Appendix A
Stormwater Facility Conversion Opportunity Fact Sheet Summaries

TABLE OF CONTENTS

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 87

Subwatershed 825

Rank 1 of 23

Site Name Golden Court

Owner Private

Site ID BCON120 County FAC ID 70 (Page 1 of 2)

Maintenance Public Works

Site Description and Proposed Project

The field assessment noted that the existing dry pond is built on a small stream and features mowed slopes and a stand of wetland vegetation. The channel flows through an 8-inch constrictor valve to an open-top vertical concrete pipe for a riser. Downstream, the outfall deck is crumbling and farther downstream is an exposed sanitary sewer line.

The dry pond can be converted to improve treatment by replacing the existing riser structure with a modern stormwater riser with appropriately sized outlet orifice to improve storage of bypass flow. High flows can be diverted to bioretention cells using splitters.

Proposed Treatment Option Bioretention Underdrain A/B soils (constructed wetland could also be considered)

Issues for Implementation

Several CATV or electric utility boxes were noted by field staff located just outside of the footprint. Sanitary sewer service is also close by and sanitary sewer infrastructure is exposed downstream of the outfall.

View of stormwater pond upstream of riser

Riser interior with flow constrictor valve

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 87

Subwatershed 825

Rank 1 of 23

Site Name Golden Court

Owner Private

Site ID BCON120 County FAC ID 70 (Page 2 of 2)

Maintenance Public Works

Locator Map

Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) BMP Dry Detention

Proposed BMP Type Bioretention Underdrain A/B soils

Impervious Acres	1.19
Pervious Acres	6.85
Total Acres	8.04

Reductions

Total Nitrogen (lbs/yr)	50.49
Total Phosphorus (lbs/yr)	2.51
TSS (lbs/yr)	2,126.28

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 86

Subwatershed 820

Rank 2 of 23

Site Name Ruler Court

Owner Private

Site ID BCON105 County FAC ID 132 (Page 1 of 2)

Maintenance Public Works

Site Description and Proposed Project

The existing pond was found to be heavily vegetated with some mature trees and a small area of wetland. The facility outfall is a 24-inch corrugated metal pipe. Flow from the outfall has created a two-foot deep headcut 25 feet down-gradient and approximately one foot of erosion in the receiving ephemeral channel for the next 50 feet. The assessment team noted that the outfall pipe needs maintenance.

The assessment team determined that the pond has "self-converted" and requires no redesign for water quality control. To achieve greater quantity control, a new riser with smaller orifice can be installed.

Proposed Treatment Option Improved extended dry detention.

Issues for Implementation

None apparent.

Existing high flow outlet

Interior of high flow outlet showing restrictor valve

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 86

Subwatershed 820

Rank 2 of 23

Site Name Ruler Court

Owner Private

Site ID BCON105 County FAC ID 132 (Page 2 of 2)

Maintenance Public Works

Locator Map

Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) BMP Dry Detention

Proposed BMP Type Extended Dry Detention

Impervious Acres	3.21
Pervious Acres	14.58
Total Acres	17.79

Reductions

Total Nitrogen (lbs/yr)	26.16
Total Phosphorus (lbs/yr)	0.92
TSS (lbs/yr)	3,679.01

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 85

Subwatershed 815

Rank 3 of 23

Site Name Satterfield Drive

Owner Private

Site ID BCON107 County FAC ID 88 (Page 1 of 2)

Maintenance Public Works

Site Description and Proposed Project

The current facility is a dry pond with baseflow stream entering from the southwest and exiting through the high flow riser. A checkdam with a low flow orifice was added in 2007 just downstream of the facility outfall. The baseflow stream, where it joins a dry leader channel from another outfall to the facility to the southeast, has created a large ponded area. Additionally, erosion has occurred at the point where the baseflow stream enters the facility, but is less apparent near the outlet.

Since the facility already exhibits wetland properties, it can be converted to a functioning wetland to improve treatment of incoming stormwater. Additional steps needed to retrofit the facility include appropriately sizing the outlet orifice to retain water to maintain wetland environment while still allowing heavy stormwater flows to pass through, and regrading the footprint to enlarge planted area and increase the length of the flow path. A forebay or armored plunge pool placed at the upstream end of the facility will help alleviate erosion.

Proposed Treatment Option Constructed wetland with improved extended detention.

Issues for Implementation

Access to the pond for retrofit may result in significant impact to trees.

Outlet of existing facility showing low flow weir

Ponded area along leader channel

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 85

Subwatershed 815

Rank 3 of 23

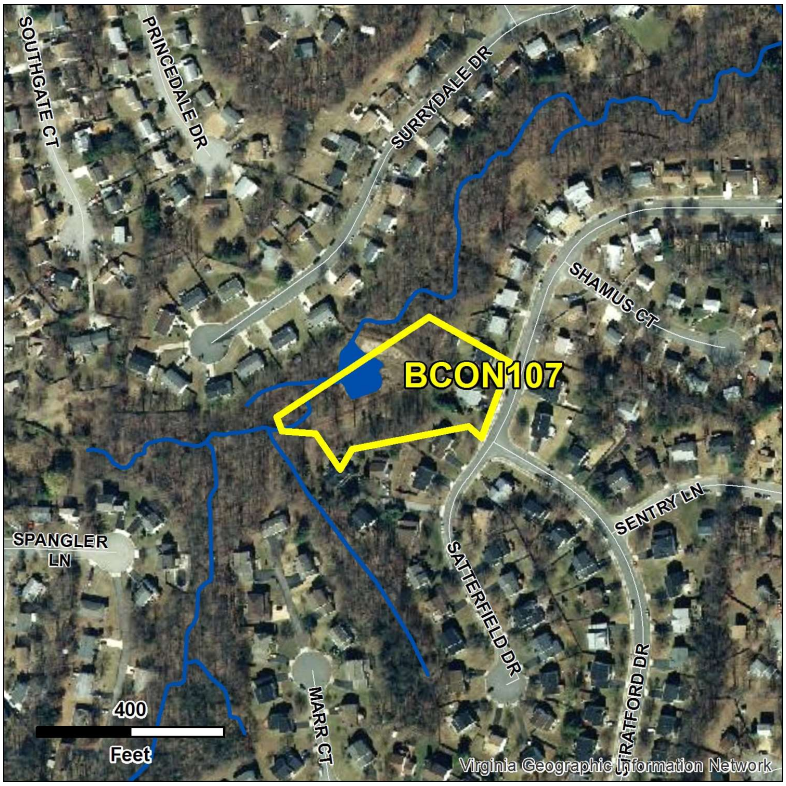
Site Name Satterfield Drive

Owner Private

Site ID BCON107 County FAC ID 88 (Page 2 of 2)

Maintenance Public Works

Locator Map



Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) BMP Dry Detention

Proposed BMP Type Constructed Wetland

Impervious Acres	19.32
Pervious Acres	45.22
Total Acres	64.54

Reductions

Total Nitrogen (lbs/yr)	99.98
Total Phosphorus (lbs/yr)	14.53
TSS (lbs/yr)	17,583.33

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 82

Subwatershed 805

Rank 4 of 23 (tie)

Site Name Rosa Parks Elementary School

Owner Schools

Site ID BCON106 County FAC ID 5048 (Page 1 of 2)

Maintenance Schools

Site Description and Proposed Project

The dry pond facility treats impervious surfaces of Rosa Parks Elementary School. Dense vegetation, including wetland vegetation, is present within the basin and no structural problems are apparent. Downstream of the facility outfall is a zone of riprap and then moderate (18-inch deep) erosion in the down-gradient channel for 60 feet.

To improve water quality treatment and water quantity control, the riser can be redesigned with a taller profile and smaller outlet orifice to retain water longer in the basin. The increased retention time will provide more opportunity for suspended particle settlement and infiltration treatment.

Proposed Treatment Option Extended dry detention.

Issues for Implementation

Sanitary sewer line near the existing footprint.

View of dry pond interior, with Rosa Parks Elementary School in background

Existing outlet riser of dry pond

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 82

Subwatershed 805

Rank 4 of 23 (tie)

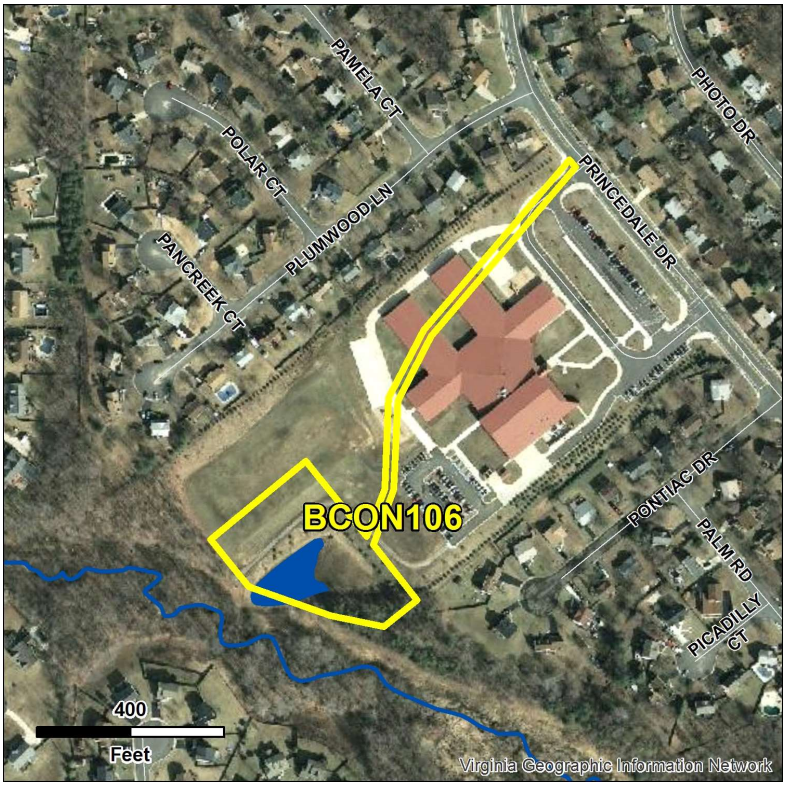
Site Name Rosa Parks Elementary School

Owner Schools

Site ID BCON106 County FAC ID 5048 (Page 2 of 2)

