

**Phase II MS4 General Permit
Program Plan Update**

Chesapeake Bay TMDL Action Plan



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1 Introduction

2 Discharges from municipal separate storm sewer systems (MS-4) are regulated under the Virginia
3 Stormwater Management Act, the Virginia Stormwater Management Program (VSMP) Permit
4 regulations, and the Clean Water Act as point source discharges. As a Phase II MS-4, the City of
5 Petersburg (Petersburg) developed this Chesapeake Bay TMDL Action Plan (Action Plan) pursuant to the
6 Special Condition for the Chesapeake Bay TMDL (Section I.C) of the City's Municipal Separate Storm
7 Sewer System (MS-4) Permit. To assist with the development of the Action Plan, the City utilized both
8 the Department of Environmental Quality's (DEQ) Chesapeake Bay TMDL Special Condition Guidance
9 Document (Guidance Memo No. 14-2012, and subsequent draft revisions dated 3/19/2015, herein
10 referred to as TMDL Guidance Document), and the General Permit for Discharges of Stormwater from
11 Small Municipal Separate Storm Sewer Systems (General Permit), which became effective July 1, 2013.

12 Development of the Action Plan is driven by the Chesapeake Bay TMDL which was approved by the US
13 Environmental Protection Agency (EPA) in December of 2010. Nitrogen, Total Phosphorous, and
14 Sediment are the Pollutants of Concern (POC) driving the need for required pollutant reductions in the
15 Chesapeake Bay Basin, which includes portions of Petersburg. It is anticipated, according to Virginia's
16 Watershed Implementation Plan (WIP) that the TMDL will be achieved within three permit cycles with
17 the following targets: 5% by June 30, 2018, followed by 35% and 60% in the subsequent permitting
18 cycles. For the purposes of this Action Plan, the primary focus will be on Permit Cycle 1 and the
19 associated 5% reduction requirements. The loadings and reductions have been provided for the
20 anticipated 35% and 60% targets for reference.

21 This Action Plan details the methodology and results used to develop the required plan components.
22 Detailed sections are provided within the report for the following tasks:

- 23 • **Review of Current MS4 Program and Existing Legal Authority** - Addresses Section I.C.2a(1)
24 and I.C.2.a(2) of the General Permit
- 25 • **Data Sources Utilized & Estimate of MS4 Regulated Acreages** – Addresses Section I.C.2.a(4)
26 and Section I.C.2.a(5) of the General Permit
- 27 • **Estimated POC Loads and Required Reductions from Existing Sources** – Addresses Section
28 1.C.2.a(4) and Section I.C.2.a(5) of the General Permit
- 29 • **Estimated POC Loads and Required Reductions from New and Grandfathered Sources** –
30 Addresses Section 1.C.2.a(7) and Section I.C.2.a(8) of the General Permit
- 31 • **Estimated POC Load Reductions from Existing BMPs** – Addresses Section I.C.2.a(6) of the
32 General Permit
- 33 • **Means & Methods Strategy, Schedule, & Estimated Costs** – Addresses I.C.2.a(6) and
34 I.C.2.a(11) of the General Permit
- 35 • **List of Future Grandfathered Projects** – Addresses I.C.2.a(10) of the General Permit
- 36 • **Public Comment Process** – Addresses I.C.2.a(12) of the General Permit



1 **Current Program and Existing Legal Authority**

2 Petersburg has reviewed its MS4 Program to evaluate its ability to comply with the Special Condition for
3 the Chesapeake Bay TMDL (Section I.C) of the General Permit. The following is a list of the Petersburg's
4 relevant existing legal authorities and policies applicable to reducing the pollutants identified the
5 Chesapeake Bay TMDL:

- 6 • MS4 Program Plan
- 7 • Illicit Discharge Ordinance (Section 122-106, 122-107, 122-108, & 122-109)
- 8 • Stormwater Management Ordinance (Section 50, Article IV)
- 9 • Stormwater Management Guidelines document
- 10 • Declaration of Covenants for Storm and Surface Water Facility and System Maintenance
11 agreement.

12 In addition, Petersburg has recently (2013) implemented a stormwater utility. The newly dedicated
13 funding source has provided Petersburg with the ability to address long-overdue repairs and upgrades to
14 existing drainage infrastructure, continue to meet existing regulatory requirements, and plan for new
15 regulatory requirements including local water quality protection and Chesapeake Bay TMDL target load
16 reductions.

17
18 Petersburg has reviewed its current MS4 Program and determined that the authorities as stated above
19 is sufficient for compliance with this special condition, see Appendix A.

20 **New or Modified Legal Authority**

21 The existing authority, as stated above, is sufficient for compliance with this special condition.
22 Therefore, Petersburg does not require any new or modified legal authorities or policies in order to
23 meet the requirements of this special condition. However, Petersburg may choose to coordinate with
24 other adjacent MS4s and explore the idea of establishing memorandums of understanding (MOU) to
25 clarify MS4 service boundary line(s) and inter-jurisdictional responsibilities for POC loads and
26 subsequent required POC load reductions in the future.

27 **Means and Methods to Address Discharges from New Sources**

28 The City of Petersburg adhered to the technology based criteria under 9VAC25-870-96.C. Because the
29 technology based criteria assumes an average land cover condition of 16% for the design of post-
30 development stormwater management facilities, no additional reductions beyond the reduction
31 requirements for existing conditions as of June 30, 2009, are required under Special Condition 7 or 8.

32 To address discharges into the MS-4 from new sources (defined as pervious and impervious urban land
33 uses served by the MS-4 developed or redeveloped on or after July 1, 2009), Petersburg will adhere with
34 current VSMP regulations for the implementation of post-development stormwater management
35 facilities.



1 **Estimated Existing Source Loads and Calculated Total Pollutant of**
2 **Concern Required Reductions**

3 To facilitate the requirements of this section, the City of Petersburg has developed a methodology for
4 determining the size and extent of regulated area as of June 30, 2009 and a methodology for
5 determining the total regulated acres of urban pervious and urban impervious surface served by the
6 MS4 as of June 30, 2009. The methodology used in these calculations was informed by the
7 requirements of the General Permit, the TMDL Guidance Document, referenced previously in this
8 document, and training documents from the DEQ training session “Chesapeake Bay TMDL Action Plan
9 Informational Session” (December 2014).

10 **Regulated Area Determination**

11 It is understood that the Phase II permittee boundary for the first permit cycle can be determined from
12 the 2000 Census Designated Urbanized Area, but that with subsequent permit cycles the regulated area
13 will expand to the 2010 Census Designated Urbanized Area. Petersburg determined that it was in their
14 best interest to move forward in the first permit cycle using the 2010 Census Designated Urbanized Area
15 as this will be the defining area in future permit terms.

16 The determination of regulated area was largely performed using available GIS data and was informed
17 by the General Permit and the TMDL Guidance Document issued by Virginia Department of
18 Environmental Quality.

19 Petersburg’s jurisdictional boundary comprises approximately 14,663 acres. The following is a
20 breakdown of how the regulated area was defined.

Description	Acres	
City of Petersburg, City Limits	14,663.5	
Total Urbanized Area (within City Limits)	10,907.8	
Total Urbanized Area, Chesapeake Bay Watershed	7,685.6	
Excluded Properties		
Federal Properties (National Battlefield, Fort Lee)	933.8	
VDOT R/W (I-95, I-85, US 460)	286.5	
VPDES (General and Individual Permit Properties)	162.2	
Wetlands (Based on the National Wetland Inventory)	151.2	
Open Water	43.6	
Total Regulated Area, Chesapeake Bay Watershed Urbanized Area	6,108.3	

21 Illustrated below in Figure 1 is a graphical representation of the total regulated area presented above.

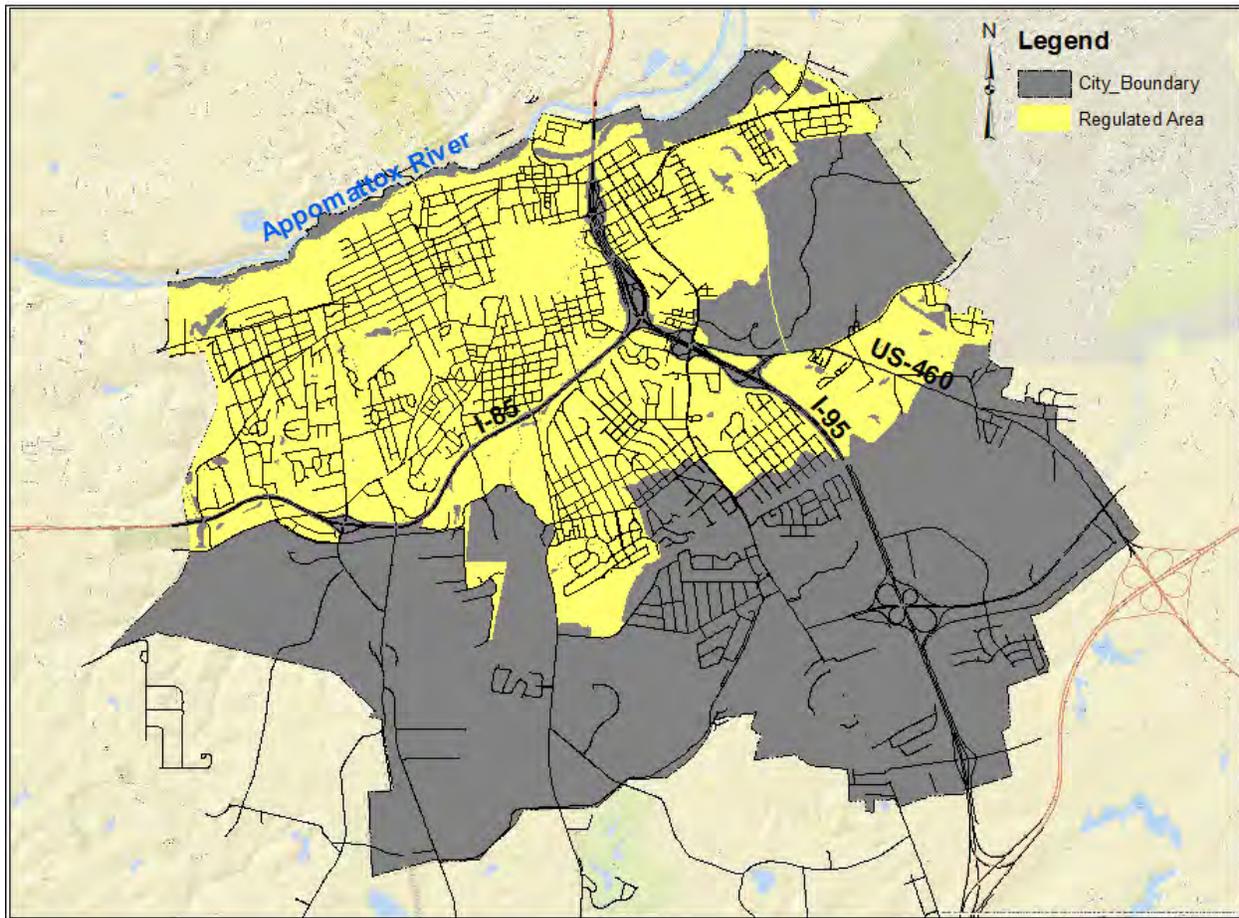


Figure 1. Map of the Regulated Area

1 **Excluded Lands**

2 Based on the TMDL Guidance Document, Petersburg is able to exclude from their regulated urban
3 impervious and regulated urban pervious cover calculations the following:

- 4 • Land regulated under any General VPDES permit that addresses industrial stormwater including
5 the General VPDES Permit for Stormwater Associated with Industrial Activity (VAR05), the
6 General Permit for Concrete Products Facilities (VAG11) and the Nonmetallic Mineral Processing
7 General Permit (VAR84).
- 8 • Lands regulated under an individual VPDES permit for industrial stormwater discharges
- 9 • Forested Lands
- 10 • Agricultural Lands
- 11 • Wetlands
- 12 • Open Waters



1 **VPDES Permit Holders**

2 VPDES permit holders were identified from a listing of permit holders that was downloaded from the
3 DEQ website. The parcels data was used to identify the property of these permit holders and exclude
4 this area from the regulated area. The following table lists each of the permit holders excluded from the
5 Petersburg Regulated Area.

6 **Table 1. VPDES Permit Holders within the City of Petersburg Excluded from Regulated Area**

Permit No	Facility Name	Address	Permit Type
VAR050686	Norfolk and Southern Petersburg Auto Ramp	999 Wagner Rd	VPDES General Permit for SW Associated w / Industrial Activity
VAR050693	UniTao Pharmaceuticals Limited Liability Company	2820 N Normandy Dr	VPDES General Permit for SW Associated w / Industrial Activity
VAR050698	Amsted Rail Company Incorporated	2580 Frontage Rd	VPDES General Permit for SW Associated w / Industrial Activity
VAR050702	Dominion Chemical Company - Puddledock Road	2050 Puddledock Rd	VPDES General Permit for SW Associated w / Industrial Activity
VAR051776	Boars Head Provisions Company Inc - Petersburg	1950 Industry Pl	VPDES General Permit for SW Associated w / Industrial Activity
VAR051793	Tri City Regional Disposal and Recycling Services	390 Industrial Dr	VPDES General Permit for SW Associated w / Industrial Activity
VAR051893	Atlantic Iron and Metal	30 Mill Rd	VPDES General Permit for SW Associated w / Industrial Activity
VAR051963	BleachTech LLC - Petersburg	2020 Bessemer Rd	VPDES General Permit for SW Associated w / Industrial Activity
VAR052160	Norfolk Southern Thoroughbred Bulk Terminal	1301 E Washington St	VPDES General Permit for SW Associated w / Industrial Activity
VAR052163	Valmont Virginia Galvanizing Incorporated	3535 Halifax Rd	VPDES General Permit for SW Associated w / Industrial Activity
VAR051101	Barksdale Oils Incorporated	1041 E Bank St	VPDES General Permit for SW Associated w / Industrial Activity
VAR051780	Progress Rail Services - QBS Bearing Plant	2745 Frontage Rd	VPDES General Permit for SW Associated w / Industrial Activity
VAR052097	D and M Auto Parts	1001 E Bank St	VPDES General Permit for SW Associated w / Industrial Activity
VAR052250	Barksdale Oils Incorporated	1041 E Bank St	VPDES General Permit for SW Associated w / Industrial Activity
7 VA0025437	South Central Wastewater Authority WWTF	900 Magazine Rd	VPDES Individual Permit

