

APPENDIX K

Stormwater Pollution Prevention Plans

1. Public Works Department: Solid Waste & Recycling Division Drop Center
2. Public Works Department Facility
3. Salt Storage Facility
4. Electric Department
5. Park Road Incinerator Site
6. Ingle's Mountain Equipment Storage Area

STORMWATER POLLUTION PREVENTION PLAN

**City of Radford
Ingles Mountain Equipment Storage Area**



**West Main Street,
Radford, VA 24141
General Permit No. VAR040135**

Prepared For:

City of Radford
10 Robertson Street
Radford, VA 24141

Prepared By:



September 2018

DAA Project Number: 17010547-020101

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1.0 CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those 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.

Name: _____

Signature: _____

Date: _____

Title: _____

2.0 INTRODUCTION

2.1 Purpose

This Stormwater Pollution Prevention Plan (SWPPP) was prepared for the City of Radford Ingles Mountain Equipment Storage Area located off West Main Street in Radford, VA 24141. This facility falls under the requirements of the City's General Permit for Stormwater Discharge from Small Municipal Separate Storm Sewer Systems (MS4), General Permit No. VAR040135, with an effective date of July 1, 2013 and an expiration date of June 30, 2018. A new permit will be effective November 1, 2018. The permit is designed to reduce the discharge of pollutants from stormwater that leaves the regulated MS4 area within the City and subsequently enters the Commonwealth of Virginia's receiving waters, such as the New River and its tributaries. Specifically, this facility is identified as one of the high priority City of Radford facilities that require preparation and implementation of a SWPPP. A copy of the General Permit for the facility is included in Appendix D.

According to the United States Environmental Protection Agency (U.S. EPA), polluted stormwater runoff is a leading cause of impairment to nearly 40 percent of the surveyed U.S. water bodies that do not meet water quality standards. Whether travelling by overland flow or through stormwater conveyance systems, polluted stormwater runoff is discharged into local receiving waterways. Such untreated water pollution can result in the destruction of fish, wildlife, and aquatic life habitats. It can also cause a loss of aesthetic value and can threaten public health due to its potential to contaminate food, drinking water supplies, and recreational waterways.

The MS4 Permit aims at reducing pollutants in stormwater runoff by focusing on six Minimum Control Measures (MCMs):

1. Public Education and Outreach on Stormwater Impacts,
2. Public Involvement and Participation,
3. Illicit Discharge Detection and Elimination,
4. Construction Site Stormwater Runoff Control,
5. Post-Construction Runoff Control Management in New Development and Development on Prior Developed Lands,
6. Pollution Prevention and Good Housekeeping for Municipal Operations.

Within each MCM, there are numerous Best Management Practices (BMPs) being implemented by the City of Radford.

This SWPPP has been created to satisfy the conditions of BMP 6.3 of the City's MS4 Program Plan and MCM 6 of the MS4 permit, which requires the City of Radford to identify all the high-priority facilities that have a high potential to discharge pollutants into stormwater and develop, implement, and maintain a SWPPP for each location.

2.2 Implementation

The practices and procedures outlined in the SWPPP are designed to be implemented on a continuous basis to minimize potential impacts to the stormwater runoff at the facility. The plan is designed to be dynamic and should be reviewed and updated in response to changes in operations or stormwater management at the facility.

2.3 Regulatory Requirements

In 1972 the Federal Water Pollution Control Act (known as the Clean Water Act) was amended to effectively prohibit discharge of pollutants to "Waters of the United States" from any point source unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) Permit. The U.S. EPA delegated administration of the NPDES Program within Virginia to the Department of Environmental Quality (DEQ): DEQ administers it as the Virginia Pollutant Discharge Elimination System (VPDES) Permit Program. The 1987 amendments of the Clean Water Act added Section 402(p) to the federal regulations, which established the framework for regulating discharges of pollutants via stormwater from industrial activities and MS4s. Section 402(p) requires the U.S. EPA to develop permitting regulation for stormwater discharges from MS4s and from industrial facilities, including construction sites.

In Virginia, discharges from MS4s are regulated under several programs: the Virginia Stormwater Management Act, the Virginia Stormwater Program (VSMP) Permit regulation, and the Clean Water Act (through the VPDES Permit Program) as point source discharges. MS4 regulations were developed and implemented in two phases. Implementation of the first phase began in the early 1990s and required that operators of MS4s serving populations of greater than 100,000 people (per the 1990 decennial census) apply for and obtain an individual permit to discharge stormwater from their outfalls. The second phase of MS4 regulations became effective March 23, 2003, and required that operators of small MS4s in "urbanized areas" (as defined by the latest decennial census) obtain coverage under a general permit to discharge stormwater from their outfalls. As of 2013, the City of Radford is classified as a small MS4, and thus operates under the General MS4 Permit.

According to the City's MS4 Permit, the following types of high-priority facilities require SWPPPs:

- Public Works Department: Solid Waste & Recycling Division Drop Center
- Public Works Department Facility

- Salt Storage Facility
- Parks & Recreation Department
- Electric Department Facility
- Water Treatment Plant
- Park Road Incinerator
- Ingles Mountain Equipment Storage Area

In addition, facilities in which any of the following materials or activities occur and are expected to have exposure to stormwater resulting from rain, snow, snowmelt or runoff also require a SWPPP:

- Areas where residuals from using, storing or cleaning machinery or equipment remain and are exposed to stormwater;
- Materials or residuals on the ground or in stormwater inlets from spills or leaks;
- Material handling equipment (except adequately maintained vehicles);
- Materials or products that would be expected to be mobilized in stormwater runoff during loading/unloading or transporting activities (e.g., rock, salt, fill dirt);
- Materials or products stored outdoors (except final products intended for outside use where exposure to stormwater does not result in the discharge of pollutants);
- Materials or products that would be expected to be mobilized in stormwater runoff contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;
- Waste material except waste in covered, non-leaking containers (e.g., dumpsters);
- Application or disposal of process wastewater (unless otherwise permitted); or
- Particulate matter or visible deposits of residuals from roof stacks, vents or both not otherwise regulated (i.e., under an air quality control permit) and evident in the stormwater runoff.

Based on the above requirements, the following City-owned facilities have been determined to be high-priority facilities that have a high potential to discharge pollutants. The table below shows the schedule by which the individual SWPPPs for each facility will be prepared.

<u>Site</u>	<u>Completion</u>
<i>(1) Public Works Department Solid Waste & Recycling</i>	<i>December 2017</i>
<i>(2) Public Works Department Facility</i>	<i>December 2017</i>
<i>(3) Salt Storage Facility</i>	<i>December 2017</i>
<i>(4) Electrical Department</i>	<i>September 2018</i>
<i>(5) Park Road Incinerator</i>	<i>September 2018</i>
<i>(6) Ingles Mountain Equipment Storage Area</i>	<i>September 2018</i>

2.4 Review and Revision of the Stormwater Pollution Prevention Plan

This SWPPP will be reviewed by a member of the Stormwater Pollution Prevention Team (Section 3) at least annually to determine if any revision is necessary to reflect changes in the facility or changes in the activities conducted that:

- May significantly increase the quantities of pollutants in stormwater runoff;
- Cause a new area of the facility to be exposed to stormwater or authorized non-stormwater discharges; or
- Start-up of an activity that would introduce a new pollutant source at a facility.

In determining if revision of the SWPPP is necessary, the SWPPP Implementation team, identified in Section 3, will review the Annual Comprehensive Compliance Evaluation, which is described in Section 7.

2.5 Location of the Stormwater Pollution Prevention Team

The facility is unmanned; therefore, the maintenance and security responsibility of the Ingles Mountain Equipment Storage Area is with the office of Public Works. The SWPPP shall be kept offsite in office of the Public Works Superintendent, which is located in the Public Works Department building. A copy of the SWPPP will also be maintained by the City of Radford Engineering Technician, in the City of Radford Government Center in Radford, Virginia.

3.0 STORMWATER POLLUTION PREVENTION TEAM

The City of Radford Public Works Department has established a Stormwater Pollution Prevention Team to ensure that the SWPPP is implemented and maintained in accordance with industry-standard engineering controls and best management practices. The Team is comprised of City of Radford personnel listed in Table 1 on the following page. Table 1 outlines the team members, titles, responsibilities, and telephone numbers. As discussed further in Section 7.0, the Stormwater Pollution Prevention Team will meet at least annually to perform a comprehensive review of the SWPPP and facility operations, to discuss the status of stormwater control efforts, and to evaluate any deficiencies or additional requirements in the SWPPP.

Specific issues for the team to address include the following:

- Provide assistance for developing and maintaining the SWPPP.
- Update significant materials list.
- Review potential spill sources.
- Update SWPPP incident reporting, inspection, and record keeping procedures.
- Review environmental incidents.
- Continue and improve SWPPP training for facility personnel.
- Review new construction and changes in processes and procedures.
- Evaluate the overall effectiveness of the SWPPP.

**Table 1: Stormwater Pollution Prevention Team Members
City of Radford Ingles Mountain Equipment Storage Area**

Name	Position	Contact Info	Principal Responsibilities
Timmy Lytton	Public Works Superintendent	(540)267-3148	SWPPP Oversight <ul style="list-style-type: none"> • Provide the necessary resources to comply with the SWPPP. • Ensure assigned staff implements the SWPPP and all of its components. • Provide management support to staff.
Jay Eanes	Engineering Technician	(540)267-3176	
Lisa Blevins	Senior Administrative Assistant	(540)731-3605	
Timmy Lytton	Public Works Superintendent	(540)267-3148	SWPPP IMPLEMENTATION <ul style="list-style-type: none"> • Implement and administer the SWPPP. • Implement the Emergency Response Plan and Procedures • Provide Stormwater Training for facility personnel. • Maintain the necessary records and files.
Jay Eanes	Engineering Technician	(540)267-3176	
Jenni Wilder	Public Information Coordinator	(540)731-3603	
Timmy Lytton	Public Works Superintendent	(540)267-3148	CHEMICAL SPILL RESPONSE <ul style="list-style-type: none"> • Minimize the threat of chemical spills to personnel and to the surrounding environment; and • Protect storm drain inlets and sanitary sewer drains from any spillage or contamination once personnel safety is assured.
Jay Eanes	Engineering Technician	(550)267-3176	
Greg Osborne	Sanitation and Recycling Supervisor	(540)267-3682	
Lisa Blevins	Senior Administrative Assistant	(540)731-3605	
Timmy Lytton	Public Works Superintendent	540)267-3148	CONDUCT ROUTINE FACILITY INSPECTIONS <ul style="list-style-type: none"> • Implement BMPs for respective area(s) of responsibility. • Conduct routine inspections of respective areas of responsibility to ensure BMPs are in place, operative, and effective at all times in and around the areas where activities that may impact stormwater are conducted. • Submit quarterly inspection reports, to the Stormwater Program Manager.
Jay Eanes	Engineering Technician	(540)267-3176	
Greg Osborne	Sanitation and Recycling Supervisor	(540)267-3682	
David Ridpath	City Manager	(540)731-3603	MS4 PROGRAM MANAGEMENT <ul style="list-style-type: none"> • Prepare and revise the SWPPP, as necessary. • Conduct periodic facility inspections to assure compliance. • Collect training records. • Prepare and submit Annual MS4 Report. • Serve as a technical resource to other departments.
Jay Eanes	Engineering Technician	(540)267-3176	
Jenni Wilder	Public Information Coordinator	(540)731-3603	

4.0 GENERAL DESCRIPTION AND INITIAL FACILITY INSPECTION

The Ingles Mountain Equipment Storage Area is located off West Main Street in Radford, VA 24141 (Figure 1). Radford is located in Southwest Virginia along the New River between Montgomery and Pulaski Counties. The property is owned by the City of Radford and encompasses approximately 201.7 acres (part of Parcel ID 36-(1)-3).

Buildings/structures on the property consist of one three-sided metal structure used for vehicle storage. The locations and distributions of these structures are presented on the color topographic map of the property (Figure 2). The storage area is situated on a hill and slopes away from the property towards unnamed bodies of water. The stormwater area of the Ingles Mountain Equipment Storage area is approximately 9.2 acres. The remaining 192.5 acres of the parcel is forested with access roads.

Stormwater from the property will generally flow downgradient towards topographic lows. Flowing stormwater is influenced by location, local topography, and the existence of permeable (ex. Gravel) and non-permeable (ex. Pavement) surfaces and structures. Stormwater traveling along the surface or through storm inlets and outfalls will eventually discharge to the New River.

Stormwater from the Ingles Mountain Equipment Storage Area generally flows away from the site towards wooded areas located to the north, east, south and west. There are no stormwater inlets located on the subject property. Refer to Figure 2 for additional information.

During a rain event, stormwater is intercepted by two (2) surfaces at the Ingles Mountain Storage area consisting of:

- Roof area ~ 0.02 acres.
 - Stormwater from roof areas drain off the structures and falls onto ground surface. Stormwater ultimately flows off-site or towards the ponds along the south side of the site through slopes. Ponds are located within the 9.2-acre stormwater area.
- Pervious gravel and dirt areas ~ 9.2 acres.
 - Stormwater from the permeable gravel and dirt areas flow overland into forestland located outside of the 9.2-acre stormwater area or towards the ponds located along the south side of the site.

An initial inspection of the facility was conducted on September 13, 2018 by Draper Aden Associates and Timmy Lytton, Public Works Superintendent. Observations of facility activities and required actions noted during this inspection are listed in Section 4.2.

4.1 Site Facilities

The equipment storage area is the focus of this SWPPP and is located along the northwest portion of the property near the closed landfill. The equipment storage area is used to store Electrical Department vehicles, hydraulic equipment, mulch and brush piles, and other miscellaneous items. As listed above, there are four areas that are the focus of this SWPPP. The equipment storage area contains a shed used to store an electrical department vehicle. An empty aboveground storage tank (AST) is located west of the shed. The storage area does not contain any man-made stormwater nor sanitary sewers and naturally drains away from the site.

All equipment stored on-site must be routinely inspected for leaks that may potentially contaminate stormwater. Any liquids stored on-site must be labeled and stored properly.

5.0 SUMMARY OF POTENTIAL POLLUTANT SOURCES

This section describes the industrial/institutional and other activities conducted at the facility and provides an inventory of significant materials potentially exposed to stormwater.

5.1 Onsite Activities

The onsite activities performed at the facility are related to the very nature of the facility and the use of materials necessary for day-to-day activities for cleaning and maintaining the City of Radford Ingles Mountain Equipment Storage Area. These include the following specific items:

1. Use of lawn care equipment, and occasional maintenance of lawn care and associated equipment.
2. Storage of materials used for Public Works and Electrical Department operations.

5.2 Pollutants and Potential Pollutants

This section provides a general list of the Standard Operating Procedures at the facility. The container or packaging for the materials; the means of delivery, shipment, and/or storage; the potential for exposure to stormwater, and the potential risk associated with exposure are also identified.

The probability of a material being exposed to stormwater is a function of how it is handled. Typically, materials stored and used indoors are only exposed to stormwater during transport to or from the workplace. This represents a low potential for the material to be exposed to stormwater. Conversely, materials stored or handled outdoors represent a high to moderate potential for exposure to stormwater. A low potential risk of exposure means that, if the material is exposed, it is unlikely to have a significant impact on stormwater quality. High potential risk of exposure indicates that, if the material is exposed, it may have a significant impact on stormwater quality.

The following is a list of materials used or stored on-site:

- Vehicles
- Hydraulic Equipment
- Mulch
- Brush
- Empty AST

Lubricating oils, fuels, and other similar materials may have a small probability of exposure to stormwater during transport to and from storage areas. Since these materials are carried in closed containers, this would only be a possibility if a container were somehow damaged or opened and overturned.

5.3 Non-Stormwater Discharges

The City of Radford Ingles Mountain Equipment Storage Area has evaluated the drainage from its facility and has determined that there are no non-stormwater discharges connected to the storm drainage system. There are no sources of allowable non-stormwater discharge as defined in Ordinance No. 1681 at this site, which include the following:

- Discharges or flows covered by a separate individual or general VPDES or VSMP permit for non-stormwater discharges;
- Individual non-stormwater discharges or flows that have been identified in writing by the Virginia Department of Environmental Quality as de minimis discharges that are not significant sources of pollutants to state waters and do not require a VPDES permit;
- Water line flushing;
- Landscaping irrigation;
- Diverted stream flows or rising groundwater;
- Uncontaminated groundwater infiltration, as defined by 40 CFR 35.2005(20);
- Uncontaminated pumped groundwater;
- Discharges from potable water sources, foundation drains, irrigation water, springs, water from crawl spaces or footing drains;
- Air conditioning condensation;
- Lawn watering;
- Individual residential car washing;
- Flows from riparian habitats and wetlands;
- De-chlorinated swimming pool discharges with pH between 6.0 to 8.0 standard units, at ambient water temperature, and with less than 0.10 milligrams per liter or parts per million;
- Street wash water;
- Discharge or flows resulting from firefighting and other public safety activities;
- Discharges associated with the maintenance or repair of public water, sanitary, and storm sewer lines, and public drinking water reservoirs and drinking water treatment or distribution systems conducted in accordance with applicable federal and state regulations and standards;
- Discharges associated with any activity by the city, its employees and designees, in the maintenance of any component of a City maintained stormwater management facility conducted in accordance with applicable federal and state regulations and standards, and law;
- Discharges specified in writing by the administrator as being necessary to protect public health and safety;

- Any activity authorized by a valid Virginia Stormwater Management Program (VSMP) permit, a valid Virginia Pollutant Discharge Elimination System (VPDES) permit, a valid Virginia Pollution Abatement (VPA) permit, a National Pollutant Discharge Elimination System (NPDES) permit, or as may be otherwise permitted by law or the regulations.

6.0 STORMWATER MANAGEMENT CONTROLS

The following sections describe best management practices (BMPs) that are currently employed or are recommended for future implementation at the City of Radford Ingles Mountain Equipment Storage Area. BMPs are recommended/implemented to minimize the exposure of chemicals and other pollutants to stormwater runoff.

MCM 1: Public Education and Outreach

Identifying High Priority Water Quality Issues

The City has identified three water quality issues that are considered high priority and are being addressed by the Plan. These items are:

- Proper Disposal of Pet Waste – This program raises awareness of the need for proper disposal of pet waste to avoid release of bacteria into the stormwater system and, in turn, the New River.
- Collection of Yard Waste – This program educates citizens about proper disposal of yard waste (grass clippings, leaves, etc.) to reduce the amount of such waste discarded into the City’s storm sewer drains. In addition, the City collects yard waste as part of a composting program that develops topsoil for City use. These programs help reduce clogging in the storm sewer network and reduce pollutants (i.e. fertilizers, herbicides, and pesticides) from entering the storm sewer network.
- Nutrient Management Education – The City has produced a “Resident’s Guide for a Cleaner Environment” brochure to be distributed to citizens and to educate them about nutrient management for their own properties. This brochure is coordinated with the City’s internal efforts to develop Nutrient Management Plans for City-owned property. The brochure contains this statement: “Avoid the use of fertilizers and do not apply before heavy rainfall. Pesticides are toxic to humans, animals, aquatic insects, and plants. Follow label directions carefully or use alternatives whenever possible.” The literature on Nutrient Management explains what a Nutrient Management Plan is and why it is important for residents to have a plan for their homes.

Pet Waste Management for Public Parks

The City will continue to enforce current policies requiring pet owners to clean up after their animals while in public parks. The City’s Parks & Recreation Department will continue to enforce the current Pet Waste Management Program in the three heaviest used public park areas within the City’s Park System: Bisset Park, Wildwood Park, and the William D. Lorton, Jr. “Sparky’s Run” Dog Park. The Department will continue to evaluate the effectiveness of the program, adding or relocating the pet waste bag dispensers based on observations of their use and according to input

received by the public. The City will continue to evaluate the effectiveness of the current programs and develop ways to improve and increase awareness and participation.

Drain Marketing Program

The City will implement a Storm Drain Marking Program. This will involve performing an inventory of the storm drain locations and identifying the drains most easily accessible to the public and that may be vulnerable to illicit dumping. The City's storm sewer network was mapped using GIS. 100% of the curb inlets and grate inlets in the City have been marked.

MCM 2: Public Involvement and Participation

Enhance City Website to Include Stormwater Related Information

The City will continually update the website with stormwater related information. Included will be links to the relevant sections of the Virginia DEQ and EPA websites, and links to the City's relevant ordinances, MS4 Program Plan and annual reports.

Annual Stream Clean-Up Events

The City and its partner organizations will continue to sponsor clean up events that encourage the public to engage in cleaning up the streams, river and roadways within the City Limits. The program will focus on removing foreign debris, litter, etc. Events will be publicized through various media in order to have as much participation as possible.

Develop Public Outreach Plan

The City developed a plan to identify the target audience and develop strategies to reach a minimum of 20% of the target audience (the City's citizens) annually through public outreach activities. As part of the plan, the goal will be to have a minimum of four public participation events annually.

MCM 3: Illicit Discharge Detection and Elimination

Illicit Discharge Ordinance

The City implemented an Illicit Discharge Detection and Elimination Ordinance that prohibits illegal and illicit dumping of non-stormwater discharges. The ordinance addresses detection, identification of source of discharge, mechanisms to eliminate discharges, and tracking. The ordinance facilitates public reporting of illicit discharges.

Protect Sensitive Areas by use of City Code

The City adopted by Ordinance two “overlay districts” (Floodplain District and Riverfront Corridor Overlay District) within the City Code that protect areas within the floodplain and adjacent to the New River. (Divisions 15 and 16 of Chapter 120.1: Zoning Ordinance)

Outfall Map and Database

The City will develop, maintain, and update an Outfall Map and Database to include the following information as required by the MS4 General Permit (9VAC25-890-40).

1. The name and location of all waters receiving discharges from the MS4 outfalls and the associated HUC.
2. The location of all MS4 outfalls with unique identifier; and
3. An information table for each outfall to include the unique identifier, the estimated MS4 acreage served, the name of the receiving surface water, a note whether the receiving water is listed as impaired, and the name of any applicable TMDL or TMCLs.

The mapping is completed and will be used to track illicit discharges.

Outfall Screening

The City will develop a procedure for dry weather screening of the MS4 stormwater outfalls. 52 MS4 outfalls were screened according to procedures developed for dry weather screening of the MS4 stormwater outfalls. Procedures include documenting results and follow-up actions on an Outfall Field Screening Report Spreadsheet.

MCM 4: Construction Site Stormwater Runoff Control

Erosion and Sediment Control Ordinance

Adopt and maintain an Ordinance in the City Code that requires compliance with the Virginia Erosion and Sediment Control Regulations. The City has an Erosion and Sediment Control (ESC) Ordinance (Chapter 31, Articles 1 & 2) that complies with the Virginia Erosion & Sediment Control regulations, requires a permit prior to beginning land disturbance, provides for inspection of land disturbing activities by the City and details available enforcement options.

City Staff Training

The City staff that is involved in implementing the Erosion and Sediment Control Ordinance will maintain the appropriate VA DEQ certifications. The City will maintain a database of the

certifications required of City employees. The database includes the type of certification, name of employee, and expiration date of current certification.

MCM 5: Post Construction Stormwater Management

Adopt a Stormwater Ordinance to Control Impacts of Runoff

The City's Stormwater Ordinance addresses both post-construction stormwater management and illicit discharges. The ordinance complies with the Virginia Stormwater Management Program (VSMP) regulations. The City implemented the Stormwater Management Ordinance No. 1662 on October 27, 2014.

Stormwater Management Tracking and Reporting System

Develop and maintain a database of all known operator-owned and privately-owned stormwater management facilities that discharge into the MS4 storm system for tracking and reporting. Database attributes for each stormwater management facility shall include the following:

1. Facility type and BMP Clearhouse specification reference number;
2. Location (address or latitude and longitude);
3. Total area treated, included delineation of pervious and impervious area;
4. Completion date; if unknown, assume June 30, 2005;
5. The sixth order hydrologic unit code (HUC) where the facility is located;
6. Name of any impaired water segments within each HUC listed in the 2015 §305(b)/303(d) Water Quality Assessment Integrated Report to which the facility discharges;
7. Ownership information (private or public); and
8. Date of most recent inspection and name of inspector.

MCM 6: Pollution Prevention/Good Housekeeping

Standard Operating Procedures and Employee Training

The City developed standard operating procedures (SOPs) and implemented an employee-training program designed to raise awareness within city employees of stormwater management practices as it relates to specific tasks and assignments.

Municipal SWPPs

The City will continue to evaluate its operations and facilities for ways to reduce discharge of pollutants. This evaluation will include identifying potential sources of pollution, prioritizing problem areas, and determining methods to address and correct the problems. Some of these methods might include employee training, spill prevention plans, SWPPPs, implementing new procedures, etc.

Reduce the Amount of Solid Waste from City-owned Facilities by Encouraging Employees to Recycle Waste

The City has an active recycling program that encourages City employees to participate. The City will continually evaluate the program for ways to improve and increase participation. The City will continue to recycle all categories of waste during all years of the permit cycle.

6.1 Structural BMPs

The primary concern with sediment and erosion at the facility is runoff from the old landfill. To reduce runoff concerns, the material is stored far away from drains. Any erosion or sedimentation problems identified will be addressed by implementing standard control as outlined in the VESCH, including but not limited to the following:

- Stabilization with riprap.
- Stabilization with vegetation.
- Installation of a culvert or lined channel.
- Interceptor dikes and swales.
- Re-grading.

6.2 Maintenance of BMPs

All BMPs identified in the SWPPP will be maintained in effective operating condition. If routine inspections identify BMPs that are not operating effectively, maintenance will be performed before the next anticipated storm event or as necessary to maintain the continued effectiveness of stormwater controls. If maintenance prior to the next anticipated storm event is impractical, maintenance will be scheduled and accomplished as soon as possible. In the case of nonstructural BMPs, the effectiveness of the BMPs will be maintained by appropriate means (e.g., maintaining available spill response supplies, maintaining up-to-date personnel training program, etc.).

7.0 ROUTINE FACILITY INSPECTIONS AND TRAINING

At least once per quarter, the facility will be inspected using the City of Radford Park Road Incinerator Inspection Checklist, found in Appendix B. The inspection shall be conducted by the Pollution Prevention SWPPP Implementation Team, identified in Section 3.0.

The purpose of these inspections will be to identify problems early so that they can be corrected in a timely fashion. All completed forms shall be kept in this SWPPP and a copy shall be sent to the City Staff in charge of MS4 Program Management for inclusion in the Annual MS4 Report, which is submitted to the Virginia Department of Environmental Quality (DEQ) by October 1st of each year.

7.1 Annual Site Compliance Inspection

An annual site compliance inspection of the Ingles Mountain Equipment Storage Area will be conducted by the Pollution Prevention SWPPP Implementation Team, identified in Section 3.0, to help assure that significant changes in the facilities or activities are identified and can then be reflected in the SWPPP. The Annual Site Compliance Inspection will be performed by June 30th of each year and includes:

- Visual inspection of all potential sources of pollutants that may enter the stormwater drainage system via stormwater or non-stormwater discharges;
- A review and assessment of all BMPs to determine whether the BMPs are adequate, properly implemented and maintained, or whether additional BMPs are needed; and
- Visual inspection of equipment needed to implement the SWPPP.

The Annual Site Compliance Inspection will be documented, as follows:

- Identification of personnel performing the evaluation
- The date(s) of the evaluation
- Findings of the evaluation
- Recommended modifications to the SWPPP
- Schedule for implementing SWPPP revisions
- Any incidents of non-compliance and corrective actions taken

7.2 Employee Training

7.2.1 Purpose

Key staff should be aware of pollution prevention goals and be trained to recognize and correct potential sources of pollution.

7.2.2 Requirements

Biannual Training

The City will maintain a record of biannual training of the facility staff. Training shall be provided on the following topics.

1. Identification and reporting of illicit discharges.
2. Good housekeeping and pollution prevention practices.
3. Spill prevention and response.

Identification and reporting of illicit discharges training will be conducted by the Facility manager or their designee. This training will include good housekeeping and pollution prevention practices and spill prevention and response, as required by the MS4 Permit.

Certifications

The City will maintain a record of certifications for all employees, and require that contractors, who apply pesticides and herbicides are properly trained or certified in accordance with the Virginia Pesticide Control Act.

The City will require and maintain a record of all employees or contractors serving as plan reviewers, inspectors, program administrators, or construction site operators to obtain appropriate certifications, wherever required under the Virginia Erosion and Sediment Control and Stormwater Management Program Laws and their attendant regulations.

7.3 Plan Revision/Correction of Deficiencies

The SWPPP will be reviewed and revised, if needed, on a continuous basis and at a minimum annually during the site compliance evaluation. Revisions to the SWPPP will be completed within 30 days following the annual site compliance inspection. If existing BMPs need to be modified or if additional BMPs are necessary, implementation will be completed before the next anticipated storm event, if practicable, but not more than 60 days after completion of the comprehensive site evaluation.

Additional reviews will be conducted under any of the following conditions:

- Construction or a change in design, operation, or maintenance at the facility has a significant effect on the discharge, or potential for the discharge, of pollutants from the facility.
- Routine inspections or compliance evaluations determine that there are deficiencies in the BMPs.
- Inspections by local, state, or federal officials determine that modifications to the SWPPP are necessary.
- There is a spill, leak, or other release at the facility.
- An unauthorized discharge is released from the facility.
- A Total Maximum Daily Load (TMDL) has been developed that applies to the facility.

The SWPPP will be revised upon recommendations in the annual compliance report or under other circumstances listed above. The SWPPP will be updated to incorporate the above activities within 30 days, and any changes in management practices will be implemented before the next storm event and in no later than 60 days. The amount of time taken to modify a BMP or implement additional BMPs will be documented in the SWPPP. If a SWPPP modification is based on a release or unauthorized discharge, the following information will be documented in the SWPPP:

- Description and date of the release.
- Circumstances leading to the release.
- Actions taken in response to the release.
- Measures to prevent the recurrence of such releases.

8.0 PLAN REVIEW

The SWPPP, including revisions to the SWPPP to document any corrective actions shall be signed, dated, and retained on-site. All other changes to the SWPPP, and other permit compliance documentation, shall be signed and dated by the person preparing the documentation.

SWPPP Review Date and Signature: _____

Summarize changes or revisions below.

SWPPP Review Date and Signature: _____

Summarize changes or revisions below.

SWPPP Review Date and Signature: _____

Summarize changes or revisions below.

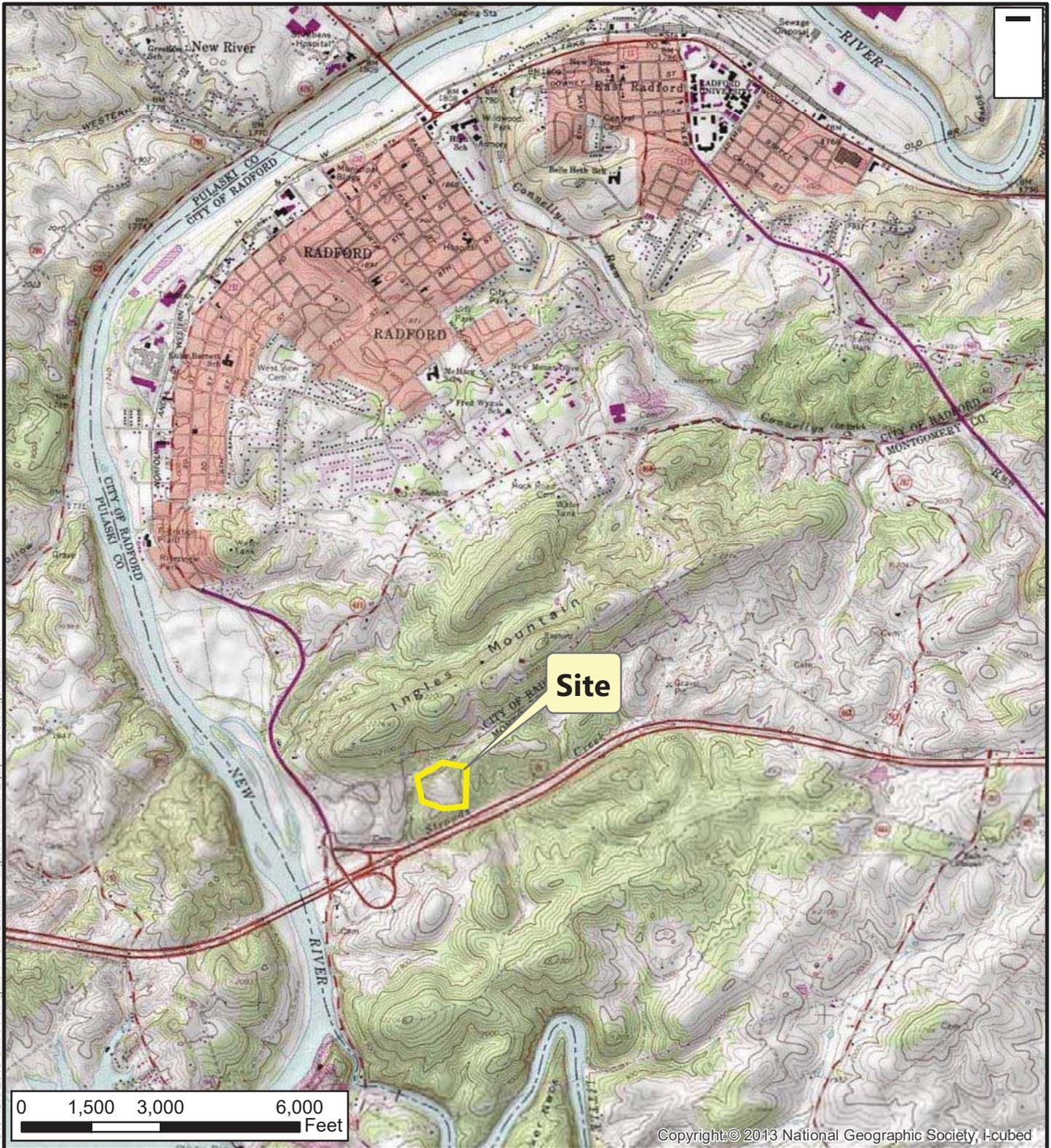
SWPPP Review Date and Signature: _____

Summarize changes or revisions below.

SWPPP Review Date and Signature: _____

Summarize changes or revisions below.

Appendix A
Figures



Path: P:\2017\17010500\17010547\17010547-010101\GIS\2018 SWPPPs\Figure 1 - Site Location - Ingles Mountain Equipment Storage Area.mxd

Site Location

Ingle's Mountain Equipment Storage Area
 City of Radford SWPPPs
 Radford, VA 24141

SCALE: 1" = 3000'

PROJECT: 17010547-010101



Draper Aden Associates
Engineering · Surveying · Environmental Services

2206 South Main Street
 Blacksburg, VA 24060
 540-552-0444 Fax: 540-552-0291

Richmond, VA
 Charlottesville, VA
 Hampton Roads, VA

Raleigh, NC
 Fayetteville, NC
 Northern Virginia

DESIGNED: KLV
 DRAWN: KLV
 CHECKED: SN
 DATE: 9-11-18

FIGURE
1

Path: P:\2017\17010500\17010547\17010547-010101\GIS\2018 SWPPP\Figures\Figure 2 - Site Detail - Ingles Mountain Equipment Storage Area.mxd



Site Detail	Ingles Mountain Equipment Storage Area City of Radford SWPPPs Radford, VA 24141	SCALE: 1" = 150' PROJECT: 17010547-010101
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 **Draper Aden Associates**
Engineering · Surveying · Environmental Services

2206 South Main Street
Blacksburg, VA 24060
540-552-0444 Fax: 540-552-0291

Richmond, VA
Charlottesville, VA
Hampton Roads, VA

Raleigh, NC
Fayetteville, NC
Northern Virginia

DESIGNED: KLV
DRAWN: KLV
CHECKED: SN
DATE: 9-11-18

FIGURE
2

Appendix B

Forms



Form 1
The City of Radford Inspection Checklist

Date: _____ **Time:** _____ **Inspector:** _____

Facility Name and Location: _____

Description of Activities: _____ **Receiving Waterway:** _____

Storage Areas		Comments
<input type="checkbox"/>	All hazardous materials stored and properly labeled	
<input type="checkbox"/>	Storage containers maintained in good condition	
<input type="checkbox"/>	Chemicals are stored with compatible chemicals	
<input type="checkbox"/>	Container labels can be easily read; containers are properly labeled	
<input type="checkbox"/>	Recycling of used paints, paint thinner, and solvents	
<input type="checkbox"/>	Hazardous materials stored properly without evidence of spills	
<input type="checkbox"/>	Inventory of materials maintained onsite & Material Safety Data sheets	

General Site		Comments
<input type="checkbox"/>	Emergency Response Plan onsite	
<input type="checkbox"/>	Employees trained for emergency procedures	
<input type="checkbox"/>	Material Safety Data sheets maintained in a convenient location for emergency response	
<input type="checkbox"/>	Stockpiles properly maintained to prevent runoff	
<input type="checkbox"/>	Proper litter control (container lids are closed, containers are upright)	
<input type="checkbox"/>	Vegetated areas properly maintained and erosion-free	
<input type="checkbox"/>	Site is routinely inspected for indication of illicit discharges	

FORM 2

Post-Spill Discharge Review

City of Radford

Date:	Time:
Reported By:	Reported To:
Substance Spilled:	
Estimated Quantity Spilled:	
Sketch spill location and flow:	
Describe how the spill occurred:	
Describe the response actions taken:	
Spill Supplies Restocked:	Yes <input type="checkbox"/> No <input type="checkbox"/>
Revisions to the response actions required (if yes, describe and identify change in the SWPPP):	Yes <input type="checkbox"/> No <input type="checkbox"/>

Signature: _____ Date: _____

FORM 3

Significant Spills and Leaks

City of Radford

Date	Material Released	Description of Release	Circumstances Leading to the Release



Form 4
Annual Comprehensive Compliance Evaluation
City of Radford

1) Name of Building or Operation: _____

2) Facility Representative: _____

Position: _____ Phone No.: _____

	YES	NO	N/A
a) Facility's SWPPP is easily accessible in each building?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Awareness of SWPPP by facility personnel? (Random survey of onsite employees.) # Employees Surveyed _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Assessment Checklist (page 2 of 2) is completed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Was any stormwater pollution prevention training conducted during the year? If yes, provide records in Appendix C.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Were non-stormwater discharge visual observations conducted? List Dates: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Were stormwater discharge visual observations conducted? List Dates: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Evaluation Notes: _____

Corrective Measures Recommended: _____

Evaluation Conducted By: _____ Date: _____

This completed evaluation was reviewed with me on: _____ (Date)

Facility Representative (printed name and title): _____

Facility Representative (signature): _____

Stormwater Assessment Checklist

Activities – Check each activity present at the site.	Effectiveness Rating*				
	NO	SO	MO	SC	VE
Storage					
1. Maintenance is done in designated areas only.					
2. Equipment is kept clean, with no build-up of oil and grease.					
3. Drip pans, containers, or absorbent pads are used under items that may drip.					
4. Used oil and oil filters, antifreeze, batteries, fluids, etc. are recycled.					
6. Storage containers are labeled with material contents.					
7. Material Safety Data Sheets are available and periodically reviewed for products stored					
Grass Areas					
1. Grass is mowed, as needed, to prevent overgrowth of weeds and woody vegetation.					
General Building and Grounds					
1. Good housekeeping practices are implemented throughout the facility.					
2. Employees are trained to understand and follow the SOPs, SPCC Plan, and SWPPP.					

*NO = No BMPs used and stormwater pollution likely.
 SO = Some BMPs used but not effective.
 MO = Some BMPs used and moderately effective.
 SC = Source-control BMPs used and very effective/structural BMPs needed.
 VE = All necessary BMPs used and very effective.

Appendix C
Training Documentation

Annual SWPPP Training

City of Radford – VAR040135

Date: _____

Time: _____

Name	Company	Signature

Topics Discussed:

Appendix D
General Permit



COMMONWEALTH of VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY

General Permit No.: VAR040135

Effective Date: July 1, 2013

Expiration Date: June 30, 2018

**GENERAL PERMIT FOR DISCHARGES OF STORMWATER FROM SMALL MUNICIPAL SEPARATE
STORM SEWER SYSTEMS**

**AUTHORIZATION TO DISCHARGE UNDER THE VIRGINIA STORMWATER MANAGEMENT
PROGRAM AND THE VIRGINIA STORMWATER MANAGEMENT ACT**

In compliance with the provisions of the Clean Water Act, as amended and pursuant to the Virginia Stormwater Management Act and regulations adopted pursuant thereto, this state permit authorizes operators of small municipal separate storm sewer systems to discharge to surface waters within the boundaries of the Commonwealth of Virginia, except those waters specifically named in State Water Control Board and Virginia Soil and Water Conservation Board regulations which prohibit such discharges.

The authorized discharge shall be in accordance with this cover page, Section I – Discharge Authorization and Special Conditions, Section II – MS4 Program and Section III – Conditions Applicable To All State Permits, as set forth herein. The operator shall utilize all legal authority provided by the laws and regulations of the Commonwealth of Virginia to control discharges to and from the MS4. This legal authority may be a combination of statute, ordinance, permit, specific contract language, order or interjurisdictional agreements.

9VAC25-890-40. General permit.

Any operator whose registration statement is accepted by the department will receive coverage under the following state permit and shall comply with the requirements therein and be subject to all applicable requirements of the Virginia Stormwater Management Act (Article 2.3 (§ [62.1-44.15:24](#) et seq.) of Chapter 3.1 of Title 62.1 of the Code of Virginia) and the Virginia Stormwater Management Program (VSMP) Regulations ([9VAC25-870](#)).

General Permit No.: VAR04

Effective Date: July 1, 2013

Expiration Date: June 30, 2018

GENERAL VPDES PERMIT FOR DISCHARGES OF STORMWATER FROM SMALL MUNICIPAL SEPARATE STORM
SEWER SYSTEMS

AUTHORIZATION TO DISCHARGE UNDER THE VIRGINIA STORMWATER MANAGEMENT PROGRAM AND THE
VIRGINIA STORMWATER MANAGEMENT ACT

In compliance with the provisions of the Clean Water Act, as amended and pursuant to the Virginia Stormwater Management Act and regulations adopted pursuant thereto, this state permit authorizes operators of small municipal separate storm sewer systems to discharge to surface waters within the boundaries of the Commonwealth of Virginia, except those waters specifically named in State Water Control Board regulations which prohibit such discharges.

The authorized discharge shall be in accordance with this cover page, Section I—Discharge Authorization and Special Conditions, Section II—MS4 Program and Section III—Conditions Applicable To All State Permits, as set forth herein. The operator shall utilize all legal authority provided by the laws and regulations of the Commonwealth of Virginia to control discharges to and from the MS4. This legal authority may be a combination of statute, ordinance, permit, specific contract language, order or interjurisdictional agreements.

For operators of small MS4s that are applying for initial coverage under this general permit, the schedule to develop and implement the MS4 Program Plan shall be submitted with the completed registration statement.

For operators that have previously held MS4 state permit coverage, the operator shall update the MS4 Program Plan in accordance with the following schedule. Until such time as the required updates are completed and implemented, the operator shall continue to implement the MS4 Program consistent with the MS4 Program Plan submitted with the registration statement.

Table 1: Schedule of MS4 Program Plan Updates Required in this Permit		
Program Update Requirement	Permit Reference	Update Completed By
Public Education Outreach Plan (Minimum Control Measure 1 – Public Education and Outreach on Stormwater Impacts)	Section II B 1	12 months after permit coverage
Illicit Discharge Procedures - (Minimum Control Measure 3 – Illicit Discharge Detection and Elimination)	Section II B 3	
Individual Residential Lot Special Criteria (Minimum Control Measure 5 – Post-Construction Stormwater	Section II B 5 c (1) (d)	

Management in New Development and Development on Prior Developed Lands)		
Operator-Owned Stormwater Management Inspection Procedures (Minimum Control Measure 5 – Post-Construction Stormwater Management in New Development and Development on Prior Developed Lands)	Section II B 5	
Identification of Locations Requiring SWPPPs (Minimum Control Measure 6 – Pollution Prevention/Good Housekeeping for Municipal Operations)	Section II B 6 b	
Nutrient Management Plan (NMP) Locations - (Minimum Control Measure 6 – Pollution Prevention/Good Housekeeping for Municipal Operations)	Section II B 6 c (1) (a)	
Training Schedule and Program - (Minimum Control Measure 6 – Pollution Prevention/Good Housekeeping for Municipal Operations)	Section II B 6	
Updated TMDL Action Plans (TMDLs approved before July of 2008) – (Special Conditions for Approved Total Maximum Daily Loads (TMDL) Other Than Chesapeake Bay)	Section I B	
Chesapeake Bay TMDL Action Plan – (Special Condition for Chesapeake Bay TMDL)	Section I C	24 months after permit coverage
Stormwater Management Progressive Compliance and Enforcement – (Minimum Control Measure 4 - Construction Site Stormwater Runoff Control)	Section II B 5	
Daily Good Housekeeping Procedures (Minimum Control Measure 6 – Pollution Prevention/Good Housekeeping for Municipal Operations)	Section II B 6 a	
Other TMDL Action Plans for applicable TMDLs approved between July 2008 and June 2013 - (Special Conditions for Approved Total Maximum Daily Loads (TMDL) Other Than Chesapeake Bay)	Section I B	36 months after permit coverage
Outfall Map Completed - (Minimum Control Measure 3 – Illicit Discharge Detection and Elimination) – Applicable to new boundaries identified as "urbanized" areas in the 2010 Decennial Census	Section II B 3 a (3)	48 months after permit coverage
SWPPP Implementation - (Minimum Control Measure 6 – Pollution Prevention/Good Housekeeping for Municipal Operations)	Section II B 6 b (3)	
NMP Implementation - (Minimum Control Measure 6 – Pollution Prevention/Good Housekeeping for Municipal Operations)	Section II B 6 c (1) (b)	60 months after permit coverage
*Updates should be submitted with the appropriate annual report.		

SECTION I
DISCHARGE AUTHORIZATION AND SPECIAL CONDITIONS

A. Coverage under this state permit. During the period beginning with the date of coverage under this general permit and lasting until the expiration and reissuance of this state permit, the operator is authorized to discharge in accordance with this state permit from the small municipal separate storm sewer system identified in the registration statement into surface waters within the boundaries of the Commonwealth of Virginia and consistent with [9VAC25-890-30](#).

B. Special conditions for approved total maximum daily loads (TMDL) other than the Chesapeake Bay TMDL. An approved TMDL may allocate an applicable wasteload to a small MS4 that identifies a pollutant or pollutants for which additional stormwater controls are necessary for the surface waters to meet water quality standards. The MS4 operator shall address the pollutants in accordance with this special condition where the MS4 has been allocated a wasteload in an approved TMDL.

1. The operator shall maintain an updated MS4 Program Plan that includes a specific TMDL Action Plan for pollutants allocated to the MS4 in approved TMDLs. TMDL Action Plans may be implemented in multiple phases over more than one state permit cycle using the adaptive iterative approach provided adequate progress to reduce the pollutant discharge in a manner consistent with the assumptions and requirements of the specific TMDL wasteload is demonstrated in accordance with subdivision 2 e of this subsection. These TMDL Actions Plans shall identify the best management practices and other interim milestone activities to be implemented during the remaining terms of this state permit.

a. In accordance with Table 1, the operator shall update the MS4 Program Plans to address any new or modified requirements established under this special condition for pollutants identified in TMDL wasteload allocations approved prior to July 9, 2008.

b. In accordance with Table 1, the operator shall update the MS4 Program Plan to incorporate approvable TMDL Action Plans that identify the best management practices and other interim milestone activities that will be implemented during the remaining term of this permit for pollutants identified in TMDL wasteload allocations approved either on or after July 9, 2008, and prior to issuance of this permit.

c. Unless specifically denied in writing by the department, TMDL Action Plans and updates developed in accordance with this section become effective and enforceable 90 days after the date received by the department.

2. The operator shall:

a. Develop and maintain a list of its legal authorities such as ordinances, state and other permits, orders, specific contract language, and interjurisdictional agreements applicable to reducing the pollutant identified in each applicable WLA;

b. Identify and maintain an updated list of all additional management practices, control techniques and system design and engineering methods, beyond those identified in Section II B, that have been implemented as part of the MS4 Program Plan that are applicable to reducing the pollutant identified in the WLA;

c. Enhance its public education and outreach and employee training programs to also promote methods to eliminate and reduce discharges of the pollutants identified in the WLA;

d. Assess all significant sources of pollutant(s) from facilities of concern owned or operated by the MS4 operator that are not covered under a separate VPDES permit and identify all municipal facilities that may be a significant source of the identified pollutant. For the purposes of this assessment, a significant source of pollutant(s) from a facility of concern means a discharge where the expected pollutant loading is greater than the average pollutant loading for the land use identified in the TMDL. (For example, a significant source of pollutant from a facility of concern for a bacteria TMDL would be expected to be greater at a dog park than at other recreational facilities where dogs are prohibited);

e. Develop and implement a method to assess TMDL Action Plans for their effectiveness in reducing the pollutants identified in the WLAs. The evaluation shall use any newly available information, representative and adequate water quality monitoring results, or modeling tools to estimate pollutant reductions for the pollutant or pollutants of concern from implementation of the MS4 Program Plan. Monitoring may include BMP, outfall, or in-stream monitoring, as appropriate, to estimate pollutant reductions. The operator may conduct monitoring, utilize existing data, establish partnerships, or collaborate with other MS4 operators or other third parties, as appropriate. This evaluation shall include assessment of the facilities identified in subdivision 2 d of this subsection. The methodology used for assessment shall be described in the TMDL Action Plan.

3. Analytical methods for any monitoring shall be conducted according to procedures approved under 40 CFR Part 136 or alternative methods approved by the Environmental Protection Agency (EPA). Where an approved method does not exist, the operator must use a method consistent with the TMDL.

4. The operator is encouraged to participate as a stakeholder in the development of any TMDL implementation plans applicable to their discharge. The operator may incorporate applicable best management practices identified in the TMDL implementation plan in the MS4 Program Plan or may choose to implement BMPs of equivalent design and efficiency provided that the rationale for any substituted BMP is provided and the substituted BMP is consistent with the assumptions and requirements of the TMDL WLA.

5. Annual reporting requirements.

a. The operator shall submit the required TMDL Action Plans with the appropriate annual report and in accordance with the associated schedule identified in this state permit.

b. On an annual basis, the operator 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.

6. The operator shall identify the best management practices and other steps that will be implemented during the next state permit term as part of the operator's reapplication for coverage as required under Section III M.

7. For planning purposes, the operator shall include an estimated end date for achieving the applicable wasteload allocations as part of its reapplication package due in accordance with Section III M.

C. Special condition for the Chesapeake Bay TMDL. The Commonwealth in its Phase I and Phase II Chesapeake Bay TMDL Watershed Implementation Plans (WIP) committed to a phased approach for MS4s, affording MS4 operators up to

three full five-year permit cycles to implement necessary reductions. This permit is consistent with the Chesapeake Bay TMDL and the Virginia Phase I and II WIPs to meet the Level 2 (L2) scoping run for existing developed lands as it represents an implementation of 5.0% of L2 as specified in the 2010 Phase I WIP. Conditions of future permits will be consistent with the TMDL or WIP conditions in place at the time of permit issuance.

