



THE AUDITOR OF PUBLIC ACCOUNTS LOCALITY STORMWATER UTILITY REPORTING FORM

The purpose of this form is to implement the following locality stormwater utility reporting requirement established by Paragraph D.1. of Item 2 of the Fiscal Year 2017-2018 State Budget ([Chapter 836](#) of the 2017 Acts of Assembly): *Each locality establishing a utility or enacting a system of service charges to support a local stormwater management program pursuant to §15.2-2114, Code of Virginia, shall provide to the Auditor of Public Accounts by October 1 of each year, in a format specified by the Auditor, a report as to each program funded by these fees and the expected nutrient and sediment reductions for each of these programs. For any specific stormwater outfall generating more than \$200,000 in annual fees, such report shall include identification of specific actions to remediate nutrient and sediment reduction from the specific outfall.*

Each locality subject to the reporting requirement set forth above shall complete and submit this report form each year to the Auditor of Public Accounts by October 1, in an electronic format emailed to LocalGovernment@apa.virginia.gov. **The report as of Fiscal Year 2018 (or applicable reporting period) is due by October 1, 2018.**

SECTION 1 – LOCALITY INFORMATION

Locality Name: City of Portsmouth

Contact Name/Title: James Wright

Contact Address: 801 Crawford Street, 4th Floor Portsmouth, VA 23704

Contact Email: wrightj@portsmouthva.gov

Contact Phone: 757-393-8592

Report Completion Date: 10/12/18

SECTION 2 - STORMWATER UTILITY FEES

For your stormwater utility fees provide the following information from your most recent audited annual financial report.

Financial Statement Fund Name: City of Portsmouth Stormwater Utility

Fiscal year: FY17 CAFR

Revenues	Expenditures	Ending Fund Balance or Net Position
\$7,413,603	\$2,356,214	\$3,138,242

Please provide any additional detail/clarification below about the financial information provided at Section 2, if needed.

Click or tap here to enter text.

SECTION 3 – FUNDED PROGRAMS AND OTHER MAJOR ACTIVITIES

Provide a brief description of each major program funded by the utility fee system and, where applicable, the expected nutrient and sediment reductions for each of these programs.

A. Operations & Maintenance Program

Below is a brief description of each major program funded by the SW utility fee. Reductions for expected nutrient and sediments are not quantified as the city's permit does not require them to be quantified at this time.

Facility & ditch maintenance

Cave-in repair

Minor bank & structure repair

Street sweeping

Emergency operations

VSMP program – Virginia Stormwater Management Program

Aeration & lake/BMP inspections

IDDE –Illicit Discharge Detection and Elimination program

B. Capital Improvement Program

Stormdrain rehabilitation

Small/localized flooding projects

TMDL/MS4 permit planning

Water quality monitoring

Regulatory activity support via annual service contracts

Infrastructure inventory

Cave-in repair program

New BMP and Retrofit Projects: Details provided below on the expected nutrient and sediment reductions for 5 projects to be completed in the 1st permit cycle (excerpted from the City of Portsmouth's Chesapeake Bay TMDL Action Plan submitted to DEQ on June 28, 2018.)

SUMMARY OF PLANNED PROJECTS AND HISTORIC BMPs FOR 1ST PERMIT CYCLE

Project Name	TN Load Reduction (lbs/yr)	TP Load Reduction (lbs/yr)	TSS Load Reduction (lbs/yr)	Location of Detailed Information
Victory Blvd Level II Wet Pond BMP Retrofit	49.20	16.05	4,151.64	Section 4.3.1
Churchland Wet Swale	13.60	0.85	793.63	Section 4.3.2
Beaton Drive Level I Wet Pond	25.86	7.28	4,050.36	Section 4.3.3
Court Street Green Street	31.65	5.52	2,804.03	Section 4.3.4
Green Lake #3 Wet Pond	80.02	20.35	20521.941	Section 4.3.5
1st Permit Cycle Reductions from Projects	200.33	50.05	32,321.57	
Reductions from Historic BMPs	117.89	34.01	19,335.59	Section 4.1
Reductions from Redevelopment BMPs	169.69	45.88	22,416.54	Section 4.2
1st Permit Cycle Reductions from BMPs	287.58	79.89	41,752.13	
Total Reductions Provided	487.91	129.94	74,073.70	
Total Required Reductions	479.45	118.73	54,980.27	
Credit Carried Over to 2nd Permit Cycle	8.46	11.21	19,093.43	