8 **Wetlands**

9 Wetland areas were excluded from the regulated area using the National Wetland Inventory data layer.

10 **Open Water**

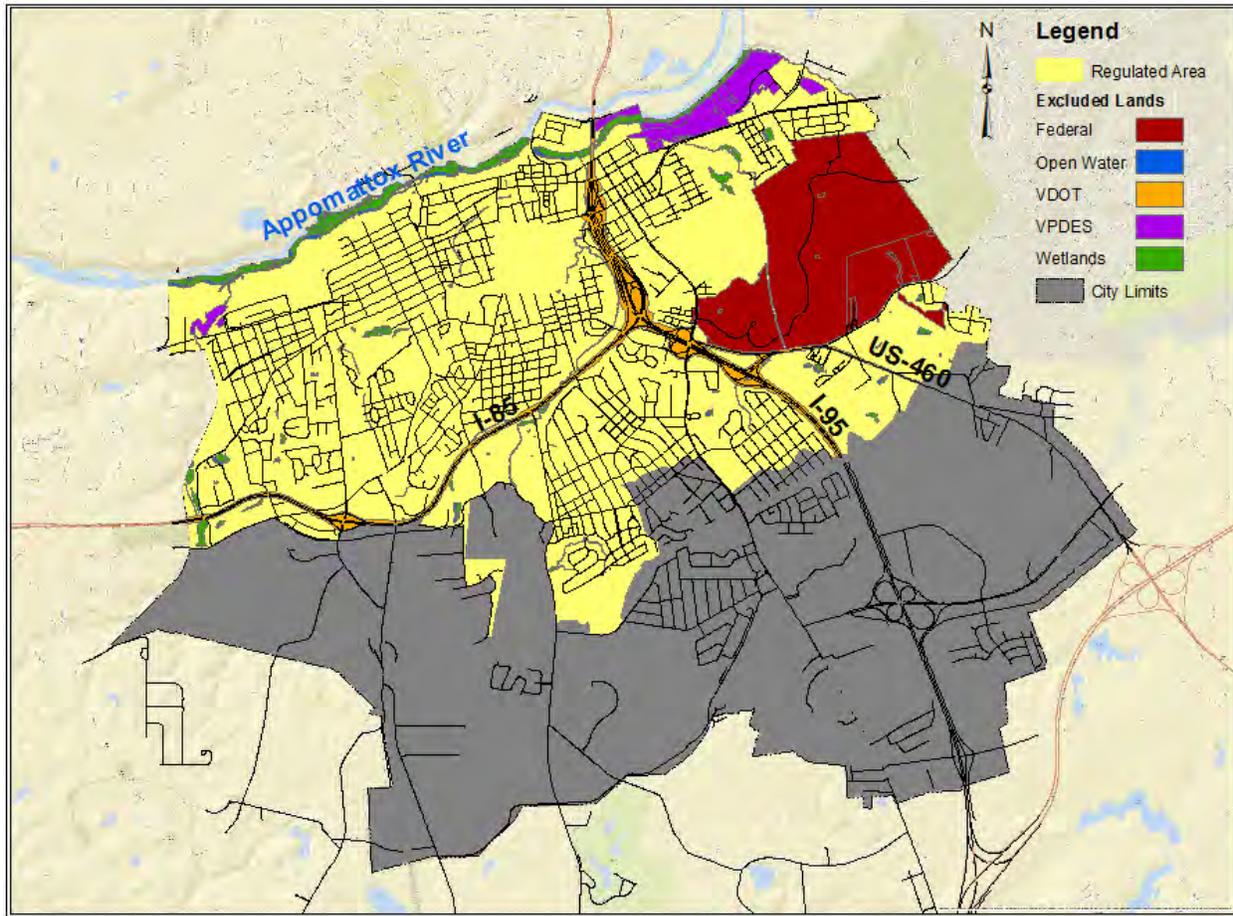
11 Petersburg maintains an open water GIS layer mapped as part of the land cover analysis performed in
12 2013. This layer was used to identify and exclude open waters from the regulated area.

13 **Agricultural Lands**

14 No agricultural lands are located within the urban area.

15 **Other Governmentally Owned & Operated Lands**

16 There are several sizeable properties located within the City of Petersburg that are owned and operated
17 by other governmental agencies. These properties have been identified using the parcels layer and
18 removed from the regulated area. The Petersburg National Battlefield is located within the City Limits
19 and within the 2010 US Census Urbanized Area. Fort Lee also owns and operates a parcel located near
20 the National Battlefield



1
2 **Figure 2. Map of Excluded Properties from the Regulated Urbanized Area**

3 **Land Cover Analysis**

4 Determining the land cover as of June 30, 2009 can be a difficult task. As part of Petersburg’s recent
 5 adoption of a Stormwater Utility in 2013, significant effort was taken to provide an accurate depiction of
 6 impervious and other land cover as of 2013 by which to base the billings. As such, GIS layers were
 7 developed depicting the following land cover classifications (2013): pervious, impervious and forested.
 8 According to recent MS4 Annual Reports, only approximately 190 acres of the City’s 14,668 acres have
 9 been developed since June 30, 2009, most of
 10 which was redevelopment. In recognizing this, it
 11 was decided that the City of Petersburg’s
 12 pollutant loads and subsequent load reductions
 13 are based on the previously developed 2013 land
 14 cover data. An analysis of the regulated area land
 15 cover was performed using GIS. A summary of the land cover within the regulated area is presented in
 16 Table 1.

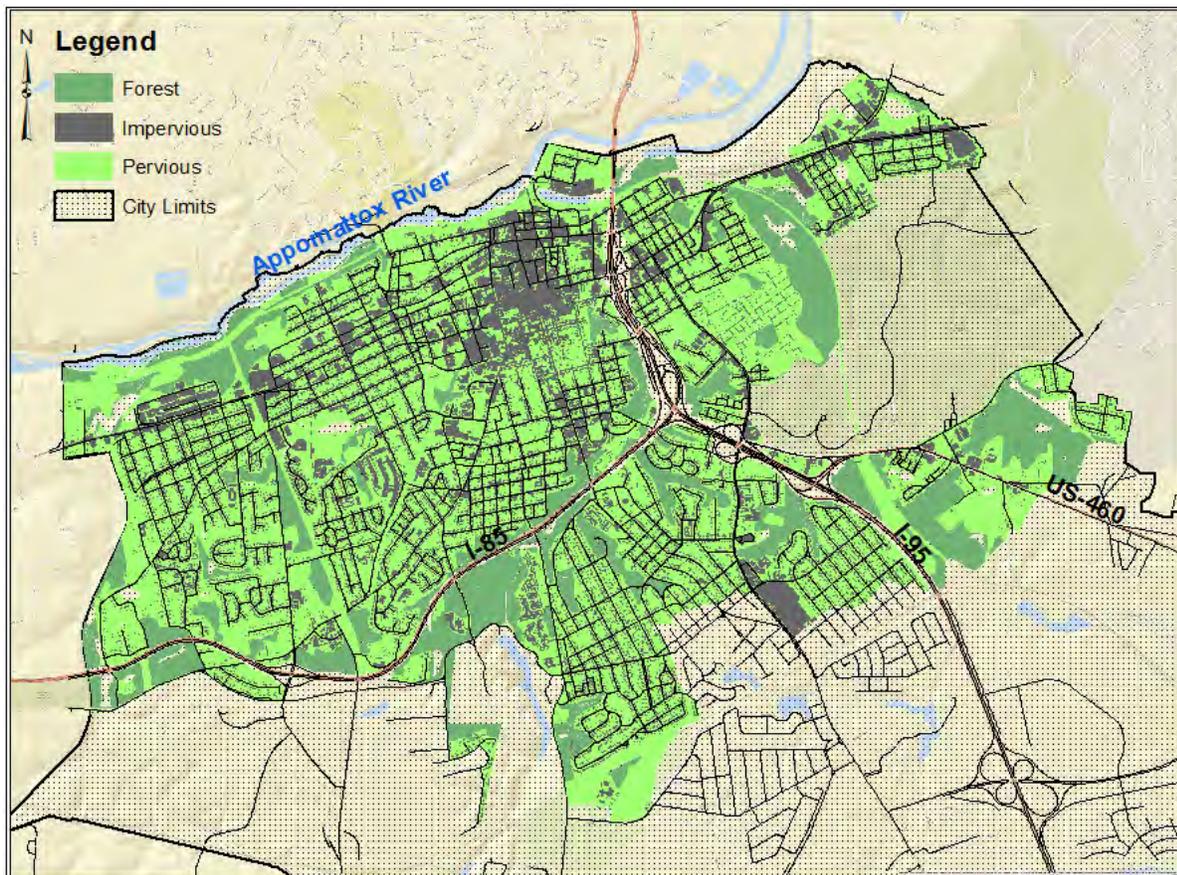
Table 2. Summary of Land Use Acreage in Regulated Area.

Forest	1,061	17%
Impervious	1,598	26%
Pervious	3,449	57%
Total	6,108	100%

17

1 **Forested Lands**

2 Forested lands remain within the regulated area and in the TMDL compliance calculations tables
3 presented in this Action Plan. The definition provided in the draft comments of the TMDL Guidance
4 Document provides a tree density criterion to determine forested lands. Petersburg does not have a
5 tree inventory of forested areas within the City and, as such, cannot demonstrate compliance with this
6 criterion. Due to the evolving definition of forested land and application of forested land in the
7 compliance calculations, it was decided that forested land would remain in the TMDL compliance
8 calculations as pervious cover. However, Petersburg reserves the right to revise calculations should the
9 definition and/or application of forested lands be revised in the future. Table 2 provides a breakdown of
10 the land cover analysis performed within the regulated area.



11
12 **Figure 3. Regulated Area Land-use Map**

13 **Determination of Estimated Existing Source Loads & Required Reductions**

14 Table 2a and Table 3a of the General Permit have been completed using the land cover breakdown
15 presented in Table 2. The pervious land use acreage used in Table 2a and Table 3a is the Pervious and
16 Forest land use acreage added together from Table 2. The estimated total Pollutant of Concern (POC)
17 loadings (Table 2a) and required reductions (Table 3a) for Nitrogen, Phosphorous, and Total Suspended
18 Solids (TSS) were calculated by multiplying the acreages for each land cover (Subsource), by the 2009
19 Edge of Stream (EOS) loading rate for the corresponding pollutant.



Table 2 a: Calculation Sheet for Estimating Existing Source Loads from 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/acres)	Estimated Total POC Load Based on 2009 Progress Run
Regulated Urban Impervious	Nitrogen	1,597.88	9.39	15,004.09
Regulated Urban Pervious		4,510.40	6.99	31,527.69
Regulated Urban Impervious	Phosphorus	1,597.88	1.76	2,812.27
Regulated Urban Pervious		4,510.40	0.5	2,255.20
Regulated Urban Impervious	Total Suspended solids	1,597.88	676.94	1,081,668.89
Regulated Urban Pervious		4,510.40	101.08	455,911.15

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)	2009 EOS Loading Rate (lbs/acres)	Estimated Total POC Load Based on 2009 Progress Run
Regulated Urban Impervious	Nitrogen	1,597.88	0.04	63.92
Regulated Urban Pervious		4,510.40	0.02	90.21
Regulated Urban Impervious	Phosphorus	1,597.88	0.01	15.98
Regulated Urban Pervious		4,510.40	0.002	9.02
Regulated Urban Impervious	Total Suspended solids	1,597.88	6.67	10,657.86
Regulated Urban Pervious		4,510.40	0.44	1,984.58



1 The calculations presented in Table 4 illustrate the required 5% reduction in pounds per year for
2 Nitrogen, Phosphorous, and TSS are 274.21 lbs., 26.44 lbs., and 29,820.06 lbs. respectively. Along with
3 the required 5% reductions, the total POC loads and the extrapolated values for the 35% and 60%
4 reductions for the 2nd and 3rd permit cycles are shown in Table 3.

5 **Table 3. Summary of Extrapolated Reductions Anticipated for Future Permit Cycles**

Subsource	Pollutant	Estimated Total POC 2009	Total Reduction Required First Permit Cycle	Total Reduction Required Second Permit Cycle (40%)	Total Reduction Required Third Permit Cycle (100%)
Regulated Urban Impervious	Nitrogen	15,004.09	63.92	540.15	1,350.37
Regulated Urban Pervious		31,527.69	90.21	756.66	1,891.66
Regulated Urban Impervious	Phosphorus	2,812.27	15.98	179.99	449.96
Regulated Urban Pervious		2,255.20	9.02	65.40	163.50
Regulated Urban Impervious	TSS	1,081,668.89	10,657.86	86,533.51	216,333.78
Regulated Urban Pervious		455,911.15	1,984.58	15,956.89	39,892.23

	N	P	TSS
2018 Total Reduction	154.12	25.00	12,642.44
Anticipated 2023 Total Reduction	1,296.81	245.39	102,490.40
Anticipated 2028 Total Reduction	3,242.03	613.46	256,226.00

6 *Note: Loads are based on the 2013 land cover data. Refer to text for justification.

7 Means and Methods to Meet the Required Reductions and Schedule

8 Progress in achieving substantial pollutant load reductions requires a significant amount of planning,
9 strategy development, and funding. The following section outlines the means (financial resources and
10 planning) and methods (stormwater BMPs) to achieve the required reductions.

11 Financial Planning

12 As a small MS4 in the tidewater region of Virginia, regulatory mandates such as the General Permit for
13 Discharges from Small Municipal Separate Storm Sewer Systems, the Virginia Stormwater Management
14 Regulations, the Chesapeake Bay Preservation Act, and the Erosion and Sediment Control Law mandate
15 Petersburg’s water quality control program. Each of these programs assign a variety of compliance tasks
16 for the permit holders. Petersburg has developed a plan for funding the regulatory compliance tasks.

17 Petersburg has recently (2013) implemented a stormwater utility. The newly dedicated funding source
18 has provided Petersburg with the ability to address long-overdue repairs and upgrades to existing
19 drainage infrastructure, continue to meet existing regulatory requirements, and plan for new regulatory
20 requirements including local water quality protection and Chesapeake Bay TMDL target load reductions.
21 The revenues generated by the fee will be used to fund all stormwater-related services, which include
22 enforcement of Petersburg’s stormwater ordinances, planning for future impacts, stormwater
23 infrastructure maintenance and repairs, construction of necessary capital improvement projects and



1 associated property acquisitions. The fee will also pay for annual compliance requirements of
2 Petersburg’s General Permit.

3 Petersburg has been successfully pursuing grant opportunities that enable the City to align these
4 alternative funding sources with their initiative to comply with regulatory permit requirements. The City
5 of Petersburg received technical assistance support from the National Fish and Wildlife Foundation’s
6 (NFWF) Chesapeake Bay Stewardship Fund to develop and implement a Geographic Information System
7 (GIS) and Water Quality Master Plan to identify opportunities and implementation strategies to protect
8 local streams and the Chesapeake Bay. In addition, the City of Petersburg received an award from the
9 Virginia DEQ 2015 Historical Data Cleanup (funded by the EPA Chesapeake Bay Regulatory and
10 Accountability Program Grant) for the collection of historical developed/urban Best Management
11 Practice data (1985- present). It is anticipated that Petersburg will continue to seek grant opportunities
12 that align with their goal of regulatory compliance.

13 Compliance Planning

14 Petersburg has proactively developed a plan to achieve water quality compliance with the permit
15 requirements. The Water Quality Master Plan developed a finite list of strategically located
16 implementation projects throughout Petersburg’s watersheds resulting in the maximum positive
17 impacts to the water quality of receiving streams and to prioritize projects for implementation so that
18 funding can identified in subsequent fiscal years (FY) for design and construction. The Water Quality
19 Master Plan will guide Petersburg towards short-term and long-term compliance goals.

20 1st Permit Cycle Compliance Strategy

21 Petersburg has developed a plan for completing the POC reduction requirements for the 1st permit
22 schedule. Several projects have been identified as part of Petersburg’s Water Quality Master Plan and
23 are in various stages of implementation. Implementation of the identified projects will enable
24 Petersburg to significantly exceed the required POC reductions for the 1st permit cycle, see Table 4. The
25 projects listed in Table 4 are planned to be implemented by the end of the 1st permit cycle to achieve
26 the 5.0% reductions required for existing development.

