5.5 Pohick – Middle South Run Watershed Management Area

Middle South Run Watershed Management Area has a total area of approximately 2.95 square miles and is comprised of 10 subwatersheds. It is located in the west central portion of the Pohick Creek Watershed. It is bound on the west by Ox Road and the north and east by Fairfax County Parkway. It is bisected by Lee Chapel Road, which runs from the northeast to southwest, and Silverbrook Road is the southern boundary.

The WMA has approximately 16.06 miles of stream, which primarily flow northwest to southeast, ultimately reaching Lake Mercer. The area consists mainly of single-family residential homes. Land cover consists primarily of impervious surface associated with residential development (i.e., rooftops, sidewalks and roadways) and landscaping, including managed turf. The area is approximately 17 percent impervious. Notable features of the WMA are Lake Mercer, South Run Recreation Center and a portion of Burke Lake Park.

In the Middle South Run WMA the most prevalent stream condition features noted include disturbed stream buffers and stream channel erosion and/or widening. Upstream of Lake Mercer significant channel widening has been documented, along with some limited channel incision and scour. In addition, there are numerous pipes and ditches discharging directly into streams in the WMA. These outfalls contribute to the observed widening and erosive conditions. Several significant obstructions were documented in the WMA. Road crossing impacts in the WMA, while generally minor, were also documented at Lee Chapel Road, as well as the interior of several subdivisions.

The watershed restoration projects for this WMA include retrofitting a stormwater pond, restoring a stream, two dumpsite/obstruction removals and a buffer restoration project. Descriptions of the 0 – 10-year-plan projects and non-structural projects follow. Also, a map of this WMA and a list of all the projects proposed in it are provided. For more information see the 0 – 10-year-plan project fact sheets at the end of this section.

5.5.1 Structural Projects

PC9110 Stormwater Pond Retrofit

This project is proposed to retrofit an existing wet pond at a community center on Park Circle. To create a wetland system a sediment forebay will be constructed and a bench planting added. The pond collects runoff from adjacent neighborhoods and roadways to the north and outfalls into a stream to the south. The primary indicators are wetland habitat and pollutants, including nitrogen, phosphorous and total suspended solids.

PC9210 Stream Restoration

This project is proposed to repair bank and bed erosion and restore the channel morphology of the stream that runs parallel to the east side of Lee Chapel Road. The proposed restoration ends where the stream connects with a perpendicular stream to the south. The primary indicator is the poor channel morphology. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics and rapid vegetation establishment.

5.5.2 Non-Structural Projects

PC9803 Buffer Restoration

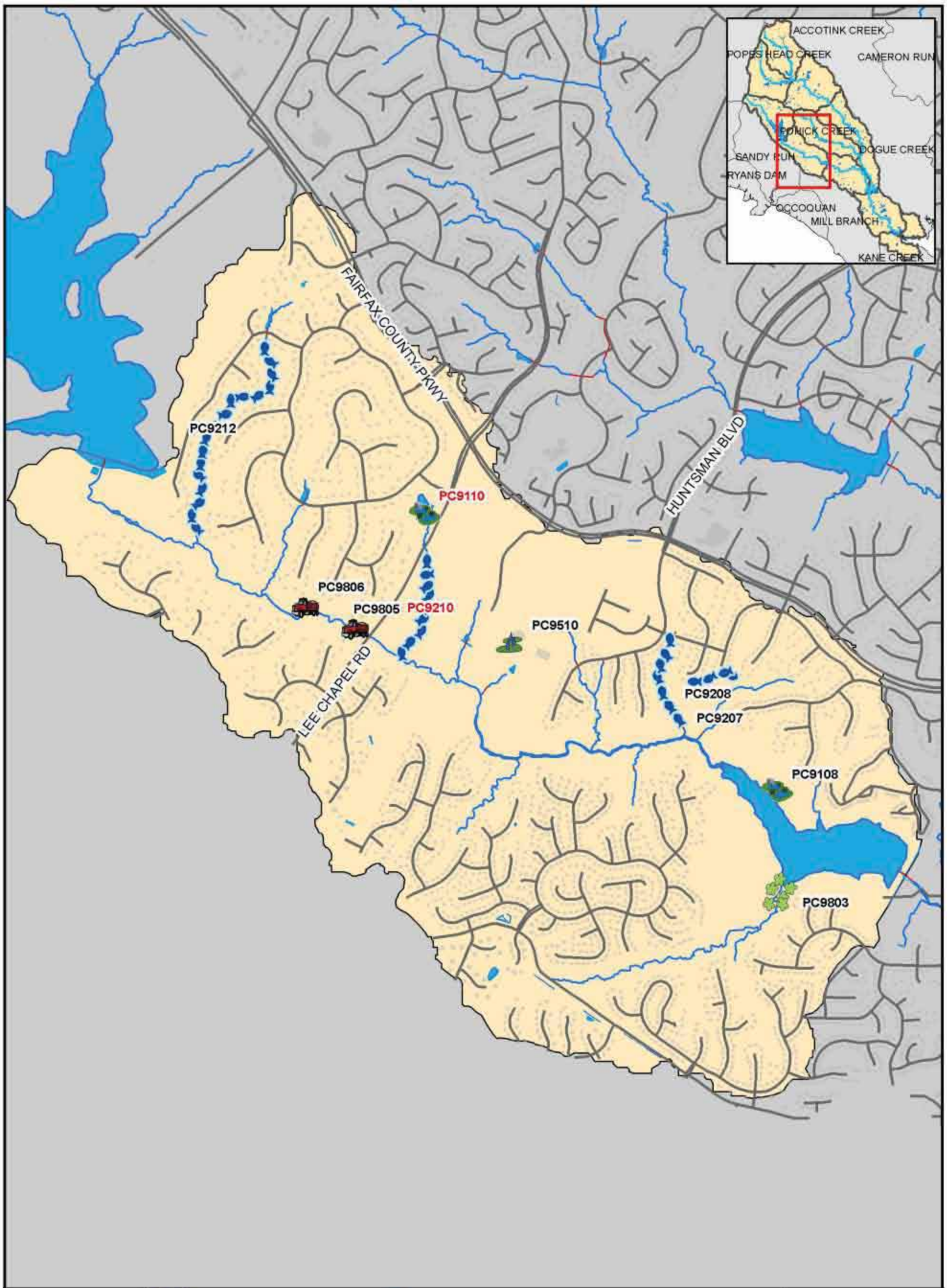
This project is proposed to re-plant stream buffer south of Lake Mercer and west of Jeffrey Court. Re-planting the buffer will re-establish the RPA. The main indicators are stream bank buffer deficiency and headwater riparian habitat. Increased vegetation from buffer repair will provide additional stream buffer for filtration of pollutants, and will reduce runoff by intercepting the water, thereby increasing surface storage and infiltration.

PC9805 Dumpsite/Obstruction Removal

A dumpsite/obstruction is located in the portion of the stream west (upstream) of the culvert under Lee Chapel Road and north of Stony Creek Court. The primary indicators are flood complaints. Field verification revealed obstructions are from trash and debris. This project proposes the cleanup of trash in or near the stream channel to help reduce the amount of pollutants entering adjacent streams and storm systems. The cleanup will help restore the function of the stream.

PC9806 Dumpsite/Obstruction Removal

This project is proposed to remove an obstruction in the stream south of Rambling Ridge Road and Wilderness Way. The primary indicators are flood complaints. The obstruction was verified as a beaver dam. The removal will reduce flood complaints and will restore the stream to its natural conditions and help restore its function.



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Buffer Restoration
Stream Restoration
BMP/LID
Culvert Retrofit
Dumpsite/Obstruction Removal
New Stormwater Pond
Outfall Improvement
Stormwater Pond Retrofit
Other

Area-wide Drainage Improvement
Community Outreach/Public Education
Land Conservation Project
Flood Protection/Mitigation
Inspection/Enforcement Enhancement
Rain Barrel Program
Street Sweeping Program
Studies, Surveys and Assessments

Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.

Map 5.5

Pohick - Middle South Run WMA
Proposed Projects

Table 5-5: Project List - WMA (Pohick - Middle South)

Structural Projects[1]						
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**	**Phase**
PC9110	Stormwater Pond Retrofit	PC-SR-0013	9908 South Park Ci.	Water quality and quantity control	Private - Residential	0-10
PC9210	Stream Restoration	PC-SR-0013	Behind 7801 Preakness La.	Water quality control	Public/Local - FCPA	0-10
PC9108	Stormwater Pond Retrofit	PC-SR-0018	Behind 7278 Lakeland Valley Dr.	Water quality and quantity control	Public/Local - FCPA	11-25
PC9207	Stream Restoration	PC-SR-0010	Along access road next to 7719 Wagon Trail La.	Water quality control	Public/Local - FCPA	11-25
PC9208	Stream Restoration	PC-SR-0018	Next to 9245 Northedge Dr.	Water quality and quantity control	Private - HOA	11-25
PC9212	Stream Restoration	PC-SR-0015	Behind 4312 South View Ct.	Water quality control	Private - HOA, Public/Local - FCPA	11-25
PC9510	BMP/LID Suite	PC-SR-0011	7549 Reservation Dr., South Run Recreation Center	Water quality and quantity control	Public/Local - FCPS	11-25

Non-Structural Projects[1]					
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**
PC9803	Buffer Restoration	PC-SR-0018	Behind 8104 Jeffrey Ct.	Water quality control	Public/Local - FCPA
PC9805	Dumpsite/ Obstruction Removal	PC-SR-0014	Along Lee Chapel Rd., behind Stony Creek Ct.	Water quality control	Public/Local - FCPA
PC9806	Dumpsite/ Obstruction Removal	PC-SR-0014	Near 7528 Rambling Ridge Dr.	Water quality control	Public/Local - FCPA

[1] **Only 10-yr structural projects will have associated project fact sheets at the end of section 5.**

PC9110 Stormwater Pond Retrofit

Address: 9908 South Park Circle, Fairfax Station, Virginia
Location: Wetland near South Park
Land Owner: South Run Regency
PIN: 0883 06 G
Control Type: Water quality and quantity control
Drainage Area: 42.66 acres
Receiving Waters: Tributary of South Run

Description: This project proposes the retrofit of an existing wet pond at a community center off of Park Circle to create a wetland system with construction of a sediment forebay and the addition of a bench planting. The pond collects runoff from adjacent neighborhoods and roadways to the north and outfalls into a stream to the south. The primary indicators are wetland habitat and pollutants, including nitrogen, phosphorous and total suspended solids.

Project Benefits: An estimated 5.83 lbs/year of phosphorus will be removed. The retrofit will modify the existing pond to increase pollutant removal and provide adequate channel protection above the permanent pool. It will create a better functioning environment for gravitational settlement, biological uptake and microbial activity. The addition of the sediment forebay provides improved treatment.