Maintenance Schools

Locator Map



Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) Dry Detention

Proposed BMP Type Extended Dry Detention

Impervious Acres	10.21
Pervious Acres	18.34
Total Acres	28.55

Reductions

Total Nitrogen (lbs/yr)	45.32
Total Phosphorus (lbs/yr)	2.02
TSS (lbs/yr)	8,696.48

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 82

Subwatershed 820

Rank 4 of 23 (tie)

Site Name Quate Lane

Owner Private

Site ID BCON128 County FAC ID 685 (Page 1 of 2)

Maintenance Public Works

Site Description and Proposed Project

This dry pond contains wetland plant species that provide partial treatment of incoming storm runoff. The outlet consists of an 18-inch orifice that drains directly to a stream.

The dry pond can be converted to a fully-functioning wetland by modifying the outlet to include a modern riser with appropriately sized low-flow orifice. The wetland function would blend with the surrounding area which is also designated as a wetland.

Proposed Treatment Option Constructed wetland. Add riser for extended dry detention.

Issues for Implementation

None apparent.

Outlet orifice of dry pond

View of stand of wetland vegetation inside of dry pond

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 82

Subwatershed 820

Rank 4 of 23 (tie)

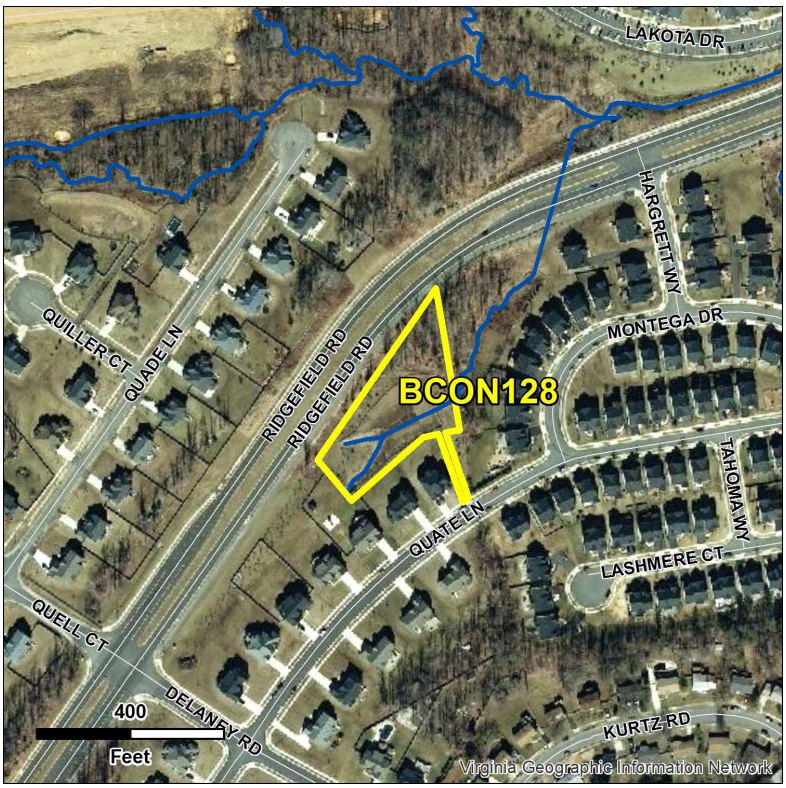
Site Name Quate Lane

Owner Private

Site ID BCON128 County FAC ID 685 (Page 2 of 2)

Maintenance Public Works

Locator Map



Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) Dry Detention

Proposed BMP Type Constructed Wetland

Impervious Acres	9.88
Pervious Acres	21.98
Total Acres	31.86

Reductions

Total Nitrogen (lbs/yr)	49.58
Total Phosphorus (lbs/yr)	7.30
TSS (lbs/yr)	8,869.15

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 81

Subwatershed 815

Rank 6 of 23

Site Name Pearson Drive

Owner Private

Site ID BCON110 County FAC ID 871 (Page 1 of 2)

Maintenance Public Works

Site Description and Proposed Project

The dry detention pond consists of a mowed basin with concrete leaders to carry stormwater. The assessment team determined that the basin outlet is clogged and riser top is out of alignment, which impedes proper functioning of the facility. An earthen spillway sits at same elevation as riser.

To improve treatment and quantity control, the pond can be converted to a multi-cell bioretention facility, consisting of forebay or splitter, and one or more bioretention cells in series. The division of the facility into cells can be achieved within the existing footprint. The concrete leader channel can be converted to a vegetated swale to provide additional treatment and infiltration. The outlet orifice and riser can be redesigned to provide quantity control in addition to water quality improvement benefit. A constructed wetland could be considered instead of bioretention.

Proposed Treatment Option Bioretention No Underdrain A/B soils (constructed wetland could also be considered)

Issues for Implementation

Potential sanitary sewer line conflict at edge of basin.

Outlet of stormwater pond out of alignment.

View of outfalls from stormwater network into pond.

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 81

Subwatershed 815

Rank 6 of 23

Site Name Pearson Drive

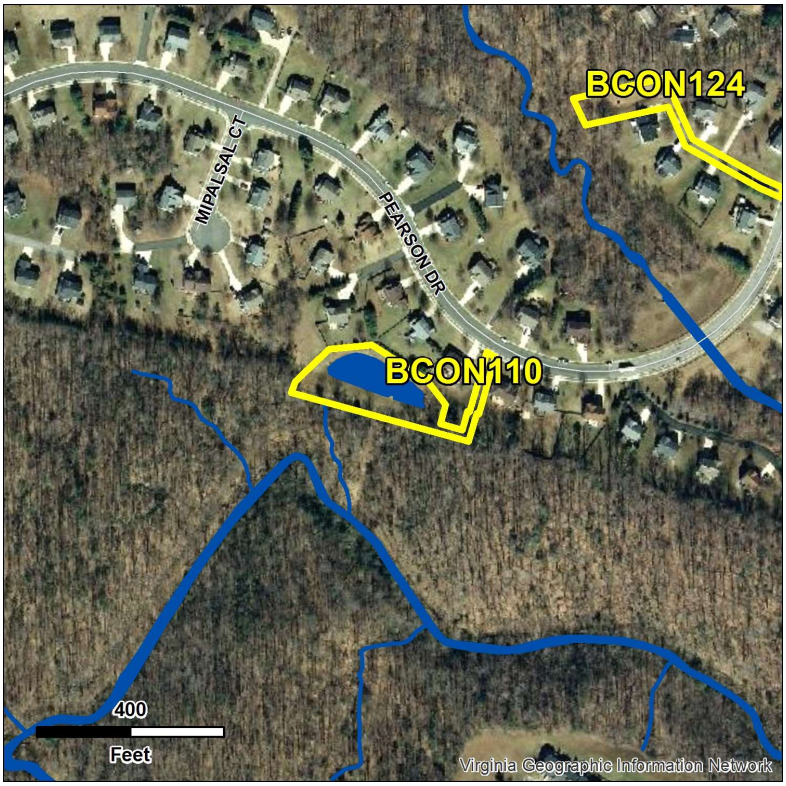
Owner Private

Site ID BCON110

County FAC ID 871 (Page 2 of 2)

Maintenance Public Works

Locator Map



Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory)	BMP Dry Detention
Proposed BMP Type	Bioretention No Underdrain A/B soils

Impervious Acres	6.69
Pervious Acres	19.28
Total Acres	25.97

Reductions

Total Nitrogen (lbs/yr)	197.57
Total Phosphorus (lbs/yr)	11.65
TSS (lbs/yr)	10,362.98

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 78

Subwatershed 805

Rank 7 of 23

Site Name Northton Court

Owner Private

Site ID BCON108 County FAC ID 617 (Page 1 of 2)

Maintenance Public Works

Site Description and Proposed Project

The current configuration of the pond is dry detention, in good condition, but with heavy vegetation and some wetland plants.

With some modification of the riser and installation of underdrains, the facility could be converted to a functioning bioretention area to provide additional water quality treatment and water quantity control. The conversion of the facility could be clustered with two neighboring ponds at the Water Park to improve quality and reduce quantity in a large geographic area. Alternatively, a constructed wetland could be considered.

Proposed Treatment Option Bioretention Underdrain A/B soils (constructed wetland could also be considered)

Issues for Implementation

None apparent.