1. Definitions. The following definitions apply to this state permit for the purpose of the special condition for discharges in the Chesapeake Bay Watershed:

"Existing sources" means pervious and impervious urban land uses served by the MS4 as of June 30, 2009.

"New sources" means pervious and impervious urban land uses served by the MS4 developed or redeveloped on or after July 1, 2009.

"Pollutants of concern" or "POC" means total nitrogen, total phosphorus, and total suspended solids.

"Transitional sources" means regulated land disturbing activities that are temporary in nature and discharge through the MS4.

2. Chesapeake Bay TMDL planning.

a. In accordance with Table 1, the operator shall develop and submit to the department for its review and acceptance an approvable Chesapeake Bay TMDL Action Plan. Unless specifically denied in writing by the department, this plan becomes effective and enforceable 90 days after the date received by the department. The plan shall include:

- (1) A review of the current MS4 program implemented as a requirement of this state permit including a review of the existing legal authorities and the operator's ability to ensure compliance with this special condition;
- (2) The identification of any new or modified legal authorities such as ordinances, state and other permits, orders, specific contract language, and interjurisdictional agreements implemented or needing to be implemented to meet the requirements of this special condition;
- (3) The means and methods that will be utilized to address discharges into the MS4 from new sources;
- (4) An estimate of the annual POC loads discharged from the existing sources as of June 30, 2009, based on the 2009 progress run. The operator shall utilize the applicable versions of Tables 2 a-d in this section based on the river basin to which the MS4 discharges by multiplying the total existing acres served by the MS4 on June 30, 2009, and the 2009 Edge of Stream (EOS) loading rate:

Table 2 a: Calculation Sheet for Estimating Existing Source Loads for the James River Basin				
*Based on Chesapeake Bay Program Watershed Model Phase 5.3.2				
Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	2009 EOS Loading Rate (lbs/acre)	Estimated Total POC Load Based on 2009 Progress Run
Regulated Urban Impervious	Nitrogen		9.39	
			6.99	

Regulated Urban Pervious				
Regulated Urban Impervious	Phosphorus		1.76	
Regulated Urban Pervious			0.5	
Regulated Urban Impervious	Total Suspended Solids		676.94	
Regulated Urban Pervious			101.08	

Table 2 b: Calculation Sheet for Estimating Existing Source Loads for the Potomac River Basin *Based on Chesapeake Bay Program Watershed Model Phase 5.3.2				
Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	2009 EOS Loading Rate (lbs/acre)	Estimated Total POC Load Based on 2009 Progress Run
Regulated Urban Impervious	Nitrogen		16.86	
Regulated Urban Pervious			10.07	
Regulated Urban Impervious	Phosphorus		1.62	
Regulated Urban Pervious			0.41	
Regulated Urban Impervious	Total Suspended Solids		1,171.32	
Regulated Urban Pervious			175.8	

Table 2 c: Calculation Sheet for Estimating Existing Source Loads for the Rappahannock River Basin *Based on Chesapeake Bay Program Watershed Model Phase 5.3.2				
Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	2009 EOS Loading Rate (lbs/acre)	Estimated Total POC Load Based on 2009 Progress Run
	Nitrogen		9.38	

Regulated Urban Impervious				
Regulated Urban Pervious			5.34	
Regulated Urban Impervious	Phosphorus		1.41	
Regulated Urban Pervious			0.38	
Regulated Urban Impervious	Total Suspended Solids		423.97	
Regulated Urban Pervious			56.01	

Table 2 d: Calculation Sheet for Estimating Existing Source Loads for the York River Basin				
*Based on Chesapeake Bay Program Watershed Model Phase 5.3.2				
Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	2009 EOS Loading Rate (lbs/acre)	Estimated Total POC Load Based on 2009 Progress Run
Regulated Urban Impervious	Nitrogen		7.31	
Regulated Urban Pervious			7.65	
Regulated Urban Impervious	Phosphorus		1.51	
Regulated Urban Pervious			0.51	
Regulated Urban Impervious	Total Suspended Solids		456.68	
Regulated Urban Pervious			72.78	

(5) A determination of the total pollutant load reductions necessary to reduce the annual POC loads from existing sources utilizing the applicable versions of Tables 3 a-d in this section based on the river basin to which the MS4 discharges. This shall be calculated by multiplying the total existing acres served by the MS4 by the first permit cycle required reduction in loading rate. For the purposes of this determination, the operator shall utilize those existing acres identified by the 2000 U.S. Census Bureau urbanized area and served by the MS4.

Table 3 a: Calculation Sheet for Determining Total POC Reductions Required During this Permit Cycle for the James River Basin				
*Based on Chesapeake Bay Program Watershed Model Phase 5.3.2				

Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	First Permit Cycle Required Reduction in Loading Rate (lbs/acre)	Total Reduction Required First Permit Cycle (lbs)
Regulated Urban Impervious	Nitrogen		0.04	
Regulated Urban Pervious			0.02	
Regulated Urban Impervious	Phosphorus		0.01	
Regulated Urban Pervious			0.002	
Regulated Urban Impervious	Total Suspended Solids		6.67	
Regulated Urban Pervious			0.44	

Table 3 b: Calculation Sheet for Determining Total POC Reductions Required During this Permit Cycle for the Potomac River Basin

***Based on Chesapeake Bay Program Watershed Model Phase 5.3.2**

Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	First Permit Cycle Required Reduction in Loading Rate (lbs/acre)	Total Reduction Required First Permit Cycle (lbs)
Regulated Urban Impervious	Nitrogen		0.08	
Regulated Urban Pervious			0.03	
Regulated Urban Impervious	Phosphorus		0.01	
Regulated Urban Pervious			0.001	
Regulated Urban Impervious	Total Suspended Solids		11.71	
Regulated Urban Pervious			0.77	

Table 3 c: Calculation Sheet for Determining Total POC Reductions Required During this Permit Cycle for the Rappahannock River Basin

***Based on Chesapeake Bay Program Watershed Model Phase 5.3.2**

--	--	--	--	--

Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	First Permit Cycle Required Reduction in Loading Rate (lbs/acre)	Total Reduction Required First Permit Cycle (lbs)
Regulated Urban Impervious	Nitrogen		0.04	
Regulated Urban Pervious			0.02	
Regulated Urban Impervious	Phosphorus		0.01	
Regulated Urban Pervious			0.002	
Regulated Urban Impervious	Total Suspended Solids		4.24	
Regulated Urban Pervious			0.25	

Table 3 d: Calculation Sheet for Determining Total POC Reductions Required During this Permit Cycle for the York River Basin *Based on Chesapeake Bay Program Watershed Model Phase 5.3.2				
Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	First Permit Cycle Required Reduction in Loading Rate (lbs/acre)	Total Reduction Required First Permit Cycle (lbs)
Regulated Urban Impervious	Nitrogen		0.03	
Regulated Urban Pervious			0.02	
Regulated Urban Impervious	Phosphorus		0.01	
Regulated Urban Pervious			0.002	
Regulated Urban Impervious	Total Suspended Solids		4.60	
Regulated Urban Pervious			0.32	

(6) The means and methods, such as management practices and retrofit programs that will be utilized to meet the required reductions included in subdivision 2 a (5) of this subsection, and a schedule to achieve those reductions. The schedule should include annual benchmarks to demonstrate the ongoing progress in meeting those reductions;

(7) The means and methods to offset the increased loads from new sources initiating construction between July 1, 2009, and June 30, 2014, that disturb one acre or greater as a result of the utilization of an average land cover condition greater than 16% impervious cover for the design of post-development stormwater management facilities. The operator shall utilize Table 4 to develop the equivalent pollutant load for nitrogen and total suspended solids. The operator shall offset 5.0% of the calculated increased load from these new sources during the permit cycle.

(8) The means and methods to offset the increased loads from projects as grandfathered in accordance with [9VAC25-870-48](#), that disturb one acre or greater that begin construction after July 1, 2014, where the project utilizes an average land cover condition greater than 16% impervious cover in the design of post-development stormwater management facilities. The operator shall utilize Table 4 to develop the equivalent pollutant load for nitrogen and total suspended solids.

(9) The operator shall address any modification to the TMDL or watershed implementation plan that occurs during the term of this state permit as part of its permit reapplication and not during the term of this state permit.

Table 4: Ratio of Phosphorus Loading Rate to Nitrogen and Total Suspended Solids Loading Rates for Chesapeake Bay Basins			
Ratio of Phosphorus to Other POCs (Based on All Land Uses 2009 Progress Run)	Phosphorus Loading Rate (lbs/acre)	Nitrogen Loading Rate (lbs/acre)	Total Suspended Solids Loading Rate (lbs/acre)
James River Basin	1.0	5.2	420.9
Potomac River Basin	1.0	6.9	469.2
Rappahannock River Basin	1.0	6.7	320.9
York River Basin	1.0	9.5	531.6

(10) A list of future projects and associated acreage that qualify as grandfathered in accordance with [9VAC25-870-48](#);

(11) An estimate of the expected costs to implement the requirements of this special condition during the state permit cycle; and

(12) An opportunity for receipt and consideration of public comment regarding the draft Chesapeake Bay TMDL Action Plan.

b. As part of development of the Chesapeake Bay TMDL Action Plan, the operator may consider:

(1) Implementation of BMPs on unregulated lands provided any necessary baseline reduction is not included toward meeting the required reduction in this permit;

(2) Utilization of stream restoration projects, provided that the credit applied to the required POC load reduction is prorated based on the ratio of regulated urban acres to total drainage acres upstream of the restored area;

(3) Establishment of a memorandum of understanding (MOU) with other MS4 operators that discharge to the same or adjacent eight digit hydrologic unit within the same basin to implement BMPs collectively. The MOU shall include a mechanism for dividing the POC reductions created by BMP implementation between the cooperative MS4s;

(4) Utilization of any pollutant trading or offset program in accordance with §§ [62.1-44.19:20](#) through [62.1-44.19:23](#) of the Code of Virginia, governing trading and offsetting;

(5) A more stringent average land cover condition based on less than 16% impervious cover for new sources initiating construction between July 1, 2009, and June 30, 2014, and all grandfathered projects where allowed by law; and

(6) Any BMPs installed after June 30, 2009, as part of a retrofit program may be applied towards meeting the required load reductions provided any necessary baseline reductions are not included.

3. Chesapeake Bay TMDL Action Plan implementation. The operator shall implement the TMDL Action Plan according to the schedule therein. Compliance with this requirement represents adequate progress for this state permit term towards achieving TMDL wasteload allocations consistent with the assumptions and requirements of the TMDL. For the purposes of this permit, the implementation of the following represents implementation to the maximum extent practicable and demonstrates adequate progress:

a. Implementation of nutrient management plans in accordance with the schedule identified in the minimum control measure in Section II related to pollution prevention/good housekeeping for municipal operations;

b. Implementation of the minimum control measure in Section II related to construction site stormwater runoff control in accordance with this state permit shall address discharges from transitional sources;

c. Implementation of the means and methods to address discharges from new sources in accordance with the minimum control measure in Section II related to post-construction stormwater management in new development and development of prior developed lands and in order to offset 5.0% of the total increase in POC loads between July 1, 2009, and June 30, 2014. Increases in the POC load from grandfathered projects initiating construction after July 1, 2014, must be offset prior to completion of the project; and

d. Implementation of means and methods sufficient to meet the required reductions of POC loads from existing sources in accordance with the Chesapeake Bay TMDL Action Plan.

4. Annual reporting requirements.

a. In accordance with Table 1, the operator shall submit the Chesapeake Bay Action Plan with the appropriate annual report.

b. Each subsequent annual report shall include a list of control measures implemented during the reporting period and the cumulative progress toward meeting the compliance targets for nitrogen, phosphorus, and total suspended solids.

c. Each subsequent annual report shall include a list of control measures, in an electronic format provided by the department, 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 Section II B 5 e

and shall include whether an existing stormwater management control was retrofitted, and if so, the existing stormwater management control type retrofit used.

d. 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 nitrogen, phosphorus, and total suspended solids.

5. The operator shall include the following as part of its reapplication package due in accordance with Section III M:

a. Documentation that sufficient control measures have been implemented 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 required reduction in this state permit and a schedule of implementation to ensure the permanent reduction must be provided; and

b. A draft second phase Chesapeake Bay TMDL Action Plan designed to reduce the existing pollutant load as follows:

(1) The existing pollutant of concern loads by an additional seven times the required reductions in loading rates using the applicable Table 3 for sources included in the 2000 U.S. Census Bureau urbanized areas;

(2) The existing pollutant of concerns loads by an additional eight times the required reductions in loading rates using the applicable Table 3 for expanded sources identified in the U.S. Census Bureau 2010 urbanized areas;

(3) 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

(4) Accounts for any modifications to the applicable loading rate provided to the operator as a result of TMDL modification.

SECTION II

MUNICIPAL SEPARATE STORM SEWER SYSTEM MANAGEMENT PROGRAM

A. The operator of a small MS4 must develop, implement, and enforce a MS4 Program designed to reduce the discharge of pollutants from the small MS4 to the maximum extent practicable (MEP), to protect water quality, to ensure compliance by the operator with water quality standards, and to satisfy the appropriate water quality requirements of the Clean Water Act and its attendant regulations. The MS4 Program must include the minimum control measures described in paragraph B of this section. Implementation of best management practices consistent with the provisions of an iterative MS4 Program required pursuant to this section constitutes compliance with the standard of reducing pollutants to the "maximum extent practicable," protects water quality in the absence of a TMDL wasteload allocation, ensures compliance by the operator with water quality standards, and satisfies the appropriate water quality requirements of the Clean Water Act and regulations in the absence of a TMDL WLA. The requirements of this section and those special conditions set out in Section I B also apply where a WLA is applicable.

B. Minimum control measures.

NOTE regarding minimum control measures for public education and outreach on stormwater impacts and public involvement/participation: "Public" is not defined in this permit. However, the department concurs with the following EPA statement, which was published in the Federal Register, Volume 64, No. 235, page 68,750 on December 8, 1999, regarding

"public" and its applicability to MS4 programs: "EPA acknowledges that federal and state facilities are different from municipalities. EPA believes, however, that the minimum measures are flexible enough that they can be implemented by these facilities. As an example, DOD commentators asked about how to interpret the term "public" for military installations when implementing the public education measure. EPA agrees with the suggested interpretation of "public" for DOD facilities as "the resident and employee population within the fence line of the facility." The department recommends that nontraditional MS4 operators, such as state and federal entities and local school districts, utilize this statement as guidance when determining their applicable "public" for compliance with this permit.

1. Public education and outreach on stormwater impacts.

a. The operator shall continue to implement the public education and outreach program as included in the registration statement until the program is updated to meet the conditions of this state permit. Operators who have not previously held MS4 permit coverage shall implement this program in accordance with the schedule provided with the completed registration statement.

b. The public education and outreach program should be designed with consideration of the following goals:

(1) Increasing target audience knowledge about the steps that can be taken to reduce stormwater pollution, placing priority on reducing impacts to impaired waters and other local water pollution concerns;

(2) Increasing target audience knowledge of hazards associated with illegal discharges and improper disposal of waste, including pertinent legal implications; and

(3) Implementing a diverse program with strategies that are targeted towards audiences most likely to have significant stormwater impacts.

c. The updated program shall be designed to:

(1) Identify, at a minimum, three high-priority water quality issues, that contribute to the discharge of stormwater (e.g., Chesapeake Bay nutrients, pet wastes and local bacteria TMDLs, high-quality receiving waters, and illicit discharges from commercial sites) and a rationale for the selection of the three high-priority water quality issues;

(2) Identify and estimate the population size of the target audience or audiences who is most likely to have significant impacts for each high-priority water quality issue;

(3) Develop relevant message or messages and associated educational and outreach materials (e.g., various media such as printed materials, billboard and mass transit advertisements, signage at select locations, radio advertisements, television advertisements, websites, and social media) for message distribution to the selected target audiences while considering the viewpoints and concerns of the target audiences including minorities, disadvantaged audiences, and minors;

(4) Provide for public participation during public education and outreach program development;

(5) Annually conduct sufficient education and outreach activities designed to reach an equivalent 20% of each high-priority issue target audience. It shall not be considered noncompliance for failure to reach 20% of the target audience. However, it shall be a compliance issue if insufficient effort is made to annually reach a minimum of 20% of the target audience; and

(6) Provide for the adjustment of target audiences and messages including educational materials and delivery mechanisms to reach target audiences in order to address any observed weaknesses or shortcomings.

d. The operator may coordinate their public education and outreach efforts with other MS4 operators; however, each operator shall be individually responsible for meeting all of its state permit requirements.

e. Prior to application for continued state permit coverage required in Section III M, the operator shall evaluate the education and outreach program for:

(1) Appropriateness of the high-priority stormwater issues;

(2) Appropriateness of the selected target audiences for each high-priority stormwater issue;

(3) Effectiveness of the message or messages being delivered; and

(4) Effectiveness of the mechanism or mechanisms of delivery employed in reaching the target audiences.

f. The MS4 Program Plan shall describe how the conditions of this permit shall be updated in accordance with Table 1.

g. The operator shall include the following information in each annual report submitted to the department during this permit term:

(1) A list of the education and outreach activities conducted during the reporting period for each high-priority water quality issue, the estimated number of people reached, and an estimated percentage of the target audience or audiences that will be reached; and

(2) A list of the education and outreach activities that will be conducted during the next reporting period for each high-priority water quality issue, the estimated number of people that will be reached, and an estimated percentage of the target audience or audiences that will be reached.

2. Public involvement/participation.

a. Public involvement.

(1) The operator shall comply with any applicable federal, state, and local public notice requirements.

(2) The operator shall:

(a) Maintain an updated MS4 Program Plan. Any required updates to the MS4 Program Plan shall be completed at a minimum of once a year and shall be updated in conjunction with the annual report. The operator shall post copies of each MS4 program plan on its webpage at a minimum of once a year and within 30 days of submittal of the annual report to the department.

(b) Post copies of each annual report on the operator's web page within 30 days of submittal to the department and retain copies of annual reports online for the duration of this state permit; and

(c) Prior to applying for coverage as required by Section III M, notify the public and provide for receipt of comment of the proposed MS4 Program Plan that will be submitted with the registration statement. As part of the reapplication, the operator shall address how it considered the comments received in the development of its MS4 Program Plan. The operator shall give public notice by a method reasonably calculated to give actual notice of the

action in question to the persons potentially affected by it, including press releases or any other forum or medium to solicit public participation.

b. Public participation. The operator shall participate, through promotion, sponsorship, or other involvement, in a minimum of four local activities annually (e.g., stream cleanups; hazardous waste cleanup days; and meetings with watershed associations, environmental advisory committees, and other environmental organizations that operate within proximity to the operator's small MS4). The activities shall be aimed at increasing public participation to reduce stormwater pollutant loads; improve water quality; and support local restoration and clean-up projects, programs, groups, meetings, or other opportunities for public involvement.

c. The MS4 Program Plan shall include written procedures for implementing this program.

d. Each annual report shall include:

(1) A web link to the MS4 Program Plan and annual report; and

(2) Documentation of compliance with the public participation requirements of this section.

3. Illicit discharge detection and elimination.

a. The operator shall maintain an accurate storm sewer system map and information table and shall update it in accordance with the schedule set out in Table 1.

(1) The storm sewer system map must show the following, at a minimum:

(a) The location of all MS4 outfalls. In cases where the outfall is located outside of the MS4 operator's legal responsibility, the operator may elect to map the known point of discharge location closest to the actual outfall. Each mapped outfall must be given a unique identifier, which must be noted on the map; and

(b) The name and location of all waters receiving discharges from the MS4 outfalls and the associated HUC.

(2) The associated information table shall include for each outfall the following:

(a) The unique identifier;

(b) The estimated MS4 acreage served;

(c) The name of the receiving surface water and indication as to whether the receiving water is listed as impaired in the Virginia 2010 303(d)/305(b) Water Quality Assessment Integrated Report; and

(d) The name of any applicable TMDL or TMDLs.

(3) Within 48 months of coverage under this state permit, the operator shall have a complete and updated storm sewer system map and information table that includes all MS4 outfalls located within the boundaries identified as "urbanized" areas in the 2010 Decennial Census and shall submit the updated information table as an appendix to the annual report.

(4) The operator shall maintain a copy of the current storm sewer system map and outfall information table for review upon request by the public or by the department.

(5) The operator shall continue to identify other points of discharge. The operator shall notify in writing the downstream MS4 of any known physical interconnection.

b. The operator shall effectively prohibit, through ordinance or other legal mechanism, nonstormwater discharges into the storm sewer system to the extent allowable under federal, state, or local law, regulation, or ordinance. Categories of nonstormwater discharges or flows (i.e., illicit discharges) identified in [9VAC25-870-400 D 2 c \(3\)](#) must be addressed only if they are identified by the operator as significant contributors of pollutants to the small MS4. Flows that have been identified in writing by the department as de minimis discharges are not significant sources of pollutants to surface water and do not require a VPDES permit.

c. The operator shall develop, implement, and update, when appropriate, written procedures to detect, identify, and address unauthorized nonstormwater discharges, including illegal dumping, to the small MS4. These procedures shall include:

(1) Written dry weather field screening methodologies to detect and eliminate illicit discharges to the MS4 that include field observations and field screening monitoring and that provide:

(a) A prioritized schedule of field screening activities determined by the operator based on such criteria as age of the infrastructure, land use, historical illegal discharges, dumping or cross connections.

(b) The minimum number of field screening activities the operator shall complete annually to be determined as follows: (i) if the total number of outfalls in the small MS4 is less than 50, all outfalls shall be screened annually or (ii) if the small MS4 has 50 or more total outfalls, a minimum of 50 outfalls shall be screened annually.

(c) Methodologies to collect the general information such as time since the last rain, the quantity of the last rain, site descriptions (e.g., conveyance type and dominant watershed land uses), estimated discharge rate (e.g., width of water surface, approximate depth of water, approximate flow velocity, and flow rate), and visual observations (e.g., order, color, clarity, floatables, deposits or stains, vegetation condition, structural condition, and biology).

(d) A time frame upon which to conduct an investigation or investigations to identify and locate the source of any observed continuous or intermittent nonstormwater discharge prioritized as follows: (i) illicit discharges suspected of being sanitary sewage or significantly contaminated must be investigated first and (ii) investigations of illicit discharges suspected of being less hazardous to human health and safety such as noncontact cooling water or wash water may be delayed until after all suspected sanitary sewage or significantly contaminated discharges have been investigated, eliminated, or identified. Discharges authorized under a separate VPDES or state permit require no further action under this permit.

(e) Methodologies to determine the source of all illicit discharges shall be conducted. If an illicit discharge is found, but within six months of the beginning of the investigation neither the source nor the same nonstormwater discharge has been identified, then the operator shall document such in accordance with Section II B 3 f. If the observed discharge is intermittent, the operator must document that a minimum of three separate investigations were made in an attempt to observe the discharge when it was flowing. If these attempts are unsuccessful, the operator shall document such in accordance with Section II B 3 f.

(f) Mechanisms to eliminate identified sources of illicit discharges including a description of the policies and procedures for when and how to use legal authorities.

(g) Methods for conducting a follow-up investigation in order to verify that the discharge has been eliminated.

(h) A mechanism to track all investigations to document: (i) the date or dates that the illicit discharge was observed and reported; (ii) the results of the investigation; (iii) any follow-up to the investigation; (iv) resolution of the investigation; and (v) the date that the investigation was closed.

d. The operator shall promote, publicize, and facilitate public reporting of illicit discharges into or from MS4s. The operator shall conduct inspections in response to complaints and follow-up inspections as needed to ensure that corrective measures have been implemented by the responsible party.

e. The MS4 Program Plan shall include all procedures developed by the operator to detect, identify, and address nonstormwater discharges to the MS4 in accordance with the schedule in Table 1. In the interim, the operator shall continue to implement the program as included as part of the registration statement until the program is updated to meet the conditions of this permit. Operators, who have not previously held MS4 permit coverage, shall implement this program in accordance with the schedule provided with the completed registration statement.

f. Annual reporting requirements. Each annual report shall include:

- (1) A list of any written notifications of physical interconnection given by the operator to other MS4s;
- (2) The total number of outfalls screened during the reporting period, the screening results, and detail of any follow-up actions necessitated by the screening results; and
- (3) A summary of each investigation conducted by the operator of any suspected illicit discharge. The summary must include: (i) the date that the suspected discharge was observed, reported, or both; (ii) how the investigation was resolved, including any follow-up, and (iii) resolution of the investigation and the date the investigation was closed.

4. Construction site stormwater runoff control.

a. Applicable oversight requirements. The operator shall utilize its legal authority, such as ordinances, permits, orders, specific contract language, and interjurisdictional agreements, to address discharges entering the MS4 from the following land-disturbing activities:

- (1) Land-disturbing activities as defined in § [62.1-44.15:51](#) of the Code of Virginia that result in the disturbance of 10,000 square feet or greater;
- (2) Land-disturbing activities in jurisdictions in Tidewater Virginia, as defined in § [62.1-44.15:68](#) of the Code of Virginia, that disturb 2,500 square feet or greater and are located in areas designated as Resource Protection Areas (RPA), Resource Management Areas (RMA) or Intensely Developed Acres (IDA), pursuant to the Chesapeake Bay Preservation Area Designation and Management Regulations adopted pursuant to the Chesapeake Bay Preservation Act;
- (3) Land-disturbing activities disturbing less than the minimum land disturbance identified in subdivision (1) or (2) above for which a local ordinance requires that an erosion and sediment control plan be developed; and
- (4) Land-disturbing activities on individual residential lots or sections of residential developments being developed by different property owners and where the total land disturbance of the residential development is 10,000 square feet or greater. The operator may utilize an agreement in lieu of a plan as provided in § [62.1-44.15:55](#) of the Code of Virginia for this category of land disturbances.

b. Required plan approval prior to commencement of the land disturbing activity. The operator shall require that land disturbance not begin until an erosion and sediment control plan or an agreement in lieu of a plan as provided in § [62.1-44.15:55](#) is approved by a VESCP authority in accordance with the Erosion and Sediment Control Law (§ [62.1-44.15:51](#) et seq. of the Code of Virginia). The plan shall be:

(1) Compliant with the minimum standards identified in [9VAC25-840-40](#) of the Erosion and Sediment Control Regulations; or

(2) Compliant with department-approved annual standards and specifications. Where applicable, the plan shall be consistent with any additional or more stringent, or both, erosion and sediment control requirements established by state regulation or local ordinance.

c. Compliance and enforcement.

(1) The operator shall inspect land-disturbing activities for compliance with an approved erosion and sediment control plan or agreement in lieu of a plan in accordance with the minimum standards identified in [9VAC25-840-40](#) or with department-approved annual standards and specifications.

(2) The operator shall implement an inspection schedule for land-disturbing activities identified in Section II B 4 a as follows:

(a) Upon initial installation of erosion and sediment controls;

(b) At least once during every two-week period;

(c) Within 48 hours of any runoff-producing storm event; and

(d) Upon completion of the project and prior to the release of any applicable performance bonds.

Where an operator establishes an alternative inspection program as provided for in [9VAC25-840-60](#) B 2, the written schedule shall be implemented in lieu of Section II B 4 c (2) and the written plan shall be included in the MS4 Program Plan.

(3) Operator inspections shall be conducted by personnel who hold a certificate of competence in accordance with [9VAC25-850-40](#). Documentation of certification shall be made available upon request by the VESCP authority or other regulatory agency.

(4) The operator shall promote to the public a mechanism for receipt of complaints regarding regulated land-disturbing activities and shall follow up on any complaints regarding potential water quality and compliance issues.

(5) The operator shall utilize its legal authority to require compliance with the approved plan where an inspection finds that the approved plan is not being properly implemented.

(6) The operator shall utilize, as appropriate, its legal authority to require changes to an approved plan when an inspection finds that the approved plan is inadequate to effectively control soil erosion, sediment deposition, and runoff to prevent the unreasonable degradation of properties, stream channels, waters, and other natural resources.

(7) The operator shall require implementation of appropriate controls to prevent nonstormwater discharges to the MS4, such as wastewater, concrete washout, fuels and oils, and other illicit discharges identified during land-disturbing activity inspections of the MS4. The discharge of nonstormwater discharges other than those identified in [9VAC25-890-20](#) through the MS4 is not authorized by this state permit.

(8) The operator may develop and implement a progressive compliance and enforcement strategy provided that such strategy is included in the MS4 Program Plan and is consistent with [9VAC25-840](#).

d. Regulatory coordination. The operator shall implement enforceable procedures to require that large construction activities as defined in [9VAC25-870-10](#) and small construction activities as defined in [9VAC25-870-10](#), including municipal construction activities, secure necessary state permit authorizations from the department to discharge stormwater.

e. MS4 Program requirements. The operator's MS4 Program Plan shall include:

(1) A description of the legal authorities utilized to ensure compliance with the minimum control measure in Section II related to construction site stormwater runoff control such as ordinances, permits, orders, specific contract language, and interjurisdictional agreements;

(2) Written plan review procedures and all associated documents utilized in plan review;

(3) For the MS4 operators who obtain department-approved standards and specifications, a copy of the current standards and specifications;

(4) Written inspection procedures and all associated documents utilized during inspection including the inspection schedule;

(5) Written procedures for compliance and enforcement, including a progressive compliance and enforcement strategy, where appropriate; and

(6) The roles and responsibilities of each of the operator's departments, divisions, or subdivisions in implementing the minimum control measure in Section II related to construction site stormwater runoff control. If the operator utilizes another entity to implement portions of the MS4 Program Plan, a copy of the written agreement must be retained in the MS4 Program Plan. The description of each party's roles and responsibilities, including any written agreements with third parties, shall be updated as necessary.

Reference may be made to any listed requirements in this subdivision provided the location of where the reference material can be found is included and the reference material is made available to the public upon request.

f. Reporting requirements. The operator shall track regulated land-disturbing activities and submit the following information in all annual reports:

(1) Total number of regulated land-disturbing activities;

(2) Total number of acres disturbed;

(3) Total number of inspections conducted; and

(4) A summary of the enforcement actions taken, including the total number and type of enforcement actions taken during the reporting period.

5. Post-construction stormwater management in new development and development on prior developed lands.

a. Applicable oversight requirements. The operator shall address post-construction stormwater runoff that enters the MS4 from the following land-disturbing activities:

(1) New development and development on prior developed lands that are defined as large construction activities or small construction activities in [9VAC25-870-10](#);

(2) New development and development on prior developed lands that disturb greater than or equal to 2,500 square feet, but less than one acre, located in a Chesapeake Bay Preservation Area designated by a local government located in Tidewater, Virginia, as defined in § [62.1-44.15:68](#) of the Code of Virginia; and

(3) New development and development on prior developed lands where an applicable state regulation or local ordinance has designated a more stringent regulatory size threshold than that identified in subdivision (1) or (2) above.

b. Required design criteria for stormwater runoff controls. The operator shall utilize legal authority, such as ordinances, permits, orders, specific contract language, and interjurisdictional agreements, to require that activities identified in Section II B 5 a address stormwater runoff in such a manner that stormwater runoff controls are designed and installed:

(1) In accordance with the appropriate water quality and water quantity design criteria as required in Part II ([9VAC25-870-40](#) et seq.) of [9VAC25-870](#);

(2) In accordance with any additional applicable state or local design criteria required at project initiation; and

(3) Where applicable, in accordance with any department-approved annual standards and specifications.

Upon board approval of a Virginia Stormwater Management Program authority (VSMP Authority) as defined in § [62.1-44.15:24](#) of the Code of Virginia and reissuance of the Virginia Stormwater Management Program (VSMP) General Permit for Discharges of Stormwater from Construction Activities, the operator shall require that stormwater management plans are approved by the appropriate VSMP Authority prior to land disturbance. In accordance with § [62.1-44.15:27](#) M of the Code of Virginia, VSMPs shall become effective July 1, 2014, unless otherwise specified by state law or by the board.

c. Inspection, operation, and maintenance verification of stormwater management facilities.

(1) For stormwater management facilities not owned by the MS4 operator, the following conditions apply:

(a) The operator shall require adequate long-term operation and maintenance by the owner of the stormwater management facility by requiring the owner to develop a recorded inspection schedule and maintenance agreement to the extent allowable under state or local law or other legal mechanism;

(b) The operator or his designee shall implement a schedule designed to inspect all privately owned stormwater management facilities that discharge into the MS4 at least once every five years to document that maintenance is being conducted in such a manner to ensure long-term operation in accordance with the approved designs.

(c) The operator shall utilize its legal authority for enforcement of maintenance responsibilities if maintenance is neglected by the owner. The operator may develop and implement a progressive compliance and enforcement strategy provided that the strategy is included in the MS4 Program Plan.

(d) Beginning with the issuance of this state permit, the operator may utilize strategies other than maintenance agreements such as periodic inspections, homeowner outreach and education, and other methods targeted at promoting the long-term maintenance of stormwater control measures that are designed to treat stormwater runoff solely from the individual residential lot. Within 12 months of coverage under this permit, the operator shall develop and implement these alternative strategies and include them in the MS4 Program Plan.

(2) For stormwater management facilities owned by the MS4 operator, the following conditions apply:

(a) The operator shall provide for adequate long-term operation and maintenance of its stormwater management facilities in accordance with written inspection and maintenance procedures included in the MS4 Program Plan.

(b) The operator shall inspect these stormwater management facilities annually. The operator may choose to implement an alternative schedule to inspect these stormwater management facilities based on facility type and expected maintenance needs provided that the alternative schedule is included in the MS4 Program Plan.

(c) The operator shall conduct maintenance on its stormwater management facilities as necessary.

d. MS4 Program Plan requirements. The operator's MS4 Program Plan shall be updated in accordance with Table 1 to include:

(1) A list of the applicable legal authorities such as ordinance, state and other permits, orders, specific contract language, and interjurisdictional agreements to ensure compliance with the minimum control measure in Section II related to post-construction stormwater management in new development and development on prior developed lands;

(2) Written policies and procedures utilized to ensure that stormwater management facilities are designed and installed in accordance with Section II B 5 b;

(3) Written inspection policies and procedures utilized in conducting inspections;

(4) Written procedures for inspection, compliance and enforcement to ensure maintenance is conducted on private stormwater facilities to ensure long-term operation in accordance with approved design;

(5) Written procedures for inspection and maintenance of operator-owned stormwater management facilities;

(6) The roles and responsibilities of each of the operator's departments, divisions, or subdivisions in implementing the minimum control measure in Section II related to post-construction stormwater management in new development and development on prior developed lands. If the operator utilizes another entity to implement portions of the MS4 Program Plan, a copy of the written agreement must be retained in the MS4 Program Plan. Roles and responsibilities shall be updated as necessary.

e. Stormwater management facility tracking and reporting requirements. The operator shall maintain an updated electronic database of all known operator-owned and privately-owned stormwater management facilities that discharge into the MS4. The database shall include the following:

(1) The stormwater management facility type;

(2) A general description of the facility's location, including the address or latitude and longitude;

(3) The acres treated by the facility, including total acres, as well as the breakdown of pervious and impervious acres;

- (4) The date the facility was brought online (MM/YYYY). If the date is not known, the operator shall use June 30, 2005, as the date brought online for all previously existing stormwater management facilities;
- (5) The sixth order hydrologic unit code (HUC) in which the stormwater management facility is located;
- (6) The name of any impaired water segments within each HUC listed in the 2010 § 305(b)/303(d) Water Quality Assessment Integrated Report to which the stormwater management facility discharges;
- (7) Whether the stormwater management facility is operator-owned or privately-owned;
- (8) Whether a maintenance agreement exists if the stormwater management facility is privately owned; and
- (9) The date of the operator's most recent inspection of the stormwater management facility.

In addition, the operator shall annually track and report the total number of inspections completed and, when applicable, the number of enforcement actions taken to ensure long-term maintenance.

The operator shall submit an electronic database or spreadsheet of all stormwater management facilities brought online during each reporting year with the appropriate annual report. Upon such time as the department provides the operators access to a statewide web-based reporting electronic database or spreadsheet, the operator shall utilize such database to complete the pertinent reporting requirements of this state permit.

6. Pollution prevention/good housekeeping for municipal operations.

a. Operations and maintenance activities. The MS4 Program Plan submitted with the registration statement shall be implemented by the operator until updated in accordance with this state permit. In accordance with Table 1, the operator shall develop and implement written procedures designed to minimize or prevent pollutant discharge from: (i) daily operations such as road, street, and parking lot maintenance; (ii) equipment maintenance; and (iii) the application, storage, transport, and disposal of pesticides, herbicides, and fertilizers. The written procedures shall be utilized as part of the employee training. At a minimum, the written procedures shall be designed to:

- (1) Prevent illicit discharges;
- (2) Ensure the proper disposal of waste materials, including landscape wastes;
- (3) Prevent the discharge of municipal vehicle wash water into the MS4 without authorization under a separate VPDES permit;
- (4) Prevent the discharge of wastewater into the MS4 without authorization under a separate VPDES permit;
- (5) Require implementation of best management practices when discharging water pumped from utility construction and maintenance activities;
- (6) Minimize the pollutants in stormwater runoff from bulk storage areas (e.g., salt storage, topsoil stockpiles) through the use of best management practices;
- (7) Prevent pollutant discharge into the MS4 from leaking municipal automobiles and equipment; and
- (8) Ensure that the application of materials, including fertilizers and pesticides, is conducted in accordance with the manufacturer's recommendations.

b. Municipal facility pollution prevention and good housekeeping.

(1) Within 12 months of state permit coverage, the operator shall identify all municipal high-priority facilities. These high-priority facilities shall include: (i) composting facilities, (ii) equipment storage and maintenance facilities, (iii) materials storage yards, (iv) pesticide storage facilities, (v) public works yards, (vi) recycling facilities, (vii) salt storage facilities, (viii) solid waste handling and transfer facilities, and (ix) vehicle storage and maintenance yards.

(2) Within 12 months of state permit coverage, the operator shall identify which of the municipal high-priority facilities have a high potential of discharging pollutants. Municipal high-priority facilities that have a high potential for discharging pollutants are those facilities identified in subsection (1) above that are not covered under a separate VPDES permit and which any of the following materials or activities occur and are expected to have exposure to stormwater resulting from rain, snow, snowmelt or runoff:

(a) Areas where residuals from using, storing or cleaning machinery or equipment remain and are exposed to stormwater;

(b) Materials or residuals on the ground or in stormwater inlets from spills or leaks;

(c) Material handling equipment (except adequately maintained vehicles);

(d) Materials or products that would be expected to be mobilized in stormwater runoff during loading/unloading or transporting activities (e.g., rock, salt, fill dirt);

(e) Materials or products stored outdoors (except final products intended for outside use where exposure to stormwater does not result in the discharge of pollutants);

(f) Materials or products that would be expected to be mobilized in stormwater runoff contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;

(g) Waste material except waste in covered, non-leaking containers (e.g., dumpsters);

(h) Application or disposal of process wastewater (unless otherwise permitted); or

(i) Particulate matter or visible deposits of residuals from roof stacks, vents or both not otherwise regulated (i.e., under an air quality control permit) and evident in the stormwater runoff.

(3) The operator shall develop and implement specific stormwater pollution prevention plans for all high-priority facilities identified in subdivision 2 of this subsection. The operator shall complete SWPPP development and implementation shall be completed within 48 months of coverage under this state permit. Facilities covered under a separate VPDES permit shall adhere to the conditions established in that permit and are excluded from this requirement.

(4) Each SWPPP shall include:

(a) A site description that includes a site map identifying all outfalls, direction of flows, existing source controls, and receiving water bodies;

(b) A discussion and checklist of potential pollutants and pollutant sources;

(c) A discussion of all potential nonstormwater discharges;

(d) Written procedures designed to reduce and prevent pollutant discharge;

- (e) A description of the applicable training as required in Section II B 6 d;
- (f) Procedures to conduct an annual comprehensive site compliance evaluation;
- (g) An inspection and maintenance schedule for site specific source controls. The date of each inspection and associated findings and follow-up shall be logged in each SWPPP;
- (h) The contents of each SWPPP shall be evaluated and modified as necessary to accurately reflect any discharge, release, or spill from the high priority facility reported in accordance with Section III G. For each such discharge, release, or spill, the SWPPP must include the following information: date of incident; material discharged, released, or spilled; and quantity discharged, released or spilled; and
- (i) A copy of each SWPPP shall be kept at each facility and shall be kept updated and utilized as part of staff training required in Section II B 6 d.

c. Turf and landscape management.

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

(a) Within 12 months of state permit coverage, the operator shall identify all applicable 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 land and reported in the annual report.

(b) Within 60 months of state permit coverage, the operator shall implement turf and landscape nutrient management plans on all lands where nutrients are applied to a contiguous area of more than one acre. The following measurable outcomes are established for the implementation of turf and landscape nutrient management plans: (i) within 24 months of permit coverage, not less than 15% of all identified acres will be covered by turf and landscape nutrient management plans; (ii) within 36 months of permit coverage, not less than 40% of all identified acres will be covered by turf and landscape nutrient management plans; and (iii) within 48 months of permit coverage, not less than 75% of all identified acres will be covered by turf and landscape nutrient management plans. The operator shall not fail to meet the measurable goals for two consecutive years.

(c) MS4 operators with lands regulated under § [10.1-104.4](#) of the Code of Virginia shall continue to implement turf and landscape nutrient management plans in accordance with this statutory requirement.

(2) Operators shall annually track the following:

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

(b) The acreage of lands upon which turf and landscape nutrient management plans have been implemented.

(3) The operator 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.

d. Training. The operator shall conduct training for employees. The training requirements may be fulfilled, in total or in part, through regional training programs involving two or more MS4 localities provided; however, that each operator shall remain individually liable for its failure to comply with the training requirements in this permit.

Training is not required if the topic is not applicable to the operator's operations and therefore does not have applicable personnel provided the lack of applicability is documented in the MS4 Program Plan. The operator shall determine and document the applicable employees or positions to receive each type of training. The operator shall develop an annual written training plan including a schedule of training events that ensures implementation of the training requirements as follows:

(1) The operator shall provide biennial training to applicable field personnel in the recognition and reporting of illicit discharges.

(2) The operator shall provide biennial training to applicable employees in good housekeeping and pollution prevention practices that are to be employed during road, street, and parking lot maintenance.

(3) The operator shall provide biennial training to applicable employees in good housekeeping and pollution prevention practices that are to be employed in and around maintenance and public works facilities.

(4) The operator shall ensure that employees, and require that contractors, who apply pesticides and herbicides are properly trained or certified in accordance with the Virginia Pesticide Control Act (§ [3.2-3900](#) et seq. of the Code of Virginia).

(5) The operator shall ensure that employees and contractors serving as plan reviewers, inspectors, program administrators, and construction site operators obtain the appropriate certifications as required under the Virginia Erosion and Sediment Control Law and its attendant regulations.

(6) The operator shall ensure that applicable employees obtain the appropriate certifications as required under the Virginia Erosion and Sediment Control Law and its attendant regulations.

(7) The operators shall provide biennial training to applicable employees in good housekeeping and pollution prevention practices that are to be employed in and around recreational facilities.

(8) The appropriate emergency response employees shall have training in spill responses. A summary of the training or certification program provided to emergency response employees shall be included in the first annual report.

(9) The operator shall keep documentation on each training event including the training date, the number of employees attending the training, and the objective of the training event for a period of three years after each training event.

e. The operator shall require that municipal contractors use appropriate control measures and procedures for stormwater discharges to the MS4 system. Oversight procedures shall be described in the MS4 Program Plan.

f. At a minimum, the MS4 Program Plan shall contain:

(1) The written protocols being used to satisfy the daily operations and maintenance requirements;

(2) A list of all municipal high-priority facilities that identifies those facilities that have a high potential for chemicals or other materials to be discharged in stormwater and a schedule that identifies the year in which an individual SWPPP will be developed for those facilities required to have a SWPPP. Upon completion of a SWPPP, the SWPPP shall be part of the MS4 Program Plan. The MS4 Program Plan shall include the location in which the individual SWPPP is located;

(3) A list of lands where nutrients are applied to a contiguous area of more than one acre. Upon completion of a turf and landscape nutrient management plan, the turf and landscape nutrient management plan shall be part of the MS4 Program Plan. The MS4 Program Plan shall include the location in which the individual turf and landscape nutrient management plan is located; and

(4) The annual written training plan for the next reporting cycle.

g. Annual reporting requirements.

(1) A summary report on the development and implementation of the daily operational procedures;

(2) A summary report on the development and implementation of the required SWPPPs;

(3) A summary report on the development and implementation of the turf and landscape nutrient management plans that includes:

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

(b) The acreage of lands upon which turf and landscape nutrient management plans have been implemented; and

(4) A summary report on the required training, including a list of training events, the training date, the number of employees attending training and the objective of the training.

C. If an existing program requires the implementation of one or more of the minimum control measures of Section II B, the operator, with the approval of the board, may follow that program's requirements rather than the requirements of Section II B. A program that may be considered includes, but is not limited to, a local, state or tribal program that imposes, at a minimum, the relevant requirements of Section II B.

The operator's MS4 Program Plan shall identify and fully describe any program that will be used to satisfy one or more of the minimum control measures of Section II B.

If the program the operator is using requires the approval of a third party, the program must be fully approved by the third party, or the operator must be working towards getting full approval. Documentation of the program's approval status, or the progress towards achieving full approval, must be included in the annual report required by Section II E 3. The operator remains responsible for compliance with the permit requirements if the other entity fails to implement the control measures (or component thereof).

D. The operator may rely on another entity to satisfy the state permit requirements to implement a minimum control measure if: (i) the other entity, in fact, implements the control measure; (ii) the particular control measure, or component thereof, is at least as stringent as the corresponding state permit requirement; and (iii) the other entity agrees to implement the control measure on behalf of the operator. The agreement between the parties must be documented in writing and retained by the operator with the MS4 Program Plan for the duration of this state permit.

In the annual reports that must be submitted under Section II E 3, the operator must specify that another entity is being relied on to satisfy some of the state permit requirements.

If the operator is relying on another governmental entity regulated under [9VAC25-870-380](#) to satisfy all of the state permit obligations, including the obligation to file periodic reports required by Section II E 3, the operator must note that fact in the registration statement, but is not required to file the periodic reports.

The operator remains responsible for compliance with the state permit requirements if the other entity fails to implement the control measure (or component thereof).

E. Evaluation and assessment.

1. MS4 Program Evaluation. The operator must annually evaluate:

- a. Program compliance;
- b. The appropriateness of the identified BMPs (as part of this evaluation, the operator shall evaluate the effectiveness of BMPs in addressing discharges into waters that are identified as impaired in the 2010 § 305 (b)/303(d) Water Quality Assessment Integrated Report); and
- c. Progress towards achieving the identified measurable goals.

2. Recordkeeping. The operator must keep records required by the state permit for at least three years. These records must be submitted to the department only upon specific request. The operator must make the records, including a description of the stormwater management program, available to the public at reasonable times during regular business hours.

3. Annual reports. The operator must submit an annual report for the reporting period of July 1 through June 30 to the department by the following October 1 of that year. The reports shall include:

a. Background Information.

- (1) The name and state permit number of the program submitting the annual report;
- (2) The annual report permit year;
- (3) Modifications to any operator's department's roles and responsibilities;
- (4) Number of new MS4 outfalls and associated acreage by HUC added during the permit year; and
- (5) Signed certification;

b. The status of compliance with state permit conditions, an assessment of the appropriateness of the identified best management practices and progress towards achieving the identified measurable goals for each of the minimum control measures;

c. Results of information collected and analyzed, including monitoring data, if any, during the reporting period;

d. A summary of the stormwater activities the operator plans to undertake during the next reporting cycle;

e. A change in any identified best management practices or measurable goals for any of the minimum control measures including steps to be taken to address any deficiencies;

f. Notice that the operator is relying on another government entity to satisfy some of the state permit obligations (if applicable);

g. The approval status of any programs pursuant to Section II C (if appropriate), or the progress towards achieving full approval of these programs; and

h. Information required for any applicable TMDL special condition contained in Section I.

F. Program Plan modifications.

1. Program modifications requested by the operator. Modifications to the MS4 Program are expected throughout the life of this state permit as part of the iterative process to reduce the pollutant loadings and to protect water quality. As such, modifications made in accordance with this state permit as a result of the iterative process do not require modification of this permit unless the department determines that the changes meet the criteria referenced in [9VAC25-870-630](#) or [9VAC25-870-650](#). Updates and modifications to the MS4 Program may be made during the life of this state permit in accordance with the following procedures:

a. Adding (but not eliminating or replacing) components, controls, or requirements to the MS4 Program may be made by the operator at any time. Additions shall be reported as part of the annual report.

b. Updates and modifications to specific standards and specifications, schedules, operating procedures, ordinances, manuals, checklists, and other documents routinely evaluated and modified are permitted under this state permit provided that the updates and modifications are done in a manner that (i) is consistent with the conditions of this state permit, (ii) follow any public notice and participation requirements established in this state permit, and (iii) are documented in the annual report.

c. Replacing, or eliminating without replacement, any ineffective or infeasible strategies, policies, and BMPs specifically identified in this permit with alternate strategies, policies, and BMPs may be requested at any time. Such requests must be made in writing to the department and signed in accordance with [9VAC25-870-370](#), and include the following:

(1) An analysis of how or why the BMPs, strategies, or policies are ineffective or infeasible, including information on whether the BMPs, strategies, or policies are cost prohibitive;

(2) Expectations regarding the effectiveness of the replacement BMPs, strategies, or policies;

(3) An analysis of how the replacement BMPs are expected to achieve the goals of the BMPs to be replaced;

(4) A schedule for implementing the replacement BMPs, strategies, and policies; and

(5) An analysis of how the replacement strategies and policies are expected to improve the operator's ability to meet the goals of the strategies and policies being replaced.

d. The operator follows the public involvement requirements identified in Section II B 2 (a).

2. MS4 Program updates requested by the department. In a manner and following procedures in accordance with the Virginia Administrative Process Act, the Virginia Stormwater Management regulations, and other applicable state law and regulations, the department may request changes to the MS4 Program to assure compliance with the statutory requirements of the Virginia Stormwater Management Act and its attendant regulations to:

a. Address impacts on receiving water quality caused by discharges from the MS4;

b. Include more stringent requirements necessary to comply with new state or federal laws or regulations; or

c. Include such other conditions necessary to comply with state or federal law or regulation.

Proposed changes requested by the department shall be made in writing and set forth the basis for and objective of the modification as well as the proposed time schedule for the operator to develop and implement the modification. The operator may propose alternative program modifications or time schedules to meet the objective of the requested modification, but any such modifications are at the discretion of the department.

SECTION III
CONDITIONS APPLICABLE TO ALL STATE PERMITS

A. Monitoring.

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
2. Monitoring shall be conducted according to procedures approved under 40 CFR Part 136 or alternative methods approved by the U.S. Environmental Protection Agency, unless other procedures have been specified in this state permit.
3. The operator shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals that will insure accuracy of measurements.