Project Design Considerations: Proposed project is at a community swim club. Efforts should be made to minimize impacts to the functions of the community center. There is an existing pier that goes into the water. The effects on existing mature vegetation should be minimized. The forebay should account for approximately 10% of the total surface area of the pond. The pond is not within any easements and is on private property owned by South Run Regency.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	1	AC	$8,500	$8,500
Grading and Excavation	4000	CY	$35	$140,000
Structural BMP Retrofit and Incidentals	1	LS	$15,000	$15,000
Embankment	50	CY	$50	$2,500
Outflow Pipe	100	LF	$125	$12,500
Rip Rap Stabilization	150	SY	$100	$15,000
Organic Compost Soil Amendment	800	CY	$40	$32,000
Plantings	1	LS	5%	$11,275
Ancillary Items	1	LS	5%	$11,275
Erosion and Sediment Control	1	LS	10%	$22,550
			Base Construction Cost	$270,600
			Mobilization (5%)	$13,530
			Subtotal 1	$284,130
			Contingency (25%)	$71,033
			Subtotal 2	$355,163
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$159,823
			Total	$514,986
			Estimated Project Cost	$520,000

PC9110_1.jpg View of pond

PC9110_2.jpg View of pond

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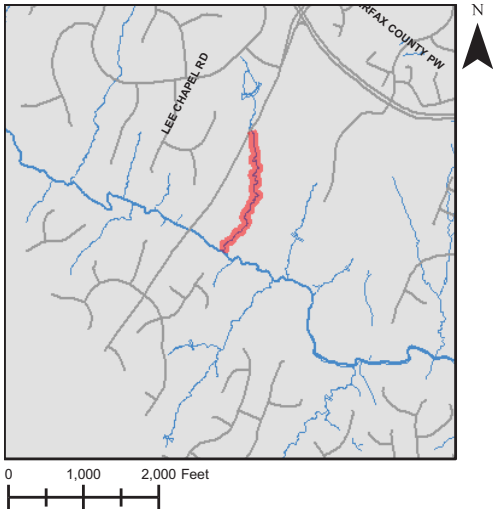
PC9210 Stream Restoration



Address: Behind 7801 Preakness Lane, Fairfax Station, Virginia
Location: Stream behind Oak Bridge Lane
Land Owner: Public – Fairfax County Park Authority
PIN: 0883 01 0004, 0971 01 0001A
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of South Run

Description: This project proposes repairing bank and bed erosion and restoring the channel morphology of the stream that runs parallel on the east side of Lee Chapel Road. The proposed restoration ends where the stream connects with a perpendicular stream to the south. The primary indicator is the poor channel morphology. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.

Project Benefits: Stabilizing 2,200 feet of this stream will reduce erosion and instream sediment, resulting in an estimated 26.10 lbs/year of phosphorus reduction. The stream stabilization will reduce sediment while maintaining the capacity and controlling unwanted meander of the stream. The project will not only repair existing erosion but prevent future erosion over time by implementing the measures above.

Project Design Considerations: This proposed project is in a densely wooded area behind homes and the South Run Recreation Center and is just west of a Dominion Virginia Power easement (open area east of stream on project map). The stream is located in Fairfax County Park Authority land. Efforts should be made to minimize impacts to existing mature vegetation. Measures implemented should address the poor channel morphology.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	2200	LF	$200	$440,000
Clear and Grub	2.53	AC	$10,000	$25,300
Plantings	2.53	AC	$25,000	$63,250
Additional Cost, First 500 LF	500	LF	$200	$100,000
Erosion and Sediment Control	1	LS	10%	$62,855
Ancillary Items	1	LS	5%	$31,428
			Base Construction Cost	$722,833
			Mobilization (5%)	$36,142
			Subtotal 1	$758,974
			Contingency (25%)	$189,744
			Subtotal 2	$948,718
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$426,923
			Total	$1,375,641
			Estimated Project Cost	$1,380,000

PC9210_1.jpg View of stream

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5.6 Pohick – Potomac Watershed Management Area

The Potomac Watershed Management Area is located in the extreme southern portion of the Pohick Creek watershed and contains a total of eight subwatersheds. The Potomac WMA is bounded on the south by Gunston Road and is comprised primarily of public lands, including a portion of Fort Belvoir and the Pohick Regional Park. The Potomac WMA does contain limited single-family, detached residential properties. The majority of the observed single-family detached dwellings were constructed on lots estimated at one acre or more. The age of development in this WMA ranges from an estimated 20 to 25 years old (1980s) up to approximately 5 to 10 years old (2000s), with little evidence of recent infill development.

Land cover consists primarily of woodland and tidal wetlands, with some impervious surface associated with residential development (i.e., rooftops, streets and driveways) and limited landscaping management. No stormwater management facilities or infrastructure were observed in the Potomac WMA, including curb and gutter on roadways. Among the non-residential land uses observed, Potomac contains primarily institutional properties associated with public lands and open space holdings, including the majority of Pohick Bay Regional Park on the south side of Pohick Bay and the Accotink Bay Wildlife Refuge and Fort Belvoir on the north shore of Pohick Bay.

In the Potomac WMA the most prevalent stream condition problems noted were stream channel widening and incision. Given the lack of development in this WMA, these conditions may be attributable to the fairly steep drop in elevation seen between points in Pohick Bay Regional Park and Pohick Bay itself. The elevation drop and soil conditions may give rise to excessive channel incision and head cutting, which was also documented on two small tributaries in the park draining to Pohick Bay.

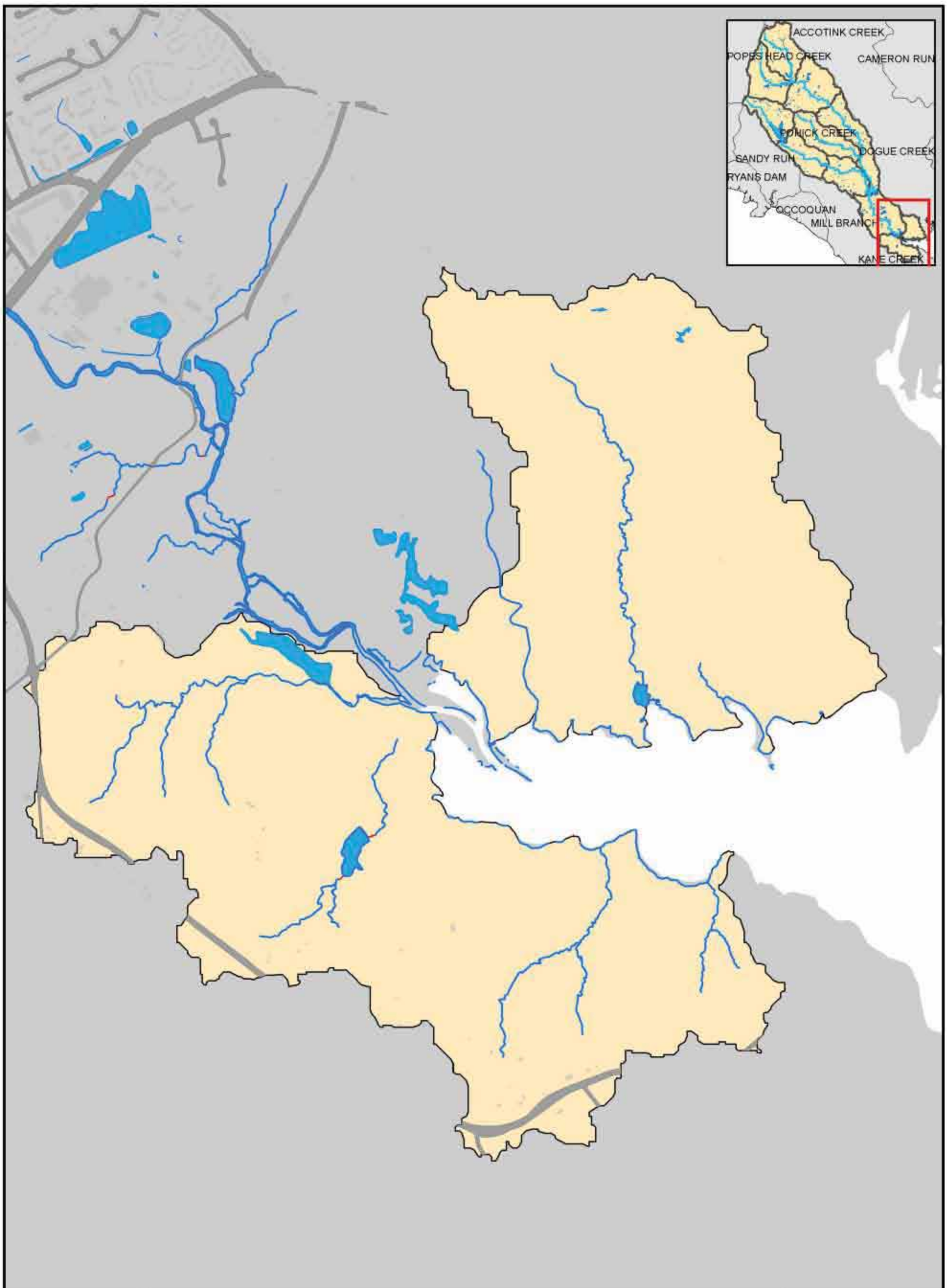
This WMA had the best subwatershed scores throughout the entire Pohick Creek Watershed. Improving the headwaters of the Pohick Creek Stream was given priority over the Potomac WMA, due to the fact that any improvements done to the headwater areas would have compounding advantages downstream. The WMA map is provided for reference.

5.6.1 Structural Projects

No projects proposed.

5.6.2 Non-Structural Projects

No projects proposed.



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- Area-wide Drainage Improvement
- Community Outreach/Public Education
- Land Conservation Project
- Flood Protection/Mitigation
- Inspection/Enforcement Enhancement
- Rain Barrel Program
- Street Sweeping Program
- Studies, Surveys and Assessments

Note: No restoration strategies are proposed for this WMA due to its high quality natural state.

Map 5.6

Pohick - Potomac WMA
Proposed Projects

Table 5-6: Project List - WMA (Pohick - Potomac)

Structural Projects[1]						
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**	**Phase**
N/A	No projects	N/A	N/A	N/A	N/A	N/A

Non-Structural Projects[1]					
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**
N/A	No projects	N/A	N/A	N/A	N/A

[1] **Only 10-yr structural projects will have associated project fact sheets at the end of section 5.**

Project Fact Sheets (Pohick - Potomac WMA)

Note: There are no proposed 10-Year plan projects; therefore no project fact sheets are provided for this WMA.

5.7 Pohick – Rabbit Branch Watershed Management Area

Rabbit Branch Watershed Management Area has a total area of approximately 3.95 square miles and is comprised of 15 subwatersheds. It is located in the northern part of the Pohick Creek Watershed. A portion of the northern part is within the city of Fairfax. Its northern boundary is south of Route 236, the western boundary is Ox Road and Sideburn Road, the eastern boundary is Burke Station Road, Braddock Road and Twinbrook Road, and the boundary extends just beyond Burke Centre Parkway to the south.

The WMA has approximately 15.50 miles of stream, which primarily flows from north to south. The area consists mainly of single-family residential homes, and also includes some dense residential communities. Land cover consists of mainly impervious surfaces related to residential development (i.e., rooftops, sidewalks and roadways) and landscaping, including managed turf. The area is 27.80 percent impervious. Notable features of the watershed management area are Lake Royal, George Mason University and Robinson Secondary School.

In the Rabbit Branch WMA the most prevalent stream condition problems noted include disturbed stream buffers and stream channel erosion and/or widening. Pipes and ditches discharge untreated stormwater directly into the WMA's streams in many instances, and have contributed to the observed widening and eroded conditions.

The watershed restoration projects for this WMA include retrofitting stormwater ponds, restoring streams, a BMP/LID project consisting of installing inlet inserts at a shopping center, and two buffer restoration projects. Descriptions of the 0 – 10-year-plan projects and non-structural projects follow. Also, a map of this WMA and a list of all the projects proposed in it are provided. For more information see the 0 – 10-year-plan project fact sheets at the end of this section.

5.7.1 Structural Projects

PC9135 Stormwater Pond Retrofit

A dry pond retrofit is proposed east of Nottinghill Lane and west of Roberts Road. The pond is upstream of the culvert under Roberts Road, which outfalls to a stream on the other side of the road. This project is proposed to create an extended detention dry pond with a sediment forebay. The primary indicators are nitrogen, phosphorus and total suspended solids.

PC9138 Stormwater Pond Retrofit

This proposed stormwater pond retrofit is east of Nantucket Court and northwest of Allenby Road. The pond, 0036DP, collects runoff from adjacent residential neighborhoods. This project is proposed to retrofit the pond to create an extended detention dry pond with a sediment forebay. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids.

PC9140 Stormwater Pond Retrofit

This project is proposed to retrofit of an existing wet pond at George Mason University, near Mason Pond Drive and Roanoke River Lane, to create a wetland system with sediment forebays and bench planting. The sediment forebays will provide pretreatment of stormwater runoff and the bench planting will increase the pollutant removal. The primary problem indicators are pollutants, including nitrogen, phosphorus and total suspended solids.