View of dry pond riser

Oblique view of interior of dry pond

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 78

Subwatershed 805

Rank 7 of 23

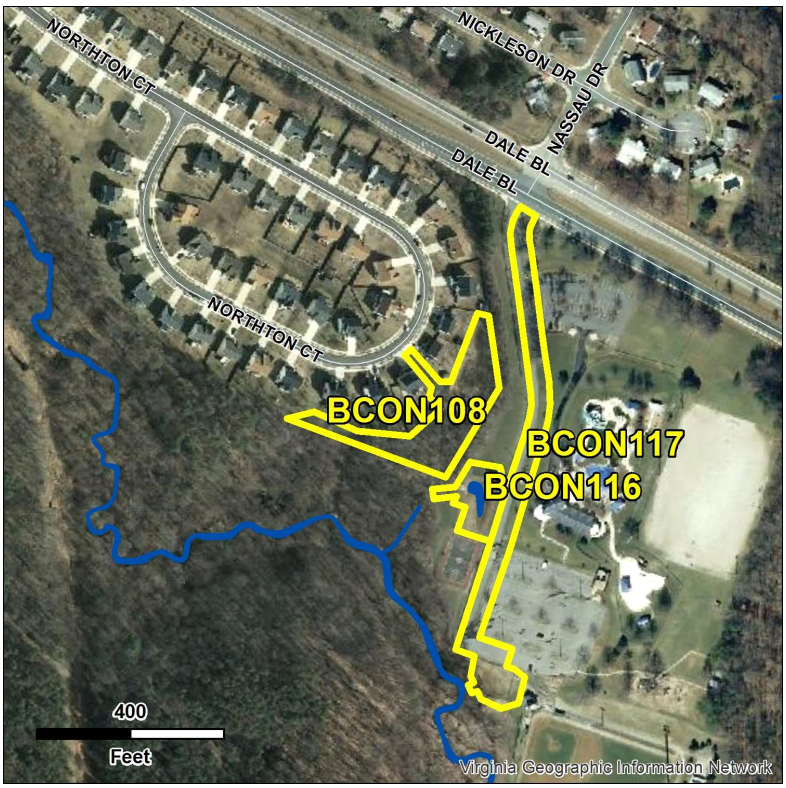
Site Name Northton Court

Owner Private

Site ID BCON108 County FAC ID 617 (Page 2 of 2)

Maintenance Public Works

Locator Map



Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) BMP Dry Detention

Proposed BMP Type Bioretention Underdrain A/B soils

Impervious Acres	10.02
Pervious Acres	17.78
Total Acres	27.8

Reductions

Total Nitrogen (lbs/yr)	191.47
Total Phosphorus (lbs/yr)	12.82
TSS (lbs/yr)	11,915.68

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 76

Subwatershed 805

Rank 8 of 23

Site Name Water Park (North)

Owner BOCS

Site ID BCON116 County FAC ID 5035 (Page 1 of 2)

Maintenance Parks

Site Description and Proposed Project

The stormwater pond receives overland flow from the driveway and grassy areas to east of driveway through a yard inlet. Evidence suggests some flow is bypassing the facility and damaging the ball court and the edge of the driveway. Downstream of the outfall, the receiving ephemeral channel is eroded 1 to 1.5 feet.

To improve water quality, a riser can be installed and the pond converted to bioretention. To provide additional storage, the footprint can be enlarged to include more of the underutilized green turf area to the west and north of the existing footprint. A constructed wetland could also be considered for this site.

Proposed Treatment Option Bioretention Underdrain A/B soils. (Add riser for extended dry detention. Constructed wetland could also be considered)

Issues for Implementation

Electric lines to streetlights may be in the path of potential retrofit.

Existing dry pond and outlet configuration

Yard inlet to east of driveway showing localized erosion

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 76

Subwatershed 805

Rank 8 of 23

Site Name Water Park (North)

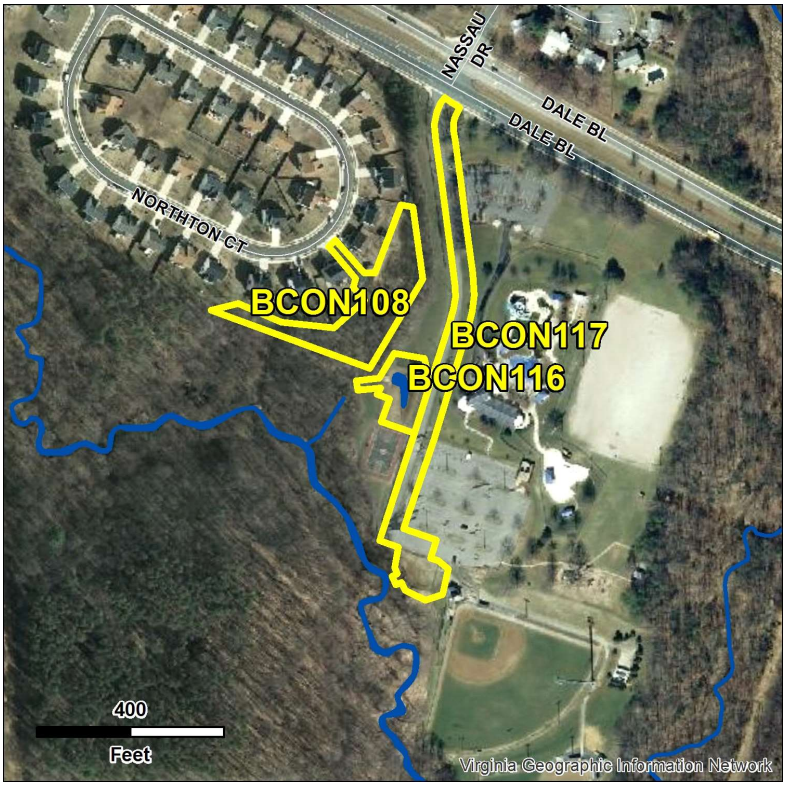
Owner BOCS

Site ID BCON116

County FAC ID 5035 (Page 2 of 2)

Maintenance Parks

Locator Map



Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory)	Dry Detention
Proposed BMP Type	Bioretention Underdrain A/B soils

Impervious Acres	2.246
Pervious Acres	5.424
Total Acres	7.67

Reductions

Total Nitrogen (lbs/yr)	51.34
Total Phosphorus (lbs/yr)	3.17
TSS (lbs/yr)	2,886.82

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 75

Subwatershed 805

Rank 9 of 23

Site Name Brierly Forest

Owner Private

Site ID BCON126 County FAC ID 846 (Page 1 of 2)

Maintenance Public Works

Site Description and Proposed Project

This stormwater pond facility receives stormwater runoff from both the neighborhood immediately up-gradient through County storm drain infrastructure and Websters Way through VDOT storm drain infrastructure. At the time of the field investigation, silt-laden runoff from a major construction site north of Websters Way had entered the facility and was being discharged to the receiving stream. The receiving channel is moderately eroded with a head cut downstream of the junction of the outfall channel to the receiving stream. Because of the presence of ponded water, the team could not ascertain whether the normal condition of the pond was dry or wet. The low flow outlet of the pond was clogged and impounded water was overtopping the high-flow riser.

Because of the VDOT drainage, a conversion of the facility to a constructed wetland could reduce the load of heavy metals commonly found in roadway runoff. A forebay would facilitate pre-treatment settling of incoming stormwater. The low-flow orifice would be closed since low flows would be treated by the media bed.

Proposed Treatment Option Constructed wetland.

Issues for Implementation

None apparent.

Downstream receiving channel

Interior of dry pond facility showing accumulation of construction site runoff

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 75

Subwatershed 805

Rank 9 of 23

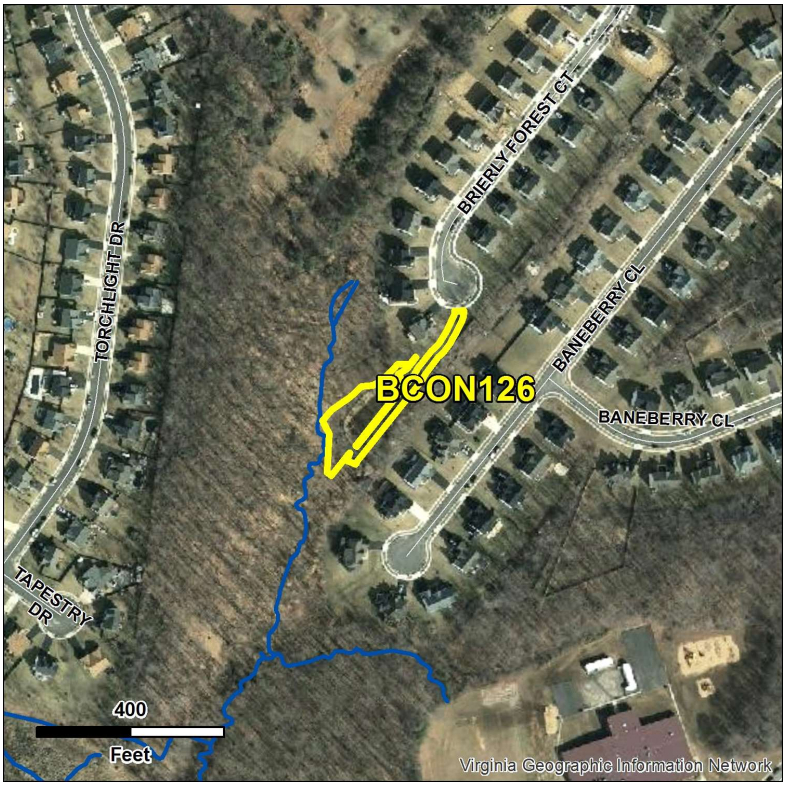
Site Name Brierly Forest

Owner Private

Site ID BCON126 County FAC ID 846 (Page 2 of 2)

Maintenance Public Works

Locator Map



Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) BMP Dry Detention

Proposed BMP Type Constructed Wetland

Impervious Acres	3.81
Pervious Acres	17.31
Total Acres	21.12

Reductions

Total Nitrogen (lbs/yr)	31.06
Total Phosphorus (lbs/yr)	3.81
TSS (lbs/yr)	4,367.18

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 74

Subwatershed 820

Rank 10 of 23 (tie)

Site Name Pilgrims Inn Drive

Owner Private

Site ID BCON101 County FAC ID 313 (Page 1 of 2)

Maintenance Public Works

Site Description and Proposed Project

The existing dry pond facility includes a substantial grassy area and concrete leader channels. Both concrete ditches have sand and sediment accumulation and the low-flow orifice of the concrete riser outlet structure is clogged.