B. Records.

1. Monitoring records/reports shall include:
 - a. The date, exact place, and time of sampling or measurements;
 - b. The individual(s) who performed the sampling or measurements;
 - c. The date(s) and time(s) analyses were performed;
 - d. The individual(s) who performed the analyses;
 - e. The analytical techniques or methods used; and
 - f. The results of such analyses.
2. The operator shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this state permit, and records of all data used to complete the registration statement for this state permit, for a period of at least three years from the date of the sample, measurement, report or request for coverage. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or regarding control standards applicable to the operator, or as requested by the board.

C. Reporting monitoring results.

1. The operator shall submit the results of the monitoring required by this state permit with the annual report unless another reporting schedule is specified elsewhere in this state permit.
2. Monitoring results shall be reported on a Discharge Monitoring Report (DMR); on forms provided, approved or specified by the department; or in any format provided the date, location, parameter, method, and result of the monitoring activity are included.
3. If the operator monitors any pollutant specifically addressed by this state permit more frequently than required by this state permit using test procedures approved under 40 CFR Part 136 or using other test procedures approved by the U.S. Environmental Protection Agency or using procedures specified in this state permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or reporting form specified by the department.

4. Calculations for all limitations that require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this state permit.

D. Duty to provide information. The operator shall furnish to the department, within a reasonable time, any information that the board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this state permit or to determine compliance with this state permit. The board may require the operator to furnish, upon request, such plans, specifications, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of surface waters, or such other information as may be necessary to accomplish the purposes of the CWA and Virginia Stormwater Management Act. The operator shall also furnish to the department upon request, copies of records required to be kept by this permit.

E. Compliance schedule reports. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this state permit shall be submitted no later than 14 days following each schedule date.

F. Unauthorized stormwater discharges. Pursuant to § [62.1-44.15:26](#) of the Code of Virginia, except in compliance with a state permit issued by the board, it shall be unlawful to cause a stormwater discharge from a MS4.

G. Reports of unauthorized discharges. Any operator of a small MS4 who discharges or causes or allows a discharge of sewage, industrial waste, other wastes or any noxious or deleterious substance or a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117 or 40 CFR Part 302 that occurs during a 24-hour period into or upon surface waters; or who discharges or causes or allows a discharge that may reasonably be expected to enter surface waters, shall notify the department of the discharge immediately upon discovery of the discharge, but in no case later than within 24 hours after said discovery. A written report of the unauthorized discharge shall be submitted to the department within five days of discovery of the discharge. The written report shall contain:

1. A description of the nature and location of the discharge;
2. The cause of the discharge;
3. The date on which the discharge occurred;
4. The length of time that the discharge continued;
5. The volume of the discharge;
6. If the discharge is continuing, how long it is expected to continue;
7. If the discharge is continuing, what the expected total volume of the discharge will be; and
8. Any steps planned or taken to reduce, eliminate and prevent a recurrence of the present discharge or any future discharges not authorized by this state permit.

Discharges reportable to the department under the immediate reporting requirements of other regulations are exempted from this requirement.

H. Reports of unusual or extraordinary discharges. If any unusual or extraordinary discharge including a "bypass" or "upset," as defined herein, should occur from a facility and the discharge enters or could be expected to enter surface waters, the operator shall promptly notify, in no case later than within 24 hours, the department by telephone after the

discovery of the discharge. This notification shall provide all available details of the incident, including any adverse effects on aquatic life and the known number of fish killed. The operator shall reduce the report to writing and shall submit it to the department within five days of discovery of the discharge in accordance with Section III I 2. Unusual and extraordinary discharges include but are not limited to any discharge resulting from:

1. Unusual spillage of materials resulting directly or indirectly from processing operations;
2. Breakdown of processing or accessory equipment;
3. Failure or taking out of service some or all of the facilities; and
4. Flooding or other acts of nature.

I. Reports of noncompliance. The operator shall report any noncompliance which may adversely affect surface waters or may endanger public health.

1. An oral report shall be provided within 24 hours to the department from the time the operator becomes aware of the circumstances. The following shall be included as information which shall be reported within 24 hours under this paragraph:

- a. Any unanticipated bypass; and
- b. Any upset which causes a discharge to surface waters.

2. A written report shall be submitted within five days and shall contain:

- a. A description of the noncompliance and its cause;
- b. The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and
- c. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

The board or its designee may waive the written report on a case-by-case basis for reports of noncompliance under Section III I if the oral report has been received within 24 hours and no adverse impact on surface waters has been reported.

3. The operator shall report all instances of noncompliance not reported under Sections III I 1 or 2, in writing, at the time the next monitoring reports are submitted. The reports shall contain the information listed in Section III I 2.

NOTE: The immediate (within 24 hours) reports required to be provided to the department in Sections III G, H and I may be made to the appropriate Regional Office Pollution Response Program as found at <http://deq.virginia.gov/Programs/PollutionResponsePreparedness.aspx>. Reports may be made by telephone or by fax. For reports outside normal working hours, leave a message and this shall fulfill the immediate reporting requirement. For emergencies, the Virginia Department of Emergency Services maintains a 24-hour telephone service at [1-800-468-8892](tel:1-800-468-8892).

4. Where the operator becomes aware of a failure to submit any relevant facts, or submittal of incorrect information in any report to the department, it shall promptly submit such facts or correct information.

J. Notice of planned changes.

1. The operator shall give notice to the department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

a. The operator plans an alteration or addition to any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:

(1) After promulgation of standards of performance under § 306 of the Clean Water Act that are applicable to such source; or

(2) After proposal of standards of performance in accordance with § 306 of the Clean Water Act that are applicable to such source, but only if the standards are promulgated in accordance with § 306 within 120 days of their proposal;

b. The operator plans alteration or addition that would significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this state permit; or

2. The operator shall give advance notice to the department of any planned changes in the permitted facility or activity; which may result in noncompliance with state permit requirements.

K. Signatory requirements.

1. Registration statement. All registration statements shall be signed as follows:

a. For a corporation: by a responsible corporate officer. For the purpose of this subsection, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy-making or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for state permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

c. For a municipality, state, federal, or other public agency: 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.

2. Reports, etc. All reports required by state permits, and other information requested by the board shall be signed by a person described in Section III K 1, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Section III K 1;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the operator. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and

c. The written authorization is submitted to the department.

3. Changes to authorization. If an authorization under Section III K 2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Section III K 2 shall be submitted to the department prior to or together with any reports, or information to be signed by an authorized representative.

4. Certification. Any person signing a document under Sections III K 1 or 2 shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those 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."

L. Duty to comply. The operator shall comply with all conditions of this state permit. Any state permit noncompliance constitutes a violation of the Virginia Stormwater Management Act and the Clean Water Act, except that noncompliance with certain provisions of this state permit may constitute a violation of the Virginia Stormwater Management Act but not the Clean Water Act. State permit noncompliance is grounds for enforcement action; for state permit termination, revocation and reissuance, or modification; or denial of a state permit renewal application.

The operator shall comply with effluent standards or prohibitions established under § 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if this state permit has not yet been modified to incorporate the requirement.

M. Duty to reapply. If the operator wishes to continue an activity regulated by this state permit after the expiration date of this state permit, the operator shall submit a new registration statement at least 90 days before the expiration date of the existing state permit, unless permission for a later date has been granted by the board. The board shall not grant permission for registration statements to be submitted later than the expiration date of the existing state permit.

N. Effect of a state permit. This state permit does not convey any property rights in either real or personal property or any exclusive privileges, nor does it authorize any injury to private property or invasion of personal rights, or any infringement of federal, state or local law or regulations.

O. State law. Nothing in this state permit shall be construed to preclude the institution of any legal action under, or relieve the operator from any responsibilities, liabilities, or penalties established pursuant to any other state law or regulation or under authority preserved by § 510 of the Clean Water Act. Except as provided in state permit conditions on "bypassing"

(Section III U), and "upset" (Section III V) nothing in this state permit shall be construed to relieve the operator from civil and criminal penalties for noncompliance.

P. Oil and hazardous substance liability. Nothing in this state permit shall be construed to preclude the institution of any legal action or relieve the operator from any responsibilities, liabilities, or penalties to which the operator is or may be subject under §§ [62.1-44.34:14](#) through [62.1-44.34:23](#) of the State Water Control Law or § 311 of the Clean Water Act.

Q. Proper operation and maintenance. The operator shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances), which are installed or used by the operator to achieve compliance with the conditions of this state permit. Proper operation and maintenance also includes effective plant performance, adequate funding, adequate staffing, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by the operator only when the operation is necessary to achieve compliance with the conditions of this state permit.

R. Disposal of solids or sludges. Solids, sludges or other pollutants removed in the course of treatment or management of pollutants shall be disposed of in a manner so as to prevent any pollutant from such materials from entering surface waters.

S. Duty to mitigate. The operator shall take all reasonable steps to minimize or prevent any discharge in violation of this state permit that has a reasonable likelihood of adversely affecting human health or the environment.

T. Need to halt or reduce activity not a defense. It shall not be a defense for an operator in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this state permit.

U. Bypass.

1. "Bypass," as defined in [9VAC25-870-10](#), means the intentional diversion of waste streams from any portion of a treatment facility. The operator may allow any bypass to occur that does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Sections III U 2 and U 3.

2. Notice.

a. Anticipated bypass. If the operator knows in advance of the need for a bypass, prior notice shall be submitted, if possible at least 10 days before the date of the bypass.

b. Unanticipated bypass. The operator shall submit notice of an unanticipated bypass as required in Section III I.

3. Prohibition of bypass.

a. Bypass is prohibited, and the board or its designee may take enforcement action against an operator for bypass, unless:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if

adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The operator submitted notices as required under Section III U 2.

b. The board or its designee may approve an anticipated bypass, after considering its adverse effects, if the board or its designee determines that it will meet the three conditions listed above in Section III U 3 a.

V. Upset.

1. An "upset", as defined in [9VAC25-870-10](#), constitutes an affirmative defense to an action brought for noncompliance with technology based state permit effluent limitations if the requirements of Section III V 2 are met. A determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is not a final administrative action subject to judicial review.

2. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

3. An operator who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

- a. An upset occurred and that the operator can identify the cause(s) of the upset;
- b. The permitted facility was at the time being properly operated;
- c. The operator submitted notice of the upset as required in Section III I; and
- d. The operator complied with any remedial measures required under Section III S.

4. In any enforcement proceeding the operator seeking to establish the occurrence of an upset has the burden of proof.

W. Inspection and entry. The operator shall allow the department as the board's designee, or an authorized representative (including an authorized contractor acting as a representative of the administrator), upon presentation of credentials and other documents as may be required by law, to:

1. Enter upon the operator's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this state permit;
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this state permit;
3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this state permit; and
4. Sample or monitor at reasonable times, for the purposes of assuring state permit compliance or as otherwise authorized by the Clean Water Act and the Virginia Stormwater Management Act, any substances or parameters at any location.

For purposes of this subsection, the time for inspection shall be deemed reasonable during regular business hours, and whenever the facility is discharging. Nothing contained herein shall make an inspection unreasonable during an emergency.

X. State permit actions. State permits may be modified, revoked and reissued, or terminated for cause. The filing of a request by the operator for a state permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any state permit condition.

Y. Transfer of state permits.

1. State permits are not transferable to any person except after notice to the department. Except as provided in Section III Y 2, a state permit may be transferred by the operator to a new operator only if the state permit has been modified or revoked and reissued, or a minor modification made, to identify the new operator and incorporate such other requirements as may be necessary under the Virginia Stormwater Management Act and the Clean Water Act.

2. As an alternative to transfers under Section III Y 1, this state permit may be automatically transferred to a new operator if:

- a. The current operator notifies the department at least two days in advance of the proposed transfer of the title to the facility or property;
- b. The notice includes a written agreement between the existing and new operators containing a specific date for transfer of state permit responsibility, coverage, and liability between them; and
- c. The board does not notify the existing operator and the proposed new operator of its intent to modify or revoke and reissue the state permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in Section III Y 2 b.

Z. Severability. The provisions of this state permit are severable, and if any provision of this state permit or the application of any provision of this state permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this state permit, shall not be affected thereby.

Statutory Authority

§ [62.1-44.15:28](#) of the Code of Virginia.

Historical Notes

Former [4VAC50-60-1240](#), derived from Virginia Register Volume 21, Issue 3, eff. January 29, 2005; amended, Virginia Register Volume 24, Issue 20, eff. July 9, 2008; Volume 29, Issue 4, eff. November 21, 2012; Volume 29, Issue 17, eff. July 1, 2013; amended and renumbered, Virginia Register Volume 30, Issue 2, eff. October 23, 2013.

MS4 Program Plan

Permit # VAR040135

Stormwater Discharge From Small Municipal Separate Storm Sewer Systems

Original Submittal:

November 4, 2016

Revised Date:

September 30, 2017



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1.0 EXECUTIVE SUMMARY

The City of Radford is committed to the development, refinement, implementation, and enforcement of a Municipal Separate Storm Sewer System (MS4) Program Plan (Plan) to reduce the discharge of pollutants from the regulated MS4 (urbanized areas of the City) to the maximum extent practicable (MEP), as per VPDES Permit No. VAR040135. The focus of the proposed program will be to 1) protect water quality, 2) improve waters into which the regulated small MS4 discharges, and 3) meet the requirements of state and federal regulations.

The City of Radford MS4 Program Plan includes and addresses the following minimum control measures (MCMs) and schedule for implementation:

- (1) Public Education and Outreach on Stormwater Impacts
- (2) Public Involvement and Participation
- (3) Illicit Discharge Detection and Elimination
- (4) Construction Site Stormwater Runoff Control
- (5) Post-Construction Runoff Control Management
- (6) Pollution Prevention and Good Housekeeping for Municipal Operations

Additionally, the Plan also address special conditions for approved total maximum daily loads (TMDL), when a wasteload allocation (WLA) is assigned to the City of Radford. Currently, there are no applicable WLAs assigned to the City. Any modifications to this Program Plan will be documented as part of the annual report submittals.

Included with this document is a summary of the MCMs and proposed BMPs; a list of supporting documents, existing policies, ordinances, schedules, inspection forms, written procedures, and other documents necessary for BMP implementation; the responsible parties; the objectives and expected results of each BMP; implementation schedule of each BMP; and a method that will be utilized to determine the effectiveness of each BMP.

2.0 MCM 1: PUBLIC EDUCATION & OUTREACH

This minimum control measure is intended to implement a diverse public education program to increase target audience knowledge about the steps that can be taken to reduce stormwater pollution and hazards associated with illegal discharges and improper disposal of waste.

The City of Radford MS4 Program Plan for MCM 1 will be developed to meet the following criteria:

1. Identify, at a minimum, three high-priority water quality issues that contribute to the discharge of stormwater and a rationale for the selection of the three high-priority water quality issues;
2. Identify and estimate the population size of the target audience or audiences who is most likely to have significant impacts for each high-priority water quality issue;
3. Develop relevant message or messages and associated educational and outreach materials for message distribution to the selected target audiences while considering the viewpoints and concerns of the target audiences including minorities, disadvantaged audiences, and minors;
4. Provide for public participation during public education and outreach program development;
5. Annually conduct sufficient education and outreach activities designed to reach an equivalent 20% of each high-priority issue target audience; and
6. Provide for the adjustment of target audiences and messages including educational materials and delivery mechanisms to reach target audiences in order to address any observed weaknesses or shortcomings.

BMP 1.1 – Identify High Priority Water Quality Issues

Description: The City identified three (3) high-priority water quality issues: 1) proper disposal of pet waste, 2) collection of yard waste, and 3) nutrient management education.

Schedule and Evaluation: The City will continue to implement the programs in place, including brochures, while evaluating the effectiveness of the programs. The City will review the programs and implement improvements, as needed, to increase awareness.

Responsible Party: Engineering Department

Supporting Documents: Brochures and programs

Measureable Goals: The City will continue to evaluate the effectiveness of the current programs and develop ways to improve and increase awareness and participation.

Items to be included in the Annual Report: Specific activities completed, estimated number of people reached, and estimated percentage of the target audience reached.

BMP 1.2: Pet Waste Management for Public Parks

Description: The City will continue to enforce current policies requiring pet owners to clean up after their animals while in public parks.

Schedule and Evaluation: The City’s Parks & Recreation Department enforces the current Pet Waste Management Program in the three heaviest used public park areas within the City’s Park system: Bisset Park, Wildwood Park, and the William D. Lorton, Jr. “Sparky’s Run” Dog Park. The Department will continue to evaluate the effectiveness of the program, adding or relocating the pet waste bag dispensers based on observations of their use and according to input received by the public.

Responsible Party: Parks & Recreation Department

Supporting Documents: The regulation is stated on the City’s website for the William D. Lorton, Jr. “Sparky’s Run” Dog Park.

Measureable Goals: The City will continue to evaluate the effectiveness of the current programs and develop ways to improve and increase awareness and participation.

Items to be included in the Annual Report: Specific activities completed during the reporting period.

BMP 1.3: Drain Marking Program

Description: The City implemented a Storm Drain Marking Program. This involved performing an inventory of the storm drain locations and identifying the drains most easily accessible to the public and vulnerable to illicit dumping.

Schedule and Evaluation: The City’s storm sewer network was mapped using GIS. 100% of the curb inlets and grate inlets in the City have been marked.

Responsible Party: Engineering Department

Supporting Documents: Storm sewer system and outfall mapping.

Measureable Goals: Completed.

Items to be included in the Annual Report: A statement as to whether new storm sewers and outfalls were mapped and marked.

3.0 MCM 2: PUBLIC INVOLVEMENT/PARTICIPATION

This minimum control measure is intended to implement a program that helps to inform and educate City residents about the City of Radford Stormwater Program.

The City of Radford developed the MS4 Program Plan for MCM 2 to meet the following criteria:

1. Post copies of the annual report on the website;
2. Notify the public and provide for receipt of comment of the proposed MS4 Program Plan;
3. Participate in a minimum of four (4) local activities annually; and
4. Develop written procedures for implementing the program.

BMP 2.0: Enhance City Website to Include Stormwater Related Information

Description: The City's will continually update the website with stormwater related information. Included will be links to the relevant sections of the Virginia DEQ and EPA websites, and links to the City's relevant ordinances, MS4 Program Plan and annual reports.

Schedule and Evaluation: The City will maintain the website with the most current stormwater management and MS4 documentation.

Responsible Party: Engineering Department/Public Information Department

Supporting Documents: Local Ordinances, Public Education Materials, MS4 Program Plan, Annual Reports

Measurable Goals: Annual updates of the website.

Items to be included in the Annual Report: A link to the webpage.

BMP 2.1: Annual Stream Clean-up Events

Description: The City and its partner organizations will continue to sponsor clean up events that encourage the public to engage in cleaning up the streams, river and roadways within the City Limits. The program will focus on removing foreign debris, litter, etc. Events will be publicized through various media in order to have as much participation as possible.

Schedule and Evaluation: City and its partner organizations have been sponsoring these programs for a number of years. The City will continue to increase awareness of events in order to improve participation. Events include a regional river clean up event, a Pathways cleanup event, and renewing of Radford's Adopt-A-Spot Program.

Responsible Party: Public Information Department

Supporting Documents: Website, news releases, social media postings

Measurable Goals: At least one stream clean-up event per year.

Items to be included in the Annual Report: A summary of the stream clean-up events and its accomplishments.

BMP 2.2: Develop Public Outreach Plan

Description: The City developed a plan to identify the target audience and develop strategies to reach a minimum of 20% of the target audience (the City's citizens) annually through public outreach activities. As part of the plan, the goal will be to have a minimum of four (4) public participation events annually.

Schedule and Evaluation: The City will have a minimum of four (4) public participating events annually.

Responsible Party: Engineering Department and Public Information Department

Supporting Documents: Brochures and programs

Measureable Goals: The City will continue to evaluate the effectiveness of the current programs and develop ways to improve and increase awareness.

Items to be included in the Annual Report: Specific activities completed and estimated number of people reached/attended.

4.0 MCM 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION

This minimum control measure is intended to detect and eliminate illicit discharges to the MS4 storm system.

The City of Radford developed the MS4 Program Plan for MCM 3 to meet the following criteria:

- (1) Identify MS4 Outfalls and develop a storm sewer system map and associated table of information for each outfall;
- (2) Effectively prohibit, through ordinance or other legal mechanism, non-stormwater discharges into the storm sewer system;
- (3) Develop, implement, and update, when appropriate, written procedures to detect, identify, and address unauthorized non-stormwater discharges, including illegal dumping; and
- (4) Promote, publicize, and facilitate public reporting, inspections, and corrective measures of illicit discharges into or from any MS4.

BMP 3-1: Illicit Discharge Ordinance

Establish a program to detect and eliminate illicit discharges in to the Municipal Separate Storm Sewer System by developing and adopting regulations and an enforcement program to prevent illegal discharges into the MS4 storm drain system.

Description: The City implemented an Illicit Discharge Detection and Elimination Ordinance that prohibits illegal and illicit dumping of non-stormwater discharges. The ordinance addresses detection, identification of source of discharge, mechanisms to eliminate discharges, and tracking. The ordinance facilitates public reporting of illicit discharges.

Schedule and Evaluation: Radford City Council adopted an Illicit Discharge Detection and Elimination Ordinance, Ordinance 1681, on July 11, 2016.

Responsible Party: Engineering Department and City Administration

Supporting Documents: Ordinance 1681; refer to Appendix A.

Measurable Goals: Continued enforcement of Ordinance 1681

Items to be included in the Annual Report: A summary of number of outfalls screened during the period, screening results, and details of follow-up actions, if any taken at this time. Summaries of any investigations of suspected illicit discharges will also be included.

BMP 3.2 – Protect Sensitive Areas by use of City Code

Description: The City adopted by Ordinance two “overlay districts” (Floodplain Overlay District and Riverfront Corridor Overlay District) within the City Code that protects areas within the floodplain and adjacent to the New River. (Division 15 and 16 of Chapter 120.1: Zoning)

Schedule and Evaluation: The City will continue to enforce these ordinances during the years of the permit cycle.

Responsible Party: City Administration, Engineering Department and Zoning Department

Supporting Documents: Zoning Overlay Districts defined in City Code, and the City of Radford Virginia Zoning & Flood District Map (Appendix B).

Measurable Goals: Enforce ordinance sections that control development in sensitive areas

Items to be included in the Annual Report: Revisions to the ordinances or maps, if any.

BMP 3-3: Outfall Map and Database

Develop, maintain, and update a Outfall Map and Database to include the following information as required by the MS4 General Permit (9VAC25-890-40).

- (1) The name and location of all waters receiving discharges from the MS4 outfalls and the associated HUC;
- (2) The location of all MS4 outfalls with unique identifier; and
- (3) An information table for each outfall to include the unique identifier, the estimated MS4 acreage served, the name of the receiving surface water, a note whether the receiving water is listed as impaired, and the name of any applicable TMDL or TMDLs.

Schedule and Evaluation: The mapping is completed. This mapping will be used to track illicit discharges.

Responsible Party: Engineering Department

Supporting Documents: City of Radford Stormwater Management Map and MS4 Outfall Screening Map (Appendix C)

Annual Reporting Requirements: Provide updates, if any.

5.0 MCM 4: CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

This minimum control measure is intended to reduce pollutants in stormwater runoff from land disturbing activities to the MS4 storm system.

The City of Radford previously established an Erosion and Sediment Control program, which meets the requirements of the MCM.

1. An Erosion and Sediment Control Ordinance to require erosion and sediment controls, as well as sanctions to ensure compliance, under local law for all land disturbances of 10,000 square feet or more.
2. Ordinance requirements for plan approval prior to land disturbance and construction site operators to implement appropriate erosion and sediment control best management practices.
3. Erosion and Sediment Control inspection procedures as required by the MS4 General Permit.

The City of Radford developed MS4 Program Plan for MCM 4 to meet the following criteria:

- (1) Provide a description of the legal authorities utilized to ensure compliance with the minimum control measures in Section II related to construction site stormwater runoff control such as ordinances, permits, orders, specific contract language, and interjurisdictional agreements;
- (2) Develop written plan review procedures and all associated documents utilized in plan review;
- (3) Develop written inspection procedures and all associated documents utilized during inspection including the inspection schedule;
- (4) Develop written procedures for compliance and enforcement, including a progressive compliance and enforcement strategy, where appropriate;
- (5) Define the roles and responsibilities of each of the operator's departments, divisions, or subdivisions; and
- (6) Develop a tracking and reporting mechanism for regulated land-disturbing activities to provide the required reporting in all subsequent annual reports.

BMP 4.0 – Erosion and Sediment Control Ordinance

Description: Adopt and maintain an ordinance in the City Code that requires compliance with the Virginia Erosion and Sediment Control regulations.

Schedule and Evaluation: The City has an Erosion and Sediment Control (ESC) Ordinance (Chapter 31, Articles 1 &2) that complies with the Virginia Erosion & Sediment Control regulations, requires a permit prior to beginning land disturbance, provides for inspection of land disturbing activities by the City and details available enforcement options.

Responsible Party: Engineering Department

Supporting Documents: ESC Ordinance, Erosion and Sediment Plan Inspection Report (Appendix D)

Measurable Goals: Enforcement of the ordinance.

Items to be included in the Annual Report: Number of acres disturbed, number of inspections conducted, summary of enforcement actions taken.

BMP 4.1 – City Staff Training

Description: The City staff that is involved in implementing the ESC Ordinance will maintain the appropriate VA DEQ certifications.

Schedule and Evaluation: The City will maintain a database of the certifications required of City employees. The database includes the type of certification, name of employee, expiration date of current certifications.

Responsible Party: Engineering Department

Supporting Documents: Copies of certification documentation.

Measurable Goals: All appropriate staff will maintain required certifications

Items to be included in the Annual Report: Updates to certifications, as needed.

6.0 MCM 5: POST-CONSTRUCTION STORMWATER MANAGEMENT

This minimum control measure is intended to reduce pollutants in stormwater runoff from developed properties to the MS4 storm system. The post-construction stormwater management program will include the following elements:

- (1) A Stormwater Management Ordinance;
- (2) Written policies and procedures utilized to ensure that stormwater management facilities are designed and installed in accordance with Section II B 5 b of the MS4 General Permit;
- (3) Written inspection policies and procedures utilized in conducting inspections;
- (4) Written procedures for inspection, compliance and enforcement to ensure maintenance is conducted on private stormwater facilities to ensure long-term operation in accordance with approved design;
- (5) Written procedures for inspection and maintenance of operator-owned stormwater management facilities;
- (6) Roles and responsibilities for implementing MCM 5; and
- (7) A stormwater management facility tracking and reporting mechanism.

BMP 5.01 – Adopt a Stormwater Ordinance to Control Impacts of Runoff

Description: The City's Stormwater Ordinance addresses both post-construction stormwater management and illicit discharges. The ordinance complies with the Virginia Stormwater Management Program (VSMP) regulations.

Schedule and Evaluation: The City implemented the Stormwater Management Ordinance No. 1662 on October 27, 2014.

Responsible Party: City Engineering Department and City Administration

Supporting Documents: Stormwater Management Ordinance (Appendix E)

Measurable Goal: Enforcement of the Stormwater Management Ordinance.

Items to be included in the Annual Report: Revisions to the stormwater ordinance, if any.

BMP 5-02: Stormwater Management Tracking and Reporting System

Description: Develop and maintain a database of all known operator-owned and privately-owned stormwater management facilities that discharge into the MS4 storm system for tracking and reporting. Database attributes for each stormwater management facility shall include the following:

1. Facility type and BMP Clearinghouse specification reference number;
2. Location (address or latitude and longitude);
3. Total area treated, including delineation of pervious and impervious area;
4. Completion date; if unknown, assume June 30, 2005;
5. The sixth order hydrologic unit code (HUC) where the facility is located;
6. Name of any impaired water segments within each HUC listed in the 2010 §305(b)/303(d) Water Quality Assessment Integrated Report to which the facility discharges;
7. Ownership information (private or public); and
8. Date of most recent inspection and name of inspector.

Schedule and Evaluation: Use of electronic database of all stormwater management facilities for tracking and reporting with the annual report.

Supporting Documents: City of Radford Annual BMP Operation & Maintenance Inspection Form (Appendix F) and MS4 BMP Facilities Tracking Database (refer to Annual Report)

Responsible Party: Engineering Department

Items to be included in the Annual Report: A database of all stormwater management facilities, including those completed during each reporting year, with the annual report.

7.0 MCM 6: POLLUTION PREVENTION/GOOD HOUSEKEEPING

This minimum control measure is intended to reduce pollutants in stormwater from daily operations and maintenance activities and municipal facilities, and from turf and landscape areas. The pollution prevention/good housekeeping plan will include the following elements:

- (1) Written protocols being used to comply with the MS4 General Permit the daily operations and maintenance requirements;
- (2) A list of all municipal high-priority facilities that identifies those facilities that have a high potential for chemicals or other materials to be discharged in stormwater and a schedule that identifies the year in which an individual stormwater pollution prevention plan (SWPPP) will be developed for those facilities required to have a SWPPP;
- (3) A list of lands where nutrients are applied to a contiguous area of more than one acre (Appendix G);
- (4) A turf and landscape nutrient management plan (Appendix G); and
- (5) A written training plan for the next reporting cycle.

BMP 6.01 – Standard Operating Procedures and Employee Training

Description: The City developed standard operating procedures (SOPs) and implemented an employee-training program designed to raise awareness within city employees of stormwater management practices as it relates to specific tasks and assignments.

Schedule and Evaluation: The City developed SOP's for employees as a guide for pollution prevention/good housekeeping. The City continually review and revise the SOPs, as needed.

Responsible Party: Engineering Department and City Administration

Supporting Documents: SOPs (Appendix H)

Measurable Goals: Each employee will participate in at least one training session per year.

Items to be included in the Annual Report: Number of employees attending training along with dates of attendance.

BMP 6.02 – Municipal SWPPPS

Description: The City will continue to evaluate its operations and facilities for ways to reduce discharge of pollutants. This evaluation will include identifying potential sources of pollution, prioritizing problem areas, and determining methods to address and correct the problems. Some of these methods might include employee training, spill prevention plans, SWPPPs, implementing new procedures, etc.

Schedule and Evaluation: Evaluation will be ongoing throughout the permit cycle. 50% of the SWPPPs will be developed in 2017. The remaining 50% will be prepared in 2018.

Responsible Party: All City Departments.

Supporting Documents: SWPPPs.

Measurable Goals: Implementation of the SWPPPs and SOPs.

Items to be included in the Annual Report: Listing of the completed SWPPPs, and additional SWPPPs needed, as may be identified.

BMP 6.1 – Reduce the amount of solid waste from City-owned facilities by encouraging employees to recycle waste.

Description: The City has an active recycling program that encourages City employees to participate. The City will continually evaluate the program for ways to improve and increase participation.

Schedule and Evaluation: The City will continue to recycle all categories of waste during all years of the permit cycle.

Responsible Party: Public Works Department

Supporting Documents: Recycling Program Plan, tonnage reports.

Measurable Goals: Continue program, including training, through the years of the permit cycle.

Items to be included in the Annual Report: Tonnages reports of recycled material.

ORDINANCE NO. 1681

AN ORDINANCE TO AMEND AND REORDAIN CHAPTER 32, OF THE RADFORD CITY CODE OF ORDINANCES, TO CREATE AN ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE) ORDINANCE FOR THE CITY OF RADFORD TO PREVENT POLLUTANTS FROM ENTERING THE CITY'S MS4, IN ACCORDANCE WITH THE STORMWATER MANAGEMENT ACT, §§ 62.1-44.15:24, *ET SEQ.*, OF THE CODE OF VIRGINIA, AND THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) REGULATION, CHAPTER 870, 9VA25-870-10, *ET SEQ.*, OF THE VIRGINIA ADMINISTRATIVE CODE

WHEREAS, the City operates a regulated Municipal Separate Storm Sewer System (MS4), and is required to adopt an illicit discharge detection and elimination program to prohibit illicit discharge of pollutants and connections to the City's MS4 as a part of the City's stormwater management and control program; and

WHEREAS, the City has adopted a stormwater management and control ordinance, the requirements of which are codified in Chapter 32, of the Radford City Code of Ordinances, which includes provisions to protect pollutants from entering the City's Municipal Separate Storm Sewer System (MS4), and the City now desires to adopt an illicit discharge detection and elimination ordinance to further prevent pollutants from entering the City's MS4, to supplement the City's Stormwater Management Ordinance and program

WHEREAS, a public hearing upon this Ordinance No. 1681, prior to its adoption, was held on April 11, 2016, at a regular meeting of the Radford City Council, to receive public comment, following the duly advertised notice thereof of the public hearing regarding this Ordinance No. 1681; and

NOW THEREFORE BE IT ORDAINED by the City Council of the City of Radford, Virginia, that a new article, division, or section entitled, "Illicit Discharge Detection and Elimination" is hereby adopted for and on behalf of the City as set forth herein, and the same shall be added to, and shall amend and become a part of Chapter 32, of the Radford City Code of Ordinances, to provide for and to establish an Illicit Discharge Detection and Elimination (IDDE) Ordinance for the City of Radford, Virginia, to protect pollutant's from entering the City's separate storm sewer system (the "MS4"), pursuant to the provisions set forth in this Ordinance Number 1681, and in accordance with and under the authority of the laws and regulations of the Stormwater Management Act (the "Act") §62.1-44.15:24 *et seq.*, of the Code of Virginia, 1950, as amended, and the Virginia Stormwater Management Program (VSMP) Regulation of the Virginia Administrative Code, 9VA25-870-10 *et seq.*, as enacted and adopted herein in this Ordinance No. 1681, for the City's separate storm sewer system (MS4), for and on behalf of the City, and Chapter 32, of the Radford City Code of Ordinances is hereby amended and reenacted herein, subject to any editing deemed necessary or required to amend and to include the same with the existing code provisions set forth in Chapter 32, of the Radford City Code of Ordinances, as follows:

ILLICIT DISCHARGE AND DETECTION ELIMINATION

Sec. 32-18. Title and Authority.

- a. This ordinance shall be known as the “Illicit Discharge Detection and Elimination Ordinance of the City of Radford, Virginia”.
- b. The purpose of this ordinance is to ensure the general health, safety, and welfare of the citizens of the city and state, by protecting property and state waters through the prohibition of illicit discharges of non-stormwater with the city’s regulated municipal separate storm sewer system (MS4) area; subject to certain exceptions, and to prevent water from being rendered dangerous to the health of persons living in the city.
- c. This ordinance regulates non-stormwater discharges and connections from entering the MS4 and establishes methods for controlling the introduction of pollutants into the MS4 in order to comply with the requirements of the Virginia Pollutant Discharge Elimination System’s (VPDES) General Permit For Discharges of Stormwater From Small Municipal Separate Storm Sewer Systems permit issued to the city by the Commonwealth of Virginia, by the Virginia Department of Environmental Quality (DEQ).
- d. This ordinance establishes the City’s illicit discharge and connection program that regulates non-stormwater discharges to the City’s regulated Municipal Separate Storm Sewer System (MS4), consistent with state and federal regulations promulgated pursuant to the law.

Sec. 32-19. Purpose and Applicability.

- a. The purpose of this ordinance is to ensure the general health, safety and welfare of the citizens of the City of Radford and the Commonwealth of Virginia, and to prevent water from being rendered dangerous to the health of persons living in the City of Radford. This ordinance promotes the public health, safety and welfare of persons in the city through the regulation of stormwater discharges to the city’s separate storm sewer system and to prohibit the illicit discharge of nonstormwater to the city’s storm sewer system, subject to certain exceptions. This ordinance is also intended to prohibit illicit connections and illicit discharges to the city’s storm sewer system, and to establish inspection and monitoring procedures to ensure compliance with this ordinance.
- b. This ordinance shall apply to all activities that cause or allow direct or indirect illicit discharges or illicit connections into the city’s municipal separate storm sewer system.
- c. This ordinance is applicable to any non-stormwater discharge that enters, or has the potential of entering, the MS4, located within the city’s regulated MS4 area.

Sec. 32-20. Definitions.

In addition to the definitions already set forth and defined in the Stormwater Management Ordinance in Chapter 38, of the Radford City Code of Ordinances, and Virginia Stormwater Management Act (the “Act”), the definitions set forth in Chapter 870, 9VAC25-870-10, *et seq.* of

the Virginia Stormwater Management Program (VSMP) Regulation, in the Virginia Administrative Code, and in Chapter 3.1 of Title 72.1 of the Code of Virginia, and any amendments thereunto, which are expressly adopted herein and incorporated herein by reference and made a part hereof, the following words and terms as used in this Ordinance shall have the following meanings unless otherwise specified herein. Where the definitions differ, those set forth in the Virginia Administrative Code and the Code of Virginia, and incorporated herein shall have precedence.

“Act” means the “Virginia Stormwater Management Act”, Article 2.3 § 62.1-44.15:24 et seq. of Chapter 3.1 of Title 62.1 of the Code of Virginia.

“Administrator” means the position, person, or authority responsible in the city for administering the Illicit Discharge Detection and Elimination Ordinance for the city. The city manager or his designee shall be the administrator of this ordinance. Any reference to administrator as the term is used in this ordinance, includes and refers to any designee or designees, including but not limited to any employees, persons, departments, contractors, or agents of the city authorized and appointed by the city manager to administer the provisions of this ordinance for the city.

“Best Management Practices” or “BMP” means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices, including both structural and nonstructural practices, to prevent or reduce the pollution of surface waters and ground water systems.

“City” means the City of Radford, Virginia.

“Control measure” means any best management practice (BMP) or other method used to prevent or reduce the discharge of pollutants to surface waters.

“Discharge” means to dispose, deposit, spill, pour, inject, dump, pump, leak, or place by any means, or that which is disposed, deposited, spilled, poured, injected, dumped, pumped, leaked, or placed, by any means.

“Gray water” means wastewater discharged from lavatories, bathtubs, showers, clothes washers and laundry sinks.

“Groundwater” means all subsurface water, including, but not limited to, that part within the zone of saturation.

“Illicit connection” means any connect, in any manner whatsoever, to the City’s Municipal Separate Storm Sewer System (“MS4”), that is not authorized by applicable state law or city ordinance, and which has not been approved by the city in accordance with applicable city ordinances, or state laws, or as may otherwise be authorized by law.

“Illicit discharge” means any discharge to a municipal separate storm sewer that is not composed entirely of stormwater, except discharges pursuant to a separate VPDES or state permit (other than the state permit for discharges from the municipal separate storm sewer), discharges resulting from firefighting activities, and discharges identified by and in compliance with 9VAC25-870-400D2c(3).

“Inspection” mean and include, but is not limited to, any on-site physical examination of all facilities and grounds, premises, properties, or site which may discharge to a storm sewer system, or the state waters; a review of all records on the operation and maintenance of facilities and grounds, premises, properties, or sites, and the results of any monitoring performed for compliance with any local, state, or federal laws and/ or regulations, or permit requirements, including such inspections as permitted by the Act, for any on-site review of compliance with the MS4 state permit or VSMP, and any applicable design criteria, or an on-site review to obtain information or conduct surveys or investigations necessary in the implementation or enforcement of the Act and this ordinance.

“Industrial wastes” means any liquid or wastes resulting from any process of industry, manufacture, trade or business, or from the development of any natural resource.

“Municipal separate storm sewer system” or *“MS4”* means all separate storm sewers that are defined as municipal separate storm sewer systems or designated under 9VAC25-870-280 A 1, as a conveyance or system of conveyances otherwise known as a municipal separate storm sewer system or *“MS4”*, including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains:

- (a) Owned or operated by a federal, state, city, town , county, district, association, or other public body, created by or pursuant to state law, including the city, having jurisdiction or delegated authority for erosion and sediment control and stormwater management, or a designated and approved management agency under § 208 of the Clean Water Act (CWA) that discharges to surface waters;
- (b) Designed or used for collecting or conveying stormwater;
- (c) That is not a combined sewer; and
- (d) That is not part of a publicly owned treatment works (POTW).

“Municipal separate storm sewer system” or *“MS4”* means all municipal separate storm sewers that are located within the portion of the City that is identified as *“urbanized”* by the U.S. Bureau of the Census in the latest Decennial Census.

“Municipal Separate Storm Sewer System Management Program” or *“MS4”* means a management program covering the duration of a state permit for a municipal separate storm sewer system that includes a comprehensive coordination, to reduce the discharge of pollutants to the maximum extent practicable, to protect water quality, and to satisfy the appropriate water quality requirements of the CWA and regulations and the Act and attendant regulations, using management practices, control techniques, and system, design, and engineering methods, and such other provisions that are appropriate.

“National Pollutant Discharge Elimination System” or *“NPDES”* means the federal program for issuing, modifying, revoking, reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pre-treatment requirements under the Clean Water Act (CWA).

“Non-Stormwater Discharge” means any discharge to the storm drain system that is not composed entirely of stormwater.

“Pollutant” means anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous liquids and solid wastes; yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordinances, and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform and pathogens; dissolved particulate metals; animal wastes; wastes and residues that result from construction of a building or structure; and noxious or offensive matter of any kind.

“Premises” means any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

“Regulations” means the Virginia Stormwater Management Program (VSMP) Regulation or *“VSMP”* regulations of the Virginia Administrative Code, Chapter 870, 9VAC25-870-10, *et seq.*, as amended.

“Sanitary sewer” means a system of pipes, conduits or other devices that collect and/or convey sewage to a wastewater treatment or pumping facility.

“Stormwater” means precipitation that is discharged across the land surface or through conveyances to one or more waterways, which may include rainfall runoff, snow melt runoff, and surface runoff and drainage.

“Storm drainage system” means publicly owned facilities by which stormwater is collected and/or conveyed, including but not limited to any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and man-made or altered drainage channels, reservoirs and other detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

“Virginia Pollutant Discharge Elimination System” or *“VPDES”* means the program issued by the Commonwealth of Virginia for imposing and enforcing pre-treatment requirements pursuant to the Clean Water Act (CWA).

“Virginia Stormwater Management Program” or *“VSMP”* means a program approved by the State Board, that has been established by a locality to manage the quality and quantity of runoff resulting from land-disturbing activities, which shall include such items as local ordinances, rules, permit requirements, annual standards and specifications, policies and guidelines, technical materials, and requirements for plan review, inspection, enforcement, where authorized in this article, and evaluation consistent with the requirements of this article and associated regulations.

“Wastewater” means any water or liquid, other than uncontaminated stormwater, discharged from a facility.

Sec. 32-21. Compatibility with other ordinances, requirements and regulations.

(a) This ordinance is intended to supplement other provisions and requirements of the Radford City Code. This ordinance is not intended to interfere with, abrogate, or annul any other ordinance, rule, regulation, statute, or other provision of law. Nothing in this ordinance shall negatively affect any other provisions and requirements of the Radford City Code, including but not limited to the city's Stormwater Management Ordinance and/or the city's Erosion and Sediment Control Ordinance, and any amendments thereunto.

(b) The requirements of this ordinance shall be considered minimum requirements, and where any provision of this ordinance imposes restrictions different from those imposed by any other ordinance, rule, regulation, statute, or other provision of law, whichever provisions are more restrictive or impose higher protective standards for human health or the environment shall apply.

Sec. 32-22. Control of pollutant contributions from interconnected MS4s.

(a) MS4 systems not owned or operated by the city, but which are interconnected with the city's MS4, shall be controlled so that they do not impair the operation of or contribution to the failure of the city's MS4 or of any interconnected MS4 to meet any applicable local, state, or federal law or regulation or permit. Any person who is the owner of interconnected MS4 systems shall be responsible for the quality within their systems and shall coordinate with the owners of the downstream MS4s.

Sec. 32-23. Prohibited discharges and connections.

(a) It shall be unlawful and a violation of this ordinance to allow any discharge that is not composed entirely of stormwater, except as described in subsection (b) below, which enters or has the potential of entering the MS4.

- (1) Discharging, or causing or allowing to be discharged, sewage, industrial wastes, yard wastes, gray water, or other wastes, into the storm sewer system, or any component thereof, or onto driveways, sidewalks, parking lots, the round or any other areas draining to the storm sewer system;
- (2) Connecting, or causing, or allowing connection of any sanitary sewer to the storm sewer system, including any sanitary sewer connected to the storm sewer system as of the date of the adoption of this ordinance;
- (3) Connecting, or causing or allowing connection to the storm sewer system, without a valid VSMP, VPDES or NPDES permit, any structure that conveys any liquid other than stormwater or discharges listed in subsection (b), including, but not limited to pipes, drains, sanitary sewer lines, washing machine drains, or floor drains.
- (4) The prohibitions set forth in subsections (2) and (3) listed above in this section expressly include, without limitations, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of the connection.

- (5) Throwing, placing, or depositing, or causing to be thrown, placed or deposited in the storm sewer system anything that impedes or interferes with the free flow of the stormwater system therein, or adversely affects water quality.
- (6) Failure by any property owner to notify the administrator, or his designee, of an illegal discharge or illicit connection on, or from, such owner's property to the City's storm sewer system or any component thereof.
- (7) Violate any condition or provision of this ordinance or any permit or approval granted for stormwater discharges or connections to allow any stormwater discharges to the City's MS4.
- (8) To enter in any stormwater retention pond, storm sewer or drain, except that this shall not apply to any city personnel or others authorized to perform work in such areas.

(b) Subject to the provisions of subsection (c) of this section, the following activities are deemed permissible non-stormwater discharges, and shall not be unlawful or a violation of this ordinance.

- (1) Discharges or flows covered by a separate individual or general VPDES or VSMP permit for non-stormwater discharges;
- (2) Individual non-stormwater discharges or flows that have been identified in writing by the Virginia Department of Environmental Quality as de minimis discharges that are not significant sources of pollutants to state waters and do not require a VPDES permit;
- (3) Water line flushing;
- (4) Landscape irrigation;
- (5) Diverted stream flows or rising groundwaters;
- (6) Uncontaminated groundwater infiltration, as defined by 40 CFR 35.2005(20);
- (7) Uncontaminated pumped groundwater;
- (8) Discharges from potable water sources, foundation drains, irrigation water, springs, water from crawl spaces or footing drains;
- (9) Air conditioning condensation;
- (10) Lawn watering;
- (11) Individual residential car washing;

- (12) Flows from riparian habitats and wetlands;
- (12) De-chlorinated swimming pool discharges with pH between 6.0 to 8.0 standard units, at ambient water temperature, and with less than 0.10 milligrams per liter or parts per million;
- (13) Street wash water;
- (15) Discharge or flows resulting from firefighting and other public safety activities;
- (16) Discharges associated with the maintenance or repair of public water, sanitary, and storm sewer lines, and public drinking water reservoirs and drinking water treatment or distributions systems conducted in accordance with applicable federal and state regulations and standards;
- (17) Discharges associated with any activity by the city, its employees and designees, in the maintenance of any component of a City maintained stormwater management facility conducted in accordance with applicable federal and state regulations and standards, and law;
- (18) Discharges specified in writing by the administrator as being necessary to protect public health and safety;
- (19) Any activity authorized by a valid Virginia Stormwater Management Program (VSMP) permit, a valid Virginia Pollutant Discharge Elimination System (VPDES) permit, a valid Virginia Pollution Abatement (VPA) permit, a National Pollutant Discharge Elimination System (NPDES) permit, or as may be otherwise permitted by law or the regulations.

(c) In the event any of the activities listed in subsection (b), of this section are found by the administrator to be a significant contributor of pollutants discharged into the MS4, the administrator shall serve a written notice to the party responsible for the activity ordering that the activity be ceased or conducted in a manner that will avoid the discharge of pollutants to MS4. The notice shall set forth and state the deadline by which the activity shall cease or be conducted without pollution. Failure to comply with such order within the time stated in the notice shall result in the revocation of the exemption listed in subsection (b) above, and shall constitute a violation of the provisions of this section and ordinance.

Sec. 32-24. Best Management Practices.

(a) The city may require the use of best management practices (BMPs) for any activity, operation, or facility which may cause or contribute to pollution or contamination of the city's MS4. The person, owner, or operator, of a commercial or industrial establishment shall provide, at the expense of the person, owner, or operator, reasonable protection from accidental discharge of prohibited materials and wastes into the city's MS4 system through the use of structural and non-

structural BMPs. Furthermore, any person responsible for a property, premises, or facility which is or may be the source of an illicit discharge may be required to implement, at such person's sole expense, additional structural and non-structural BMPs and/or implement a stormwater pollution prevention plan (SWPPP) to prevent the further discharge of pollutants to the MS4.

Sec. 32-25. Notification of spills.

(a) Pursuant to Section II.B.3 of 9VAC25-890-40, the city prohibits illicit discharges to the city's MS4. Any person owning or occupying any premises, property, or facility, who has knowledge of a discharge of pollutants from those premises, property, or facilities which may violate the prohibitions found in this ordinance shall immediately take action to abate the discharge and shall notify the city or the administrator, either in person or by phone within twenty-four (24) hours of becoming aware of the discharge. Observed discharges of hazardous materials or substances shall be immediately reported by calling "911". If the illicit discharge was emitted from a commercial or industrial establishment, the person, owner or operator of said establishment shall also retain an on-site written record of the discharge as well as the actions taken to prevent its recurrence.

Sec. 32-26 Inspections and compliance monitoring.

(a) The administrator shall have the authority to carry out all inspections and monitoring procedures necessary to determine compliance and/or noncompliance with this ordinance, and to enforce the requirements of this ordinance, including the prohibition of illicit discharges and connections to the storm sewer system. The administrator may monitor stormwater outfalls or other components of the municipal storm sewer system as may be appropriate in the administration and enforcement of this ordinance.

(b) The administrator shall have the authority, in the administrator's sole discretion, to require a Stormwater Pollution Prevention Plan (SWPPP) from any person whose property discharges, or has the potential to discharge, to the MS4.

(c) The administrator and his duly authorized designee(s), employees, agents, or any other representative of the city, bearing proper credentials and identification, shall be authorized to enter any public property or to request entry into any private premises, properties, or facilities, at any reasonable time for the purpose of enforcing this ordinance, including, but not limited to the taking of samples of discharges, inspecting monitoring equipment, inspecting and copying documents relevant to the enforcement of this ordinance, and such other items as may be deemed necessary for the enforcement of this ordinance.

(d) If the person in charge of the property refuses to allow the administrator to enter in accordance with subsection (c) above, then the administrator may present sworn testimony to a magistrate or court of competent jurisdiction and request the issuance of an inspection warrant to enter the premises, property or facility for the purpose of making such inspections and investigations. The administrator shall make a reasonable effort to obtain consent from the person, owner, occupant or operator in charge of the premises prior to seeking the issuance of an inspection warrant under this section.

(e) The administrator shall have the authority to require any person responsible for a discharge to the MS4 to document that such discharge meets and is in compliance with the requirements of this ordinance. This includes, but is not limited to, the ability of the administrator to require such person to provide monitoring reports, test results, and such other matters as may be deemed necessary to show that such discharge or connection is in compliance with the requirements of this ordinance. The cost of any required documentation shall be the responsibility of the person responsible for the discharge.