PC9256 Stream Restoration

This stream is located on Fairfax County Park Authority land, north of Windsor Hills Drive. The stream has indicators of poor channel morphology, which could be improved though the proposed repair to bank and bed erosion. The stream receives water from adjacent residential neighborhoods. The stormwater is collected in pipes and receives no treatment before discharging to the stream. Stream stabilization will reduce sediment while maintaining capacity of the channel and controlling unwanted meander.

PC9259 Stream Restoration

This project is proposed to repair bank and bed erosion in a stream that discharges to pond 0223DP. The stream is located in a wooded open space. The primary indicator is poor channel morphology. Stream stabilization will reduce sediment loads to the stream while maintaining capacity. This is especially important at the upstream location of the lake.

PC9260 Stream Restoration

This stream runs parallel to Powell Road towards Commonwealth Boulevard and has indicators of poor channel morphology. The project is proposed to repair bank and bed erosion and restore channel morphology. Stream stabilization will reduce sediment loads to the stream while maintaining capacity of the channel and controlling unwanted meander. Erosion will be stabilized through the use of bank shaping, toe of slope protection, erosion control fabrics, and rapid vegetation establishment.

PC9263 Stream Restoration

The stream west of Dequincey Drive shows indications of poor channel morphology. This project is proposed to improve channel morphology by repairing bed and bank erosion. These repairs will include streambed shaping, rock toe reinforcement, erosion control fabric, and revegetation in degraded areas. The stream currently conveys water from three different sources: sheet flow from adjacent neighborhoods, untreated stormwater from a closed storm system outfall and the outfall from a dry pond. Stream stabilization will reduce sediment loads, maintain capacity of the stream channel and control unwanted meander.

PC9269 Stream Restoration

This stream, east of Glemere Road and south of Cotton Farm Road, outfalls into 0588DP. Due to poor channel morphology, this project is proposed to repair bank and bed erosion. Stream stabilization will reduce sediment loads to the stream while maintaining the capacity of the channel and controlling unwanted meander of the stream.

PC9548 BMP/LID

This project is proposed to install manufactured BMP filtration systems into existing storm inlets to provide pollutant removal at Twinbrook Shopping Centre, southwest of Braddock Road. A typical insert acts as a basket that collects sediment and larger debris such as trash and leafs. Filters should be selected to target the known pollutants. The filters need to be cleaned on a routine basis, typically every six months. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids.

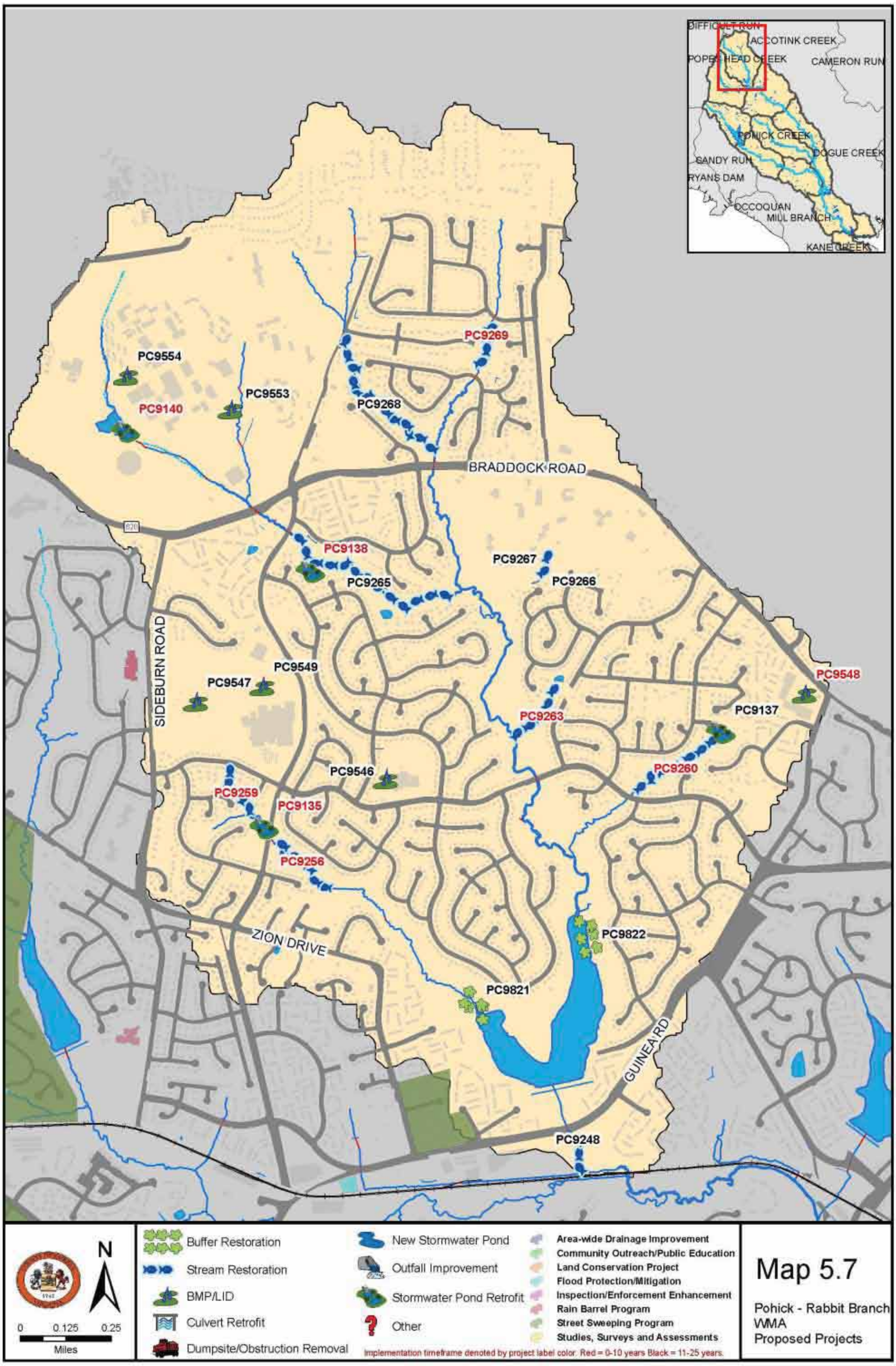
5.7.2 Non-Structural Projects

PC9821 Buffer Restoration

The buffer area of stream leading into Lake Royal (PI 566 dam number four), adjacent to Gainsborough Drive, has deficiencies. This project is proposed to re-plant the buffer to re-establish the RPA. Increased vegetation from the buffer repair will provide additional filtration of pollutants and will reduce runoff by intercepting the water, thereby increasing surface storage and infiltration. This is an especially critical area because it is upstream of a large lake and will affect the overall health of this body of water.

PC9822 Buffer Restoration

This project is proposed to re-plant a stream buffer to re-establish the RPA of the stream at Lakeside Park. The primary indicator is buffer deficiency. Increased vegetation from buffer repair will provide additional stream buffer for filtration of pollutants and will reduce runoff by intercepting water, thereby increasing surface storage infiltration.


DIFFICULT RUN
ACCOTINK CREEK
POPES HEAD CREEK
CAMERON RUN
POHICK CREEK
DOGUE CREEK
SANDY RUN
RYANS DAM
OCCOQUAN
MILL BRANCH
KANE CREEK
PC9269
PC9554
PC9553
PC9140
PC9268
BRADDOCK ROAD
620
PC9138
PC9267
PC9265
PC9266
SIDEBURN ROAD
PC9549
PC9547
PC9548
PC9263
PC9137
PC9546
PC9260
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PC9135
PC9256
ZION DRIVE
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PC9821
GUINEA RD
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Buffer Restoration
Stream Restoration
BMP/LID
Culvert Retrofit
Dumpsite/Obstruction Removal
New Stormwater Pond
Outfall Improvement
Stormwater Pond Retrofit
Other
Area-wide Drainage Improvement
Community Outreach/Public Education
Land Conservation Project
Flood Protection/Mitigation
Inspection/Enforcement Enhancement
Rain Barrel Program
Street Sweeping Program
Studies, Surveys and Assessments
Implementation timeframe denoted by project label color. Red = 0-10 years Black = 11-25 years.
Map 5.7
Pohick - Rabbit Branch
WMA
Proposed Projects

Table 5-7: Project List - WMA (Pohick - Rabbit Branch)

Structural Projects[1]						
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**	**Phase**
PC9135	Stormwater Pond Retrofit	PC-RA-0005	Behind 5220 Nottinghill La., Pond along Roberts Rd.	Water quality and quantity control	Private - HOA	0-10
PC9138	Stormwater Pond Retrofit	PC-RA-0010	Behind 10305 Nantucket Ct.	Water quality and quantity control	Private - HOA	0-10
PC9140	Stormwater Pond Retrofit	PC-RA-0011	Intersection of Mason Pond Dr. and Roanoke River La.	Water quality and quantity control	Public/State - GMU	0-10
PC9256	Stream Restoration	PC-RA-0004	Behind 5351 Brandon Ridge Way	Water quality control	Public/Local - FCPA	0-10
PC9259	Stream Restoration	PC-RA-0005	Behind 5220 Nottinghill La.	Water quality control	Private - HOA	0-10
PC9260	Stream Restoration	PC-RA-0006	Near 9800 Commonwealth Blvd.	Water quality control	Private - HOA	0-10
PC9263	Stream Restoration	PC-RA-0008	Behind 5082 Dequincey Dr.	Water quality control	Public/Local - FCPA	0-10
PC9269	Stream Restoration	PC-RA-0014	Next to 10159 Red Spruce Rd.	Water quality control	Private - HOA, Private - Residential	0-10
PC9548	BMP/LID	PC-RA-0006	9525 Braddock Rd., Twinbrooke Shopping Center	Water quality control	Private - Commercial	0-10
PC9137	Stormwater Pond Retrofit	PC-RA-0006	Behind 9463 Wenzel St.	Water quality and quantity control	Private - HOA	11-25
PC9248	Stream Restoration	PC-RA-0001	Along RR tracks near 5610 Sandy Lewis Dr.	Water quality control	Private - Residential	11-25
PC9265	Stream Restoration	PC-RA-0010	Behind 10156 Bessmer La.	Water quality control	Private - HOA	11-25

[1] **Only 10-yr structural projects will have associated project fact sheets at the end of section 5.**

Structural Projects[1]						
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**	**Phase**
PC9266	Stream Restoration	PC-RA-0009	Behind 9733 Abington Ct.	Water quality control	Public/State - Commonwealth of VA, State Hospital Board	11-25
PC9267	Stream Restoration	PC-RA-0009	9911 Braddock Rd., near Braddock Rd. Hospital	Water quality and quantity control	Public/State - Commonwealth of VA, State Hospital Board	11-25
PC9268	Stream Restoration	PC-RA-0013	Behind 4613 Tapestry Dr.	Water quality control	Private - HOA	11-25
PC9546	BMP/LID Suite	PC-RA-0004	10110 Commonwealth Blvd., Laurel Ridge Elementary School	Water quality and quantity control	Public/Local - FCPS	11-25
PC9547	BMP/LID	PC-RA-0005	5035 Sideburn Rd., Robinson Secondary School	Water quality and quantity control	Public/Local - FCPS	11-25
PC9549	BMP/LID	PC-RA-0005	5035 Sideburn Rd., Robinson Secondary School	Water quality and quantity control	Public/Local - FCPS	11-25
PC9553	BMP/LID	PC-RA-0012	Intersection of Patriot Ci. and Sandy Creek Way, George Mason University Parking Garage	Water quality and quantity control	Public/State - GMU	11-25
PC9554	BMP/LID	PC-RA-0011	Between Mason Pond Dr. and George Mason Blvd. (Parking Garage)	Water quality and quantity control	Public/State - GMU	11-25