The pond can be easily retrofit to a constructed wetland to improve water quality treatment. Alternatively, bioretention could be considered (one cell each servicing the two inputs). A flow splitter would allow bypass for heavy event flows. The concrete leader channels can also be converted to vegetated swales to transport high flows and to provide additional treatment. The riser structure can be replaced with a modern design consisting of a low flow orifice to temporarily detain runoff from larger events to provide additional settling and flow control.

Proposed Treatment Option Constructed wetland (bioretention could also be considered)

Issues for Implementation

None apparent.

Riser of dry pond showing blocked screen

View of concrete leader channel within dry pond

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 74

Subwatershed 820

Rank 10 of 23 (tie)

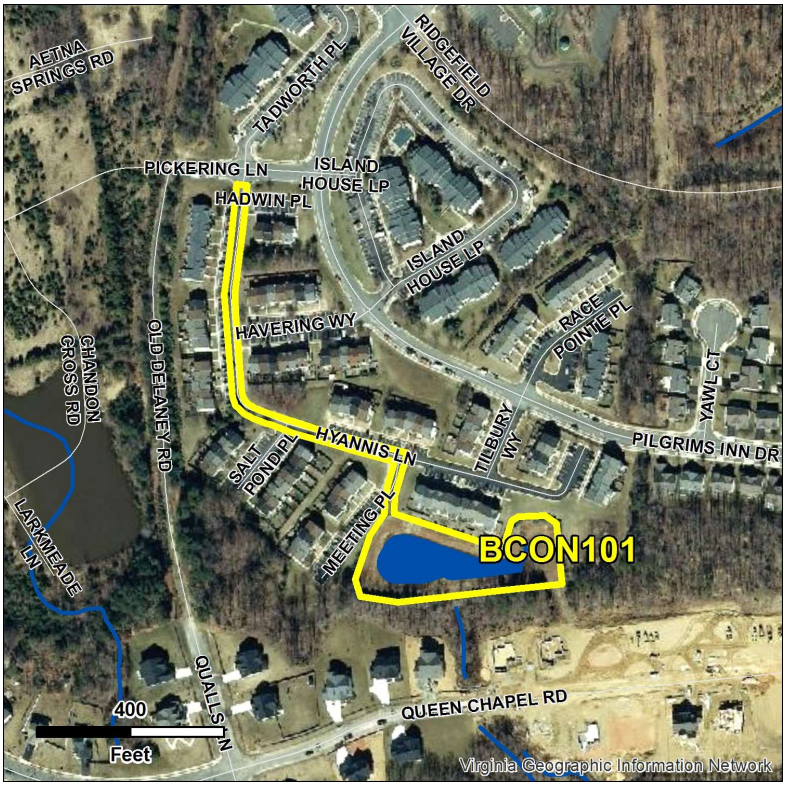
Site Name Pilgrims Inn Drive

Owner Private

Site ID BCON101 County FAC ID 313 (Page 2 of 2)

Maintenance Public Works

Locator Map



Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) BMP Dry Detention

Proposed BMP Type Constructed Wetland

Impervious Acres	11.19
Pervious Acres	13.96
Total Acres	25.15

Reductions

Total Nitrogen (lbs/yr)	41.38
Total Phosphorus (lbs/yr)	7.05
TSS (lbs/yr)	8,872.96

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 74

Subwatershed 805

Rank 10 of 23 (tie)

Site Name Water Park (South)

Owner BOCS

Site ID BCON117 County FAC ID 5036 (Page 1 of 2)

Maintenance Parks

Site Description and Proposed Project

The field assessment determined that the pond doesn't appear to receive water and therefore is not functioning as intended. Instead, sheet flow from the parking lot is diverting away from the pond due to blockage of an up-gradient culvert under a walkway and damage to contouring due to installation of fiber optic cabling. The areas that are currently receiving concentrated runoff are consequently eroding.

To address bypassing and to provide water quality treatment, upgrade and repair crossing culvert east of the pond and install berm at edge of parking lot driveway west of the pond to properly direct flow to the pond. The riprap-lined channel to the east can be replaced with a vegetated swale to promote infiltration. The pond can be converted to extended dry detention, possibly with forebays added to slow inflowing water. A modern riser will also be added to improve storage.

Proposed Treatment Option Add riser for extended dry detention. Improve conveyance to facility.

Issues for Implementation

CATV conduit and sanitary sewer lines may impact the planned retrofit.

Area east of stormwater pond showing erosion due to flow bypassing blocked culvert

Riprap-lined channel on east approach to stormwater pond

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 74

Subwatershed 805

Rank 10 of 23 (tie)

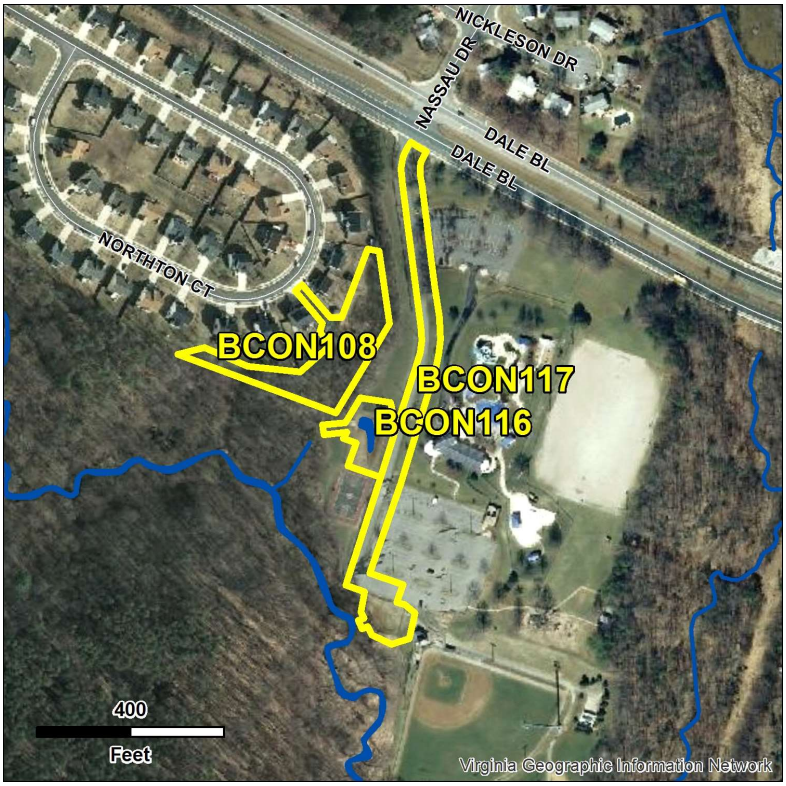
Site Name Water Park (South)

Owner BOCS

Site ID BCON117 County FAC ID 5036 (Page 2 of 2)

Maintenance Parks

Locator Map



Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory)	Dry Detention
Proposed BMP Type	Extended Dry Detention

Impervious Acres	1.634
Pervious Acres	2.356
Total Acres	3.99

Reductions

Total Nitrogen (lbs/yr)	6.47
Total Phosphorus (lbs/yr)	0.30
TSS (lbs/yr)	1,329.70

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 73

Subwatershed 820

Rank 12 of 23 (tie)

Site Name Prince William Ice Center

Owner BOCS

Site ID BCON102 County FAC ID 186 (Page 1 of 2)

Maintenance Parks

Site Description and Proposed Project

This dry pond facility consists of a maintained turf area and high flow riser. It services the nearby Prince William Ice Center

The current facility can be easily retrofit to accommodate a constructed wetland to improve the quality of discharged stormwater. Alternatively, bioretention could be considered. A forebay can be added to settle incoming stormwater prior to treatment. The riser can remain in place with minor modifications to allow underdrains to connect to it. The new facility can provide an excellent educational opportunity due to its proximity to the Ice Center.

Proposed Treatment Option Constructed wetland (bioretention could also be considered)

Issues for Implementation

None apparent.

