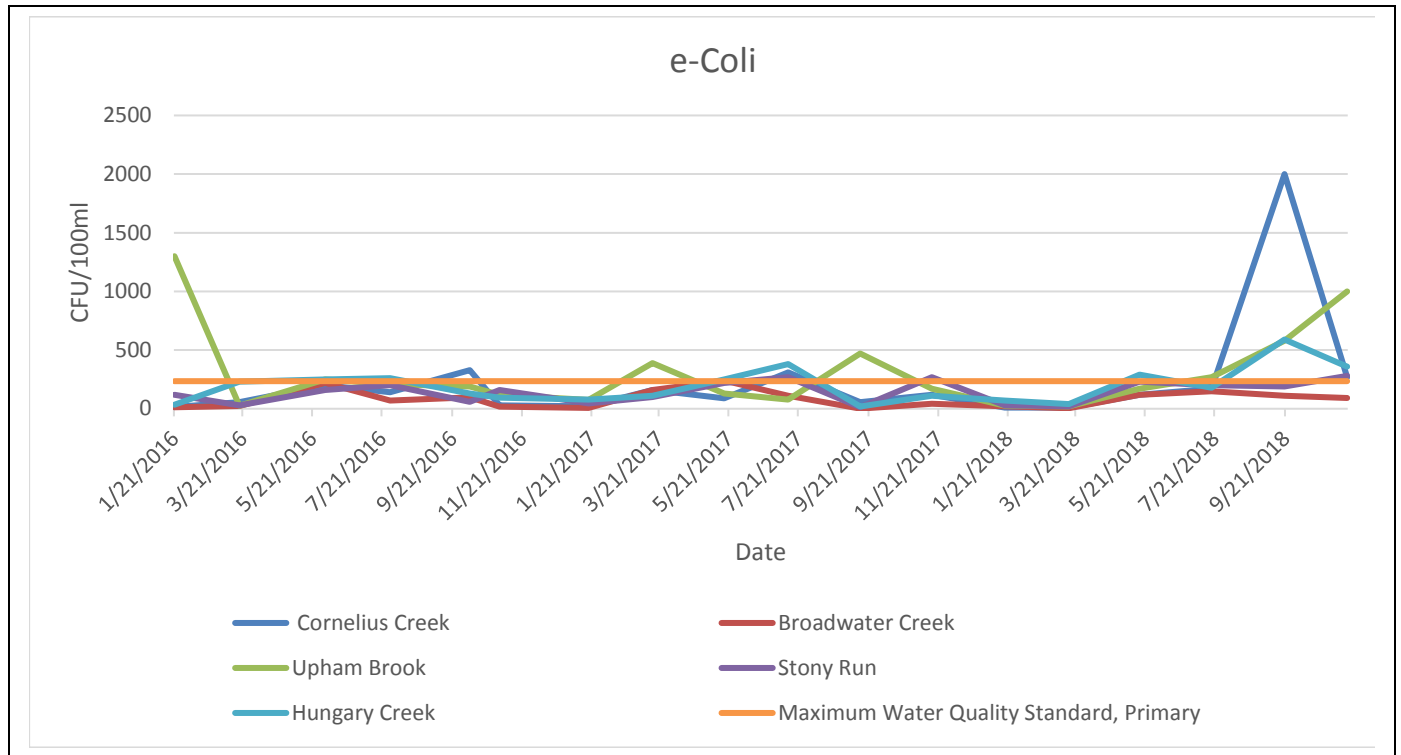


HENRICO COUNTY MS4 PROGRAM PLAN



Note: Data unavailable for November 2016 sampling event.

HENRICO COUNTY MS4 PROGRAM PLAN



PART I.C.3
MONITORING REQUIREMENTS
STRUCTURAL AND SOURCE CONTROLS COMPLIANCE
MONITORING AND TRACKING

Each annual report shall include a copy of the updated database in electronic format.

A spreadsheet (.xls format) of the required data from the County's electronic database of stormwater management facilities has been included in the digital submittal of the MS4 Program Plan and Annual Report Supplements. The spreadsheet includes data for the stormwater management facilities brought online between January 1, 2018 and December 31, 2018.

Each annual report shall include a summary of the program to ensure maintenance of private stormwater management facilities.

The Department of Public Works will inspect all privately owned and operated facilities. All privately owned facilities will be inspected a minimum of once every 5 years. All inspections will be documented in the online database (APEX) and in GIS. Any issues found during an inspection will be documented and a punchlist of repairs will be sent to the owner of the facility through certified mail. Owners will have 10 days from receipt of the letter to contact the County BMP inspector with a plan for repairs and a tentative schedule. The owner will contact the inspector at the start of any maintenance work and at its completion. The facility will be re-inspected after completion of work. All inspections will be completed by the county BMP inspector or other qualified person(s) (individuals holding the SWM inspector certification issued by DEQ or a licensed professional). All owner inspections will be documented in APEX.