(f) The failure of any person to comply with any of the requirements of this section shall constitute a violation of this Ordinance.

Sec. 32-27. Emergency Conditions.

Notwithstanding any other provisions of this article, whenever the city determines that conditions or activities require immediate action to help protect public health, safety or welfare or to provide for compliance with this ordinance, or rules promulgated herein or city approved construction plans, city personnel, employees, and/or designee(s) designated by the administrator are authorized to enter at a reasonable time in or upon any property or premises in the city for the purpose of testing, inspecting, investigating, measuring, sampling, and correcting such emergency conditions. Failure to admit city personnel, employees, and/or designee(s) of the administrator, responding to emergency conditions as determined by the city or the administrator, shall constitute a separate violation of this ordinance.

Sec. 32-28. Enforcements, violations, and penalties.

(a) Notice of violation. Whenever the administrator finds that a person has violated a prohibition or failed to meet a requirement of this ordinance, the administrator may order compliance through written notice of violation to the responsible party or person. Such notice may require, without limitation:

- (1) The performance of monitoring, analyses and reporting.
- (2) The elimination of illicit connections or discharges.
- (3) That violating discharges, practices or operations shall cease and desist.
- (4) The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property or premises.
- (5) Payment of the costs of administration and remediation.
- (6) The implementation of source control or treatment BMPs.

(b) If abatement of a violation and/or restoration of affected property or premise are required, the notice shall set forth a deadline within which such remediation or restoration must be completed. Such notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be performed by the city or a designated

governmental agency or contractor procured by the city or other governmental agency, and the expense thereof shall be charged to the violator.

(c) Any person who commits any of the acts prohibited by this chapter or violates any of the provisions of this ordinance shall be liable to the city for all costs of testing, containment, cleanup, abatement, removal, disposal, and any other related costs or expenses that the city may incur in connection with the enforcement of this ordinance and/or the prohibition and/or correction of a violation of this ordinance.

(d) Any person who violates any of the provisions of this ordinance shall be guilty of a Class 1 misdemeanor and, upon conviction, is subject to punishment by a fine of not more than two thousand five hundred dollars (\$2,500.00) per violation, per day, and confinement in jail for not more than twelve (12) months, either or both.

(e) Each day during which a violation of this ordinance occurs or continues shall be deemed a separate and distinct violation of this ordinance.

(f) The administrator may bring legal action to enjoin a violation of this ordinance and the existence of any other remedy shall be no defense to any such actions.

(g) In addition to any of the remedies set forth above, the administrator may seek to impose, or have imposed by the appropriate authority, any of the remedies provided for by § 62.1-44.15:48, Code of Virginia, as amended, which are incorporated herein by reference, and made a part hereof.

(e) In any court action that may result from enforcement of this ordinance, a judge hearing the case may direct the person responsible for the violation or the property owner to correct the violation and each day that the violation continues shall constitute a separate violation of this ordinance.

(f) Any person who knowingly makes any false statements, representations, or certifications in any record, report, or other document, either filed or requested pursuant to this ordinance, or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required or used by the administrator under this ordinance in monitoring discharges or connections, shall be guilty of a violation of this ordinance.

(g) The remedies set forth in this section shall be cumulative, not exclusive, and it shall be no defense to any action that one or more of the remedies set forth in this section have been sought or granted, and the pursuant of any one remedy or cause of action shall not preclude the pursuant of another.

Sec. 32-29. Severability of Invalid Provisions.

If the provisions of any article, division, section, subsection, clause, paragraph, or any portion of this ordinance is for any reason held to be invalid or unconstitutional by any court of competent jurisdiction, then any such order of judgment shall not be so construed as to render invalid or unconstitutional any of the remaining provisions of this ordinance.

This Ordinance No. 1681 shall become effective as of the date of its Adoption.

First Reading: June 13, 2016

Motion: Mr. Nicholson
Second: Dr. Harshberger

Recorded Vote:

Dr. Harshberger:	Yes
Mr. Marshall:	Yes
Mr. Nicholson:	Yes
Mr. Turk:	Yes
Mayor Brown:	Yes

Second Reading: July 11, 2016

Motion: Dr. Harshberger
Second: Mr. Marshall

Recorded Vote:

Mr. Gropman:	Yes
Dr. Harshberger:	Yes
Mr. Marshall:	Yes
Mr. Turk:	Yes
Mayor Brown:	Yes

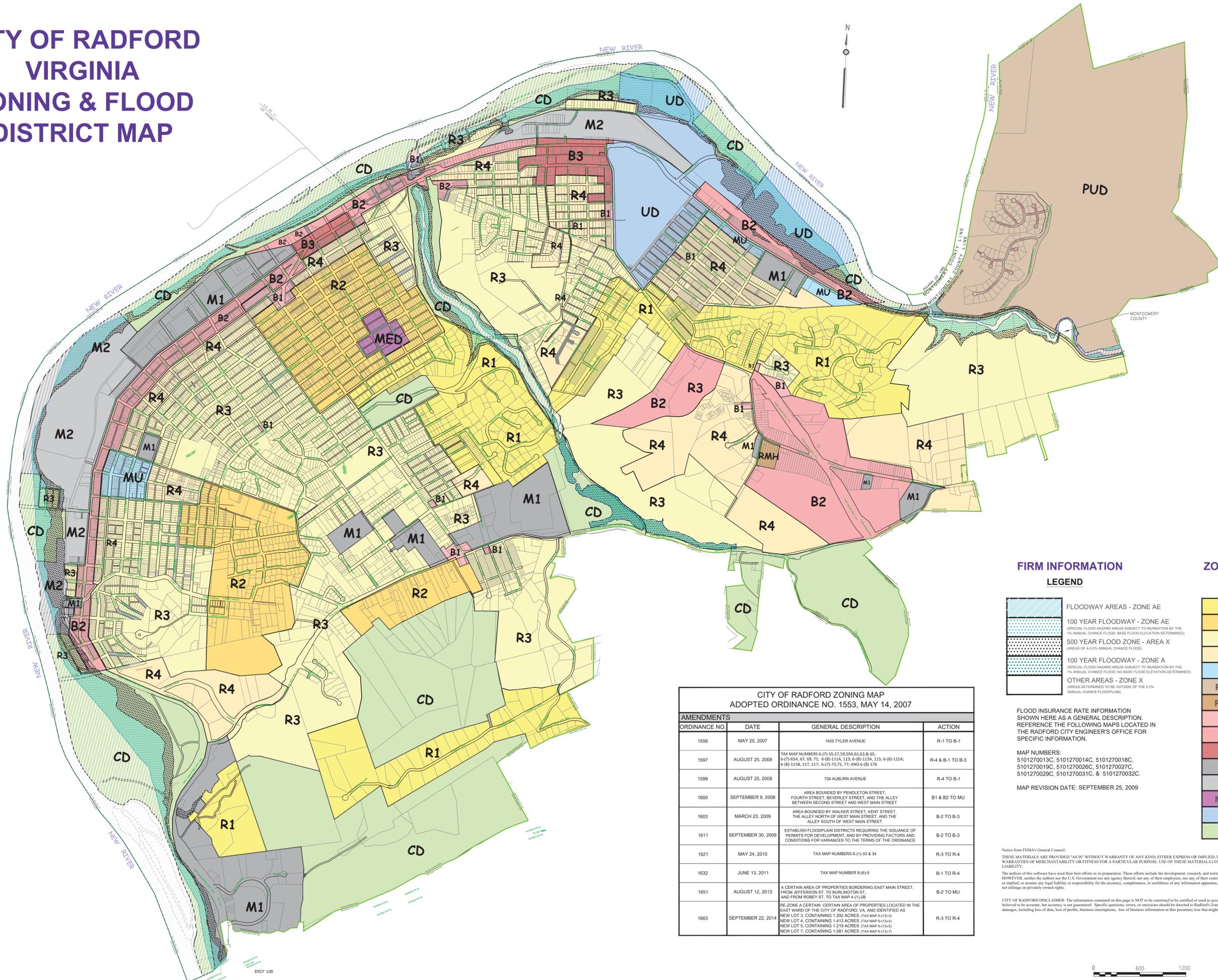
ATTEST:



Melissa Skelton, Radford Deputy City Clerk



CITY OF RADFORD VIRGINIA ZONING & FLOOD DISTRICT MAP



FIRM INFORMATION LEGEND

	FLOODWAY AREAS - ZONE AE
	100 YEAR FLOODWAY - ZONE AE (SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD; BASE FLOOD ELEVATION DETERMINED)
	500 YEAR FLOOD ZONE - AREA X (AREAS OF A 0.2% ANNUAL CHANCE FLOOD)
	100 YEAR FLOODWAY - ZONE A (SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD; NO BASE FLOOD ELEVATION DETERMINED)
	OTHER AREAS - ZONE X (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN)

ZONING DISTRICTS LEGEND

	R1	RESIDENTIAL 1
	R2	RESIDENTIAL 2
	R3	RESIDENTIAL 3
	R4	MULTIPLE DWELLING 1
	MU	MIXED USE
	PUD	PLANNED UNIT DEVELOPMENT
	RMH	MANUFACTURED HOMES
	B1	BUSINESS LIMITED/ NEIGHBORHOOD
	B2	BUSINESS, GENERAL
	B3	BUSINESS, CENTRAL
	M1	RESTRICTED INDUSTRIAL
	M2	HEAVY INDUSTRIAL
	MED	MEDICAL ARTS
	UD	UNIVERSITY
	CD	CONSERVATION

CITY OF RADFORD ZONING MAP ADOPTED ORDINANCE NO. 1553, MAY 14, 2007			
AMENDMENTS			
ORDINANCE NO.	DATE	GENERAL DESCRIPTION	ACTION
1556	MAY 25, 2007	1405 TYLER AVENUE	R-1 TO B-1
1597	AUGUST 25, 2008	TAX MAP NUMBERS 6-171-55,57,59,59A,61,63, & 65; 6-171-65A, 67, 69, 71; 6-181-111A, 113, 6-181-113A, 115; 6-181-115A; 6-181-115B, 117, 117; 6-171-73,75, 77; AND 6-181-376	R-4 & B-1 TO B-3
1599	AUGUST 25, 2008	728 AUBURN AVENUE	R-4 TO B-1
1600	SEPTEMBER 9, 2008	AREA BOUNDED BY PENDLETON STREET, FOURTH STREET, BEVERLEY STREET, AND THE ALLEY BETWEEN SECOND STREET AND WEST MAIN STREET	B-1 & B-2 TO MU
1603	MARCH 23, 2009	AREA BOUNDED BY WALKER STREET, KENT STREET, THE ALLEY NORTH OF WEST MAIN STREET, AND THE ALLEY SOUTH OF WEST MAIN STREET	B-2 TO B-3
1611	SEPTEMBER 30, 2009	ESTABLISH FLOODPLAIN DISTRICTS REQUIRING THE ISSUANCE OF PERMITS FOR DEVELOPMENT, AND BY PROVIDING FACTORS AND CONDITIONS FOR VARIANCES TO THE TERMS OF THE ORDINANCE	B-2 TO B-3
1621	MAY 24, 2010	TAX MAP NUMBERS 6-111-33 & 34	R-3 TO R-4
1632	JUNE 13, 2011	TAX MAP NUMBER 6-101-5	B-1 TO R-4
1651	AUGUST 12, 2013	A CERTAIN AREA OF PROPERTIES BORDERING EAST MAIN STREET, FROM JEFFERSON ST. TO BURLINGTON ST., AND FROM ROBEY ST. TO TAX MAP 4-112-28	B-2 TO MU
1663	SEPTEMBER 22, 2014	RE-ZONE A CERTAIN CERTAIN AREA OF PROPERTIES LOCATED IN THE EAST WARD OF THE CITY OF RADFORD, VA, AND IDENTIFIED AS NEW LOT 3, CONTAINING 1.292 ACRES (TAX MAP 6-113-3); NEW LOT 4, CONTAINING 1.413 ACRES (TAX MAP 6-113-4); NEW LOT 5, CONTAINING 1.219 ACRES (TAX MAP 6-113-5); NEW LOT 7, CONTAINING 1.581 ACRES (TAX MAP 6-113-7)	R-3 TO R-4

FLOOD INSURANCE RATE INFORMATION SHOWN HERE AS A GENERAL DESCRIPTION. REFERENCE THE FOLLOWING MAPS LOCATED IN THE RADFORD CITY ENGINEER'S OFFICE FOR SPECIFIC INFORMATION.

MAP NUMBERS:
5101270013C, 5101270014C, 5101270018C,
5101270019C, 5101270026C, 5101270027C,
5101270029C, 5101270031C, & 5101270032C.

MAP REVISION DATE: SEPTEMBER 25, 2009

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SHEET 1 OF 1
FILE NUMBER

City of Radford Virginia
Zoning & Flood Districts

REVISIONS:
23 MAR 09
29 SEP 15

SCALE: 1: 600
DATE: 14 MAY 07
DESIGNED BY: JCE
DRAWN BY: JCE
CHECKED BY: JHH

CITY OF RADFORD, VIRGINIA
10 ROBERTSON STREET
RADFORD, VIRGINIA
CITY ENGINEER'S OFFICE

OFFICIAL ZONING MAP
ORDINANCE 1553 DATED: MAY 14, 2007
LATEST REVISION DATE: SEPTEMBER 29, 2015

PREPARED BY
CITY OF RADFORD
ENGINEERING OFFICE

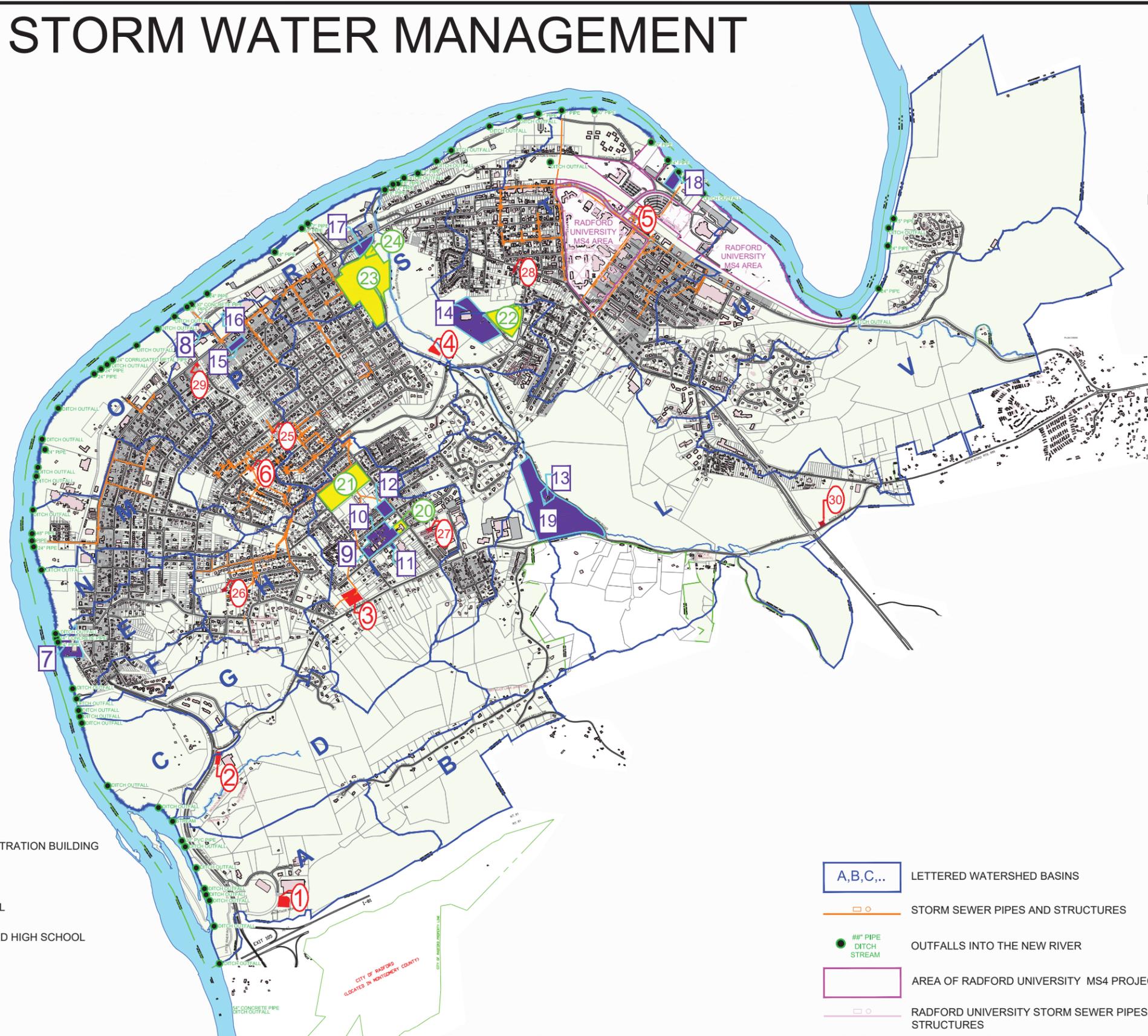
CITY OF RADFORD STORM WATER MANAGEMENT

STORM WATER MANAGEMENT FACILITY

- ① INDUSTRIAL PARK
- ② INTERSECTION OF ROCK ROAD WEST AND WEST MAIN ST.
- ③ NORTH SIDE OF ROCK ROAD WEST BETWEEN FOREST AVE. AND STAPLES ST.
- ④ SECOND AVE. PARK ROAD IMPROVEMENT PROJECT
- ⑤ EAST MAIN STREET BEHIND ALLEN BUILDING
- ⑥ SUNSET PARK
- ⑤ SEVENTH STREET
- ⑥ SUMMIT RIDGE (PRIVATE)
- ⑦ HEATHER GLEN (PRIVATE)
- ⑧ WEST SIDE CROSSING (PRIVATE)
- ⑨ FAMILY DOLLAR (PRIVATE)
- ⑩ TALL OAKS (PRIVATE)

OPERATIONAL FACILITIES / PROPERTY

- ⑦ WATER TREATMENT PLANT
- ⑧ RADFORD CITY POLICE DEPARTMENT AND ADMINISTRATION BUILDING
- ⑨ RADFORD ELECTRIC DEPARTMENT
- ⑩ RADFORD PUBLIC WORKS DEPARTMENT
- ⑪ RADFORD SOLID WASTE DROP-OFF
- ⑫ RADFORD FIRE DEPARTMENT
- ⑬ RADFORD CITY EQUIPMENT STORAGE
- ⑭ RADFORD RECREATION DEPARTMENT
- ⑮ RADFORD MUNICIPAL BUILDING
- ⑯ RADFORD CITY SCHOOLS ADMINISTRATION BUILDING
- ⑰ GLENCOE
- ⑱ McHARG ELEMENTARY SCHOOL
- ⑲ RADFORD CITY PUBLIC LIBRARY
- ⑳ BELLE HETH ELEMENTARY SCHOOL
- ⑳ RADFORD ANIMAL SHELTER
- ㉑ DALTON INTERMEDIATE & RADFORD HIGH SCHOOL
- ㉒ FORMER SOLID WASTE LANDFILL (CLOSED)
- ㉒ ARNHIEM



- A,B,C,.. LETTERED WATERSHED BASINS
- STORM SEWER PIPES AND STRUCTURES
- #12" PIPE DITCH STREAM
- OUTFALLS INTO THE NEW RIVER
- AREA OF RADFORD UNIVERSITY MS4 PROJECT
- RADFORD UNIVERSITY STORM SEWER PIPES AND STRUCTURES

DISCLAIMER: The information contained on this page is NOT to be construed or used as a "legal description". map information is believed to be accurate, but accuracy is not guaranteed. Any errors or omissions should be reported to the City Engineer's Office. In no event will the City of Radford be liable for any damages, including loss of profits, business interruptions, loss of business information or other pecuniary loss that might arise from the use of this map or the information it contains.

STORM WATER MANAGEMENT MAP UNDER DEVELOPMENT
INFORMATION SUBJECT TO FIELD VERIFICATION.



CITY OF RADFORD, VIRGINIA
10 ROBERTSON STREET
RADFORD, VIRGINIA
ENGINEERING DEPARTMENT

DESIGNED BY: _____
DRAWN BY: J. JEANES
CHECKED BY: _____
DATE: 24 SEP 15

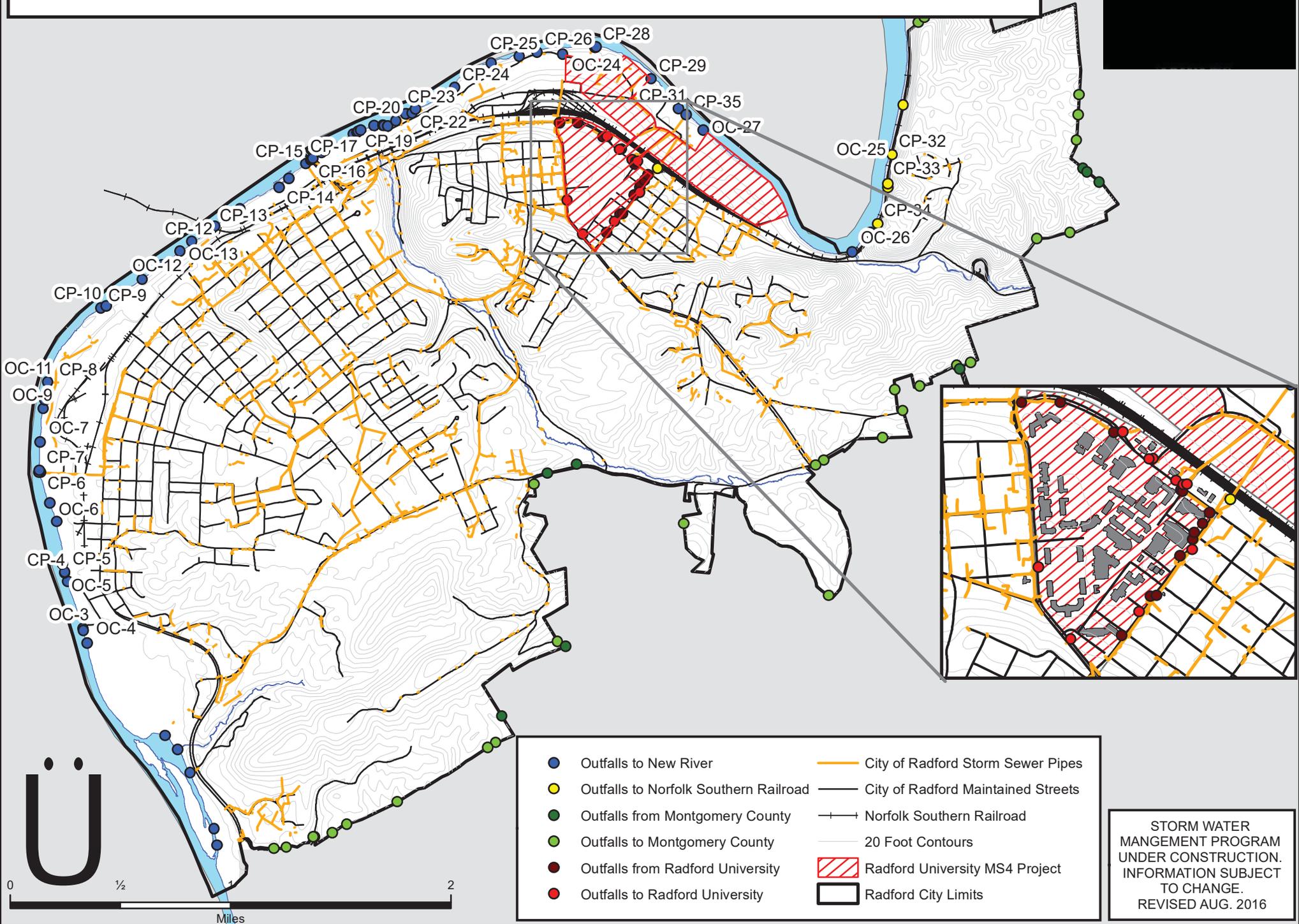
REVISIONS:
29 SEP 15
21 SEP 16

CITY OF RADFORD
OPERATIONAL FACILITIES PROPERTY STORM WATER MANAGEMENT FACILITIES OUTFALLS
STORM WATER MANAGEMENT



1 SHEET
OF 1

CITY OF RADFORD MS4 OUTFALL SCREENING 2016



- Outfalls to New River
- Outfalls to Norfolk Southern Railroad
- Outfalls from Montgomery County
- Outfalls to Montgomery County
- Outfalls from Radford University
- Outfalls to Radford University
- City of Radford Storm Sewer Pipes
- City of Radford Maintained Streets
- +— Norfolk Southern Railroad
- 20 Foot Contours
- Radford University MS4 Project
- Radford City Limits

STORM WATER
 MANGEMENT PROGRAM
 UNDER CONSTRUCTION.
 INFORMATION SUBJECT
 TO CHANGE.
 REVISED AUG. 2016

Chapter 31 - EROSION AND SEDIMENT CONTROL¹¹

Footnotes:

--- (1) ---

Cross reference— Nuisances, ch. 65; trees, plants and shrubs, ch. 105; utilities, ch. 110.

State Law reference— Erosion and Sediment Control Law, Code of Virginia, § 10.1-560 et seq.

ARTICLE I. - IN GENERAL

Sec. 31-1. - Definitions.

For the purposes of this chapter, the following words and phrases shall have the meanings respectively ascribed to them by this section:

Administrator means the city engineer, who is the official designated by the council as its agent to administer this chapter, under the general administrative responsibility of the city manager.

Clearing means any activity which removes the vegetative ground cover, including but not limited to removal, root mat removal and/or topsoil removal.

Conservation standards or *standards* means standards adopted or approved by the city council pursuant to Code of Virginia, §§ 10.1-561 and 10.1-562.

Erosion and sediment control plan or *plan* means a document containing material for the conservation of soil and water resources of a unit or group of units of land. It may include appropriate maps, an appropriate soil and water plan inventory and management information with needed interpretations and a record of decisions contributing to conservation treatment. The plan shall contain all major conservation decisions to assure that the entire unit or units of land will be so treated to achieve the conservation objectives.

Excavating means any digging, scooping or other methods of removing earth materials.

Filling means any depositing or stockpiling of earth materials.

Grading means any excavating or filling of earth materials or any combination thereof, including the land in its excavated or filled condition.

Land-disturbing activity means any land change which may result in soil erosion from water or wind and the movement of sediments into state waters or onto lands in the state, including, but not limited to, clearing, grading, excavating, transporting and filling of land, except that the term shall not include:

- (1) Minor land-disturbing activities such as home gardens and individual home landscaping, repairs and maintenance work.
- (2) Individual service connections.
- (3) Installation, maintenance, or repair of any underground public utility lines when such activity occurs on an existing hard-surfaced road, street or sidewalk, provided the land-disturbing activity is confined to the area of the road, street or sidewalk which is hard-surfaced.
- (4) Septic tank lines or drainage fields unless included in an overall plan for land-disturbing activity relating to construction of the building to be served by the septic tank system.
- (5) Surface or deep mining.

- (6) Exploration or drilling for oil and gas including the well site, roads, feeder lines and offsite disposal areas.
- (7) Tilling, planting, or harvesting of agricultural, horticultural, or forest crops, or livestock feedlot operations; including engineering operations as follows: Construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage and land irrigation.
- (8) Repair or rebuilding of the tracks, right-of-way, bridges, communication facilities and other related structures and facilities of a railroad company.
- (9) Agricultural engineering operations including but not limited to the construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds not required to comply with the provisions of the Dam Safety Act, Code of Virginia, title 10.1, chapter 6, article 2 (§ 10.1-604 et seq.), ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage and land irrigation.
- (10) Preparation for single-family residences separately built, unless in conjunction with multiple construction in subdivision development.
- (11) Disturbed land areas of less than 5,000 square feet in size.
- (12) Installation of fence and signposts or telephone and electric poles and other kinds of posts or poles.
- (13) Shore erosion control projects on tidal waters when the projects are approved by local wetlands boards, the marine resources commission or the United States Army Corps of Engineers.
- (14) Emergency work to protect life, limb or property, and emergency repairs; however, if the land-disturbing activity would have required an approved erosion and sediment control plan, if the activity were not an emergency, then the land area disturbed shall be shaped and stabilized in accordance with the requirements of the plan-approving authority.

Land-disturbing permit means a permit issued by the city for clearing, filling, excavating, grading or transporting of any combination thereof.

Natural channel design concepts means the utilization of engineering analysis and fluvial geomorphic processes to create, rehabilitate, restore or stabilize an open conveyance system for the purpose of creating or recreating a stream that conveys its bankfull storm event within its banks and allows larger flows to access its bankfull bench and its floodplain.

Peak flow rate means the maximum instantaneous flow from a given storm condition at a particular location.

Person means any individual, partnership, firm, association, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, county, city, town, or other political subdivision of the state, any interstate body, or any other legal entity.

Plan-approving authority means the city engineer.

Responsible land disturber means an individual from the project or development team, who will be in charge of and responsible for carrying out a land-disturbing activity covered by an approved plan or agreement in lieu of a plan, who:

- (1) Holds a responsible land disturber certificate of competence;
- (2) Holds a certificate of competence from the board in the areas of combined administration, program administration, inspection, or plan review;
- (3) Holds a current contractor certificate of competence for erosion and sediment control; or
- (4) Is licensed in Virginia as a professional engineer, architect, certified landscape architect or land surveyor pursuant to article 1 (§ 54.1-400 et seq.) of chapter 4 of title 54.1.

Runoff volume means the volume of water that runs off the land development project from a prescribed storm event.

Transporting means any moving of earth materials from one place to another, other than such movement incidental to grading, when such movement results in destroying the vegetative ground cover, either by tracking or the buildup of earth materials to the extent that erosion and sedimentation will result from the soil or earth materials over which such transporting occurs.

Water quality volume means the volume equal to the first one-half inch of runoff multiplied by the impervious surface of the land development project.

(Code 1975, § 7.1-2; Code 1992, § 24-1; Ord. No. 1582.1, § 31-1, 1-14-08)

Cross reference— Definitions and rules of construction generally, § 1-2.

State Law reference— Similar provisions, Code of Virginia, § 10.1-560.

Sec. 31-2. - Purpose of chapter.

- (a) The purpose of this chapter is to provide for the control of erosion and sedimentation, both during and following development, and to establish procedures for the administration and enforcement of such controls, and is intended to conform with and is enacted pursuant to the authority of the Virginia Erosion and Sediment Control Law, Code of Virginia, title 10.1, chapter 5, article 4 (§ 10.1-560 et seq.).
- (b) It is also intended to be an adjunct to both the city's subdivision and zoning ordinances wherein such apply to the development and subdivision of land within the city or wherein such apply to additional development on previously subdivided land within the city.

(Code 1975, § 7.1-1; Code 1992, § 24-2)

Cross reference— Subdivision of land, ch. 95; zoning, ch. 120.1.

Sec. 31-3. - Exemptions.

The provisions and requirements of this chapter shall not apply to land changes or activities excepted from the definition of "land-disturbing activity" set forth in section 31-1.

(Code 1975, § 7.1-3; Code 1992, § 24-3)

Sec. 31-4. - Inspection and enforcement.

- (a) Inspection and enforcement of the provisions of this chapter shall rest with the city engineer and/or his designee, subject to the general supervisory control of the city manager, and shall be in accordance with and controlled by the Virginia Erosion and Sediment Control Handbook, 1980, and any amendments or additions thereto, hereby approved and incorporated herein by reference, and shall be in accordance with any additional requirements of the Virginia Erosion and Sediment Control Law, Code of Virginia, title 10.1, chapter 5, article 4, (§ 10.1-560 et seq.).
- (b) The city may require the person responsible for carrying out the plan and/or the responsible land disturber to monitor and maintain the land-disturbing activity. The responsible land disturber will maintain records of these inspections and maintenance, to ensure compliance with the approved plan and to determine whether the measures required in the plan are effective in controlling erosion and sedimentation.

- (c) The city engineer and/or his designee shall periodically inspect the land-disturbing activity in accordance with Sec 4VAC50-30-60 of the Virginia Erosion and Sediment Control Regulations to ensure compliance with the approved plan and to determine whether the measures required in the plan are effective in controlling erosion and sedimentation. The owner, permittee, or person responsible for carrying out the plan shall be given notice of the inspection. If the city engineer and/or his designee determines that there is a failure to comply with the plan or if the plan is determined to be inadequate, notice shall be served upon the permittee, person responsible for carrying out the plan or the responsible land disturber by registered or certified mail to the address specified in the permit application or in the plan certification, or by delivery at the site of the land-disturbing activities to the agent or employee supervising such activities.

The notice shall specify the measures needed to comply with the plan and shall specify the time within which such measures shall be completed. Upon failure to comply within the specified time, the permit may be revoked and the permittee shall be deemed to be in violation of this chapter and, upon conviction, shall be subject to the penalties provided by this chapter.

- (d) Upon determination of a violation of this chapter, the city engineer and/or his designee may, in conjunction with or subsequent to a notice to comply as specified in this chapter, issue an order requiring that all or part of the land-disturbing activities permitted on the site be stopped until the specified corrective measures have been taken.

If land-disturbing activities have commenced without an approved plan or proper permits, the city engineer and/or his designee may, in conjunction with or subsequent to a notice to comply as specified in this chapter, issue an order requiring that all of the land-disturbing and/or construction activities be stopped until an approved plan or any required permits are obtained. Failure to comply will result in penalties as outlined in sections 31-7 and 31-38 of this chapter.

Where the alleged noncompliance is causing or is in imminent danger of causing harmful erosion of lands or sediment deposition in waters within the watersheds of the commonwealth, or where the land-disturbing activities have commenced without an approved plan or any required permits, such an order may be issued without regard to whether the permittee has been issued a notice to comply as specified in this chapter. Otherwise, such an order may be issued only after the permittee has failed to comply with such a notice to comply. The order shall be served in the same manner as a notice to comply, and shall remain in effect for a period of seven days from the date of service pending application by the enforcing authority or permit holder for appropriate relief to the circuit court.

If the alleged violator has not obtained an approved plan or any required permits within seven days from the date of service of the order, the city engineer and/or his designee may issue an order to the owner requiring that all construction and other work on the site, other than corrective measures, be stopped until an approved plan and any required permits have been obtained. Such an order shall be served upon the owner by registered or certified mail to the address specified in the permit application or the land records of the city.

The owner may appeal the issuance of an order to the circuit court of the city. Any person violating or failing, neglecting or refusing to obey an order issued by the city engineer and/or his designee may be compelled in a proceeding instituted in the circuit court of the city to obey same and to comply therewith by injunction, mandamus or other appropriate remedy. Upon completion and approval of corrective action or obtaining an approved plan or any required permits, the order shall immediately be lifted. Nothing in this section shall prevent the city engineer and/or his designee from taking any other action authorized by this chapter.

(Code 1975, § 7.1-4; Code 1992, § 24-4; Ord. No. 1581.2, 1-14-08)

Sec. 31-5. - Administrative appeal.

- (a) Final decisions of the administrator or the plan-approving authority under this chapter shall be subject to review by the city council, provided that an appeal is filed within 30 days from the date of any written decision by the administrator or the plan-approving authority.
- (b) Final decisions of the city council under this chapter shall be subject to review by the court of record of the city, provided that an appeal is filed within 30 days from the date of any written decision adversely affecting the rights, duties or privileges of the person engaging in or proposing to engage in land-disturbing activities.

(Code 1975, § 7.1-5; Code 1992, § 24-5)

Cross reference— Administration, ch. 2.

State Law reference— Similar provisions, Code of Virginia, § 10.1-568.

Sec. 31-6. - Liability.

Compliance with the provisions of this chapter shall be prima facie evidence in any legal or equitable proceeding for damages caused by erosion or sedimentation that all requirements of law have been met, and the complaining party must show negligence in order to recover any damages.

(Code 1975, § 7.1-7; Code 1992, § 24-6)

State Law reference— Similar provisions, Code of Virginia, § 10.1-569(H).

Sec. 31-7. - Penalties.

A violation of this chapter shall be deemed a misdemeanor and upon conviction shall be subject to a fine not exceeding \$1,000.00 or 30 days' imprisonment for each violation, or both such fine and imprisonment.

(Code 1975, § 7.1-6; Code 1992, § 24-7)

State Law reference— Penalties, Code of Virginia, § 10.1-569.

Secs. 31-8—31-30. - Reserved.

ARTICLE II. - EROSION AND SEDIMENT CONTROL PLAN; LAND-DISTURBING PERMIT

Sec. 31-31. - Erosion and sediment control plan.

- (a) Except as provided in Code of Virginia, § 10.1-564, it shall be unlawful for any person to engage in any land-disturbing activity until an erosion and sediment control plan has been submitted to and approved by the administrator.
- (b) The standards contained in the Virginia Erosion and Sediment Control Regulations, the Virginia Erosion and Sediment Control Handbook and any other requirements and/or regulations contained in the Virginia Code § 10.1-561 or promulgated thereunder are to be used by the applicant when making a submittal under the provisions of this article and in the preparation of an erosion and sediment control plan. The city engineer and/or his designee, in considering the adequacy of a submitted plan, shall be

guided by the same standards, regulations and guidelines. When the standards vary between the publications, the state regulations shall take precedence. In accordance with Code of Virginia, § 10.1-561 of the stream restoration and relocation projects that incorporate natural channel design concepts are not man-made channels and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels.

In accordance with Code of Virginia, §10.1-561, any land-disturbing activity that provides for stormwater management intended to address any flow rate capacity and velocity requirements for natural or manmade channels shall satisfy the flow rate capacity and velocity requirements for natural or manmade channels if the practices are designed to:

- (1) Detain the water quality volume and to release it over 48 hours;
- (2) Detain and release over a 24-hour period the expected rainfall resulting from the one year, 24-hour storm; and
- (3) Reduce the allowable peak flow rate resulting from the 1.5-, two-, and ten-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming it was in a good forested condition, achieved through multiplication of the forested peak flow rate by a reduction factor that is equal to the runoff volume from the site when it was in a good forested condition divided by the runoff volume from the site in its proposed condition, and shall be exempt from any flow rate capacity and velocity requirements for natural or manmade channels.

(Code 1975, § 7.1-8; Code 1992, § 24-31; Ord. No. 1582.3, § 31-31, 1-14-08)

State Law reference— Plan required, Code of Virginia, § 10.1-563.

Sec. 31-32. - Plan submission.

- (a) Five copies of the erosion and sediment control plan shall be submitted to the administrator.
- (b) State agency projects are exempt from the provisions of this section except as provided for in the Code of Virginia § 10.1-564.
- (c) Electric, natural gas, and telephone utilities companies, interstate and intrastate natural gas pipeline companies and railroad companies shall file general erosion and sediment control specifications annually with the Soil and Water Conservation Board of the Commonwealth of Virginia for review and written comments. The specifications shall apply to;
 - (1) Instruction, installation or maintenance of electric, natural gas and telephone utility lines and pipelines; and
 - (2) Construction of the tracks, rights of way, bridges, communication facilities and other related structures and facilities of the railroad company.

Individual approval of separate projects within subsections (c)(1) and (c)(2) is not necessary when board-approved specifications are followed; however, projects included in subsections (c)(1) and (c)(2) must comply with board-approved specifications. Projects not included in subsections (c)(1) and (c)(2) shall comply with the requirements of the city's erosion and sediment program.

- (d) As a prerequisite to engaging in the land-disturbing activities shown on the approved plan, the person responsible for carrying out the plan shall provide the name of an individual holding a certificate of competence to the city as provided by § 10.1-561 of the State Erosion and Sediment Control Law who will be responsible for carrying out the land-disturbing activities (the responsible land disturber). Failure to provide the name of an individual holding a certificate of competence prior to engaging in land-disturbing activities may result in the revocation of the approval of the plan and the person responsible for carrying out the plan shall be subject to the penalties provided in this chapter.

- (e) When land-disturbing activities will be required of a contractor performing construction work pursuant to a construction contract, the preparation, the submission, and approval of the erosion and sediment control plan shall be the responsibility of the owner.
- (f) In accordance with the procedure set forth by Code of Virginia, § 10.1-563(e), any person engaging in the creation and operation of wetland mitigation banks in multiple jurisdictions, which have been approved and/or operated in accordance with applicable federal and state guidance, laws, or regulations for the establishment, use and operations of mitigations banks, pursuant to a permit issued by the Department of Environmental Quality, the Marine Resources Commission, or the U.S. Army Corp of Engineers, may, at the option of that person, file general erosion and sediment specifications for wetland mitigation banks annually with the board for review and approval consistent with guidelines established by the board.
- (g) The city engineer and/or his designee may waive or modify any of the regulations that are deemed inappropriate or too restrictive for site conditions by granting a variance under the conditions noted in 4DAC50-30-50 of the state erosion and sediment control regulations.
- (h) Where land-disturbing activities involve lands under the jurisdiction of more than one local control program, an erosion and sediment control plan, at the option of the applicant, may be submitted to the board for review and approval rather than to each jurisdiction concerned. Where the land-disturbing activity results from the construction of a single-family residence, an agreement in lieu of a plan may be substituted for an erosion and sediment control plan if executed by the plan-approving authority.

(Code 1975, § 7.1-9; Code 1992, § 24-32; Ord. No. 1582.4, § 31-32, 1-14-08)

Sec. 31-33. - Approval.

Any erosion and sedimentation plan submitted under the provisions of this chapter shall be acted on within 45 days from receipt by either approving or disapproving in writing and giving specific reasons for disapproval. If no formal action has been taken by the plan-approving authority within 45 days after receipt of the plan, the plan shall be deemed approved, as provided in the Virginia Sediment and Erosion Control Handbook, 1980.

(Code 1975, § 7.1-10; Code 1992, § 24-33)

State Law reference— Similar provisions, Code of Virginia, § 10.1-563.

Sec. 31-34. - Amendment to plan.

An approved plan may be changed by the administrator in the following cases:

- (1) Where inspection has revealed the inadequacy of the plan to satisfy applicable regulations or to accomplish the erosion and sediment control objectives of the plan, and appropriate modifications to correct the deficiencies of the plan are agreed to by the administrator and the person responsible for carrying out the plan; or
- (2) Where the person responsible for carrying out the approved plan finds that because of changed circumstances or for other reasons the approved plan cannot be effectively carried out, and proposed amendments to the plan consistent with the requirements of this chapter are agreed to by the administrator and the person responsible for carrying out the plan.

(Code 1975, § 7.1-11; Code 1992, § 24-34)

State Law reference— Similar provisions, Code of Virginia, § 10.1-563.

Sec. 31-35. - Issuance of land-disturbing permit; fees.

- (a) Except as provided in sections 31-1 and 31-3, no person shall engage in any land-disturbing activity as defined in section 31-1 within the city until he has acquired a land-disturbing permit; and engaging in such activity without a permit shall be a misdemeanor.
- (b) Issuance of such permit is conditioned on the approval of an erosion and sediment control plan submitted to the administrator at the time of application for the permit, and upon the fulfillment of all requirements of this chapter and those set forth in the Virginia Erosion and Sediment Control Handbook, 1980, on payment of all fees required by this chapter, and upon providing security for performance as required by this chapter.
- (c) A permit fee in such sum as the council by resolution may approve, but in no event exceeding \$150.00, shall be paid at the time of submission of any erosion and sediment control plan; and no permit shall be issued until such plan is approved by the administrator. The permit fee paid pursuant to this section shall be nonrefundable, whether the plan is approved or disapproved.

(Code 1975, § 7.1-12; Code 1992, § 24-35)

Sec. 31-36. - Bonding of performance.

- (a) Prior to the issuance of any permit under section 31-35, and prior to approval of any erosion and sediment control plan, the administrator shall require that the applicant post a performance bond with surety, a cash escrow, a letter of credit, or any combination thereof, in form or forms approved by the city attorney, payable to the city, in a penalty at least sufficient in amount to defray the cost necessary to enable the city to take measures at the applicant's expense to initiate or maintain appropriate conservation action and erosion and sediment control required by the approved erosion and sediment control plan as a result of the land-disturbing activity if the applicant shall fail to do so within the time required by the permit.
- (b) In lieu of the bond with surety, cash escrow, letter of credit or combination thereof, the administrator, with the written approval of the city manager, may make such other legal arrangements which are sufficient to ensure that measures can be taken by the city at the applicant's expense should he fail, within the time specified in the permit, to initiate or maintain appropriate conservation action and erosion and sediment control which may be required of him by the approved erosion and sediment control plan as a result of his land-disturbing activity.
- (c) If the administrator determines that the applicant has not complied with the requirements of the approved erosion and sediment control plan, he shall give notice to the applicant of such failure and, if the same is not initiated, completed or maintained, as the case may be, within seven days, that the bond, cash escrow, letter of credit (or combination thereof) shall be forfeited, or the terms of the other legal arrangements made to ensure compliance will be invoked, after which the same shall stand forfeited or invoked and all work under the permit issued and any grading, building or other permit for any activity involving land-disturbing activities shall cease.
- (d) Should the applicant fully comply with the requirements of the approved erosion and sediment control plan and the permit issued therefor, then within 60 days of the completion of the land-disturbing activity, such bond, cash escrow, letter of credit or other legal arrangement, or the unexpended or unobligated portion thereof, shall be refunded to the applicant or terminated, as the case may be.

(Code 1975, § 7.1-13; Code 1992, § 24-36)

State Law reference— Similar provisions, Code of Virginia, § 10.1-565.

Sec. 31-37. - No other permits to issue without approved plan.

- (a) No agency of the city authorized to issue grading, building or other permits for activities involving land-disturbing activities shall issue any such permits unless the applicant therefor submits with his application the approved erosion and sediment control plan required by this chapter, or a certification from the city engineer that such a plan has been submitted and approved, and a certification by the applicant that such approved erosion and sediment control plan will be followed.
- (b) The requirements of this section are in addition to all other provisions of law relating to the issuance of such permits and are not intended to otherwise affect the requirements for such permits.

(Code 1975, § 7.1-14; Code 1992, § 24-37)

State Law reference— Similar provisions, Code of Virginia, § 10.1-565.

Sec. 31-38. - Injunctions and other legal actions.

In addition to the penalties provided by section 31-6, and in addition to any other remedies provided by law, the city, through its administrator or otherwise, may apply to the circuit court of the city for injunctive relief to enjoin a violation or threatened violation of any of the provisions of this chapter relative to land-disturbing activities, without any showing that there does not exist an adequate remedy at law.

(Code 1975, § 7.1-15; Code 1992, § 24-38)

State Law reference— Similar provisions, Code of Virginia, § 10.1-569.



NOTICE TO COMPLY

Project File #: _____

Date: _____

To: _____

Re: _____
(Project Name)

An inspection of the above-referenced project on _____ revealed that the following violations are present:

The following recommendations are made regarding the necessary corrections:

Notice is hereby given that these violations shall be corrected in accordance with the approved Erosion and Sediment Control Plan on or before _____. The site will be re-inspected at that time.

Failure to comply with this notice will result in necessary legal enforcement action by the locality to effect the implementation of the approved plan. Please contact this department if there are any questions.

Inspector: _____
(Signature)

Program Administrator: _____
(Signature)

Copies to: Commonwealth's Attorney
City Council
Plan Approving Authority

ORDINANCE NO. 1662

**STORMWATER MANAGEMENT ORDINANCE
CITY OF RADFORD, VIRGINIA**

BE IT ORDAINED by the City Council of the City of Radford, Virginia that a new Chapter 32, entitled, "Stormwater Management", is hereby adopted and added to the Radford City Code of Ordinances, and this Stormwater Management Ordinance is hereby adopted to be effective in the City of Radford, Virginia as of July 1, 2014, as follows:

**CHAPTER 32
STORMWATER MANAGEMENT**

Section 32-1. Purpose and Authority; Title.

(a) Pursuant to § 62.1-44.15:27 of the Code of Virginia, the City of Radford, Virginia hereby establishes a Virginia Stormwater Management Program (VSMP) for land disturbing activities and adopts the applicable Regulations that specify standards and specifications for VSMPs promulgated by the State Water Control Board (State Board) for the purposes as set out in this Section of this Chapter.

(b) This Chapter is adopted as part of an initiative to establish and integrate the City of Radford's Code of Ordinances, Chapter 31- Erosion and Sediment Control; flood insurance, and flood plain management requirements into a unified stormwater program. The unified stormwater program is intended to facilitate the submission and approval of plans, issuance of permits, payment of fees, and coordination of inspections and enforcement activities into a more convenient and efficient manner for both the City of Radford and those responsible for compliances with these programs.

(c) The purpose of this Chapter is to ensure the general health, safety, and welfare of the citizens of the City of Radford, Virginia, and protect the quality and quantity of state waters from the potential harm of unmanaged stormwater, including protection from a land disturbing activity causing unreasonable degradation of properties, water quality, stream channels, and other natural resources, and to establish procedures whereby stormwater requirements related to water quality and quantity shall be administered and enforced.

(d) This Chapter is adopted pursuant to §62.1-44.15:24 et seq. of Chapter 3.1 of Title 62.1 of the Code of Virginia.

(e) This Chapter shall be known and may be cited as the "Stormwater Management Ordinance of the City of Radford, Virginia", or as the "Stormwater Management Ordinance",

Section 32-2. Definitions.

In addition to the definitions set forth in 9VAC25-870-10 of the Virginia Stormwater Management Regulations, as amended, and in Chapter 3.1 of Title 62.1 of the Code of Virginia, and any amendments thereunto, which are expressly adopted herein and incorporated herein by

reference and made a part hereof, the following words and terms as used in this Chapter have the following meanings unless otherwise specified herein. Where definitions differ, those incorporated herein shall have precedence.

“*Act*” means the Virginia Stormwater Management Act, Article 2.3 (§ 62.1-44.15:24 et seq.) of Chapter 3.1 of Title 62.1 of the Code of Virginia.

“*Administrative Guidance Manual*” means the City of Radford Administrative Guidance Manual, which is a documentation of policies and procedures for documentation and calculations verifying compliance with the water quality and quantity requirements, review and approval of Stormwater Pollution Prevention Plans and Stormwater Management Plans, site inspections, obtaining and releasing bonds, reporting and recordkeeping, and compliance strategies for reviews, enforcement, and long-term maintenance and inspection programs.

“*Administrator*” means the Virginia Stormwater Management Program (VSMP) authority for the City of Radford staff person or department responsible for administering the VSMP on behalf of the City. Or the duly authorized agent or designee of the Administrator. The Administrator for the City is the City Engineer.

“*Agreement in lieu of a stormwater management plan*” means a contract between the VSMP authority and the owner or permittee that specifies methods that shall be implemented to comply with the requirements of a VSMP for the construction of a single-family residence; such contract may be executed by the VSMP authority in lieu of a stormwater management plan.

“*Applicant*” means any person submitting an application for a permit or requesting issuance of a permit under this Chapter.

“*Best Management Practice*” or “*BMP*” means schedules of activities, prohibitions of practices, including both structural and nonstructural practices, maintenance procedures, and other management practices to prevent or reduce the pollution of surface waters and groundwater systems from the impacts of land-disturbing activities.