Upland contributing drainage to existing pond

Interior of existing pond showing high flow riser

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 73

Subwatershed 820

Rank 12 of 23 (tie)

Site Name Prince William Ice Center

Owner BOCS

Site ID BCON102 County FAC ID 186 (Page 2 of 2)

Maintenance Parks

Locator Map

Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) BMP Dry Detention

Proposed BMP Type Constructed Wetland

Impervious Acres	3.3
Pervious Acres	1.58
Total Acres	4.88

Reductions

Total Nitrogen (lbs/yr)	8.77
Total Phosphorus (lbs/yr)	1.79
TSS (lbs/yr)	2,344.74

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 73

Subwatershed 805

Rank 12 of 23 (tie)

Site Name Saunders Middle School

Owner Schools

Site ID BCON112 County FAC ID 5786 (Page 1 of 2)

Maintenance Schools

Site Description and Proposed Project

This dry pond drains impervious surfaces of Saunders Middle school and consists of much wetland and meadow vegetation.

The wetland vegetation already provides some stormwater treatment, but the pond is not designed to retain water or to allow natural treatment processes to occur. To improve treatment, the outlet can be constricted to increase detention time and create an extended detention dry pond. Additional wetland plants can be planted to achieve a fully-functioning stormwater wetland treatment facility.

Proposed Treatment Option Extended dry detention (constructed wetland could also be considered)

Issues for Implementation

None apparent, however site could not be accessed to complete evaluation.

View of dry pond with middle school in background

View of dry pond facing north

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 73

Subwatershed 805

Rank 12 of 23 (tie)

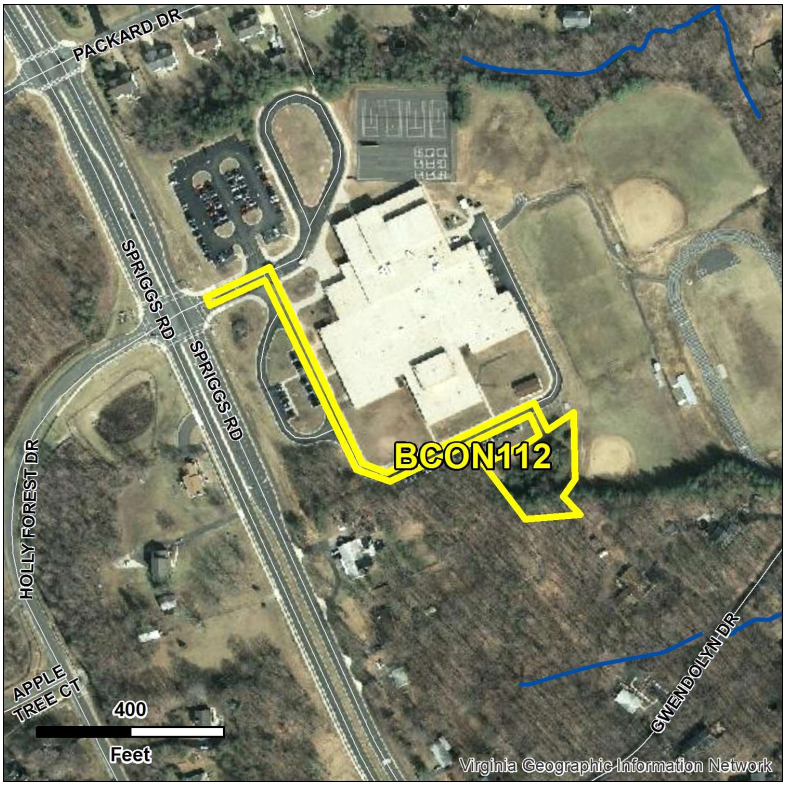
Site Name Saunders Middle School

Owner Schools

Site ID BCON112 County FAC ID 5786 (Page 2 of 2)

Maintenance Schools

Locator Map



Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) Dry Detention

Proposed BMP Type Extended Dry Detention

Impervious Acres	6.03
Pervious Acres	4.3
Total Acres	10.33

Reductions

Total Nitrogen (lbs/yr)	17.94
Total Phosphorus (lbs/yr)	0.98
TSS (lbs/yr)	4,435.94

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 68

Subwatershed 815

Rank 14 of 23 (tie)

Site Name Kestrel Court

Owner Private

Site ID BCON113 County FAC ID 368 (Page 1 of 2)

Maintenance Public Works

Site Description and Proposed Project

This dry pond receives flow from two stormwater outfalls, with a gabion basket placed between the inlet that is nearer to the riser. The other contributing outfall discharges to a vegetated area with small trees and grassy vegetation. The facility currently discharges to a wide riprap lined drainage channel.

Because of the small elevation drop between outfalls and the riser, converting the facility to improve water quality using filtration or bioretention is not feasible. To improve water quality treatment and water quantity control, the low flow inlet to the riser can be reduced in diameter, in conjunction with raising the riser, to detain stormwater and provide greater storage to allow settling and infiltration. A new wetland could be constructed to provide water quality benefits.

Proposed Treatment Option Constructed wetland.

Issues for Implementation

Access to the retrofit area may require removal of two small trees.

View of dry pond riser

Gabion basket between stormwater outfall and riser

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 68

Subwatershed 815

Rank 14 of 23 (tie)

Site Name Kestrel Court

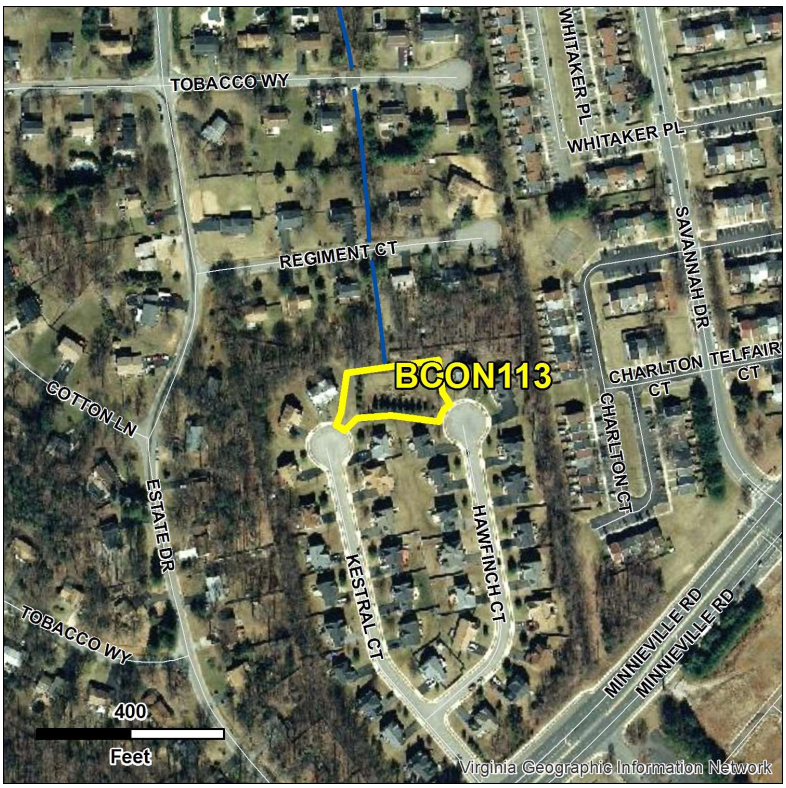
Owner Private

Site ID BCON113

County FAC ID 368 (Page 2 of 2)

Maintenance Public Works

Locator Map



Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) BMP Dry Detention

Proposed BMP Type Constructed Wetland

Impervious Acres	5.78
Pervious Acres	12.79
Total Acres	18.57

Reductions

Total Nitrogen (lbs/yr)	28.91
Total Phosphorus (lbs/yr)	4.26
TSS (lbs/yr)	5,181.26

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 68

Subwatershed 815

Rank 14 of 23 (tie)

Site Name Beville Middle School

Owner Schools

Site ID BCON114 County FAC ID 5886 (Page 1 of 2)

Maintenance Schools

Site Description and Proposed Project

This dry pond receives flow from two stormwater outfalls, with a gabion basket placed between the outfall that is nearer to the riser. The other contributing outfall discharges to a vegetated area with small trees and grassy vegetation. The facility currently discharges to a wide riprap lined drainage channel.

The current configuration of this dry pond is a heavily vegetated fenced in basin with two converging concrete channels. Within the pond footprint are several mature trees and copious weeds. Baseflow runs along both concrete channels.

To improve water quality treatment and water quantity control, the low flow outlet to the riser can be reduced in diameter, in conjunction with raising the riser, to detain stormwater and provide greater storage to allow settling and infiltration. If soils allow for enough infiltration to install a bioretention cell without underdrains, this could also be considered.

Proposed Treatment Option Extended dry detention (bioretention could also be considered)

Issues for Implementation

Tree removal will probably be required to implement retrofit.