Each annual report shall include a summary of the program to ensure maintenance of stormwater management facilities maintained by the permittee.

HENRICO COUNTY MS4 PROGRAM PLAN

On-Line* County-Operated SWM Facilities Inspected and/or Maintained between January 1, 2018 and December 31, 2018			
Type	Total	Inspected	Maintained
50/10 BASIN (5)	10	10	6
50/10 UNDERGROUND (6)	7	7	2
BAYFILTER (200)	1	1	1
BAYSEPARATOR (205)	1	1	1
BIORETENTION 1 (145)	3	3	2
BIORETENTION BASIN/TRENCH (10)	9	9	6
DRY DETENTION - UNDERGROUND (178)	1	1	
DRY SWALE 2 (151)	2	2	
EXTENDED DETENTION BASIN (15)	31	31	31
EXTENDED DETENTION BASIN W/A SHALLOW MARSH (16)	2	2	1
EXTENDED DETENTION POND 1 (175)	1	1	
FILTERRA (215)	27	27	12
GRASSED SWALE (20)	3	3	1
IMBRIUM JELLYFISH (250)	1	1	1
INFILTRATION BASIN/TRENCH (25)	7	7	1
PERMEABLE PAVEMENT 1 (135)	3	3	
RETENTION BASIN (WET POND) (30)	8	8	6
SHEETFLOW TO VEGETATED FILTER OR CONSERVED OPEN SPACE 2 (106)	2	2	
STORMCEPTOR (225)	1	1	1
STORMFILTER (220)	4	4	
STORMTREAT (230)	1	1	1
STORMWATER360 (235)	5	5	1
TOTAL	130	130	72

The annual report due March 31, 2019 under this permit shall include an updated list of stormwater management facilities existing prior to the effective date of this permit.

A spreadsheet of all the stormwater management facilities in the County's database

HENRICO COUNTY MS4 PROGRAM PLAN

is included in the digital submittal of this report. The listing includes the stormwater management facilities that existed prior to the effective date of this permit.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.D.1

TMDL ACTION PLAN AND IMPLEMENTATION CHESAPEAKE BAY SPECIAL CONDITION

The permittee shall submit the Chesapeake Bay TMDL Action Plan to the Department for review and acceptance with the annual report due March 31, 2017.

The Chesapeake Bay TMDL Action Plan was submitted to the Department as part of the annual report submitted in March 2017.

Beginning with the annual report due on March 31, 2018, the permittee shall include a list of control measures implemented during the reporting period and the cumulative progress toward meeting the compliance targets for total nitrogen, phosphorus, and total suspended solids.

An additional 19 septic-to-sewer connections were made during the reporting period for a total of 267 (248 have been reported previously). These additional connections result in a reduction of 170.32 pounds of TN reduction.

$$\text{TN Reduction} = 3.6 \text{ lbs/year/person} \times 2.49 \text{ persons/household} \times 19 \text{ households}$$

$$\text{TN reduction} = 170.32 \text{ lbs/year}$$

Cumulative Progress Toward Meeting Compliance Targets

Pollutant	Total Reduction Required During First Permit Cycle (lbs/yr)	Total Reductions Achieved to Date (lbs/yr)
Nitrogen	918.06	5,047.53
Phosphorus	176.93	558.75
Total Suspended Solids	102,340.90	287,448.21

No other control measures were implemented between January 1, 2018 and December 31, 2018. For purposes of this section of this report, *implemented* means completed.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.D.1

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

Beginning with the annual report due March 31, 2018, each annual report shall include a list of control measures that were implemented during the reporting cycle and the estimated reduction achieved by the control. For stormwater management controls, the report shall include the information required in Part I.C.3.a) and shall include whether an existing stormwater management control was retrofitted, and if so, the existing stormwater management control type retrofit used

An additional 19 septic-to-sewer connections were made during the reporting period for a total of 267 (248 have been reported previously). These additional connections result in a reduction of 170.32 pounds of TN reduction.

$$\text{TN Reduction} = 3.6 \text{ lbs/year/person} \times 2.49 \text{ persons/household} \times 19 \text{ households}$$

$$\text{TN reduction} = 170.32 \text{ lbs/year}$$

Cumulative Progress Toward Meeting Compliance Targets

Pollutant	Total Reduction Required During First Permit Cycle (lbs/yr)	Total Reductions Achieved to Date (lbs/yr)
Nitrogen	918.06	5,047.53
Phosphorus	176.93	558.75
Total Suspended Solids	102,340.90	287,448.21

No other control measures were implemented between January 1, 2018 and December 31, 2018. For purposes of this section of this report, *implemented* means completed.