“*Board*” means the Virginia State Water Control Board.

“*Building Code of Appeals Board*” means the Building Code of Appeals Board of the City.

“*Channel*” means a natural or manmade waterway. Means a natural or manmade waterway

“*City*” means the City of Radford, Virginia.

“*City Council*” means the City Council of the City of Radford, Virginia.

“*Clean Water Act*” or “*CWA*” means the Federal Clean Water Act (33 U.S.C §1251 et seq.), formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution

Control Act Amendments of 1972, Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483, and Public Law 97-117, or any subsequent revisions thereto.

“Common plan of development or sale” means a contiguous area where separate and distinct construction activities may be taking place at different times on different schedules. For the purpose of this Ordinance, the term shall not include individual lots within existing residential, commercial or industrial site plans and subdivision plans that were platted prior to July 1, 2004, and which are considered separate land-disturbing activities.

“Comprehensive stormwater management facility” or *“comprehensive facility”* means a facility or series of facilities designed to control stormwater runoff from a specific watershed, although only portions of the watershed may experience development.

“Comprehensive stormwater management plan” means a plan which may be integrated with other land use plans or regulations that specifies how the water quality components, or quantity components, or both, of stormwater are to be managed on the basis of an entire watershed or a portion thereof. The plan may also provide for the remediation of erosion, flooding, and water quality and quantity problems caused by prior development.

“Control measure” means any best management practice or stormwater facility, or other method used to minimize the discharge of pollutants to state waters.

“Department” means the Department of Environmental Quality.

“Director” means the Director of the Department of Environmental Quality.

“Development” means land disturbance and the resulting landform associated with the construction of residential, commercial, industrial, institutional, recreation, transportation or utility facilities or structures or the clearing of land for non-agricultural or non-silvicultural purposes.

“Erosion and Sediment control plan” means a plan to control soil erosion and prevent sediment from leaving the construction site.

“Flooding” means a volume of water that is too great to be confined within the banks or walls of the stream, water body, or conveyance system and that overflows onto adjacent lands, thereby causing or threatening damage.

“General permit” means the state permit titled, GENERAL PERMIT FOR DISCHARGES OF STORMWATER FROM CONSTRUCTION ACTIVITIES found in Part XIV (9VA25-880-1 et seq.) of the Regulations authorizing a category of discharges under the CWA and the Act within a geographical area of the Commonwealth of Virginia.

“Land disturbance” or *“land-disturbing activity”* means a man-made change to the land surface that potentially changes its runoff characteristics including clearing, grading, or

excavation except that the term shall not include those exemptions specified in Section 32-9 of this Chapter.

“*Layout*” means a conceptual drawing sufficient to provide for the specified stormwater management facilities required at the time of approval.

“*Local stormwater management program*” or “*local program*” means a statement of the various methods adopted pursuant to the Act, and implemented by the City to manage the runoff from land disturbing activities and shall include an ordinance with provisions to require the control of after development stormwater runoff rate of flow, water quality, the proper maintenance of stormwater management facilities, and minimum administrative procedures consistent with this Chapter.

“*Maintenance agreement*” means a legally recorded document that acts as a property deed restriction, and which provides for long-term maintenance of stormwater management facilities.

“*Minor modification*” means an amendment to an existing general permit before its expiration not requiring extensive review and evaluation including, but not limited to, changes in Environmental Protection Agency (EPA) promulgated test protocols, increasing monitoring frequency requirements, changes in sampling locations, and changes to compliance dates within the overall compliance schedules. A minor general permit modification or amendment does not substantially alter general permit conditions, substantially increase or decrease the amount of surface water impacts, increase the size of the operation, or reduce the capacity of the facility to protect human health or the environment.

“*Municipal separate storm sewer*” means a conveyance or system of conveyances otherwise known as a municipal separate storm sewer system or “MS4”, including roads with drainage systems, municipal streets, cat basins, curbs, gutters, ditches, man-made channels, or storm drains:

- (a) Owned or operated by a federal, state, city, town, county, district, association, or other public body, created by or pursuant to state law, including the City, having jurisdiction or delegated authority for erosion and sediment control and stormwater management, or a designated and approved management agency under § 208 of the CWA that discharges to surface waters;
- (b) Designed or used for collecting or conveying stormwater;
- (c) That is not a combined sewer; and
- (d) That is not part of a publicly owned treatment works.

“*Municipal Separate Storm Sewer System Management Program*” means a management program covering the duration of a state permit for a municipal separate storm sewer system, including the City, that includes a comprehensive planning process that involves public

participation and intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable, to protect water quality, and to satisfy the appropriate water quality requirements of the CWA and regulations, and this Chapter and the attendant Regulations, using management practices, control techniques, and system design and engineering methods, and such other provisions that are appropriate.

“Nonpoint source pollution” means pollution such as sediment, nitrogen, phosphorus, hydrocarbons, heavy metals, and toxics whose sources cannot be pinpointed but rather are washed from the land surface in a diffuse manner by stormwater runoff.

“Off-site facility” means a stormwater management measure located outside the subject property boundary described in the permit application for land development activity.

“On-site facility” means a stormwater management measure located within the subject property boundary described in the permit application for land development activity.

“Operator” means the owner or operator of any facility or activity subject to regulation under this Chapter.

“Peak flow rate” means the maximum instantaneous flow from a prescribed design storm at a particular location.

“Permit” or *“VSMP Authority Permit”* means an approval to conduct a land-disturbing activity issued by the Administrator for the initiation of a land-disturbing activity, in accordance with this Chapter, and which may only be issued after evidence of general permit coverage, if such statement is required, has been provided by the Department, where applicable.

“Permittee” means the person to which the permit or state permit is issued.

“Person” means any individual, corporation, partnership, firm, association, state, municipality, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, county, city, town or other political subdivision of the Commonwealth of Virginia, a state, governmental body, including federal, state, or local entity as applicable, any interstate body or any other legal entity.

“Pollution Prevention Plan” or *“PPP”* means a document(s) that is prepared in accordance with good engineering practices and that details the design, installation, implementation and maintenance of effective pollution prevention measures to minimize the discharge of pollutants.

“Post-development” refers to conditions that reasonably may be expected or anticipated to exist after completion of the land development activity on a specific site or tract of land.

“Pre-development” refers to the conditions that exist at the time that plans for the land development of a tract of land are submitted to the VSMP authority. Where phased development or plan approval occurs (preliminary grading, demolition of existing structures, road and utilities,

etc.), the existing conditions at the time prior to the first item being submitted shall establish predevelopment conditions.

“*Redevelopment*” means the process of developing land that is or has been previously developed.

“*Regulations*” mean the Virginia Stormwater Management Program (VSMP) Regulations (9VAC25-870-10, et seq., as amended).

“*Runoff*” or “*stormwater runoff*” means that portion of precipitation that is discharged across the land surface or through conveyances to one or more waterways.

“*Runoff volume*” means the volume of water that runs off the land development project from a prescribed storm event.

“*Site*” means the land or water area where any facility or land-disturbing activity is physically located or conducted, including adjacent land used or preserved in connection with the facility or land-disturbing activity.

“*State*” means the Commonwealth of Virginia.

“*State Board*” means the State Water Control Board of the Commonwealth of Virginia.

“*State permit*” means an approval to conduct a land-disturbing activity issued by the State Board in the form of a state stormwater individual permit or coverage issued under a state general permit, if such permit is required, or an approval issued by the Board for stormwater discharges from an MS4. Under these state permits, the Commonwealth of Virginia imposes and enforces requirements pursuant to the Federal Clean Water Act and regulations, and the Virginia Stormwater Management Act and the attendant Regulations.

“*State Water Control Law*” means Chapter 3.1 (§ 62.1-44.2 et seq.) of Title 62.1 of the Code of Virginia.

“*State waters*” means all water, on the surface and under the ground, wholly or partially within or bordering the Commonwealth of Virginia or within its jurisdiction, including wetlands.

“*Stop work order*” means an order issued which requires that all construction activity on a site be stopped.

“*Stormwater*” means precipitation that is discharged across the land surface or through conveyances to one or more waterways and that may include stormwater runoff, snow melt runoff, and surface runoff and drainage.

“*Stormwater management facility*” means a device that controls stormwater runoff and changes the characteristics of that runoff including, but not limited to, the quantity and quality, the period of release, or the velocity of flow.

“Stormwater management” means the use of structural or non-structural practices that are designed to reduce stormwater runoff pollutant loads, discharge volumes, and /or peak flow discharge rates.

“Stormwater management plan” means a document(s) containing material describing methods for complying with the requirements of a Virginia Stormwater Management Program (VSMP).

“Stormwater Pollution Prevention Plan” or *“SWPPP”* means a document(s) that is prepared in accordance with good engineering practices and that identifies potential sources of pollutants that may reasonably be expected to affect the quality of stormwater discharges from the construction site, and otherwise meets the requirements of this Chapter. In addition, the document(s) shall identify and require the implementation of control measures, and shall include, but not be limited to the inclusion of, or the incorporation by reference of, an approved erosion and sediment control plan, an approved stormwater management plan, and a pollution prevention plan.

“Subdivision” means and has the same definition as set forth in the Subdivision Ordinance of the City of Radford, as defined in Chapter 95, Subdivision of Land, in the Radford City Code of Ordinances.

“Total Maximum Daily Load” or *“TMDL”* means the sum of the individual wasteload allocations for point sources, load allocations for nonpoint sources, natural background loading and a margin of safety. TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure. The TMDL process provides for point versus nonpoint source trade-offs.

“Virginia Stormwater Management Act” or *“Act”* means Article 2.3 (§ 62.1-44.15:24 et seq.) of Chapter 3.1 of Title 62.1 of the Code of Virginia, and which is incorporated herein by reference into this Chapter, and made a part hereof.

“Virginia Stormwater BMP Clearinghouse website” means a website that contains detailed design standards and specifications for control measures that may be used in Virginia to comply with the requirements of the Virginia Stormwater Management Act and associated regulations.

“Virginia Stormwater Management Handbook” means the policy, criteria and pertinent information that provides general guidance for compliance with the Act and the associated regulations and is developed by the Department, or any revisions thereunto for the Virginia Stormwater Management Program or VSMP, including specifications and standards of the Act and the Regulations of the Virginia Stormwater Management Handbook (“Handbook”) for the proper implementation of the requirements of this Chapter, the Act and the Regulations. All references to the Handbook shall mean the most current edition and amendments of the Department. The Handbook includes a list of acceptable stormwater treatment practices, including the specific design criteria for each stormwater management practice. Stormwater

treatment practices that are designed and constructed in accordance with the design and sizing criteria will be presumed to meet the minimum water quality performance standards.

“Virginia Stormwater Management Program” or *“VSMP”* means the program established by the City to manage the quality and quantity of runoff resulting from land-disturbing activities in accordance with state law, and which has been approved by the State Board.

“Virginia Stormwater Management Program authority” or *“VSMP authority”* means the City of Radford.

“Water quality volume” means the volume equal to the first one-half inch of runoff multiplied by the impervious surface of the land development project.

“Watershed” means a defined land area drained by a river or stream, karst system, or system of connecting rivers or streams such that all surface water within the area flows through a single outlet. In karst areas, the karst feature to which water drains may be considered the single outlet for the watershed.

Section 32-3. Stormwater Permit Requirements; Exemptions.

(a) Except as provided herein, no person may engage in any land-disturbing activity until a VSMP authority permit has been issued by the Administrator in accordance with the provisions off this Chapter.

(b) Notwithstanding any other provisions of this Chapter, the following activities are exempt, unless otherwise required by federal law:

- (1) Permitted surface or deep mining operations and projects, or oil and gas operations and projects conducted under the provisions of Title 45.1 of the Code of Virginia;
- (2) Clearing of lands specifically for agricultural purposes and the management, tilling, planting, or harvesting of agricultural, horticultural, or forest crops, livestock feedlot operations, or as additionally set forth by the State Board in regulations, including engineering operations as follows: construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage, and land irrigation; however, this exception shall not apply to harvesting of forest crops unless the area on which harvesting occurs is reforested artificially or naturally in accordance with the provisions of Chapter 11 (§10.1-1100 et seq.) of Title 10.1 of the Code of Virginia or is converted to bona fide agricultural or improved pasture use as described in subsection B of §10.1-1163 of Article 9 of Chapter 11 of Title 10.1 of the Code of Virginia;

- (3) Single-family residences separately built and disturbing less than one (1) acre and not part of a larger common plan of development or sale, including additions or modifications to existing single-family detached residential structures;
- (4) Land disturbing activities that disturb less than one (1) acre of land that are not part of a larger common plan of development or sale that is one (1) acre or greater of disturbance;
- (5) Discharges to a sanitary sewer or a combined sewer system;
- (6) Activities under a State or federal reclamation program to return an abandoned property to an agricultural or open land use;
- (7) Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original construction of the project. The paving of an existing road with a compacted or impervious surface and reestablishment of existing associated ditches and shoulders shall be deemed routine maintenance if performed in accordance with this Subsection; and
- (8) Conducting land-disturbing activities in response to a public emergency where the related work requires immediate authorization to avoid imminent endangerment to human health or the environment. In such situations, the Administrator shall be advised of the disturbance within 7 days of commencing the land-disturbing activity and compliance with the administrative requirements of subsection (a) is required within 30 days of commencing the land-disturbing activity.

Section 32-4. Stormwater Management Program Established; Submission and Approval of Plans; Prohibitions.

(a) Pursuant to §64.1-44.15:27 of the Code of Virginia, the City of Radford, Virginia hereby establishes a Virginia Stormwater Management Program (VSMP) for land-disturbing activities and adopts the applicable Regulations that specify standards and specifications for VSMP's promulgated by the State Board for the purposes set out in Section 32-1 of this Chapter. The City Council hereby designates the City Engineer as the Administrator of the Virginia Stormwater Management Program (VSMP) for the City.

(b) No VSMP authority permit shall be issued by the Administrator, until the following items have been submitted to and approved by the Administrator as prescribed herein:

- (1) A permit application that includes a general permit registration statement; if such statement is required (Code of Virginia 62.1-44.15:28 A 8);
- (2) An erosion and sediment control plan approved in accordance with the City's Code of Ordinances, Chapter 31- Erosion and Sediment Control;

(3) A stormwater management plan or an agreement in lieu of stormwater management plan that meets the requirements of Section 32-6 of this Chapter.

(c) No VSMP authority permit shall be issued until evidence of general permit coverage is obtained, where it is required.

(d) No VSMP authority permit shall be issued until the fees required to be paid pursuant to Section 32-15 of this Chapter are received, and a reasonable performance bond if required pursuant to Section 32-16 of this Chapter has been submitted.

(e) No VSMP authority permit shall be issued unless and until the permit application and attendant materials and supporting documentation demonstrate that all land clearing, construction, disturbance, land development and drainage will be done according to the approved permit.

(f) No grading, building or other local permit shall be issued for a property unless a VSMP authority permit has been issued by the Administrator.

Section 32-5. Stormwater Pollution Prevention Plan; Contents of Plan

(a) The Stormwater Pollution Prevention Plan (SWPPP) shall include the content specified by Section 9VAC25-870-54, including, but not limited to, an approved erosion and sediment control plan, an approved stormwater management plan, pollution prevention plan and additional control measures necessary to address a TMDL, and must also comply with the requirements and general information set forth in Section 9VAC25-880-70, Section II [Stormwater Pollution Prevention Plan] of the general permit.

(b) The SWPPP shall be amended by the operator whenever there is a change in design, construction, operation, or maintenance that has a significant effect on the discharge of pollutants to state waters which is not addressed by the existing SWPPP.

(c) The SWPPP must be maintained by the operator at a central location onsite. If an onsite location is unavailable, notice of the SWPPP's location must be posted near the main entrance at the construction site. Operators shall make the SWPPP available for public review in accordance with Section 9VAC25-880-70, Section II [Stormwater Pollution Prevention Plan], Section II of the general permit, either electronically or in hard copy.

Sec. 32-6. Stormwater Management Plan; Contents of Plan.

(a) A Stormwater Management Plan, required in Section 32-1 of this Chapter shall apply the stormwater management technical criteria set forth in Section 32-9 of this Chapter and in the Regulations to the entire land-disturbing activity to ensure stormwater management plans for residential, commercial or industrial subdivisions shall govern the development of individual parcels, including those under subsequent owners. Individual lots in new residential, commercial or industrial developments shall not be considered separate land disturbing activities. A

Stormwater Management Plan shall consider all sources of surface runoff and all sources of subsurface and groundwater flows converted to subsurface runoff, and shall include the following information:

- (1) Information on the type and location of stormwater discharges; information on the features to which stormwater is being discharged including surface waters or karst features, if present, and the pre-development and post-development drainage areas;
- (2) Contact information including the name, address, telephone number of the owner, tax reference number and parcel number of the property or properties affected;
- (3) A narrative that includes a description of current site conditions and final site conditions;
- (4) A general description of the proposed stormwater management facilities and the mechanism through which the facilities will be operated and maintained after construction is complete and a certification that states the stormwater management meets the requirements set forth in the VSMP Permit Regulations (9VAC25-870-55), the Handbook, and the Administrative Guidance Manual;
- (5) Information on the proposed stormwater management facilities, including:
 - (i) The type of facilities;
 - (ii) Location, including geographic coordinates;
 - (iii) Acres treated;
 - (iv) The surface waters or karst features, if present, into which the facility will discharge.
- (6) Hydrologic and hydraulic computations, including runoff characteristics;
- (7) Documentation and calculations verifying compliance with the water quality and quantity requirements of the Regulations and Section 32-9 of this Chapter, the Handbook, and the Administrative Guidance Manual; and
- (8) Map or maps of the site that depicts the topography of the site and includes:
 - (i) All contributing drainage areas;
 - (ii) Existing streams, ponds, culverts, ditches, wetlands, other water bodies, and floodplains;

- (iii) Soil types, geologic formations if karst features are present in the area, forest cover, and other vegetative areas;
- (iv) Current land use including existing structures, roads, and locations of known utilities and easements;
- (v) Sufficient information on adjoining parcels to assess the impacts of stormwater from the site on these parcels;
- (vi) Limits of clearing and grading, and the proposed drainage patterns on the site;
- (vii) Proposed buildings, roads, parking areas, utilities, and stormwater management facilities; and
- (viii) Proposed land use with tabulation of the percentage of surface area to be adapted to various uses, including but not limited to planned locations of utilities, roads, and easements.

(b) If an operator intends to meet the water quality and/or quantity requirements set forth in Section 32-9 of this Chapter through the use of off-site compliance options, where applicable, then a letter of availability from the off-site provider must be included. Approved off-site options must achieve the necessary nutrient reductions prior to the commencement of the Applicant's land-disturbing activity except as otherwise allowed by §62.1-44.15:35 of the Code of Virginia.

(c) Elements of the stormwater management plans that include activities regulated under Chapter 4 (§54.1-400 et seq.) of Title 54.1 of the Code of Virginia shall be appropriately sealed and signed by a professional registered in the Commonwealth of Virginia pursuant to Article 1 (§54.1-400 et seq.) of Chapter 4 of Title 54.1 of the Code of Virginia.

(1) If an Agreement in lieu of a stormwater management plan is executed, a stormwater pollution prevention plan is still required; however, the Administrator may waive the requirement of the plan to be signed and sealed by a professional engineer, architect, surveyor or landscape architect registered in the Commonwealth of Virginia pursuant to Article 1 (§54.1-400 et seq.) of Chapter 4 of Title 54.1 of the Code of Virginia.

(d) A construction record drawing for permanent stormwater management facilities shall be submitted to the Administrator. The construction record drawing shall be appropriately sealed and signed by a professional registered in the Commonwealth of Virginia, certifying that the stormwater management facilities have been constructed in accordance with the approved plan.

(1) If an Agreement in lieu of a stormwater management plan is executed, a construction recorded drawing is still required; however, the Administrator

may waive the certification by a professional engineer, architect, surveyor or landscape architect registered in the Commonwealth of Virginia pursuant to Article 1 (§54.1-400 et seq.) of Chapter 4 of Title 54.1 of the Code of Virginia.

Section 32-7. Pollution Prevention Plan; Contents of Plans.

(a) A Pollution Prevention Plan, as required and in compliance with 9VAC25870-56, shall be developed, implemented, and updated as necessary and must detail the design, installation, implementation, and maintenance of effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, such measures must be designed, installed, implemented, and maintained as required by 9VAC25-870-56 to:

- (1) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
- (2) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on the site to precipitation and to stormwater; and
- (3) Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.

(b) The Pollution Prevention Plan, required by 9VAC25-870-56, shall include effective best management practices to prohibit the following discharges:

- (1) Wastewater from washout of concrete, unless managed by an appropriate control;
- (2) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials;
- (3) Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and
- (4) Soaps or solvents used in vehicle and equipment washing.

(c) Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls.

Section 32-8. Review of Stormwater Management Plan.

(a) The Administrator or any duly authorized agent of the Administrator shall review

stormwater management plans and shall approve or disapprove a stormwater management plan according to the following:

- (1) The Administrator shall determine the completeness of a plan in accordance with Section 32-6 of this Chapter, and shall notify the Applicant, in writing, of such determination, within 15 calendar days of receipt. If the plan is deemed to be incomplete, the above written notification shall contain the reasons the plan is deemed incomplete;
 - (2) The Administrator shall have an additional 60 calendar days from the date of the communication of completeness to review the plan, except that if a determination of completeness is not made within the time prescribed in Subdivision (1), then the plan shall be deemed complete and the Administrator shall have 60 calendar days from the date of submission to review the plan;
 - (3) For plans not approved by the Administrator, all comments shall be addressed by the Applicant within 180 calendar days. Plans that are not resubmitted within this time period will be subject to a new application fee;
 - (4) The Administrator shall review any plan that has been previously disapproved, within 60 calendar days of the date of resubmission;
 - (5) During the review period, the plan shall be approved or disapproved, and the decision communicated in writing to the person responsible for the land-disturbing activity or their designated agent. If the plan is not approved, the reasons for not approving the plan shall be provided in writing. Approval or denial shall be based on the plan's compliance with the requirements of this Chapter, the Handbook, and the Administrative Guidance Manual;
 - (6) If a plan meeting all requirements of this Chapter is submitted and no action is taken within the time provided above in Subdivision (2) for review, the plan shall be deemed approved; and
- (b) Approved stormwater management plans may be modified as follows:
- (1) Modifications to an approved stormwater management plan shall be allowed only after review and written approval by the Administrator. The Administrator shall have 60 calendar days to respond in writing either approving or disapproving such request.
 - (2) The Administrator may require that an approved stormwater management plan be amended, within a time prescribed by the Administrator, to address any deficiencies noted during inspection.
- (c) The Administrator shall require the submission of a construction record drawing

for permanent stormwater management facilities. The Administrator may elect not to require construction record drawings for stormwater management facilities for which recorded maintenance agreements are not required pursuant to Section 32-10 (b).

Section 32-9. Technical Criteria for Regulated Land Disturbing Activities.

(a) To protect the quality and quantity of state water from the potential harm of unmanaged stormwater runoff resulting from land-disturbing activities, the City hereby adopts the technical criteria for regulating land-disturbing activities set forth in Part II B of the Regulations, as amended, expressly to include the requirements of 9VAC25-870-62 thru 99 and 9VAC25-870-48 [Grandfathering] of the Regulations, including 9VAC25-870-62 [Applicability]; 9VAC25-870-63 [Water Quality Design Criteria Requirements]; 9VAC25-870-65 [Water Quality Compliance]; 9VAC25-870-66 [Water Quantity Requirements]; 9VAC25-870-69 [Offsite Compliance Options]; 9VAC25-870-72 [Design storms and hydrologic methods]; 9VAC25-870-74 [Stormwater Harvesting]; 9VAC24-870-76 [Linear Development Project]; 9VAC25-870-85 [Stormwater Management Impoundment Structures or Facilities]; and 9VAC25-870-92 [Comprehensive Stormwater Management Plans]; 9VAC25-870-93 [Definitions]; 9VAC25-870-94 [Applicability]; 9VAC25-870-95 [General Requirements]; 9VAC25-870-96 [Water Quantity]; 9VAC25-870-97 [Stream Channel Erosion]; 9VAC25-870-98 [Flooding]; and 9VAC25-870-99 [Regional Watershed-Wide Stormwater Management Plans], which shall apply to all land disturbing activities regulated pursuant to this Chapter and the Regulations, except as expressly set forth in this Section as provided for in 9VAC25-870-48 [Grandfathering].

(b) Any land-disturbing activity shall be considered grandfathered by the VSMP Authority and shall be subject to the Part II C (VAC25-870-93 et seq.) technical criteria of the VSMP Regulation and this Chapter provided:

- (1) A proffered or conditional zoning plan, zoning with a plan of development, preliminary or final subdivision plat, preliminary or final site plan, or any document determined by the City to be equivalent thereto (i) was approved by the City prior to July 1, 2012, (ii) provided a layout as defined in 9VAC25-870-10, (iii) will comply with the Part II C technical criteria of this Chapter, and (iv) has not been subsequently modified or amended in any manner resulting in an increase in the amount of phosphorus leaving each point of discharge, and such that there is no increase in the volume or rate of runoff;
- (2) A state permit has not been issued prior to July 1, 2014; and
- (3) Land disturbance did not commence prior to July 1, 2014.

(c) Locality, state, and federal projects shall be considered grandfathered by the VSMP authority and shall be subject to the Part II C technical criteria of the Regulations and this Chapter provided:

(1) There has been an obligation of locality, state or federal funding, in whole or in part, prior to July 1, 2012, or the Department has approved a stormwater management plan prior to July 1, 2012;

(2) A state permit has not been issued prior to July 1, 2014; and

(3) Land disturbance did not commence prior to July 1, 2014.

(d) Land disturbing activities grandfathered under subsections (b) and (c) of this Section, shall remain subject to the Part II C technical criteria of the VSMP Regulation for one additional state permit cycle. After such time, portions of the project not under construction shall become subject to any new technical criteria adopted by the Board.

(e) In cases where governmental bonding or public debt financing has been issued for a project prior to July 1, 2012, such project shall be subject to the technical criteria of Part II C.

(f) Nothing in this Section shall preclude an operator from constructing to a more stringent standard at his discretion.

(g) The Administrator may grant exceptions to the technical requirements of Part II B and Part II C, of the Regulations, provided that (i) the exception is the minimum necessary to afford relief, (ii) reasonable and appropriate conditions are imposed so that the intent of the Act, the Regulations, and this Chapter are preserved, (iii) granting the exception will not confer any special privileges that are denied in other similar circumstances, and (iv) exception requests are not based upon conditions or circumstances that are self-imposed or self created. Economic hardship alone is not sufficient reason to grant an exception from the requirements of this Chapter

(1) Exceptions to the requirement that the land-disturbing activity obtain required VSMP authority permit shall not be given by the Administrator, nor shall the Administrator approve the use of a BMP not found on the Virginia Stormwater BMP Clearinghouse Website, or any other control measure duly approved by the Director.

(2) Exceptions to requirements for phosphorus reductions shall not be allowed unless offsite options otherwise permitted pursuant to 9VAC25-870-69 have been considered and found not available.

Section 32-10. Long-Term Maintenance of Permanent Stormwater Facilities.

(a) The Administrator shall require the provision of long-term responsibility for and maintenance of Stormwater management facilities and other techniques specified to manage the quality and quantity of runoff. Such requirements shall be set forth in an instrument recorded in the local land records prior to general permit termination, if such a permit is required, or earlier as required by the Administrator and shall at a minimum:

- (1) Be submitted to the Administrator for review and approval prior to the approval of the stormwater management plan;
- (2) Be stated to run with the land;
- (3) Provide for all necessary access to the property for purposes of maintenance and regulatory inspections;
- (4) Provide for inspections and maintenance and the submission of inspection and maintenance reports to the Administrator; and
- (5) Be enforceable by all appropriate governmental parties.

(b) At the discretion of the Administrator, such recorded instruments need not be required for stormwater management facilities designed to treat stormwater runoff primarily from an individual residential lot on which they are located, provided it is demonstrated to the satisfaction of the Administrator that future maintenance of such facilities will be addressed through an enforceable mechanism at the discretion of the Administrator.

(c) If a recorded instrument is not required pursuant to Section 32-10(b), the Administrator shall develop a strategy for addressing maintenance of stormwater management facilities designed to treat stormwater runoff primarily from an individual residential lot on which they are located. Such a strategy may include periodic inspections, homeowner outreach and education, or other method targeted at promoting the long-term maintenance of such facilities. Such facilities shall not be subject to the requirement for an inspection to be conducted by the Administrator or any duly authorized agent of the Administrator.

Section 32-11. Monitoring and Inspections.

(a) The Administrator or any duly authorized agent of the Administrator shall inspect the land-disturbing activity during construction for:

- (1) Compliance with the approved erosion and sediment control plan;
- (2) Compliance with the approved stormwater management plan;
- (3) Development, updating, and implementation of a pollution prevention plan; and
- (4) Development and implementation of any additional control measures necessary to address a TMDL.

(b) The Administrator has the right, at reasonable times and under reasonable circumstances, enter any establishment or upon any property, public or private, for the purpose of obtaining information or conducting surveys or investigations necessary in the enforcement of the provisions of this Ordinance. In the event the Administrator, or his agent shall be denied access to property, the Administrator may present sworn testimony

to a magistrate or court of competent jurisdiction and if such sworn testimony establishes probable cause that a violation of this ordinance has occurred, request that the magistrate or court grant the Administrator an inspection warrant to enable the director of utilities or his agent to enter the property for the purpose of determining whether a violation of this ordinance exists. The Administrator shall make a reasonable effort to obtain consent from the owner or occupant of the subject property prior to seeking the issuance of an inspection warrant under this section. It shall be a violation of this section for any person to deny the Administrator access to any property after the director of utilities or his agent has obtained an inspection warrant from a magistrate or a court of competent jurisdiction for the inspection of such property. Nothing herein shall be construed to authorize Administrator to enter or inspect the interior portions of any dwelling or structure situated on such property unless that inspection is deemed to be reasonably necessary and directly related to verifying the presence and character of a stormwater control mitigation system or control measure that the owner of the property claims to be installed therein.

- (c) In accordance with a performance bond, the Administrator may also enter any establishment or upon any property, public or private, for the purpose of initiating or maintaining appropriate actions which are required by the permit conditions associated with a land-disturbing activity when a permittee, after proper notice, has failed to take acceptable action within the time specified.
- (d) Pursuant to § 62.1-44-15:40 of the Code of Virginia, the Administrator may require every VSMP authority permit applicant or permittee, or any such person subject to VSMP authority permit requirements under this Ordinance, to furnish when requested such application materials, plans, specifications, and other pertinent information as may be necessary to determine the effect of his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of this Ordinance. Refer to § 62.1-44.15:40 regarding protection of specified confidential information.
- (e) Post-construction inspections of stormwater management facilities required by the provisions of this Ordinance and the recorded maintenance agreement shall be conducted by the Owner and at the Owner's cost pursuant to the City of Radford's adopted and State Board approved inspection program, and shall occur within the minimum frequencies shown in Table 1-11-1 following approval of the final construction record report for each stormwater facility.

Table 32-11-1

BMP Classification	BMP Type	Minimum Inspection Schedule	Notes
1	Rooftop Disconnection	Every 5 Years	Owner shall inspect and provide documentation as per the requirements found on the Virginia Stormwater BMP Clearinghouse Website and the Administrative Guidance Manual for BMPs within classification 2, 3, and 4. The City of Radford shall inspect all BMPs every 5 years.
1	Sheetflow to Vegetated Filter or Conserved Open Space	Every 5 Years	
1	Grass Channel	Every 5 Years	
1	Soil Amendments	Every 5 Years	
2	Permeable Pavement	Annually	
2	Infiltration	Annually	
2	Bioretention	Annually	
2	Dry Swale	Annually	
2	Wet Swale	Annually	
2	Filtering Practice	Annually	
2	Constructed Wetland	Annually	
2	Wet Pond	Annually	
2	Extended Detention	Annually	
3	Vegetated Roof	Twice per year (Spring/Fall)	
3	Rainwater Harvesting	Twice per year (Spring/Fall)	
4	Manufactured/ Other BMP	Yearly or per manufacturer recommendations, whichever is more frequent.	Owner shall inspect and provide documentation according to manufacturer's guidelines and the Administrative Guidance Manual.

- (f) The owner shall furnish to the Administrator an inspection report for BMPs within classifications 2, 3, and 4 as provided in Table 1-11-11 prepared by a qualified inspector within the timeframe listed in Table 1-11-1. This report shall include, but not be limited to, the items listed in Table 1-11-1, current photographs of the BMP, and a summary of the current BMP condition and any recommendations for improvements, if necessary.
- (g) Qualified inspection personnel include professional engineer, architect, landscape architect, or land surveyor registered in the Commonwealth of Virginia or project

inspector for SWM or combined administrator for SWM who have met the certification requirements of 9VAC25-850-50.

- (h) Post-construction inspections of stormwater management facilities required by the provisions of this Ordinance shall be conducted by the Administrator pursuant to the City of Radford's adopted and State Board approved inspection program, and shall occur, at a minimum, at least once every five (5) years.

Section 32-12. Hearings.

- (a) Any permit Applicant or Permittee, or Person subject to the requirements of this Chapter, aggrieved by any action of the City taken without a formal hearing, or by inaction of the City, may demand in writing a formal hearing by the City, provided a petition requesting such hearing is filed with the Administrator within thirty (30) days after the Administrator gives written notice of such action.
- (b) The hearing held under this Section shall be conducted by the Building Code Board of Appeals for the City, at a regular or special meeting of the Building Code Board of Appeals, or by at least one member of the Building Code Board of Appeals designated by the Building Code Board of Appeals to conduct such hearings on behalf of the Building Code Board of Appeals at any other time and place authorized by the Building Code Board of Appeals. The hearings shall comply with the requirements of § 62.1-44.26A-C of the Code of Virginia.
- (c) A verbatim record of the proceedings of such hearing shall be taken, at the requester's expense, and filed with the Building code Board of Appeals for the City by the permit applicant or permittee. Depositions may be taken and read as in actions at law.
- (d) The Building Code Board of Appeals, or its designated member, as the case may be, shall have power to issue subpoenas and subpoenas duces tecum, and at the request of any party shall issue such subpoenas. The failure of a witness without legal excuse to appear or to testify or to produce documents shall be acted upon by the Building Code Board of Appeals, or its designated member, whose action may include the procurement of an order of enforcement from the Circuit Court of the City of Radford.

Section 32.13. Appeals.

(a) Pursuant to § 62.1-44.15:56, decisions made by the Building Code Board of Appeals pursuant to this Chapter may be appealed to the Circuit Court of the City of Radford, provided any such appeal is filed with the Circuit Court within thirty (30) days from the date of any written decision adversely affecting the rights, duties, or privileges of the person engaging in or proposing to engage in land disturbing activities.

Section 32-14. Enforcement.

- (a) If the Administrator determines that there is a failure to comply with the VSMP

authority permit conditions or determines there is an unauthorized discharge, notice shall be served upon the permittee or person responsible for carrying out the permit conditions by any of the following: verbal warnings and inspection reports, notices of corrective action, consent special orders, and notices to comply. Written notices shall be served by registered or certified mail to the address specified in the permit application or by delivery at the site of the development activities to the agent or employee supervising such activities.

- (1) The notice shall specify the measures needed to comply with the permit conditions and shall specify the time within which such measures shall be completed. Upon failure to comply within the time specified, a stop work order may be issued in accordance with Subsection (b) or the permit may be revoked by the Administrator.
- (2) If a permittee fails to comply with a notice issued in accordance with this Section within the time specified, the Administrator may issue an order requiring the owner, permittee, person responsible for carrying out an approved plan, the Person conducting the land disturbing activities without an approved plan or required permit to cease all land disturbing until the violation of the permit has ceased, or an approved plan and required permits are obtained, and specific corrective measures are have been completed.

Such orders shall be issued in accordance with the City's procedures. Such orders shall become effective upon service on the person by certified mail, return receipt requested, sent to the address specified in the land records of the City, or by personal delivery by an agent of the Administrator. However, if the Administrator finds that any such violation is grossly affecting or presents an imminent and substantial danger of causing harmful erosion of lands or sediment deposition in waters within the watershed of the Commonwealth of Virginia or otherwise substantially impacting water quality, it may issue, without advance notice or hearing, an emergency order directing such Person to cease immediately all land disturbing activities on the site and shall provide an opportunity for a hearing, after reasonable notice as to the time and place thereof, to such Person, to affirm, modify, amend, or cancel such emergency order. If a Person who has been issued an order is not complying with the terms thereof, the Administrator may institute a proceeding for an injunction, mandamus, or other appropriate remedy in accordance with subsection 32-14(c).

- (a) In addition to any other remedy provided by this Chapter, if the Administrator determines that there is a failure to comply with the provisions of this Chapter, the Administrator may initiate such informal and/or formal administrative enforcement procedures in a manner authorized by this Chapter, the City of Radford Code of Ordinances, and any applicable City policies or procedures. Such measures include, but are not limited to:
 - (b) Any person violating or failing, neglecting, or refusing to obey any rule, regulation, ordinance, order, approved standard or specification, or any permit condition issued by the Administrator or any other part of this Chapter may be compelled in a proceeding instituted in the Circuit Court of the City of Radford to obey the same and to comply therewith by injunction, mandamus or other appropriate remedy.

(c) Any person who violates any provision of this Chapter or who fails, neglects, or refuses to comply with any order of the Administrator or the City, shall be subject to a civil penalty not to exceed \$32,500.00 for each violation within the discretion of the court. Each day of violation of each requirement shall constitute a separate offense.

(1) Violations for which a penalty may be imposed under this Subsection shall include but not be limited to the following:

- (i) No state permit registration;
- (ii) No Stormwater Pollution Prevention Plan (SWPPP);
- (iii) Incomplete Stormwater Pollution Prevention Plan (SWPPP);
- (iv) Stormwater Pollution Plan (SWPPP) not available for review;
- (v) No approved erosion and sediment control plan;
- (vi) Failure to install Stormwater BMPs or erosion and sediment controls;
- (vii) Stormwater BMPs or erosion and sediment controls improperly installed or maintained;
- (viii) Operational deficiencies;
- (ix) Failure to conduct required inspections;
- (x) Incomplete, improper, or missed inspections; and

(2) The Administrator may issue a summons for collection of the civil penalty and the action may be prosecuted in the appropriate court.

(3) In imposing a civil penalty pursuant to this Section, the court may consider the degree of harm caused by the violation and also the economic benefit to the violator from noncompliance; and

(4) Any civil penalties assessed by a court as a result of a summons issued by the City shall be paid into the treasury of the City to be used for the purpose of minimizing, preventing, managing, or mitigating pollution of the waters of the locality and abating environmental pollution therein in such manner as the court may, by order, direct.

(d) Notwithstanding any other civil or equitable remedy provided by this Section or by law, any person who willfully or negligently violates any provision of this Chapter, any order of the Administrator, any condition of a permit, or any order of a court shall, be guilty of

a misdemeanor punishable by confinement in jail for not more than 12 months or a fine of not less than \$2,500.00 nor more than \$32,500.00 or both.

- (e) Holds on occupation permits. Occupation permits and/or inspection shall not be granted until corrections to all stormwater practices have been made in accordance with the approved plans, notice of violation, stop work order, or permit requirements, and accepted by the City.

Section 32-16. Fees.

- (a) Fees to cover costs associated with implementation of a VSMP related to land disturbing activities and issuance of general permit coverage and VSMP authority permits shall be imposed in accordance with the appropriate fee schedule established, updated and revised from time to time by the City Council by resolution and as provided in the Administrative Guidance Manual. VSMP costs include City costs associated with stormwater management plan review, VSMP registration statement review, permit issuance, state coverage verification, inspection, reporting, and compliance activities associated with land-disturbing activities, as well as state program oversight costs.
- (b) Fees for providing coverage under the General Permit for Discharges of Stormwater from construction activities shall be imposed in accordance with the appropriate fee schedule established, as provided in the Administrative Guidance Manual, updated and revised from time to time by the City Council by resolution. Fifty percent (50%) of the total fee shall be paid by the applicant at the time that a stormwater management plan, or agreement in lieu of a stormwater management plan, is submitted for review. The remaining total fee is to be paid by the applicant prior to issuance of coverage under the General Permit for Discharges of Stormwater from Construction Activities.
- (c) When a site or sites has been purchased for development within a previously permitted common plan of development or sale, the applicant shall be subject to fees in accordance with the disturbed acreage of their site or sites according to the fee schedule established, revised and updated from time to time by the City Council by resolution, as provided in the Administrative Guidance Manual.
- (d) Fees for the modification or transfer of registration statements from the general permit issued by the State Board shall be imposed in accordance with the fee schedule established, revised and updated from time to time by the City Council by resolution, as provided in the Administrative Guidance Manual. If the permit modifications result in changes to stormwater management plans that require additional review by the City, such reviews shall be subject to the fee schedule established by the City Council, as amended. The fee assessed shall be based on the total disturbed acreage of the site. In addition to the general permit modification fee, modifications resulting in an increase in total disturbed acreage shall pay the difference in the initial permit fee paid and the permit fee that would have applied for

the total disturbed acreage in accordance with the fee schedule established, revised and updated from time to time by the City Council by resolution.

- (e) General permit maintenance fees: Annual permit maintenance fees required by 9VAC25-870-830 shall be imposed in accordance with the fee schedule established, revised and updated from time to time by the City Council by resolution, including fees imposed on expired general permits that have been administratively continued. These fees are provided in the Administrative Guidance Manual. With respect to the general permit, these fees shall apply until the permit coverage is terminated. General permit coverage maintenance fees, for permits issued in a previous calendar year, shall be paid by April 1st of each year that it is in effect. No permit will be reissued or automatically continued without payment of the required fee. General permit coverage maintenance fees shall be applied until a Notice of Termination is effective.
- (f) Persons whose coverage under the general permit has been revoked shall apply to the Department for an Individual Permit for Discharges of Stormwater from Construction activities.
- (g) No permit application fees will be assessed to:
 - (1) Applicants who request a permit for a detached single-family home construction within or outside of common plan of development or sale with a land-disturbing activity less than five (5) acres.
 - (2) Permittees who request minor modifications to permits as defined in Section 32- 2 of this Chapter. Permit modifications at the request of the permittee resulting in changes to stormwater management plans that require additional review by the Administrator shall not be exempt pursuant to this section.
 - (3) Permittees whose permits are modified or amended at the initiative of the Department or Administrator, excluding errors in the requisition statement identified by the Administrator or errors related to the acreage of the site.
- (h) All incomplete payments will be deemed as nonpayment, and the Applicant shall be notified of any incomplete payments. Interest may be charged for late payments at the underpayment rate set forth in § 58.1-15 of the Code of Virginia, and is calculated on a monthly basis at the applicable periodic rate. A ten percent (10%) late payment fee shall be charged to any delinquent (over 90 days past due) account. The City shall be entitled to all remedies available under the Code of Virginia in collecting any past due amount.

Section 32-17. Performance Bond.

Prior to issuance of any permit, the Applicant shall be required to submit a reasonable performance bond with surety, cash escrow, letter of credit, any combination thereof, or such other legal arrangement acceptable to the Administrator and the City Attorney, to ensure that

measures could be taken by the City at the Applicant's expense should Applicant fail, after proper notice, within the time specified to initiate or maintain appropriate actions which may be required of him by the permit conditions as a result of the Applicants land disturbing activity. If the City takes such action upon such failure by the Applicant, the City may collect from the Applicant for the difference should the amount of the reasonable cost of such action exceed the amount of the security held, if any. Within 60 days of the completion of the requirements of the permit conditions, such bond, cash escrow, letter of credit or other legal arrangement, or the unexpended or unobligated portion thereof, shall be refunded to the Applicant or terminated.

EFFECTIVE DATE OF THIS ORDINANCE: October 27, 2014

First Reading: June 9, 2014

Motion: Mr. Nicholson
Second: Mr. Marshall

Recorded Vote: Dr. Harshberger: Yes
Mr. Marshall: Yes
Mr. Nicholson: Yes
Mr. Cox: Yes
Mayor Brown: Yes

Second Reading: October 27, 2014

Motion: Mr. Nicholson
Second: Mr. Marshall

Recorded Vote: Dr. Harshberger: Absent
Mr. Marshall: Yes
Mr. Nicholson: Yes
Mr. Turk: Yes
Mayor Brown: Yes

ATTEST: Melissa A. Skelton
Melissa A. Skelton, City Clerk



City of Radford

Annual BMP Operation & Maintenance Inspection form Detention, Retention and Extended Detention Basins and Wet Ponds

Owner Name:	Facility Name/Number (See Stormwater Facility Map):	
Property Address:		
Street		
City:		
Zip code:		
Date BMP placed in Service:	Latitude:	Longitude:
Site: plan/permit number:	As-built plans available:	
Date of Inspection:	Date of Last Inspection:	
Inspector:	Contact Information	

BMP Element	Problem	Yes	No	N/A	Corrective Action
Contributing Drainage Area	Excessive trash/debris				Remove trash/debris and properly dispose.
	Bare exposed soil				Stabilize with seed and mulch. E&S measures may be warranted until stabilized.
	Evidence of erosion				Backfill area, seed, mulch and consider matting. E&S measures may be warranted until stabilized.
	Excessive landscape waste/yard clippings				Remove landscape waste and yard clippings to prevent clogging and properly dispose of them.
Pretreatment / Forebay / Inflow	Excessive trash/debris/sediment or other blockage				Remove trash/debris/sediment or blockages and properly dispose of.
	Dead vegetation, exposed soil				Replace vegetation and stabilize according to plans. E&S measures may be warranted until stabilized.
	Evidence of erosion, undercutting, or bare soils				Backfill area, seed, mulch and consider matting, E&S measures may be warranted until stabilized.
	Structural deterioration of inlets, outfalls or pretreatment overflow weirs into the facility				Repair and restabilize area. Consult plans for approved configuration or an engineer. E&S measures may be warranted until stabilized.
	Animal burrows				Fill in immediately and stabilize.
Aquatic Bench / Vegetation	Plantings inconsistent with approved plans.				Consult approved plans and/or management to ensure no approved plant substitutions were used. Remove unapproved plants and replace any required plantings in kind.
	Dead vegetation/exposed soil				Replace vegetation and stabilize according to plans. E&S measures may be warranted until stabilized.
	Invasive plants, such as cattails and phragmites, exceeds 15% of the planted area.				Invasive plants should be removed immediately. Vegetation may require periodic harvesting for proper long term management.
Berm/ Embankment	Overgrown, including woody growth 5' beyond the outfall pipe and/or embankment.				Removal of woody species near or on the embankment is critical for proper function and long term stability. Remove all woody growth including stumps. Consult an engineer for backfill specifications. Mow thick growth.
	There is sparse vegetative cover and erosion channels are present.				Backfill area with structural fill and consult engineer for proper specifications. Stabilize with seed and mulch, consider matting. E&S measures may be warranted until stabilized.
	Cracking, bulging, sloughing and seepage				Consult an engineer immediately to prevent failure.
	Evidence of animal burrows.				Fill in immediately and stabilize.
Riser	Structural condition of the riser is deteriorating.				Consult an engineer to recommend a repair and review the approved plans.
	Adjustable control valve inaccessible and inoperable (if present).				Repair valve to be operational.
	Pieces of the riser are broken or missing.				Repair immediately in accordance with the approved plans. Consult an engineer as needed.
	Riser or low flow orifice is blocked.				Remove blockage and properly dispose of.
	Riser provides inadequate conveyance out of facility.				Repair to properly convey drainage to the outfall per the approved plan. Consult an engineer as needed.
	Evidence of erosion or undermining at/around riser.				Repair erosion. Consult engineer for structural repairs as needed.
	Structural deterioration				Consult engineer for proper repair procedures.
Outlet / Outfall	Exposed rebar, joint failure, loss of joint material, misalignment, leaking or corrosion				Repair concrete to cover rebar. Consult engineer for all other structural repairs.
	Excessive trash/debris/sediment or blockages.				Remove trash/debris/sediment/blockages and properly dispose of.
	Evidence of erosion and bare soil.				Backfill area, seed, mulch and consider matting, E&S measures may be warranted until stabilized.
	Valves, manholes or locks cannot be opened or operated (if present).				Repair/replace any broken fixtures.
	Erosion of outfall channel or riprap deterioration.				Repair and/or supplement riprap outlet protection in accordance with the approved plans.
	Outlets provide inadequate conveyance out of facility.				Repair to properly convey drainage to the outfall per the approved plan. Consult an engineer as needed.
Overall	Access to the facility is in need of repair.				Restore access for maintenance equipment per the approved plans.
	Encroachment on facility or easement by buildings or other structures.				Contact Operations and Maintenance or Plant Services Division
	Evidence of oil/chemical accumulation, odor, algae, color or pollution.				Report to management and consult IDDE manual.
	Fences and/or safety signage is inadequate.				Repair fences and signage for public safety.
	Trash in the pool				Remove immediately and observe safety procedures.
	Additional notes:				



192 Briarherst Drive, Amherst, Virginia 24521 ❖ 434-665-2813 (Cell) ❖ 434-946-7483 (Off.) ❖ habelrf@gmail.com

Nutrient Management planning is a large part of Virginia's strategy to clean and protect the state's waterways and to help meet the EPA's goal of restoring the ecosystem of the Chesapeake Bay. When fertilizer is used improperly, the nutrients nitrogen and phosphorus are not used by the plant and can then be carried into streams, lakes, and rivers. These nutrients then cause major ecological problems. Turfgrass covers an estimated 1.2 million acres of the Chesapeake Bay watershed in Virginia. According to Virginia's Watershed Implementation Plan (WIP), 500,000 acres must be addressed by nutrient management plans by 2025.

Urban Nutrient Management aims to limit the amount of nutrient rich runoff reaching the waters of Virginia ultimately the Chesapeake Bay from golf courses, athletic fields, homes, business complexes, etc. This is accomplished through following a site specific, agronomically and environmentally sound, Nutrient Management Plan written by a Certified Nutrient Management Planner. The goal of a Nutrient Management Plan is to manage the amount, placement, timing, and application of fertilizer, bio-solids and other nutrient rich materials all while achieving the healthiest turf or landscape area possible.

While not all of Virginia is included in the Chesapeake Bay Watershed, all of Virginia's waters can be improved by following a nutrient management plan. The Chesapeake Bay cleanup is being used as a model for future endeavors. The Albemarle Sound and Gulf of Mexico may soon be under the same restrictions as the Bay. The Roanoke, Nottaway and Meherrin Rivers all flow into North Carolina's Albemarle Sound, while the New, Holston and Clinch rivers flow to the Mississippi River and Gulf of Mexico.

These plans can be voluntary, but in several cases, they are required by law. Both golf courses and state owned lands are currently required to have plans, as well as fertilized land that is publicly owned within a Municipal Separate Storm Sewer System (MS4) permit area. These laws apply to both areas inside and outside of the Chesapeake Bay Watershed.

