

# Appendix B

## New Bmp Opportunity Fact Sheet Summaries

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# Neabsco Creek Watershed Study

## New BMP Project Opportunity

B-1

Project Name NewBMP\_104\_a (Page 1 of 2)

Ownership public

Site Name Enterprise Elementary

Score 77

Subwatershed 815

Rank 1 of 24

### Site Description and Proposed Action

At Enterprise Elementary School, investigators identified the southeast parking lot as having stormwater treatment. Stormwater runoff is collected in a network that discharges through an outfall pipe to a grassy area southeast of the lot. Upon closer inspection, investigators noted the presence of a berm adjacent to transmission lines with a small corrugated pipe to permit stormwater to pass.

Considering the large grassy area, it is recommended that a bioretention facility be constructed within the footprint of the old dry pond facility. As the area is relatively flat, regrading may be required to create enough relief to be able to treat runoff via the bioretention area and discharge through an underdrain.

**Proposed Treatment Option** Bioretention Underdrain

Overall New BMP Potential High

### Issues for Implementation

A lack of relief may prohibit free flow of runoff through the new facility.



Grassy area within footprint of old dry pond facility



Corrugated pipe in berm of old dry pond facility

B-1

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 815

Ownership public  
 Score 77  
 Rank 1 of 24

## Locator Map



### Estimated Pollutant Load Reductions

#### Bioretention Underdrain A/B soils

#### Removal Efficiencies

#### Reductions

Impervious Acres	<input type="text" value="2.760"/>	Total Nitrogen	<input type="text" value="70%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="39.52"/>
Pervious Acres	<input type="text" value="2.158"/>	Total Phosphorus	<input type="text" value="75%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="3.42"/>
Total Acres	<input type="text" value="4.918"/>	Total Suspended Solids	<input type="text" value="80%"/>	TSS (lbs/yr)	<input type="text" value="3,281.37"/>

# Neabsco Creek Watershed Study New BMP Project Opportunity

B-3

Project Name NewBMP\_105\_a (Page 1 of 2)

Ownership public

Site Name C.D. Hylton High School

Score 76

Subwatershed 815

Rank 2 of 24

## Site Description and Proposed Action

At C. D. Hylton High School, an existing dry pond on the southeastern section of the property was identified as a candidate for retrofit. Within the drainage is the storage area for vocational technical auto maintenance and that has been identified as a severe hotspot. The dry pond is overgrown with vegetation, but is not impassable.

To address pollution issues in the hotspot and to generally improve water quality treatment and quantity control, the facility can be converted to a bioretention facility with sand filter forebay. The footprint of the facility can also be increased to accommodate the proposed forebay. This proposed facility conversion is an option if installation of perimeter sand filters in the upland auto instruction area (see opportunity NewBMP\_105\_b) is not feasible.

**Proposed Treatment Option** Bioretention Underdrain

Overall New BMP Potential High

## Issues for Implementation

None apparent.



Interior of dry pond facility

B-3



# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 815

Ownership public  
 Score 76  
 Rank 2 of 24

## Locator Map



### Estimated Pollutant Load Reductions

#### Bioretention Underdrain C/D soils

#### Removal Efficiencies

#### Reductions

Impervious Acres	<input type="text" value="1.815"/>	Total Nitrogen	<input type="text" value="25%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="6.60"/>
Pervious Acres	<input type="text" value="0.228"/>	Total Phosphorus	<input type="text" value="45%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="1.18"/>
Total Acres	<input type="text" value="2.043"/>	Total Suspended Solids	<input type="text" value="55%"/>	TSS (lbs/yr)	<input type="text" value="1,343.17"/>

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name NewBMP\_115\_b (Page 1 of 2)  
Site Name Logan Park  
Subwatershed 815

Ownership public  
Score 75  
Rank 3 of 24 (tie)

## Site Description and Proposed Action

Logan Park is a recreational baseball park consisting of batting cages and several athletic and baseball fields, small gravel parking lot. A small stormwater conduit system is present, however there are also rip rap swales throughout the site. Most of the site drains to the north, across the access road via a culvert. The site contains one small dry pond that provides volume control.

The network of drainage channels (some lined with riprap) provide opportunities to install bioswales to improve infiltration, water quality treatment, and decrease localized heating. A network of drainage channels currently services the central baseball field and the batting cages and flows north, between the baseball field and parking lot, to a culvert under the access road. This channel can be converted to a bioswale to provide water quality treatment to the aforementioned areas. Small forebays can be installed at the two curb cuts on either side of the parking lot entrance to settle water before entering the receiving bioswale along the access road and up-gradient of the culvert.

**Proposed Treatment Option** Bioswale

**Overall New BMP Potential** High

## Issues for Implementation

The proposed facility retrofit is near a transmission line right of way.



Location of footprint for bioswale on west side of parking lot



Location of proposed forebay and bioswale at parking lot entry

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name **NewBMP\_115\_b** (Page 2 of 2)  
 Site Name **Logan Park**  
 Subwatershed **815**

Ownership **public**  
 Score **75**  
 Rank **3 of 24 (tie)**

## Locator Map



### Estimated Pollutant Load Reductions

#### Bioswale

Impervious Acres	0.721
Pervious Acres	0.443
Total Acres	1.164

#### Removal Efficiencies

Total Nitrogen	70%
Total Phosphorus	75%
Total Suspended Solids	80%

#### Reductions

Total Nitrogen (lbs/yr)	9.56
Total Phosphorus (lbs/yr)	0.86
TSS (lbs/yr)	836.07



# Neabsco Creek Watershed Study New BMP Project Opportunity

B-7

Project Name NewBMP\_103\_a (Page 1 of 2)  
Site Name Minnieville es  
Subwatershed 820

Ownership public  
Score 75  
Rank 3 of 24 (tie)

## Site Description and Proposed Action

There are two concrete channels to the north of the school that drain the building and parking area. If there is sufficient elevation for an underdrain, these channels can be replaced with bioswales

**Proposed Treatment Option** Bioswale

Overall New BMP Potential Medium

## Issues for Implementation

There may be safety issues having deep swales near the walkway. There may be insufficient elevation for underdrain.