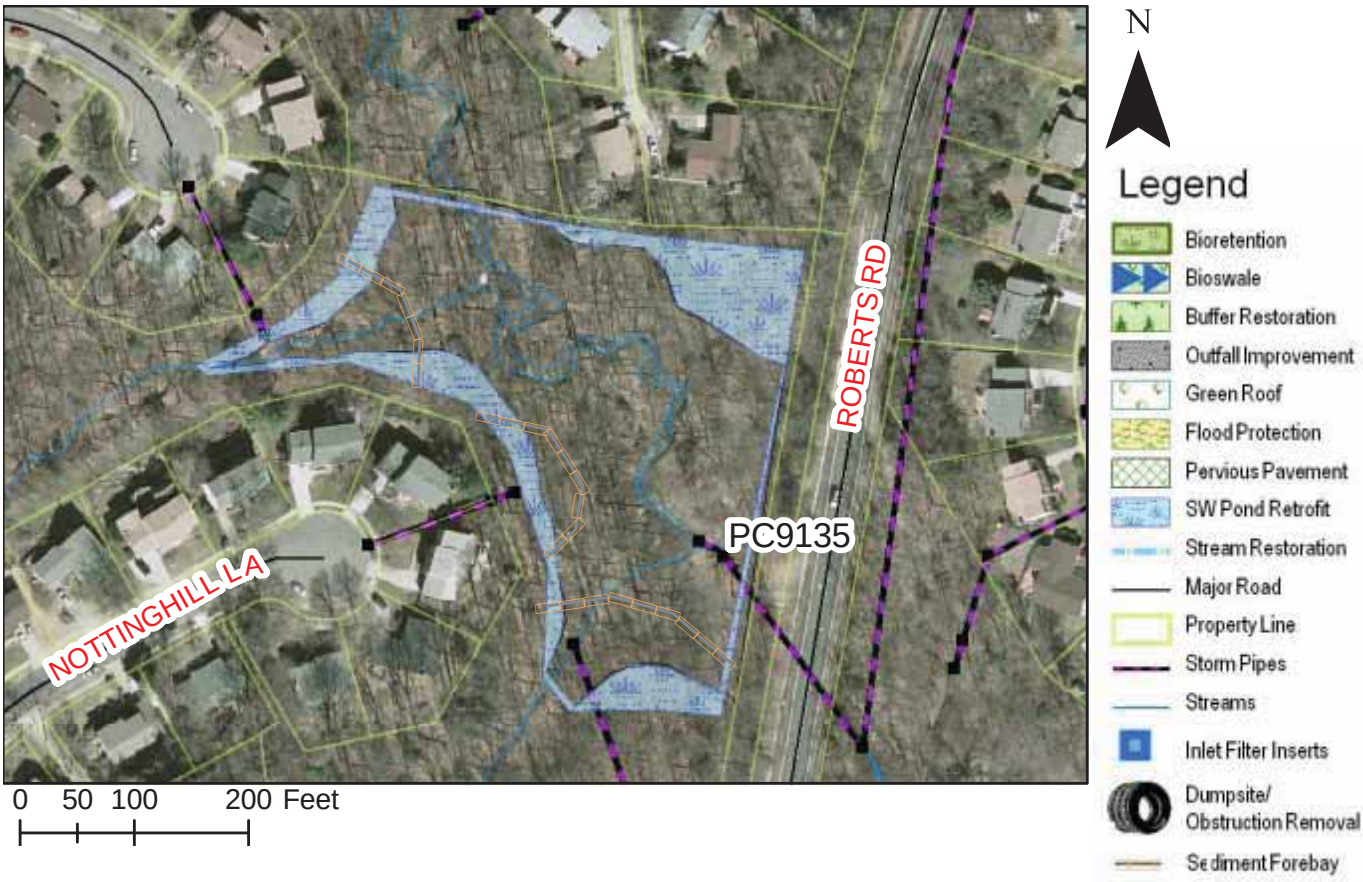
Non-Structural Projects[1]					
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**
PC9821	Buffer Restoration	PC-RA-0003	Behind 5330 Gainsborough Dr.	Water quality control	Public/Local - FCPA
PC9822	Buffer Restoration	PC-RA-0002	5216 Pommeroy Dr., Lakeside Park	Water quality control	Public/Local - FCPA

[1] **Only 10-yr structural projects will have associated project fact sheets at the end of section 5.**

PC9135 Stormwater Pond Retrofit

Address: Behind 5220 Nottinghill Lane, Fairfax, Virginia
Location: Pond along Roberts Road
Land Owner: Private – Kings Park West Community Association
PIN: 0684 09 C
Control Type: Water quality and quantity control
Drainage Area: 145.21 acres
Receiving Waters: Tributary of Rabbit Branch

Description: A dry pond retrofit is proposed east of Nottinghill Lane and west of Roberts Road. The pond is upstream of a culvert under Roberts Road, which outfalls to a stream on the other side of the road. This project proposes to create an extended detention dry pond with sediment forebay. The primary indicators are nitrogen, phosphorus and total suspended solids.



Project Benefits: An estimated 23.07 lbs/year of phosphorus will be removed. This retrofit will provide adequate downstream channel protection and allow for better function of temporary ponding using a control structure, which promotes deposition of particulate pollutants. Implementation of a sediment forebay will increase the pollutant removal benefits of the stormwater pond.

Project Design Considerations: Very large drainage area outfalling to the pond, including large school. Pond is on private property owned by Kings Park West Community Association and according to County-provided GIS data, there are no easements on site. The sediment forebays should account for approximately 10% of the pond area. The vegetative buffer should be 10-15' off of the top of bank. Efforts should be made to minimize impacts to existing mature vegetation.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.75	AC	$8,500	$6,375
Grading and Excavation	4400	CY	$35	$154,000
Structural BMP Retrofit and Incidentals	1	LS	$20,000	$20,000
Embankment	115	CY	$50	$5,750
Outflow Pipe	50	LF	$125	$6,250
Rip Rap Stabilization	200	SY	$100	$20,000
Organic Compost Soil Amendment	550	CY	$40	$22,000
Plantings	1	LS	5%	$11,719
Ancillary Items	1	LS	5%	$11,719
Erosion and Sediment Control	1	LS	10%	$23,438
			Base Construction Cost	$281,250
			Mobilization (5%)	$14,063
			Subtotal 1	$295,313
			Contingency (25%)	$73,828
			Subtotal 2	$369,141
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$166,113
			Total	$535,254
			Estimated Project Cost	$540,000

PC9135_1.jpg Bird's eye view of pond looking west

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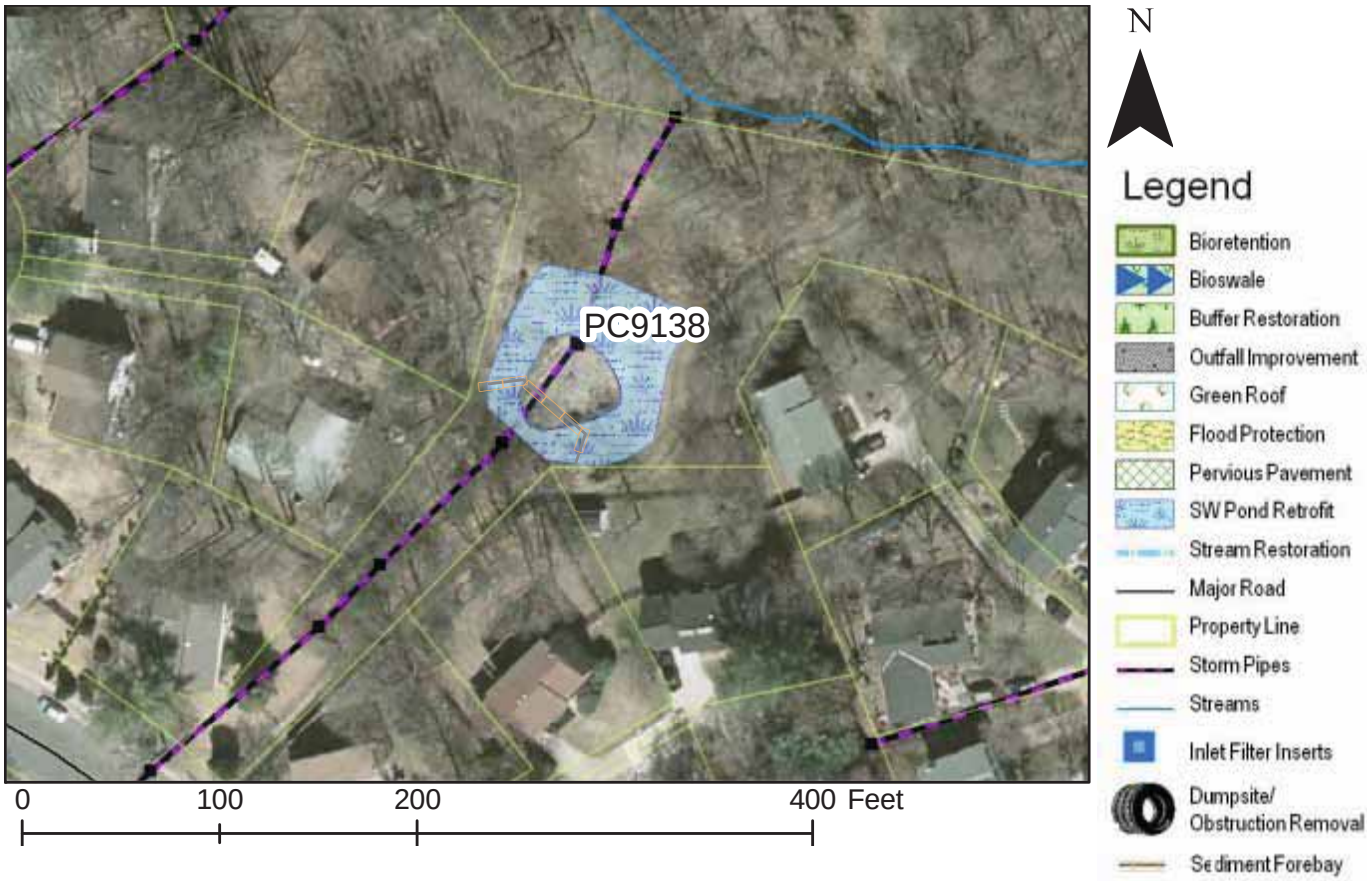
PC9138 Stormwater Pond Retrofit

Address: Behind 10305 Nantucket Court, Fairfax, Virginia
Location: Pond near Nantucket Court
Land Owner: Private – Kings Park West Community Association
PIN: 0682 05 A
Control Type: Water quality and quantity control
Drainage Area: 4.73 acres
Receiving Waters: Tributary of Rabbit Branch

Description: The proposed stormwater pond retrofit is east of Nantucket Court and northwest of Allenby Road. The pond, 0036DP, collects runoff from adjacent residential neighborhoods. This project proposes to retrofit the pond to create an extended detention dry pond with sediment forebay. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids.



Project Benefits: An estimated 0.20 lbs/year of phosphorus will be removed. Extending the pond's detention time will provide better downstream channel protection and promote settlement of particulate pollutants. Installing a sediment forebay will decrease debris and coarse sediment in the pond, which will increase the benefits of the stormwater pond.