Beginning with the annual report due March 31, 2018, each annual report shall include a list of control measures that are expected to be implemented during the next reporting period and the expected progress toward meeting the compliance targets for total nitrogen, total phosphorus, and total suspended solids.

The Virginia Home for Boys and Girls Stream Restoration project is expected to be implemented during the reporting period of January 1, 2019 and December 31, 2019. This project will result in reductions of approximately:

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.D.1

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

- 318 pounds of total nitrogen,
- 96 pounds of total phosphorus, and
- 33,000 pounds of total suspended solids.

For purposes of this section of this report, *implemented* means completed.

The permittee shall include the following as part of its reapplication package due no later than September 1, 2020:

- (a) Documentation that sufficient control measures have been implemented (or documentation detailing that implementation will be complete by the expiration date of this state permit) to meet the compliance target identified in this Special Condition. If temporary credits or offsets have been purchased in order to meet the compliance target, the list of temporary reductions utilized to meet the 5% reduction in this state permit and a schedule of implementation to ensure a permanent 5% reduction shall be provided; and**
- (b) A draft second phase Chesapeake Bay TMDL Action Plan designed to reduce the existing POC loads by an additional seven times the required reductions in loading rates using Table 2 of Part I.D.1.b of this state permit unless alternative calculations have been provided by the Commonwealth;**
- (c) An additional 35% reduction in new sources developed between 2009 and 2014 and for which the land use cover condition was greater than 16%; and**
- (d) Accounting for any modification to the applicable loading rate provided to the permittee as a result of TMDL modification.**

Noted.

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.D.2

TMDL ACTION PLAN AND IMPLEMENTATION TMDL ACTION PLANS OTHER THAN THE CHESAPEAKE BAY TMDL

The permittee shall submit the required TMDL Action Plans to the Department for review and acceptance with the annual report due March 31, 2017.

Drafts of the required TMDL Action Plans were part of the annual report submitted in March 2017.

Beginning with the annual report due on March 31, 2018, the permittee shall report on the implementation of the TMDL Action Plans and associated evaluation including the results of any monitoring conducted as part of the evaluation.

Chickahominy River Benthic TMDL Action Plan

BMPs, Programs, and/or Projects Implemented during the MS4 Permit Year	Implementation Details
Erosion and Sediment Control Program	This program continues to be administered and implemented in accordance with the requirements of the state law and regulations. Details can be found in the MS4 Annual Supplement for Part I.B.2.a.
Stormwater Management Program	This program continues to be administered and implemented in accordance with the requirements of the state law and regulations. Details can be found in the MS4 Annual Supplement for Part I.B.2.a.
Illicit Discharge Detection and Elimination Program	This program continues to be administered and implemented in accordance with the requirements of the MS4 Permit. Details can be found in the MS4 Annual Supplement for Part I.B.2.e.
SWM Facility and MS4 Infrastructure	These programs continue to be administered and implemented in accordance with state law, regulations and

HENRICO COUNTY MS4 PROGRAM PLAN

PART I.D.2

ANNUAL REPORT SUPPLEMENT

JANUARY 1, 2018 THROUGH DECEMBER 31, 2018

HENRICO COUNTY MS4 PROGRAM PLAN

Inspection and Maintenance Programs	the MS4 Permit. Details can be found in the MS4 Annual Supplements for Parts I.B.2.h and I.C.3.
Public Education, Public Outreach, and Employee Training	These efforts continue to be implemented in accordance with the MS4 Permit, the MS4 Program Plan, and the Chickahominy River Benthic TMDL Action Plan. Details of these efforts can be found in the MS4 Annual Supplements for Parts I.B.2.j and I.B.2.k.

Escherichia Colli TMDL Action Plan

BMPs and/or Programs Implemented during the MS4 Permit Year	Implementation Details
Illicit Discharge Detection and Elimination Program	This program continues to be administered and implemented in accordance with the requirements of the MS4 Permit. Details can be found in the MS4 Annual Supplement for Part I.B.2.e.
Public Education, Public Outreach, and Employee Training	These efforts continue to be implemented in accordance with the MS4 Permit, the MS4 Program Plan, and the Chickahominy River Benthic TMDL Action Plan. Details of these efforts can be found in the MS4 Annual Supplements for Parts I.B.2.j and I.B.2.k.