27 **Table 4. 1st Year POC Reduction Compliance Schedule**

Project Description	Project Type	Quantity	Unit	Pollutant of Concern Removal (lbs)		
				TN	TP	TSS
Street Sweeping (Lane Miles Method)	Street Sweeping	657,429	dry weight collected/yr	1643.57	657.43	197,228.65
Lieutenant Run at Johnson Road, Phase I	Stream Restoration	800	linear feet	41.63	37.74	24,908.98
Lieutenant Run at Animal Shelter, Phase II	Stream Restoration	1200	linear feet	57.02	51.70	39,391.86
Brickhouse Run at Hinton Street	Stream Restoration	250	linear feet	18.75	17.00	11,220.00
Canal Street*	Bioretention		n/a	1.29	0.16	45.20
Totals				1,762.26	764.03	272,794.69
			Required for 1st Permit Cycle	154.12	25.00	12,642.44
			% Achieved of 1st Permit Cycle Reductions	1143%	3056%	2158%
			Total Reduction Required (3 permit cycles)	3,242.03	613.46	256,226.00
			% Achieved of Total Required Reductions (3 permit cycles)	54%	125%	106%
Stream Restoration removal rates use the revised "Urban Stream Restoration Interim Approved Removal Rates"						
*TSS Removal determined from Chesapeake Bay Program Retrofit Curves/Equations						



1 Detailed calculations for the crediting approach for the methods presented in Table 4 and provided in
 2 Appendix B. The stream restoration POC removal calculations shown in Table 4 were completed using
 3 the revised Interim Rates provided as Appendix V. I of the Revised Draft TMDL Guidance Document.
 4 Removal rates for TSS were calculated using the non-coastal plain removal rate. For the Canal Street
 5 bioretention, pollutant reductions for TN and TP area were calculated using the Runoff Reduction
 6 Method spreadsheet. Determination of TSS removal for the bioretention area was completed using the
 7 Chesapeake Bay Program retrofit curves/equations as provided in Appendix V.B of the Revised Draft
 8 TMDL Guidance Document.

9 A schedule for implementation has been developed for the projects identified in Table 4 that will be
 10 used to meet the 1st permit cycle POC removal requirements. As demonstrated in Table 5 all projects
 11 required to meet 1st permit cycle POC reduction will be completed by March 2018.

12 **Table 5. Implementation Schedule to Meet 1st Permit Cycle Reduction Requirements.**

Implementation Schedule and Budget				
Project Description	Engineering Design Complete	Construction Initiation	Construction Completion	Budget
Street Sweeping (est. cost for 20 yr period)	N/A	N/A	N/A	\$ 291,250
Lieutenant Run, Phase I	Aug-15	Sep-15	Mar-18	\$ 138,500
Lieutenant Run, Phase II	Nov-16	Sep-17	Mar-18	\$ 734,000
Brickhouse Run at Hinton Street	Aug-15	Sep-15	Mar-18	\$ 118,315
Canal Street	Aug-15	Sep-15	Sep-17	\$ 88,000

13 **Reductions Achieved thru Redevelopment**

14 Redevelopment projects have been a significant part of the recent development that has occurred in
 15 Petersburg. According to recent MS4 Annual Reports, only approximately 190 acres of the City's 14,668
 16 acres have been developed since June 30, 2009, most of which was redevelopment. The Chesapeake
 17 TMDL Guidance Document Appendix V.K indicates that permittees may receive credit for
 18 redevelopment projects if the pre-development pollutant load is reduced regardless of the initial land
 19 use condition. The guidance indicates that, for projects that have been developed under the VSMP
 20 regulations using the Technical Criteria Part IIB, Petersburg can take credit for the required TP reduction
 21 of 10% for land-disturbances greater than or equal to one acre; and for the required TP reduction of 20%
 22 for land-disturbing activities greater than one acre. The guidance also indicates redevelopment projects
 23 that were developed using the Technical Criteria IIC of the VSMP regulations that the permittee may use
 24 either the 1) performance-based criteria or the 2) technology-based criteria. When performance-based
 25 criteria is applied, as done in Petersburg, reductions may be credited to the permittee if the TP load is
 26 reduced through development of prior developed lands when the redevelopment activity decreases, in
 27 accordance with Situation 3.

28 The City of Petersburg is building and analyzing a database of redevelopment projects that will be used
 29 to determine which, if any, of the redevelopment activities can be credited towards POC reductions.
 30 Petersburg reserves the right to be able to account for any potential reductions associated with
 31 redevelopment at a later date.



1 **Means and Methods to Offset Increased Loads from New Sources**

2 **Initiating Construction Between July 1, 2009 and June 30, 2014**

3 Special Condition Requirement 7 “New Sources of Construction” (Section I.C.2.a (7)) of the General
4 Permit applies to permittees that have:

- 5 i. Adopted an average impervious land cover condition greater than 16% for the design of post-
6 development stormwater management facilities under the Chesapeake Bay Preservation Act, or
- 7 ii. Have allowed projects to be built with an impervious land cover condition greater than 16% for
8 the design of post-development stormwater management facilities through a “fee-in-lieu of” or
9 similar program.

10 If a permittee has met either of the criteria listed in (i) or (ii) above, then the permittee has to address
11 the requirements set forth in the corresponding Special Condition. This would ultimately require further
12 POC reductions in addition to those required for existing conditions as of June 30, 2009 (GP Section
13 I.C.2.a (6)).

14 The City of Petersburg adhered to the technology-based criteria under 9VAC25-870-96.C. Under this
15 regulation it is stipulated that beyond the reduction requirements for existing conditions as of June 30,
16 2009, it is not required to compensate for any additional reductions required under Special Condition 7
17 of the General Permit because the technology-based criteria assumes an average land cover condition of
18 16% for the design of post-development stormwater management facilities. Therefore, no reduction
19 requirement for this Special Condition is applicable.

20 **Means and Methods to Offset Increased Loads from Grandfathered**
21 **Projects that Begin Construction after July 1, 2014**

22 Special Condition Requirement 8 “Grandfathered Projects” (Section I.C.2.a (8)) of the General Permit
23 apply to permittees that have:

- 24 i. Adopted an average impervious land cover condition greater than 16% for the design of post-
25 development stormwater management facilities under the Chesapeake Bay Preservation Act, or
- 26 ii. Have allowed projects to be built with an impervious land cover condition greater than 16% for
27 the design of post-development stormwater management facilities through a “fee-in-lieu of” or
28 similar program.

29 If a permittee has met either of the criteria listed in (i) or (ii) above, then the permittee has to address
30 the requirements set forth in the corresponding Special Condition. This would ultimately require further
31 POC reductions in addition to those required for existing conditions as of June 30, 2009 (GP Section
32 I.C.2.a (6)).

33 The City of Petersburg adhered to the technology-based criteria under 9VAC25-870-96.C. Under this
34 regulation it is stipulated that beyond the reduction requirements for existing conditions as of June 30,
35 2009, it is not required to compensate for any additional reductions required under Special Condition 8
36 of the General Permit because the technology-based criteria assumes an average land cover condition of



1 16% for the design of post-development stormwater management facilities. Therefore, no reduction
2 requirement for this Special Condition is applicable.

3 **List of Future Projects, and Associated Acreage that Qualify as**
4 **Grandfathered**

5 There are no future projects that are anticipated to qualify as grandfathered.

6 **Estimate of Expected Cost to Implement the Necessary Reductions**

7 Petersburg is well underway with implementing the projects listed in Table 4 required to meet the 1st
8 permit cycle POC reduction requirements. Budgetary requirements for each of these projects (including
9 design and estimated construction costs) are provided in Table 5. Design of three of the four projects is
10 currently already underway. Financial allocation of the remaining project is currently planned.

11 **Table 6. 1st Permit Cycle Budgetary Requirements.**

Project Description	Design Cost	Estimated Construction Cost	Total Budget (including contingency)
Street Sweeping (est. cost for 20 yr period)	N/A	N/A	\$ 291,250
Lieutenant Run, Phase I	\$ 83,000.00	\$ 125,000.00	\$ 138,500
Lieutenant Run, Phase II	\$ 120,000.00	\$ 614,000.00	\$ 734,000
Brickhouse Run at Hinton Street	\$ 28,000.00	\$ 90,315.00	\$ 118,315
Canal Street	\$ 13,000.00	\$ 75,000.00	\$ 88,000
Totals	\$ 244,000	\$ 904,315	\$ 1,370,065

13 **Public Comments on Draft Action Plan**

14 Petersburg encourages the public’s involvement and participation in the development and
15 implementation of its MS4 Program. In keeping with this objective, Petersburg posted a copy of its Draft
16 Chesapeake Bay TMDL Action Plan on its Stormwater Management website
17 (<http://www.petersburgva.gov/index.aspx?NID=295>) on September 10, 2015, to solicit public comment
18 on the draft plan. All comments received from the public were taken into consideration when
19 developing the final version of the Action Plan that was submitted to DEQ with its MS4 Annual Report in
20 October of 2015.



Appendix A

Current Program & Existing Legal Authority



Appendix A1.
Illicit Discharge Ordinance

10-Ord-14
Adopted: 04/06/10

**AN ORDINANCE TO AMEND AND REORDAIN
SECTIONS 122-106, 122-107, 122-108, AND 122-109
OF THE CITY CODE FOR THE CITY OF
PETERSBURG FOR THE PURPOSES OF ADDING
A SECTION TO PROHIBIT CERTAIN
DISCHARGES TO THE STORMWATER SEWER
SYSTEM, ESTABLISH A PROCEDURE FOR
INSPECTING AND MONITORING
STORMWATER DISCHARGE AND INSTITUTE
PENALTIES FOR VIOLATIONS.**

Approved as to form and legality by the City Attorney

WHEREAS, The City of Petersburg and communities in the surrounding region are under a consent decree issued by the Virginia Department of Conservation and Recreation to comply with the requirements pursuant to the Virginia Pollutant Discharge Elimination System (VPDES) permit; and

WHEREAS, the VPDES permit regulates stormwater runoff and any discharges to a storm sewer system; and

WHEREAS, the City of Petersburg ("City") is required by the Code of Virginia, as amended, to hold a public hearing on an Ordinance amending Chapter 122 of the 2000 Code of the City, as amended, to include a section to prohibit certain discharges to the stormwater sewer system, establish a procedure for inspecting and monitoring stormwater discharge, and institute penalties for violations; and

WHEREAS, the City of Petersburg has held a public hearing on April 6, 2010, pursuant to notice thereof as required by law, on the proposed amendment to Chapter 122 of the 2000 Code of the City of Petersburg; and

WHEREAS, there being no opposition to the subject request received from the general public.

NOW, THEREFORE, BE IT ORDAINED, by the City Council of the City of Petersburg, as follows:

§1. That §§ 122-106, 122-107, 122-108, and 122-109 of the Code of the City of Petersburg (2000) (as amended) be and are hereby amended and reordained, as follows:

Subdivision IV: DISCHARGES TO THE STORMWATER SEWER SYSTEM

Sec. 122-106. Definitions.

When used in this article, the following terms shall have the following meanings:

Administrator: The water quality administrator or the water quality administrator's designee.

Discharge: To dispose, deposit, spill, pour, inject, dump, leak or place by any means; and any substance which is disposed, deposited, spilled, poured, injected, dumped, leaked or placed by any means.

Illicit discharge: Any discharge to the storm sewer system that is not composed entirely of storm water except (i) discharges pursuant to a VPDES or NPDES permit, (ii) discharges resulting from fire fighting activities and (iii) discharges listed in Section 122-107(b) unless such discharges are identified by the City of Petersburg as sources of pollutants of waters of the United States pursuant to section 122-107(c).

Industrial wastes: Wastes resulting from any process of industry, manufacture, trade or business, or from the development of any natural resource.

National pollutant discharge elimination system (NPDES) permit: The permit issued by the federal government for imposing and enforcing pretreatment requirements pursuant to the Federal Clean Water Act.

Other wastes: Wastes that can adversely affect waters of the United States when discharged into those waters, including, but not limited to, garbage, refuse, lime, fertilizer, ashes, offal, tar, paint, solvents, petroleum products, antifreeze and chemicals.

Person: An individual, association, partnership, corporation, municipality, state or federal agency, or an agent or employee of any such person.

Sanitary sewer line: An underground conduit that collects and delivers sanitary wastewater to a wastewater treatment plant.

Storm sewer system: The conveyance or system of conveyances located within the City of Petersburg which are designed or used for collecting, storing or conveying storm water or through which storm water is collected, stored or conveyed, including but not limited to roads, municipal streets, catch basins, drop inlets, curbs, gutters, ditches, pipes, lakes, ponds, man-made channels, storm drains, outfalls, retention, detention and infiltration basins and other facilities.

Stormwater: Stormwater runoff, snow melt runoff, surface runoff and drainage.

Surface waters: All waters that run across the surface of land, including but not limited to natural or man-made ponds, lakes, impoundments, rivers, streams (including intermittent and ephemeral streams), natural or man-made water courses and tidal and non-tidal wetlands, except that waste treatment systems, treatment ponds and lagoons designed to meet the requirements of the Federal Clean Water Act shall not be surface waters.

Virginia Pollutant Discharge Elimination System (VPDES): The permit issued by the State of Virginia for imposing and enforcing pretreatment requirements pursuant to the Federal Clean Water Act.

Waters of the City of Petersburg: All waters, whether on the surface or under the ground, that are wholly or partially within or bordering the City.

Waters of the United States: All waters, whether on the surface or under the ground, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce, including but not limited to intrastate lakes, rivers, streams (including intermittent and ephemeral streams), mudflats, sandflats, wetlands, sloughs, prairie pot-holes, wet meadows, playa lakes and natural ponds, except that waste treatment systems, treatment ponds and lagoons designed to meet the requirements of the Federal Clean Water Act shall not be waters of the United States.

Wetlands: Land that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, generally including but not limited to swamps, marshes, bogs and similar areas.

Sec. 122-107. Prohibited discharge to the stormwater sewer system.

(a) It shall be unlawful to:

- (1) Cause or allow illicit discharges to the storm sewer system or to waters of the City of Petersburg;

- (2) Cause or allow the discharge of industrial waste or other waste to the storm sewer system or to waters of the City of Petersburg without a VPDES or NPDES permit;
- (3) Violate any condition or provision of this article; and
- (4) Connect, or cause or allow to be connected to the storm sewer system or waters of the City of Petersburg, without a VPDES or NPDES permit, any structure that conveys any liquid other than stormwater or discharges listed in paragraph (b) of this section, including but not limited to pipes, drains, sanitary sewer lines, washing machine drains or floor drains.

(b) Subject to the provisions of paragraph (c) of this section, the following activities shall not be unlawful illicit discharges:

- (1) Water line flushing;
- (2) Landscape irrigation;
- (3) Diverted stream flows or rising groundwaters;
- (4) Infiltration of uncontaminated groundwater;
- (5) Pumping of uncontaminated groundwater;
- (6) Discharges from potable water sources, foundation drains, irrigation water, springs, water from crawl spaces or footing drains;
- (7) Air conditioning condensation;
- (8) Lawn watering;
- (9) Residential car washing;
- (10) Dechlorinated swimming pool discharges; and
- (11) Public street washing.

(c) If any activity listed in paragraph (b) of this section is found by the administrator to be a source of pollutants to waters of the United States, the administrator shall serve a written notice on the party responsible for the activity which orders that the activity be ceased or conducted in a manner that will avoid the discharge of pollutants to the storm sewer system or waters of the City of Petersburg. The notice shall state the date by which the activity shall cease or be conducted without pollution. Failure to comply with any such order within the time stated in the notice shall constitute a violation of paragraph (a)(3) of this section.

Sec. 122-108. Inspecting and monitoring stormwater discharge.

The administrator shall have the authority to inspect and monitor discharges and sources of potential discharge to the storm sewer system to ensure compliance with this article, including the authority to enter upon private property to inspect or monitor such discharges or sources of potential discharge, the administrator shall also have the authority to initiate enforcement actions in accordance with Section 122-109.

Sec. 122-109. Penalties for violations of this article.

(a) Any person who knowingly violates any provision of this article shall be guilty of a Class 1 misdemeanor. Each day that such violation is committed, and each day that such violation is permitted to remain uncorrected shall constitute a separate offense.