Thank you for choosing me to write your Nutrient Management Plan. It is my goal to provide you with the most agronomically and environmentally sound plan available. For this plan to be effective, it is important that you follow the soil test based guidelines of your plan and that you keep detailed records of your applications. While you do not have to follow the specific fertilizer analyses shown, the success of this plan hinges on not exceeding the nutrient amounts that are allowed for by the Standards and Criteria. These amounts are stressed multiple times in the discussion of Soil Test Results and Application Worksheets. In cases where plans are required by law, the limits set by the Standards and Criteria are law.

If this is a renewal plan, please be aware that the Standards and Criteria were revised in July 2014. Many guidelines have changed and old recommendations may be out of compliance with the new standards.

Together, we will do our part to protect Virginia's natural beauty and the Chesapeake Bay. Please do not hesitate to contact me if you have questions or suggestions. Your input is integral to making your Nutrient Management Plan a living and usable document.

Thank You,

Robert Habel
Owner - CNMP - VT '05



Nutrient Management Plan

Prepared For:

City of Radford
 Carly Reynolds, Horticulturist
 699 17th Street
 Radford, Virginia 24141
 (540) 257-0170 Carly.Reynolds@radfordva.gov

Prepared By:

Five Oaks Agronomy Consulting
 Robert Habel, CNMP
 192 Briarherst Drive
 Amherst, Virginia 24521
 Cell: 434-665-2813 habelrf@gmail.com
 Certification Code: 654

Acreage = 15 Fields, 4 Common Area, 15 locations (Breakdown on Page 5)	
Total:	43.5

County:	City of Radford
Watershed:	NE57

Plan Written: June 1, 2016

Plan Expires: June 1, 2019

Planner Signature

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Sources:

Maps – Maps are produced using Google Earth or provided by client.

Photos/Logos – Obtained from client, clients website, or taken by planner.

Site information – Obtained from client or clients website.

Technical Information –

Agronomy Handbook – A&L Labs – 2001

Best Golf Course Management Practices – McCarty – 2001

Environmental Best Management Practices for Golf Courses – Virginia GCSAA – January 2012

Golf Course Management and Construction, Environmental Issues – Balogh, Walker, USGA – 1992

Soil Fertility and Fertilizers 6th Ed. – Havlin, Beaton, Tisdale, Nelson – 1999

Spectrum Analytic Agronomic Library – www.spectrumanalytic.com

Sports Turf Management in the Transition Zone – Goatley, Askew, Ervin, McCall, VSTMA, Etc. – 2008

Turf Management for Golf Courses 2nd Ed. – Beard, USGA – 2002

Turfgrass Soil Fertility and Chemical Problems – Carrow, Waddington, Rieke – 2001

Urban Nutrient Management Handbook – VA DCR, Virginia Tech, Virginia State Uni. – May 2011

Virginia Nutrient Management Standards and Criteria – Commonwealth of Virginia – July 2014

Disclaimer: *Statements and recommendations made within this document based on published research data and experience. Recommendations are based on the soil tests included in this document and not intended for use on any other facility. Products suggested are used in methods suggest by label guidelines when available, be sure to read label before using products as labels can change. Maximum rates are provided by Virginia Department of Conservation and Recreation Standards and Criteria and are not to be exceeded even when product label suggests otherwise. No guarantee or warranty is made, expressed or implied, concerning crop performance as a result of using the contents of this document.*

Definitions:

M = 1000 FT²

= Pounds of product

N = Nitrogen

P = Phosphorus

K = Potassium

NMP = Nutrient Management Plan

MS4 = Municipal Separate Storm Sewer System

1. Narrative

1.1. Statement of Compliance

The City of Radford is required to have and follow this Nutrient Management Plan according to the Rules and Regulations of the Code of Virginia. According to 9VAC25-890-40 MS4 General Permit, permittees are required under the “Turf and Landscape Management” section of the permit (GP Section II.B.6.c) to develop NMPs on “all lands owned or operated by the MS4 operator where nutrients are applied to a contiguous area greater than one acre.” Thus, the City of Radford agrees to comply with all requirements set forth in the Nutrient Management Training and Certification Regulations, 4VAC50-85-10 et seq., and to follow recommendations for turf fertilization and management as described in the Virginia Nutrient Management Standards and Criteria, Revised July 2014. This includes implementing this Department of Conservation and Recreation reviewed Nutrient Management Plan and maintaining fertilization records. All nutrient applications to City of Radford properties, performed by City of Radford staff or other contractors, shall comply with the provisions of this Nutrient Management Plan as of June 1, 2016. This plan is effective for three years (until June 1, 2019) or until major renovations or major changes to maintenance occurs. The planner should be alerted if this occurs or if new soil tests are taken within the three-year period, a minor revision may be needed if tests show major differences. The process of updating this plan for a new three-year cycle should begin no later than 6 months prior to plan expiration (January 2019).

1.2. Plan Overview

Radford (population 15,859), is 36 miles southwest of Roanoke, Va., on Route 11 and I-81 in the New River Valley, close to the beautiful Blue Ridge Mountains of Virginia. The City of Radford and the surrounding region provide a rich variety of cultural and leisure activities. Outdoor enthusiasts will find opportunities to hike, kayak, fish, swim and camp. Dozens of bicycling and hiking trails are accessible with less than a 30-minute drive, including access points to the Appalachian Trail and Jefferson National Forest.

There are 11 locations with 15 sports fields and 4 locations managed as general turf. All areas are cool season turf and are unirrigated. They are fertilized once a year in the spring by City of Radford Staff.

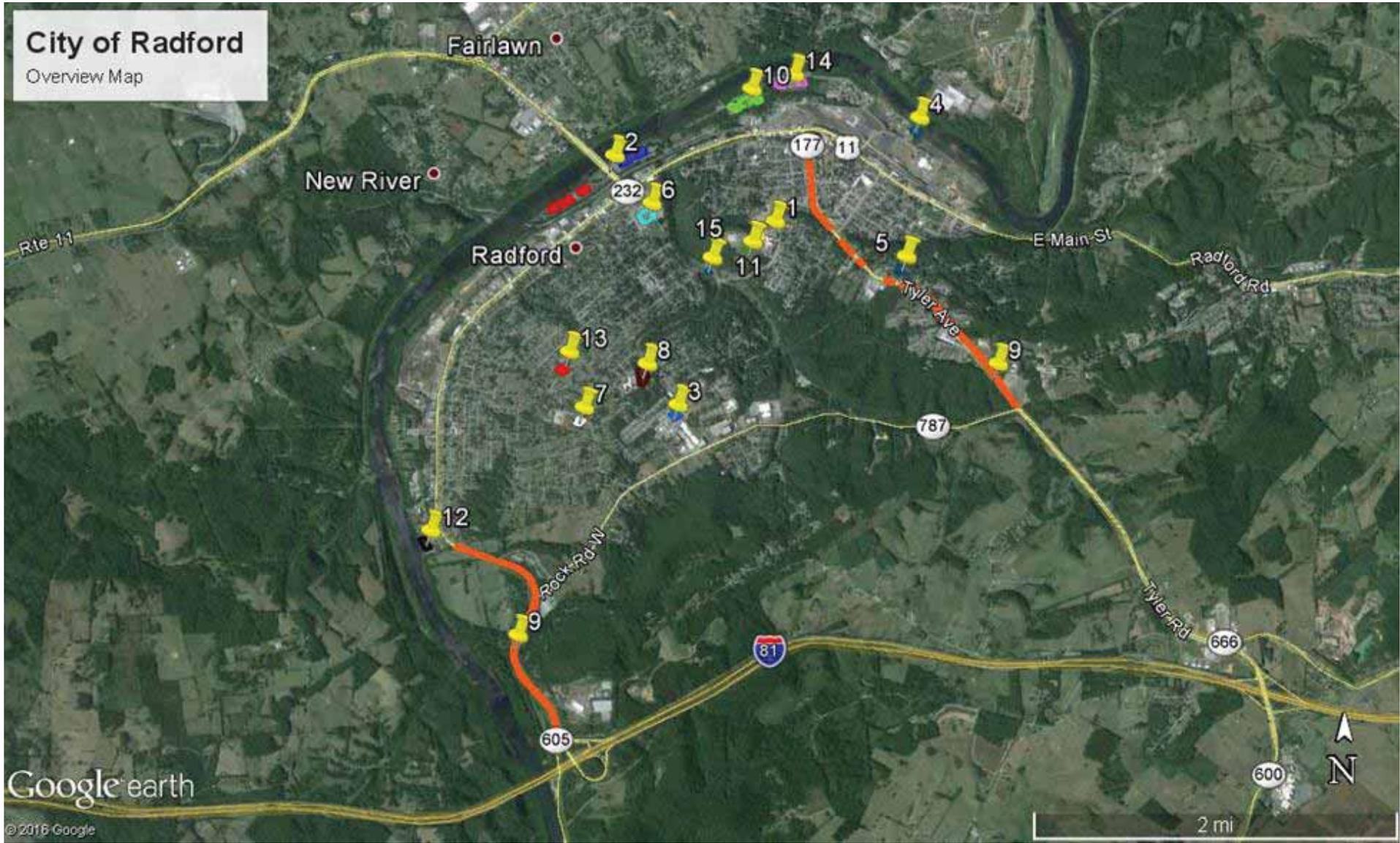
It should be noted that heavy (more than .5 #/M of water soluble nitrogen) spring fertilization tends to favor shoot growth and leads to more mowing, clippings disease and other issues. It is recommended that if turf is to only be fertilized once per year that this should occur in the fall. Fall fertilization helps the turf recover from harsh summer conditions, feeds the roots and helps the turf enter the next growing season in good condition.

Since these areas are only fertilized once in the spring, a slow release product will be recommended. All areas will be fertilized using the same program. Separate programs will be provided using DCR provided framework for regularly fertilized areas and for the varying levels of phosphorus input dictated by soil tests.

1.3. Location

Radford is located in Southwest Virginia along the New River between Montgomery and Pulaski Counties. It is easily accessed from Interstate 81.

Location/Acreage/Watershed Code Breakdown				
Location	Acres	Irrigation	Grass	Watershed Code
1. Belle Heth Field	1.5		Cool	NE57 43.5 Acres
2. Bisset Park				
A. East	4.5		Cool	
B. West	4.5		Cool	
3. Dobbins Park	1		Cool	
4. Dog Park	.9		Cool	
5. Haven Heights	.9		Cool	
6. High School Practice	3.6		Cool	
7. Hodge Field	.6		Cool	
8. Mcharg Field	2.7		Cool	
9. Medians	10.7		Cool	
10. New River Valley Complex	3.6		Cool	
11. Radford Memorial field	2.5		Cool	
12. Riverview Park	1.5		Cool	
13. Sunset Park	1.2		Cool	
14. Veterans Park	3.3		Cool	
15. Wildwood Park	.5		Cool	



1.4. Nutrient Management Principals

Nutrient Management Plans focus on two primary objectives healthy plants and clean water. The *Standards and Criteria* are based upon many years of scientific research and the rates suggested are optimal for plant health within the intended usage. Low input areas, like home lawns, require some fertilizer to maintain plant vigor thus maintaining turf cover and preventing erosion. High use areas, like sports fields, require frequent fertilizer input to help maintain plant health and to aid in recovery from stress. Clean water is maintained by applying fertilizer in a responsible manner ensuring minimum movement away from the intended site.

There are four different types of elements essential for plant health. Non-mineral, Primary and Secondary elements are all considered Macronutrients. The fourth is Micronutrients. Non-mineral elements consist of carbon, hydrogen, and oxygen; these elements are obtained from air and water. The Primary nutrients are nitrogen, phosphorus, and potassium. Secondary elements are calcium, magnesium, and sulfur. Micronutrients are iron, manganese, boron, zinc copper molybdenum, chlorine, cobalt, and nickel. All of these elements are obtained from the soil and must be supplemented with fertilizer, lime or other soil amendments when a soil test shows a deficiency. In high maintenance situations, some elements are spray applied and absorbed through the leaf tissue.

Nitrogen and Phosphorus are the focus of a nutrient management plan, as these nutrients cause ecological problems. Lime is also important because having improper pH can make applied fertilizers unavailable to the plant and more likely to leach or runoff. While nitrogen and phosphorus are the focus, other nutrients are also discussed in the plan, these nutrients are beneficial to plant health, but do not cause water quality problems.

Nitrogen (N) – This element is responsible for green color, shoot growth and density, root growth, carbohydrate reserves, recuperative potential, heat, cold, drought hardiness, wear tolerance, and disease susceptibility. Nitrogen has a very complex cycle and only certain forms are available to the plant. It leaches through the soil rapidly and does not accumulate thus you cannot soil test for N. Due to these factors, nitrogen management is a large part of nutrient management. Nitrogen management includes but is not limited to using slow release materials, timing the applications in accordance with plant growth, and making multiple applications so that the element is available when it is needed by the plant.

There are multiple N rates used in this plan due to the diversity of the areas being fertilized. Please see each section and nutrient application worksheets for specifics.

Slow release products were used exclusively in this plan. If making changes, please continue to use slow release fertilizers or contact your planner for help determining the proper rates.

Phosphorus (P) – Phosphorus controls the establishment rate of newly seeded turf, plant maturation, root growth, and seed production. Like nitrogen, P also has a complex cycle. The major difference is that P readily attaches soil, it can be quantified by a soil test and only leaches when it completely saturates the soil. Phosphorus moves away from the application site when it is improperly applied to compacted soil or other impervious surfaces, when applied in excess, and since it attaches to the soil, with sediment rich runoff. Phosphorus management is also important to nutrient management. It should only be applied when called for by a soil

test, to soils that are not compacted to prevent runoff and only applied to actively growing turf with sufficient turf cover/rooting to hold the soil in place.

Maximum P rates are outlined in application worksheets. Do not exceed this number.

Potassium (K) - Potassium is responsible for root growth, heat, cold, and drought hardiness, wear tolerance, and disease susceptibility. While the *Standards and Criteria* do regulate the application of K, but in some cases, K input may exceed recommended levels, as it does not have the same detrimental effects on the health of Virginia's waters as N and P. Potassium is considered the plant nutrient most responsible for turf quality. It helps plants respond to stresses like drought, extreme heat/cold, and insect/disease pressure. The plants increased ability to respond to stress in a positive manner can help reduce the need for increased N and P fertility and reseeding caused by stress. In addition to the benefits of K, it is difficult to limit the amount of K used as most modern slow release fertilizers contain both N and K while limiting or completely removing P. Nitrogen only products are not readily available in slow release form and custom blended fertilizers are expensive.

Potassium levels have been exceeded in most of areas of this plan. As discussed above, K helps the plant deal with stress. Sports fields and common areas are generally stressed be it from excessive use, compaction, improper pH, or lack of proper care due to budget and personnel restraints.

Lime - Liming is a critical management practice for maintaining soil pH at optimal levels for plant growth. Liming supplies the essential elements Calcium and/or Magnesium, reduces the solubility and potential toxicity of Aluminum and Manganese, and increases the availability of essential nutrients. Many soil elements change form because of chemical reactions in the soil due to pHs that are either too acidic or too basic. Plants may not be able to use elements in some of these forms making some elements essential to plant health unavailable. Most plants grow well in the pH range 5.8 to 6.5.

Buffer pH is used to provide an indication of the soil's total (active + reserve) acidity and ability to resist a change in pH. This buffer measurement is the major factor in determining the amount of lime to apply. The Buffer pH starts at 7 (no lime needed) and goes lower as the soil's total acidity increases and more lime is needed to raise the soil pH. As an example, a clay soil with a pH of 6.1 could have a buffer pH of 6.8 and need 1 ton/A of lime in order to maintain/increase that pH around 6.2. A sandy soil could have a much lower pH but have the same buffer pH thus, needing the same amount of lime to change the pH to 6.2. This is because sandy soils have a lower cation exchange capacity thus, less storage for reserve acid.

Attempting to change the pH in the deep rooting zone of an established turf is difficult at best. One method of getting lime somewhat deeper in established turf areas is to apply lime in conjunction with aeration. Applying lime in the fall and winter months is recommended because the freeze/thaw cycle aids in mixing lime throughout the root zone.

Lime provides the essential nutrients Calcium and Magnesium. Calcium is the main component of plant cell walls while magnesium is the atom upon which chlorophyll is built. It is important that these elements be present in the soil not only to help regulate the soils acidity but to insure plant health. When a soils pH is acidic, these elements can be added with lime. Calcitic

lime should be used when calcium is deficient and magnesium is high. Dolomitic lime, which is more common, is used when the both are deficient or balanced. If pH does not need to be adjusted, calcium levels can be raised with gypsum and magnesium is raised with Epsom salts. The *Standards and Criteria* provide guidance on adjusting soil pH levels but do not include any recommendations for Ca or Mg, as they do not affect water quality.

Not all liming materials are the same, if the liming material chosen does not equate to 100% Calcium Carbonate Equivalent (CCE% should be listed on bag) see chart on page 50 to adjust the required amount of lime.

Sulfur (S) - Sulfur is responsible for the plants green color, shoot growth and density, root growth, carbohydrate reserves, and disease susceptibility. Elemental sulfur applications should be avoided unless you are attempting to acidify (lower pH) the soil and should be applied at no more than 5#/M and watered in due to the turf burn potential. Unless called for by a soil test, the occasional use of sulfur containing fertilizers and micro nutrient packages should be the only S input needed to supplement the soil S content. This element is not included in the *Standards and Criteria*.

Iron (Fe) – Iron contributes to the plants green color, shoot growth and density, root growth, carbohydrate reserves, heat, cold and drought hardiness and wear tolerance. Iron is often included in fertilizer and micronutrient blends because it produces a faster greening of turf than nitrogen. According to the *Standards and Criteria*, Fe applications can be occasionally substituted for N applications because it produces greening. This is a good strategy, but Fe apps cannot replace N. While Fe is used inside the plant, the greening created by Fe is superficial and caused by the iron rusting on the plants surface. Fe should be used as an N replacement only when the plant is healthy and greening is desired without increased growth.

Micros – Other micronutrients are not mentioned by the *Standards and Criteria*. These elements are very important to plant growth, but regular input is not needed unless you are managing a sand based soil with low nutrient holding capacity. Most soils contain all the necessary micros and they will be available for the plant as long as the proper pH is maintained.

1.5. Best Management Practices for Water Quality Protection

The following list comes from the *Urban Nutrient Management Handbook* page 8-12 and details steps that can reduce the impact of nutrient management practices on water quality. A PDF of the complete handbook can be found online through ext.vt.edu, on the CD provided with the plan or a printed copy can be obtained from DCR.

- Base fertilization practices on a soil test.
- Supplement the soil test with a plant tissue test when necessary.
- Aerate compacted soil to reduce runoff and aid phosphorus and lime in entering the soil.
- Minimize fertilizer rates on slopes and sandy soils. If using quickly available sources of nitrogen on deep, sandy soils or near shallow water tables, use no more than 0.25 to 0.50 pound of nitrogen per 1,000 square feet per application.
- Establish and maintain a buffer zone of reduced- to zero-input vegetation around bodies of water. In some cases, native vegetation might be appropriate, but whatever plant material is selected, it must persist indefinitely to serve as a functional buffer zone.
- Consider using iron as a supplement to nitrogen for greening response.
- Use at least 50 percent slowly available sources of nitrogen on soils subject to leaching.
- Time applications carefully. Do not apply fertilizer before a heavy rainfall.
- Irrigate lightly (0.10 to 0.25 inch) after each application of quick-release fertilizer so it is washed off the foliage and moved into the soil. (Wait to irrigate if foliar activity is desired)
- Avoid over irrigation.
- Return grass clippings to the turf to improve nutrient cycling and reduce the amount of fertilizer needed to produce healthy plants. Use a mulching mower whenever possible and consider that a mulching mower can even be used to manage fall leaves (Goatley 2006).
- When collected, compost grass clippings rather than disposing of them in landfills.
- Use a drop (gravity) spreader near bodies of water or impenetrable areas to lessen the chance of spreading material on these surfaces.
- Perhaps the most important best management practice toward improving water quality is to simply sweep or blow fertilizers and clippings off hardscape surfaces and back into the turf.

1.6. Application Equipment Calibration

An agronomically and environmentally sound fertilizer program can be negated by improperly calibrated equipment. It is important to calibrate your equipment prior to every application. Even moving from one location to another can knock your application equipment out of adjustment so once you have your equipment calibrated for a particular product write down the setting. Use that setting to check the calibration for every site and adjust if necessary. The next time you use that product, use your records as a starting point and not a final calibration as equipment can wear over time thus changing the calibration point. For more information on how to calibrate your equipment see the *Urban Nutrient Management Handbook* Chapter 10 (ext.vt.edu) or visit your equipment manufactures website. Please remember that the number on the bag is not sufficient, every spreader and every application is different, and that the bag number only serves as a calibration starting point.

1.7. Season of Fertilization

According to the *Virginia Nutrient Management Standards and Criteria, Revised July 2014*, fertilizers must be applied in between the following dates. These are guidelines and averages, in warmer years fertilizers could be applied earlier and in cooler years fertilizers should be applied later. Fertilizers should not be applied to frozen ground or to grass that is not actively growing. For warm season grasses please wait for green up to occur. For warm season grasses that are overseeded, follow the cool season application window. If overseeding is skipped, please revert to warm season window.

	Average Frost Dates	Cool Season Applications	Warm Season Applications
Spring	April 25	March 14	April 25
Fall	October 15	November 26	September 15

Maps – Maps showing fertilized areas and flood prone areas were provided by City of Salem, other satellite and topo maps created using Google Earth are to scale as shown in bottom left of each map. For all maps, unless otherwise indicated, North is oriented towards top of page. Additional Flood maps created by Web Soil Survey.

Nutrient Applications - Each location addressed by this plan has its own section. Some sections cover multiple management areas. Soil tests and application schedules are grouped into 3 categories and are located in their own section. Application records are all located in one section together or on the disk provided. A blank worksheet is also included on the disk to help with calculations if any changes in fertilizer analysis occur. Do not hesitate to call if there are questions.

Flooding Frequency Class Designations – Several areas are indicated as flood prone by Web Soil Survey. Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent.

	"None" means that flooding is not probable. The chance of flooding is nearly 0 percent in any year. Flooding occurs less than once in 500 years.
	"Very rare" means that flooding is very unlikely but possible under extremely unusual weather conditions. The chance of flooding is less than 1 percent in any year.
	"Rare" means that flooding is unlikely but possible under unusual weather conditions. The chance of flooding is 1 to 5 percent in any year.
	"Occasional" means that flooding occurs infrequently under normal weather conditions. The chance of flooding is 5 to 50 percent in any year.
	"Frequent" means that flooding is likely to occur often under normal weather conditions. The chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year.
	"Very frequent" means that flooding is likely to occur very often under normal weather conditions. The chance of flooding is more than 50 percent in all months of any year.

2. Management Areas

2.1. Belle Heth Field

A: Description

Belle Heth is an Elementary School located in Radford, Virginia.

B: Location

From Tyler Ave. turn onto Lawrence St. and then onto 2nd Ave. Belle Heth Elementary is located on the right.

Address: 151 George St, Radford, VA 24141

GPS Coordinates: 37.132721, -80.558222

C: Areas Managed

The multiple use field is 1.5 acres of unirrigated cool season turf.



Environmentally Sensitive –

- There are many roads, sidewalks and storm water drains throughout the area. Be cautious when making fertilizer applications near these areas and always clean up any fertilizers accidentally spread on pavement and sidewalks.
- There is no flood risk in this area.

2.2. Bisset Park

A: Description

Bisset is Radford's largest city park and is located on 57 acres of riverfront land in the central part of the city. The park offers walking trails, athletic fields, picnic shelters, children's playground, a sand volleyball area and other opportunities for outdoor recreation.

B: Location

From Main Street turn onto New River Drive. The park is located between the Railroad and the New River.

Address: Berkley Williams Drive, Radford, VA 24141

GPS Coordinates: 37.138401, -80.569889

C: Areas Managed

There are two fertilized sports field areas that are each 4.5 acres, cool season, and unirrigated. Area 1 is to the east of RT. 11 (Blue). Area 2 is the 2 areas to the west of RT. 11 (Red). Each area is divided into multiple soccer fields.



Environmentally Sensitive –

- There are many roads, sidewalks and storm water drains throughout the area. Be cautious when making fertilizer applications near these areas and always clean up any fertilizers accidentally spread on pavement and sidewalks.
- The New River is located to the north of the field.
- According to Web Soil Survey, there is a frequent risk of flooding in the area under the bridge. Please refrain from making fertilizer applications when heavy rains are expected.



2.3. Dobbins Park

A: Description

Dobbins Park is a multiuse field and playground.

B: Location

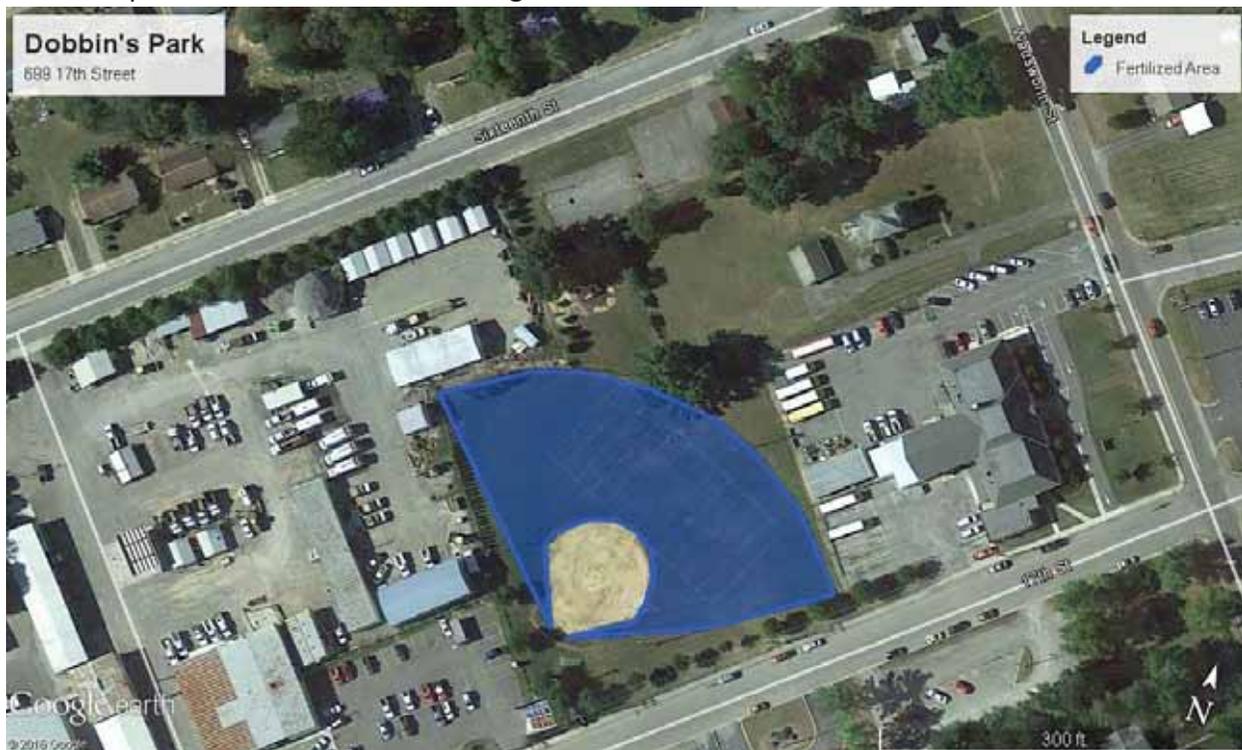
From Tyler Ave. turn west onto Rock Road, turn right onto Wadsworth St. and then left onto 17th St. Dobbins Park will be on the right.

Address: 699 17th Street, Radford, VA 24141

GPS Coordinates: 37.118594, -80.566579

C: Areas Managed

The multiple use field is 1 acre of unirrigated cool season turf.



Environmentally Sensitive –

- There are many roads, sidewalks and storm water drains throughout the area. Be cautious when making fertilizer applications near these areas and always clean up any fertilizers accidentally spread on pavement and sidewalks.

2.4. Dog Park

A: Description

Sparky's Run Dog Park is located beside the Radford Animal Control Building.

B: Location

From Main Street, on the campus of Radford University, cross the railroad tracks via University Drive heading toward the Deadmon Center. The Dog Park is located on Pulaski Street across University Drive from Cupp Stadium.

Address: 102 Pulaski Street, Radford, VA 24141

GPS Coordinates: 37.141040, -80.542378

C: Areas Managed

The dog park is .9 acres of unirrigated cool season general turf.



Environmentally Sensitive –

- There are many roads, sidewalks and storm water drains throughout the area. Be cautious when making fertilizer applications near these areas and always clean up any fertilizers accidentally spread on pavement and sidewalks.
- This facility is adjacent to the New River
- According to Web Soil Survey, there is no risk of flooding in this area.

2.5. Haven Heights

A: Description

Haven Heights is a park located on Haven Drive.

B: Location

From Tyler Ave, turn on to Milton Drive across from Food Lion and Dollar General. The Park is located on corner of Milton and Haven Drives.

Address: 101 Haven Dr, Radford, VA 24141

GPS Coordinates: 37.129707, -80.543756

C: Areas Managed

Haven Heights park is .9 acres of unirrigated cool season general turf.



Environmentally Sensitive –

- There are many roads, sidewalks and storm water drains throughout the area. Be cautious when making fertilizer applications near these areas and always clean up any fertilizers accidentally spread on pavement and sidewalks.
- According to Web Soil Survey, there is no risk of flooding in this area.
- Please be cautious when making fertilizer applications in this area. It is the low point of the surrounding neighborhoods and is a drainage collection point.

2.6. High School Practice Field

A: Description

The practice field at the High School is maintained by the City of Radford.

B: Location

From Main Street turn onto Walker Street. The practice field will be on left near tennis courts.

Address: 351 Walker St, Radford, VA 24141

GPS Coordinates: 37.134057, -80.570262

C: Areas Managed

The practice field is 3.6 acres of unirrigated cool season turf.



Environmentally Sensitive –

- There are many roads, sidewalks and storm water drains throughout the area. Be cautious when making fertilizer applications near these areas and always clean up any fertilizers accidentally spread on pavement and sidewalks.
- According to Web Soil Survey, there is no risk of flooding in this area.

2.7. Hodge Field

A: Description

Hodge field is baseball/softball field.

B: Location

From West Main Street turn onto Pendleton Street. Follow Pendleton until it ends at Preston Street. Field is located at this intersection.

Address: 1201 Preston St, Radford, VA 24141

GPS Coordinates: 37.118065, -80.575117

C: Areas Managed

Hodge Field is .6 acres of unirrigated cool season turf.



Environmentally Sensitive –

- There are many roads, sidewalks and storm water drains throughout the area. Be cautious when making fertilizer applications near these areas and always clean up any fertilizers accidentally spread on pavement and sidewalks.
- According to Web Soil Survey, there is no risk of flooding in this area.

2.8. McHarg Field

A: Description

There is a multipurpose field located at Mcharg Elementary School.

B: Location

From Tyler Ave. turn west onto Rock Road, turn right onto Wadsworth St. and continue to 12th Street. Field is located on left.

Address: 698 12th Street, Radford VA 24141

GPS Coordinates: 37.122886, -80.569398

C: Areas Managed

McHarg Field is 2.7 acres of unirrigated cool season turf.



Environmentally Sensitive –

- There are many roads, sidewalks and storm water drains throughout the area. Be cautious when making fertilizer applications near these areas and always clean up any fertilizers accidentally spread on pavement and sidewalks.
- According to Web Soil Survey, there is no risk of flooding in this area.

2.9. Medians

A: Description

Grass medians are fertilized along Tyler Ave and West Main Street as well as the at the intersection of Main St. and Rte. 11.

B: Location

Medians on Tyler Ave from Rock Road to Main Street.

Medians on West Main Street from Highlands Ave. to Little River Road.

Medians at Rte. 11 and Main St.

C: Areas Managed

The median areas are 10.7 acres of unirrigated cool season general turf.



2.10. New River Valley Complex

A: Description

There are 3 fields at this location

B: Location

From Main Street turn onto New River Drive. Bear to the right past Bisset Park. New River Valley Complex will be on the right.

Address: New River Dr., Radford, VA 24141

GPS Coordinates: 37.143881, -80.559809

C: Areas Managed

NRV Sports Complex is 3.6 acres of unirrigated cool season turf.



Environmentally Sensitive –

- There are many roads, sidewalks and storm water drains throughout the area. Be cautious when making fertilizer applications near these areas and always clean up any fertilizers accidentally spread on pavement and sidewalks.
- The New River is located to the North of this site
- According to Web Soil Survey, there is occasional risk of flooding in this area. The construction of this park has occurred since the web soil survey data was compiled. The flooding risk may have been alleviated by this construction, but be aware that fertilizer should not be applied prior to rains that may cause flooding or ponding of water in this area.

2.11. Radford Memorial Field

A: Description

There is a baseball field at this location.

B: Location

From Tyler Ave. turn onto Lawrence St. and then onto 2nd Ave continue past Belle Heth Elementary and turn right onto George Street. The field will be on the left.

Address: 151 George St, Radford, VA 24141

GPS Coordinates: 37.132721, -80.558222

C: Areas Managed

Radford Memorial Field is 2.5 acres of unirrigated cool season turf.



Environmentally Sensitive –

- There are many roads, sidewalks and storm water drains throughout the area. Be cautious when making fertilizer applications near these areas and always clean up any fertilizers accidentally spread on pavement and sidewalks.
- According to Web Soil Survey, there is no risk of flooding in this area.

2.12. Riverview Park

A: Description

There is a soccer field at this location.

B: Location

From West Main Street turn West onto Cowan Street and the left onto River Street. The field will be on the left.

Address: 2506 River St., Radford, VA 24141

GPS Coordinates: 37.108655, -80.591133

C: Areas Managed

The multipurpose field is 1.5 acres of unirrigated cool season turf.



Environmentally Sensitive –

- There are many roads, sidewalks and storm water drains throughout the area. Be cautious when making fertilizer applications near these areas and always clean up any fertilizers accidentally spread on pavement and sidewalks.
- The New River is to the West of this site.
- According to Web Soil Survey, there is occasional risk of flooding in this area. Be aware of the potential for flood causing rains prior to fertilization.



2.13. Sunset Park

A: Description

There is a multipurpose field at this site.

B: Location

From West Main Street turn onto Pendleton Street. Follow Pendleton until it ends at Preston Street. Turn left onto Preston Street, field is on left at corner of Preston and 8th Street.

Address: 900 8th St., Radford, VA 24141

GPS Coordinates: 37.122004, -80.578754

C: Areas Managed

The multipurpose field is 1.2 acres of unirrigated cool season turf.



Environmentally Sensitive –

- There are many roads, sidewalks and storm water drains throughout the area. Be cautious when making fertilizer applications near these areas and always clean up any fertilizers accidentally spread on pavement and sidewalks.
- According to Web Soil Survey, there is no risk of flooding in this area.
- The area in the north of the park that is not included in the fertilized area is a storm water retention pond. Please avoid fertilization of this park prior to heavy rains.

2.14. Veterans Park

A: Description

There are 2 baseball/softball fields at this location

B: Location

From Main Street turn onto New River Drive. Bear to the right past Bisset Park. Continue past New River Valley Complex. Veterans Park will be on the right.

Address: 1200 New River Dr., Radford, VA 24141

GPS Coordinates: 37.145359, -80.554947

C: Areas Managed

Veterans Park has two baseball/softball fields that are a total of 3.3 acres of unirrigated cool season turf.



Environmentally Sensitive –

- There are many roads, sidewalks and storm water drains throughout the area. Be cautious when making fertilizer applications near these areas and always clean up any fertilizers accidentally spread on pavement and sidewalks.
- The New River is to the North of this site.
- According to Web Soil Survey, there is no risk of flooding in this area.

2.15. Wildwood Park

A: Description

The area around the trailhead parking lot is fertilized

B: Location

From Tyler Ave. turn onto Lawrence St. and then onto 2nd Ave continue past Belle Heth Elementary. Continue on 2nd Ave to traffic circle. Bear right in the circle and trailhead parking lot will be on the right.

Address: 939 Park Rd, Radford, VA 24141

GPS Coordinates: 37.129742, -80.563210

C: Areas Managed

Wildwood Park is .5 acres of unirrigated cool season general turf.



Environmentally Sensitive –

- There are many roads, sidewalks and storm water drains throughout the area. Be cautious when making fertilizer applications near these areas and always clean up any fertilizers accidentally spread on pavement and sidewalks.
- The area to the north of the lot is a storm water retention pond. Please avoid fertilizing if heavy rains are expected.
- According to Web Soil Survey, there is no risk of flooding in this area.

3. Soil Test Summaries

Discussion of soil test results and allowable nutrient inputs. Specific applications details can be found in Nutrient Application Worksheet.

Soil samples were taken by Robert Habel on 3/8/16 and 3/29/16. A minimum of 10 random sub samples were collected, at a depth of 3-4 inches, using a soil probe and placed in plastic bags. Thatch and other organics were removed prior to boxing.

Soil tests are rated in terms of Very Low to Very High. In order to comply with Virginia Nutrient Management Standards and Criteria, Revised July 2014, no phosphorus or potassium may be applied if a soil test rates that element Very High. In economic terms, nutrients are not necessarily needed if they test above a medium rating; plant response is not guaranteed if soils already test above medium and therefore money can be saved by using a nitrogen only fertilizer. (See plant response chart page 36)

- Locations are only fertilized once a year in the spring. All locations will follow same program.
- Additional programs will be written to follow DCR framework using Max N. Minimal P will be suggested as all areas were in good condition.
- Application plans and Application Record sheets are grouped together. Additional blank record forms are available on included CD.

Soil Test Summary									
Customer Name:		City of Radford							
Testing Lab:		Waypoint Analytical							
Sample Date:		3/8/16 and 3/29/16							
Analysis Date:		4/15/2016							
Planner Name		Five Oaks Agronomy Consulting, LLC							
Certification Number		654							
Managed Area ID	Soil pH	Buffer pH	Lab P (ppm)	VT P (ppm)	VT (H/M/L)	Lab K (ppm)	VT K (ppm)	VT (H/M/L)	
Soil Test ID#									
RAD 01	Medians	7.50		16	4.1	L	104	73.8	M
RAD 02	River View Park	6.80		10	1.3	L-	159	112.9	H
RAD 03	Hodge Field	5.90	6.71	10	1.3	L-	152	107.9	H
RAD 04	Sunset park	6.00	6.76	15	3.6	L	237	168.3	VH
RAD 05	Dobbins	5.70	6.73	24	7.7	M-	172	122.1	H
RAD 06	Bisset #1	7.10		17	4.5	L	226	160.5	VH
RAD 07	Bisset #2	6.40		46	17.8	M+	243	172.5	VH
RAD 08	New River	6.20		24	7.7	M-	134	95.1	H-
RAD 09	Veterans Field	6.20		14	3.2	L	95	67.5	M
RAD 10	Dog Park	6.60		30	10.5	M-	174	123.5	H
RAD 11	Wildwood Park	7.50		59	23.8	H-	143	101.5	H-
RAD 12	Haven Heights	6.80		33	11.9	M	164	116.4	H
RAD 13	McHarg	6.10		11	1.8	L-	175	124.3	H
RAD 14	Belle Heth	6.70		18	5.0	L+	194	137.7	H
RAD 15	Radford Memorial	6.40		10	1.3	L-	169	120.0	H
RAD 16	High School	7.10		30	10.5	M-	260	184.6	VH

All Locations –

Every location will be treated the same. H- was the highest phosphorus level from all 16 soil tests. 1#/M P will be allowed. Potassium rated VH across several locations. At a level of VH 0#/M K is allowed, but since these are high use fields some K will be allowed since K helps turfgrass to deal with stress.

0.9 #/M of Nitrogen will be applied this will be a high slow release material to spread feeding over several month period.

Lime is need at several locations see section below for liming recommendations.

Lime –

Lime is needed at Hodge Field, Sunset Park and Dobbins Park. These applications are needed regardless of which application schedule you are following.

1.5 Tons of lime is required; this should be made in 3 apps of 50#/M. Spring and fall is the best time for lime application. Attempt to coordinate with aerification.

Optional applications

General Turf –

These locations are all fertilized common areas (non-sports turf).

Soil tests average medium (M) levels of phosphorus and high (H-) levels of potassium. 1.5 #/M of phosphorus is allowed. 1 #/M of potassium will be allowed.

Regulations allow for up to 3.5 lbs/M of nitrogen per year. If using 100% water-soluble nitrogen .7 lbs may be applied every 30 days. If using slow release materials, .9 lbs may be used every 30 days. Do not exceed stated per year total.

Soil Test Summary									
Customer Name:		City of Radford							
Testing Lab:		Waypoint Analytical							
Sample Date:		3/8/16 and 3/29/16							
Analysis Date:		4/15/2016							
Planner Name		Five Oaks Agronomy Consulting, LLC							
Certification Number		654							
Managed Area ID	Soil pH	Buffer pH	Lab P (ppm)	VT P (ppm)	VT (H/M/L)	Lab K (ppm)	VT K (ppm)	VT (H/M/L)	Soil Test ID#
RAD 01	7.50		16	4.1	L	104	73.8	M	Medians
RAD 10	6.60		30	10.5	M-	174	123.5	H	Dog Park
RAD 11	7.50		59	23.8	H-	143	101.5	H-	Wildwood Park
RAD 12	6.80		33	11.9	M	164	116.4	H	Haven Heights
Average Results				12.5	M		103.8	H-	
		Lime		P			K		
Allowed Inputs				1.5 #/M			1 #/M		

Low Input fields (4 apps) –

These fields all receive 4 apps of fertilizer. Irrigation may or may not be present.

Soil tests average low (L+) levels of phosphorus and high (H) levels of potassium. 2 #/M of phosphorus is allowed. 0.75 #/M of potassium will be allowed.

Regulations allow for up to 3 lbs/M of nitrogen per year. If using 100% water-soluble nitrogen .7 lbs may be applied every 30 days. If using slow release materials, .9 lbs may be used every 30 days. Do not exceed stated per year total.

Soil Test Summary									
Customer Name:		City of Radford							
Testing Lab:		Waypoint Analytical							
Sample Date:		3/8/16 and 3/29/16							
Analysis Date:		4/15/2016							
Planner Name		Five Oaks Agronomy Consulting, LLC							
Certification Number		654							
Managed Area ID	Soil Test ID#	Soil pH	Buffer pH	Lab P (ppm)	VT P (ppm)	VT (H/M/L)	Lab K (ppm)	VT K (ppm)	VT (H/M/L)
RAD 02	River View Park	6.80		10	1.3	L-	159	112.9	H
RAD 03	Hodge Field	5.90	6.71	10	1.3	L-	152	107.9	H
RAD 04	Sunset park	6.00	6.76	15	3.6	L	237	168.3	VH
RAD 05	Dobbins	5.70	6.73	24	7.7	M-	172	122.1	H
RAD 06	Bisset #1	7.10		17	4.5	L	226	160.5	VH
RAD 07	Bisset #2	6.40		46	17.8	M+	243	172.5	VH
RAD 08	New River	6.20		24	7.7	M-	134	95.1	H-
RAD 09	Veterans Field	6.20		14	3.2	L	95	67.5	M
RAD 13	McHarg	6.10		11	1.8	L-	175	124.3	H
RAD 14	Belle Heth	6.70		18	5.0	L+	194	137.7	H
RAD 15	Radford Memorial	6.40		10	1.3	L-	169	120.0	H
RAD 16	High School	7.10		30	10.5	M-	260	184.6	VH
Average Results					5.5	L+		131.11	H
			Lime		P		K		
Allowed Inputs					2 #/M		0.75 #/M		

4. Nutrient Application Worksheets

The following worksheets detail specific fertilizer applications using the previously discussed soil test information. All nutrient input level recommendations come from the Department of Conservation and Recreation's Nutrient Management Standards and Criteria, this document is part of the Code of Virginia and thus is law for those required to have a Nutrient Management Plan. While applications do not have to be followed specifically, it is important to note that per month nitrogen levels shall not be exceeded and per year phosphorus levels shall not be exceeded. In some cases, potassium input may exceed recommended levels, as it does not have the same detrimental effects on the health of Virginia's waters as nitrogen and phosphorus. Potassium is considered the plant nutrient most responsible for quality. It helps plants respond to stresses like drought, extreme heat/cold, and insect/disease pressure. The plants increased ability to respond to stress in a positive manner can help reduce the need for increased N and P fertility and reseeding caused by stress.

NUTRIENT APPLICATION WORK SHEET

Name:	City of Radford			Management Area:	All Locations								
Prepared:	6/1/2016			Area:	43.5	Turf Type:	Cool Season						
Expires:	6/1/2019												
Total Yearly Nutrient Needs	Application Month/Day	Analysis N - P - K	Interval (days)	Fertilizer Description	Rate/M	lbs/app	% Slow Release N	Total/M N - P - K			Lime lbs/M	Gypsum	lbs/app lime/gyp
Nitrogen	No applications before March 14												
3	April	25 - 2 - 5	30	20% XRT 40% NB	3.60	6821	83	0.90 - 0.07 - 0.18					
Phosphorus													
1													
Potassium													
0													
	No applications after November 26												
	Lime												
	See soil test discussion for info on needed lime applications												
							Total used:	0.90 - 0.07 - 0.18					
					Do not exceed yearly maximum allowed by Regulation:			3.5 - 1 - 0					
Notes	<ul style="list-style-type: none"> • Please stay within frost free days indicated. • Application rates are based on use of at least 15% slow release fertilizer. 0.9 #/M N allowed if using at least 15% slow release nitrogen. If using less than 15% only 0.7 #/M nitrogen allowed. • All fertilizer analyses are subject to change; do not exceed stated monthly Total N or yearly total P. Please contact your planner if you need help adjusting a fertilizer application to meet the requirements of this plan. 												

NUTRIENT APPLICATION WORK SHEET

Name:	City of Radford			Management Area:	Medians, Dog Park, Haven Heights, Wildwood								
Prepared:	6/1/2016			Area:	13	Turf Type:	Cool Season						
Expires:	6/1/2019												
Total Yearly Nutrient Needs	Application Month/Day	Analysis N - P - K	Interval (days)	Fertilizer Description	Rate/M	lbs/app	% Slow Release N	Total/M N - P - K			Lime lbs/M	Gypsum	lbs/app lime/gyp
Nitrogen	No applications before March 14												
3.5	April	25 - 2 - 5	30	20% XRT 40% NB	3.20	1812	83	0.80 - 0.06 - 0.16					
Phosphorus													
1.5	September	16 - 2 - 3	30	50%CRN; 20% NB; 15%AS; 2%Fe; Micros	5.63	3185	50	0.90 - 0.11 - 0.17					
Potassium													
1	October	16 - 2 - 3	30	50%CRN; 20% NB; 15%AS; 2%Fe; Micros	5.63	3185	50	0.90 - 0.11 - 0.17					
	November	16 - 2 - 3	30	50%CRN; 20% NB; 15%AS; 2%Fe; Micros	5.63	3185	50	0.90 - 0.11 - 0.17					
	No applications after November 26												
	Lime												
							Total used:	3.50 - 0.40 - 0.67					
							Do not exceed yearly maximum allowed by Regulation:			3.5 - 1.5 - 1			
Notes	<ul style="list-style-type: none"> •Tested M in Phosphorus and H- Potassium. • Please stay within frost free days indicated. • Application rates are based on use of atleast 15% slow release fertilizer. 0.9 #/M N allowed if using atleast 15% slow release nitrogen. If using less than 15% only 0.7 #/M nitrogen allowed. • All fertilizer analyses are subject to change; do not exceed stated monthly Total N or yearly total P. Please contact your planner if you need help adjusting a fertilizer application to meet the requirements of this plan. 												

NUTRIENT APPLICATION WORK SHEET

NUTRIENT APPLICATION WORK SHEET											
Name:	City of Radford			Management Area:	Sports fields						
Prepared:	6/1/2016			Area:	30.5	Turf Type:	Cool Season				
Expires:	6/1/2019										
Total Yearly Nutrient Needs	Application Month/Day	Analysis N - P - K	Interval (days)	Fertilizer Description	Rate/M	lbs/app	% Slow Release N	Total/M N - P - K	Lime lbs/M	Gypsum	lbs/app lime/gyp
Nitrogen	No applications before March 14										
3	April	25 - 2 - 5	30	20% XRT 40% NB	2.40	3189	83	0.60 - 0.05 - 0.12			
Phosphorus											
2	September	16 - 2 - 3	30	50%CRN; 20% NB; 15%AS; 2%Fe; Micros	5.00	6643	50	0.80 - 0.10 - 0.15			
Potassium											
0.75	October	16 - 2 - 3	30	50%CRN; 20% NB; 15%AS; 2%Fe; Micros	5.00	6643	50	0.80 - 0.10 - 0.15			
	November	16 - 2 - 3	30	50%CRN; 20% NB; 15%AS; 2%Fe; Micros	5.00	6643	50	0.80 - 0.10 - 0.15			
	No applications after November 26										
	Lime										
	See soil test discussion for info on needed lime applications										
						Total used:		3.00 - 0.35 - 0.57			
					Do not exceed yearly maximum allowed by Regulation:			3 - 2 - 0.75			
Notes	<ul style="list-style-type: none"> •Tested M in Phosphorus and H- Potassium. • Please stay within frost free days indicated. • Application rates are based on use of atleast 15% slow release fertilizer. 0.9 #/M N allowed if using atleast 15% slow release nitrogen. If using less than 15% only 0.7 #/M nitrogen allowed. • All fertilizer analyses are subject to change; do not exceed stated monthly Total N or yearly total P. Please contact your planner if you need help adjusting a fertilizer application to meet the requirements of this plan. 										

