

BE9500 BMP/LID



Address: Richmond Hwy and Huntington Ave
Location: Shops at Huntington Gateway
Land Owner: Private - Commercial
PIN: 0833 01 0076
Control Type: Water Quality
Drainage Area: 1.64 acres
Receiving Waters: Quander Brook

Description: The proposed project is to create bioretention areas and install tree box filters to treat the roof and parking lot runoff from the Shops at Huntington Gateway. The tree box filters will be installed at the existing storm drain inlets in the parking lot and bioretention areas will be created by grading the existing medians.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: Implementation of tree box filters and bioretention filters and basins will provide water quality treatment for the commercial parking lot runoff during storm events. These facilities remove suspended solids, heavy metals, nutrients including phosphorus and nitrogen, oil and grease from storm water runoff. It is estimated that a total over 990 lbs of sediment, 1.4 lbs of total nitrogen and total phosphorus each would be reduced by this project. The project will also prevent trash and debris from entering the storm drain system and will reduce runoff temperature.

Project Design Considerations: No environmental constraints or permitting issues are anticipated. Access to the proposed sites is excellent from the commercial parking lot; however, the property ownership is private and coordination with the owners/management will be necessary. A potential loss of parking spaces may be expected with these sites.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Tree Box Filters	2	EA	\$10,000.00	\$20,000
Bioretention Filters & Basin	173	SY	\$150.00	\$25,950
			Initial Project Cost	\$45,950
Plantings	1	LS	5% of project (excluding pervious pavement)	\$2,298
Ancillary Items	1	LS	5% of project	\$2,298
Erosion and Sediment Control	1	LS	10% of project	\$4,595
			Base Construction Cost	\$55,141
			Mobilization (5%)	\$2,757
			Subtotal 1	\$57,898
			Contingency (25%)	\$14,475
			Subtotal 2	\$72,373
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$32,568
			Estimated Project Cost	\$105,000



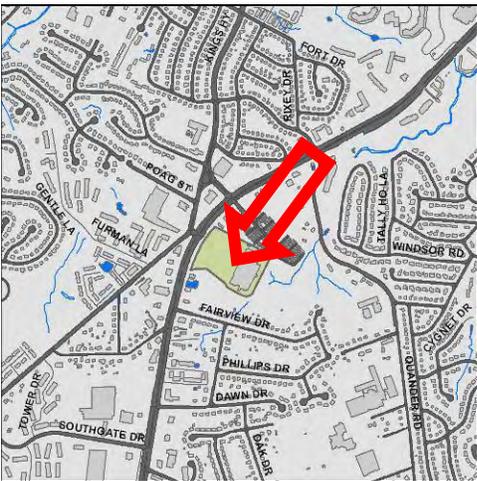
BE9500_1.jpg: View of existing storm drain inlet



BE9500_2.jpg: View of existing median to be graded

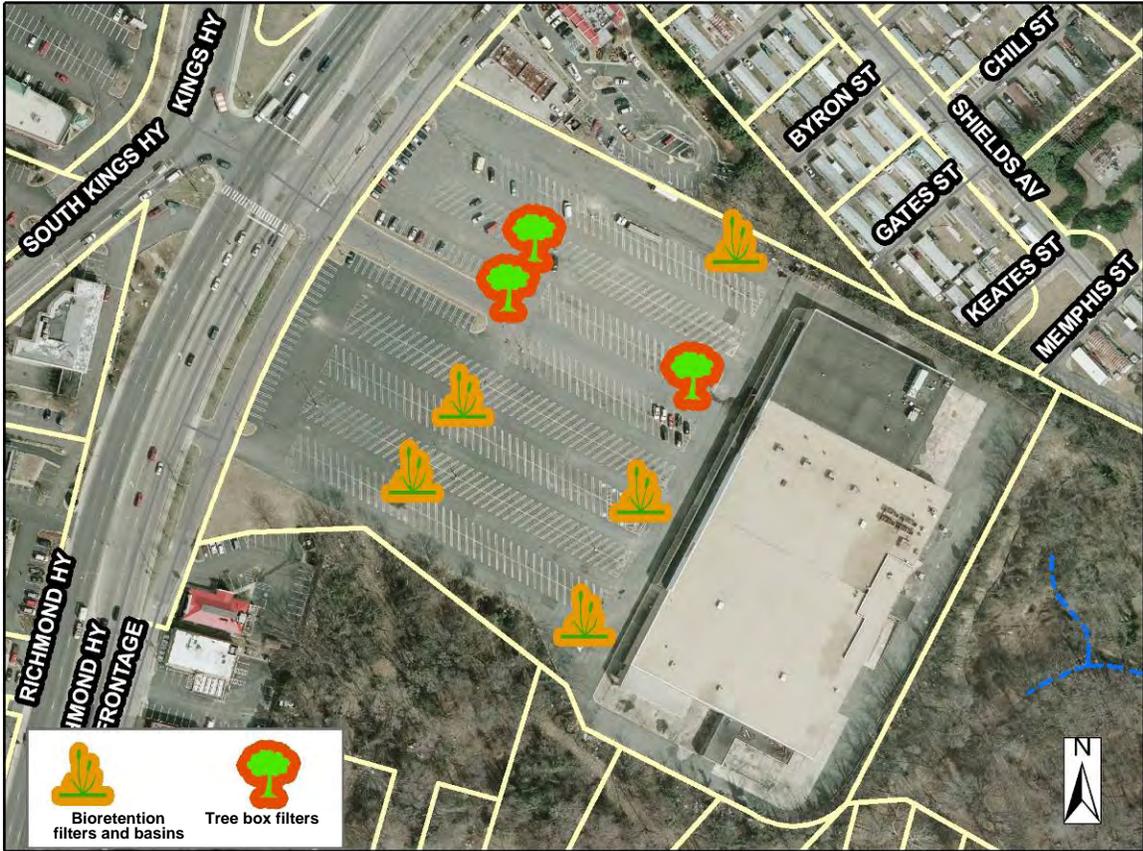
THIS PAGE INTENTIONALLY LEFT BLANK

BE9501 BMP/LID



Address: 6303 Richmond Hwy
Location: Wal-Mart and Chuck E. Cheese parking lot
Land Owner: Private - Commercial
PIN: 0833 01 0024A
Control Type: Water Quality
Drainage Area: 5.04 acres
Receiving Waters: Quander Brook

Description: Installation of bioretention filters and basins and tree box filters is proposed to treat the runoff from a large commercial strip mall parking lot located along Richmond Highway. A portion of this parking lot in the north is used for a park and ride. The majority of the south parking lot is not used and little grading would be necessary. This project is located just upstream of project BE9103, which is a proposed stormwater facility.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: Implementation of the project will provide water quality treatment for this parking lot during storm events. These stormwater facilities remove suspended solids, heavy metals, nutrients and oil and grease from stormwater runoff. It is estimated that a total over 6,010 lbs of sediment, 79.5 lbs of total nitrogen and 12.4 lbs of total phosphorus would be reduced by this project. They also prevent trash and debris from entering the storm drain system and reduce runoff temperature.