Concrete channel to be improved, west side



Concrete channel to be improved, east side



# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed

Ownership   
 Score   
 Rank

## Locator Map



### Estimated Pollutant Load Reductions

#### Bioswale

Impervious Acres	<input type="text" value="0.95"/>
Pervious Acres	<input type="text" value="0.9"/>
Total Acres	<input type="text" value="1.85"/>

#### Removal Efficiencies

Total Nitrogen	<input type="text" value="70%"/>
Total Phosphorus	<input type="text" value="75%"/>
Total Suspended Solids	<input type="text" value="80%"/>

#### Reductions

Total Nitrogen (lbs/yr)	<input type="text" value="14.59"/>
Total Phosphorus (lbs/yr)	<input type="text" value="1.21"/>
TSS (lbs/yr)	<input type="text" value="1,156.35"/>

# Neabsco Creek Watershed Study New BMP Project Opportunity

B-9

Project Name NewBMP\_115\_a (Page 1 of 2)

Ownership public

Site Name Logan Park

Score 73

Subwatershed 815

Rank 5 of 24 (tie)

## Site Description and Proposed Action

Logan Park is a recreational baseball park consisting of batting cages and several athletic and baseball fields, small gravel parking lot. A small stormwater conduit system is present, however there are also rip rap swales throughout the site. Most of the site drains to the north, across the access road via a culvert. The site contains one small dry pond that provides volume control.

The network of drainage channels (some lined with riprap) provide opportunities to install bioswales to improve infiltration, water quality treatment, and decrease localized heating. One such channel runs along the access road, between the westernmost baseball field and the access road and eventually enters a south to north ephemeral channel. A bioswale installed here would halt channelization and provide treatment to the access road runoff.

**Proposed Treatment Option** Bioswale

Overall New BMP Potential High

## Issues for Implementation

The proposed facility retrofit is near a transmission line right of way.



Location of footprint for bioswale along access road (background)

B-9

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 815

Ownership public  
 Score 73  
 Rank 5 of 24 (tie)

## Locator Map



### Estimated Pollutant Load Reductions

Bioswale		Removal Efficiencies		Reductions	
Impervious Acres	0.092	Total Nitrogen	70%	Total Nitrogen (lbs/yr)	5.71
Pervious Acres	0.769	Total Phosphorus	75%	Total Phosphorus (lbs/yr)	0.28
Total Acres	0.861	Total Suspended Solids	80%	TSS (lbs/yr)	229.07

# Neabsco Creek Watershed Study New BMP Project Opportunity

B-11

Project Name NewBMP\_106\_a (Page 1 of 2)

Ownership public

Site Name Rosa Parks Elementary School

Score 73

Subwatershed 805

Rank 5 of 24 (tie)

## Site Description and Proposed Action

Rosa Parks Elementary School's drainage consists of impervious rooftop, asphalt parking, and concrete walking and play areas. Stormwater runoff is treated onsite at a dry detention facility. Investigators identified areas where water quality pre-treatment would improve overall water quality leaving the site. Conceptual upgrades to the dry pond facility are described in BCON106.

On the northwest side of the school, an open courtyard with two yard inlets would be an ideal site for bioretention. The bioretention cells can be installed around the existing yard inlets. Underdrains from the bioretention can be reconnected to the existing network servicing the yard inlets. The yard inlets can be redesigned to serve as high flow outlets for the bioretention facility. In addition to treating runoff from compacted turf in the courtyard, roof leaders can be redirected to the facilities, allowing approximately 30% of the roof area to be treated.

**Proposed Treatment Option** Bioretention Underdrain

Overall New BMP Potential High

## Issues for Implementation

None apparent.



Location of footprint of potential bioretention facility in courtyard

B-11



# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 805

Ownership public  
 Score 73  
 Rank 5 of 24 (tie)

## Locator Map



### Estimated Pollutant Load Reductions

#### Bioretention Underdrain A/B soils

#### Removal Efficiencies

#### Reductions

Impervious Acres	<input type="text" value="0.443"/>	Total Nitrogen	<input type="text" value="70%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="4.20"/>
Pervious Acres	<input type="text" value="0.007"/>	Total Phosphorus	<input type="text" value="75%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="0.47"/>
Total Acres	<input type="text" value="0.450"/>	Total Suspended Solids	<input type="text" value="80%"/>	TSS (lbs/yr)	<input type="text" value="468.36"/>

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name NewBMP\_105\_f (Page 1 of 2)  
Site Name C.D. Hylton High School  
Subwatershed 805

Ownership public  
Score 71  
Rank 7 of 24 (tie)

## Site Description and Proposed Action

At C. D. Hylton High School, the extensive network of athletic fields provide opportunities to treat stormwater runoff at the source. Compacted turf can often mimic impervious cover, providing opportunities to treat and detain stormwater runoff. Approaches to yard inlets are ideal locations for bioswales.

To treat concentrated runoff approach yard inlets, bioswales can be installed to pre-treat, slow down, and infiltrate stormwater from expansive athletic fields.

**Proposed Treatment Option** Bioswale

Overall New BMP Potential High

## Issues for Implementation

None apparent.