1.1 Capital Improvement Projects (1st Permit Cycle)

Five projects have been identified by the City for this Plan:

- Victory Boulevard Level II Wet Pond Retrofit
- Churchland Wet Swale
- Beaton Drive Wet Pond
- Court Street Green Streets
- Green Lakes Level I Wet Pond

These projects consist of new BMPs and retrofits to existing BMPs. The projects were constructed after June 30, 2009, or are currently in planning, design, or construction. In total, these projects exceed the first-phase reduction requirement. All projects listed have funds approved as a part of the adopted Capital Improvement Plan (CIP), some projects have been awarded 50% funding through the Stormwater Local Assistance Fund (SLAF) and others have been approved to receive funding from the Virginia Clean Water Revolving Loan Fund. The general location of all projects is shown on Figure 3, and the following sections provide details on each project and all assumptions used in the credit calculations.

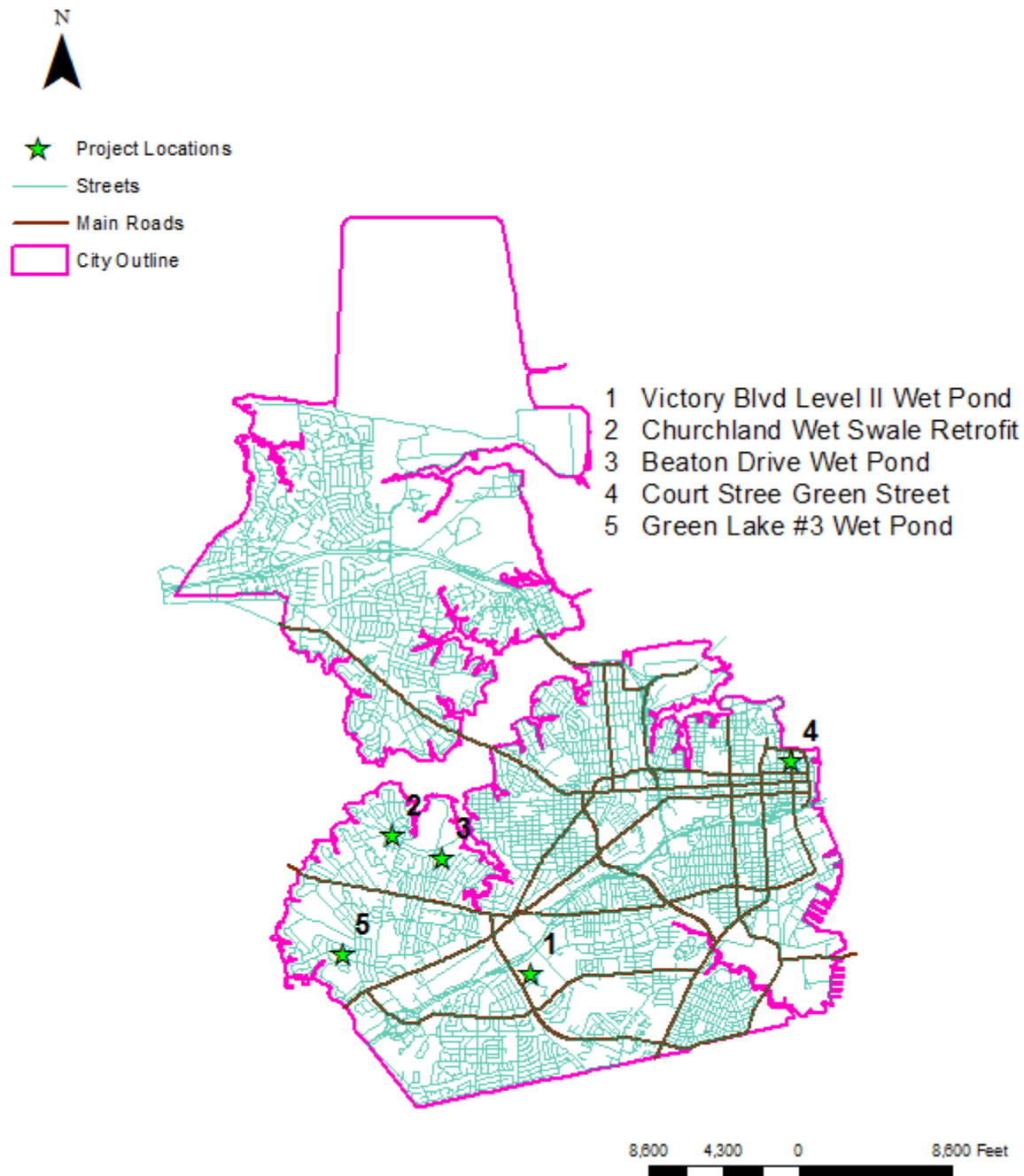


FIGURE 1. LOCATIONS OF 1ST PERMIT CYCLE CIP PROJECTS

1.1.1 Victory Boulevard Level II Wet Pond Retrofit

This project consists of the conversion of an existing pond into a Level II Wet Pond. The existing wet pond was built in 2003 and is located on a large undeveloped lot adjacent to the Tidewater Community College (TCC) campus off Victory Boulevard. The site is owned by the City of Portsmouth Economic Development Authority, so no land acquisition is required. The contributing drainage area for the pond is 46.84 acres with 32.76 acres of impervious and 14.08 acres of managed turf. This project will address the Chesapeake Bay TMDL and is needed

to reduce pollutant loading on the Chesapeake Bay and helps restore the quality of the bay. This project will also address the City of Portsmouth's MS4 permit requirements.