Project Design Considerations: No environmental constraints or permitting issues are anticipated. Access to the proposed sites is excellent from roads and the commercial parking lot. Property ownership is private and coordination with the shopping center owner/management will be necessary. A loss of parking spaces may be expected with these sites.

Costs:

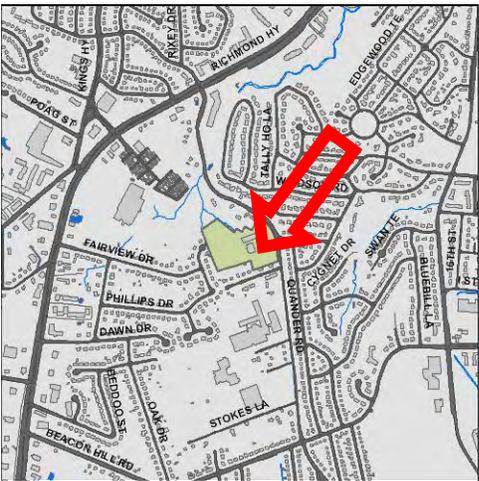
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Tree Box Filters	3	EA	\$10,000.00	\$30,000
Bioretention Filters & Basin	627	SY	\$150.00	\$94,050
			Initial Project Cost	\$124,050
Plantings	1	LS	5% of project (excluding pervious pavement)	\$6,203
Ancillary Items	1	LS	5% of project	\$6,203
Erosion and Sediment Control	1	LS	10% of project	\$12,405
			Base Construction Cost	\$148,861
			Mobilization (5%)	\$7,443
			Subtotal 1	\$156,304
			Contingency (25%)	\$39,076
			Subtotal 2	\$195,380
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$87,921
			Estimated Project Cost	\$283,000



BE9501_1.jpg: View of existing parking lot

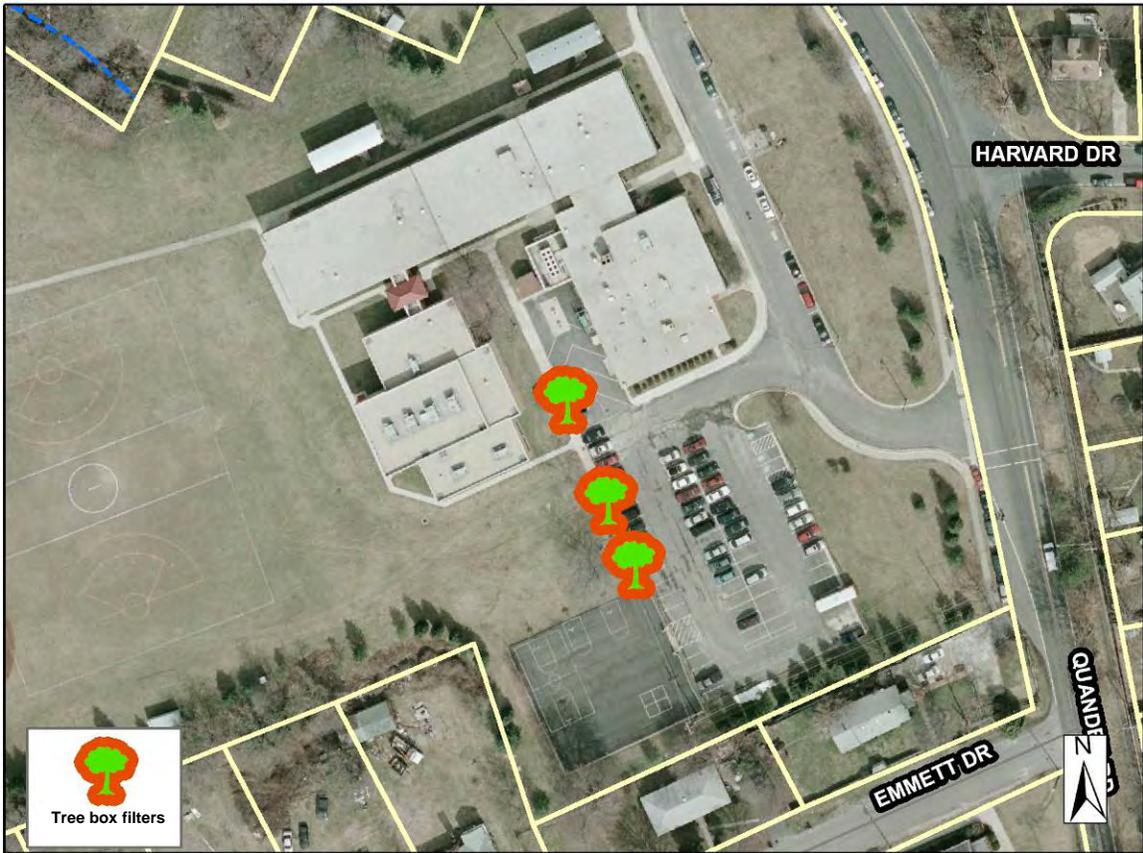
THIS PAGE INTENTIONALLY LEFT BLANK

BE9502 BMP/LID



Address: 6400 Quander Road
Location: Quander Road School
Land Owner: County - FCPS
PIN: 0931 03 0005
Control Type: Water Quality
Drainage Area: 0.92 acres
Receiving Waters: Quander Brook

Description: The proposed project is to install tree box filters to receive parking lot runoff at Quander Road School. The project site is the parking lot east of the school near the entrance. Tree box filters will be installed at three existing inlets in the parking lot.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: Implementation of tree box filters will provide water quality treatment for the Quander Road School parking lot runoff during storm events. Tree box filters remove oil and grease, heavy metals, nutrients including phosphorus and nitrogen, and suspended solids from storm water runoff. It is estimated that a total over 830 lbs of sediment and 1.0 lbs of total phosphorus would be reduced by this project, total nitrogen reduction is negligible. They also prevent trash and debris from entering the storm drain system and have the ability to cool down warm runoff. Access to the proposed sites is excellent from the school parking lot. This site will provide an environmental education/stewardship opportunity for students and parents within the Belle Haven community.