(b) Any person who otherwise violates any provision of this article shall be subject to a civil penalty between \$250 and \$1,000 for each day that the violation continues. The court assessing such civil penalty may order the penalty to be paid into the treasury of the City of Petersburg and designated for the purpose of minimizing, preventing, managing or mitigating pollution of the waters of the City.

(c) Any person who violates any provision of this article shall be responsible for testing, containing, cleaning up, abating, removing and disposing of any substance unlawfully discharged into the storm sewer system or into waters of the City of Petersburg, or, if the *administrator* determines that correction of the violation can best be accomplished by the City, shall be liable to the City for all costs of testing, containment, cleanup, abatement, removal and disposal of any substance unlawfully discharged into the storm sewer system or into waters of the City.

§2. That this ordinance shall take effect immediately upon adoption.



Appendix A2.
Stormwater Management Guidelines & Maintenance Agreement



CITY OF PETERSBURG, VIRGINIA

STORMWATER MANAGEMENT GUIDELINES

- 1.1** PURPOSE: It is the purpose of this policy to establish minimum stormwater management guidelines and controls:
- A. To reduce flood damage to health, life, and property.
 - B. To minimize increased stormwater runoff from new developments.
 - C. To maintain the adequacy of existing channels and structures.
- 1.2** PROGRAM ADMINISTRATION: The City of Petersburg, Department of Public Works designates the City Engineer to administer the Stormwater Management Program.
- 1.3** APPLICABILITY: The following activities are exempt from this policy:
- A. Agriculture, horticultural and forestry related activities;
 - B. Single family residences separately built and not developed as part of a subdivision;
 - C. Land development projects that disturb less than 10,000 square feet of land, provided that the Director of Public Works may reduce this exception to a smaller area of disturbed land or qualify the conditions under which this exception shall apply;
 - D. State projects.
- 1.4** COMPATIBILITY WITH OTHER REQUIREMENTS: Conformance with this policy does not relieve the applicant of the responsibility to comply with other applicable ordinances and regulations.

2.0 DEFINITIONS: For the purpose of this document, the following terms and words shall have the meanings ascribed to them by this section:

"Adequate Channel" shall be defined as a natural or man-made channel or pipe which is capable of conveying the runoff from a 2-year storm without overtopping its banks or eroding after development of this site. Reference the State Erosion and Sediment Control Handbook.

"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.

"Runoff" means that portion of precipitation that is discharged across the land surface or through conveyances of one or more waterways.

"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 Plan" means a document containing material for describing how existing runoff characteristics will be maintained by a land development project and comply with the requirements of this policy.

3.1 TECHNICAL CRITERIA:

- A. A Stormwater Management Plan shall be developed so that the post-development peak runoff rate from a two-year and a ten-year storm, considered individually, shall not exceed their respective pre-development rates.
- B. To prevent flooding or stream erosion downstream of the development site, it may be necessary to increase the detention storage requirements and reduce peak outflow rates to levels that exceed the requirements of Paragraph 3.1.A above. Applicable watershed will have a watershed stormwater management analysis prepared by the City.
- C. The design storms shall be defined as either a 24-hour storm using the rainfall distribution recommended by the Soil Conservation Service when using U.S. Soil Conservation Service methods or as the storm of critical duration that produces the greatest required storage volume at the site when using a design method such as the Rational Method.
- D. For purposes of computing runoffs, all lands in the site shall be assumed prior to development to be in good condition (if the lands are pasture, lawns, or parks), with good cover (if the lands are cultivated); regardless of condition existing at the time of computation.

3.2 GENERAL CRITERIA:

- A. Proposed residential, commercial, or industrial subdivisions shall apply stormwater management criteria to the development as a whole. Individual lots in new subdivisions shall not be considered separate land development projects, but rather the entire subdivision shall be considered a single land development project. Hydrologic parameters shall reflect the ultimate land development and shall be used in all engineering calculations.

- B. Construction of stormwater management facilities or modifications of channels shall comply with all applicable laws and regulations. Evidence of approval of all necessary permits and execution of the Stormwater Management Agreement with the City shall be presented prior to issuance of the land disturbing permit.
- C. Pre-development and post-development runoff rates shall be verified by calculations that are consistent with good engineering practices and are acceptable to the City.
- D. The design of impounding structures that are not covered by the Virginia Dam Safety Regulations shall be checked by the applicant for structural integrity and floodplain impacts for the 100 year storm event. An emergency discharge should be designed to pass the 100 year storm.
- E. Safety measures should be incorporated into the design of all stormwater management facilities.
- F. Outlets from stormwater management facilities shall be designed to function without manual, electrical or mechanical controls.

3.3 STORMWATER MANAGEMENT FACILITIES IN FLOODPLAINS:

- A. New construction, including on-site stormwater management facilities, should be avoided in floodplains, when this is unavoidable, a special examination to determine adequacy of proposed stormwater management facilities during the 10 year flood shall be required. The 10 year design storm should be applied to both the site and the entire watershed contributing to the floodplain, assuming that the two peak simultaneously at the point in question. The time of concentration assumed for the entire watershed should be that appropriate to the larger area.
- B. In addition, such construction shall be in compliance with all regulations under the National Flood Insurance Program.

4.1 STORMWATER MANAGEMENT PLAN REQUIREMENTS:

- A. Maps, plans, designs, and calculations shall be certified by a Registered Professional Engineer, Class IIIB Surveyor, or Landscape Architect licensed to practice in the Commonwealth of Virginia.
- B. Plans should include:
 1. The boundary of the drainage area tributary to the project site. (e.g. U.S.G.S. Quadrangle Map).
 2. The location of the project relative to significant features in the general surroundings such as roads, pedestrian ways, access to the site, adjacent land use, property lines, existing man-made structures, public facilities, landmarks, and places of architectural and historical significance.
 3. Existing contours at 2-foot intervals, extending a minimum of 200 feet beyond the limits of the proposed development.

4. Streams, lakes, ponds, existing drainage swales, wetlands, forested areas and other physical features within or adjacent to the project area.
5. Locations of existing and proposed utilities, sewers and water lines.
6. The location of proposed buildings, roads, parking areas, and other permanent structures.
7. Final contours at 2-foot intervals, extending a minimum of 200 feet beyond the limits of the proposed development.

C. Details should include:

1. All stormwater management facilities must be shown, including details, plan, profile, and cross sections.
2. If infiltration facilities are proposed, the locations of existing and proposed wells and septic system drain fields must be shown.
3. Comprehensive hydrologic and hydraulic design calculations, including all assumptions and criteria, for the pre-development and post-development conditions for the 2-, 10-, and 100-year design storms.
4. A soils report and boring logs, as required by the design engineer to certify the design.
5. A maintenance plan indicating the person permanently responsible for maintenance of the stormwater management facilities.



CITY OF PETERSBURG
DECLARATION OF COVENANTS
FOR STORM AND SURFACE WATER FACILITY
AND SYSTEM MAINTENANCE

THIS DECLARATION OF COVENANTS made this _____ day of _____, 20____, by _____, hereinafter referred to as the "Covenantor" to and for the benefit of the City of Petersburg, a municipal corporation, and its successors and assigns, hereinafter to as the "City".

WITNESSETH:

WHEREAS, the City is authorized to regulate and control the disposition of storm and surface waters within the City of Petersburg, Virginia; and

WHEREAS, the Covenantor is the owner of a certain tract or parcel of land more particularly described as:

Tax Parcel Number(s): _____
City of Petersburg, City Assessor's Maps; and

WHEREAS, the Covenantor and/or its assigns desire to construct certain improvements on its property which will alter extant storm and surface water flow conditions on both the property and adjacent lands; and

WHEREAS, in order to accommodate and regulate these anticipated changes in existing storm and surface water flow conditions, the Covenantor and/or its assigns desire to build and maintain, at its expense, a storm and surface water management facility and system more particularly described and shown on plans titled _____ and dated _____; and _____

WHEREAS, the City has reviewed and approved these plans subject to the execution of this agreement.

NOW THEREFORE, in consideration of the benefits received by the Covenantor and/or its assigns as a result of the City's approval of his plans, Covenantor and/or its assigns, with full authority to execute deeds, deeds of trust, other covenants, and all rights, title and interest in the property described above does hereby covenant with the City as follows:

1. Covenantor and/or its assigns shall construct and perpetually maintain, at its sole expense, the above referenced storm and surface water management facility and system in strict accordance with the plan approval granted by the City.
2. Covenantor and/or its assigns shall, at its sole expense, make such changes or modifications to the

storm drainage facility and system as may, in the City's discretion, be determined necessary to insure that the facility and system are properly maintained and continue to operate as designed and approved.

3. The City, its agents, employees and contractors shall have the perpetual right of ingress and egress over the property of the Covenantor and/or its assigns and the right to inspect at reasonable times and in a reasonable manner, the storm and surface water management system to make sure it is being properly maintained and is continuing to perform in an adequate manner.
4. The Covenantor and/or its assigns agree that should it fail to correct any defects in the above described facility and system within ten (10) days from the receipt of written notice, or shall fail to maintain the facility and system in accordance with the approved design standards and with the law and applicable regulations or, in the event of an emergency as determined by the City in its sole discretion, the City is authorized to enter the property to make all repairs, and to perform all maintenance, construction and reconstruction the City deems necessary. The City shall then assess the Covenantor and/or its assigns and/or all landowners served by the facility and system for the cost of such placed on the property tax bills of said properties and collected as ordinary taxes by the City.
5. Covenantor and/or its assigns shall indemnify, save harmless and defend the City from and against any and all claims, demands, suits, liabilities, losses, damages and payments including reasonable attorney fees claimed or made by persons not parties to the Declaration against the City that are alleged or proven to result or arise from the Covenantor's and/or its assigns' construction, operation or maintenance of the storm and surface water management facility and system that is the subject of this Covenant.
6. The covenants contained herein shall run with the land and the Covenantor and/or its assigns further agree that whenever the property shall be held, sold, conveyed, it shall be subject to the covenants, stipulations, agreements and provision of this Declaration, which shall apply to, bind and be obligatory upon the Covenantor hereto, its heirs, successors and assigns and shall bind all present and subsequent owners of the property served by the facility and system.
7. The Covenantor and/or its assigns shall promptly notify the City when the Covenantor and/or its assigns legally transfer any of the Covenantor's and/or its assigns' responsibilities for the facility. The Covenantor and/or its assigns shall supply the Director of Public Works, City of Petersburg, 103 W. Tabb Street, Petersburg, Virginia 23803, with a copy of any document of transfer, executed by both parties, and a copy of this document acknowledged by both parties.
8. The provision of this Declaration shall be severable and, if any phrase, clause, sentence or provision is declared unconstitutional, or the applicability thereof to the Covenantor and/or its assigns is held invalid, the remainder of this Covenant shall not be affected thereby.
9. The Declaration shall be recorded at the Clerk's Office of the Circuit Court of the City of Petersburg, Virginia, at the Covenantor's and/or its assigns' expense.
10. In the event that the City shall determine at its sole discretion at any future time that the facility and system is no longer required, then the City shall, at the request of the Covenantor and/or its assigns, execute a release of this Declaration of Covenants which the Covenantor and/or its assigns shall record such release at its expense.
11. All notices sent hereunder shall be sent by first class mail (certified, postage prepaid, with return receipt requested) addressed to the intended recipient at the address listed below: release of this Declaration of Covenants which the Covenantor and/or its assigns shall record such release at its expense

For the Covenantor:

For the City: Director of Public Works
City of Petersburg
103 W. Tabb Street
Petersburg, Virginia 23803

IN WITNESS WHEREOF, the Covenantor has executed this Declaration of Covenants as of the _____ day of _____, 20____.

By: _____

SEEN AND AGREED:

Property Owner

Property Owner

STATE OF VIRGINIA
CITY/COUNTY OF _____, to wit:

The foregoing instrument was acknowledged before me this _____ day of _____, 20____.

NOTARY PUBLIC

My Commission Expires: _____

STATE OF VIRGINIA
CITY/COUNTY OF _____, to wit:



Appendix A3.
VSMP SWM Ordinance

STORMWATER MANAGEMENT ORDINANCE (SECTION 50, ARTICLE IV)

Pursuant to Code §62.1-44.15:27 this ordinance is adopted as part of an initiative to integrate the Petersburg stormwater management requirements with Petersburg's erosion and sediment control (Petersburg City Code Section 50, Article V), flood insurance (Section 58, Article II), flood plain management (Section 58, Article II), and Chesapeake Bay Preservation Act (Section 122, Article II) 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 inspection and enforcement activities into a more convenient and efficient manner for both the City of Petersburg and those responsible for compliance with these programs.

50-101. PURPOSE AND AUTHORITY. (Section 9VAC25-870-20, 9VAC25-870-40)

- (a) The purpose of this Ordinance is to ensure the general health, safety, and welfare of the citizens of Petersburg 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.
- (b) This ordinance is adopted pursuant to Article 2.3 (§62.1-44.15:27 et seq.) of Chapter 3.1 of Title 62.1 of the Code of Virginia.

50-102. DEFINITIONS. (9VAC25-870-10)

In addition to the definitions set forth in 9VAC25-870-10 of the Virginia Stormwater Management Regulations, as amended, which are expressly adopted and incorporated herein by reference, the following words and terms used in this Ordinance have the following meanings unless otherwise specified herein. Where definitions differ, those incorporated herein shall have precedence.

"Administrator" means the VSMP authority including the Stormwater Program Manager or the Department of Public Works,

"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 Ordinance.

"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.

"Chesapeake Bay Preservation Act land-disturbing activity" means a land-disturbing activity including clearing, grading, or excavation that results in a land disturbance equal or greater than 2,500 square feet and less than one acre in all areas of jurisdictions designated as subject to the regulations adopted pursuant to the Chesapeake Bay Preservation Act, *Code of Virginia*, §62.1-44.15:67, et seq.

"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.

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

"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.

"Department" means the Department of Environmental Quality (DEQ).

"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.

"General permit" means the state permit titled GENERAL PERMIT FOR DISCHARGES OF STORMWATER FROM CONSTRUCTION ACTIVITIES found in Part XIV (9VAC25-880-1 et seq.) of the Regulations authorizing a category of discharges under the CWA and the Virginia Stormwater Management Act.

"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 50-103 (c) of this Ordinance.

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

"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 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.

"Operator" means the owner or operator of any facility or activity subject to regulation under this Ordinance.

"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 Ordinance, and which may only be issued after evidence of general permit coverage has been provided by the Department.

"Permittee" means the person to whom the VSMP Authority Permit is issued.

"Person" means any individual, corporation, partnership, association, state, municipality, commission, or political subdivision of a state, governmental body, including federal, state, or local entity as applicable, any interstate body or any other legal entity.

"Regulations" means the Virginia Stormwater Management Program (VSMP) Permit Regulations, 9VAC25-870, as amended.

"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. Areas channelward of mean low water in tidal Virginia shall not be considered part of a site.

"State" means the Commonwealth of Virginia.

"State Board" means the State Water Control Board.

"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 or an approval issued by the State Board for stormwater discharges from an MS4. Under these state permits, the Commonwealth imposes and enforces requirements pursuant to the federal Clean Water Act and regulations, the Virginia Stormwater Management Act and the 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 or within its jurisdiction, including wetlands.

"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 plan" means a document(s) containing material describing methods for complying with the requirements of Section 50-106 of this Ordinance.

"Stormwater Pollution Prevention Plan" or "SWPPP" means a document 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 Ordinance. In addition the document 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 the same as defined in Section 33-1 of Article I of the Petersburg Subdivision Ordinance.

"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.

"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 Program" or "VSMP" means a program approved by the State Board after September 13, 2011, that has been established by a locality to manage the quality and quantity of runoff resulting from land-disturbing activities and 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.

"Virginia Stormwater Management Program authority" or "VSMP authority" means an authority approved by the State Board after September 13, 2011, to operate a Virginia Stormwater Management Program.