Project Design Considerations: Pond is on property owned by King Park West Community Association. There is adequate room on site for pond expansion, to the north and east, and some to the west. See hatched area on project map. Efforts should be made to minimize impacts to existing mature vegetation. The sediment forebays should account for approximately 10% of the pond area. The vegetative buffer should be 10-15' off of the top of bank.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.13	AC	$8,500	$1,105
Grading and Excavation	840	CY	$35	$29,400
Structural BMP Retrofit and Incidentals	1	LS	$10,000	$10,000
Embankment	25	CY	$50	$1,250
Outflow Pipe	50	LF	$125	$6,250
Rip Rap Stabilization	50	SY	$100	$5,000
Organic Compost Soil Amendment	100	CY	$40	$4,000
Plantings	1	LS	5%	$2,850
Ancillary Items	1	LS	5%	$2,850
Erosion and Sediment Control	1	LS	10%	$5,701
			Base Construction Cost	$68,406
			Mobilization (5%)	$3,420
			Subtotal 1	$71,826
			Contingency (25%)	$17,957
			Subtotal 2	$89,783
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$40,402
			Total	$130,185
			Estimated Project Cost	$140,000

PC9138_1.jpg Bird's eye view of pond

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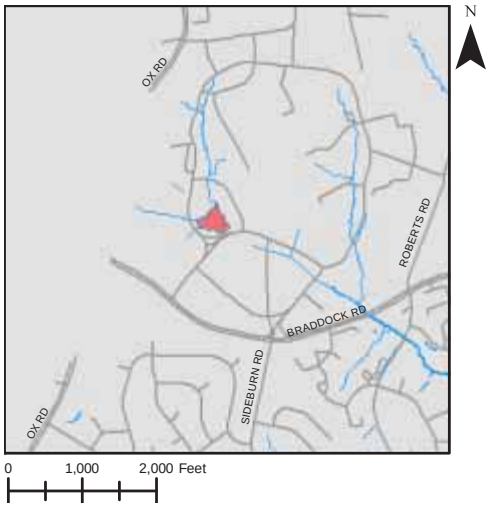
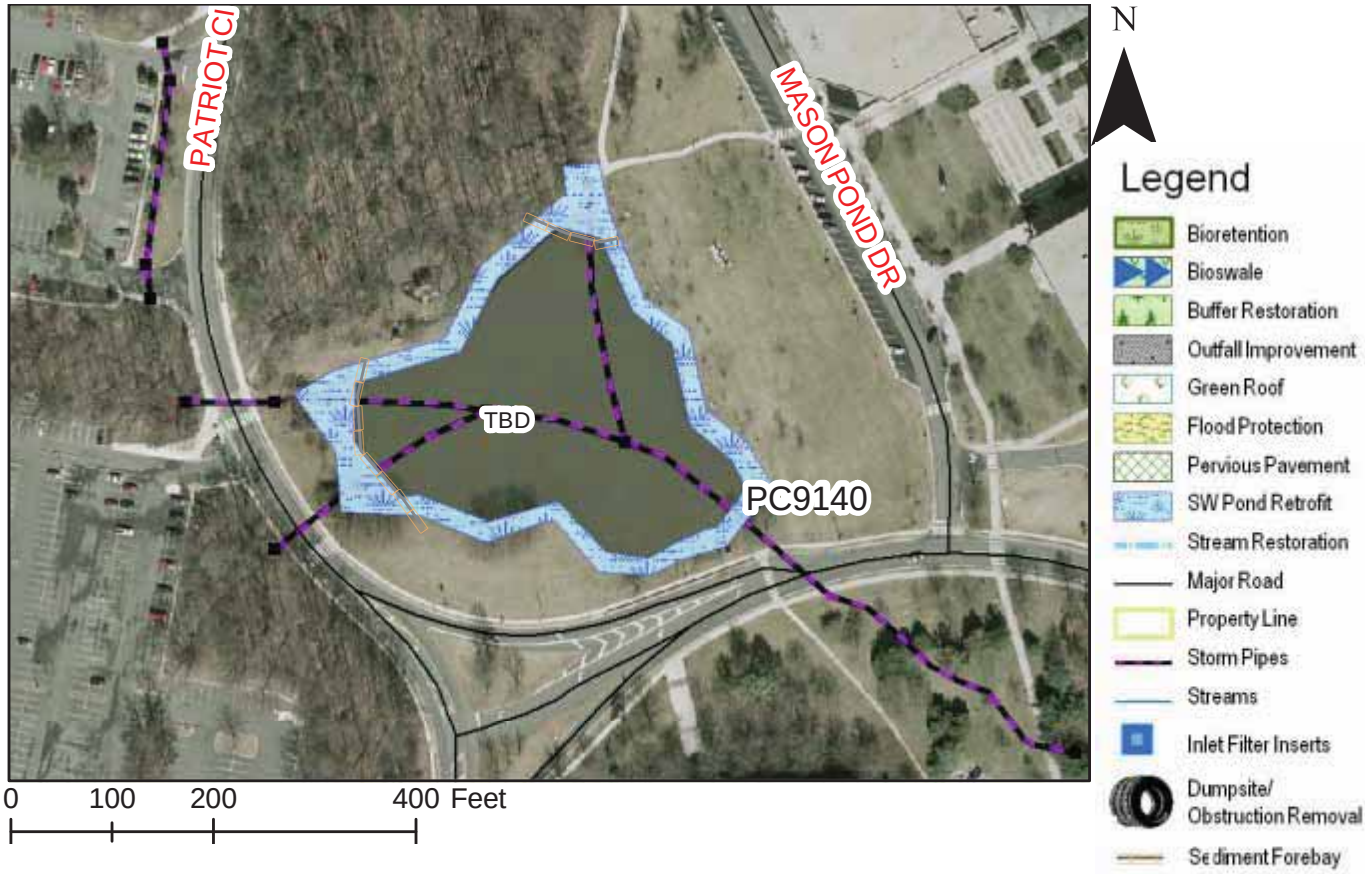
PC9140 Stormwater Pond Retrofit



Address: Intersection of Mason Pond Dr. and Roanoke River Lane, Fairfax, Virginia
Location: Pond near Roanoke River Lane
Land Owner: Public - George Mason University
PIN: 0682 01 0003
Control Type: Water quality and quantity control
Drainage Area: 140.03 acres
Receiving Waters: Tributary of Rabbit Branch

Description: This project proposes the retrofit of an existing wet pond at George Mason University, near Mason Pond Drive and Roanoke River Lane, to create a wetland system with sediment forebays and bench planting. The sediment forebays will provide pretreatment of stormwater runoff and the bench planting will increase the pollutant removal. The primary problem indicators are pollutants, including nitrogen, phosphorus and total suspended solids.



Project Benefits: An estimated 48.4 lbs/yr of phosphorus will be removed. The retrofit will modify the existing pond to increase pollutant removal and to provide adequate channel protection above the permanent pool. It will also create an environment for gravitational settling, biological uptake and microbial activity.

Project Design Considerations: A significant amount of impervious area drains to this pond, so additional treatment would be beneficial. The sediment forebays should be 10% as large as the pond. The aquatic bench should be planted 10 to 15' inward from the water's edge. The vegetative buffer should be 10 to 15' outward from the water's edge. Records do not currently show an existing easement, but the entire area is owned by George Mason University. The pond receives runoff from three pipes, and therefore would require the construction of three sediment forebays. The forebays would be created by adding berms in the pond (see map). The area of the bench plantings is shown on the map by the lighter portion of the pond on the perimeter. The existing pond is the darker inner portion.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.65	AC	$8,500	$5,525
Grading and Excavation	1000	CY	$35	$35,000
Structural BMP Retrofit and Incidentals	1	LS	$20,000	$20,000
Embankment	50	CY	$50	$2,500
Outflow Pipe	150	LF	$125	$18,750
Rip Rap Stabilization	90	SY	$100	$9,000
Organic Compost Soil Amendment	500	CY	$40	$20,000
Plantings	1	LS	5%	$5,539
Ancillary Items	1	LS	5%	$5,539
Erosion and Sediment Control	1	LS	10%	$11,078
			Base Construction Cost	$132,930
			Mobilization (5%)	$6,647
			Subtotal 1	$139,577
			Contingency (25%)	$34,894
			Subtotal 2	$174,471
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$78,512
			Total	$252,982
			Estimated Project Cost	$260,000

PC9140_1 Existing pond uses aeration unit

PC9140_2 Excess nutrients near pond's edge

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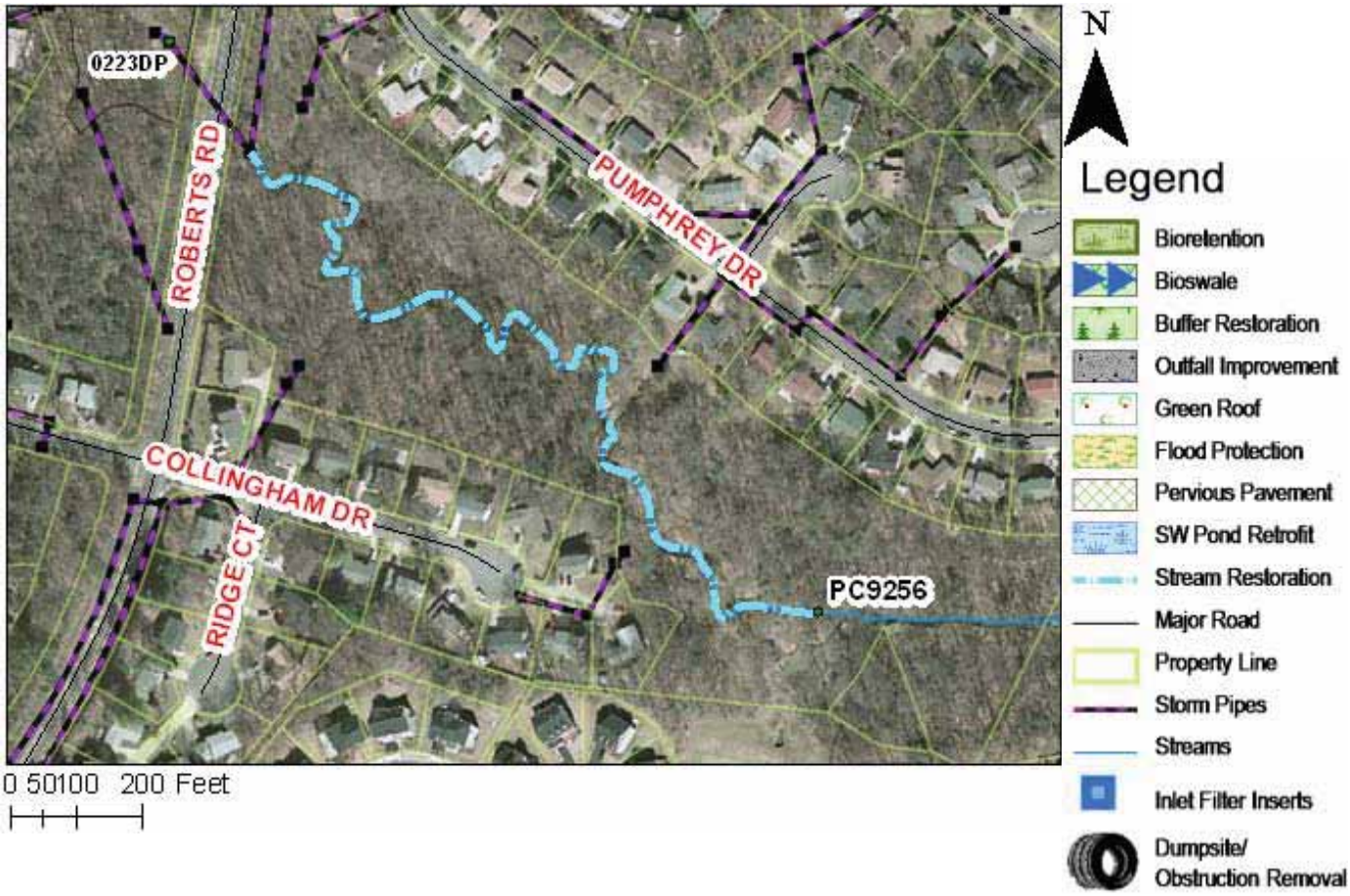
PC9256 Stream Restoration

Address: Behind 5351 Brandon Ridge Way, Fairfax, Virginia
Location: Stream near Brandon Ridge Way
Land Owner: Public/Local - Fairfax County Park Authority
PIN: 0684 09 E1
Control Type: Water quality control
Drainage Area:
Receiving Waters: Tributary of Rabbit Branch

Description: The stream north of Windsor Hills Drive has indicators of poor channel morphology. In order to improve the channel, this project proposes repairing bank and bed erosion. This stream is located on Fairfax County Park Authority land. The stream receives water from adjacent residential neighborhoods. The stormwater is collected in pipes and receives no treatment before discharging to the stream. Stream stabilization will reduce sediment while maintaining capacity of the channel and controlling unwanted meander.