Project Design Considerations: No environmental constraints or permitting issues are anticipated. Signs promoting environmental education/stewardship could be used at this site to educate students and parents in the community. Access to the proposed sites is excellent from the Quander Road School parking lot. Modifications to the existing storm drain system may be necessary to drain the proposed Bioretention Filters and Basins sites. Portions of the school parking lot may be temporarily closed due to construction and could interfere with morning arrival and afternoon dismissal during the school year.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Tree Box Filters	3	EA	\$10,000.00	\$30,000
			Initial Project Cost	\$30,000
Plantings	1	LS	5% of project (excluding pervious pavement)	\$1,500
Ancillary Items	1	LS	5% of project	\$1,500
Erosion and Sediment Control	1	LS	10% of project	\$3,000
			Base Construction Cost	\$36,000
			Mobilization (5%)	\$1,800
			Subtotal 1	\$37,800
			Contingency (25%)	\$9,450
			Subtotal 2	\$47,250
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$21,263
			Estimated Project Cost	\$69,000



BE9502_1.jpg: View of existing parking lot

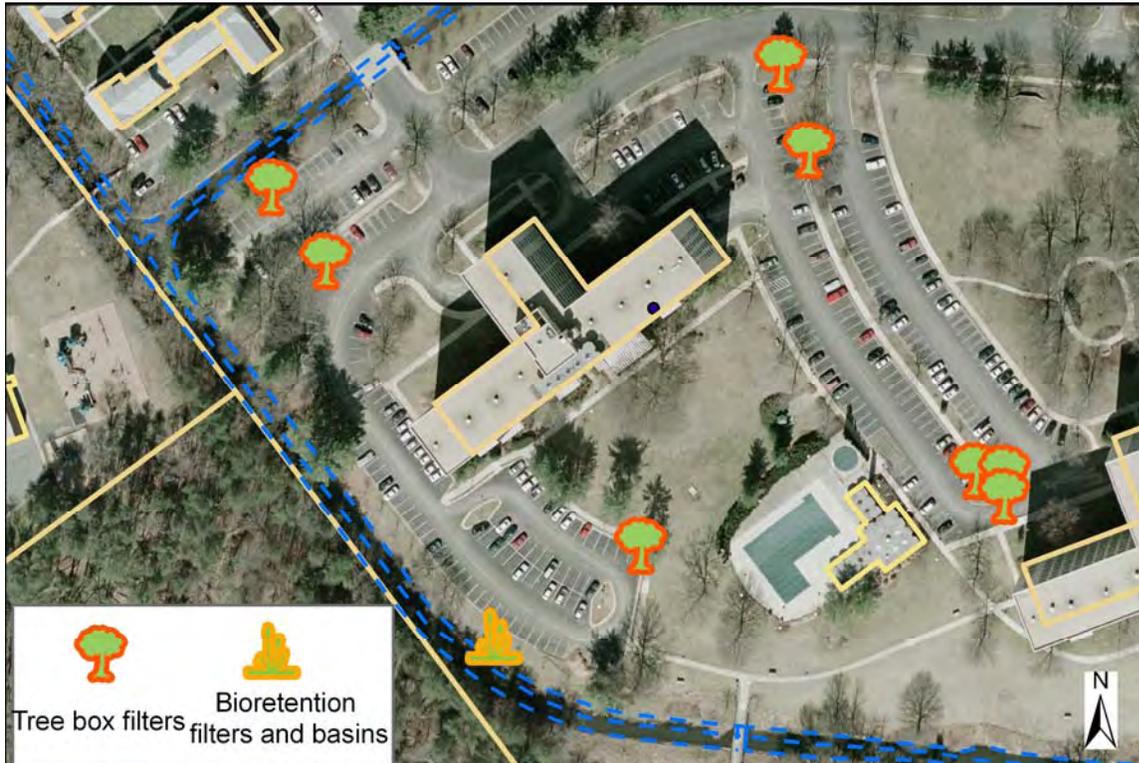
THIS PAGE INTENTIONALLY LEFT BLANK

BE9503 BMP/LID



Address:	6631 Wakefield Drive,
Location:	River Towers
Land Owner:	Private – Residential
PIN:	Various
Control Type	Water Quality
Drainage Area	3.54 acres
Receiving Waters	Belle Haven West Channel

Description: This project is at River Towers on Wakefield Drive. The project proposes installation of tree box filters at the existing inlets and creation of a bioretention area to treat the runoff from the west side parking lot. Eight existing inlets will be installed with tree box filters and the open area next to the western-most parking lots will be graded and converted to a bioretention area.



Project Area Map: Conceptual plan showing potential project location

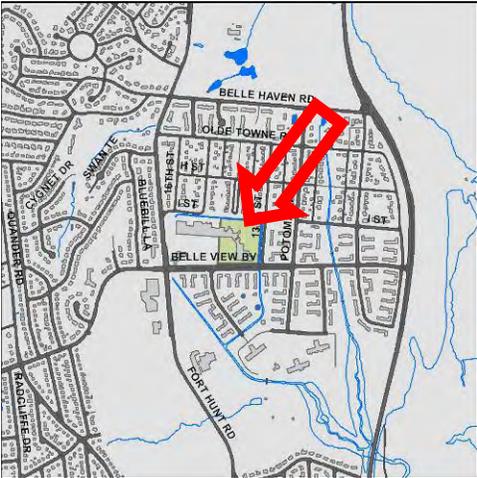
Project Benefits: Implementation of tree box filters and bioretention filters and basins will provide water quality treatment for the River Towers housing development parking lot runoff during storm events. These treatment systems remove suspended solids, heavy metals, nutrients including phosphorus and nitrogen, oil and grease from storm water runoff. It is estimated that a total over 1,000 lbs of sediment, 12.4 lbs of total nitrogen and 2.4 lbs of total phosphorus would be reduced by this project. They also prevent trash and debris from entering the storm drain system and have the ability to reduce runoff temperatures.

Project Design Considerations: No environmental constraints or permitting issues are anticipated. Minimal tree removal will be required. Construction access to the location is excellent from the River Towers parking lots; however, the property ownership is private and coordination with the River Towers owners/management will be necessary. A temporary or permanent loss of parking spaces can be expected.