View of contributing drainage to existing grassy swale



Footprint of potential bioswale leading to yard inlet

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed

Ownership   
 Score   
 Rank

## Locator Map



### Estimated Pollutant Load Reductions

Bioswale		Removal Efficiencies		Reductions	
Impervious Acres	<input type="text" value="0"/>	Total Nitrogen	<input type="text" value="70%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="6.52"/>
Pervious Acres	<input type="text" value="1.034"/>	Total Phosphorus	<input type="text" value="75%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="0.25"/>
Total Acres	<input type="text" value="1.034"/>	Total Suspended Solids	<input type="text" value="80%"/>	TSS (lbs/yr)	<input type="text" value="177.43"/>



# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name NewBMP\_106\_b (Page 1 of 2)

Ownership public

Site Name Rosa Parks Elementary School

Score 71

Subwatershed 805

Rank 7 of 24 (tie)

## Site Description and Proposed Action

Rosa Parks Elementary School’s drainage consists of impervious rooftop, asphalt parking, and concrete walking and play areas. Stormwater runoff is treated onsite at a dry detention facility. Investigators identified areas where water quality pre-treatment would improve overall water quality leaving the site. Conceptual upgrades to the dry pond facility are described in BCON106.

A concrete basketball and play area drains to the west, down a short slope into a yard inlet. To provide water quality treatment of the runoff from the concrete area, a sand filter can be installed along the edge, with underdrain reconnecting to the stormwater network at the yard inlet.

**Proposed Treatment Option** Surface Sand Filter

Overall New BMP Potential High

## Issues for Implementation

None apparent.



Impervious play area in drainage of potential new BMP



Location of proposed sand filter footprint



# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 805

Ownership public  
 Score 71  
 Rank 7 of 24 (tie)

## Locator Map



### Estimated Pollutant Load Reductions

Surface Sand Filter		Removal Efficiencies		Reductions	
Impervious Acres	<input type="text" value="0.202"/>	Total Nitrogen	<input type="text" value="40%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="1.09"/>
Pervious Acres	<input type="text" value="0.003"/>	Total Phosphorus	<input type="text" value="60%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="0.17"/>
Total Acres	<input type="text" value="0.205"/>	Total Suspended Solids	<input type="text" value="80%"/>	TSS (lbs/yr)	<input type="text" value="213.71"/>

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name NewBMP\_105\_d (Page 1 of 2)  
Site Name C.D. Hylton High School  
Subwatershed 805

Ownership public  
Score 71  
Rank 7 of 24 (tie)

## Site Description and Proposed Action

At C. D. Hylton High School, the extensive network of athletic fields provide opportunities to treat stormwater runoff at the source. Compacted turf can often mimic impervious cover, providing opportunities to treat and detain stormwater runoff. Approaches to yard inlets are ideal locations for bioswales.

To treat concentrated runoff approach yard inlets, bioswales can be installed to pre-treat, slow down, and infiltrate stormwater from expansive athletic fields.

**Proposed Treatment Option** Bioswale

Overall New BMP Potential High

## Issues for Implementation

None apparent.



View of drainage to proposed bioswale



View of location of potential bioswale

# Neabsco Creek Watershed Study New BMP Project Opportunity

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Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 805

Ownership public  
 Score 71  
 Rank 7 of 24 (tie)

## Locator Map



### Estimated Pollutant Load Reductions

Bioswale		Removal Efficiencies		Reductions	
Impervious Acres	0.006	Total Nitrogen	70%	Total Nitrogen (lbs/yr)	2.87
Pervious Acres	0.447	Total Phosphorus	75%	Total Phosphorus (lbs/yr)	0.11
Total Acres	0.453	Total Suspended Solids	80%	TSS (lbs/yr)	82.63

B-18



# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name NewBMP\_105\_e (Page 1 of 2)

Ownership public

Site Name C.D. Hylton High School

Score 71

Subwatershed 805

Rank 7 of 24 (tie)

## Site Description and Proposed Action

At C. D. Hylton High School, a large student parking area on the northwest side of the school, adjacent to running track and large baseball field, appears not to be serviced by any of the dry pond facilities. The impervious area also includes part of the roof drainage.

To treat and detain the large quantity of water delivered by the parking lot, underground storage, with filter cartridge forebays, can be installed along the northwest edge of the lot. Investigators determined that enough relief exists for the storage facility to be installed. The facility will improve stormwater runoff quality and provide detention and quantity control.

**Proposed Treatment Option** Underground Storage & Filter Cartridge System

Overall New BMP Potential High

## Issues for Implementation

Implementation may require relocation of electric delivery to streetlights. One overhead electric line is also present.



Contributing drainage to potential underground storage facility



Location of footprint of potential underground storage facility

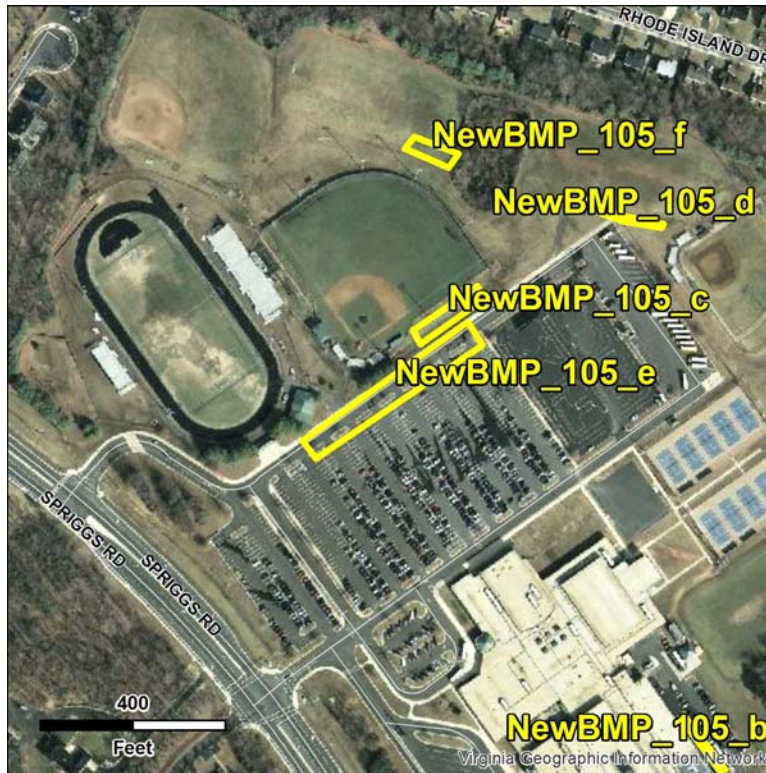


# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 805

Ownership public  
 Score 71  
 Rank 7 of 24 (tie)