Project Benefits: Restoring 1,660 feet of the stream will reduce erosion and instream sediment, resulting in an estimated 12.36 lbs/year of phosphorus removal.

Project Design Considerations: The residential area surrounding the stream has been developed long enough for the stream channel to adapt to convey the increased flows of the development. Grade control measures such as step pools and rock cross vanes should be implemented to ensure the future stability of the stream. Streambank shaping techniques such as erosion control fabrics and vegetation establishment should be included to stabilize exposed soil and prevent erosion and sediment loading to the stream. Additionally, outfall improvements can be made at the storm pipe connections to the stream bed.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1660	LF	$200	$332,000
Clear and Grub	1.9	AC	$10,000	$19,000
Plantings	1.9	AC	$25,000	$47,500
Additional Cost, First 500 LF	500	LF	$200	$100,000
Erosion and Sediment Control	1	LS	10%	$49,850
Ancillary Items	1	LS	5%	$24,925
			Base Construction Cost	$573,275
			Mobilization (5%)	$28,664
			Subtotal 1	$601,939
			Contingency (25%)	$150,485
			Subtotal 2	$752,423
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$338,591
			Total	$1,091,014
			Estimated Project Cost	$1,100,000

PC9256_1 View of erosion in stream

PC9256_2 View of stream

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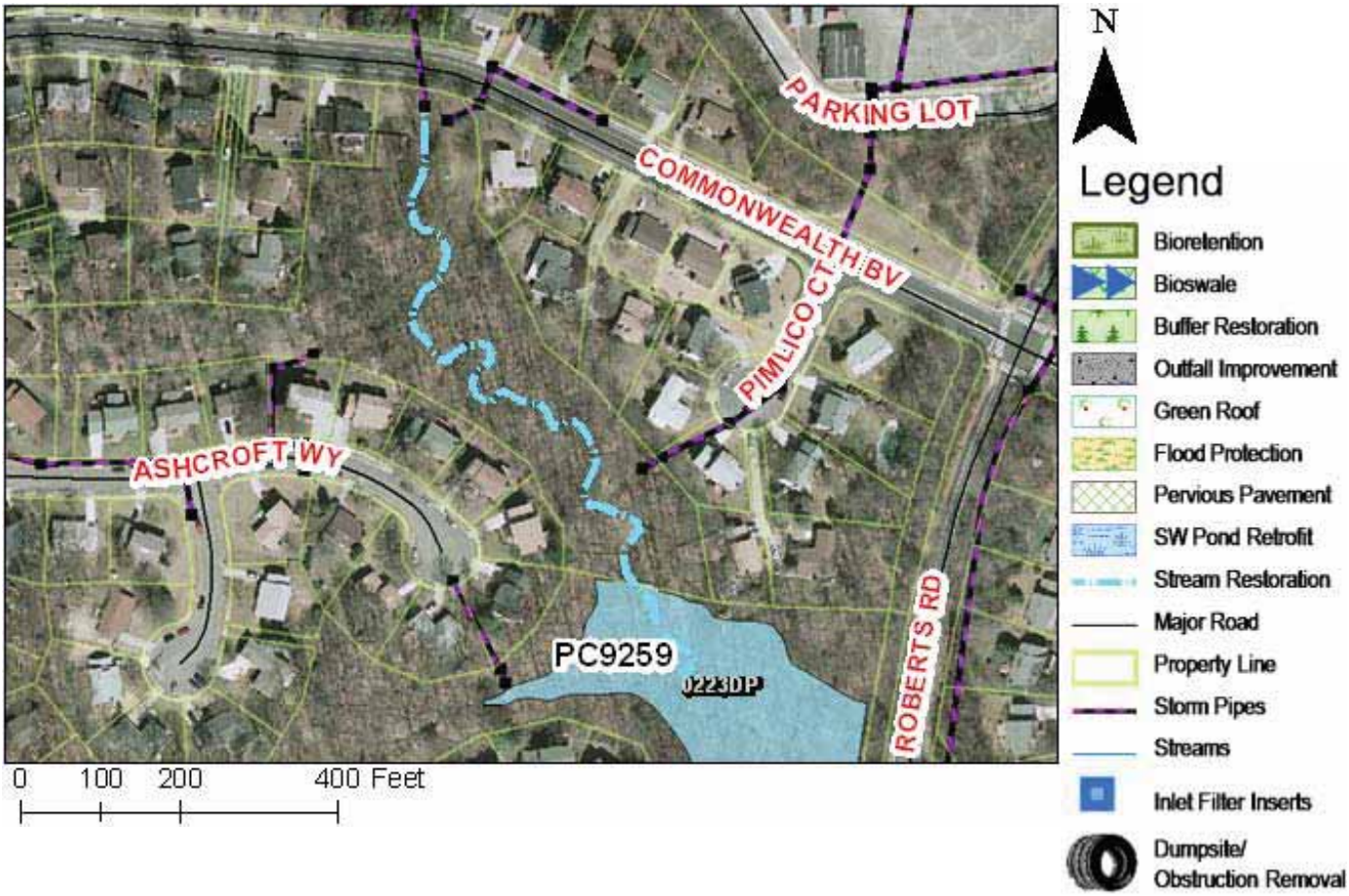
PC9259 Stream Restoration

Address: Behind 5220 Nottinghill Lane, Fairfax, Virginia
Location: Stream near Nottinghill Lane
Land Owner: Private – Kings Park West Community Association
PIN: 0684 09 C, 0684 09 A
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Rabbit Branch

Description: This project proposes the repair of bank and bed erosion to a stream that discharges to pond 0223DP. The stream is located in a wooded open space. The primary indicator is poor channel morphology. Stream stabilization will reduce sediment loads to the stream while maintaining capacity. This is especially important at the upstream location of the lake.



Project Benefits: Reducing erosion from 1,110 feet of this stream will reduce instream sediment and will result in the reduction of an estimated 7.08 lbs/year of phosphorus. Stabilizing the stream will lessen the sediment load to the downstream pond and will decrease the maintenance necessary for the pond.

Project Design Considerations: This stream conveys water upstream of Commonwealth Blvd. Additionally, the stream receives untreated roadway runoff from closed pipes at Pimlico Court and Commonwealth Blvd. The stream is located in Kings Park West open space. This restoration should be coordinated with the stormwater pond retrofit of 0223DP (PC9135). Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1110	LF	$200	$222,000
Clear and Grub	1.27	AC	$10,000	$12,700
Plantings	1.27	AC	$25,000	$31,750
Additional Cost, First 500 LF	500	LF	$200	$100,000
Erosion and Sediment Control	1	LS	10%	$36,645
Ancillary Items	1	LS	5%	$18,323
			Base Construction Cost	$421,418
			Mobilization (5%)	$21,071
			Subtotal 1	$442,488
			Contingency (25%)	$110,622
			Subtotal 2	$553,110
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$248,900
			Total	$802,010
			Estimated Project Cost	$810,000

PC9259_1 View of streambed

PC9259_2 View of erosion in stream

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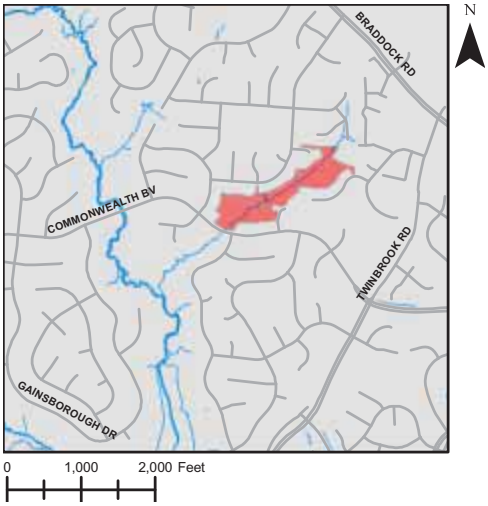
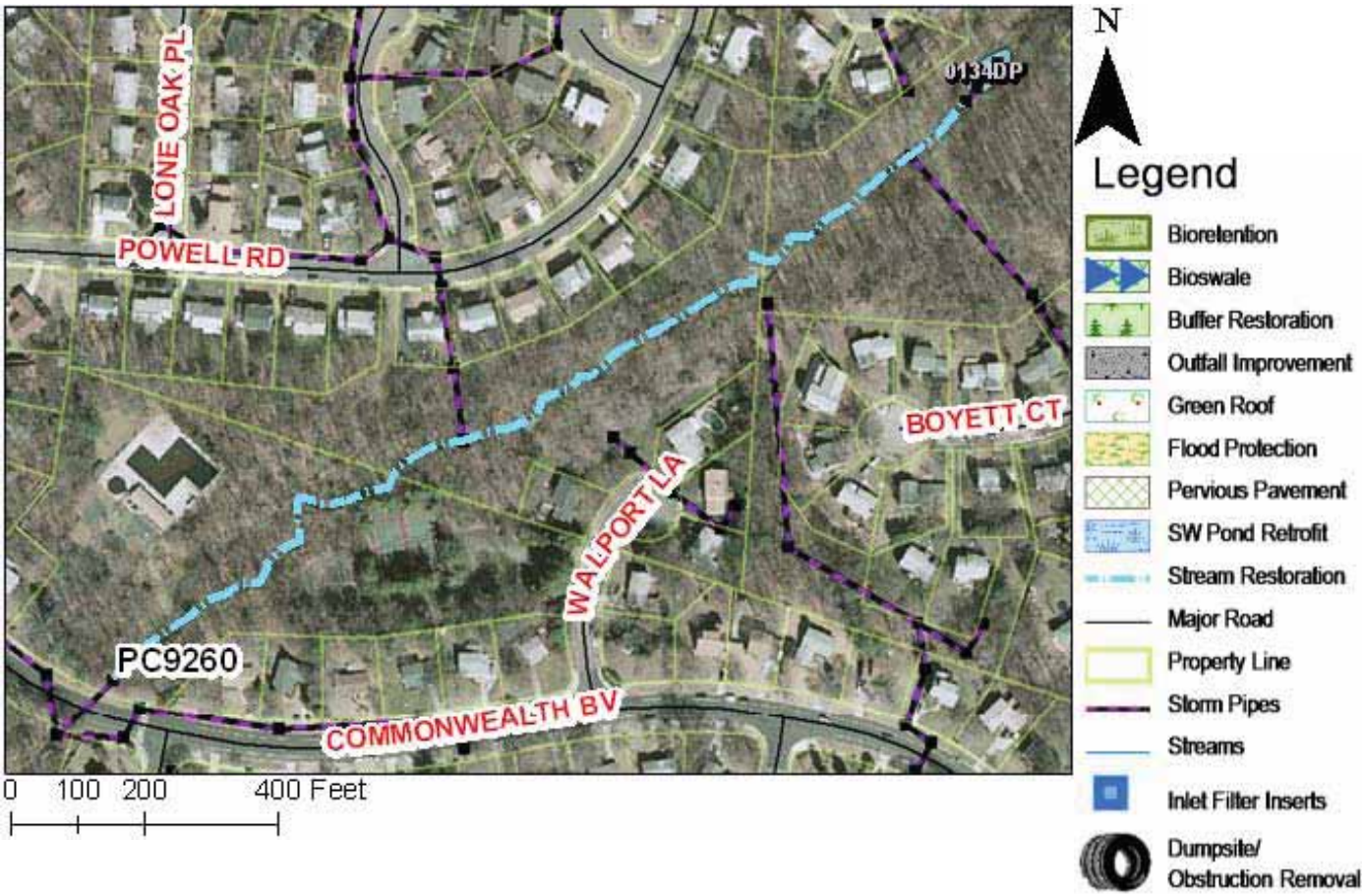
PC9260 Stream Restoration



Address: Near 9800 Commonwealth Blvd., Fairfax, Virginia
Location: Stream near Commonwealth Blvd.
Land Owner: Private –Twinbrook HOA, Maywood Terrace HOA, Commonwealth Swim Club Inc.
PIN: 0693 09 E, 0693 07 A1, 0693 05 B
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Rabbit Branch

Description: The stream runs parallel to Powell Road towards Commonwealth Boulevard and has indicators of poor channel morphology. This project proposes to repair bank and bed erosion and restore channel morphology. Stream stabilization will reduce sediment loads to the stream while maintaining capacity of the channel and controlling unwanted meander. Erosion will be stabilized through the use of bank shaping, toe of slope protection, erosion control fabrics, and rapid vegetation establishment.