Costs:

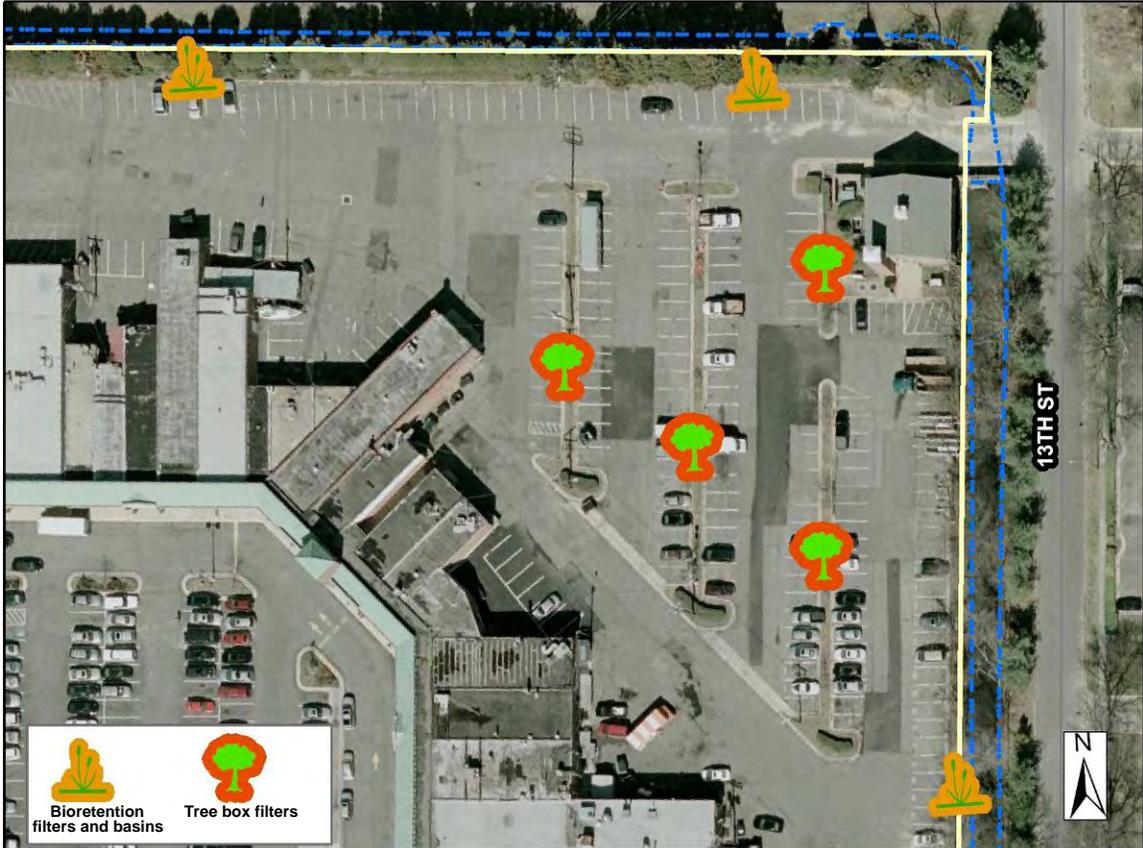
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Tree Box Filters	8	EA	\$10,000.00	\$80,000
Bioretention Filters & Basin	198	SY	\$150.00	\$29,700
			Initial Project Cost	\$109,700
Plantings	1	LS	5% of project (excluding pervious pavement)	\$5,485
Ancillary Items	1	LS	5% of project	\$5,485
Erosion and Sediment Control	1	LS	10% of project	\$10,970
			Base Construction Cost	\$131,640
			Mobilization (5%)	\$6,582
			Subtotal 1	\$138,222
			Contingency (25%)	\$34,556
			Subtotal 2	\$172,778
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$77,750
			Estimated Project Cost	\$251,000

BE9504 BMP/LID



Address: 1600 Block, Belle View Blvd
Location: Belle View Shopping Center
Land Owner: Private - Commercial
PIN: 0932 01 0002
Control Type: Water Quality
Drainage Area: 2.92 acres
Receiving Waters: Belle Haven West Channel

Description: The proposed project is designed to install tree box filters and create bioretention areas to receive runoff from the northern section of parking lot at Belle View Shopping Center on Belle View Blvd. Tree box filters will be installed at four existing inlets and medians will be graded to create bioretention areas.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: Implementation of tree box filters and bioretention filters and basins will provide water quality treatment for the Belle View Shopping Center runoff during storm events. These facilities remove suspended solids, heavy metals, nutrients including phosphorus and nitrogen, oil and grease from storm water runoff. It is estimated that a total over 3,930 lbs of sediment, 52.3 lbs of total nitrogen and 8.1 lbs of total phosphorus would be reduced by this project. They also prevent trash and debris from entering the storm drain system and have the ability to cool down warm runoff.

Project Design Considerations: No environmental constraints or permitting issues are anticipated. Minimal tree removal may be required for construction. Access to the proposed sites is excellent from roads and the Belle View Shopping Center parking lot. Property ownership is private and coordination with the shopping center owner/management will be necessary. A temporary or permanent loss of parking spaces can be expected.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Tree Box Filters	4	EA	\$10,000.00	\$40,000
Bioretention Filters & Basin	156	SY	\$150.00	\$23,400
			Initial Project Cost	\$63,400
Plantings	1	LS	5% of project (excluding pervious pavement)	\$3,170
Ancillary Items	1	LS	5% of project	\$3,170
Erosion and Sediment Control	1	LS	10% of project	\$6,340
			Base Construction Cost	\$76,080
			Mobilization (5%)	\$3,804
			Subtotal 1	\$79,884
			Contingency (25%)	\$19,971
			Subtotal 2	\$99,855
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$44,935
			Estimated Project Cost	\$145,000