## Locator Map



### Estimated Pollutant Load Reductions

#### Underground Storage and Filter Ca

#### Removal Efficiencies

#### Reductions

Impervious Acres	<input type="text" value="9.457"/>	Total Nitrogen	<input type="text" value="5%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="6.94"/>
Pervious Acres	<input type="text" value="1.336"/>	Total Phosphorus	<input type="text" value="10%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="1.37"/>
Total Acres	<input type="text" value="10.79"/>	Total Suspended Solids	<input type="text" value="10%"/>	TSS (lbs/yr)	<input type="text" value="1,275.47"/>

Project Name NewBMP\_115\_c (Page 1 of 2)  
Site Name Logan Park  
Subwatershed 815

Ownership public  
Score 70  
Rank 11 of 24

### Site Description and Proposed Action

Logan Park is a recreational baseball park consisting of batting cages and several athletic and baseball fields, small gravel parking lot. A small stormwater conduit system is present, however there are also rip rap swales throughout the site. Most of the site drains to the north, across the access road via a culvert. The site contains one small dry pond that provides volume control.

The dry pond facility can be retrofit to bioretention to provide water quality treatment for redirected runoff originating from the batting cage, the southern section of the gravel parking lot, and a portion of Minnieville Road.

**Proposed Treatment Option** Bioretention Underdrain

Overall New BMP Potential High

### Issues for Implementation

The proposed facility retrofit is near a transmission line right of way.



Area downslope of batting cage, facing west



Existing dry detention facility at Logan Park

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed

Ownership   
 Score   
 Rank

## Locator Map



### Estimated Pollutant Load Reductions

#### Bioretention Underdrain A/B soils

#### Removal Efficiencies

#### Reductions

Impervious Acres	<input type="text" value="0.276"/>	Total Nitrogen	<input type="text" value="70%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="6.42"/>
Pervious Acres	<input type="text" value="0.607"/>	Total Phosphorus	<input type="text" value="75%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="0.44"/>
Total Acres	<input type="text" value="0.883"/>	Total Suspended Solids	<input type="text" value="80%"/>	TSS (lbs/yr)	<input type="text" value="395.56"/>



# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name NewBMP\_105\_c (Page 1 of 2)  
Site Name C.D. Hylton High School  
Subwatershed 805

Ownership public  
Score 69  
Rank 12 of 24

## Site Description and Proposed Action

At C. D. Hylton High School, the extensive network of athletic fields provide opportunities to treat stormwater runoff at the source. Compacted turf can often mimic impervious cover, providing opportunities to treat and detain stormwater runoff. Approaches to yard inlets are ideal locations for bioswales.

To treat concentrated runoff approach yard inlets, bioswales can be installed to pre-treat, slow down, and infiltrate stormwater from expansive athletic fields.

**Proposed Treatment Option** Bioswale

Overall New BMP Potential High

## Issues for Implementation

None apparent.



View of existing grassy swale



Location of footprint of proposed bioswale

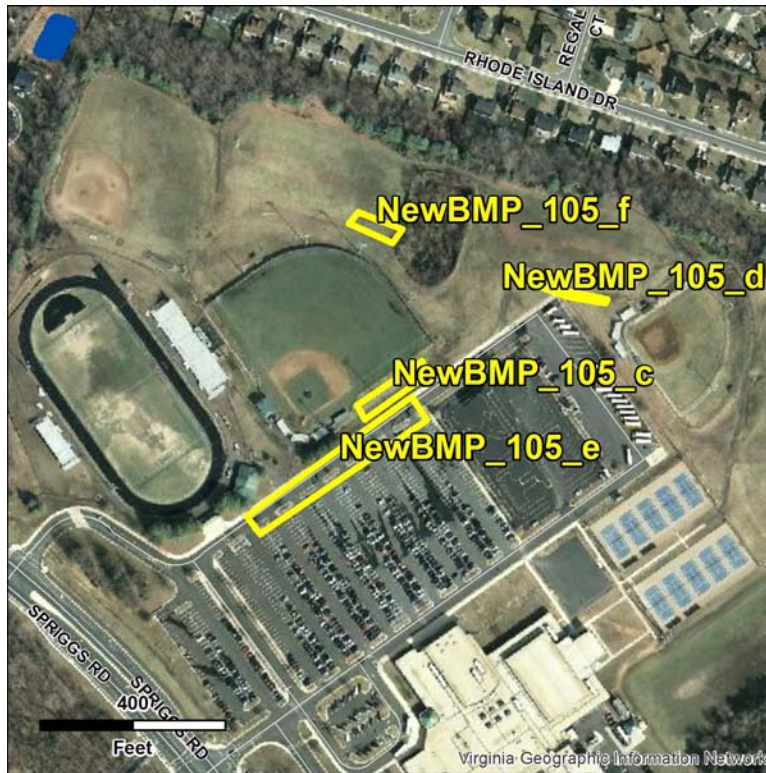


# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 805

Ownership public  
 Score 69  
 Rank 12 of 24

## Locator Map



### Estimated Pollutant Load Reductions

Bioswale		Removal Efficiencies		Reductions	
Impervious Acres	<input type="text" value="0.0003"/>	Total Nitrogen	<input type="text" value="70%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="5.38"/>
Pervious Acres	<input type="text" value="0.852"/>	Total Phosphorus	<input type="text" value="75%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="0.20"/>
Total Acres	<input type="text" value="0.852"/>	Total Suspended Solids	<input type="text" value="80%"/>	TSS (lbs/yr)	<input type="text" value="146.47"/>

# Neabsco Creek Watershed Study New BMP Project Opportunity

B-25

Project Name NewBMP\_102\_a (Page 1 of 2)

Ownership public

Site Name Kerrydale Elementary School

Score 65

Subwatershed 820

Rank 13 of 24 (tie)

## Site Description and Proposed Action

Kerrydale Elementary School has several impervious areas however investigators could not identify any stormwater treatment. In particular, the faculty parking lot at the southern edge of the property drains to a storm sewer and is connected to a tributary of Hoadly Run.