Project Benefits: Restoring 1680 feet of the stream will reduce erosion and instream sediment resulting in an estimated 9.46 lbs/year of phosphorus reduction. Additionally, improving five stream outfalls will help reduce erosive velocities in the stream.

Project Design Considerations: This restoration is downstream of the proposed stormwater pond retrofit of 0134DP (Project PC9137). The stream restoration should be coordinated with PC9137 to help maximize the benefits of both projects. This stream has a longitudinal slope of approximately 1.8% and receives runoff from four stormwater outfalls. Three of the outfalls appear to directly discharge to the stream and one is slightly disconnected. Settling basins for these outfalls would reduce flow velocities and allow for some instream settling of any roadway fines. Records show no easements for the stream. This project will need to be coordinated between three private entities of Twinbrook HOA, Maywood Terrace HOA, and Commonwealth Swim Club Inc.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1680	LF	$200	$336,000
Clear and Grub	1.93	AC	$10,000	$19,300
Plantings	1.93	AC	$25,000	$48,250
Additional Cost, First 500 LF	500	LF	$200	$100,000
Erosion and Sediment Control	1	LS	10%	$50,355
Ancillary Items	1	LS	5%	$25,178
			Base Construction Cost	$579,083
			Mobilization (5%)	$28,954
			Subtotal 1	$608,037
			Contingency (25%)	$152,009
			Subtotal 2	$760,046
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$342,021
			Total	$1,102,066
			Estimated Project Cost	$1,110,000

PC9260_1.jpg Area just upstream of Commonwealth Blvd culvert

PC9260_2.jpg Commonwealth Boulevard culvert

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PC9263 Stream Restoration

Address: Behind 10005 Whitefield Street, Fairfax, Virginia
Location: Stream near Whitefield Street
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0693 05 E
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Rabbit Branch

Description: The stream west of Dequincey Drive shows indications of poor channel morphology. This project proposes improving channel morphology by repairing bed and bank erosion. These repairs will include streambed shaping, rock toe reinforcement, erosion control fabric, and revegetation in degraded areas. The stream currently conveys water from three different sources; sheet flow from adjacent neighborhoods, untreated stormwater from a closed storm system outfall, and the outfall from a dry pond. Stream stabilization will reduce sediment loads, maintain capacity of the stream channel, and control unwanted meander.

Project Benefits: The elimination of bed and bank erosion from 1,100 feet of stream will reduce instream sediment and result in an estimated 7.62 lbs/year of phosphorus reduction. Additionally, this project will provide an opportunity to ensure proper operation of dry pond 0142DP.

Project Design Considerations: This project is located on Fairfax County Park Authority property, so no additional easement will be necessary. Because the stream is located behind single family houses, measures should be incorporated to ensure a proper stream buffer. The upstream dry pond's design and maintenance should be reviewed in coordination with this stream restoration. Grade control measures should be investigated due to this stream having a longitudinal slope of approximately 1.9%.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1100	LF	$200	$220,000
Clear and Grub	1.26	AC	$10,000	$12,600
Plantings	1.26	AC	$25,000	$31,500
Additional Cost, First 500 LF	500	LF	$200	$100,000
Erosion and Sediment Control	1	LS	10%	$36,410
Ancillary Items	1	LS	5%	$18,205
			Base Construction Cost	$418,715
			Mobilization (5%)	$20,936
			Subtotal 1	$439,651
			Contingency (25%)	$109,913
			Subtotal 2	$549,563
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$247,304
			Total	$796,867
			Estimated Project Cost	$800,000

PC9263_1.jpg View of streambed

PC9263_2.jpg View of erosion in stream

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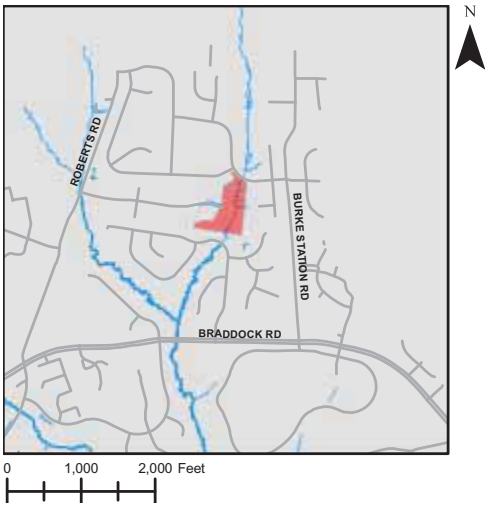
PC9269 Stream Restoration



Address: Next to 10159 Red Spruce Drive, Fairfax, Virginia
Location: Stream near Red Spruce Drive
Land Owner: Private – Hickory Farms Community Association, Private Owner
PIN: 0691 08 D1, 0682 01 0012A
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Rabbit Branch

Description: The stream is east of Glemere Road and south of Cotton Farm Road and outfalls into 0588DP. Due to poor channel morphology, this project proposes repairing bank and bed erosion. Stream stabilization will reduce sediment loads to the stream while maintaining the capacity of the channel and controlling unwanted meander of the stream.

Project Benefits: Stabilizing 875 feet of this stream will reduce erosion and instream sediment and result in an estimated 7.02 lbs/year reduction of phosphorus.

Project Design Considerations: Stream starts in HOA open space near Cotton Farm Road, but then crosses a single family home lot. The stream bank should be stabilized to prevent further meander near Cotton Farm Road. Erosion will be stabilized through the use of bank shaping, toe of slope protection, erosion control fabrics, and rapid vegetation establishment. The stream flows through a private driveway culvert and discharges into a dry pond. The dry pond's outfall structure is large with no water quality orfice (See photo). Modification to the structure should be investigated during stream restoration design to help increase baseflow and reduce erosion in the stream overall.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	875	LF	$200	$175,000
Clear and Grub	1	AC	$10,000	$10,000
Plantings	1	AC	$25,000	$25,000
Additional Cost, First 500 LF	500	LF	$200	$100,000
Erosion and Sediment Control	1	LS	10%	$31,000
Ancillary Items	1	LS	5%	$15,500
			Base Construction Cost	$356,500
			Mobilization (5%)	$17,825
			Subtotal 1	$374,325
			Contingency (25%)	$93,581
			Subtotal 2	$467,906
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$210,558
			Total	$678,464
			Estimated Project Cost	$680,000

PC9269_1 View of stream

PC9269_2 View of stream

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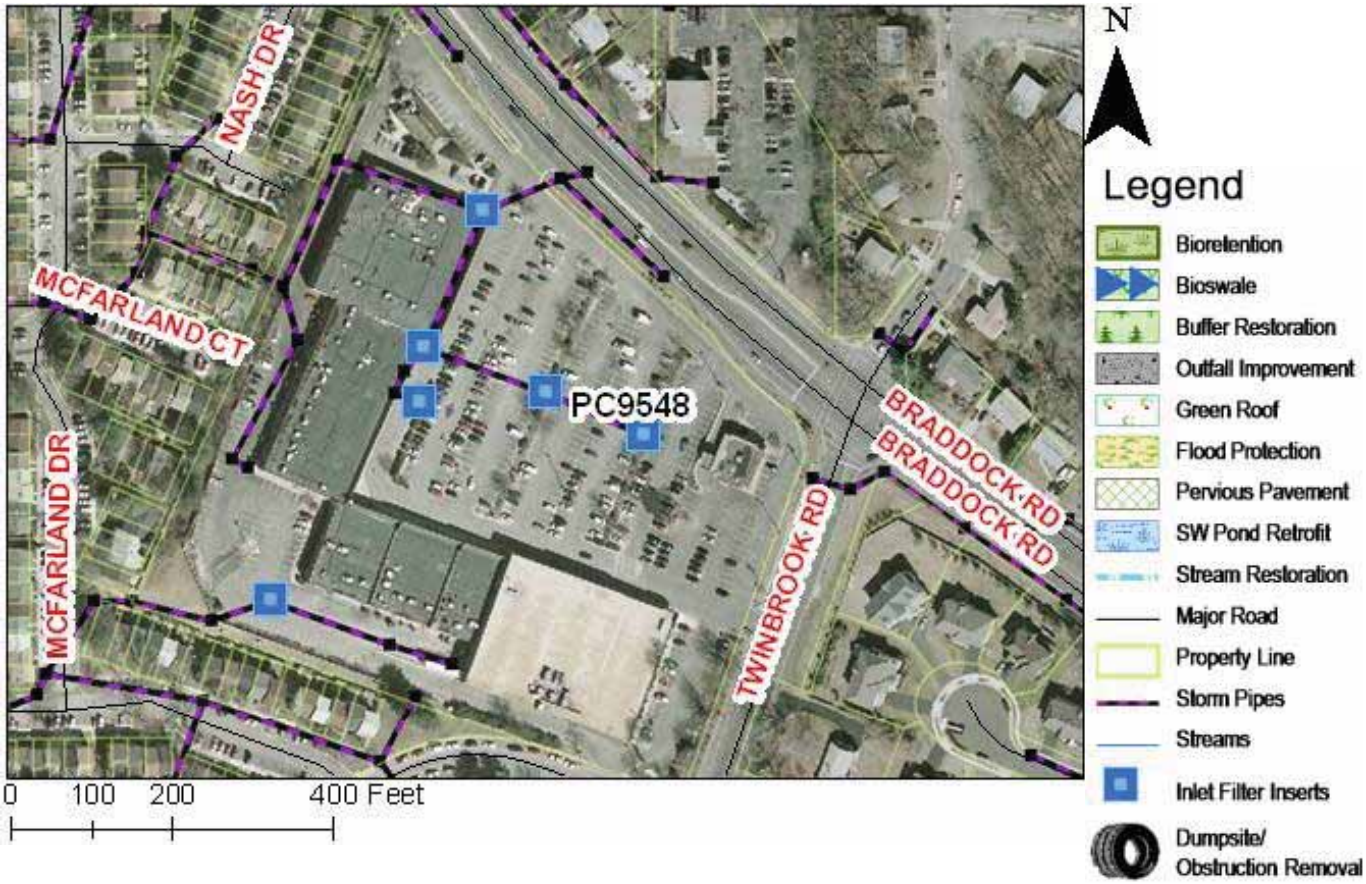
PC9548 BMP/LID

Address: 9525 Braddock Road, Fairfax, Virginia
Location: Twinbrook Shopping Center
Land Owner: Private – Twinbrook Associates
PIN: 0693 01 0018A
Control Type: Water quality control
Drainage Area: 9.99 acres
Receiving Waters: Tributary of Rabbit Branch

Description: This project proposes installing manufactured BMP filtration systems into existing storm inlets to provide pollutant removal at Twinbrook Shopping Centre, southwest of Braddock Road. A typical insert acts as a basket that collects sediment and larger debris such as trash and leaves. Filters should be selected to target the known pollutants. The filters need to be cleaned on a routine basis, typically every 6 months. The primary indicators are pollutants including nitrogen, phosphorus and total suspended solids.



Project Benefits: An estimated 5.42 lbs/yr of phosphorus will be removed. The inlet filters will capture and treat stormwater runoff from highly impervious areas prior to entering the storm drain system.