BE9504_1.jpg: View of existing inlet and median in parking lot

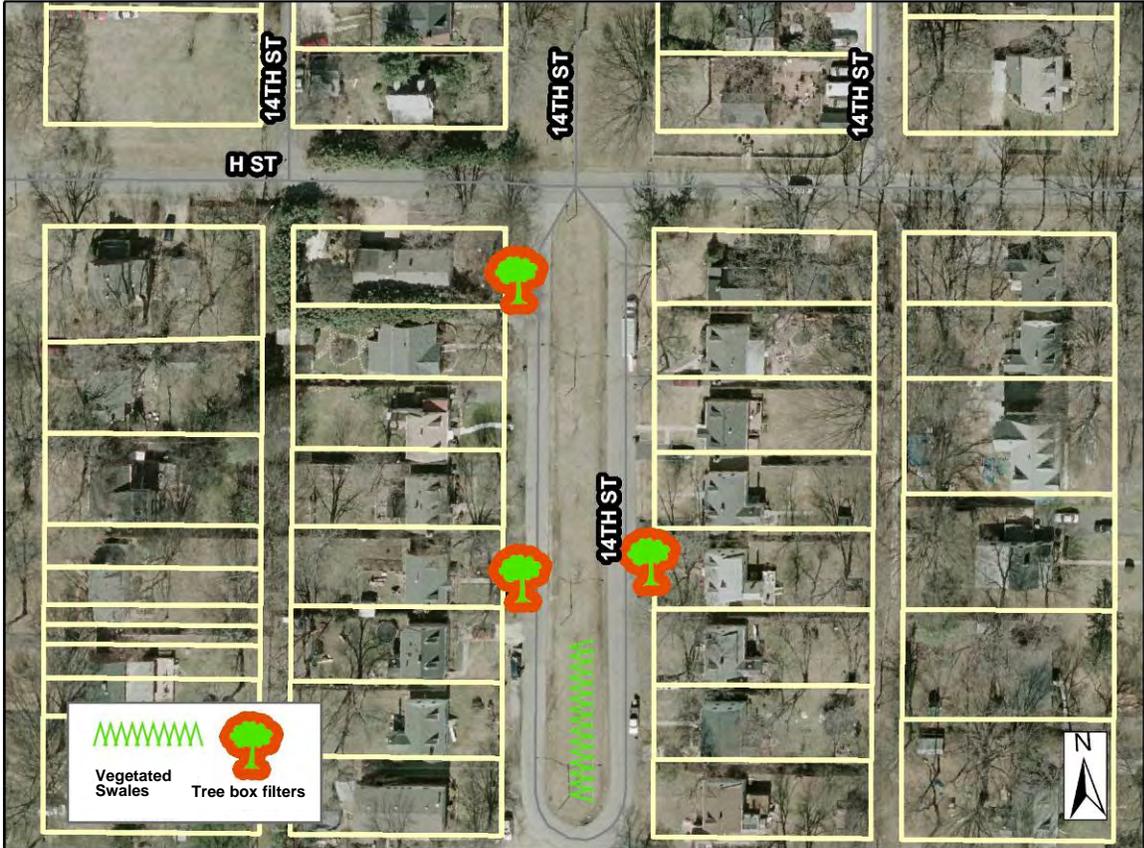
THIS PAGE INTENTIONALLY LEFT BLANK

BE9505 BMP/LID



Address: 6400 Block, 14th St
Location: 14th St between H St and I St
Land Owner: State - VDOT
PIN: NA
Control Type Water Quality
Drainage Area 1.96 acres
Receiving Waters Belle Haven West Channel

Description: This project proposes installation of vegetated swale in the median of 14th Street and installation of tree box filters at the inlets along the roadway. The proposed swale will receive the roadway runoff and roof runoff from the medium density residential area north of the project site. Three tree box filters will be installed on the existing inlets and the median will be graded to create a vegetated swale.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: Implementation of a vegetated swale will provide water quality treatment for residential runoff during storm events, trapping suspended solids, reducing trace metals, and reducing nutrients including phosphorus and nitrogen from storm water runoff. It is estimated that a total over 1,520 lbs of sediment, 20.6 lbs of total nitrogen and 3.8 lbs of total phosphorus would be reduced by this project. The swale can also promote infiltration and can reduce the flow velocity of storm water runoff.

Project Design Considerations: No environmental constraints or permitting issues are anticipated. No tree removal is required for this site. Access to the proposed site is excellent from H Street and 14th Street. Property ownership is most likely private and coordination with the property owners will be necessary for this site.

Costs:

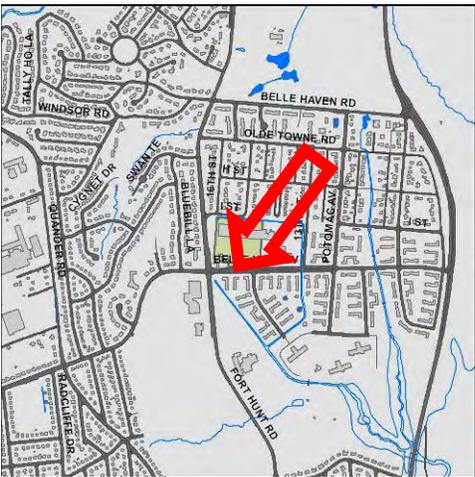
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Tree Box Filters	3	EA	\$10,000.00	\$30,000
Vegetated Swale	125	SY	\$50.00	\$6,250
			Initial Project Cost	\$36,250
Plantings	1	LS	5% of project (excluding previous pavement)	\$1,813
Ancillary Items	1	LS	5% of project	\$1,813
Erosion and Sediment Control	1	LS	10% of project	\$3,625
			Base Construction Cost	\$43,501
			Mobilization (5%)	\$2,175
			Subtotal 1	\$45,676
			Contingency (25%)	\$11,419
			Subtotal 2	\$57,095
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$25,693
			Estimated Project Cost	\$83,000



BE9505_1.jpg: View of median in 14th Street

THIS PAGE INTENTIONALLY LEFT BLANK

BE9506 BMP/LID



Address: 1700 Block, Belle View Blvd
Location: Belle View Blvd
Land Owner: State - VDOT
PIN: NA
Control Type: Water Quality
Drainage Area: 1.31 acres
Receiving Waters: Belle Haven West Channel

Description: The project proposes installation of tree box filters along the shoulders and in the medians of Belle View Boulevard. Four existing inlets will be retrofitted with tree box filters so that they will treat a portion of roadway runoff.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: Implementation of tree box filters will provide water quality treatment for portions of the Belle View Shopping Center and Belle View Boulevard runoff during storm events. Tree box filters remove suspended solids, heavy metals, nutrients including phosphorus and nitrogen, oil and grease from storm water runoff. It is estimated that a total over 2,170 lbs of sediment, 20.4 lbs of total nitrogen and 4.7 lbs of total phosphorus would be reduced by this project. These filters also prevent trash and debris from entering the storm drain system and have the ability to cool down warm runoff.

Project Design Considerations: No environmental constraints or permitting issues are anticipated. No tree removal is required for the sites. Access is excellent from Belle View Boulevard and the Belle View Shopping Center parking lot. Maintenance of traffic will be needed along Belle View Boulevard during construction. The construction of new storm drain may be necessary to provide and underdrain for the sites along Belle View Boulevard.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Tree Box Filters	4	EA	\$10,000.00	\$40,000
			Initial Project Cost	\$40,000
Plantings	1	LS	5% of project (excluding pervious pavement)	\$2,000
Ancillary Items	1	LS	5% of project	\$2,000
Erosion and Sediment Control	1	LS	10% of project	\$4,000
			Base Construction Cost	\$48,000
			Mobilization (5%)	\$2,400
			Subtotal 1	\$50,400
			Contingency (25%)	\$12,600
			Subtotal 2	\$63,000
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$28,350
			Estimated Project Cost	\$91,000



BE9506_1.jpg: View of median and inlet on Belle View Blvd

THIS PAGE INTENTIONALLY LEFT BLANK

BE9507 BMP/LID



Address: 1600 Block, Belle View Blvd
Location: Belle View Shopping Center
Land Owner: Private – Commercial
PIN: 0932 01 0001
Control Type: Water Quality
Drainage Area: 5.14 acres
Receiving Waters: Belle Haven West Channel

Description: The proposed projects is at the parking lot in front of Belle View Shopping Center on Belle View Blvd. One tree box filter will be installed and the medians between the parking lot will be graded to create bioretention areas. The runoff from the parking lot will be treated for water quality primarily for nitrogen, phosphorus and total suspended solids.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: Implementation of tree box filters and bioretention filters and basins will provide water quality treatment for the Belle View Shopping Center runoff during storm events. These facilities remove suspended solids, heavy metals, nutrients including phosphorus and nitrogen, oil and grease from storm water runoff. It is estimated that a total over 4,000 lbs of sediment, 52.6 lbs of total nitrogen and 8.2 lbs of total phosphorus would be reduced by this project. They also prevent trash and debris from entering the storm drain system and have the ability to reduce runoff temperature.