Sec. 50-103. STORMWATER PERMIT REQUIREMENT; EXEMPTIONS.

- (a) A person shall not conduct any land-disturbing activity until a permit application has been submitted to the VSMP authority that includes a state VSMP permit registration statement, if such statement is required. A registration statement is not required for detached single-family home construction within or outside of common plan of development or sale; however, such projects must adhere to the requirements of the general permit.
- (b) Chesapeake Bay Preservation Act land-disturbing shall not require completion of a registration statement or require coverage under the General Permit for Discharges of Stormwater from Construction Activities. A Chesapeake Bay Preservation Act land-

disturbing activity shall be subject to an erosion and sediment control plan consistent with the requirements of the Erosion and Sediment Control Ordinance, a stormwater management plan as outlined under Section 50-106, the technical criteria and administrative requirements for land disturbing activities outlined in Section 50-109, and the requirements for control measures for long-term maintenance outlined under Section 50-110. Exceptions to these technical criteria and administrative requirements may be requested.

(c) Notwithstanding any other provisions of this Ordinance, 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 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 acre of land area; except for land disturbing activity exceeding an area of 2,500 square feet in all areas of the jurisdictions designated as subject to the Chesapeake Bay Preservation Area Designation and Management Regulations (9VAC 25-830) adopted pursuant to the Chesapeake Bay Preservation Act (§62.1-44.15:67 et seq.) or except for activities that are part of a larger common plan of development or sale that is one 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 seven 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.

**Sec. 50-104. STORMWATER MANAGEMENT PROGRAM ESTABLISHED;
SUBMISSION AND APPROVAL OF PLANS; PROHIBITIONS.**

- (a) Pursuant to §62.1-44.15:27 of the Code of Virginia, the City of Petersburg hereby establishes a Virginia stormwater management program for land-disturbing activities and adopts the applicable Regulations that specify standards and specifications for VSMPs promulgated by the State Board for the purposes set out in Section 50-101 of this Ordinance. The City Council hereby designates the Stormwater Program Manager as the Administrator of the Virginia stormwater management program.
- (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;
 - (2) An erosion and sediment control plan approved in accordance with the Petersburg Erosion and Sediment Control Ordinance (City Code Section 50, Article V); and
 - (3) A stormwater management plan that meets the requirements of Section 50-106 of this Ordinance, or an executed agreement in lieu of a stormwater management plan.
- (c) No VSMP authority permit shall be issued until evidence of general permit coverage is obtained.
- (d) No VSMP authority permit shall be issued until the fees required to be paid pursuant to Section 50-115, are received, and a reasonable performance bond required pursuant to Section 50-116 of this Ordinance 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.

**Sec. 50-105. STORMWATER POLLUTION PREVENTION PLAN; CONTENTS OF
PLANS.**

- (a) The Stormwater Pollution Prevention Plan (SWPPP) shall include the content specified by Section 9VAC25-870-54 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 II of the general permit, either electronically or in hard copy.

Sec. 50-106. STORMWATER MANAGEMENT PLAN; CONTENTS OF PLAN.

- (a) The Stormwater Management Plan, required in Section 50-104 of this Ordinance, must apply the stormwater management technical criteria set forth in Section 50-109 of this Ordinance to the entire land-disturbing activity. A stormwater management plan that is approved for a residential, commercial, or industrial subdivision shall govern the development of the individual parcels, including those parcels developed under subsequent owners. Individual lots in new residential, commercial, or industrial developments shall not be considered separate land-disturbing activities. The Stormwater Management Plan must consider all sources of surface runoff and all sources of subsurface and groundwater flows converted to surface runoff, and 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 predevelopment and postdevelopment drainage areas;
 - (2) Contact information including the name, address, and telephone number of the owner and the 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;
 - (5) Information on the proposed stormwater management facilities, including:
 - (i) The type of facilities;
 - (ii) Location, including geographic coordinates;

- (iii) Acres treated; and
 - (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 Section 50-109 of this Ordinance.
- (8) A 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) The 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 50-109 of this Ordinance 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.
- (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.

Sec. 50-107. POLLUTION PREVENTION PLAN; CONTENTS OF PLANS.

(a) A Pollution Prevention Plan, required by 9VAC25-870-56, 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 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 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.

Sec. 50-108. 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 50-106 of this Ordinance, 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 plan

shall be deemed complete and the Administrator shall have 60 calendar days from the date of submission to review the plan.

- (3) The Administrator shall review any plan that has been previously disapproved, within 45 calendar days of the date of resubmission.
 - (4) 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 his 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 Ordinance.
 - (5) If a plan meeting all requirements of this Ordinance is submitted and no action is taken within the time provided above in subdivision (2) for review, the plan shall be deemed approved.
- (b) Approved stormwater 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 50-110 (b).

Sec. 50-109. 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 Locality hereby adopts the technical criteria for regulated land-disturbing activities set forth in Part II B of the Regulations, as amended, expressly to include 9VAC25-870-62 [applicability]; 9VAC25-870-63 [water quality design criteria requirements]; 9VAC25-870-65 [water quality compliance]; 9VAC25-870-66 [water quantity]; 9VAC25-870-69 [offsite compliance options]; 9VAC25-870-72 [design storms and hydrologic methods]; 9VAC25-870-60-74 [stormwater harvesting]; 9VAC25-870-76 [linear development project]; 9VAC25-870-85 [stormwater management impoundment structures or facilities] ; 9VAC25-870-92 [comprehensive stormwater management plans] ; 9VAC25-870-93 [definitions] ; 9VAC25-870-94 [applicability] ; 9VAC25-870-95 [general] ; 9VAC25-870-96 [water quality] ; 9VAC25-870-97 [stream channel erosion] ; 9VAC25-870-98 [flooding] ; and 9VAC25-870-99 [regional stormwater management plans], which shall apply to all land-

disturbing activities regulated pursuant to this Ordinance, except as expressly set forth in Subsection (b) of this Section.

- (b) Any land disturbing activity shall be considered grandfathered by the VSMP authority and shall be subject to the Part II C technical criteria of the VSMP Regulation 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 locality to be equivalent thereto (i) was approved by the locality 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 the VSMP Regulation, and (iv) has not been subsequently modified or amended in a 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 VSMP Regulation provided:
 - (1) 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) 2. A state permit has not been issued prior to July 1, 2014; and
 - (3) 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 or 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 Ordinance 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 Ordinance.

(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.

Sec. 50-110. 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 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.

Sec. 50-111. MONITORING AND INSPECTIONS.

(a) The Administrator or any duly authorized agent of the Administrator (Engineering Technician/Project Inspector) 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 or any duly authorized agent of the Administrator (Engineering Technician/Project Inspector) may, 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.
- (c) In accordance with a performance bond with surety, cash escrow, letter of credit, any combination thereof, or such other legal arrangement or instrument, 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.
- (e) Post-construction inspections of stormwater management facilities required by the provisions of this Ordinance shall be conducted by the Administrator or any duly authorized agent of the Administrator (Engineering Technician/Project Inspector) pursuant to the Locality's adopted and State Board approved inspection program, and shall occur, at minimum, at least once every five (5) years except as may otherwise be provided for in Section 50-110.

Sec. 50-112. HEARINGS

The State Board shall hold hearings in a manner consistent with § 62.1-44.26. If the City of Petersburg holds hearings under this article it shall do so in a manner consistent with applicable City hearing procedures.

Sec. 50-113. APPEALS.

Appeals shall be considered in accordance with Section 50-134(f) and Section 50-137 of the Petersburg City Code, and shall be consistent with the limitations within §62.1-44.15:46 of Chapter 3.1 of Title 62.1 of the Code of Virginia.

Sec. 50-114. 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, or the person conducting the land-disturbing activities without an approved plan or required permit to cease all land-disturbing activities until the violation of the permit has ceased, or an approved plan and required permits are obtained, and specified corrective measures have been completed.

Such orders shall be issued in accordance with Section 50-134 of the Petersburg City Code. Such orders shall become effective upon service on the person by certified mail, return receipt requested, sent to his address specified in the land records of the locality, 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 watersheds of the Commonwealth 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 50-114 (c).

- (b) In addition to any other remedy provided by this Ordinance, if the Administrator or his designee determines that there is a failure to comply with the provisions of this Ordinance, they may initiate such informal and/or formal administrative enforcement procedures in a manner that is consistent with Section 50, Article V of the City Code.
- (c) 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 may be compelled in a proceeding instituted in Petersburg Circuit Court by the City to obey same and to comply therewith by injunction, mandamus or other appropriate remedy.
- (d) Any person who violates any provision of this Ordinance or who fails, neglects, or refuses to comply with any order of the Administrator, shall be subject to a civil penalty

not to exceed \$32,500 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 SWPPP;
 - (iii) Incomplete SWPPP;
 - (iv) 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
 - (xi) Discharges not in compliance with the requirements of Section 9VAC25-870-70 of the general permit.
 - (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 Subsection, the court may consider the degree of harm caused by the violation and also the economic benefit to the violator from noncompliance.
 - (4) Any civil penalties assessed by a court as a result of a summons issued by Petersburg shall be paid into the treasury of the City of Petersburg 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.
- (e) 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 Ordinance, 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 nor more than \$32,500, or both.

Sec. 50-115. 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 Table 1. 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 ("total fee to be paid by applicant" column) in accordance with the disturbed acreage of their site or sites according to Table 1. VSMP authority portion of the statewide permit fee for coverage under the General Permit for Discharges of Stormwater for Construction Activities for small construction activity

involving a single family detached residential structure with a site or area, within or outside a common plan of development or sale, that is equal to or greater than one acre but less than five acres shall be no greater than the VSMP authority portion of the fee for coverage of sites or areas with a land-disturbance acreage of less than one acre within a common plan of development or sale.

Table 1: Fees for permit issuance

Fee type	Total fee to be paid by Applicant (includes both VSMP authority and Department portions where applicable)	Department portion of "total fee to be paid by Applicant" (based on 28% of total fee paid ^a)
Chesapeake Bay Preservation Act Land-Disturbing Activity (not subject to General Permit coverage; sites within designated areas of Chesapeake Bay Act localities with land-disturbance acreage equal to or greater than 2,500 square feet and less than 1 acre)	\$290	\$0
General / Stormwater Management - Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land disturbance acreage less than 1 acre.)	\$290	\$81
General / Stormwater Management - Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 1 acre and less than 5 Acres)	\$2,700	\$756
General / Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 5 acres and less than 10 acres)	\$3,400	\$952
General / Stormwater Management - Large Construction Activity/Land Clearing [Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 10 acres and less than 50 acres]	\$4,500	\$1,260
General / Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 50 acres and less than 100 acres)	\$6,100	\$1,708
General / Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 100 acres)	\$9,600	\$2,688

* If the project is completely administered by the Department such as may be the case for a state or federal project or projects covered by individual permits, the entire applicant fee shall be paid to the Department.

(b) Fees for the modification or transfer of registration statements from the general permit issued by the State Board shall be imposed in accordance with Table 2. If the general permit modifications result in changes to stormwater management plans that require additional review by the City of Petersburg, such reviews shall be subject to the fees set out in Table 2. 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 Table 1.

Table 2: Fees for the modification or transfer of registration statements for the General Permit for Discharges of Stormwater from Construction Activities

Type of Permit	Fee Amount
General / Stormwater Management – Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land disturbance acreage less than 1 acre)	\$20
General / Stormwater Management – Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 1 and less than 5 acres)	\$200
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 5 acres and less than 10 acres)	\$250
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 10 acres and less than 50 acres)	\$300
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 50 acres and less than 100 acres)	\$450
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 100 acres)	\$700

(c) The following annual permit maintenance shall be imposed in accordance with Table 3, including fees imposed on expired permits that have been administratively continued. With respect to the general permit, these fees shall apply until the permit coverage is terminated.

Table 3: Permit Maintenance Fees

Type of Permit	Fee Amount
Chesapeake Bay Preservation Act Land-Disturbing Activity (not subject to General Permit coverage; sites within designated areas of Chesapeake Bay Act localities with land-disturbance acreage equal to or greater than 2,500 square feet and less than 1 acre)	\$50
General / Stormwater Management – Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land disturbance acreage less than 1 acre)	\$50
General / Stormwater Management – Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance equal to or greater than 1 acre and less than 5 acres)	\$400
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 5 acres and less than 10 acres)	\$500
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 10 acres and less than 50 acres)	\$650
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 50 acres and less than 100 acres)	\$900
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater 100 acres)	\$1,400

General permit coverage maintenance fees shall be paid annually to the City of Petersburg, by the anniversary date of general permit coverage. 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.

(d) The fees set forth in Subsections (a) through (c) above, shall apply to:

- (1) All persons seeking coverage under the general permit.
- (2) All permittees who request modifications to or transfers of their existing registration statement for coverage under a general permit.
- (3) 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.

- (4) Permit and permit coverage maintenance fees outlined under Section 50-115 (c) may apply to each general permit holder.
- (e) No general permit application fees will be assessed to:
- (1) Permittees who request minor modifications to general permits as defined in Section 50-102 of this Ordinance. 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.
 - (2) Permittees whose general permits are modified or amended at the initiative of the Department, excluding errors in the registration statement identified by the Administrator or errors related to the acreage of the site.
- (f) All incomplete payments will be deemed as nonpayments, 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 10% late payment fee shall be charged to any delinquent (over 90 days past due) account. The City of Petersburg shall be entitled to all remedies available under the Code of Virginia in collecting any past due amount.

50-116. PERFORMANCE BOND (9VAC25-870-104.D and Code §62.1-44.15:34(A))

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 City Attorney, to ensure that measures could be taken by the City of Petersburg at the Applicant's expense should he 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 his land disturbing activity. If the City of Petersburg 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.



CITY OF PETERSBURG, VIRGINIA
CHESAPEAKE BAY TMDL ACTION PLAN



Appendix A4.
Stormwater Utility Ordinance & Rate Resolution

**AN ORDINANCE OF THE CITY OF PETERSBURG,
VIRGINIA PERTAINING TO THE SUBJECT OF
STORMWATER MANAGEMENT; ADOPTING AND
APPROVING A STORMWATER UTILITY; PROVIDING A
STORMWATER USER FEE AND RATE STRUCTURE;
PROVIDING FOR THE ADMINISTRATION OF THE
STORMWATER UTILITY; PROVIDING FOR A
STORMWATER ENTERPRISE FUND; PROVIDING FOR
CODIFICATION; PROVIDING A SAVINGS CLAUSE AND
PROVIDING AN EFFECTIVE DATE THEREFOR.**

WHEREAS, The Federal Clean Water Act, 33 U.S.C. 1251 et seq., requires cities, such as the City of Petersburg, to implement stormwater management programs within prescribed time frames, and the Environmental Protection Agency, pursuant to the Federal Clean Water Act, 33 U.S.C. 1251 et seq., has published rules for stormwater outfall permits; and

WHEREAS, the City of Petersburg, desires to develop a Stormwater Utility to finance the operation, construction, and maintenance of stormwater devices; for stormwater system planning; for review of development plans for compliance with stormwater management codes; and for stormwater management; and

WHEREAS, the Code of Virginia Title 15.2, Chapter 21, Subsection 15.2-2114 – Regulation of Stormwater, and the Constitution of the Commonwealth of Virginia authorizes the City of Petersburg, to establish a stormwater control program and adopt a system of service charges sufficient to plan, construct, operate, manage and maintain such stormwater control system, and to establish and set aside, as a continuing source of revenue, other funds sufficient to plan, construct, operate, and maintain such stormwater management systems; and

WHEREAS, the City of Petersburg, has determined the adoption of this Ordinance, and the creation of a stormwater utility, under the terms, conditions, and criteria set forth herein, is necessary to protect the health, safety, and welfare of the citizens of the City of Petersburg and to establish a mechanism to assist meeting the various existing and anticipated mandates concerning stormwater from the Federal and State governments.