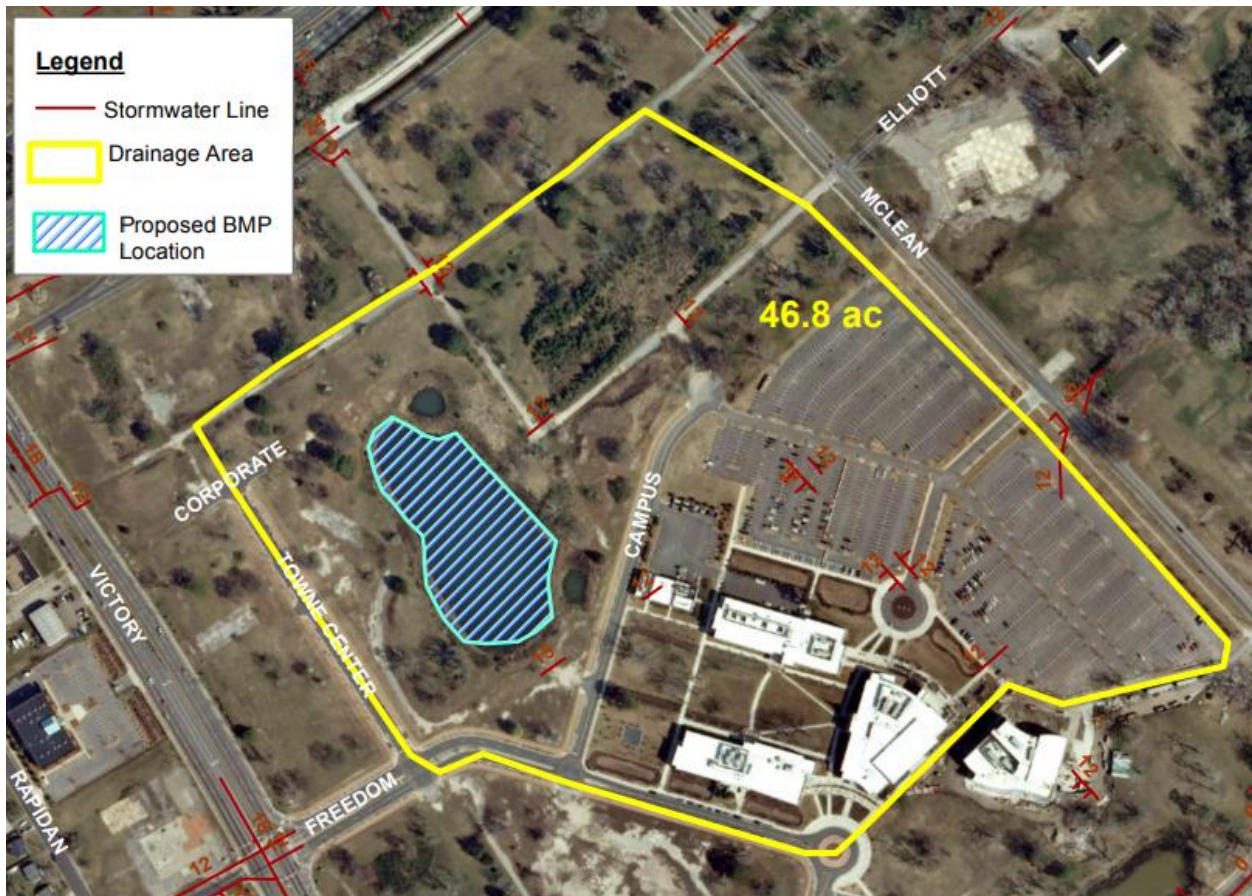


FIGURE 2. VICTORY BOULEVARD LEVEL II WET POND RETROFIT DRAINAGE AREA

TABLE 1. SUMMARY OF LOAD REDUCTION CREDITS FOR VICTORY BOULEVARD LEVEL II WET POND PROJECT

Determine Initial Pollutant Loading	
Drainage Area (Acres)	
Impervious	32.76
Pervious	14.08
Forest	0.00
Total	46.84
Starting Loads (lbs/yr) ¹	
TN	410.03
TP	65.50
TSS	24,505.16
Starting Efficiency ²	
TN	20%
TP	45%
TSS	60%
Downward Modification ³	
	10%
Revised Starting Efficiency	
TN	18.0%
TP	40.5%
TSS	54.0%
TSS Reduction Rate Calculation	

Runoff Storage (acre-feet) ⁴	RS	2.89
Impervious Acres (acres)	IA	32.76
Runoff Depth Treated (inches)	RD	1.06
Restored Removal Efficiency⁵		
TN		30%
TP		65%
TSS		71%
Calculate Total POC Reductions for Project		
Efficiency Improvement		
TN		12%
TP		25%
TSS		17%
Load Reduction (lbs/yr)		
TN		49.20
TP		16.05
TSS		4,151.64
Notes: ¹ EOS Loading Rate from City permit used to calculate starting loads		
² Chesapeake Bay Program Established Efficiencies for Wet Ponds for starting efficiencies		
³ Used downward modification to account for missing forebays		
⁴ Runoff Storage taken from VRRM spreadsheet		
⁵ TN and TP Restored Efficiencies from BMP Clearinghouse, Level II Wet Pond; Retrofit Equations used for TSS		

1.1.2 Churchland Wet Swale

This project involves the construction of a Level II Wet Swale in the Churchland area. The existing property is an old railroad right-of-way owned by the City of Portsmouth and existing land cover consists of managed turf and impervious. The drainage area is 8.99 acres with 1.89 of impervious and 7.10 acres of managed turf. This project will address the Chesapeake Bay TMDL and is needed to reduce pollutant loading on the Chesapeake Bay and helps restore the quality of the Bay. This project will also address the City of Portsmouth's MS4 permit requirements.