Project Design Considerations: No environmental constraints or permitting issues are anticipated. Minimal tree removal may be required for construction. Access to the proposed sites is excellent from roads and the Belle View Shopping Center parking lot. Property ownership is private and coordination with the shopping center owner/management will be necessary for these sites. A temporary or permanent loss of parking spaces can be expected with these sites. The construction of a new storm drain system to drain the proposed sites to the existing storm drain system may be necessary.

Costs:

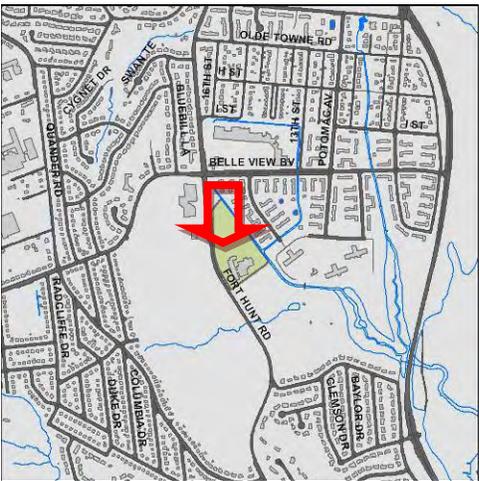
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Tree Box Filters	1	EA	\$10,000.00	\$10,000
Bioretention Filters & Basin	684	SY	\$150.00	\$102,600
			Initial Project Cost	\$112,600
Plantings	1	LS	5% of project (excluding pervious pavement)	\$5,630
Ancillary Items	1	LS	5% of project	\$5,630
Erosion and Sediment Control	1	LS	10% of project	\$11,260
			Base Construction Cost	\$135,120
			Mobilization (5%)	\$6,756
			Subtotal 1	\$141,876
			Contingency (25%)	\$35,469
			Subtotal 2	\$177,345
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$79,805
			Estimated Project Cost	\$257,000



BE9507_1.jpg: View of medians at Belle View Shopping Center

THIS PAGE INTENTIONALLY LEFT BLANK

BE9508 BMP/LID



Address: 6701 Fort Hunt Road
Location: Belle View School
Land Owner: County – FCPS
PIN: 0932 01 0005
Control Type: Water Quality
Drainage Area: 1.54 acres
Receiving Waters: Belle Haven West Branch

Description: Belle View Elementary School parking lot runoff will be treated by installing bioretention filters and basins in the medians and adjacent grassy areas. This project is located just upstream of project BE9102, which is a proposed stormwater pond.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: Implementation of bioretention filters and basins will provide water quality treatment for the Belle View Elementary School parking lot runoff during storm events. These facilities remove oil and grease, heavy metals, nutrients including phosphorus and nitrogen, and suspended solids from storm water runoff. It is estimated that a total over 1,700 lbs of sediment, 18.6 lbs of total nitrogen and 4.3 lbs of total phosphorus would be reduced by this project. They also prevent trash and debris from entering the storm drain system and have the ability to cool down warm runoff. Since this site is located on school grounds, the need for land purchase or acquisition is eliminated while providing an environmental education/stewardship opportunity for students and parents within the Belle Haven community.

Project Design Considerations: No environmental constraints or permitting issues are anticipated. Signs promoting environmental education/stewardship could be used at this site to educate students and parents in the community. No tree removal is required for installation. Access to the proposed sites is excellent from the Belle View Elementary School parking lot. Modifications to the existing storm drain system may be necessary to drain the proposed sites. Portions of the school parking lot may be temporarily closed due to construction and could interfere with morning arrival and afternoon dismissal if work was undertaken during the school year.

Costs:

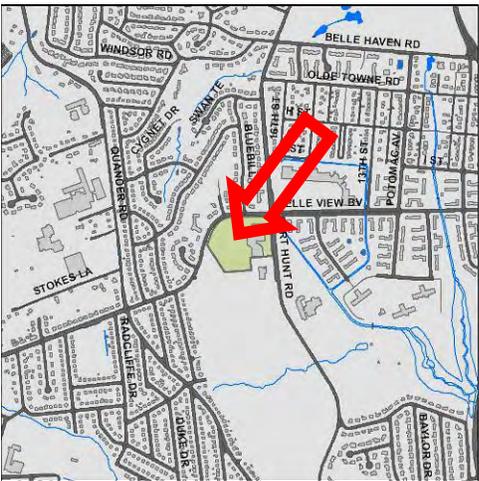
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Filters & Basin	180	SY	\$150.00	\$27,000
			Initial Project Cost	\$27,000
Plantings	1	LS	5% of project (excluding pervious pavement)	\$1,350
Ancillary Items	1	LS	5% of project	\$1,350
Erosion and Sediment Control	1	LS	10% of project	\$2,700
			Base Construction Cost	\$32,400
			Mobilization (5%)	\$1,620
			Subtotal 1	\$34,020
			Contingency (25%)	\$8,505
			Subtotal 2	\$42,525
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$19,136
			Estimated Project Cost	\$62,000



BE9508_1.jpg: View of medians at Belle View School

THIS PAGE INTENTIONALLY LEFT BLANK

BE9509 BMP/LID



Address: 2017 Belle View Blvd
Location: Mt. Vernon Recreation Center
Land Owner: County – FCPA
PIN: 0931 24090004A
Control Type: Water Quality
Drainage Area: 2.83 acres
Receiving Waters: Belle Haven West Channel

Description: The project proposes installation of tree box filters at eleven inlets which receive runoff from the parking lot at Mt. Vernon Recreation Center and Sports Complex.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: Tree box filters remove suspended solids, heavy metals, nutrients including phosphorus and nitrogen, and oil and grease from storm water runoff. It is estimated that a total of 144 lbs of sediment, less than 0.5 lbs of total nitrogen and total phosphorus each would be reduced by this project. Since this site is located on public land, the need for land purchase or acquisition is eliminated while providing an environmental education/stewardship opportunity for residents within the Belle Haven community.