A bioretention area can be installed on the grassy slope adjacent to the faculty parking lot. Curb cuts will enable stormwater to reach the facility. The treated water can travel by underdrain to the tributary.

**Proposed Treatment Option** Bioretention Underdrain

Overall New BMP Potential High

## Issues for Implementation

Avoid impacts to sanitary sewer line at the edge of the property, particularly if an underdrain is installed in the vicinity of the line.



View of contributing drainage to potential bioretention area

Sloping area adjacent to faculty parking lot

B-25

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 820

Ownership public  
 Score 65  
 Rank 13 of 24 (tie)

## Locator Map



### Estimated Pollutant Load Reductions

#### Bioretention Underdrain C/D soils

#### Removal Efficiencies

#### Reductions

Impervious Acres	<input type="text" value="0.345"/>	Total Nitrogen	<input type="text" value="25%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="1.54"/>
Pervious Acres	<input type="text" value="0.170"/>	Total Phosphorus	<input type="text" value="45%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="0.24"/>
Total Acres	<input type="text" value="0.515"/>	Total Suspended Solids	<input type="text" value="55%"/>	TSS (lbs/yr)	<input type="text" value="270.11"/>

# Neabsco Creek Watershed Study New BMP Project Opportunity

B-27

Project Name NewBMP\_107\_b (Page 1 of 2)

Ownership public

Site Name Martin Luther King Jr Elementary School

Score 65

Subwatershed 805

Rank 13 of 24 (tie)

## Site Description and Proposed Action

Impervious areas of the school include roof drainage, asphalt parking areas, and concrete service drives and walkways. Stormwater quantity treatment is achieved with a dry detention facility on the northwest side of the property.

Water quality treatment can be improved by installing micro bioretention in an area between the concrete play area and the school, downslope of the school to treat roof runoff. The facility will serve as pretreatment for runoff destined for the dry pond.

**Proposed Treatment Option** Bioretention Underdrain

Overall New BMP Potential Medium

## Issues for Implementation

None apparent.



View of proposed footprint in courtyard of school

B-27



# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 805

Ownership public  
 Score 65  
 Rank 13 of 24 (tie)

## Locator Map



### Estimated Pollutant Load Reductions

#### Bioretention Underdrain A/B soils

#### Removal Efficiencies

#### Reductions

Impervious Acres	<input type="text" value="0.581"/>	Total Nitrogen	<input type="text" value="70%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="5.45"/>
Pervious Acres	<input type="text" value="0.0005"/>	Total Phosphorus	<input type="text" value="75%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="0.61"/>
Total Acres	<input type="text" value="0.581"/>	Total Suspended Solids	<input type="text" value="80%"/>	TSS (lbs/yr)	<input type="text" value="612.52"/>

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name NewBMP\_102\_b (Page 1 of 2)

Ownership public

Site Name Kerrydale Elementary School

Score 65

Subwatershed 820

Rank 13 of 24 (tie)

## Site Description and Proposed Action

The northern faculty parking area and maintenance access rests on a slight grade running toward the southwest and appears to have no stormwater control. The drainage consists of impervious parking and the maintenance facility. Recent stormwater infrastructure upgrades in the maintenance area discharge to the parking lot.

To introduce water quality treatment and quantity control, a bioretention area can be installed in the grassy interior of the bus loop. A trench drain spanning the bus loop exit and curb cuts can be constructed to guide runoff to the facility.

**Proposed Treatment Option** Bioretention Underdrain

Overall New BMP Potential High

## Issues for Implementation

Electric service to streetlights may need to be relocated to accommodate new BMP.



Location of footprint of proposed bioretention area

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed

Ownership   
 Score   
 Rank

## Locator Map



### Estimated Pollutant Load Reductions

#### Bioretention Underdrain C/D soils

#### Removal Efficiencies

#### Reductions

Impervious Acres	<input type="text" value="0.526"/>	Total Nitrogen	<input type="text" value="25%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="2.19"/>
Pervious Acres	<input type="text" value="0.190"/>	Total Phosphorus	<input type="text" value="45%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="0.36"/>
Total Acres	<input type="text" value="0.716"/>	Total Suspended Solids	<input type="text" value="55%"/>	TSS (lbs/yr)	<input type="text" value="403.79"/>

# Neabsco Creek Watershed Study New BMP Project Opportunity

B-31

Project Name NewBMP\_105\_b (Page 1 of 2)  
Site Name C.D. Hylton High School  
Subwatershed 815

Ownership public  
Score 62  
Rank 16 of 24

## Site Description and Proposed Action

At C. D. Hylton High School, investigators identified a severe hotspot area, with active pollution. The affected area contained disassembled autos, auto parts, oil stains, a pressure washer, and a clogged trench drain. All of these activities are within the drainage of an existing dry pond, however it is strongly recommended that the hotspot be remediated to reduce the likelihood of polluted stormwater reaching the facility and surface streams beyond the facility. At least one oil spill was observed.

To address potential pollution problems associated with the vocational technical education area, a perimeter sand filter can be installed around existing inlets along the eastern edge of the parking area. Alternatively, an underground sand filtration system can also be installed. An oil and grease filtration system is also recommended.