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF PETERSBURG, VIRGINIA:

SECTION 1: Chapter 114 Utilities, “Article IV - Stormwater Utility”, of the Code of the Ordinances, for City of Petersburg, Virginia is hereby created to read as follows:

ARTICLE IV. STORMWATER UTILITY

Sec. 114-400. Findings and Purpose of Utility

(1) Findings. The City of Petersburg finds and determines that uncontrolled drainage and development of land has a significant adverse impact upon the health, safety, and welfare of the Petersburg community. Further, Petersburg finds as follows:

(a) Stormwater runoff is capable of carrying pollutants into receiving bodies, thereby degrading water quality;

(b) Impervious surfaces increase the volume and rate of stormwater runoff and allow less water to percolate into the soil, thereby decreasing groundwater recharge;

(c) Improperly managed stormwater runoff may increase the incidence and intensity of flooding, which endangers property and human welfare;

(d) Improperly channeling water increases the velocity of stormwater runoff and increases erosion and sedimentation;

(e) Construction requiring the alteration of natural topography and removal of vegetation tends to increase erosion;

(f) The increase in nutrients, such as phosphorous and nitrogen, resulting from stormwater runoff accelerates eutrophication of receiving water bodies and adversely affecting flora and fauna;

(g) Siltation of water bodies resulting from increased erosion decreases the capacity of water bodies to hold and transport water, interferes with navigation, and harms flora and fauna;

(h) Substantial economic losses may result from adverse impacts upon the waters of the Petersburg ecosystem;

(i) Petersburg has an existing Stormwater Control Program, through which it administers various stormwater management functions and maintains a system of storm and surface water management facilities including, but not limited to, conduits, manholes, channels, ditches, waterways, drainage easements, retention and detention basins, infiltration facilities, and other components;

(j) The existing stormwater system in Petersburg requires regular maintenance and improvements;

(k) Due to the age of existing infrastructure, rehabilitation and replacement of some portions of the existing stormwater system and implementation of new stormwater systems

are required;

(l) All Developed Property in Petersburg either uses or benefits from the City's administration of its Stormwater Control Program;

(m) The extent of use of the Stormwater Program by each Property depends upon factors, such as land use and the amount of Impervious Surface on the Property, which influence runoff;

(n) The costs of administration of the City's Stormwater Program should be allocated, to the extent practicable, to all Property Owners based in part on the impact of runoff from the impervious areas of their Property on the stormwater system; and

(o) Management of the City's Stormwater Program to protect the public health, safety, and welfare requires adequate revenues, and it is in the interest of the public to finance stormwater management adequately with a reasonable and equitable user fee system so each user of the program pays to the extent to which the user contributes to the need for the Stormwater Program.

(2) Purpose of Ordinance. The purpose of this Ordinance is to protect, maintain, and enhance the immediate and long-term health, safety, and general welfare of the citizens of the City of Petersburg. In order to effectuate this purpose, this Ordinance has the following objectives:

(a) To develop a Stormwater Control Program, to be responsible for the construction, operation, and maintenance of stormwater devices; for stormwater system planning; for review of development plans for compliance with stormwater management codes;

(b) To adopt Stormwater Utility Fees sufficient to administer the City's Stormwater Control Program and plan, construct, operate, and maintain stormwater management systems throughout the City of Petersburg;

(c) To encourage productive and enjoyable harmony between humanity and nature;

(d) To protect, restore, and maintain the chemical, physical, and biological integrity of community waters;

(e) To prevent individuals, business organizations, and governments from causing harm to the community, by activities which adversely affect water resources;

(f) To encourage the construction of drainage systems which aesthetically and functionally approximate natural systems;

(g) To encourage the protection of natural systems, and the use of those systems in ways not impairing their beneficial functioning;

- (h) To minimize the transport of pollutants to community waters;
- (i) To maintain or restore groundwater levels;
- (j) To minimize erosion and sedimentation; and
- (k) To help prevent damage from flooding, while recognizing that natural fluctuations in water levels are beneficial.

Sec. 114-401. Definitions for the Stormwater Program

- (1) “Base Rate” means the total cost to the City of implementing the City’s Stormwater Program.
- (2) “Bonds” means revenue bonds, notes, loans or any other debt obligations issued or incurred to finance the Program.
- (3) “Customer” means any Person who owns, leases, or otherwise is responsible for payment of the Fee charged to a Property. A Person owning, leasing, or otherwise responsible for a Property not containing Impervious Surface is not a customer.
- (4) “Debt Service” means, with respect to any particular fiscal year and any particular series of Bonds, an amount equal to the sum of all interest payable on such Bonds during such fiscal year plus any principal installments of such Bonds during such fiscal year.
- (5) “Developed Property” or “Property” means real property which has been altered from its original state by the addition of any improvements, such as a building, structure, or other form of Impervious Surface. Disturbed lands shall be considered developed property when there is more than 500 square feet of Impervious Surface Area. For new construction, property shall be considered developed pursuant to this Ordinance upon issuance of a certificate of occupancy, or upon evidence of construction, completion of construction or final inspection if no such certificate is issued.
- (6) “Dwelling Unit” means a single unit or apartment providing complete, independent living facilities for one or more Persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation.
- (7) “Equivalent Residential Unit” or “ERU” means the average square footage of impervious area as determined pursuant to this Ordinance.
- (8) “ERU Rate” means a portion of the Utility Fee charged per ERU, as established in Exhibit “A” of the Ordinance.
- (9) “Fee”, “Stormwater Utility Fee”, or “Utility Fee” means the monetary charge established

under this Ordinance, levied on owners or users of parcels or pieces of real Property deriving a service from the City's Stormwater Program, and being sufficient to fund and administer the program. The City shall base the Fee upon an equitable unit cost approach and structure the funding to generate capital to administer the Stormwater Program. The Stormwater Utility Fee is in addition to any other fee the municipality has the right to charge under any other rule or regulation of the municipality.

(10) "Impervious Surface" means a surface composed of any material that significantly impedes or prevents natural infiltration of water into the soil. Impervious surfaces include, but are not limited to, roofs, buildings, streets, parking areas, and any concrete, asphalt, or compacted gravel surface.

(11) "Impervious Surface Area" means the number of square feet of horizontal surface covered by impervious surfaces. Measurements to determine Impervious Surface Area should be made between exterior or outermost portions of the impervious surface.

(12) "Non-Residential Utility Customer" means all Stormwater Utility Customers not classified as Residential Utility Customers.

(13) "Operation and Maintenance" means the current expenses, paid or accrued, of operation, maintenance, and current repair of the City's stormwater system, as calculated in accordance with sound public works, engineering and accounting practices, and includes, but is not limited to, insurance premiums, administrative expenses, labor, executive compensation, materials and supplies costs for current operations, and charges for the accumulation of appropriate reserves for current expenses not annually incurred, but which may reasonably be expected to incur in accordance with sound accounting practice.

(14) "Person" means a natural or artificial person (such as a corporation) recognized by law to have the rights and duties of a human being. Person means the state or any agency or institution thereof, the United States or any agency or institution thereof, or any municipality, political subdivision, public or private corporation, individual, partnership, association, or other entity and includes any officer or governing or managing body of the state, the United States, any agency, any municipality, political subdivision, or public or private corporation.

(15) "Property owner" includes any Person who has the right to possess, use, and convey title of real Property. Property owner may include a tenant, if chargeable under tenant's lease for the maintenance of the subject real Property, and any agent of the owner or tenant, including the developer.

(16) "Residential Utility Customer" means a Stormwater Utility Customer who lives in a Dwelling Unit. Residential Utility Customer does not include the place where a corporation or other enterprise conducts or is authorized to conduct business.

(17) "Revenue" means all rates, fees, or other charges or other income received by the Utility, in connection with the administration of the Stormwater Program, including amounts received

from the investment or deposit of moneys in any fund or account and any amounts contributed by the City, all as calculated in accordance with sound accounting practice.

(18) "Stormwater" means the flow of water which results from a precipitation event and includes, but is not limited to, stormwater runoff, surface runoff, and drainage.

(19) "Stormwater Control Program", or "Stormwater Program", or "Program" means the comprehensive strategies for dealing with stormwater quantity and quality issues. Stormwater Control includes, but is not limited to, the planning, design, construction, regulation, improvement, repair, maintenance, and operation of facilities and programs relating to water, comprehensive plan elements relating to flood plains, flood control, grading, erosion, tree conservation, and sediment control.

(20) "Stormwater Control Fund", "Enterprise Fund", or "Fund" means the fees, and other Revenue collected by the City exclusively to fund the planning, construction, operation, and maintenance of the City's Stormwater Control Program.

(21) "Stormwater Control System" means a system which is designed, constructed, or implemented to control discharges caused by precipitation events and incorporates methods to collect, convey, store, absorb, inhibit, treat, use, or reuse water to prevent or reduce flooding, overdrainage, environmental degradation, and water pollution, or otherwise affect the quantity and quality of discharges from the system.

(22) "Stormwater Utility" or "Utility" means the funding of a Program by assessing to the beneficiaries the cost of the Program based on their relative contribution to its need. The Stormwater Utility operates as a typical utility, which bills services regularly, similar to water and wastewater services.

(23) "Stormwater Utility Customer" means a Person to whom the Fee is assigned and billed.

(24) "User" means the owner of record of Property or other party subject to the Fee imposed by this Ordinance.

Sec. 114-402. Creation of Utility

(1) Establishment of Utility. Pursuant to the Code of Virginia Title 15.2, Chapter 21, Subsection 15.2-2114 – Regulation of Stormwater, as amended, the City of Petersburg hereby establishes a Stormwater Utility. The Public Works Director and City Engineer of the City shall be jointly responsible for the City's Stormwater Control Program and System and for all activities and facilities necessary to provide control of stormwater quantity and quality in the City.

(2) The City shall have the Power to:

(a) Charge a Fee to Customers within the City;

(b) Prepare necessary regulations recommended to implement the Ordinance, forward the regulations to the City Council for consideration and adoption, and adopt any procedures required to implement the regulations or carry out other responsibilities for the effective administration of the Program;

(c) Administer the acquisition, design, construction, maintenance, and operation of the City's Stormwater Management System, including capital improvements designated in the Stormwater Control Program;

(d) Administer, interpret, and enforce this Ordinance and all regulations and procedures adopted relating to the level of service, design, construction, maintenance, operation, and alteration of the System, including but not limited to the quantity, quality, and/or velocity of the stormwater conveyed;

(e) Require inspection and certification to the Operation and Maintenance of private systems as necessary to determine compliance of such systems with this Ordinance and any other applicable regulations adopted under the Petersburg City Code;

(f) Advise the City Council, City Administration, and other City departments on matters relating to the Program;

(g) Review, approve or deny plans, and perform construction permit inspections for extensions to the City's System;

(h) Establish and enforce regulations to protect and maintain water quality within the System in compliance with established federal, state, and local water quality standards as adopted or amended;

(i) Ensure an adequate and stable Base Rate to achieve a stable financial position for the Program by analyzing and amending;

(i) the cost of services and benefits provided;

(ii) the system and structure of the Stormwater Management Fees and other fees, charges, fines, and Revenues of the Program; and

(iii) any other factors relevant to maintaining a stable financial position.

(j) Seek any grant capable of funding capital improvements for Stormwater Management.

(k) Issue Bonds against the Enterprise Fund established herein.

Sec. 114-403. Structure of Equivalent Residential Unit

(1) Establishment of the Equivalent Residential Unit. For purposes of calculating the Fee, the City shall establish an Equivalent Residential Unit (ERU).

(2) Determination of ERU.

- (a) ERU Area Established. The equivalent residential unit (ERU) area shall be established by resolution.
- (b) Residential. The City shall determine the ERU for all Residential Property based upon the number of Dwelling Units on that Property where applicable.
- (c) Non-Residential. The City shall determine the ERU for all Non-residential Property based upon the relative impervious area on a Customer's Property compared to the equivalent ERU of residential Property.

(3) Determination of ERU Rate. The ERU Rate shall be based upon Revenue needs of the Stormwater Control Program and the total number of ERU's in the City. The Rate and Rate Structure shall be defined by Resolution.

Sec. 114-404. Implementation of Fee

(1) Establishment of Fee. The City hereby establishes a Stormwater Utility Fee. All annual adjustments to the Fee shall be approved by City Council and shall be filed with the office of the Clerk of City Council. The Clerk of City Council shall mark the receipt date of the approval and shall immediately place a copy in the mail to the City Manager. The approval shall become effective thirty (30) days after the Clerk of City Council receives it unless the city governing body suspends the approval by resolution, and any such suspension will become effective the date the resolution becomes effective.

(2) Charges for Special Circumstances. The City, if appropriate, shall include in the Fee special charges structured to recover the cost of providing to certain Persons, entities, and properties stormwater control services not commonly required by all Customers. Such stormwater control services may include, but are not limited to, plan review and inspection, site inspections, water quality monitoring and mitigation activities, and actions to abate private Property conditions not complying with adopted City standards or interfering with proper stormwater management.

Sec. 114-405. Collection of Fees

(1) The utility fee is to be paid by the owner or occupant of each lot or parcel subject to the utility fee. All properties, except as stated in Sec. 114-408, shall be rendered bills or statements for stormwater services. Such bills or statements shall be included on the combined water, sewer and solid waste utility bill levied pursuant to the Petersburg City Code.

(2) All payment of fees for stormwater services shall be the responsibility of the owner of the premises unless the premises are occupied by a person other than the owner and such person

is the recipient or beneficiary of the service and is responsible for the payment of water and sewage charges; in which event, such person shall be responsible for the payment of stormwater service charges. Fees shall be paid on the same schedule as are the water and sewage charges. Such fees are due and payable in the office of the city treasurer in the manner prescribed for water and sewage charges as established by this Code and, if not so paid, shall carry the same penalties and interest as prescribed therein. If the moneys received in payment of the water and sewage charges, the stormwater charges, and the solid waste collection and disposal fees are not sufficient to pay the outstanding balance in full, including any penalties or interest, the stormwater utility fee and any penalties or interest attributed thereto shall be considered to be paid second out of the moneys collected, after the solid waste collection and disposal fees.

Sec. 114-406. Revenue Sources for Utility

(1) Sources of Funding. The stormwater utility funding sources may include the following:

(a) Stormwater utility fees;

(b) Civil penalties and damage assessments imposed for or arising from the violation of the stormwater utility ordinance or other applicable sections of the City Code;

(c) Stormwater permit and inspection fees;

(d) Other funds or income obtained from federal, state, local, and private grants or revolving funds;

(e) Bonds issued using future stormwater utility Revenue as collateral; and

(f) Any other reasonable means.

(2) Insufficiency of Fee Revenue. If the fees collected are insufficient to finance the Base Rate, the City, if the City's governing body approves, may pay the cost of the program from other City funds.

Sec. 114-407. Establishment of Enterprise Fund

The City shall establish an Enterprise Fund exclusively for the deposit and withdrawal of all Revenue collected pursuant to this Ordinance. The City shall use the Enterprise Fund for the independent and separate accounting of all revenues, expenditures, assets and liabilities, and earnings and obligations of the Utility and which may be used only to pay or recover costs for the following purposes:

(a) The acquisition, as permitted by § 15.2-1800, of real and personal property, and interest therein, necessary to construct, operate and maintain stormwater control facilities;

(b) The cost of administration of such programs;

(c) Planning, design, engineering, construction, and debt retirement for new facilities and enlargement or improvement of existing facilities, including the enlargement or improvement of dams, levees, floodwalls, and pump stations, whether publicly or privately owned, that serve to control stormwater;

(d) Facility operation and maintenance, including the maintenance of dams, levees, floodwalls, and pump stations, whether publicly or privately owned, that serve to control the stormwater;

(e) Monitoring of stormwater control devices and ambient water quality monitoring; and

(f) Other activities consistent with the state or federal regulations or permits governing stormwater management, including, but not limited to, public education, watershed planning, inspection and enforcement activities, and pollution prevention planning and implementation.