Project Design Considerations: No environmental constraints or permitting issues are anticipated. Signs promoting environmental education/stewardship could be used at this site to educate residents in the community. Access to the proposed sites is excellent due to multiple parking lots. Modifications to the existing storm drain system may be necessary to provide an underdrain for the proposed facilities.

Costs:

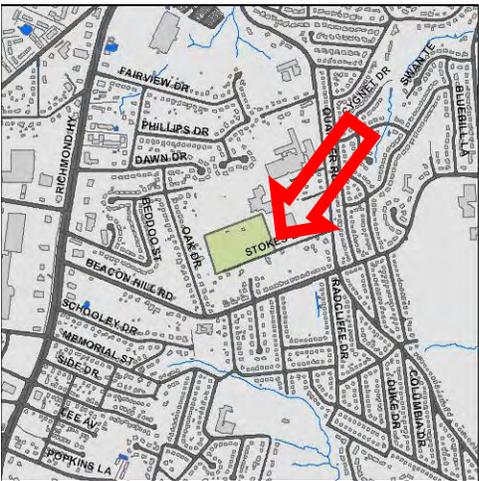
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Tree Box Filters	11	EA	\$10,000.00	\$110,000
			Initial Project Cost	\$110,000
Ancillary Items	1	LS	5% of project	\$5,500
Erosion and Sediment Control	1	LS	10% of project	\$11,000
			Base Construction Cost	\$126,500
			Mobilization (5%)	\$6,325
			Subtotal 1	\$132,825
			Contingency (25%)	\$33,206
			Subtotal 2	\$166,031
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$74,714
			Estimated Project Cost	\$241,000



BE9509_1.jpg: View of Parking lot inlet

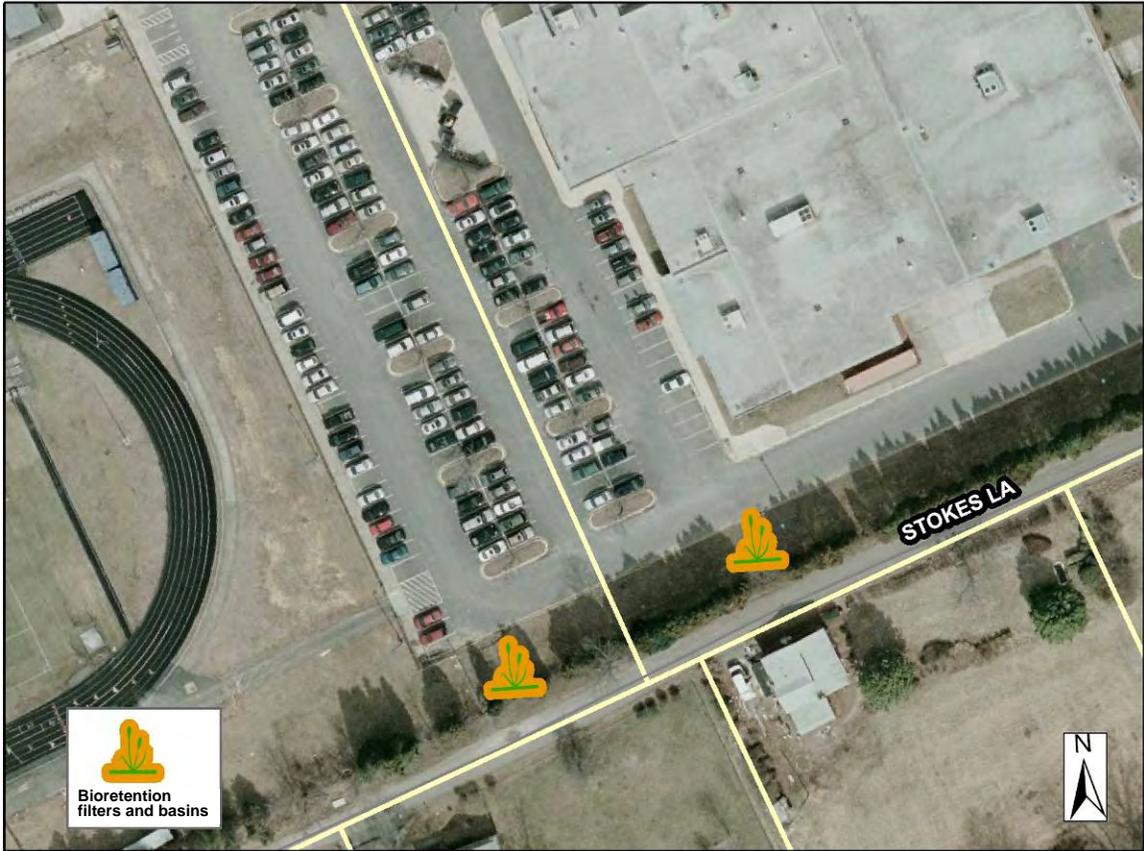
THIS PAGE INTENTIONALLY LEFT BLANK

BE9510 BMP/LID



Address: 6500 Quander Road
Location: West Potomac High School
Land Owner: County - FCPS
PIN: 0931 01 0056
Control Type Water Quality
Drainage Area 2.37 acres
Receiving Waters Quander Brook

Description: This project consists of installing bioretention filters along the edges of the parking lot to treat runoff on the west side of West Potomac High School. This project is located just upstream of the stormwater facility retrofit site BE9100.



Project Area Map: Conceptual plan showing potential project location

Project Benefits: Implementation of bioretention filters and basins will provide water quality treatment for the West Potomac High School runoff during storm events. These cells remove suspended solids, heavy metals, nutrients including phosphorus and nitrogen, oil and grease from storm water runoff. It is estimated that a total over 210 lbs of sediment, 1.75 lbs of total nitrogen and 0.5 lbs of total phosphorus would be reduced by this project. They also prevent trash and debris from entering the storm drain system and have the ability to cool down warm runoff. Since this site is located on school grounds, the need for land purchase or acquisition is eliminated while providing an environmental education/stewardship opportunity for students and parents within the Belle Haven community.

Project Design Considerations: No environmental constraints or permitting issues are anticipated. Signs promoting environmental education/stewardship could be used at this site to educate students and parents in the community. Minimal tree removal may be required. Access to the proposed sites is excellent from the West Potomac High School parking lot. Modifications to the existing storm drain system may be necessary to drain the proposed sites. Portions of the school parking lot may be temporarily closed due to construction and could interfere with morning arrival and afternoon dismissal if work was undertaken during the school year.