**Proposed Treatment Option** Surface Sand Filter

Overall New BMP Potential High

## Issues for Implementation

Electric service to streetlights may need to be relocated.



Auto maintenance area showing oily residue



Auto maintenance area showing trench inlet with "no dumping" decal, pressure washer, and oil pan

B-31

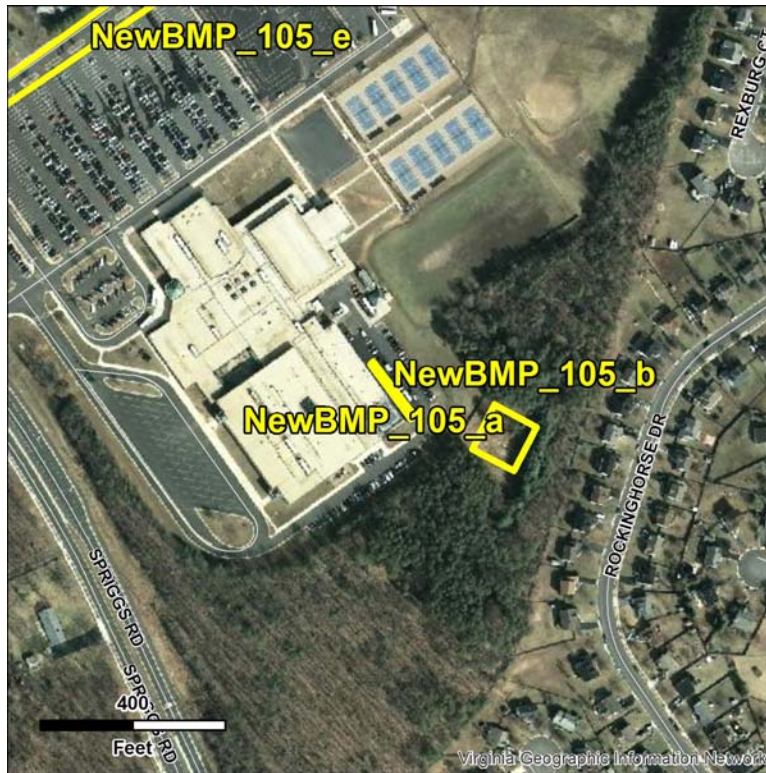


# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 815

Ownership public  
 Score 62  
 Rank 16 of 24

## Locator Map



### Estimated Pollutant Load Reductions

Surface Sand Filter		Removal Efficiencies		Reductions	
Impervious Acres	<input type="text" value="0.666"/>	Total Nitrogen	<input type="text" value="40%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="3.57"/>
Pervious Acres	<input type="text" value="0.0003"/>	Total Phosphorus	<input type="text" value="60%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="0.56"/>
Total Acres	<input type="text" value="0.666"/>	Total Suspended Solids	<input type="text" value="80%"/>	TSS (lbs/yr)	<input type="text" value="702.01"/>

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name NewBMP\_107\_a (Page 1 of 2)

Ownership public

Site Name Martin Luther King Jr Elementary School

Score 60

Subwatershed 805

Rank 17 of 24

## Site Description and Proposed Action

A portion of the school site consists of recently-installed concrete impervious cover. A dry detention facility was identified which appears to drain most of the school property.

Investigators identified underutilized grassy areas adjacent to the concrete play area that could accommodate a surface sand filter to provide pre-treatment of runoff prior to entry to the storm sewer system and eventually the dry pond. The sand filter would provide a water quality treatment benefit for highly trafficked impervious surfaces.

**Proposed Treatment Option** Surface Sand Filter

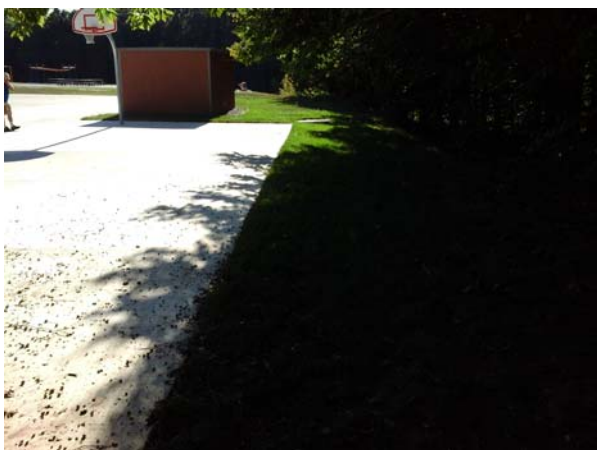
Overall New BMP Potential Medium

## Issues for Implementation

None apparent.



Concrete pad on north side of elementary school



Footprint of potential surface sand filter

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 805

Ownership public  
 Score 60  
 Rank 17 of 24

## Locator Map



### Estimated Pollutant Load Reductions

Surface Sand Filter		Removal Efficiencies		Reductions	
Impervious Acres	<input type="text" value="0.131"/>	Total Nitrogen	<input type="text" value="40%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="0.70"/>
Pervious Acres	<input type="text" value="0.0005"/>	Total Phosphorus	<input type="text" value="60%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="0.11"/>
Total Acres	<input type="text" value="0.131"/>	Total Suspended Solids	<input type="text" value="80%"/>	TSS (lbs/yr)	<input type="text" value="138.09"/>



# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name NewBMP\_108\_a (Page 1 of 2)  
Site Name Baneberry Circle  
Subwatershed 805

Ownership private  
Score 57  
Rank 18 of 24

### Site Description and Proposed Action

The drainage area to be treated consists of medium density residential development with no stormwater treatment. Stormwater infrastructure runs the length of Baneberry Circle and discharges through outfall behind the last residences on the cul-de-sac. Investigators noted much trash at the outfall.