FIGURE 3. CHURCHLAND WET SWALE RETROFIT DRAINAGE AREA

TABLE 2. SUMMARY OF LOAD REDUCTION CREDITS FOR CHURCHLAND WET SWALE RETROFIT

Determine Initial Pollutant Loading		
Drainage Area (Acres)		
Impervious		1.89
Pervious		7.10
Forest		0.00
Total		8.99
Starting Loads (lbs/yr) ¹		
TN		66.69
TP		6.90
TSS		2,066.19
Calculate Total POC Reductions for Project		
TSS Reduction Rate Calculation		
Runoff Storage (acre-feet) ²	RS	0.2798
Impervious Acres (acres)	IA	1.89
Runoff Depth Treated (inches)	RD	1.78
Removal Efficiency ³		

TN	35%
TP	40%
TSS	78%
Load Reduction (lbs/yr)	
TN	13.60
TP	0.85
TSS	793.63

Notes: ¹EOS Loading Rate from City permit used to calculate starting loads
²Runoff Storage taken from VRRM spreadsheet
³TN and TP Restored Efficiencies from BMP Clearinghouse for Wet Swale Retrofit 2; Retrofit Equations used for TSS

1.1.3 Beaton Drive Level I Wet Pond

This project consists of the construction of a new Level I Wet Pond. The new pond will be constructed on a vacant City-owned parcel at the intersection of Beaton Drive and Sykes Avenue, so no land acquisition will be required. This project will also help to address flooding issues in the neighbourhood. The contributing area for the pond is 16.4 acres of residential area with 6.24 acres of impervious and 10.16 acres of managed turf. This project will address the Chesapeake Bay TMDL and is needed to reduce pollutant loading on the Chesapeake Bay and helps restore the quality of the Bay. This project will also address the City of Portsmouth's MS4 permit requirements.