Costs:

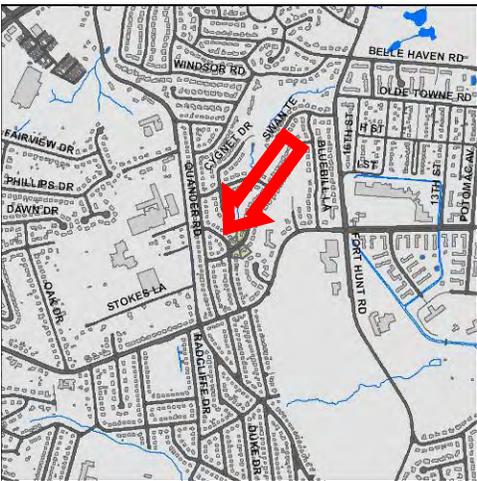
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Filters & Basin	249	SY	\$150.00	\$37,350
			Initial Project Cost	\$37,350
Plantings	1	LS	5% of project (excluding pervious pavement)	\$1,868
Ancillary Items	1	LS	5% of project	\$1,868
Erosion and Sediment Control	1	LS	10% of project	\$3,735
			Base Construction Cost	\$44,821
			Mobilization (5%)	\$2,241
			Subtotal 1	\$47,062
			Contingency (25%)	\$11,766
			Subtotal 2	\$58,828
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$26,473
			Estimated Project Cost	\$85,000



BE9510_1.jpg: View of Parking lot at West Potomac High School

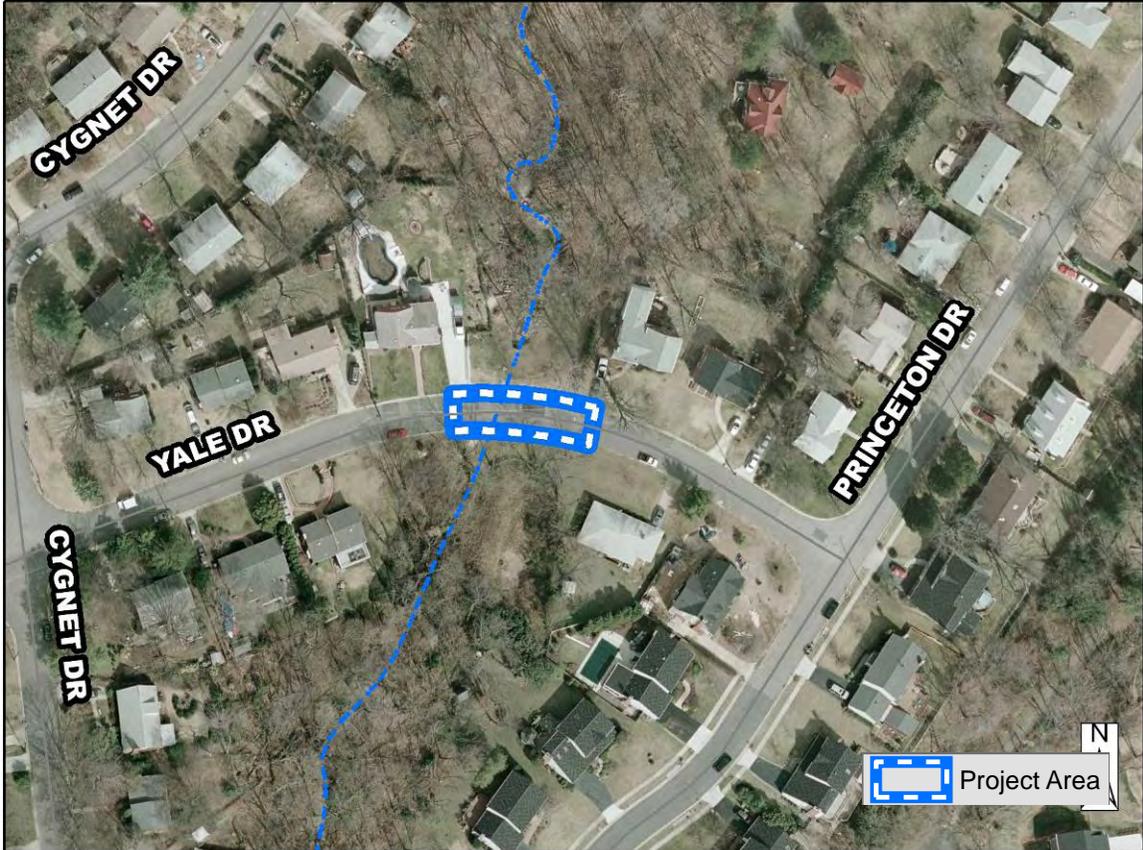
THIS PAGE INTENTIONALLY LEFT BLANK

BE9600 Flood Protection/Mitigation



Address: 2100 Block, Yale Drive
Location: Culvert under Yale Drive
Land Owner: State - VDOT
PIN:
Control Type Peak flow control
Drainage Area
Receiving Waters Unknown Tributary of Hunting Creek

Description: The storm drain under Princeton Drive is modeled as flooding for the 100-year event, and the crossing at Yale Drive overtops for the 10-year event. The project would consist of reconstruction of the road crossing and storm drain so that it passes the 100-yr flows without overtopping. The primary indicator is the frequency of flooding of the road crossing.



Project Area Map: Conceptual plan showing potential location of project

Project Benefits: The reconstruction of the structure under Yale Dr. will be able to convey the 10-year storm reducing the modeled overtopping at this location and at the upstream culvert.

Project Design Considerations: New stormwater pond project located on Mount Vernon High School which could have an impact on these crossings. No other projects are located within the immediate vicinity. Coordination and sequencing of these two projects should be considered. There are minimal environmental permitting requirements for this project. The project site can be accessed from Yale Drive. An easement may be required. Homes in the vicinity are located close to the project area, therefore specific care should be taken to reduce impacts to private property.

Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Excavation	3600	CY	\$30.00	\$108,000
Stabilization graded base	1080	CY	\$50.00	\$54,000
Structure (3 x 100 ft 4.5 CMP)	300	LF	\$175.00	\$52,500
Graded Base	1200	SY	\$15.00	\$18,000
Curb and gutter	300	LF	\$30.00	\$9,000
Turfgrass establishment	1400	SY	\$3.00	\$4,200
Placing topsoil	1400	SY	\$5.00	\$7,000
Soil Stabilization matting	1400	SY	\$5.00	\$7,000
			Initial Project Cost	\$259,700
Plantings	1	LS	5% of project	\$12,985
Ancillary Items	1	LS	5% of project	\$12,985
Erosion and Sediment Control	1	LS	10% of project	\$25,970
			Base Construction Cost	\$311,640
			Mobilization (5%)	\$15,582
			Subtotal 1	\$327,222
			Contingency (25%)	\$81,806
			Subtotal 2	\$409,028
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$184,063
			Estimated Project Cost	\$593,000



BE9600_1.jpg: Upstream side of culvert on Yale Drive



BE9600_2.jpg: Downstream side of culvert on Yale Drive

THIS PAGE INTENTIONALLY LEFT BLANK