6. Reference Material

Nutrient Availability According to pH

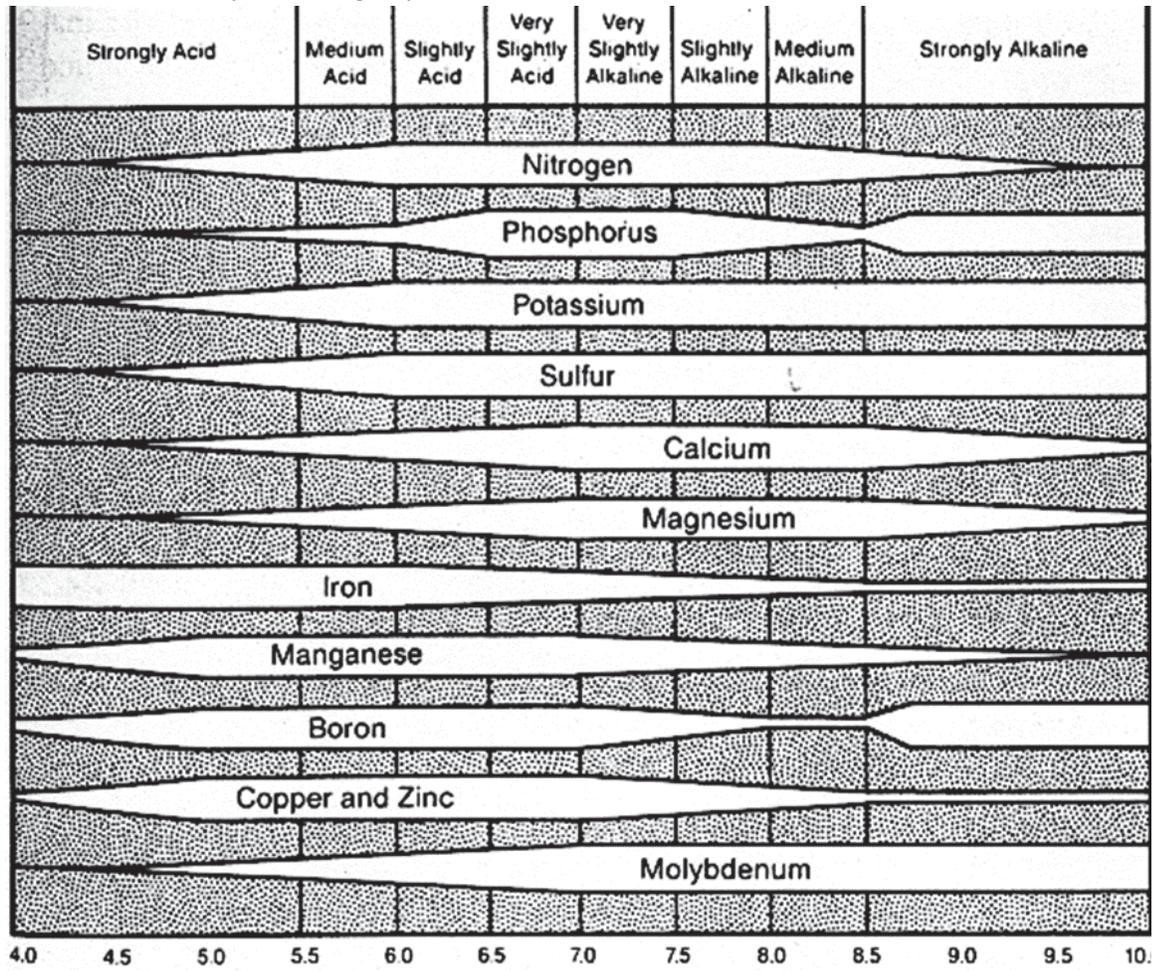


Figure 1: Nutrient Availability at pH

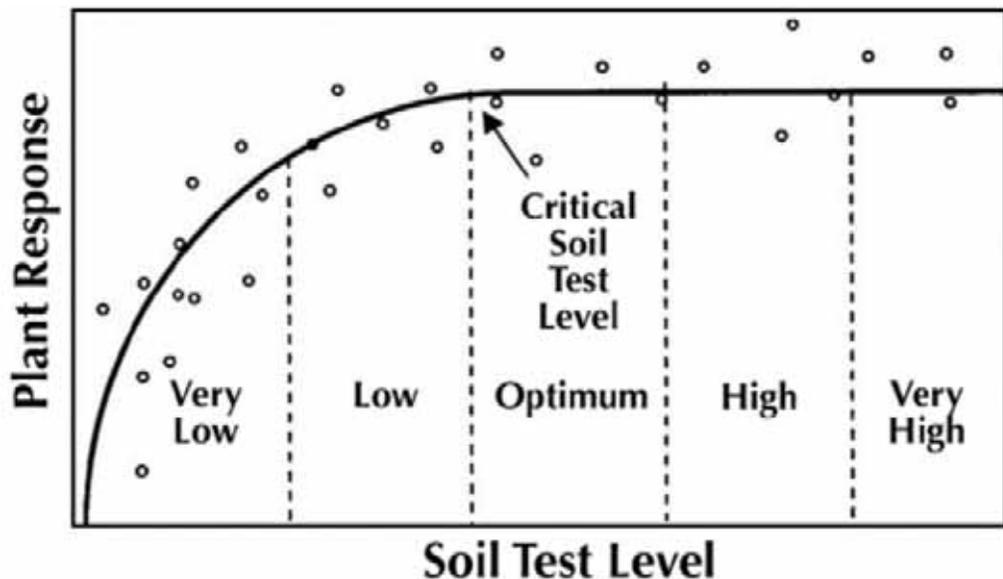


Figure 2: Plant Response Chart

Very low: A plant response is most likely if the indicated nutrient is applied. A large portion of the nutrient requirement must come from fertilization.

Low: A plant response is likely if the indicated nutrient is applied. A portion of the nutrient requirement must come from fertilization.

Medium: A plant response may or may not occur if the indicated nutrient is applied. A small portion of the nutrient requirement must come from fertilization.

High: Plant response is not expected. No additional fertilizer is needed.

Very high: Plant response is not expected. The soil can supply much more than the turf requires. Additional fertilizer should not be added to avoid nutritional problems and adverse environmental consequences.

Standards and Criteria

Section VI. Turfgrass Nutrient Recommendations for Home Lawns, Office Parks, Public Lands and Other Similar Residential/Commercial Grounds

Definitions

For the purposes of this section, the following definitions, as presented by the Association of American Plant Food Control Officials (AAPFCO), apply:

"Enhanced efficiency fertilizer" describes fertilizer products with characteristics that allow increased plant nutrient availability and reduce the potential of nutrient losses to the environment when compared to an appropriate reference product.

"Slow or controlled release fertilizer" means a fertilizer containing a plant nutrient in a form which delays its availability for plant uptake and use after application, or which extends its availability to the plant significantly longer than a reference "rapidly available nutrient fertilizer" such as ammonium nitrate, urea, ammonium phosphate or potassium chloride. A slow or controlled release fertilizer must contain a minimum of 15 percent slowly available forms of nitrogen.

"Water soluble nitrogen", "WSN", or "readily available nitrogen" means: Water soluble nitrogen in either ammonical, urea, or nitrate form that does not have a controlled release, or slow response.

Recommended Season of Application For Nitrogen Fertilizers - Applies to all Turf

A nitrogen fertilization schedule weighted toward fall application is recommended and preferred for agronomic quality and persistence of cool season turfgrass; however, the acceptable window of applications is much wider than this for nutrient management. The nutrient management recommended application season for nitrogen fertilizers to cool season turfgrasses begins six weeks prior to the last spring average killing frost date and ends six weeks past the first fall average killing frost date (see Figures 6-1 & 6-2). Applications of nitrogen during the intervening late fall and winter period should be avoided due to higher potential leaching or runoff risk, but where necessary, apply no more than 0.5 pounds per 1,000 ft² of water soluble nitrogen within a 30-day period. Higher application rates may be used during this late fall and winter period by using materials containing slowly available sources of nitrogen, if the water soluble nitrogen contained in the fertilizer does not exceed the recommended maximum of 0.5 pounds per 1,000 ft² rate. Do not apply nitrogen or phosphorus fertilizers when the ground is frozen.

The acceptable nitrogen fertilizer application season for non-overseeded warm season turfgrass begins no earlier than the last spring average killing frost date and ends no later than one month prior to the first fall average killing frost date (see Figures 6-1 & 6-2).

Figure 6-1

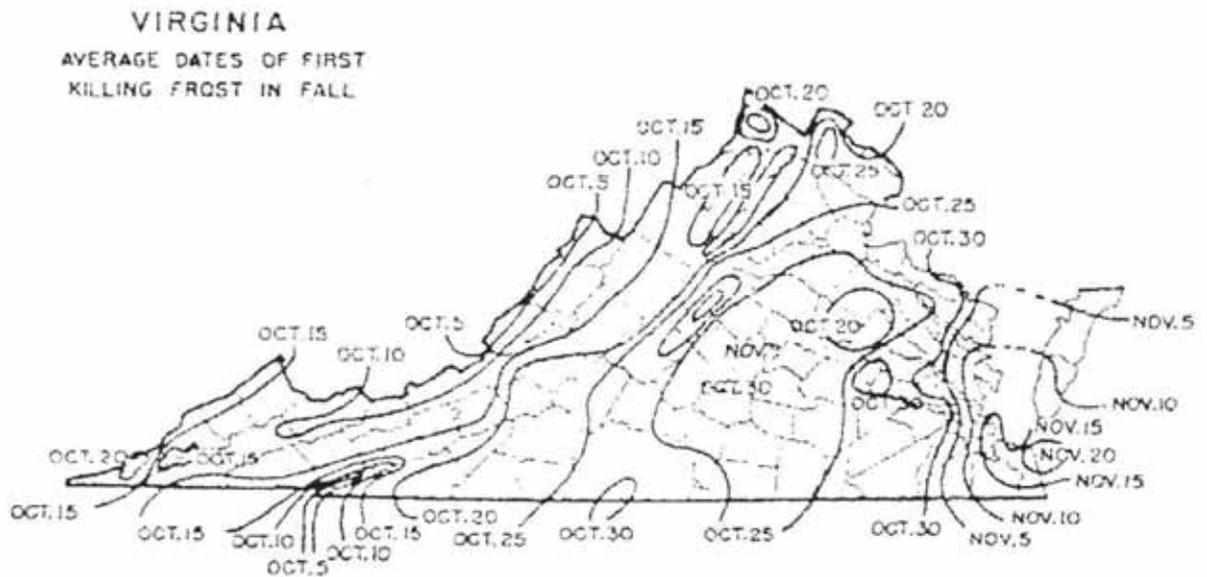
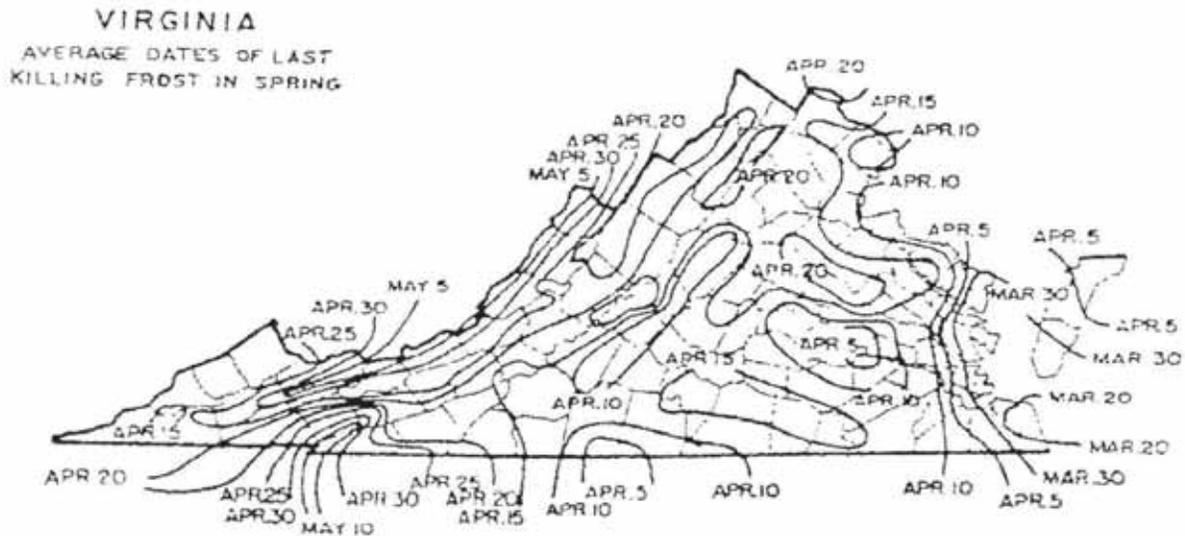


Figure 6-2



Per Application Rates

Do not apply more than 0.7 pounds of water soluble nitrogen per 1,000 ft² within a 30-day period. For cool season grasses, do not apply more than 0.9 pounds of total nitrogen per 1,000 ft² within a 30-day period. For warm season grasses, do not apply more than 1.0 pounds of total nitrogen per 1,000 ft² within a 30-day period. Lower per application rates of water soluble nitrogen sources or use of slowly available nitrogen sources should be utilized on very permeable sandy soils, shallow soils over fractured bedrock, or areas near water wells.

Annual Application Rates for Home Lawns and Commercial Turf

Up to 3.5 pounds per 1,000 ft² of nitrogen may be applied annually to cool season grass species or up to 4 pounds per 1,000 ft² may be applied annually to warm season grass species using 100 percent water soluble nitrogen sources. Lower rates of nitrogen application may be desirable on those mature stands of grasses that require less nitrogen for long-term quality. As a result, lower application rates will probably be more suited to the fine leaf fescues (hard fescue, chewing fescue, creeping red fescue, and sheep fescue) and non-overseeded zoysiagrass. Lower rates should also be used on less intensively managed areas.

Use of Slowly Available Forms of Nitrogen

For slow or controlled release fertilizer sources, or enhanced efficiency fertilizer sources, no more than 0.9 pounds of nitrogen per 1,000 ft² may be applied to cool season grasses within a 30-day period and no more than 1.0 pounds of nitrogen per 1,000 ft² may be applied to warm season grasses within a 30-day period.

Provided the fertilizer label guarantees that the product can be used in such a way that it will not release more than 0.7 pounds of nitrogen per 1,000 ft² in a 30-day period, no more than 2.5 pounds of nitrogen per 1,000 ft² may be applied in a single application. Additionally, total annual applications shall not exceed 80 percent of the annual nitrogen rates for cool or warm season grasses.

Phosphorus and Potassium Nutrient Needs (Established Turf)

Apply phosphorus (P₂O₅) and potassium (K₂O) fertilizers as indicated necessary by a soil test using the following guidelines:

<u>Soil Test Level</u>	<u>Nutrient Needs (pounds per 1,000 ft²)*</u>	
	<u>P₂O₅</u>	<u>K₂O</u>
L	2-3	2-3
M	1-2	1-2
H	0.5-1	0.5-1
VH	0	0

- * For the lower soil test level within a rating, use the higher side of the range and for higher soil test level within a rating use the lower side of the recommendation range. (For example the recommendation for a P₂O₅ soil test level of L- would be 3 pounds per 1,000 ft².)

Do not use high phosphorus ratio fertilizers such as 10-10-10 or 5-10-10, unless soil tests indicate phosphorus availability below the M+ level.

Recommendations for Establishment of Turf

These recommendations are for timely planted turfgrass, that is, the seed or vegetative material (sod, plugs, and /or sprigs), are planted at a time of the year when temperatures and moisture are adequate to maximize turfgrass establishment. These recommended establishment periods would be late summer to early fall for cool-season turfgrasses and late spring through mid-summer for warm-season turfgrasses.

Nitrogen Applications

At the time of establishment, apply no more than 0.9 pounds per 1,000 ft² of total nitrogen for cool season grasses or 1.0 pounds per 1,000 ft² of total nitrogen for warm season grasses, using a material containing slowly available forms of nitrogen, followed by one or two applications beginning 30 days after planting, not to exceed a total of 1.8 pounds per 1,000 ft² total for cool season grasses and 2.0 pounds per 1,000 ft² for warm season grasses for the establishment period. Applications of WSN cannot exceed more than 0.7 pounds per 1,000 ft² within a 30-day period.

Phosphorus and Potassium Recommendations for Establishment

<u>Soil Test Level</u>	<u>Nutrient Needs (pounds per 1,000 ft²) *</u>	
	<u>P₂O₅</u>	<u>K₂O</u>
L	3-4	2-3
M	2-3	1-2
H	2-1	0.5-1
VH	0	0

- * For the lower soil test level within a rating, use the higher side of the range and for higher soil test level within a rating use the lower side of the recommendation range.

Nutrient Recommendations for Golf Courses

Nitrogen Timing

The beginning and ending dates for application of nitrogen shall be determined using guidance and frost date maps contained in the Season of Application for Nitrogen section, Figures 6-1 and 6-2.

If the full rate or the highest rate of the recommendation range for a monthly application is applied in a single application, then the interval of application for nitrogen shall be at least 30 days to allow turf to utilize previous nitrogen applications. If several applications are to be made for the monthly nitrogen rate, then the timing of the applications shall be at approximately even intervals, with the rate per application to be evenly divided between each application with the total nitrogen applied not to exceed the maximum monthly rate. Use of Water Insoluble Nitrogen forms of Nitrogen is encouraged.

Nitrogen Rates

	Grass Type	Maximum WSN Rate Per Application - pounds per 1,000 ft ²	Total Annual Nitrogen Rate - pounds per 1,000 ft ² ^a
Greens		0.7 ^(b)	3-6
Tees		0.7 ^(b)	2-5
Fairways	Cool Season	0.7 ^(c)	2-3
	Warm Season	0.7 ^(c)	3-4
Fairways – Intensive Management	Cool Season	0.5 ^(d)	3-4
	Warm Season	0.5 ^(d)	3.5-4.5
	Overseeding Warm Season Fairways	.5	1.25
Roughs		0.7 ^(e)	1-3

Fairways-Overseeding Warm Season Fairways

- For warm season grasses, up to 0.7 pounds of nitrogen per 1,000 ft² in a 30-day period may be applied in the Fall after perennial ryegrass overseeding is well established. An additional nitrogen application of 0.7 pounds per 1,000 ft² may be made in February-March to overseeded perennial ryegrass if growth and color indicate need. Applications using WSN may not exceed 0.7 pounds per 1,000 ft² within a 30-day period.
- Soluble nitrogen rates of 0.25 pounds per 1,000 ft² or less which may be a component of a pesticide or minor element application, may be applied any time during the application windows described in Recommended Season of Application for Nitrogen Fertilizers of this section, but must be considered with the total annual nitrogen application rate.

(a) Use higher rates for intensively used turf where accelerated growth and/or rapid recovery are required, use lower rates for maintenance of lesser used areas; do not exceed total annual nitrogen levels as stated above.

- (b) Greens and Tees – Per application timing must be a minimum of 30 days between applications. A rate of 0.9 pounds per 1,000 ft² of total nitrogen may be applied for cool season grasses or 1.0 pounds per 1,000 ft² of total nitrogen may be applied for warm season grasses using a material containing slowly available forms of nitrogen.
- (c) Fairways-Normal Management (Non-Irrigated or Irrigated) - Per Application timing must be a minimum of 30 days between applications. Total nitrogen application rates of 0.9 pounds per 1,000 ft² of total nitrogen may be applied for cool season grasses or 1.0 pound per 1,000 ft² of total nitrogen may be applied for warm season grasses using a material containing slowly available forms of nitrogen.
- (d) Fairways-Intensive Management (Irrigated)- Per Application timing must be a minimum of 15 days between applications. This option requires optimized timing of more frequent applications of nitrogen with lesser rates per application. Alternatively, a maximum application rate of 0.9 pounds per 1,000 ft² of total nitrogen for cool season grasses or 1.0 pounds per 1,000 ft² of total nitrogen for warm season grasses using a material containing slowly available forms of nitrogen may be applied with a minimum of 30 days between applications.
- (e) Foliar fertilizer may be applied to warm season grasses within 30 days prior to the first killing frost in the fall, at a rate not to exceed 0.1 pounds per 1,000 ft² of nitrogen per application. This application must be accounted for in the total annual nitrogen rate.

Phosphorus and Potassium Recommendations for Established Golf Courses

Apply phosphorus (P₂O₅) and potassium (K₂O) fertilizers as indicated by a soil test using the following guidelines:

<u>Soil Test Level</u>	<u>Nutrient Needs (pounds per 1,000 ft²)*</u>	
	<u>P₂O₅</u>	<u>K₂O</u>
L	2-3	2-3
M	1-2	1-2
H	0.5-1	0.5-1
VH	0	0

- * For the lower soil test level within a rating, use the higher side of the range and for higher soil test level within a rating use the lower side of the recommendation range.
- For irrigated turf grown on Naturally Occurring and Modified Sand Based soils only, up to 0.5 pounds of P₂O₅ per 1,000 ft² may be applied, if needed, to aid in recovery of damaged turf during times of extreme use. No phosphorus applications shall be made when the soil phosphorus test level is above 65% saturation, based on the soil test phosphorus values and region as listed in Table 4-1 of Section IV.
- Avoid the general use of high phosphorus ratio fertilizers such as 10-10-10 or 5-10-10, unless soil tests indicate phosphorus availability below the M+ level.

Nitrogen Management on Athletic Fields - Cool Season Grasses

- This program is intended for those fields which are under heavy use.
- Nitrogen recommendations are based on the assumption that there is adequate soil moisture to promote good turf growth at the time of application. If no rainfall has occurred since the last application, further applications should be delayed until significant soil moisture is available.

Cool Season Grasses	Maintenance Program ^a	
	Normal	Intensive
When to Apply ^b	Pounds per 1,000 ft ² Nitrogen	
After August 15	-----	0.5
September	0.7	0.7 ^c
October	0.7 ^c	0.7 ^c
November	0.5	0.7 ^c
April 15 - May 15	0.5	0.5
June 1 - June 15	----	0.5

Notes:

- Soluble nitrogen rates of 0.25 pounds per 1,000 ft² or less which may be a component of a pesticide or minor element application may be applied any time the turf is actively growing, but must be considered with the total annual nitrogen application rate.
 - WSN = water soluble nitrogen; WIN = water insoluble nitrogen
- (a) Intensive managed areas must be irrigated.
- (b) The beginning and ending dates for application of nitrogen shall be determined using guidance and frost date maps contained in the preceding Season of Application for Nitrogen section, using Figures 6-1 and 6-2.
- (c) Rates up to 0.9 pounds per 1,000 ft² of total nitrogen can be applied using a material containing slowly available forms of nitrogen, with a minimum of 30 days between applications.
- (d) Make this application only if turf use warrants additional nitrogen for sustaining desirable growth and /or color.

Nitrogen Management on Athletic Fields - Warm Season Grasses

The following comments apply to both Naturally Occurring or Modified Sand based Fields and Predominantly Silt/Clay Soil Fields:

- Annual nitrogen rates for warm season grasses shall not exceed **4 pounds** in areas which have the average first killing frost on or before October 20, and shall not exceed **5 pounds** in areas which have the average first killing frost after October 20 as shown in Figure 6-1. Nitrogen rates and timings for overseeding warm season grasses are not included in these rates.
- April 15 - May 15 applications should not be made until after complete green-up of turf.
- Nitrogen applications June through August should be coordinated with anticipated rainfall if irrigation is not available.
- Use the lower end of the ranges for non-irrigated fields and the higher end of the ranges should be used on fields with irrigation.

- Nitrogen rates towards the higher end of the ranges may be applied on heavily used fields to accelerate recovery, however per application and annual rates cannot be exceeded.

Bermudagrass - Predominantly Silt/Clay Soil Fields ^a		
When to Apply^b	Pounds per 1,000 ft² Nitrogen^c	First Fall Killing Frost Date^b
April 15 - May 15	0.5- 0.7 ^(c)	Before Oct. 20
June	0.7	
July	0.5 - 0.7 ^(d)	
August	0.5 - 0.7 ^(d)	
Sept 1 - Sept 15	0.5 -0.7 ^(c)	After Oct. 20
If overseeded with perennial ryegrass		
Oct - Nov	0.5 ^(e)	
Feb-Mar	0.5 ^(e)	

Bermudagrass - Naturally Occurring or Modified Sand based Fields ^a		
When to Apply^b	Pounds per 1,000 ft² Nitrogen	First Fall Killing Frost Date^b
April 15 - May 15	0.5 -0.7 ^(c)	Before Oct. 20
June 1	0.7 ^(c)	
July	0.7 ^(c)	
August	0.7 ^(c)	
Sept 1 - Sept 15	0.7 ^c	After Oct. 20
If overseeded with perennial ryegrass		
Oct - Nov	0.5 ^(e)	
Feb - Mar	0.5 ^(e)	

The following notes apply to both of the Bermudagrass tables above:

- (a) In the Piedmont and the Ridge and Valley areas of Virginia, the existing native soil will normally be comprised predominantly of clay and/or silt and these soils have inherently lower water infiltration and percolation rates and greater nutrient holding capacity. However, most areas of the Coastal Plain have existing native soils that are predominantly sandy textured soils and other facilities throughout the state may choose to install modified soil root zones that are predominantly sand (>50%) in order to maximize drainage and reduce compaction tendency. If subsurface drain tile surrounded by sand and/or gravel has been installed under the playing surface of any of these fields, their nitrogen programs should be managed as predominantly sand-based systems to minimize nutrient leaching.
- (b) The beginning and ending dates for application of nitrogen shall be determined using guidance and frost date maps contained in the Season of Application for Nitrogen section, Figures 6-1 and 6-2.
- (c) WSN must be applied as two applications not to exceed 0.35 pounds per 1,000 ft² each with a minimum of 15 days between applications. Alternatively, using a material that contains slowly available nitrogen sources, split applications of 0.5 pounds per 1,000 ft² may be applied with a minimum of 15 days between applications.

- (d) If a material containing slowly available forms of nitrogen is used, rates up to 1.0 pounds of nitrogen per 1,000 ft² may be applied in a single application with a minimum of 30 days between applications.
- (e) For overseeded warm season grasses, an additional 0.7 pounds per 1,000ft² of WSN may be applied in the Fall after the perennial ryegrass overseeding is well established. The WSN must be applied as two applications not to exceed 0.35 pounds per 1,000 ft² of nitrogen each, with a minimum of 15 days between applications. Additional WSN application of 0.5 pounds per 1,000 ft² may be made in February-March to overseeded perennial ryegrass if growth and color indicate need. Alternatively, split applications of 0.5 pounds of nitrogen per 1,000 ft² each with a minimum of 15 days between applications may be applied using a material containing slowly available nitrogen sources.

Phosphorus and Potassium Recommendations Athletic Fields

Apply phosphorus (P₂O₅) and potassium (K₂O) fertilizers as indicated by a soil test using the following guidelines:

<u>Soil Test Level</u>	<u>Nutrient Needs (pounds per 1,000 ft²)*</u>	
	<u>P₂O₅</u>	<u>K₂O</u>
L	2-3	2-3
M	1-2	1-2
H	0.5-1	0.5-1
VH	0	0

- * For the lower soil test level within a rating, use the higher side of the range and for higher soil test level within a rating use the lower side of the recommendation range.
- For irrigated turf grown on Naturally Occurring and Modified Sand Based soils only, up to 0.5 pounds of P₂O₅ per 1,000 ft² may be applied, if needed, to aid in recovery of damaged turf during times of extreme use. No phosphorus applications shall be made when the soil phosphorus test level is above 65% saturation, based on the soil test phosphorus values and region as listed in Table 4-1 of Section IV.
- Avoid the general use of high phosphorus ratio fertilizers such as 10-10-10 or 5-10-10, unless soil tests indicate phosphorus availability below the M+ level.

Establishment/Grow-In Recommendations for Golf Courses, Athletic Fields, and Sod Production

(These rates replace normal maintenance fertilizer applications that would have occurred during these time periods.)

Warm Season Grasses:

Predominantly Silt/Clay Soils

- ◆ Plant Date - late May -June for sprigs, plugs, sod, or seeding.
- ◆ Apply P_2O_5 and K_2O as needed based on soil test recommendations, incorporate into the top 2 inches if possible.
- ◆ At Planting - Up to 1.0 pounds of nitrogen per 1,000 ft² using a material containing slowly available forms of nitrogen may be applied as one application or lesser amounts applied at regular intervals, through the first 4 weeks, not to exceed a total of 1.0 pounds of nitrogen per 1,000ft².
- ◆ Four weeks after planting - 0.25 pounds.of WSN per 1,000 ft² per week for the next 4 weeks.

Naturally Occurring or Modified Sand Based Soils

- ◆ Plant Date - late May -June for sprigs, plugs, sod, or seeding.
- ◆ Apply P_2O_5 and K_2O as needed based on soil test recommendations, incorporate into the top 2 inches if possible.
- ◆ At Planting - Up to 1.0 pounds of nitrogen per 1,000 ft² using a material containing slowly available forms of nitrogen may be applied as one application or lesser amounts at regular intervals through the first 4 weeks, not to exceed a total of 1.0 pounds of nitrogen per 1,000 ft².
- ◆ Four weeks after planting - 0.25 pounds per1,000 ft² using a material containing slowly available forms of nitrogen per week for the next 4 weeks.

Cool Season Grasses:

Predominantly Silt/Clay Soils

- ◆ Plant Date - August - September (preferred)
- ◆ Apply P_2O_5 and K_2O as needed based on soil test recommendations, incorporate into the top 2 inches if possible.
- ◆ At Planting - up to 0.9 pounds of nitrogen per 1,000 ft² using a material containing slowly available forms of nitrogen may be applied; 30 days after planting, apply up to 0.5 pounds of nitrogen per 1,000 ft² every week for the next 4 weeks.

Naturally Occurring or Modified Sand Based Soils

- ◆ Plant Date - August -September (preferred)
- ◆ Apply P_2O_5 and K_2O as needed based on soil test recommendations, incorporate into the top 2 inches if possible.
- ◆ At Planting - up to 0.9 pounds of nitrogen per 1,000 ft² using a material containing slowly available forms of nitrogen may be applied.
- ◆ Apply up to 0.25 pounds of nitrogen per 1,000 ft² per week after germination is complete, for the next 8 weeks. If using a material that contains slowly available forms of nitrogen, up to 0.5 pounds of nitrogen per 1,000 ft² every two weeks may be applied after germination is complete for the next 8 weeks.

Sod Installations:

Site preparation should include a soil test, which can be done several months before the project begins in order to have time to get test results back. Phosphorus, potassium and lime applications should be based on soil test analysis to increase the likelihood of a successful installation. Shallow incorporation of material into the top 2 inches of the soil is preferred prior to sod installation, especially if lime is required.

No more than 0.7 pounds of nitrogen per 1,000 ft² of WSN may be applied before sod is installed. Alternatively, using a material with slowly available forms of nitrogen, 0.9 pounds of nitrogen per 1,000 ft² for cool season grasses or 1.0 pounds of nitrogen per 1,000 ft² for warm season grasses may be applied before sod is installed.

After installation apply adequate amounts of water to maintain sufficient soil moisture (i.e. to prevent visible wilt symptoms). Excessive water will limit initial root development. After roots begin to establish (as verified by lightly tugging on the sod pieces), shift irrigation strategy to a deep and infrequent program in order to encourage deep root growth. Apply approximately 1 inch of water per week (either by rainfall or irrigation), making sure that the water is being accepted by the soil profile without running off. This will insure thorough wetting of the soil profile.

After sod has completed rooting and is well established, initiate the normal nitrogen management program as described for the appropriate use shall be recommended.

Phosphorus and Potassium Recommendations for Establishment/Grow-In/Installation

<u>Soil Test Level</u>	<u>Nutrient Needs (pounds per 1,000 ft²)*</u>	
	<u>P₂O₅</u>	<u>K₂O</u>
L	3-4	2-3
M	2-3	1-2
H	2-1	0.5-1
VH	0	0

* For the lower soil test level within a rating, use the higher side of the range and for higher soil test level within a rating use the lower side of the recommendation range.

Other Turf Management Considerations for Golf Courses, Athletic fields, and Home Lawns

Lime Recommendations

Lime should be recommended based on a soil test to maintain soil pH within an agronomic range for turfgrass.

For new seedings where lime is recommended, incorporate the lime into the topsoil for best results.

Returning Grass Clippings

Recycling of clippings on turf should be encouraged as an effective means of recycling nitrogen, phosphorus, and potassium. Proper mowing practices that ensure no more than 1/3 of the leaf blade is removed in any cutting event will enhance turf appearance and performance when clippings are returned. Return all leaf clippings from mowing events to the turf rather than discharging them onto sidewalks or streets. Rotary mulching mowers can further enhance clipping recycling by reducing the size of clippings being returned to the turfgrass canopy.

Management of Collected Clippings

If clippings are collected they should be disposed of properly. They may be composted or spread uniformly as a thin layer over other turf areas or areas where the nutrient content of the clippings can be recycled through actively growing plants. They should not be blown onto impervious surfaces or surface waters, dumped down stormwater drains, or piled outside where rainwater will leach out the nutrients creating the potential for nutrient loss to the environment.

Use of Iron

Iron applications (particularly foliar applications) may periodically be used for enhanced greening as an alternative to nitrogen. These applications are most beneficial if applied in late spring through summer for cool season grasses and in late summer/fall applications for warm-season grasses.

Impervious Surfaces

Do not apply fertilizers containing nitrogen or phosphorus to impervious surfaces (sidewalks, streets, etc.). Remove any granular materials that land on impervious surfaces by sweeping and collecting, and either put the collected material back in the bag, or spread it onto the turf and /or using a leaf blower etc. to return the fertilizer back to the turfgrass canopy.

Table 3-1
Lime Recommendations for Virginia Crops (tons/acre)
 Lime Rates based on Va Tech Soil buffer pH

Buffer pH	Target Soil pH					Acidity meq/100g
	5.2	5.8	6.2	6.5	6.8	
6.60	0.00	0.00	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00	0.00	0.03
6.40	0.00	0.00	0.00	0.00	0.50	0.06
6.38	0.00	0.00	0.25	0.25	0.50	0.12
6.36	0.00	0.00	0.25	0.25	0.75	0.24
6.34	0.00	0.00	0.25	0.50	0.75	0.36
6.32	0.00	0.00	0.50	0.50	0.75	0.48
6.30	0.00	0.00	0.50	0.75	1.00	0.59
6.28	0.00	0.25	0.75	0.75	1.00	0.71
6.26	0.00	0.25	0.75	1.00	1.25	0.83
6.24	0.00	0.25	0.75	1.00	1.25	0.95
6.22	0.00	0.50	1.00	1.00	1.50	1.07
6.20	0.00	0.50	1.00	1.25	1.50	1.19
6.18	0.00	0.75	1.25	1.25	1.75	1.30
6.16	0.00	0.75	1.25	1.50	1.75	1.42
6.14	0.25	0.75	1.50	1.50	2.00	1.54
6.12	0.25	1.00	1.50	1.75	2.00	1.66
6.10	0.50	1.00	1.50	1.75	2.25	1.78
6.08	0.50	1.25	1.75	2.00	2.25	1.90
6.06	0.50	1.25	1.75	2.00	2.25	2.02
6.04	0.75	1.25	2.00	2.00	2.50	2.13
6.02	0.75	1.50	2.00	2.25	2.50	2.25
6.00	1.00	1.50	2.00	2.25	2.75	2.37
5.95	1.00	1.75	2.25	2.50	3.00	2.67
5.90	1.25	2.00	2.50	3.00	3.25	2.96
5.85	1.50	2.25	2.75	3.25	3.50	3.26
5.80	1.75	2.50	3.25	3.50	3.75	3.56
5.75	2.00	2.75	3.50	3.75	4.25	3.85
5.70	2.25	3.00	3.75	4.00	4.50	4.15
5.65	2.50	3.25	4.00	4.25	4.75	4.45
5.60	2.75	3.50	4.25	4.50	5.00	4.74
5.55	3.00	3.75	4.50	4.75	5.25	5.04
5.50	3.25	4.00	4.75	5.25	5.50	5.34
5.40	3.75	4.50	5.25	5.75	6.25	5.93
5.30	4.25	5.00	5.75	6.25	6.75	6.52

Lime recommendations in the table above are based on the use of a liming material equivalent in neutralizing power to 100% CaCO₃. For application rates of liming material that is less than 100% neutralizing power of CaCO₃ (pure calcium carbonate) use the table in this section, Lime Rate Adjustment for CCE.

Lime Recommendations Using Other Testing Labs

For approved labs other than Virginia Tech, use the lime recommendations given by the lab. IF there are no recommendations with the soil analysis, use the table below for A&L Agricultural, Spectrum Analytical, and Brookside Laboratories.

Table 3-2
Lime Application Rate¹ (tons/acre) to achieve desired pH based on SMP Buffer Test

Soil-Buffer pH	Target Soil pH				
	5.2	5.8	6.2	6.5	6.8
6.9	0	0.25	0.50	0.50	0.75
6.8	0.50	0.75	1.00	1.00	1.25
6.7	1.00	1.50	1.50	1.75	2.00
6.6	1.50	1.75	2.00	2.25	2.50
6.5	2.00	2.25	2.50	3.00	3.25
6.4	2.75	3.00	3.25	3.75	4.00
6.3	3.25	3.50	4.00	4.50	5.00

¹ Ag-ground lime of 90% plus total neutralizing power (TNP) or CaCO₃ equivalent., and fineness of 40% < 100 mesh, 50% < 60 mesh, 70% < 20 mesh and 95% < 8 mesh. Adjustments in the application rate should be made for liming materials with different particle sizes, or neutralizing value.

Waters Agricultural Laboratories uses the Adams and Evans single buffer method which uses a different table for recommendations than the Mehlich or the SMP tables supplied here. In the event you would have lab reports from Waters Lab, which do not have lime recommendations, contact the lab for recommendations based on their analysis procedure.

Lime Rate Adjustment for CCE

Using the lime application rate to achieve the desired target pH based on the soil test buffer pH, use the table below to adjust that rate based on the % CCE of the liming material to be applied.

Table 3-3
Lime Application Rate Adjustment Based on % CCE of Material

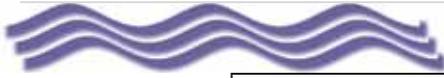
T/ac*	% CCE of Your Liming Material										
	50	60	70	80	90	100	110	120	130	140	150
0.5	1.00	0.75	0.75	0.75	0.50	0.50	0.50	0.50	0.50	0.25	0.25
1.0	2.00	1.75	1.50	1.25	1.00	1.00	1.00	0.75	0.75	0.75	0.75
1.5	3.00	2.50	2.25	2.00	1.75	1.50	1.25	1.25	1.25	1.00	1.00
2.0	4.00	3.25	2.75	2.50	2.25	2.00	1.75	1.75	1.50	1.50	1.25
2.5	5.00	4.25	3.50	3.25	2.75	2.50	2.25	2.00	2.00	1.75	1.75
3.0	6.00	5.00	4.25	3.75	3.25	3.00	2.75	2.50	2.25	2.25	2.00
3.5	7.00	5.75	5.00	4.50	4.00	3.50	3.25	3.00	2.75	2.50	2.25
4.0	8.00	6.75	5.75	5.00	4.50	4.00	3.75	3.25	3.00	2.75	2.75

* Lime recommendation to adjust pH as determined from soil test analysis.

7. Soil Test Results

See attached file.

SAMPLE ID	
RAD 01	Medians
RAD 02	River View Park
RAD 03	Hodge Field
RAD 04	Sunset park
RAD 05	Dobbins
RAD 06	Bisset #1
RAD 07	Bisset #2
RAD 08	New River Complex
RAD 09	Veterans Field
RAD 10	Dog Park
RAD 11	Wildwood Park
RAD 12	Haven Heights
RAD 13	McHarg
RAD 14	Belle Heth
RAD 15	Radford Memorial
RAD 16	High School

**Standard Operating Procedure:****Good Housekeeping – ASPHALT PROGRAM**

Date: 6/30/2016* Version: 1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of the **Good Housekeeping – ASPHALT PROGRAM** SOP is to provide guidance for City employees to control pollutant discharges during asphalt program construction and reconstruction activities, including maintenance, repair, replacement, and installation of asphalt pavement in the City. These procedures are critical steps that must be included in the basic practices of the Asphalt Program construction by City staff and contracted staff.

2.0 Scope

At Asphalt Program construction sites.

3.0 Responsibility

All City employees or City-contracted personnel who conduct asphalt paving construction and reconstruction.

3.1 Managers and Supervisors

All Supervisors are responsible for ensuring their staff's compliance with the correct methods of dealing with Building Maintenance. This includes City contractors who conduct asphalt paving construction and reconstruction. Supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

City Employee's and outside contract personnel are responsible for following the City's **Good Housekeeping – ASPHALT PROGRAM** SOP's "Do's" and "Dont's"



4.0 Procedures

“DO’s”

- Cover inlets and manholes with protection during application of seal coat, tack slurry, slurry seal, and/or fog seal. Conduct operations during dry weather.
- Place drip pans, absorbent materials, or plastic under equipment when not in use to catch & contain drips & leaks to prevent soil contamination and runoff.
- When possible, recycle broken asphalt and old or spilled asphalt. If it cannot be recycled, collect and remove and dispose offsite as solid waste in accordance with standard specifications.
- Substances used to coat transport trucks, asphalt trucks, and spreading equipment shall not contain soap, shall be non-foaming and non-toxic.
- During thermoplastic striping, the pre-heater must be filled carefully to prevent splashing or spilling of materials; the same with filling the melting tanks during pavement marker application; leave 6” at top of pre-heater, and also in the melting tanks, to allow room for material to move and splash when vehicles are deadheaded.
- When servicing or filling melting tanks, ensure all pressure is released before removing lids to avoid spills.
- Monitor all asphalt program equipment closely for leaks; use drip pan as needed.

“DONT’s”

- **DO NOT** allow any materials or sediment to enter storm drain system. Apply temporary perimeter controls like silt fence until stabilized or permanent controls are in place.
- **DO NOT** apply seal coat, tack coat, slurry seal, or fog seal when rain is predicted; limit paving applications in wet weather.
- **DO NOT** let petroleum or petroleum covered aggregate enter the storm system during chip sealing application and sweeping.
- **DO NOT** transfer or load bituminous materials, or pre-heat, transfer or load thermoplastic near drain inlets or waterways.
- **DO NOT** wash down or hose down the paving equipment except where the wash water will only enter the sanitary sewer drain as an approved discharge.
- **DO NOT** repair asphalt paving equipment on a roadside surface; transport to the maintenance shop for repairs.
- **DO NOT** coat transport trucks and spreading equipment with soap, foaming products, or toxic substances.
- **DO NOT** fill pre-heaters or melting tanks beyond 6” from the top to leave room for splashing.

**5.0 Annual Review of Procedure/Training**

Supervisors are responsible for reviewing this procedure at least once each year with all employees. Any Supervisors who hire contractors are required to convey the requirements of this procedure to the contractors.

6.0 Regulatory impacts

Discharges of any material other than stormwater are prohibited by the City of Radford's illicit Discharge Ordinance. This offense is punishable by civil and criminal penalties as illicit discharges constitute a threat to the public health, safety, and welfare, and are deemed public nuisances. Proper handling and disposal of landscape wastes will help keep this material out of the stormwater drainage network.



**Standard Operating Procedure:
Building Maintenance**

Date: 6/30/2016* Version: 1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of the **Building Maintenance** SOP is to provide guidance for City employees to control the maintenance and construction activities that take place at municipal facilities and their surrounding grounds with procedures to mitigate the contaminated debris, trash, and potential chemicals from reaching our stormwater system.

These procedures are simple steps that must be included in everyday work activities to protect stormwater from contact with pollutants and are a joint responsibility of everyone in the work place conducting maintenance on buildings.

2.0 Scope

All buildings and facilities where maintenance activities occur.

3.0 Responsibility

All City employees or City-contracted personnel who work/conduct maintenance on City buildings, including painting, window washing, sidewalk cleaning and the like, and building contractors.

3.1 Managers and Supervisors

All Supervisors are responsible for ensuring their staff's compliance with the correct methods of dealing with Building Maintenance. This includes City contractors who work/conduct maintenance on City buildings. Supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

City Employee's and outside contract personnel are responsible for following the City's **Building Maintenance** SOP's "Do's" and "Dont's"



4.0 Procedures

“DO’s”

- Remove trash and debris around building and grounds daily or as needed.
- Place temporary inlet protection at stormwater inlets to catch contaminants and wash water from maintenance activities.
- Have spill cleanup materials available and ready to go during painting activities or any activity that has chemicals standing by for use.
- Clean up paint or other spills promptly, with DRY methods, if possible.
- Oversee contractors to ensure that correct procedures are followed and contaminants are kept to a minimum, and contained.
- Ask the contractor for a list of chemicals they will be bringing on site for the maintenance work, and how they will control, contain and dispose of the unused portion of the chemicals and materials.
- Expect contractors to follow proper cleanup procedures; monitor progress.
- Keep maintenance equipment clean; do not allow a buildup of wastes. Maintain a record of contractor work, and if any spills/problems occurred.

“DONT’s”

- **DO NOT** let trash and waste accumulate at or around the building.
- **DO NOT** transfer, pour or dispose of maintenance materials outdoors in parking lots, near or in storm drains, drainage ditches, or any other location where they can runoff into the storm drain system.
- **DO NOT** let maintenance wash water, chemicals, paint, or any other maintenance residue enter the storm drain system.
- **DO NOT** handle containers alone if awkward or require over-exertion on your part. Get help and spread the weight load.
- **DO NOT** repair maintenance equipment outside; use a covered, designated area for such repairs.
- **DO NOT** hose down debris collected from sidewalk cleaning (unless floor drain is connected to the sanitary sewer); use dry sweeping method and dispose properly in trash.
- **DO NOT** let contractors conduct maintenance in conflict with proper procedures for the work; monitor closely.

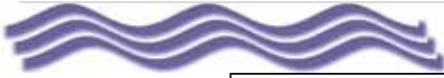
5.0 Annual Review of Procedure/Training

Supervisors are responsible for reviewing this procedure at least once each year with all employees. Any Supervisors who hire contractors are required to convey the requirements of this procedure to the contractors.

6.0 Regulatory impacts

Discharges of any material other than stormwater are prohibited by the City of Radford’s illicit Discharge Ordinance. This offense is punishable by civil and criminal penalties as illicit discharges constitute a threat to the public health, safety, and welfare, and are deemed public nuisances. Proper handling and disposal of landscape wastes will help keep this material out of the stormwater drainage network.

**Printed versions of SOPs with previous review dates are considered current as long as the version number is the same as the current version.*



**Standard Operating Procedure:
Detention Pond Maintenance**

Date: 6/30/2016* Version: 1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of the **Detention Pond Maintenance** SOP is to provide guidance for City employees to control pollutant discharges by keeping these stormwater facilities operating properly with routine maintenance including mowing and debris control. These procedures are critical steps that must be included during pond maintenance on an annual basis, as an intermediate inspection, or on an as-needed basis after a storm event.

2.0 Scope

This procedure applies to all detention ponds currently existing at City facilities.

3.0 Responsibility

All City employees or City-contracted personnel responsible for maintenance of stormwater features.

3.1 Managers and Supervisors

All Supervisors are responsible for ensuring their staff's compliance with the correct methods of dealing with Detention Pond Maintenance. This includes non-City companies that are contracted to perform work for the City. Supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

City Employee's and outside contract personnel are responsible for following the City's **Detention Pond Maintenance** SOP's "Do's" and "Dont's"



4.0 Procedures

“DO’s”

- Inspect inlet and outlet works initially on a monthly basis until the appropriate timing of maintenance is established; then conduct maintenance per schedule.
- Conduct maintenance per schedule, or on an as-needed basis as identified during an annual inspection or on an as-needed basis after a storm event.
- Keep screen and/or trash rack free from debris using established maintenance schedule or on an as-needed basis after a storm event; notify supervisor if screen or rack is in need of maintenance.
- Report damage/compromise to side slopes, pond banks, inlet pipe, trickle channels, outlet structure; prepare a repair schedule and complete repairs.
- Remove vegetation adjacent to outlet works that may interfere with operation; note if noxious weeds present and notify supervisor.
- Remove debris and trash from the detention pond and surrounding area and dispose properly.
- When mowing, collect grass clippings and all other clippings/trimmings and take offsite for disposal or dispose in trash on site.
- Notify supervisor any hazardous conditions or materials found during inspection.

“DONT’s”

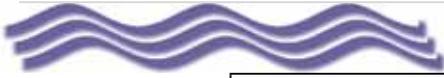
- **DO NOT** mow detention pond too close to the surface; height should be 4 to 6 inches to maintain healthy grasses.
- **DO NOT** clean equipment or conduct maintenance on equipment in the detention pond, or near a storm drain or other stormwater conveyance feature.
- **DO NOT** leave grass clippings or trimming residue in pond; collect and dispose of in trash.
- **DO NOT** apply landscaping chemicals in pond area, or in areas where the residue could make it into the pond during a storm event.
- **DO NOT** attempt to clean up any unidentified or possibly hazardous materials found in or around pond during inspections; notify supervisor immediately upon discovery of hazardous materials.

5.0 Annual Review of Procedure/Training

Supervisors are responsible for reviewing this procedure at least once each year with all employees. Any Supervisors who hire contractors are required to convey the requirements of this procedure to the contractors.

6.0 Regulatory impacts

Discharges of any material other than stormwater are prohibited by the City of Radford’s illicit Discharge Ordinance. This offense is punishable by civil and criminal penalties as illicit discharges constitute a threat to the public health, safety, and welfare, and are deemed public nuisances. Proper handling and disposal of landscape wastes will help keep this material out of the stormwater drainage network.



**Standard Operating Procedure:
Drainageway Maintenance**

Date: 6/30/2016* Version: 1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of the **Drainageway Maintenance** SOP is to provide guidance for City employees to control pollutant discharges by promoting maintenance of our primary "filter" for stormwater runoff reaching 'waters of the state', including our creeks, drainage channels, ditches, and grass swales with or without active flows. Drainageways can be a source of pollutants if not properly maintained. These procedures are critical steps that must be included for all maintenance activities in City drainageways.

2.0 Scope

This procedure applies to City drainageways and related surface water conveyance features.

3.0 Responsibility

All City employees or City-contracted personnel who maintain stormwater conveyance structures.

3.1 Managers and Supervisors

All Supervisors are responsible for ensuring their staff's compliance with the correct methods of dealing with Drainageway Maintenance. This includes non-City companies that are contracted to perform work for the City. Supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

City Employee's and outside contract personnel are responsible for following the City's **Drainageway Maintenance** SOP's "Do's" and "Dont's"



4.0 Procedures

“DO’s”

- Conduct maintenance per schedule, or on an as-needed basis as identified during an inspection based on identified sediment and debris buildup, or on an as-needed basis after a storm event.
- Remove debris and trash from the drainageway and surrounding area and dispose properly before mowing; make note if noxious weeds present and notify supervisor.
- Inspect drainageway outfalls and trickle channel features (if applicable) while in field doing maintenance; note any feature that needs repair and/or replace due to defective materials; note any unusual conditions in the drainageway during the inspection and report them.
- Report any suspected illegal connections or other waste dumping activities in the drainageway; these would include flows during dry-weather conditions, or unusual fluids. These may require special disposal operations; report to Supervisor.
- Clean out sediment from culverts in drainageways, ditches and swales; check if needs to re-graded (invert has filled in with fine-graded sediments). When mowing, collect grass clippings and all other clippings/trimmings and take offsite for disposal or dispose in trash.
- Maintain a longer riparian fringe at top of bank when mowing to catch pollutants.
- Report bare ground that may lead to erosion; re-vegetate as necessary. Report locations of grass clippings, etc being placed in drainageway; remove these wastes.

“DONT’s”

- **DO NOT** mow drainageways, ditches, or swales too close to the surface; height should be 4 to 6 inches to maintain healthy grasses.
- **DO NOT** clean equipment or conduct maintenance on equipment in the drainageway, channel, ditch, or near a storm drain or other stormwater conveyance feature.
- **DO NOT** leave grass clippings or trimming residue in channel; collect and dispose of in trash.
- **DO NOT** apply landscaping chemicals in channel area, or in areas where the residue could make it into the drainageway during a storm event.
- **DO NOT** make contact with anyone suspected of an illicit discharge without first contacting supervisor for instructions.
- **DO NOT** attempt to clean up any unidentified or possibly hazardous materials found in or around channel during inspections; notify supervisor immediately upon discovery.