Upstream view of concrete leader channel in dry pond

Downstream view of concrete leader channel in dry pond

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 68

Subwatershed 815

Rank 14 of 23 (tie)

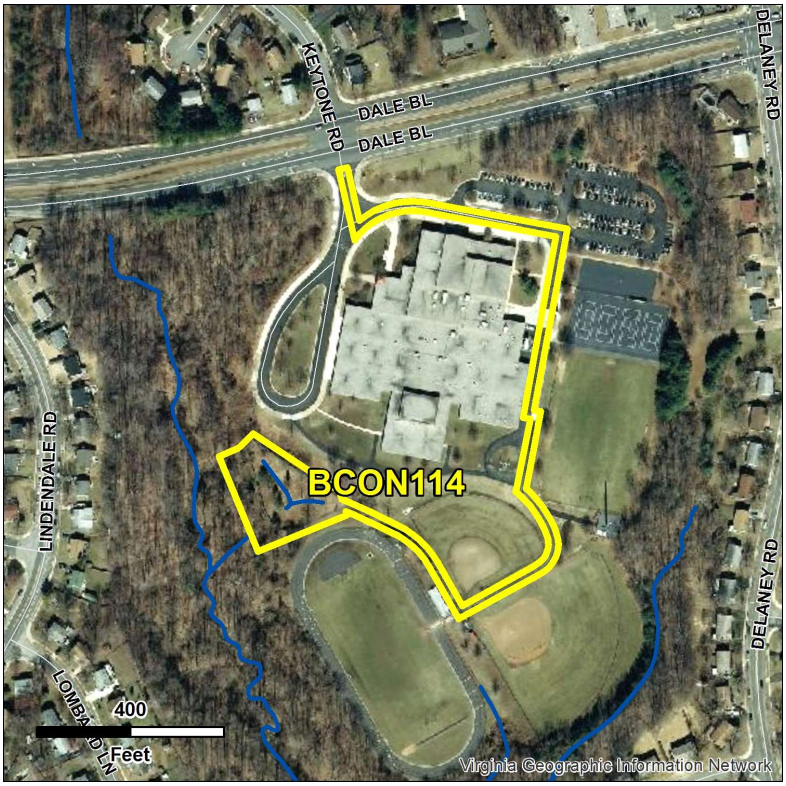
Site Name Beville Middle School

Owner Schools

Site ID BCON114 County FAC ID 5886 (Page 2 of 2)

Maintenance Schools

Locator Map



Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) Dry Detention

Proposed BMP Type Extended Dry Detention

Impervious Acres	9.9
Pervious Acres	13.36
Total Acres	23.26

Reductions

Total Nitrogen (lbs/yr)	37.97
Total Phosphorus (lbs/yr)	1.81
TSS (lbs/yr)	7,958.27

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 67

Subwatershed 815

Rank 16 of 23

Site Name Brightleaf Court

Owner Private

Site ID BCON122 County FAC ID 121 (Page 1 of 2)

Maintenance Public Works

Site Description and Proposed Project

This dry pond consists of a mowed basin with small amount of vegetation along a dry, rip rap center channel. The riser, which also functions as the upstream end of a culvert, features a trash rack, but otherwise provides no detention. Upstream of this facility is another stormwater facility identified as BCON113. Downstream of the culvert, the riprap channel ends and the channel is eroded about 2.5 feet down for a length of less than 200 ft.

To obtain stormwater treatment and detention, the facility can be converted to extended detention. The riser can be redesigned with a smaller outlet orifice to provide detention during high flows. Bioretention could also be considered. To control entering and leaving stormwater, a flow splitter can be installed on the upstream approach to divert stormwater runoff to one or more bioretention cells. Small forebays can be installed to settle water and trap debris prior to entering cells.

Proposed Treatment Option Extended dry detention (bioretention could also be considered)

Issues for Implementation

Footprint is small, which may hamper implementation. Local homeowners have adopted the footprint and keep it mowed.

Riser structure, obscured by vegetation

View of erosion damaged ephemeral channel downstream of culvert

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 67

Subwatershed 815

Rank 16 of 23

Site Name Brightleaf Court

Owner Private

Site ID BCON122 County FAC ID 121 (Page 2 of 2)

Maintenance Public Works

Locator Map

Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) Dry Detention

Proposed BMP Type Extended Dry Detention

Impervious Acres	1.79
Pervious Acres	6.1
Total Acres	7.89

Reductions

Total Nitrogen (lbs/yr)	11.84
Total Phosphorus (lbs/yr)	0.45
TSS (lbs/yr)	1,833.89

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 65

Subwatershed 825

Rank 17 of 23

Site Name Castlebridge Lane

Owner Private

Site ID BCON118 County FAC ID 112 (Page 1 of 2)

Maintenance Public Works

Site Description and Proposed Project

This dry pond facility consists of a large basin containing a variety of vegetation, including wetland vegetation. Investigators identified two distinct shallow natural stream channels that meet at the outlet and provide baseflow to the channel downstream of the facility outfall. The two natural channels enter the riser through a 2-inch and 8-inch pipe respectively.

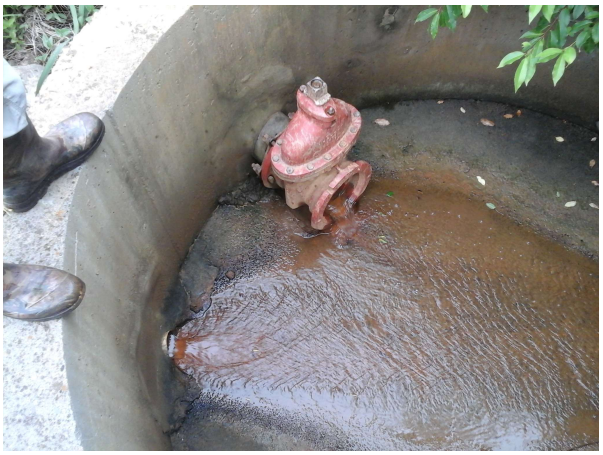
Creating a constructed wetland may be a low impact approach to improving the water quality benefits provided by this facility. Using heavy equipment to convert the pond would negatively impact vegetation, so a bioretention retrofit, although feasible, is not preferred. An outflow pipe diameter reduction would easily increase retention time and better utilize the ample storage volume available.

Proposed Treatment Option Constructed wetland (bioretention could also be considered)

Issues for Implementation

The existing pond is near a transmission line right of way. Investigators detected an odor of sanitary sewage, therefore presence of sanitary sewer lines should be investigated.

Interior of dry pond showing extensive vegetation



Facility riser, showing low flow outlets

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 65

Subwatershed 825

Rank 17 of 23

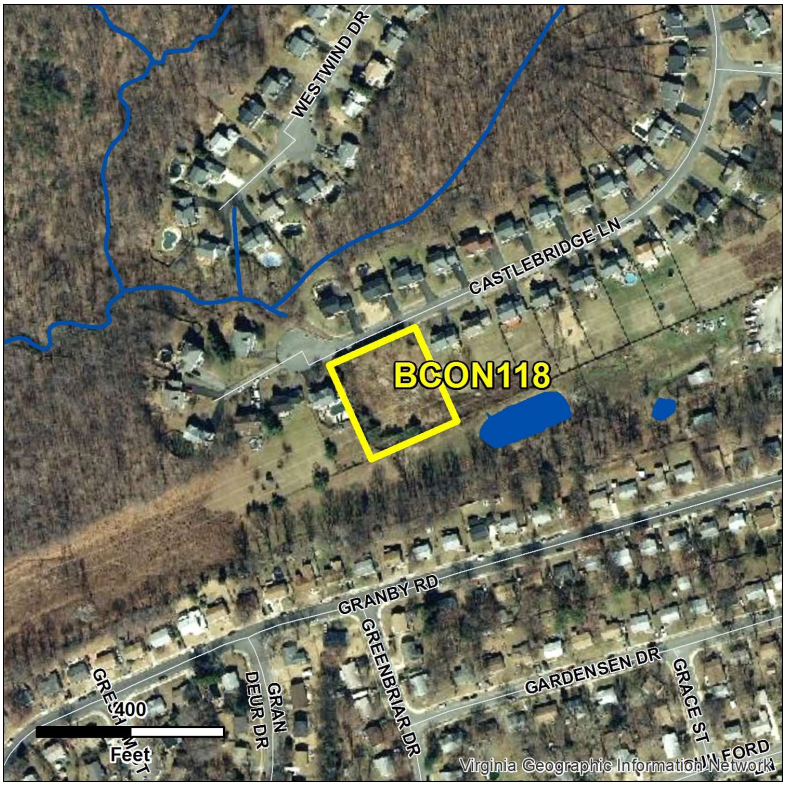
Site Name Castlebridge Lane

Owner Private

Site ID BCON118 County FAC ID 112 (Page 2 of 2)

Maintenance Public Works

Locator Map



Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) BMP Dry Detention

Proposed BMP Type Constructed Wetland

Impervious Acres	5.67
Pervious Acres	42.76
Total Acres	48.43

Reductions

Total Nitrogen (lbs/yr)	69.20
Total Phosphorus (lbs/yr)	7.57
TSS (lbs/yr)	8,321.54

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 63

Subwatershed 805

Rank 18 of 23 (tie)

Site Name Glenn Forest HOA

Owner Private

Site ID BCON111 County FAC ID 932 (Page 1 of 2)

Maintenance Public Works

Site Description and Proposed Project

The current dry pond facility is situated in a residential area with easy access. The outfall discharges to an area of riprap and then a small channel in a wooded area. At present, the channel shows minimal erosion.

The facility can be easily converted to bioretention with a forebay to settle water and trap trash. The existing riser can be redesigned to accommodate bioretention underdrains and remove the low flow orifice. A constructed wetland could be considered instead of bioretention.