FIGURE 4. BEATON DRIVE LEVEL I WET POND DRAINAGE AREA

TABLE 3. SUMMARY OF LOAD REDUCTION CREDITS FOR BEATON DRIVE WET POND

Determine Initial Pollutant Loading		
Drainage Area (Acres)		
Impervious		6.24
Pervious		10.16
Forest		0.00
Total		16.40
Starting Loads (lbs/yr)¹		
TN		129.28
TP		16.19
TSS		5,443.60
Calculate Total POC Reductions for Project		
TSS Reduction Rate Calculation		
Runoff Storage (acre-feet) ²	RS	0.6845
Impervious Acres (acres)	IA	6.24
Runoff Depth Treated (inches)	RD	1.32
Removal Efficiency³		
TN		20%
TP		45%
TSS		74%
Load Reduction (lbs/yr)		
TN		25.86
TP		7.28
TSS		4,050.36

Notes: ¹EOS Loading Rate from City permit used to calculate starting loads
²Runoff Storage taken from VRRM spreadsheet
³TN and TP Restored Efficiencies from BMP Clearinghouse for Wet Swale Retrofit 2; Retrofit Equations used for TSS

1.1.4 Court Street Green Streets

The City of Portsmouth has identified Court Street, located in downtown Portsmouth in the Olde Town Historic District, as an opportunity for conversion to a Green Street to improve water quality, reduce runoff volume, and enhance public space. This is a pilot project for the City to see if Green Streets could be incorporated into the downtown historic districts without impacting any of the cultural and historical features of the area. WSP has conducted a field investigation and gathered information including GIS and available survey information from the City to delineate the contributing drainage area and determine the land cover. The overall drainage area is 5.40 acres.



FIGURE 5. COURT STREET GREEN STREETS RENDERING

TABLE 4. SUMMARY OF LOAD REDUCTION CREDITS FOR COURT STREET GREEN STREETS

Determine Initial Pollutant Loading			
Drainage Area (acres)			
	Permeable Pavers 1	Bioretention 1	
Impervious	3.00	2.40	
Pervious	0.00	0.00	
Forest	0.00	0.00	
Total	3.00	2.40	
Starting Loads (lbs/yr) ¹			
TN	28.72	22.98	
TP	5.36	4.29	
TSS	2,110.27	1688.22	
Determine Removal Efficiency			
TSS Reduction Rate Calculation			
Runoff Storage (acre-feet) ²	RS	0.2375	0.1900
Impervious Acres (acres)	IA	3.00	2.40
Runoff Depth Treated (inches)	RD	0.95	0.95
Removal Efficiency ³			
TN		59%	64%
TP		59%	55%
TSS		74%	74%
Load Reduction (lbs/yr)			TOTAL
TN	16.95	14.71	31.65
TP	3.16	2.36	5.52
TSS	1,557.81	1,246.21	2,804.03

Notes: ¹EOS Loading Rate from City permit used to calculate starting loads

²Runoff Storage taken from VRRM spreadsheet

³TN and TP Restored Efficiencies from BMP Clearinghouse for Permeable Pavers 1 and Bioretention 1, respectively;

Retrofit Equations used for TSS

1.1.5 Green Lake #3 Wet Pond

This project is the proposed retrofit of Green Lake #3 into a Level 1 Wet Pond. The existing lake is not currently reported as BMP for the City of Portsmouth and is only achieved about 38% phosphorus removal efficiency. With dredging, bank stabilization and the addition of forebays this lake can be converted into a 50% efficient Level I wet pond. This project will also address issues with the outfall structure of the lake. This project will address the Chesapeake Bay TMDL and its need to reduce the pollutant loading on the Chesapeake Bay and helps restore the quality of the bay. It will also address the City of Portsmouth's MS4 permit requirements.