Sec. 114-408. Exemption from Fee.

Except as provided in this section, the City shall not exempt any Customer from the Fee. The City shall implement the following exemption guidelines:

(a) A federal, state, or local government, or public entity, that holds a permit to discharge stormwater from a municipal separate storm sewer system; except that the waiver of the stormwater fee shall apply only to property covered by any such permit; and

(b) Public roads and street rights-of-way that are owned and maintained by state or local agencies including property rights-of-way acquired through the acquisitions process.

Sec. 114-409. Adjustment of Fee

(1) Procedure for Adjustment. A Customer shall submit to the City any request for Stormwater Utility Fee adjustment. The City, when responding to Fee adjustment requests, shall apply the following minimum procedures:

(a) Submission of Petition. Any Customer may submit to the City a petition for Fee adjustment. The Customer shall include in the petition his or her contact name and address, the property address, the subdivision name, a property sketch, the total amount of impervious area, the total lot or parcel size.

(b) Grounds for Appeal. If a Customer submits a petition, the Customer shall submit the petition in writing and set forth, in detail, the grounds upon which the Customer seeks relief. Grounds for appeal of the Fee may include, but are not limited to:

- (i) incorrect Property classification for purposes of determining the fee;
- (ii) errors in the Property's Impervious Surface Area square footage; and
- (iii) mathematical errors in calculating the Property's applicable fee.

(c) Factors for Decision. When evaluating a petition for adjustment, the City shall consider all relevant information.

(d) Timing and Notice of Decision. The City, on or before ninety (90) days after receipt by the City of a Customer's completed petition, shall review and render a decision on the petition. The City, in writing, shall provide notice to the petitioner of acceptance or denial of a petition.

(e) Retroactivity of Adjustment Decision. The City shall retroactively apply to the Customer's first billing cycle any grants of adjustment resulting from a Customer's petition. Retroactive adjustment will not exceed one (1) year, and the City shall apply reimbursement to the Customer's future Fee collections.

(f) Appeal of Denial. If the City denies a Customer's petition, the Customer, on or before the thirtieth (30) calendar day after the City renders a final decision on the petition, may appeal to City Manager, or the City Manager's designee, for review of the denial. On or before the thirtieth (30) calendar day after receipt of a Customer's appeal, the City Manager, or the City Manager's designee, shall render a written final decision on the appeal detailing the basis for the decision. When reviewing appeals of adjustment petition denials, the City Manager, or the City Manager's designee, shall apply the standards and review criteria contained in this section.

Sec. 114-410. Credits

(1) Availability of Credits. The City shall allow credits for Customer's onsite and offsite stormwater facilities that achieve a permanent reduction in stormwater flow or pollutant loadings. The City will prepare policies to provide clear procedures, in addition to the minimum procedures set forth herein, to review requests for a Fee credits.

(2) Basis for Credits. If the City credits a Customer's Fee, the City shall consider the Customer's onsite and offsite stormwater management practices to achieve a permanent reduction in stormwater flow or pollutant loadings including discharge to a non-city drainage system and/or properly designed, constructed, and maintained on-site retention and treatment facilities. The City shall also base the credit decision on the approximate percentage of any significant variation in the volume, rate, or quality of stormwater emanating from the Property as compared to City stormwater regulations. Only facilities that exceed current City stormwater regulations will be considered for Fee credits.

(3) Procedure for Credits. A Customer shall submit to the City a request for Stormwater Utility Fee credit. The City, when responding to Fee credit requests, shall apply the following

minimum procedures and may, as needed, develop different or additional procedures:

(a) **Submission of Petition.** Any Customer may submit to the City a petition for Fee credits. The Customer shall include in the petition his or her contact name and address, the property address, the subdivision name, a property sketch, the total amount of impervious area, the total lot or parcel size, the location and size of any onsite or offsite stormwater treatment facilities, a legal description of the real Property affected, a Professional Engineer certification of the design and performance of the facilities, and a summary description of the asserted basis for the credit requested.

(b) **Grounds for Relief.** If a Customer submits a petition, the Customer shall submit the petition in writing and set forth, in detail, the grounds upon which the Customer seeks relief. Grounds for appeal of the Fee may include, but are not limited to presence of onsite or offsite stormwater treatment facilities that exceed the requirements of applicable sections of the City Code for stormwater management.

(c) **Supplemental Information for Decision.** The City may require the petitioning Customer, at the Customer's expense, to provide supplemental information to the City including, but not limited to, survey data approved by a Virginia registered professional land surveyor and engineering calculations or reports signed and sealed by a Virginia registered professional engineer and water sampling data and results for nutrient or pollutant loading. The City may deny a Customer's petition based on the failure to provide such information.

(d) **Factors for Decision.** When evaluating a petition for credits, the City shall consider all relevant information and may consider:

(i) Any onsite or offsite stormwater treatment facilities which are permitted by the State or the City and provide stormwater volume retention/detention or water quality treatment.

(ii) Any facilities or documentation eligible for consideration in the City's proposed credit policy manual.

(e) **Timing and Notice of Decision.** The City, on or before ninety (90) days after receipt by the City of a Customer's completed petition, shall review and render a decision on the petition. The City, in writing, shall provide notice to the petitioner in writing of acceptance or denial of a petition.

(f) **Retroactivity of Credit Decision.** The City shall retroactively apply to the Customer's first billing cycle any grants of credit resulting from a Customer's petition. Retroactive credit will not exceed one (1) year, and the City shall apply reimbursement to the Customer's future Fee collections.

(g) **Appeal of Denial.** If the City denies a Customer's petition, the Customer, on or before the thirtieth (30) calendar day after the City renders a final decision on the petition, a

Customer may appeal to the Public Works Director and the City Engineer for review of the denial. The Public Works Director and the City Engineer, on or before the thirtieth (30) calendar day after receipt of a Customer's appeal, in writing, and detailing the basis for the Public Works Director's and the City Engineer's decision, shall render a final decision on the appeal. When reviewing appeals of credit petition denials, the Public Works Director and the City Engineer shall apply the standards and review criteria contained in this section.

Sec. 114-411. Limitations of Responsibility

(1) The City shall be responsible only for the portions of the stormwater system that are in City maintained street rights-of-way, permanent stormwater easements conveyed to and accepted by the city, or as otherwise explicitly stated in a written agreement with the city. Repairs and improvements to the drainage system shall be in accordance with established standards, policies and schedules.

(2) The City's acquisition of permanent storm drainage easements and/or the construction or repair by the City of stormwater control measures and drainage facilities does not constitute a warranty against stormwater hazards, including, but not limited to, flooding, erosion or standing water.

Sec. 114-412. Borrowing against Enterprise Fund

Issuance of Bonds. The City may issue general obligation or revenue bonds in order to finance the cost of the infrastructure and equipment related to the Stormwater Control System. Infrastructure and equipment shall include structural and natural stormwater controls of all types, including retention basins, sewers, conduits, pipelines, pumping stations, and other structures and real or personal property used to support the System.

SECTION 2. Codification

The provisions of this Ordinance shall become and be made a part of the Code of Laws and Ordinances of the City of Petersburg. The Sections of the Ordinance may be renumbered or relettered to accomplish such, and the word "Ordinance" may be changed to "section," "article," or any other appropriate word.

SECTION 3. Severability

If any section, paragraph, sentence, clause, or phrase of this Ordinance is for any reason held by a court to be unconstitutional, inoperative or void, such holding shall not affect the remainder of this Ordinance, or any section, paragraph, sentence, clause, or phrase thereof.

SECTION 4. Effective Date

This Ordinance shall take effect immediately upon passage on second reading by the City Council and signature by the Mayor.

PASSED ON FIRST READING by the City Council this ____ day of _____, 2013.

PASSED AND ADOPTED ON SECOND READING by the City Council this ____ day of _____, 2013.

SIGNED by the Mayor this ____ day of _____, 2013.

Brian A. Moore, Mayor

ATTEST:

Nykesha D. Jackson,
Clerk of City Council

	APPROVED	DATE
REQUESTED BY:	_____	_____
DEPT. OK:	_____	_____
ADMIN. OK:	_____	_____
ATTY. OK:	_____	_____

AS TO FORM ONLY

RECORD ENTRY:

I HEREBY CERTIFY that the Original of the foregoing signed Ordinance was received by the Office of the Clerk of City Council and entered into the Public Record this ____ day of _____, 2013.

Nykesha D. Jackson, Clerk of City Council



Appendix B

Means & Methods



B1. Stream Restoration

The City is claiming credit for three (3) stream restoration projects: Brickhouse Run, Lieutenant Run at Animal Shelter (Phase 1), and Lieutenant Run at Johnson Road, Phase 2, see Figure 4. Pollutant of Concern reductions were calculated using the interim rates as provided in the Chesapeake Bay TMDL Special Condition Guidance Memo 15-2005 issued by the Virginia DEQ on 5/18/2015.

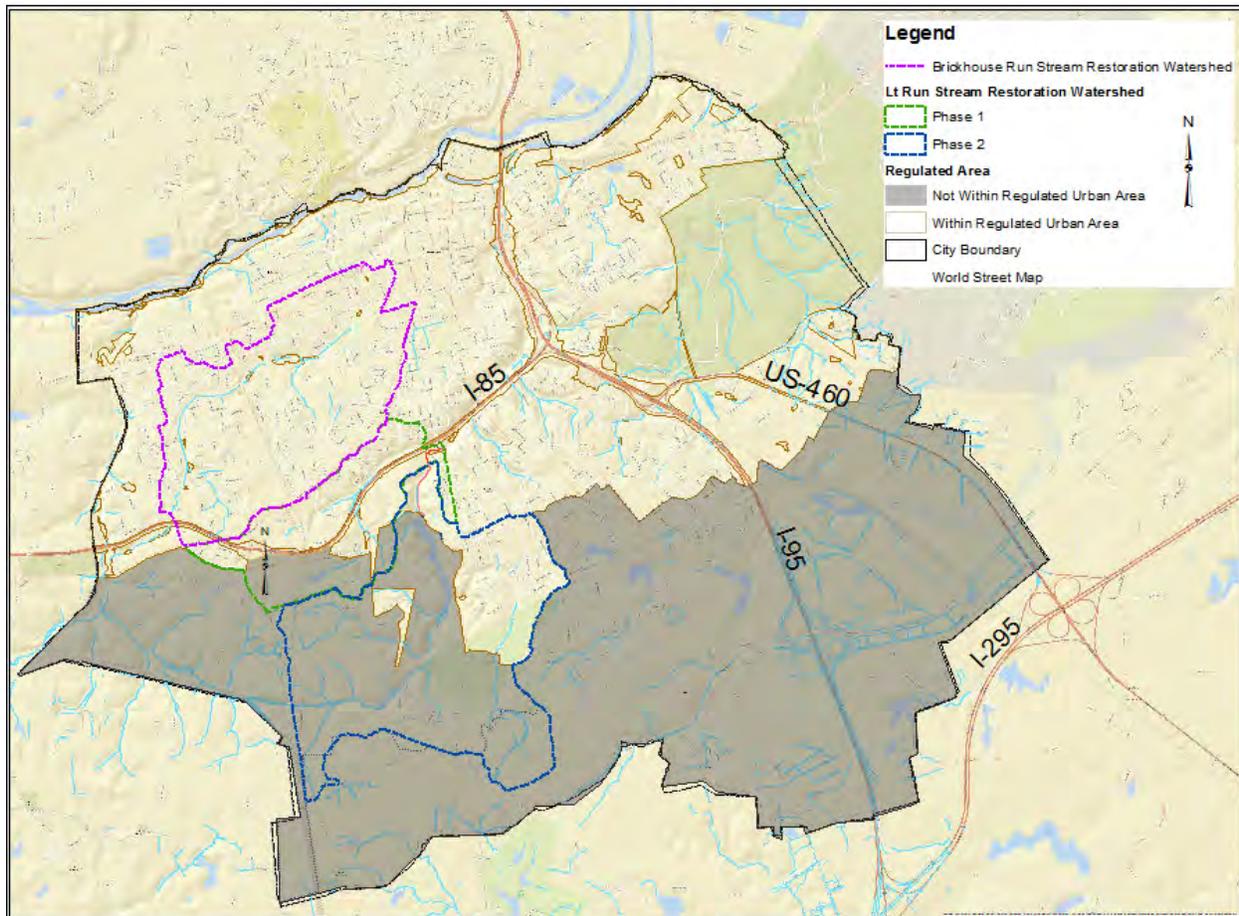


Figure 4. Stream Restoration Projects Watershed Map

Brickhouse Run

As depicted in Figure 4, the Brickhouse Run Stream Restoration project watershed (purple) is located entirely within the City’s regulated urban area. The project will restore 250 linear feet of stream. The interim approved removal rates developed by the Bay Program have been used to calculate credits. Because there is no unregulated land that drains to the restored stream section, no adjustment to the interim approved removal rates is required. The following table depicts the calculation of pollutant removal credits for the Brickhouse Run Stream Restoration project

Project Description	Project Type	Quantity	Unit	Pollutant of Concern Removal (lbs)		
				TN	TP	TSS
Brickhouse Run at Hinton Street	Stream Restoration	250	linear feet	18.75	17.00	11,220.00



Figure 5. Picture depicting degraded nature of Brickhouse Run prior to restoration.

Lieutenant Run Phase 1

The Lieutenant Run Phase 1 stream restoration project will restore 800 linear of stream. The Phase 1 Lieutenant Run stream restoration project is located downstream of the Phase 2 Lieutenant Run project. Therefore, the drainage area that drains to the restored stream section is the sum of the drainage area for Phase 1 and Phase 2. The interim approved removal rates, developed by the Bay Program and provided in Table V.J.1 of the Chesapeake Bay TMDL Action Plan Guidance Document, were used to calculate pollutant removal credits for the project.

As shown in Figure 4, the entire drainage area for the project is located within the City's limit, however a significant portion of the contributing drainage area to this project is located in outside of the regulated urban area that was delineated and used to populate Table 2A of the MS4 permit. The method used to adjust the credit received for the stream restoration to account for the baseline required for the proportion of unregulated land that drains to the restored stream section follows the methodology presented in Example V.J.1 of the Chesapeake Bay TMDL Action Plan Guidance Document.



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Step 1: Calculate the POC Reductions from the Proposed Stream Restoration Project.

The interim approved removal rates, developed by the Bay Program and provided in Table V.J.1 of the Chesapeake Bay TMDL Action Plan Guidance Document, were used to calculate pollutant removal credits for the project.

<i>Step 1: Calculate POC Reductions from the Proposed Stream Restoration Project</i>			
Proposed BMP DA 8 Urban Stream Restoration Interim Approved Removal Rates			
POC	(lbs/linear ft)	Linear Feet (ft)	Total POC Reduction (lbs/yr)
TN	0.075	800	60
TP	0.068	800	54.4
TSS	44.88	800	35904

Step 2: Characterize the Acres Draining to the Proposed Stream Restoration Project.

Land cover conditions within the drainage area were determined using the City’s Land Cover GIS layer depicting land cover in 2013. This layer was intersected with the regulated urban area layer to determine the land cover breakdown within the regulated urban and unregulated urban areas.