Proposed Treatment Option Bioretention Underdrain A/B soils (constructed wetland could also be considered)

Issues for Implementation

None apparent.

Partially blocked low flow orifice

Overall view of dry pond facility

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 63

Subwatershed 805

Rank 18 of 23 (tie)

Site Name Glenn Forest HOA

Owner Private

Site ID BCON111 County FAC ID 932 (Page 2 of 2)

Maintenance Public Works

Locator Map

Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) BMP Dry Detention

Proposed BMP Type Bioretention Underdrain A/B soils

Impervious Acres	0.850591
Pervious Acres	11.92057
Total Acres	12.771161

Reductions

Total Nitrogen (lbs/yr)	77.23
Total Phosphorus (lbs/yr)	3.25
TSS (lbs/yr)	2,574.03

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 63

Subwatershed 815

Rank 18 of 23 (tie)

Site Name Dale City Christian Church

Owner Private

Site ID BCON115 County FAC ID 5078 (Page 1 of 2)

Maintenance Private

Site Description and Proposed Project

This dry pond facility treats runoff from the parking lot of Dale City Christian Church. The interior of the pond is comprised of turf which is kept mowed. A concrete storm drain outfall extends 10 feet into the facility.

The dry pond can be easily converted to an extended detention facility to provide additional water quality treatment by restricting outflow. Additionally, storage can be augmented by replacing the current corrugated metal riser with a concrete riser.

Proposed Treatment Option Extended dry detention.

Issues for Implementation

None apparent.

Storm drain outfall and riser of dry pond

Oblique view of stormwater pond footprint and upland parking area

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 63

Subwatershed 815

Rank 18 of 23 (tie)

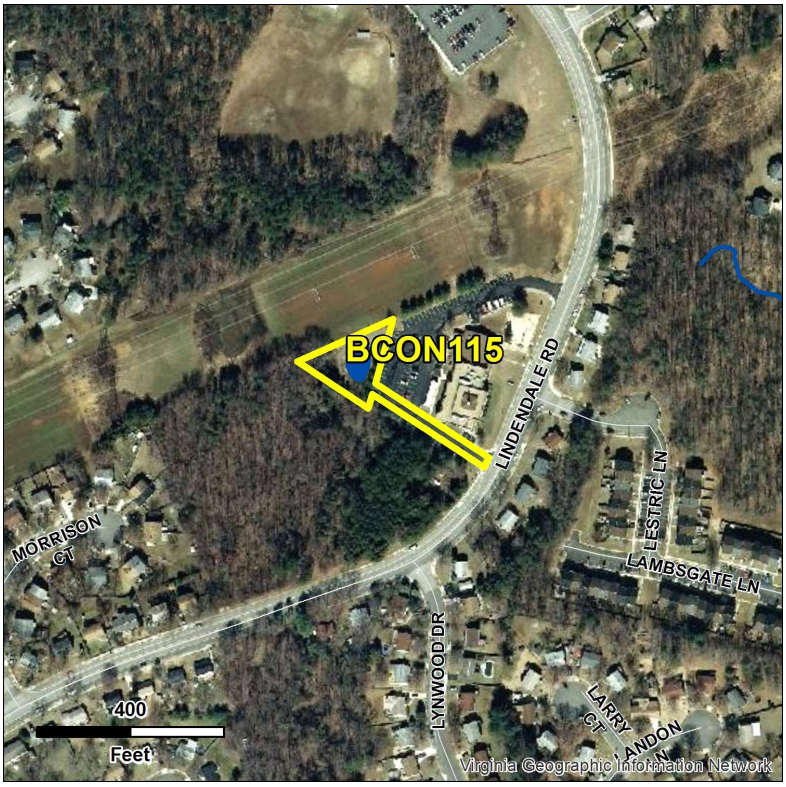
Site Name Dale City Christian Church

Owner Private

Site ID BCON115 County FAC ID 5078 (Page 2 of 2)

Maintenance Private

Locator Map



Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) BMP Dry Detention

Proposed BMP Type Extended Dry Detention

Impervious Acres	3.51
Pervious Acres	9.47
Total Acres	12.98

Reductions

Total Nitrogen (lbs/yr)	19.86
Total Phosphorus (lbs/yr)	0.79
TSS (lbs/yr)	3,328.98

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 62

Subwatershed 810

Rank 20 of 23

Site Name Jessica Ridge Way

Owner Private

Site ID BCON123 County FAC ID 803 (Page 1 of 2)

Maintenance Public Works

Site Description and Proposed Project

This dry pond facility is situated at the southern end of Jessica Ridge Way. It is heavily vegetated, including wetland vegetation. It receives stormwater runoff from two stormwater networks along the street and back yards of residences on the west side of the street.

To improve water quality treatment, convert dry pond to constructed wetland. A bioretention, with a series of underdrains, could also be considered in the existing footprint. This treatment system would also include a forebay.

Proposed Treatment Option Constructed wetland (bioretention could also be considered)

Issues for Implementation

Sanitary sewer line crosses footprint.

Riser of dry pond facility

Interior of dry pond showing wetland vegetation

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 62

Subwatershed 810

Rank 20 of 23

Site Name Jessica Ridge Way

Owner Private

Site ID BCON123 County FAC ID 803 (Page 2 of 2)

Maintenance Public Works

Locator Map

Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) BMP Dry Detention

Proposed BMP Type Constructed Wetland

Impervious Acres	12.39
Pervious Acres	37.24
Total Acres	49.63

Reductions

Total Nitrogen (lbs/yr)	75.25
Total Phosphorus (lbs/yr)	10.24
TSS (lbs/yr)	12,159.62

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 57

Subwatershed 815

Rank 21 of 23

Site Name Delaney Road at Logan Park Access

Owner Private

Site ID BCON121 County FAC ID 73 (Page 1 of 2)

Maintenance Public Works

Site Description and Proposed Project

This dry pond is located along Delaney Road across from the Logan Park entrance. The interior is maintained and field investigators noted that low flows probably go directly to riser and portions of basin rarely receive flow. The low flow inlet of the riser is clogged w debris and vines are growing on the trash rack that sits atop the riser. The field team also noted the presence of sanitary sewer manhole structures.

The presence of sanitary sewer lines pose logistical challenges, however the existing pond can be converted to constructed wetlands. Appropriate grading and flow splitting can divert storm flows to treatment cells to improve treatment. The riser can be redesigned to accommodate terminating underdrains and a constricted, low flow orifice. In the event of heavy flows, the riser can detain water to provide quantity control and additional settling. A bioretention facility could also be considered for this site.

Proposed Treatment Option Constructed wetland (bioretention could also be considered)

Issues for Implementation

Site is near transmission line right of way. A sanitary sewer line crosses the footprint.

View of interior of dry pond

Dry pond interior, showing sanitary sewer manhole and riser

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 57

Subwatershed 815

Rank 21 of 23

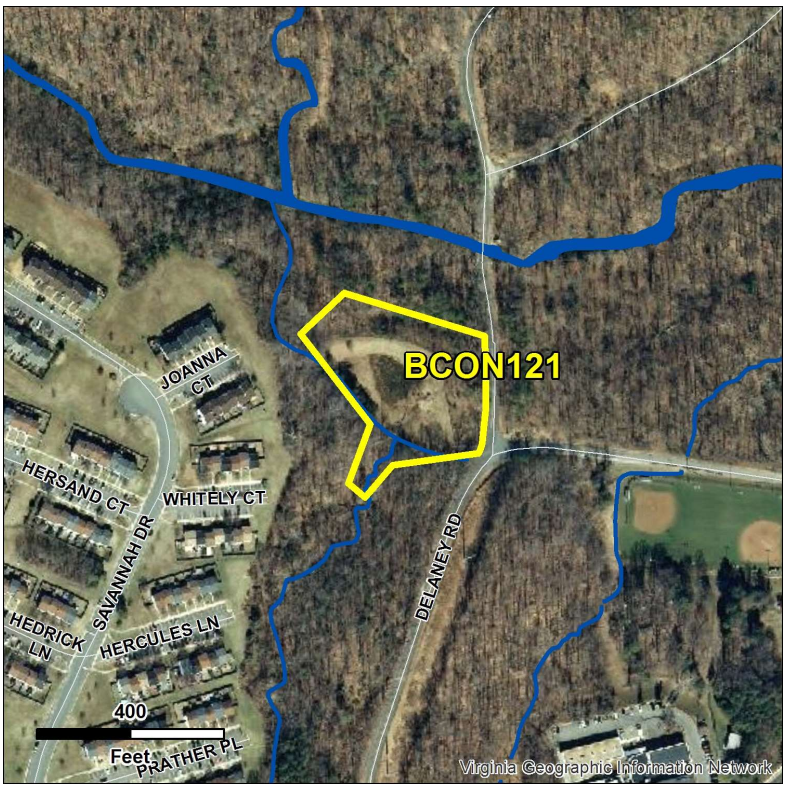
Site Name Delaney Road at Logan Park Access

Owner Private

Site ID BCON121 County FAC ID 73 (Page 2 of 2)

Maintenance Public Works

Locator Map



Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) BMP Dry Detention

Proposed BMP Type Constructed Wetland

Impervious Acres	8.48
Pervious Acres	19.79
Total Acres	28.27

Reductions

Total Nitrogen (lbs/yr)	43.80
Total Phosphorus (lbs/yr)	6.37
TSS (lbs/yr)	7,711.50

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 54

Subwatershed 815

Rank 22 of 23

Site Name Pearson Private Drive (South)

Owner Private

Site ID BCON125 County FAC ID 872 (Page 1 of 2)

Maintenance Public Works

Site Description and Proposed Project

This dry pond is located behind a private drive on the southwest side of Pearson Drive, one block from Delaney Road. Investigators noted that it was a small facility with steep slopes. Riprap channels lead from storm drain outfalls to the overflow riser, which may have a blocked low-flow orifice. The facility drains to a short receiving channel at the base of a steep slope that leads directly to Neabsco Creek.