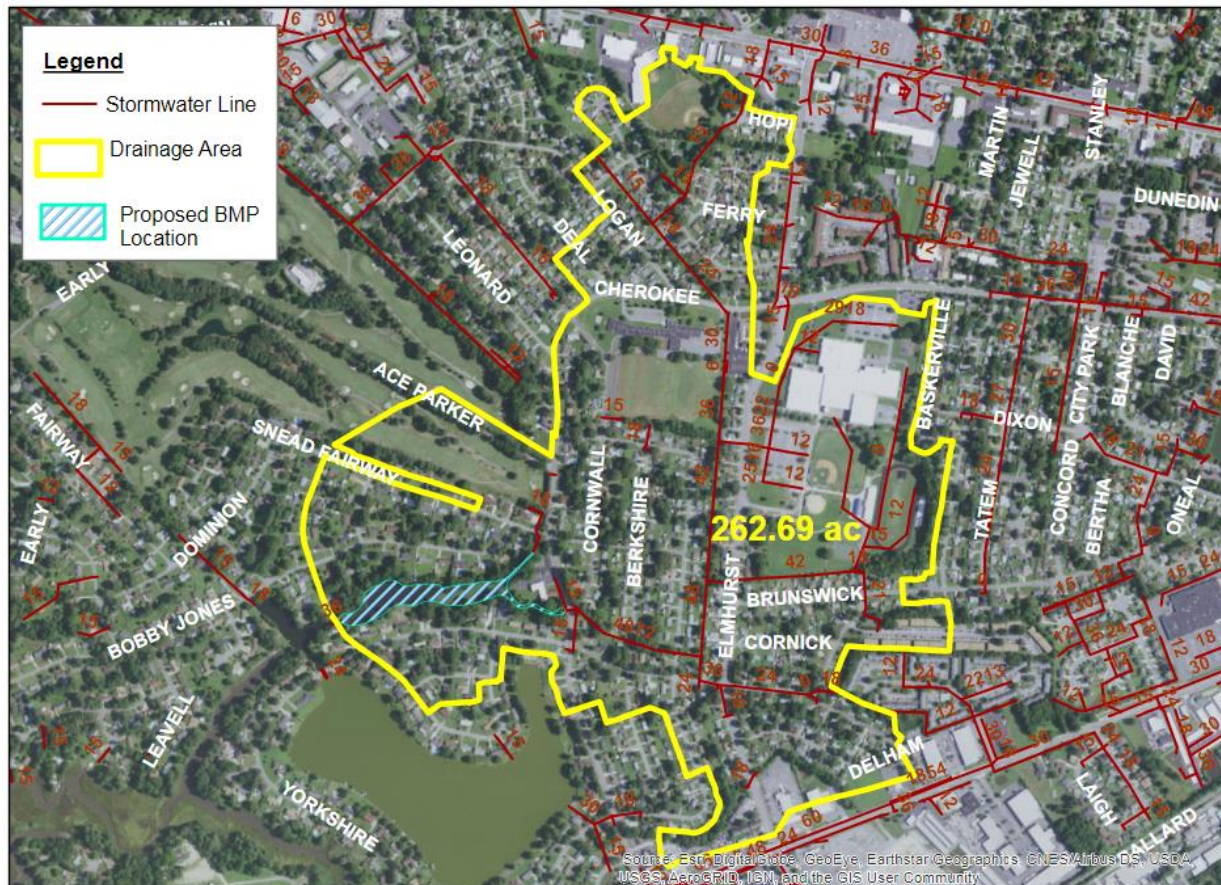


FIGURE 6. GREEN LAKE #3 WET POND DRAINAGE AREA

TABLE 5. SUMMARY OF LOAD REDUCTION CREDITS FOR GREEN LAKE

Determine Initial Pollutant Loading	
Drainage Area (acres)	
Impervious	74.23
Pervious	188.46
Forest	0.00
Total	262.69

Starting Loads (lbs/yr) ¹		
TN		2,000.50
TP		226.11
TSS		71,770.46
Determine Removal Efficiency ²		
Starting Efficiency		
TN		20%
TP		45%
TSS		60%
Downward Modification ³		
		20%
Revised Starting Efficiency		
TN		16.0%
TP		36.0%
TSS		48.0%
TSS Reduction Rate Calculation ⁴		
Runoff Storage (acre-feet)	RS	9.80
Impervious Acres (acres)	IA	74.23
Runoff Depth Treated (inches)	RD	1.58
Restored Removal Efficiency		
TN		20%
TP		45%
TSS		77%
Calculate Total POC Reductions for Project		
Efficiency Improvement		
TN		4%
TP		9%
TSS		29%
Load Reduction (lbs/yr)		
TN		80.02
TP		20.35
TSS		20,521.91
Notes: ¹ EOS Loading Rate from City permit used to calculate starting loads		
² Chesapeake Bay Program Established Efficiencies for Wet Ponds for starting efficiencies		
³ Used downward modification to account for missing forebays and volume deficiencies		
⁴ Runoff Storage taken from VRRM spreadsheet, 427,010 ft ³		
⁵ TN and TP Restored Efficiencies from BMP clearinghouse, Level I Wet Pond; Retrofit Equations used for TSS		