<i>Step 2: Characterize Acres Draining to Proposed Stream Restoration Project</i>					
	Urban Impervious (Ac)	Urban Pervious (Ac)	Total Urban Acres	Forested (Ac)	
Regulated Land	178.98	466.44	645.42	221.31	
Unregulated Land	87.43	565.99	653.42	613.59	Total
		Total	1,298.84	834.90	2,133.74

Using this information, ratios of regulated, unregulated, and forested acres to total acres were calculated.

Determine Ratios	
0.3025	Regulated Acres
0.3062	Unregulated Acres
0.3913	Forested Acres

Step 3: Calculate the Total Reductions for Regulated and Unregulated Urban Lands.

To calculate the pollutant removal credits that may be received for the project, the total reduction pollutant reduction calculated in Step 1 is multiplied by the ratios developed in Step 2.

<i>Step 3: Calculate the Total Reductions for Regulated and Unregulated Urban Lands</i>				
		Load (Step 1)	Ratio (Step 2)	Total Reductions (Step 3)
Regulated	Nitrogen	60.00	0.3025	18.1489
Unregulated		60.00	0.3062	18.3740
Forested		60.00	0.3913	23.4771
Regulated	Phosphorous	54.40	0.3025	16.4550
Unregulated		54.40	0.3062	16.6591
Forested		54.40	0.3913	21.2859
Regulated	TSS	35904.00	0.3025	10,860.2951
Unregulated		35904.00	0.3062	10,995.0242
Forested		35904.00	0.3913	14,048.6807

Step 4: Account for the Total Baseline Reductions on Unregulated Land.

The load reduction calculated for unregulated acres must be adjusted to account for the baseline reduction required on unregulated land. This calculation is based on the loading rates found in Table 3a



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of the permit. The impervious and pervious load reductions that must be achieved in the first permit cycle (5% of the total required reductions) are multiplied by 20 to estimate the entire baseline reductions needed to comply with the Chesapeake Bay TMDL by the end of the third MS4 permit cycle. The total required baseline reduction can be calculated by multiplying these loading rates by the unregulated urban acres draining to the stream restoration project. These values are then added together to determine the total reduction for which the City cannot take credit.

Step 4: Calculate the Total Reductions for Regulated and Unregulated Urban Lands

		Table 3.a Req Reduction in Loading Rate	Baseline loading rates x 20 per guidance	Unregulated Acres	Total Baseline Reduction	Total permittee cannot take credit for
Reg Urban Imp	Nitrogen	0.04	0.80	87.43	69.94	
Reg Urban Pervious		0.02	0.40	565.99	226.40	296.34
Reg Urban Imp	Phosphorous	0.01	0.20	87.43	17.49	
Reg Urban Pervious		0.002	0.04	565.99	22.64	40.13
Reg Urban Imp	TSS	6.67	133.40	87.43	11,663.06	
Reg Urban Pervious		0.44	8.80	565.99	4,980.75	16,643.81

Step 5: Calculate the Adjusted Reductions for Regulated, Unregulated, and Forested Areas.

The calculation from step 5 was then subtracted from the unregulated area reductions that were calculated in step 3. However, this calculation resulted in a negative value for each of the pollutants of concern. Therefore, the total credit for the project will be limited to the credit calculated for regulated urban acres and forested acres.

		Load (Step 1)	Ratio (Step 2)	Total Reductions (Step 3)	Total Permittee cannot take credit for (from Step 4)	Adjusted Reductions (Step 5)
Regulated	Nitrogen	60.00	0.3025	18.1489		18.149
Unregulated		60.00	0.3062	18.3740	296.34	-277.967
Forested		60.00	0.3913	23.4771		23.477
Regulated	Phosphorous	54.40	0.3025	16.4550		16.455
Unregulated		54.40	0.3062	16.6591	40.13	-23.466
Forested		54.40	0.3913	21.2859		21.286
Regulated	TSS	35904.00	0.3025	10,860.2951		10860.295
Unregulated		35904.00	0.3062	10,995.0242	16643.81	-5648.782
Forested		35904.00	0.3913	14,048.6807		14048.681

Step 6: Calculate Total Reductions from Regulated and Unregulated (Non-Forested Acres, Accounting for Required Baseline Reductions.

The total credit for the project will be limited to the credit calculated for regulated urban acres and forested acres

Step 6: Calculate the Total Reductions from Regulated and Unregulated Acres, Accounting for Required Baseline Reductions

Proposed BMP DA 8 - Stream Restoration POC Reductions			
POC	(Total POC reduction lbs/yr)	Unregulated Land credit reduction	Total POC Reduction (lbs/yr)
TN	60	Step 4 > Step 1	41.63
TP	54.4	Step 4 > Step 1	37.74
TSS	35,904.00	Step 4 > Step 1	24,908.98



Figure 6. Picture demonstrating degraded nature of Lieutenant Run Phase 1 prior to restoration.

Lieutenant Run Phase 2

The Lieutenant Run Phase 2 stream restoration project will restore 1,200 linear of stream. The Phase 2 Lieutenant Run stream restoration project is located upstream of the Phase 1 Lieutenant Run project. The interim approved removal rates, developed by the Bay Program and provided in Table V.J.1 of the Chesapeake Bay TMDL Action Plan Guidance Document, were used to calculate pollutant removal credits for the project.

As shown in Figure 4, the entire drainage area for the project is located within the City's limit, however a significant portion of the contributing drainage area to this project is located in outside of the regulated urban area that was delineated and used to populate Table 2A of the MS4 permit. The method used to adjust the credit received for the stream restoration to account for the baseline required for the proportion of unregulated land that drains to the restored stream section follows the methodology presented in Example V.J.1 of the Chesapeake Bay TMDL Action Plan Guidance Document.



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Step 1: Calculate the POC Reductions from the Proposed Stream Restoration Project.

The interim approved removal rates, developed by the Bay Program and provided in Table V.J.1 of the Chesapeake Bay TMDL Action Plan Guidance Document, were used to calculate pollutant removal credits for the project.

<i>Step 1: Calculate POC Reductions from the Proposed Stream Restoration Project</i>			
Proposed BMP DA 8 Urban Stream Restoration Interim Approved Removal Rates			
POC	(lbs/linear ft)	Linear Feet (ft)	Total POC Reduction (lbs/yr)
TN	0.075	1200	90
TP	0.068	1200	81.6
TSS	44.88	1200	53,856

Step 2: Characterize the Acres Draining to the Proposed Stream Restoration Project

Land cover conditions within the drainage area were determined using the City’s Land Cover GIS layer depicting land cover in 2013. This layer was intersected with the regulated urban area layer to determine the land cover breakdown within the regulated urban and unregulated urban areas.

<i>Step 2: Characterize Acres Draining to Proposed Stream Restoration Project</i>					
	Urban Impervious (Ac)	Urban Pervious (Ac)	Total Urban Acres	Forested (Ac)	
Regulated Land	87.32	268.93	356.26	75.35	
Unregulated Land	76.71	480.78	557.49	532.15	Total
		Total	913.74	607.49	1,521.24

Using this information, ratios of regulated, unregulated, and forested acres to total acres were calculated.

Determine Ratios	
0.2342	Regulated Acres
0.3665	Unregulated Acres
0.3993	Forested Acres

Step 3: Calculate the Total Reductions for Regulated and Unregulated Urban Lands.

To calculate the pollutant removal credits that may be received for the project, the total reduction pollutant reduction calculated in Step 1 is multiplied by the ratios developed in Step 2.

<i>Step 3: Calculate the Total Reductions for Regulated and Unregulated Urban Lands</i>				
		Load (Step 1)	Ratio (Step 2)	Total Reductions (Step 3)
Regulated	Nitrogen	90.00	0.2342	21.0769
Unregulated		90.00	0.3665	32.9823
Forested		90.00	0.3993	35.9408
Regulated	Phosphorous	81.60	0.2342	19.1097
Unregulated		81.60	0.3665	29.9039
Forested		81.60	0.3993	32.5863
Regulated	TSS	53856.00	0.2342	12,612.4339
Unregulated		53856.00	0.3665	19,736.6014
Forested		53856.00	0.3993	21,506.9646



Step 4: Account for the Total Baseline Reductions on Unregulated Land

The load reduction calculated for unregulated acres must be adjusted to account for the baseline reduction required on unregulated land. This calculation is based on the loading rates found in Table 3a of the permit. The impervious and pervious load reductions that must be achieved in the first permit cycle (5% of the total required reductions) are multiplied by 20 to estimate the entire baseline reductions needed to comply with the Chesapeake Bay TMDL by the end of the third MS4 permit cycle. The total required baseline reduction can be calculated by multiplying these loading rates by the unregulated urban acres draining to the stream restoration project. These values are then added together to determine the total reduction for which the City cannot take credit.

Step 4: Calculate the Total Reductions for Regulated and Unregulated Urban Lands

		Table 3.a req reduction in loading rate	Baseline loading rates x 20 per guidance	Unregulated Acres	Total Baseline Reduction	Total permittee cannot take credit for
Reg Urban Imp	Nitrogen	0.04	0.80	76.71	61.37	
Reg Urban Pervious		0.02	0.40	480.78	192.31	253.68
Reg Urban Imp	Phosphorous	0.01	0.20	76.71	15.34	
Reg Urban Pervious		0.002	0.04	480.78	19.23	34.57
Reg Urban Imp	TSS	6.67	133.40	76.71	10,233.30	
Reg Urban Pervious		0.44	8.80	480.78	4,230.84	14,464.14

Step 5: Calculate the Adjusted Reductions for Regulated, Unregulated, and Forested Areas

The calculation from step 5 was then subtracted from the unregulated area reductions that were calculated in step 3. However, this calculation resulted in a negative value for Nitrogen and Phosphorous. For these pollutants, the total credit for the project will be limited to the credit calculated for regulated urban acres and forested acres.

		Load (Step 1)	Ratio (Step 2)	Total Reductions (Step 3)	Total Permittee cannot take credit for (from Step 4)	Adjusted Reductions (Step 5)
Regulated	Nitrogen	90.00	0.2342	21.0769		21.077
Unregulated		90.00	0.3665	32.9823	253.68	-220.698
Forested		90.00	0.3993	35.9408		35.941
Regulated	Phosphorous	81.60	0.2342	19.1097		19.110
Unregulated		81.60	0.3665	29.9039	34.57	-4.669
Forested		81.60	0.3993	32.5863		32.586
Regulated	TSS	53856.00	0.2342	12,612.4339		12612.434
Unregulated		53856.00	0.3665	19,736.6014	14464.14	5272.464
Forested		53856.00	0.3993	21,506.9646		21506.965

Step 6: Calculate Total Reductions from Regulated and Unregulated (Non-Forested Acres, Accounting for Required Baseline Reductions):

The total credit for the project will be limited to the credit calculated for regulated urban acres and forested acres

Step 6: Calculate the Total Reductions from Regulated and Unregulated Acres, Accounting for Required Baseline Reductions

Proposed BMP DA 8 - Stream Restoration POC Reductions			
POC	(Total POC reduction lbs/yr)	Unregulated Land credit reduction	Total POC Reduction (lbs/yr)
TN	90	Step 4 > Step 1	57.02
TP	81.6	Step 4 > Step 1	51.70
TSS	53,856.00	14,464.14	39,391.86



Figure 7. Picture demonstrating degraded nature of Lieutenant Run Phase 2 prior to restoration.

B2. Street Sweeping

The City promotes its street sweeping practices on their website (<http://www.petersburgva.gov/index.aspx?nid=758>) and currently practices street sweeping daily on main thoroughfares within the City. These streets include and include Washington St., Wythe St., Crater Rd., Medical Park Blvd., County Dr., and South Blvd. between Crater Rd. and Sycamore St. The streets that are part of the daily routine street sweeping program were mapped in GIS. Using GIS processes, it was identified that approximately 66% of these roads routinely swept are located within the regulated urbanized area. In addition to the main thorough fares, the City also sweeps other selected streets on an as needed basis.

The City utilizes vacuum and mechanical street sweeping trucks to perform their operations. The trucks dispose of the collected waste at the landfill. Tickets are provided by the landfill each time trucks dispose of collected material that indicate the tonnage of waste disposed when street sweeping. Street sweeping operations are performed daily except when it rains and when there is snow accumulation on the streets.



Because the street sweeping operations are able to track tonnage of material collected and disposed of at the landfill from their operations using landfill tickets, the City used the Mass Loading Approach to calculate the Nitrogen, Phosphorous, and TSS Removal achieved through their ongoing Street Sweeping Program. For the purposes of this Action Plan, the City will take credit for the routine, daily street sweeping practices on the main thoroughfares within the City (no credit is currently being sought for the sweeping that occurs on an as-needed basis).

City staff was contacted to determine a representative daily load of material collected and disposed of at the landfill from the street sweeping operations. This daily load was converted to a weekly load of material collected. The City will take credit for street sweeping for 48 weeks of the year, accounting for downtime associated with rain/snow events and holiday schedules. The calculated weekly load was then multiplied by 48 weeks to determine the annual pounds of material collected per year. The annual poundage of material collected was then multiplied by 66% to correct determine the amount of waste collected within the regulated urban area. The amount of waste collected within the urbanized regulated area was then converted to dry weight using a factor of 0.7 lb dry weight per lbs material. See the table below for the calculation of dry weight collected by street sweeping operations annually.

Determination of Annual Dry Weight Collected by Street Sweeping Operations		
Average Daily Material Collected (1 truck w/ multiple runs per day)	2.96 5,920	tons lbs/day
Collection of Material per week	29,600	lbs/week
Avg Number of Weeks/Year Collected	48	weeks
Collection of Material per Year	1,420,800	lbs/year
Amount Material Collected/yr in regulated urban area	939,184	lbs/yr
Dry Weight Collected	657,429	lbs dry weight/lbs material

Using the factors presented in Appendix V.G of the Chesapeake Bay TMDL Action Plan Guidance Document, the pollutant reductions from street sweeping were determined.

Street Sweeping POC Reductions		
TN (lb/yr)	TP (lb/yr)	TSS (lb/yr)
1,643.57	657.43	197,228.65

B3. Bioretention

For the Canal Street Bioretention project, Nitrogen and Phosphorous reduction credits were calculated using the VRRM spreadsheet. The land cover of the drainage area was determined in GIS and entered



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into the VRRM spreadsheet for new development.

Land Cover (acres)	A soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) – undisturbed, protected forest/open space or reforested land	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres) – disturbed, graded for yards or other turf to be mowed/managed	0.00	0.00	0.00	0.07	0.07
Impervious Cover (acres)	0.00	0.00	0.00	0.07	0.07
				Total	0.14

The treated area for pervious and impervious surfaces was then entered into the spreadsheet for a Level 2 Bioretention.

Practice	Unit	Description of Credit	Credit	Credit Area (acres)
6.b. Bioretention #2 (Spec #9)	impervious acres draining to bioretention	80% runoff volume reduction	0.80	0.07
	turf acres draining to bioretention	80% runoff volume reduction	0.80	0.07

The spreadsheet reported the following nutrient reduction totals:

TOTAL PHOSPHORUS LOAD REDUCTION REQUIRED (LB/YEAR)	0.13
NITROGEN LOAD REDUCTION ACHIEVED (LB/YR)	1.29

The TSS reduction credit was calculated using the retrofit curves developed by the Bay Program following the procedure provided in Appendix V.B. of the Chesapeake Bay TMDL Action Plan Guidance Document. A TSS load was calculated using the loading rates for impervious and pervious surfaces draining to the project.

		Loading Rate (lb/ac/yr)	Total Load (lb/yr)
TSS Loading	Impervious	676.94	44.75
	Pervious	101.08	6.76
			51.5

The runoff depth, RD was calculated to be 2.78 inches which calculates a TSS removal efficiency of 88%. The removal efficiency was then multiplied by the total load calculated. The TSS removed (lb/yr) from the practice is 45.2.