To address the lack of treatment, offline bioretention is recommended. The facility will be placed in an area of turf & brush to the immediate northwest of the current outfall.

**Proposed Treatment Option** Bioretention Underdrain

Overall New BMP Potential Medium

### Issues for Implementation

Proposed BMP may be constructed on private property.



View of easement to potential bioretention footprint



Receiving channel receiving uncontrolled stormwater from outfall



# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 805

Ownership private  
 Score 57  
 Rank 18 of 24

## Locator Map



### Estimated Pollutant Load Reductions

Bioretention Underdrain C/D soils		Removal Efficiencies		Reductions	
Impervious Acres	<input type="text" value="7.455"/>	Total Nitrogen	<input type="text" value="25%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="57.53"/>
Pervious Acres	<input type="text" value="14.45"/>	Total Phosphorus	<input type="text" value="45%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="6.78"/>
Total Acres	<input type="text" value="21.90"/>	Total Suspended Solids	<input type="text" value="55%"/>	TSS (lbs/yr)	<input type="text" value="7,109.20"/>

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name	NewBMP_114_a (Page 1 of 2)	Ownership	public
Site Name	Dale City Commuter Lot	Score	55
Subwatershed	820	Rank	19 of 24

## Site Description and Proposed Action

The site consists of a substantial commuter lot. Included in the drainage is the rear parking area and a portion of the Giant supermarket building on Dale Boulevard and Gemini Way. The stormwater network terminates in a single outfall on the slope behind the commuter lot and drains in the direction of Hoadly Run. Investigators identified severe erosion along the receiving concrete channel and at the end of the channel.

To remedy the uncontrolled runoff, underground storage with a pre-filtration system is recommended. Installation of the storage will require excavation of the parking lot, however, sufficient relief exists to place the system and effectively treat, detain, and gradually release stormwater.

**Proposed Treatment Option**    Underground Storage & Filter Cartridge System

Overall New BMP Potential    Medium

## Issues for Implementation

Significant excavation and taking a portion of the parking lot facility offline will be required to install the new BMP.



Southwest corner of commuter lot showing proposed location of underground storage

View of collapsing and undermined concrete channel down-gradient of outfall

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 820

Ownership public  
 Score 55  
 Rank 19 of 24

## Locator Map



### Estimated Pollutant Load Reductions

#### Underground Storage and Filter Ca

#### Removal Efficiencies

#### Reductions

Impervious Acres	<input type="text" value="2.238"/>	Total Nitrogen	<input type="text" value="5%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="1.92"/>
Pervious Acres	<input type="text" value="0.923"/>	Total Phosphorus	<input type="text" value="10%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="0.34"/>
Total Acres	<input type="text" value="3.161"/>	Total Suspended Solids	<input type="text" value="10%"/>	TSS (lbs/yr)	<input type="text" value="314.89"/>



# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name NewBMP\_118\_a (Page 1 of 2)  
Site Name Savannah Drive  
Subwatershed 815

Ownership private  
Score 50  
Rank 20 of 24

## Site Description and Proposed Action

The area to be treated consists of a high density residential neighborhood that has no stormwater treatment. All untreated runoff is discharged into a dry channel that is heavily incised. Much trash has accumulated in the channel and the outfall pipe is perched.

Solution: offline bioretention using a splitter at the street. The bioretention will be located in a grassy turf area that is not utilized, but will be very deep and can provide significant storage.

**Proposed Treatment Option** Bioretention Underdrain

Overall New BMP Potential Medium

## Issues for Implementation

The depth of new infrastructure to deliver runoff to proposed facility would require extensive excavation. New facility may impact viewshed of neighboring townhomes.



View of outfall and receiving channel



View of outfall and receiving channel

# Neabsco Creek Watershed Study New BMP Project Opportunity

B-40

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 815

Ownership private  
 Score 50  
 Rank 20 of 24

## Locator Map



### Estimated Pollutant Load Reductions

#### Bioretention Underdrain C/D soils

Impervious Acres	<input type="text" value="8.636"/>
Pervious Acres	<input type="text" value="11.39"/>
Total Acres	<input type="text" value="20.02"/>

#### Removal Efficiencies

Total Nitrogen	<input type="text" value="25%"/>
Total Phosphorus	<input type="text" value="45%"/>
Total Suspended Solids	<input type="text" value="55%"/>

#### Reductions

Total Nitrogen (lbs/yr)	<input type="text" value="54.60"/>
Total Phosphorus (lbs/yr)	<input type="text" value="7.08"/>
TSS (lbs/yr)	<input type="text" value="7,604.70"/>

B-40

# Neabsco Creek Watershed Study New BMP Project Opportunity

B-41

Project Name NewBMP\_113\_a (Page 1 of 2)

Ownership private

Site Name Giant Food

Score 48

Subwatershed 820

Rank 21 of 24

## Site Description and Proposed Action

The site consists of the rear parking lot of the Giant supermarket on Dale Boulevard and a portion of the rooftop. Runoff from roof and parking lot behind the shopping center is currently untreated and joins a network that discharges to a heavily impacted outfall channel behind the commuter lot west of Gemini Way.

The untreated runoff from the rear lot and roof can be treated by installing a surface sand filter in a turf area upslope of Gemini Way and adjacent to the parking area. Runoff will access the filter using curb cuts.

**Proposed Treatment Option** Surface Sand Filter

Overall New BMP Potential Medium

## Issues for Implementation

Several utility boxes are present in the periphery, indicating that below grade utility lines are in the area. A fenced-in dumpster area may need to be relocated.