5.0 Annual Review of Procedure/Training

Supervisors are responsible for reviewing this procedure at least once each year with all employees. Any Supervisors who hire contractors are required to convey the requirements of this procedure to the contractors.

6.0 Regulatory impacts

Discharges of any material other than stormwater are prohibited by the City of Radford’s illicit Discharge Ordinance. This offense is punishable by civil and criminal penalties as illicit discharges constitute a threat to the public health, safety, and welfare, and are deemed public nuisances. Proper handling and disposal of landscape wastes will help keep this material out of the stormwater drainage network.

**Printed versions of SOPs with previous review dates are considered current as long as the version number is the same as the current version.*



**Standard Operating Procedure:
Vehicle and Equipment Storage**

Date: 6/30/2016* Version: 1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of the **Vehicle and Equipment Storage** SOP is to provide guidance for City employees to control pollutant discharges by promoting proper storage of vehicles and equipment for longer periods of time that have the potential to leak, spill, or release chemicals or hazardous materials. The potential exists for vehicle or equipment to leak fluids that then are wither infiltrating into the ground or are carried off with stormwater. These procedures are critical steps that must be included in any long-term storage activities, at all city or City-contracted facilities that store vehicles and equipment for longer periods of time.

2.0 Scope

At all City or at City-contracted facilities where vehicles or equipment are stored or parked for longer periods of time.

3.0 Responsibility

All City or City-contracted employees who oversee the long-term storage of vehicles and equipment.

3.1 Managers and Supervisors

All Supervisors are responsible for ensuring their staff's compliance with the correct methods of dealing with Vehicle and Equipment Storage. This includes City-contracted employees who oversee the long-term storage of vehicles and equipment. Supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

City Employee's and outside contract personnel are responsible for following the City's **Vehicle and Equipment Storage** SOP's "Do's" and "Dont's"



4.0 Procedures

“DO’s”

- Monitor parked vehicles and equipment closely for leaks; use drip pans as needed. Check drip pans frequently and dispose of fluids appropriately.
- Monitor vehicle and equipment fluids closely, and keep fluids at proper levels.
- Have spill cleanup materials available and ready to go to address any leaks or spills.
- Clean up spills promptly, with DRY methods (rags and absorbents), if possible. Clean up is not complete until absorbent is swept up and disposed properly.
- Conduct daily inspections to ensure that all vehicles and equipment are stored correctly.
- Keep clutter around stored vehicles and equipment to a minimum; a more organized storage area is easier to both spot a leak or spill, as well as to properly clean up.

“DONT’s”

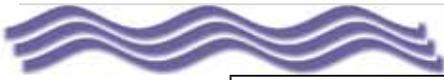
- **DO NOT** store outdoors a vehicle or piece of equipment that is KNOWN to have a leak; move indoors and schedule repair.
- **DO NOT** allow exposure of buildup of oil and grease on vehicle or equipment being stored outdoors. Clean off buildup before storing outdoors.
- **DO NOT** wash or hose down any outdoor vehicle or equipment storage areas except where the wash water will only enter the sanitary sewer drain as an approved discharge.
- **DO NOT** repair equipment or vehicles outside; use a covered, designated area for such repairs.
- **DO NOT** allow clutter and mess to conceal any leak problem in the storage area.

5.0 Annual Review of Procedure/Training

Supervisors are responsible for reviewing this procedure at least once each year with all employees. Any Supervisors who hire contractors are required to convey the requirements of this procedure to the contractors.

6.0 Regulatory impacts

Discharges of any material other than stormwater are prohibited by the City of Radford’s illicit Discharge Ordinance. This offense is punishable by civil and criminal penalties as illicit discharges constitute a threat to the public health, safety, and welfare, and are deemed public nuisances. Proper handling and disposal of landscape wastes will help keep this material out of the stormwater drainage network.



**Standard Operating Procedure:
Good Housekeeping**

Date: 6/30/2016* Version: 1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of **Good Housekeeping** is to control pollutant discharges by promoting efficient and safe practices (storage, use, cleanup, and disposal) when handling materials potentially harmful to stormwater such as fertilizers, pesticides, herbicides, cleaning solutions, paint products, and automotive products. Good housekeeping is simply the practice of keeping **all materials, supplies and containers well organized; storing materials securely** when not in use; **cleaning up after work activities**; and **disposing of materials properly**. These procedures are simple steps that must be included in everyday work activities to protect stormwater from contact with pollutants, and are a joint responsibility of everyone in the work place.

2.0 Scope

This procedure applies to all offices where materials stored could be spilled; all outdoor work areas where materials are stored or used; and all areas that store or use equipment that has the potential to spill or leak.

3.0 Responsibility

All City employee's or City-contracted employees who work with any chemicals, cleaning solutions, paint products, automobile fluids, or any materials that could be spilled; or work with any equipment.

3.1 Managers and Supervisors

All Supervisors are responsible for ensuring their staff's compliance with the correct methods of Good Housekeeping. This includes non-City companies that are contracted to perform work for the City. Supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

City Employee's and outside contract personnel are responsible for following the City's **Good Housekeeping** SOP's "Do's" and "Dont's"

**Printed versions of SOPs with previous review dates are considered current as long as the version number is the same as the current version.*



4.0 Procedures

“DO’s”

- Keep all work areas neat and well organized.
- Sweep or pick up all trash and debris daily or as needed.
- Have spill cleanup materials available and ready to go.
- Clean up spills promptly, with DRY methods, if possible.
- Conduct daily inspections to ensure that equipment and materials are being handled, disposed and stored correctly.
- Recycle or dispose of all wastes properly and promptly.
- Keep equipment clean; do not allow a buildup of oil/grease.
- Monitor parked vehicles closely for leaks; use drip pan as needed.
- Keep unused containers closed with a tight fitting lid and label.

“DONT’s”

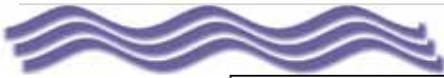
- **DO NOT** let waste accumulate at or around the work place.
- **DO NOT** transfer, pour or dispose of materials outdoors, near or in storm drains, or drainage ditches. Use signage to reinforce.
- **DO NOT** wash down or hose down any outdoor Dumpster or storage areas except where the wash water will only enter the sanitary sewer drain as an approved discharge.
- **DO NOT** handle containers alone if awkward or require over-exertion on your part. Get help and spread the weight load.
- **DO NOT** repair equipment or vehicles outside; use a covered, designated area for such repairs.
- **DO NOT** hose down work area (unless floor drain is connected to the sanitary sewer); use dry sweeping method if possible.
- **DO NOT** place a waste in an area not designated for its hazardous nature or if that areas’ disposal method is not a recommended one.

5.0 Annual Review of Procedure/Training

Supervisors are responsible for reviewing this procedure at least once each year with all employees. Any Supervisors who hire contractors are required to convey the requirements of this procedure to the contractors.

6.0 Regulatory impacts

Discharges of any material other than stormwater are prohibited by the City of Radford’s illicit Discharge Ordinance. This offense is punishable by civil and criminal penalties as illicit discharges constitute a threat to the public health, safety, and welfare, and are deemed public nuisances. Proper handling and disposal of landscape wastes will help keep this material out of the stormwater drainage network.

**Standard Operating Procedure:****IDDE: Outfall Screening**

Date: 6/30/2016* Version: 1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of the **IDDE: Outfall Screening** SOP is to provide basic guidance for City employees conducting illicit discharge inspections of storm drainage system outfalls.

2.0 Scope

This procedure applies to City outfalls as shown on the Stormwater Management Map located on the City's GIS website or the print map in the City's Engineering Department.

3.0 Responsibility

All City employees or City-contracted personnel who are responsible for and/or who will conduct illicit discharge inspections.

3.1 Managers and Supervisors

All Supervisors are responsible for ensuring their staff's compliance with the correct methods of dealing with IDDE: Outfall Screening inspections. This includes non-City companies that are contracted to perform work for the City. Supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

City Employee's and outside contract personnel are responsible for following the City's **IDDE: Outfall Screening** SOP's "Do's" and "Dont's"



4.0 Procedures

4.1 Do's and Don't's

"DO's"

- Inspections are to occur during dry weather (no runoff producing precipitation in last 48 hours).
- Conduct inspections with at least two staff per crew.
- Conduct inspections during low groundwater and leaf off conditions if possible.
- Complete Site Info section on Outfall Field Screening Report Form before leaving the office.
- Ensure outfall is accessible
- Characterize the outfall by recording information on the Outfall Field Screening Report
- Photograph the outfall with a digital camera or Trimble GPS unit.
- If dry weather flow is present and does not appear to be an illicit discharge, attempt to identify the source of the flow (document flow for future comparison).
- Document dry outfalls for future comparison.
- Follow procedure below in if an illicit discharge is suspected.

"DONT's"

- **DO NOT** enter private property without permission.
- **DO NOT** Inspect outfalls if it is not safe to do so.

4.2 Recommended Equipment List:

1. System map (Paper or GIS)
2. Outfall Field Screening Report Forms
3. City identification
4. Digital camera (spare batteries)
5. Cell phone
6. Clip board and pencils
7. Flashlight (spare batteries)
8. Disposable gloves
9. Folding wood ruler
10. Temperature probe
11. pH probe
12. Ammonia test strips
13. Five 1-liter (polyethylene) sample bottles
14. Watch with second hand
15. Calculator
16. Hand sanitizer
17. Safety vests
18. First aid kit
19. Machete
20. Cooler
21. Permanent marker



4.3 Suspected Illicit Discharge Procedures

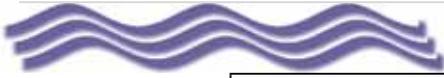
- Contact the Public Works Superintendent immediately.
- Use Outfall Field Screening Report Form to document observations
- Visually inspect general area for possible sources
- Take photos
- Estimate flow
- Collect samples if they would help with source identification.
- Attempt to locate where the discharge is coming from.

5.0 Annual Review of Procedure/Training

Supervisors are responsible for reviewing this procedure at least once each year with all employees. Any Supervisors who hire contractors are required to convey the requirements of this procedure to the contractors.

6.0 Regulatory impacts

Discharges of any material other than stormwater are prohibited by the City of Radford's illicit Discharge Ordinance. This offense is punishable by civil and criminal penalties as illicit discharges constitute a threat to the public health, safety, and welfare, and are deemed public nuisances. Proper handling and disposal of landscape wastes will help keep this material out of the stormwater drainage network.



**Standard Operating Procedure:
Inlet, Pipe & Vault Cleaning and Disposal**

Date: 6/30/2016* Version: 1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of the **Inlet, Pipe & Vault Cleaning and Disposal** SOP is to provide guidance for City employees to control pollutant discharges by promoting maintenance of our primary "filter" for stormwater runoff before it enters a waterway. Any pollutant that ends up on a street or in a parking lot can end up in the stormwater conveyance system which then transports urban runoff and snow melt to the waterway. Maintaining street inlets, storm sewers, culverts, vaults, and other conveyance features keep sediment and debris buildup from entering the stormwater system. This is accomplished most often using a Vactor Truck for the cleaning or pressure application, an operation which includes disposal of the wastes generated from the cleaning. Because wastes resulting from cleanup can contribute to the problem, the disposal of the wastes must be managed appropriately. These procedures are critical steps that must be included in every trip out in the VactorTruck, every transfer location during the day, and every trip back in to the Public Works Facility

2.0 Scope

This procedure applies to City storm drain inlets, storm sewers, outfalls, culverts, drainage ditches, catch basins, swales, vaults, and related.

3.0 Responsibility

All City employees or City-contracted personnel who are responsible for and/or who operate Vactor Truck equipment to maintain stormwater conveyance structures.

3.1 Managers and Supervisors

All Supervisors are responsible for ensuring their staff's compliance with the correct methods of dealing with Inlet, pipe, vault, culvert and similar cleaning. This includes non-City companies that are contracted to perform work for the City. Supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

City Employee's and outside contract personnel are responsible for following the City's **Inlet, Pipe & Vault Cleaning and Disposal** SOP's "Do's" and "Dont's"

**Printed versions of SOPs with previous review dates are considered current as long as the version number is the same as the current version.*



4.0 Procedures

“DO’s”

- Conduct stormwater system maintenance per schedule or as needed based on identified sediment and debris buildup; remove debris, rubbish, and sediment.
- Discharge Vector Truck wastes and flushing water at the Cloyd’s Mountain Landfill per the New River Resource Authority’s Guidelines.
- Inspect conveyance features while in field; note any conveyance feature that needs repair and/or replace due to defective materials.
- Report any suspected illegal connections or other waste dumping activities.
- Transport wastes from Vector Truck activities to a permanent disposal site as soon as possible, and dispose according to all regulations.
- Monitor parked Vector Truck closely for leaks; use drip pan as needed.
- Be on the lookout for contaminated sediments (oil sheen, floating wastes); it may require special disposal operations; report to Supervisor.

“DONT’s”

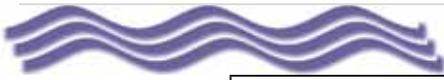
- **DO NOT** conduct Vector Truck flushing activities when a heavy rain is forecast.
- **DO NOT** transfer or dispose of collected sediments outdoors, near or in storm drains, or drainage ditches.
- **DO NOT** wash down/ hose down the Vector truck except where the wash water will only enter an approved discharge point (i.e. sanitary sewer, or designated cleanout area like the Cloyd’s Mountain Landfill)
- **DO NOT** discharge any contaminated stormwater from inlet, culvert, or other conveyance cleaning into surface water.
- **DO NOT** repair Vector Truck equipment or vehicles outside; use a covered, designated area for such repairs.
- **DO NOT** temporarily store Vector Truck wastes in areas where the debris may be returned back to storm sewer system with the next rainfall; transport to permanent disposal as soon as possible.

5.0 Annual Review of Procedure/Training

Supervisors are responsible for reviewing this procedure at least once each year with all employees. Any Supervisors who hire contractors are required to convey the requirements of this procedure to the contractors.

6.0 Regulatory impacts

Discharges of any material other than stormwater are prohibited by the City of Radford’s illicit Discharge Ordinance. This offense is punishable by civil and criminal penalties as illicit discharges constitute a threat to the public health, safety, and welfare, and are deemed public nuisances. Proper handling and disposal of landscape wastes will help keep this material out of the stormwater drainage network.



**Standard Operating Procedure:
Landscape Chemical Application**

Date: 6/30/2016* Rev: 10/13/2016
Version: 1.1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of the Landscape Chemical Application procedure is to supplement the City's **Nutrient Management Plan** during routine landscape maintenance activities is to minimize or prevent the discharge of pesticides and fertilizers deposited into the drainage system by promoting proper storage and application of chemicals during landscape maintenance activities. These procedures are critical steps that must be included in every landscape maintenance activity that includes chemical application to either control weeds or pests or to provide adequate fertilization.

2.0 Scope

This procedure applies to all City employees or City-contracted services, who work with any landscape chemicals, and all municipal facilities and operations where pesticides, herbicides or fertilizers are stored, mixed, applied, recycled or disposed.

3.0 Responsibility

All City staff are responsible for preventing illicit discharges from their operations.

3.1 Managers and Supervisors

The Public Works Superintendent, Supervisors and the City's Horticulturist are responsible for ensuring their staff's compliance with the correct methods of disposing of landscape waste materials. This includes non-City companies that are contracted to perform landscaping functions. Supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

City Employee's and outside contract personnel are responsible for following the City's **Nutrient Management Plan** and the **Landscape Chemical Application** SOP's "Do's" and "Don'ts"

**Printed versions of SOPs with previous review dates are considered current as long as the version number is the same as the current version.*



4.0 Procedures

“DO’s”

- Follow the City of Radford’s ***Nutrient Management Plan***.
- Utilize soil test analyses to optimize fertilizer applications.
- Follow label directions when storing, handling, mixing, recycling and disposing of chemicals and empty container; properly calibrate application equipment to ensure proper amount of chemicals are applied.
- Have spill cleanup materials available and ready to go in case of spill; clean up chemical spills promptly, with DRY methods, if possible.
- When watering landscaped area after fertilizer application, take care to not allow water to runoff into streets or other conduits to the waterways.
- Keep all fertilizer chemicals covered to keep dry and reduce water damage.
- Keep application equipment clean; do not allow a buildup of chemicals.
- Keep unused containers closed tightly; use a tight fitting lid; label containers.
- Keep all pesticide and herbicide chemicals in leak proof shelters away from elements to help prevent contamination of the stormwater system.
- Recycle or dispose of all spent or excess chemicals properly and promptly.

“DONT’s”

- **DO NOT** keep chemicals in a damaged container; replace or transfer chemicals to new holding containers.
- **DO NOT** transfer, pour or dispose of chemicals outdoors, near or in storm drains, or drainage areas; transfer over impervious surface so spills can’t seep into ground.
- **DO NOT** apply chemicals if not had proper training on uses, types, amounts, and application requirements.
- **DO NOT** handle chemical containers alone if awkward or require over-exertion on your part. Get help and spread the weight load so accidents don’t happen.
- **DO NOT** over-purchase landscaping chemicals; keep only necessary quantities on hand.
- **DO NOT** over-water landscape areas after fertilizer application such that water discharges off-site, to the street or to the waterway directly.
- **DO NOT** apply landscape chemicals to frozen ground.

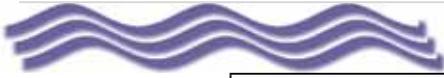
5.0 Annual Review of Procedure/Training

Supervisors are responsible for reviewing this procedure at least once each year with all employees who perform routine landscaping duties. Any Supervisors who hire contractors to perform these job duties are required to convey the requirements of this procedure to the contractors.

6.0 Regulatory impacts

Discharges of any material other than stormwater are prohibited by the City of Radford’s illicit Discharge Ordinance. This offense is punishable by civil and criminal penalties as illicit discharges constitute a threat to the public health, safety, and welfare, and are deemed public nuisances. Proper handling and disposal of landscape wastes will help keep this material out of the stormwater drainage network.

**Printed versions of SOPs with previous review dates are considered current as long as the version number is the same as the current version.*



Standard Operating Procedure:
Disposal and Maintenance of Landscaping/Organic Waste
Date: 6/30/2016* Version: 1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of this procedure is to ensure that wastes generated as a result of landscaping or landscape maintenance operations do not clog or cause contamination of the stormwater sewer system.

2.0 Scope

This procedure applies to all landscaping maintenance activities and operations performed by City employees or outside contract companies.

3.0 Responsibility

All City employees **or City-contracted companies** responsible for maintenance of landscaped features.

3.1 Managers and Supervisors

The Public Works Superintendent and Supervisors are responsible for ensuring their staff's compliance with the correct methods of disposing of landscape waste materials. This includes non-City companies that are contracted to perform landscaping functions. Supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

City Employee's and outside contract personnel are responsible for following the City's **Disposal and Maintenance of Landscaping/Organic Waste** SOP's Procedures and "Do's" and "Dont's"



4.0 Procedures

4.1 Vegetation Maintenance

All vegetation shall be maintained in such a way as keeps stormwater conveyances, including drains, clear and free of vegetative debris.

4.2 Landscape Waste Generation

Any organic, plant or soil wastes generated as a result of landscape maintenance, including but not limited to leaves, soil cores, grass clippings, or other debris shall be handled in an environmentally responsible manner to reduce likelihood of this material entering stormwater conveyances or local streams.

4.2.1 Grass Clippings

Grass clippings shall be collected or blown back on to grassed areas. In no cases shall grass clippings be blown onto pavement, where they can then be washed down a storm drain.

4.2.3 Leaves

Leaves shall be picked up as promptly as practical in order to keep storm drains clear from obstruction, which could cause damaging flooding, and keep leaves from entering the storm sewer system. In the event leaves cannot be picked up in a timely manner, they should be blown back onto vegetated surfaces.

4.2.4 Sticks, limbs, or whole vegetation

Limbs, sticks, or other vegetative debris generated either as a result of maintenance activities or from natural causes should be cleaned up immediately upon generation or discovery. If vegetative debris cannot be removed from a site in a timely manner, it should be moved to a vegetated area where it cannot block stormwater conveyances or storm drains.

4.3 Proper Disposal

The City has a landscape compost site located at Crackers Neck. All vegetative waste that cannot be re-used on site should be taken to the compost site. Contractors performing work, unless otherwise directed, are responsible for proper offsite disposal of materials.

**“DO’s”**

- Inspect newly landscaped areas initially on a monthly basis until the appropriate timing of maintenance is established; then conduct maintenance per schedule.
- Conduct routine maintenance per schedule, or on an as-needed basis as identified during an inspection, or on an as-needed basis after a storm event.
- Oversee landscape contractors to ensure that correct procedures are followed and contaminants are kept to a minimum, and contained.
- Ask the contractor for a list of items they will be bringing on site for landscape work, and how they will control, contain and dispose of the materials not used.
- Report damage/compromise to landscape areas or bare areas void of vegetation that may result in sediment being transported off site; prepare a repair schedule & complete repairs.
- Remove paper, debris and trash from the landscaped and surrounding areas, and rake leaves and dispose properly prior to mowing activities.
- After mowing & pulling & trimming, collect grass clippings and all other clippings/trimmings/wastes and take offsite for disposal or dispose in trash on site.
- Notify supervisor of any hazardous conditions or materials found during the performance of maintenance activities.

“DONT’s”

- **DO NOT** allow grass clippings to be blown onto pavement, where they can then be washed down a storm drain.
- **DO NOT** place leaves onto the roadway or sidewalk, where they can then be washed down a storm drain.
- **DO NOT** clean equipment or conduct maintenance on equipment on or near the landscaped area, or near a storm drain or other stormwater conveyance feature.
- **DO NOT** leave grass clippings or trimming residue on landscaped area; collect and dispose of in trash.
- **DO NOT** apply landscaping chemicals in areas where the residue could make it into the drainageway, channel, ditch, or detention pond (if applicable) during a storm event (see **Chemical Application SOP** for procedures).
- **DO NOT** water if chemical applications resulted in excess fertilizer, herbicide or pesticide on the landscaped areas or on the sidewalks or parking lots. Sweep up excess & dispose properly before applying water.
- **DO NOT** attempt to clean up any unidentified or possibly hazardous materials found on or around landscaped areas during maintenance; notify supervisor immediately upon discovery of hazardous materials.

5.0 Annual Review of Procedure/Training

Supervisors are responsible for reviewing this procedure at least once each year with all employees who perform routine landscaping duties. Any Supervisors who hire contractors to perform these job duties are required to convey the requirements of this procedure to the contractors.

6.0 Regulatory impacts

Discharges of any material other than stormwater are prohibited by the City of Radford’s illicit Discharge Ordinance. This offense is punishable by civil and criminal penalties as illicit discharges constitute a threat to the public health, safety, and welfare, and are deemed public nuisances. Proper handling and disposal of landscape wastes will help keep this material out of the stormwater drainage network.

**Printed versions of SOPs with previous review dates are considered current as long as the version number is the same as the current version.*



**Standard Operating Procedure:
Parking Lot Sweeping and Repair**

Date: 6/30/2016* Version: 1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of the **Parking Lot Sweeping and Repair** SOP is to provide guidance for City employees to control pollutant discharges by promoting efficient pickup of fine-grained sediment particles on **parking lots, and other large outdoor paved surfaces** that carry a substantial portion of the pollutant load, as well as managing repair materials used to conduct routine pothole repair. In addition, because the operation and maintenance of street sweepers used to sweep parking lots can contribute to the problem if not handled properly, procedures for resultant sweeping debris and refuse must be managed appropriately. Please also use the **Street Sweeping SOP** for proper procedures. These procedures are critical steps that must be included in every trip out to sweep parking lots, maintain the parking lots, or similar, in conjunction with the **Street Sweeping SOP**.

2.0 Scope

Parking lots and other large outdoor paved surfaces within the City and other City-contracted areas.

3.0 Responsibility

All City employee and City-contracted personnel who operate street sweeping equipment, pothole patching and asphalt overlay equipment.

3.1 Managers and Supervisors

All Supervisors are responsible for ensuring their staff's compliance with the correct methods of dealing with Parking Lot Sweeping and Repair. This includes City-contracted employees who operate street sweeping equipment, pothole patching and asphalt overlay equipment. Supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

City Employee's and outside contract personnel are responsible for following the City's **Parking Lot Sweeping and Repair Storage SOP's "Do's" and "Dont's"**

**Printed versions of SOPs with previous review dates are considered current as long as the version number is the same as the current version.*



4.0 Procedures

“DO’s”

- Operate all sweeper equipment according to manufacturer’s settings and standards; perform regular maintenance of sweepers per schedule or as needed.
- Follow sweeping schedule established for that facility’s parking lot area. Note areas that are prone to additional sediment and debris buildup and add to schedule.
- Conduct additional inspections after large storm event, after snow piles melt, after a special event held in the parking lot or similar, and after temporary storage of materials; make note of a lot that has consistently higher content of debris & report.
- If parking lot has outfall or storm drain, protect this feature when materials are stored in parking lot or if snow is brought to parking lot for long-term melting; place snow piles away from these inlets so debris is not carried away with resulting melt.
- Make note of excessive litter and suggest putting a garbage receptacle at the site.
- If unusual sweeper debris is noted, bring to attention of supervisor for testing.
- Use **OSHA Material Handling & Storage**, and **Spill Prevention and Control SOPs** for repair (patching and pothole repairs) activities to make sure no adverse effects from repair activities. Make sure repair equipment does not contribute oil, diesel, or transmission fluid leaks to lot area and follow instructions on SOPs for clean up

“DONT’s”

- **DO NOT** ignore any leak or drips from sweeper equipment; put in a repair ticket and utilize a drip pan during temporary storage of vehicle.
- **DO NOT** make any repairs to sweeper equipment or vehicles in the parking lot; use a covered, designated area for such repairs.
- **DO NOT** wash down the parking lot with the exception of a very fine water spray for dust control.
- **DO NOT** empty sweeper hoppers wastes near storm drains or detention ponds or drainageways where rain event could mobilize sweeper wastes.
- **DO NOT** bring excess repair materials to the parking lot and use up what is brought. Never leave repair materials stored without proper storing techniques.
- **DO NOT** hose down left over materials after repair activities; use dry clean-up methods and sweep up excess material and properly dispose.

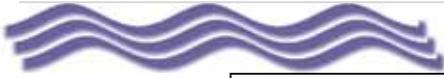
5.0 Annual Review of Procedure/Training

Supervisors are responsible for reviewing this procedure at least once each year with all employees. Any Supervisors who hire contractors are required to convey the requirements of this procedure to the contractors.

6.0 Regulatory impacts

Discharges of any material other than stormwater are prohibited by the City of Radford’s illicit Discharge Ordinance. This offense is punishable by civil and criminal penalties as illicit discharges constitute a threat to the public health, safety, and welfare, and are deemed public nuisances. Proper handling and disposal of landscape wastes will help keep this material out of the stormwater drainage network.

**Printed versions of SOPs with previous review dates are considered current as long as the version number is the same as the current version.*



**Standard Operating Procedure:
Recycling and Drop Center**

Date: 6/30/2016* Version: 1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of the **Recycling and Drop Center** SOP is to provide guidance for City employees to help prevent stormwater pollution. Pollutants, such as blowing trash, residual chemicals and organics may be picked up by rainwater at these locations and discharged into the **New River** causing water pollution issues.

If services are contracted, this SOP should be provided to the Contractor. The contract should specify that the Contractor is responsible for compliance with all applicable laws.

2.0 Scope

This procedure applies to the Recycling and Drop Center located at Seventeenth Street.

3.0 Responsibility

All City employee's or City-contracted employees who work at this location.

3.1 Managers and Supervisors

All Supervisors are responsible for ensuring their staff's compliance with the correct methods of dealing with waste and recyclable items. This includes non-City companies that are contracted to perform work for the City. Supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

City Employee's and outside contract personnel are responsible for following the City's **Recycling and Drop Center** SOP's "Do's" and "Dont's"



4.0 Procedures

“DO’s”

- All waste and recycle receptacles must be leak-tight with tight-fitting lids or covers. Plastic liners can be used to ensure leak tightness.
- Keep lids on dumpsters and containers closed at all times unless adding or removing material.
- Place waste or recycle receptacles indoors or under a roof or overhang whenever possible.
- Locate dumpsters on a flat, paved surface and install berms or curbs around the storage area to prevent run-on and run-off.
- Sweep up around outdoor waste containers regularly.
- Clean up any liquid leaks or spills with dry clean-up methods.
- Arrange for wastes or recyclables to be picked up regularly and disposed at approved disposal facilities.

“DONT’s”

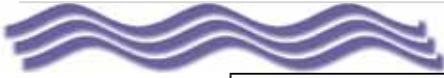
- **DO NOT** place hazardous materials, liquids, or liquid-containing wastes in a dumpster, recycle or trash receptacle.
- **DO NOT** wash out waste or recycle containers or dumpsters outdoors or in a parking lot.
- **DO NOT** wash down or hose down any outdoor Dumpster or storage areas except where the wash water will only enter the sanitary sewer drain as an approved discharge.

5.0 Annual Review of Procedure/Training

Supervisors are responsible for reviewing this procedure at least once each year with all employees. Any Supervisors who hire contractors are required to convey the requirements of this procedure to the contractors.

6.0 Regulatory impacts

Discharges of any material other than stormwater are prohibited by the City of Radford’s illicit Discharge Ordinance. This offense is punishable by civil and criminal penalties as illicit discharges constitute a threat to the public health, safety, and welfare, and are deemed public nuisances. Proper handling and disposal of landscape wastes will help keep this material out of the stormwater drainage network.



**Standard Operating Procedure:
Right-Of-Way (ROW) Maintenance**

Date: 6/30/2016* Version: 1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of this procedure is to control pollutant discharges by using routine maintenance procedures for mowing and debris control, and weed control along City ROWs. Application of fertilizers, pesticides and herbicides activities should refer to the **Chemical Application SOP**. These procedures are critical steps that must be included during routine landscaping activities at City ROW areas by employees and contractors.

2.0 Scope

This procedure applies to all City ROW property, including vacant lots, medians and greenspace.

3.0 Responsibility

All City employees **or** City-contracted personnel responsible for maintenance of City ROW property.

3.1 Managers and Supervisors

The Public Works Superintendent and Supervisors are responsible for ensuring their staff's compliance with the correct methods for mowing, debris control, and weed control. Application of fertilizers, pesticides and herbicides activities should refer to the **Chemical Application SOP**. This includes non-City companies that are contracted to perform landscaping functions. Supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

City Employee's and outside contract personnel are responsible for following the City's **ROW Maintenance SOP's**, "Do's" and "Dont's" for ROW Maintenance.

**Printed versions of SOPs with previous review dates are considered current as long as the version number is the same as the current version.*



4.0 Procedures

“DO’s”

- Inspect new ROW areas or medians initially on a monthly basis until the correct timing of maintenance is established; then conduct maintenance per schedule.
- Conduct routine ROW maintenance per schedule, or on an as-needed basis as identified during an inspection or on an as-needed basis when conditions warrant.
- Oversee ROW landscape contractors to ensure that correct procedures are followed and contaminants are kept to a minimum and contained.
- Ask the contractor for a list of items they will be bringing on site for ROW landscape work, and how they will control, contain and dispose of the materials not used.
- Report damage/compromise to ROW areas, median areas or bare areas void of vegetation that may result in sediment being transported off site; prepare a repair schedule & complete repairs.
- Remove paper, debris and trash from the ROWs, medians, and surrounding areas. Rake leaves and dispose properly prior to mowing activities.
- After mowing & pulling & trimming, collect grass clippings and all other clippings/trimmings/wastes and take offsite for disposal or dispose in trash on site.
- Notify supervisor of any hazardous conditions or materials found during the performance of maintenance activities.

“DONT’s”

- **DO NOT** clean equipment or conduct maintenance on equipment on or near the ROW area, or near a storm drain or other stormwater conveyance feature.
- **DO NOT** leave grass clippings or trimming residue on median or ROW area; collect and dispose of in trash.
- **DO NOT** apply landscaping chemicals in areas where the residue could make it into the drainageway, channel, ditch, or detention pond (if applicable) during a storm event (see **Chemical Application SOP** for procedures).
- **DO NOT** use herbicide for weed control on the ROW areas or in the median unless instructed to by the City’s Horticulturist. Use only approved chemicals, in approved amounts, and never when a heavy rain is forecast.
- **DO NOT** attempt to clean up any unidentified or possibly hazardous materials found on or around median or ROW areas during maintenance; notify supervisor immediately upon discovery of hazardous materials.

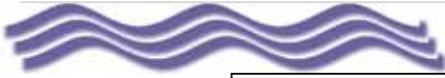
5.0 Annual Review of Procedure/Training

Supervisors are responsible for reviewing this procedure at least once each year with all employees who perform routine landscaping duties. Any Supervisors who hire contractors to perform these job duties are required to convey the requirements of this procedure to the contractors.

6.0 Regulatory impacts

Discharges of any material other than stormwater are prohibited by the City of Radford’s illicit Discharge Ordinance. This offense is punishable by civil and criminal penalties as illicit discharges constitute a threat to the public health, safety, and welfare, and are deemed public nuisances. Proper handling and disposal of landscape wastes will help keep this material out of the stormwater drainage network.

**Printed versions of SOPs with previous review dates are considered current as long as the version number is the same as the current version.*



**Standard Operating Procedure:
Salt and Spreader Shed Maintenance**

Date: 6/30/2016* Version: 1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit, with salt storage facilities specifically included as having high priority status.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of this procedure is to outline the housekeeping measures that must be taken to prevent run-off of materials from entering groundwater and storm water systems.

2.0 Scope

This procedure applies to the Salt Shed and the Spreader Shed located at the rear of 699 Seventeenth Street.

3.0 Responsibility

All City staff are responsible for preventing illicit discharges from their operations. The salt storage shed and the spreader shed at the rear of 699 Seventeenth Street contains materials which must be kept under cover to prevent tracking and escape of those materials into groundwater and surface water.

3.1 Managers and Supervisors

The Public Works Superintendent and Supervisors are responsible for ensuring their staff's compliance with this procedure. Supervisors are to train their employees on keeping salt under roof protection. Managers and supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

Personnel must follow the correct procedures in accordance with this SOP.

**Printed versions of SOPs with previous review dates are considered current as long as the version number is the same as the current version.*



4.0 Procedures

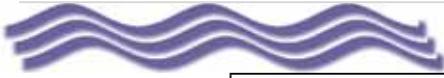
- 4.1** Deliveries of materials by outside vendors to the Salt Shed must be monitored so that any spilled materials are swept up and placed in the shed.
- 4.2** When loading salt onto trucks for deicing purposes, employees must be sure that any scattered materials are swept and returned to stockpiles under roof protection. Tracking of materials from the site must be prevented.
- 4.3** Salt in the spreader shed must be cleaned up after use so that these materials are not subject to runoff during heavy rains.

5.0 Annual Review of Procedure/Training

Supervisors are responsible for reviewing this procedure at least once each year with all employees who have these job duties.

6.0 Regulatory impacts

All outdoor material storage areas that contain products that would be expected to be mobilized in stormwater runoff are considered high priority facilities by the Virginia DEQ. The City of Radford received authorization to discharge to surface waters under the State General Permit Number VAR040135 effective August 19, 2014. Pollution prevention and good housekeeping practices are required and unannounced inspections by DEQ may occur.



**Standard Operating Procedure:
Spill Prevention and Control**

Date: 6/30/2016* Version: 1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of the **Spill Prevention and Control** SOP is to provide guidance for City employees to control pollutant discharges by promoting proper use of equipment during fueling, cleaning, painting, chemical applications, and any other activities that involve a liquid that could be spilled. Spill prevention is one of the most preventable causes of water quality pollution that occurs. These procedures are critical steps that must be included in everyday work activities to protect stormwater from contact with pollutants, and are a joint responsibility of everyone in the workplace who utilize chemicals, fuel vehicles, maintain and repair equipment, apply landscape chemicals, and conduct municipal operations with liquids.

2.0 Scope

All indoor offices where materials stored could be spilled; all outdoor work areas where materials are stored or used; and all areas that store or use equipment that has the potential to spill or leak.

3.0 Responsibility

All City or City-contracted personnel who work with any landscape chemicals, cleaning solutions, paint products, automobile fluids, or any materials that could be spilled; work with any equipment; or fuel vehicles.

3.1 Managers and Supervisors

All Supervisors are responsible for ensuring their staff's compliance with the correct methods of dealing with **Spill Prevention and Control**. This includes non-City companies that are contracted to perform duties for the City. Supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

City Employee's and outside contract personnel are responsible for following the City's Spill Prevention and Control SOP's "Do's" and "Dont's"

**Printed versions of SOPs with previous review dates are considered current as long as the version number is the same as the current version.*



4.0 Procedures

“DO’s”

- Keep all work areas neat & well organized with *only* enough chemical to get job done.
- Be knowledgeable about material you are working with; be familiar with MSDS fact sheets & SPCC plan.
- Have spill cleanup materials available and ready to go; familiarize yourself with locations of spill kits and cleaning materials and how to use them.
- Notify supervisor if spill is discovered and is unknown; there may be special instructions.
- Clean up spills promptly, with DRY methods (rags and absorbents), if possible. Clean up is not complete until the absorbent used is disposed properly.
- Conduct inspections of your work area materials to ensure equipment and containers are secure and stored responsibly. Transfer if leaking observed.
- Handle, use, transfer, store, and re-package all chemicals indoors or under cover to lessen potential for spills that can be carried away by stormwater.
- Keep unused containers closed with a tight fitting lid and label.

“DONT’s”

- **DO NOT** delay in cleanup of spills. Delay allows for spreading of wastes by wind, rain, and traffic. If you have to delay any cleanup, string warning tape or cone off to keep area secure.
- **DO NOT** transfer or pour materials outdoors near or in storm drains or drainage ditches.
- **DO NOT** hose down work area where spills could occur (unless floor drain is hooked to the sanitary sewer); use dry sweeping methods.
- **DO NOT** handle containers alone if awkward or require over-exertion on your part. Get help and spread the load.
- **DO NOT** remove or damage spill kits; these are available in case of a spill event. Notify supervisor if spill kit is gone from designated location or is missing some important components.

5.0 Annual Review of Procedure/Training

Supervisors are responsible for reviewing this procedure at least once each year with all employees. Any Supervisors who hire contractors are required to convey the requirements of this procedure to the contractors.

6.0 Regulatory impacts

Discharges of any material other than stormwater are prohibited by the City of Radford’s illicit Discharge Ordinance. This offense is punishable by civil and criminal penalties as illicit discharges constitute a threat to the public health, safety, and welfare, and are deemed public nuisances. Proper handling and disposal of landscape wastes will help keep this material out of the stormwater drainage network.

**Standard Operating Procedure:****Street Sweeping for Water Quality Protection**

Date: 6/30/2016* Version: 1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of this procedure is to outline the housekeeping measures that must be taken to prevent run-off of materials from entering groundwater and storm water systems.

2.0 Scope

Street sweeping is an operational best management practice (BMP) developed to control pollutant discharges by promoting efficient pickup of fine-grained sediment particles on **city streets, bridges, public right-of-way, parking lots**, and other **large outdoor paved surfaces** that carry a substantial portion of the pollutant load. In addition, because the operation and maintenance of street sweepers can contribute to the problem, procedures for resultant sweeping debris and refuse must be managed appropriately.

3.0 Responsibility

All City staff are responsible for preventing illicit discharges from their operations. All sweeper hopper debris must be taken directly to a permanent disposal site, or if absolutely necessary, to a secure temporary storage area with no possible impact from wind and rain. These procedures are critical steps that must be included in every trip out to sweep City streets or similar, every transfer location during the day, and every trip back in.

3.1 Managers and Supervisors

The Public Works Superintendent and Supervisors are responsible for ensuring their staff's compliance with the correct methods of Street Sweeping. This includes non-City companies that are contracted to perform street sweeping for the City. Supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

City Employee's and outside contract personnel are responsible for following the City's **Street Sweeping SOP's "Do's" and "Dont's"**

**Printed versions of SOPs with previous review dates are considered current as long as the version number is the same as the current version.*



4.0 Procedures

"DO's"

- Before starting out, check pavement for leaks from the equipment; if leak observed, make note to repair and consider drip pan use.
- Operate all sweeper equipment according to manufacturer's settings and standards.
- Perform regular maintenance of sweepers per schedule or as needed.
- Make note of areas that indicate storage of construction materials, have higher than normal median maintenance (grass cuttings on street), and areas of snow melt that may require additional or increased sweeping activities.
- Make note of any streets that have consistently higher content of debris and/or sediments and inform supervisor who can increase schedule of operations.
- Make sure that sweeper debris is taken directly to the permanent disposal site or is taken to a secure temporary location, away from inlets or direct runoff, for storage.
- Washing of sweeper equipment only at wash rack to trap grease, oils and sediment.
- If unusual sweeper debris is noted, bring to attention of supervisor for testing.

"DONT's"

- **DO NOT** ignore any leak or drips from sweeper equipment; put in a repair ticket and utilize a drip pan during temporary storage of vehicle.
- **DO NOT** transfer or dispose of sweeper materials near or in storm drains, or drainage ditches, even temporarily.
- **DO NOT** wash street sweeping equipment outside except at the Road & Bridge Vehicle Wash area that has the benefit of the oil and grease trap to collect pollutant.
- **DO NOT** ignore routine maintenance requirements for the sweeper equipment that can possibly mitigate future problems and nip potential equipment leaks in the bud.
- **DO NOT** repair sweeper equipment or vehicles outside; use a covered, designated area for such repairs.
- **DO NOT** wash down any streets or curbs with the exception of very fine water spray for dust control.

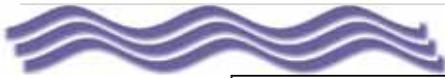
5.0 Annual Review of Procedure/Training

Supervisors are responsible for reviewing this procedure at least once each year with all employees who have these job duties.

6.0 Regulatory impacts

All outdoor material storage areas that contain products that would be expected to be mobilized in stormwater runoff are considered high priority facilities by the Virginia DEQ. The City of Radford received authorization to discharge to surface waters under the State General Permit Number VAR040135 effective August 19, 2014. Pollution prevention best management practices (BMP's) and good housekeeping practices are required and unannounced inspections by DEQ may occur.

**Printed versions of SOPs with previous review dates are considered current as long as the version number is the same as the current version.*



**Standard Operating Procedure:
Vehicle Maintenance**

Date: 6/30/2016* Version: 1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of the **Vehicle Maintenance** SOP is to provide guidance for City employees to control pollutant discharges by promoting regular maintenance of City-contracted vehicles and equipment, as well as appropriate activities within the maintenance shop and bays. Several operational components of vehicle maintenance activities have the potential for polluting receiving waters, including storage while waiting for repair (leaks); parts cleaning (spills), storage of maintenance fluids used in repairs and routine maintenance (leaks & spills); and the maintenance facility itself (poor good housekeeping practices). These procedures are critical steps that must be included during all maintenance activities, pre-repair storage and post-storage of vehicles to be maintained.

2.0 Scope

The City's Garage on Seventeenth Street, specifically the maintenance bays and corresponding storage areas.

3.0 Responsibility

City employees or City-contracted personnel who perform maintenance on City vehicles and equipment.

3.1 Managers and Supervisors

All Supervisors are responsible for ensuring their staff's compliance with the correct methods of dealing with Vehicle Maintenance. This includes non-City personnel who perform maintenance on City vehicles and equipment. Supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

City Employee's and outside contract personnel are responsible for following the City's **Vehicle Maintenance** SOP's "Do's" and "Dont's"



4.0 Procedures

“DO’s”

- Keep all work areas neat & well organized. Sweep up all trash & debris daily or as needed. Label containers, sign procedures, and designate work areas.
- Conduct daily inspections to ensure that equipment & materials are being handled, disposed and stored correctly. Recycle or dispose of all wastes properly and promptly.
- Have spill cleanup materials nearby. Clean up spills promptly, with DRY methods; cleanup is completed ONLY after absorbent disposed properly and rags disposed of properly or sent to industrial laundry.
- Keep wastes separated to increase waste recycling/disposal options and reduce costs.
- Conduct maintenance and repair activities indoors or under cover whenever possible to minimize exposure of fluids to stormwater runoff.
- Park vehicles to be maintained in the designated areas. Monitor parked vehicles closely for leaks; use drip pan as needed.
- Drain fluids from leaking or wrecked vehicles, and from motor parts, as soon as possible and dispose of fluids properly.

“DONT’s”

- **DO NOT** let waste accumulate at or around the work place; more clutter equals more accident opportunities.
- **DO NOT** transfer, pour or dispose of maintenance fluids outdoors near or in storm drains or ditches.
- **DO NOT** wash or hose down the garage area except where the wash water will only enter the sanitary sewer drain as an approved discharge; use dry clean- up methods as often as possible.
- **DO NOT** repair equipment or vehicles outside; use a covered, designated area for such repairs.
- **DO NOT** leave a leaking vehicle unattended; use a drip pan temporarily and then drain fluids if not being repaired and waiting for final deposition.
- **DO NOT** mix waste oil, fuel, antifreeze or chlorinated solvents. Consult a hazardous waste hauler.

5.0 Annual Review of Procedure/Training

Supervisors are responsible for reviewing this procedure at least once each year with all employees. Any Supervisors who hire contractors are required to convey the requirements of this procedure to the contractors.

6.0 Regulatory impacts

Discharges of any material other than stormwater are prohibited by the City of Radford’s illicit Discharge Ordinance. This offense is punishable by civil and criminal penalties as illicit discharges constitute a threat to the public health, safety, and welfare, and are deemed public nuisances. Proper handling and disposal of landscape wastes will help keep this material out of the stormwater drainage network.

**Printed versions of SOPs with previous review dates are considered current as long as the version number is the same as the current version.*



**Standard Operating Procedure:
Vehicle Washing**

Date: 6/30/2016* Rev. 10/11/2016
Version: 1.1 Review Frequency: Annual

Reasons for Procedure

The City of Radford has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes the City to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Pollution prevention and good housekeeping practices are a requirement of this permit.

Standard Operating Procedures (SOPs) have been prepared for all activities conducted as part of the City's Municipal Operations that have the potential to impact 'waters of the state. One of the primary goals of these SOPs is to provide time-tested, generally accepted routine procedures that minimize the potential for release of pollutants from a site during the performance of municipal operations activities.

1.0 Purpose

The purpose of the **Vehicle Washing** SOP is to provide guidance for City employees to control pollutant discharges by promoting a conscious effort when washing City-contracted vehicles and equipment to reduce the amount of sediment, antifreeze, heavy metals, oil and other materials that may runoff from the wash rack. Uncontrolled washing activities have a potential to produce a high concentration of pollutants in runoff wash water to the stormwater system. These procedures are critical steps that must be included in every vehicle washing activity.

2.0 Scope

All areas where vehicles and equipment are cleaned or rinsed.

3.0 Responsibility

All City employees and City-contracted personnel including Trustees, who provide vehicle washing services.

3.1 Managers and Supervisors

All Supervisors are responsible for ensuring their staff's compliance with the correct methods of dealing with **Vehicle Washing**. This includes non-City companies that are contracted to perform work for the City including Trustees. Supervisors are responsible for ensuring training is conducted with the most recent version of the SOP.

3.2 Personnel Performing the Job

City Employee's and outside contract personnel are responsible for following the City's Vehicle Washing SOP's "Do's" and "Dont's"



4.0 Procedures

“DO’s”

- Keep the wash area neat and well organized. Sweep or pick up all trash and debris daily or as needed, before it is carried away during a storm event.
- Use a non-porous drain sock to hold back wash water from any storm drain and direct wash water to a sanitary sewer drain.
- Keep the non-porous drain sock handy and close by as it will be used frequently. Replace the non-porous drain sock when it can no longer hold back wash water from a storm drain.
- Prior to any washing activity, put the “sock” around all sides of a storm drain to block any sediment, debris and water from washing activity and route the water to a sanitary sewer drain.
- After each washing activity, sweep up the sediment and debris after it is dry to keep it from going back down the storm drain or off site during a storm event. Transfer to a container for storage. Use DRY cleanup only, do not hose down accumulated sediments.
- Transport the dried sediment to the Vactor Truck washout area when quantity collected and stored is sufficient to warrant a trip there.
- Use biodegradable, phosphate free detergents.
- Keep equipment clean; do not allow a buildup of oil/grease. Conduct daily inspections.

“DONT’s”

- **DO NOT** let waste accumulate at Wash Area.
- **DO NOT** let sediments that were kept from the storm drain with the non-porous drain sock go either back down the drain or be carried off site in a rain event.
- **DO NOT** wash or hose down the washing area except where the wash water will only enter the sanitary sewer drain as an approved discharge.
- **DO NOT** handle detergent containers alone if awkward or requires over-exertion on your part. Get help and spread the weight load.
- **DO NOT** use phosphate detergents.
- **DO NOT** use spray-on acid-based wheel cleaners where the rinse water may flow to a storm drain untreated.

5.0 Annual Review of Procedure/Training

Supervisors are responsible for reviewing this procedure at least once each year with all employees. Any Supervisors who hire contractors are required to convey the requirements of this procedure to the contractors.

6.0 Regulatory impacts

Discharges of any material other than stormwater are prohibited by the City of Radford’s illicit Discharge Ordinance. This offense is punishable by civil and criminal penalties as illicit discharges constitute a threat to the public health, safety, and welfare, and are deemed public nuisances. Proper handling and disposal of landscape wastes will help keep this material out of the stormwater drainage network.

Appendix E
Site Photographs



PHOTOGRAPH 1. View of storage shed located along northern portion of site. Note: Empty AST with unknown previous contents and hydraulic equipment. Area drains off-site towards the north.



PHOTOGRAPH 2: View of northern portion of site. Note: Electrical Department equipment and hydraulic equipment. Area drains off-site towards the north.



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**Stormwater Pollution Prevention Plan
City of Radford Ingles Mountain Storage Area
Radford, Virginia, 24141
DAA JN: 17010547-020101**



PHOTOGRAPH 3: View of western portion of site from the center of the property. Note: Brush and mulch piles. Gravel and dirt piles present.



PHOTOGRAPH 4: View of miscellaneous storage on site such as an empty tank and unknown equipment.



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Stormwater Pollution Prevention Plan
City of Radford Ingles Mountain Storage Area
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PHOTOGRAPH 5. View of pond located in southeast corner of site. Note: Portion of equipment storage area flows towards the pond.



PHOTOGRAPH 6: View of man-made depression located south of the fill area. View facing south from top of fill area.



Draper Aden Associates

Engineering □ Surveying □ Environmental Services

**Stormwater Pollution Prevention Plan
City of Radford Ingles Mountain Storage Area
Radford, Virginia, 24141
DAA JN: 17010547-020101**



PHOTOGRAPH 7. View of pond located south of the fill area.



PHOTOGRAPH 8: View of fill area facing north from the southern portion of the property. Note: Equipment storage area visible in background.



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