A treatment solution in view of the sloping banks of the facility is to install two large forebays at the ends of each outfall connected to bioretention cells. The riser can be investigated to determine whether a repair or establishment to a low flow orifice is warranted; the orifice should be small enough to detain large volume storm events and protect the downstream channel from erosion.

Proposed Treatment Option Bioretention Underdrain C/D soils

Issues for Implementation

An extensive sanitary network around the footprint may impact construction activity. Investigators also detected a sanitary sewer odor.

Existing riser of dry pond

Dry pond showing channel configuration and route to riser

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 54

Subwatershed 815

Rank 22 of 23

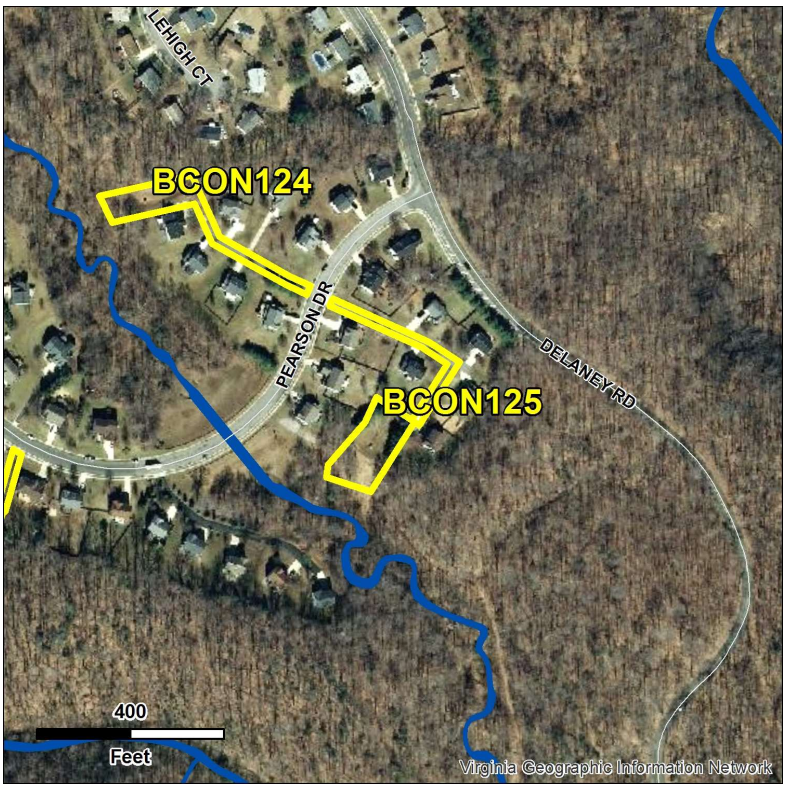
Site Name Pearson Private Drive (South)

Owner Private

Site ID BCON125 County FAC ID 872 (Page 2 of 2)

Maintenance Public Works

Locator Map



Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) BMP Dry Detention

Proposed BMP Type Bioretention Underdrain C/D soils

Impervious Acres	1.83
Pervious Acres	3.4
Total Acres	5.23

Reductions

Total Nitrogen (lbs/yr)	11.03
Total Phosphorus (lbs/yr)	1.28
TSS (lbs/yr)	1,413.73

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 51

Subwatershed 815

Rank 23 of 23 (tie)

Site Name Pearson Private Drive (North)

Owner Private

Site ID BCON124 County FAC ID 873 (Page 1 of 2)

Maintenance Public Works

Site Description and Proposed Project

This dry pond facility is located at the end of a private driveway north of Pearson Drive and near Delaney Rd. It is completely overgrown and was difficult for investigators to access. No stormwater outfalls to the basin could be ascertained. The overflow riser is visible from a distance and the low flow inlet appeared clogged. A homeowner nearby stated that the County stopped maintenance four years ago and has since observed the basin overflowing.

The pond can be converted to bioretention provided that vegetation management is undertaken to confirm feasibility.

Proposed Treatment Option Bioretention Underdrain C/D soils

Issues for Implementation

Significant impact to trees may occur during the retrofit process as the footprint will need to be cleared.
The site requires vegetation management before further assessment.

View of overgrown vegetation and small trees in dry pond facility

View of overgrown vegetation in dry pond facility

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 51

Subwatershed 815

Rank 23 of 23 (tie)

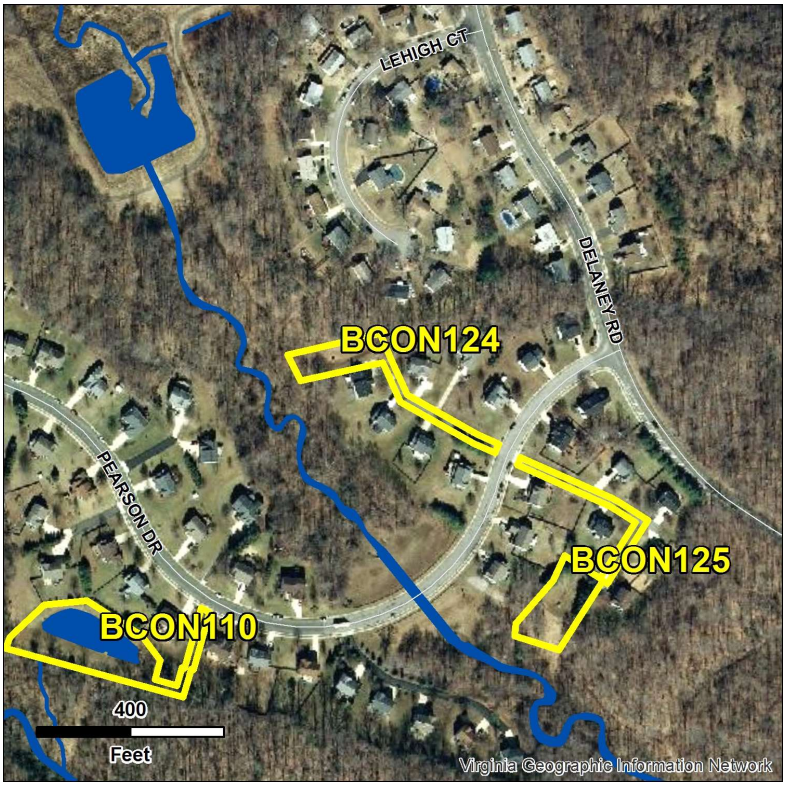
Site Name Pearson Private Drive (North)

Owner Private

Site ID BCON124 County FAC ID 873 (Page 2 of 2)

Maintenance Public Works

Locator Map



Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) BMP Dry Detention

Proposed BMP Type Bioretention Underdrain C/D soils

Impervious Acres	0.58
Pervious Acres	3.33
Total Acres	3.91

Reductions

Total Nitrogen (lbs/yr)	7.56
Total Phosphorus (lbs/yr)	0.66
TSS (lbs/yr)	665.38

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 51

Subwatershed 815

Rank 23 of 23 (tie)

Site Name Gilroy Court

Owner Private

Site ID BCON127 County FAC ID 202 (Page 1 of 2)

Maintenance Public Works

Site Description and Proposed Project

This dry pond facility is located off the north end of Gilroy Court. Investigators noted that the pond is heavily vegetated throughout and therefore the assessment was limited. The inlet to the riser is completely clogged which has resulted in ponded water up to the lip of the overflow inlet of the riser. Because of the backed up water, the facility is functionally a wet pond.

To improve functionality and treatment performance of the facility, the pond can be converted to a stormwater wetland. The wetland configuration requires that the riser be replaced with a modern design and appropriately sized and maintained low-flow orifice to maintain wetland characteristics.

Proposed Treatment Option Constructed wetland.

Issues for Implementation

Significant impact to trees or wetland plants may occur during retrofit effort. Electric access boxes were also noted in the neighborhood, but may not impact the retrofit.

Standing water within dry pond facility

Top view of high flow riser, showing backed up water

Neabsco Creek Watershed Study
SW Facility Conversion
Project Opportunity

Score 51

Subwatershed 815

Rank 23 of 23 (tie)

Site Name Gilroy Court

Owner Private

Site ID BCON127 County FAC ID 202 (Page 2 of 2)

Maintenance Public Works

Locator Map

Estimated Pollutant Load Reductions

Current Facility Type (PWC Inventory) BMP Dry Detention

Proposed BMP Type Constructed Wetland

Impervious Acres	7.51
Pervious Acres	24.57
Total Acres	32.08

Reductions

Total Nitrogen (lbs/yr)	48.31
Total Phosphorus (lbs/yr)	6.43
TSS (lbs/yr)	7,584.50