View of new BMP footprint and



View of site of proposed surface sand filter

B-41



# Neabsco Creek Watershed Study New BMP Project Opportunity

B-42

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 820

Ownership private  
 Score 48  
 Rank 21 of 24

## Locator Map



### Estimated Pollutant Load Reductions

Surface Sand Filter		Removal Efficiencies		Reductions	
Impervious Acres	<input type="text" value="0.628"/>	Total Nitrogen	<input type="text" value="40%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="3.60"/>
Pervious Acres	<input type="text" value="0.063"/>	Total Phosphorus	<input type="text" value="60%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="0.54"/>
Total Acres	<input type="text" value="0.691"/>	Total Suspended Solids	<input type="text" value="80%"/>	TSS (lbs/yr)	<input type="text" value="673.23"/>

B-42



# Neabsco Creek Watershed Study New BMP Project Opportunity

B-43

Project Name NewBMP\_112\_a (Page 1 of 2)

Ownership private

Site Name Ace Hardware

Score 43

Subwatershed 825

Rank 22 of 24 (tie)

## Site Description and Proposed Action

The impervious area to be treated is located in a commercial area, behind Pitkin's Ace Hardware on Dale Boulevard. The rear of the business is a hot spot, with lots of dumpsters (some open), outdoor storage, spillage of materials, and trash. Currently there is no stormwater treatment at this business and the several curbside inlets deliver stormwater immediately to a wooded area behind the property.

Recommended for this site is bioretention located on the northwestern edge of the parking lot. Existing stormwater infrastructure will stay in place to handle high flows.

**Proposed Treatment Option** Bioretention Underdrain

Overall New BMP Potential Medium

## Issues for Implementation

Electric utility boxes are located near the pathway for underdrain to reconnect to the storm drain network.



View of footprint of potential bioretention area

B-43

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 825

Ownership private  
 Score 43  
 Rank 22 of 24 (tie)

## Locator Map



### Estimated Pollutant Load Reductions

#### Bioretention Underdrain C/D soils

#### Removal Efficiencies

#### Reductions

Impervious Acres	<input type="text" value="0.194"/>	Total Nitrogen	<input type="text" value="25%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="0.71"/>
Pervious Acres	<input type="text" value="0.024"/>	Total Phosphorus	<input type="text" value="45%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="0.13"/>
Total Acres	<input type="text" value="0.219"/>	Total Suspended Solids	<input type="text" value="55%"/>	TSS (lbs/yr)	<input type="text" value="143.71"/>

# Neabsco Creek Watershed Study New BMP Project Opportunity

B-45

Project Name NewBMP\_111\_a (Page 1 of 2)

Ownership private

Site Name Ace Hardware

Score 43

Subwatershed 825

Rank 22 of 24 (tie)

## Site Description and Proposed Action

The impervious area to be treated is located in a commercial area, behind Pitkin's Ace Hardware on Dale Boulevard. The rear of the business is a hot spot, with lots of dumpsters (some open), outdoor storage, spillage of materials, and trash. Currently there is no stormwater treatment at this business and the several curbside inlets deliver stormwater immediately to a wooded area behind the property.

Recommended for this site is a surface sand filter situated in the grassy area behind the business. Existing stormwater infrastructure will stay in place to handle high flows

**Proposed Treatment Option** Surface Sand Filter

Overall New BMP Potential Medium

## Issues for Implementation

None apparent.



Location of footprint of proposed surface sand filter

B-45

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed

Ownership private  
 Score 43  
 Rank 22 of 24 (tie)

## Locator Map



### Estimated Pollutant Load Reductions

Surface Sand Filter		Removal Efficiencies		Reductions	
Impervious Acres	<input type="text" value="0.368"/>	Total Nitrogen	<input type="text" value="40%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="1.97"/>
Pervious Acres	<input type="text" value="-2E-08"/>	Total Phosphorus	<input type="text" value="60%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="0.31"/>
Total Acres	<input type="text" value="0.368"/>	Total Suspended Solids	<input type="text" value="80%"/>	TSS (lbs/yr)	<input type="text" value="387.74"/>



# Neabsco Creek Watershed Study New BMP Project Opportunity

B-47

Project Name NewBMP\_110\_a (Page 1 of 2)

Ownership private

Site Name Ace Hardware

Score 38

Subwatershed 825

Rank 24 of 24

## Site Description and Proposed Action

The impervious area to be treated is located in a commercial area, behind Pitkin's Ace Hardware on Dale Boulevard. The rear of the business is a hot spot, with lots of dumpsters (some open), outdoor storage, spillage of materials, and trash. Currently there is no stormwater treatment at this business and the several curbside inlets deliver stormwater immediately to a wooded area behind the property.

Recommended for this site is underground storage with cartridge pre-filtration system located behind the shopping center businesses. Existing stormwater infrastructure will stay in place to handle high flows.

**Proposed Treatment Option** Underground Storage & Filter Cartridge System

Overall New BMP Potential Medium

## Issues for Implementation

The proposed new BMP is in a constrained area behind Ace Hardware. At eastern end of proposed footprint, electric and other utility boxes are present, indicating buried utilities. Electric service to streetlights may also be impacted.



Location of footprint of proposed underground storage

# Neabsco Creek Watershed Study New BMP Project Opportunity

Project Name  (Page 2 of 2)  
 Site Name   
 Subwatershed 825

Ownership private  
 Score 38  
 Rank 24 of 24

## Locator Map



### Estimated Pollutant Load Reductions

Underground Storage and Filter Ca		Removal Efficiencies		Reductions	
Impervious Acres	<input type="text" value="0.568"/>	Total Nitrogen	<input type="text" value="5%"/>	Total Nitrogen (lbs/yr)	<input type="text" value="0.41"/>
Pervious Acres	<input type="text" value="0.072"/>	Total Phosphorus	<input type="text" value="10%"/>	Total Phosphorus (lbs/yr)	<input type="text" value="0.08"/>
Total Acres	<input type="text" value="0.64"/>	Total Suspended Solids	<input type="text" value="10%"/>	TSS (lbs/yr)	<input type="text" value="76.47"/>