Project Design Considerations: Site is on private property. Additional maintenance for cleaning/ replacing the filter inserts will have to be coordinated between the County and the shopping center. The shopping center's stormwater construction documents will have to be reviewed to ensure that the inserts will not cause any adverse effects. The inserts will need to be designed and modeled to insure that any clogged filters will not cause adverse flooding.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Manufactured BMP	6	LS	$10,000	$60,000
Plantings	1	LS	5%	$2,500
Ancillary Items	1	LS	5%	$2,500
Erosion and Sediment Control	1	LS	10%	$5,000
			Base Construction Cost	$70,000
			Mobilization (5%)	$3,500
			Subtotal 1	$73,500
			Contingency (25%)	$18,375
			Subtotal 2	$91,875
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$41,344
			Total	$133,219
			Estimated Project Cost	$140,000

PC9548_1.jpg Bird's eye view of parking lot

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5.8 Pohick – Sideburn Branch Watershed Management Area

Sideburn Branch Watershed Management Area has a total area of approximately 3.61 square miles and is comprised of 16 subwatersheds. It is located on the northeast side of the Pohick Creek Watershed. It is bound on the west side by Ox Road and the south side by Fairfax County Parkway and points north. The eastern boundary is approximately two miles east of Ox Road and the northeastern boundary is Sideburn Road to Zion Drive to Guinea Road.

The WMA has approximately 15.40 miles of stream, which primarily flows from the north and west to the east. The area mainly consists of single-family residential, largely characterized by streets ending in cul-de-sacs. Land cover consists of mainly impervious surfaces related to the residential development (i.e., rooftops, sidewalks and roadways) and landscaping, including managed turf. The area is 33 percent impervious. Notable features of the watershed management area are Woodglen Lake, Lake Barton, several elementary schools and libraries, Virginia Railway Express (VRE) parking facility and Fairfax County Wastewater Collection Division.

In the Sideburn Branch WMA the most prevalent stream condition features noted include disturbed stream buffers and stream channel erosion and/or widening. Upstream of Woodglen Lake, significant channel erosion has been documented, along with subsequent channel widening. Buffer disturbances and channel widening conditions have also been documented upstream of Lake Barton. In addition, pipe discharge and ditch discharge into the WMA's streams have demonstrated impacts as well. These pipes and ditches discharge stormwater runoff directly into the streams in many instances, contributing to the observed widening and erosive conditions.

The watershed restoration projects for this WMA include a host of projects, such as retrofitting stormwater ponds, restoring streams, outfall improvements and BMP/LID projects. The BMP/LID projects include bioswales at schools and inlet inserts at shopping centers. Finally, non-structural projects include three rain barrel programs at schools, four street-sweeping programs and two buffer restoration projects. Descriptions of the 0 – 10-year-plan projects and non-structural projects follow. Also, a map of this WMA and a list of all the projects proposed in it are provided. For more information see the 0 – 10-year-plan project fact sheets at the end of this section.

5.8.1 Structural Projects

<u>PC9127 Stormwater Pond Retrofit</u>

This large dry pond receives runoff from a large drainage area that includes Terre Centre Elementary School to the west and a residential neighborhood to the east. The pond outfalls to the north under Burke Centre Parkway into a stream.The primary indicators are pollutants such as nitrogen, phosphorus and total suspended solids. The pond will be retrofitted as an extended detention dry pond with sediment forebays at the inlet pipes.

<u>PC9128 Stormwater Pond Retrofit</u>

This project is proposed to retrofit the existing pond to create an extended detention dry pond with sediment forebays. The pond receives stormwater from a closed pipe system that collects runoff from an adjacent residential neighborhood. The pond outfalls across Burke Centre Parkway through the Wal-Mart parking lot storm sewer and discharges into a stream across Roberts Parkway.

PC9129 Stormwater Pond Retrofit

The Fairfax County Wastewater Collection Division parking lot drains from south to north. Runoff from the parking lots is piped into the pond on the north side of the site, which outfalls to an adjacent stream. This project is proposed to retrofit the existing dry pond by increasing the pond's size and installing a discharge structure that will increases detention time for stormwater runoff.

PC9130 Stormwater Pond Retrofit

This project is proposed to retrofit an existing dry pond into an extended detention pond with a sediment forebay. The pond is located at the south side of the Target shopping center. Stormwater runoff is collected in the parking lot through storm inlets and conveyed to the existing pond for treatment. This retrofit will improve stormwater runoff quality by using a sediment forebay to pretreat runoff. The pond's detention time will be increased to allow more pollutants to settle out and break down through biological processes.

PC9131 Stormwater Pond Retrofit

This large dry pond behind a residential community is currently well vegetated. This pond retrofit will modify the exisitng discharge structure to create an extended detention dry pond with sediment forebay. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. The large drainage area captures runoff from dense residential, single-family residential, roadways and wooded areas.

PC9139 Stormwater Pond Retrofit

This existing pond receives runoff from the shopping center and parking lot. The stormwater is conveyed in a closed system from north to west. Runoff is also received from a subdivision to the east. The primary indicators are pollutants including nitrogen, phosphorus and total suspended solids. The project is proposed to retrofit the existing pond to create an extended detention dry pond with sediment forebays.

PC9236 Stream Restoration

This stream is located behind homes in a single-family residential neighborhood. It conveys stormwater from adjacent homes and streets including Oak Leather Drive, Fred's Oak Road, Fred's Oak Court and Vernon's Oak Court. The stream continues downstream of the culvert under Oak Leather Drive. The project is proposed to repair bank erosion and restore channel morphology upstream of Oak Leather Drive.

PC9237 Stream Restoration

This stream section runs between Reeds Landing Court and Burnside Landing Drive. Pipes discharge directly into streams from adjacent subdivisions. The project consists of repairing bank and bed erosion and restoring channel morphology. The primary indicator is poor channel morphology. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics and rapid vegetation establishment.

PC9239 Stream Restoration

Runoff from a residential neighborhood is collected in a closed system of pipes. Currently, a concrete channel between residential buildings conveys stormwater to a closed system that outfalls directly into the stream. This project is proposed to remove a portion of the concrete channel and closed system to create a more natural channel to convey stormwater to the stream. Due to the slope, a series of check dams or step pools may be necessary to keep velocities low.

PC9240 Stream Restoration

This project is located upstream of the Burke Centre Parkway culvert. The stream conveys stormwater from single-family homes. The primary indicator is poor channel morphology. The purpose of the project is to restore channel morphology and to add an energy dissipation device. This will reduce sediment loads to the stream while maintaining capacity of the stream channel and controlling unwanted meandering of the stream.

PC9241 Stream Restoration

This project is located upstream of the culvert under Oak Leather Drive. The stream conveys runoff from neighborhood and community recreation facilities. Stream stabilization will repair bank and bed erosion and restore stream morphology. The focus of this project will be on insuring proper buffers from the dense residential areas while improving the five direct stormwater outfalls to the stream bed.

PC9246 Stream Restoration

This project is proposed to repair bank and bed erosion to improve poor channel morphology of a stream east of Roberts Parkway and south of the railroad tracks. The stream conveys runoff from adjacent dense residential development. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics and rapid vegetation establishment.

PC9247 Stream Restoration Suite

Subproject A is a stream restoration and will repair bed and bank erosion in the stream southwest of Premier Court at the VRE Station. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics and rapid vegetation establishment. Subproject B is an obstruction removal southeast of Ships Curve Lane. Primary indicators are flood complaints. The obstruction were field verified as fallen trees and a beaver dam. This project proposes the removal of obstructions blocking the stream channel to reduce flood complaints and restore natural conditions.

PC9250 Stream Restoration

This stream is located south of Golden Eye Lane and north of railroad tracks. The stream receives runoff from adjacent neighborhoods. The primary indicator is poor channel morphology. This project is proposed to repair bank and bed erosion and restore channel morphology. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics and rapid vegetation establishment.

PC9254 Stream Restoration

For this project, the primary indicator is poor channel morphology. This project is proposed to restore the stream that discharges into Woodglen Pond by repairing bank and bed erosion and restoring channel morphology. This will reduce sediment loads to the stream while maintaining

capacity of the stream channel and controlling unwanted meander of the stream. Erosion will be stabilized through the use of bank shaping, toe of slope protection, erosion control fabric and rapid vegetation establishment.

PC9261 Stream Restoration

This project is proposed to restore a stream running parallel to Colton Street. The primary indicator is poor channel morphology. The stream conveys runoff from adjacent residential development. The project consists of repairing bank and bed erosion and restoring channel morphology. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics and rapid vegetation establishment.

PC9262 Stream Restoration

The stream to the east of Portsmouth Road and west of Gadsen Drive flows to the south. The stream collects runoff from adjacent residential neighborhoods and schools to the north, east and west. This project is proposed to repair and restore bank and bed erosion, some of which is severe. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics and rapid vegetation establishment.

PC9531 BMP/LID Suite

This suite of projects is proposed to create bioswales near the back of a green roof at Terra Centre Elementary School. The bioswales will have a filter layer of sand to promote infiltration to native soils or to perforated underdrain. Primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. Runoff will enter a closed system and outfall directly into a nearby stormwater facility.

PC9534 BMP/LID

This BMP/LID project will be comprised of inlet inserts placed in the existing inlets to provide pollutant removal. Runoff from the parking lot at Giant Grocery Store is collected in a closed pipe system and discharged to the stream behind the building to the east. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. Depending on the existing inlet, the inserts will either be in the form of a basket or a cartridge. This method is ideal due to the high imperviousness and space constraints on the site.

PC9535 BMP/LID

A series of curb inlets collect runoff from the Fairfax County Wastewater Collection Division parking lot, which is conveyed in a closed system. The majority of the site outfalls into a pond on the north side of the site. However, a portion of the runoff is untreated. The primary indicators are pollutants, including phosphorus, nitrogen and total suspended solids. This project proposes a biorentetion area at the northeast side of the parking lot. A filter layer made of 18 – 48 inches of sand is placed below a mulch layer. During a storm, the runoff ponds 6 – 9 inches, rapidly filters to an underdrain, and outfalls into wooded area or infiltrates into the native soil.

PC9539 BMP/LID

This storm system collects runoff from the shopping center located near the intersection of Burke Centre Parkway and Oak Green Way, and outfalls to the stream along the railroad tracks. A portion of the parking lot is conveyed in a closed system in the adjacent shopping center to the east and west, and the remaining is conveyed by a closed system to a stream to the south. This project is proposed to incorporate BMP inlet inserts or manufactured BMP filtration systems to provide pollutant removal before outfalling into the stream.

PC9702 Outfall Improvement

Swale reconstruction is proposed in the fields behind Fairview Elementary School. An exisitng grass swale discharges into the stream adjacent to the school. The swale is located between two playing fields. The project is proposed to add energy dissipation devices to the swale, such as check dams and increased planting, to decrease velocities, increase infiltration and improve stormwater quality.

PC9703 Outfall Improvement

This project is proposed to improve the outfall located in open space east of a shopping center and west of the power company facility along Guinea Road. An energy dissipation device will be constructed at the outfall. This project will help address the existing erosion problem in the downstream channel. This outfall conveys discharge from dry pond 0175DP and the roadway drainage system for New Quinea Road.

PC9705 Outfall Improvement

A new storage and treatment area is proposed below the outfall from pond 0233DP and the closed system along John Ayres Drive. A sediment basin will be created inline with the stream to help dissipate erosive velocities. Plants with good nutrient uptake will be installed to reduce pollutant loading from the untreated stormwater runoff. A primary indicator is stream bank buffer deficiency in headwater riparian habitat.

5.8.2 Non-Structural Projects

PC9538 BMP/LID

This project is proposed to install a rain barrel/cistern at Fairview Elementary School. This will capture, store and reuse runoff from the rooftop. The primary indicators are high impervious areas directly connected to the stormwater system. The rain barrels can be used by students for hands-on educational programs.

PC9541 BMP/LID

This project is proposed to install a rain barrel/cistern at Bonnie Brae Elementary School off Sideburn Road. This will capture, store and reuse runoff from the rooftop. The primary indicators are high impervious areas directly connected to the stormwater system. The rain barrels can be used by students for hands-on educational programs.

PC9551 BMP/LID

This project is proposed to install a rain barrel/cistern at Oak View Elementary School off Sideburn Road. This will capture, store and reuse runoff from the rooftop. The primary indicators are high impervious areas connected to the stormwater system. The rain barrels can be used by students for hands-on educational programs.

PC9815 Street-Sweeping Program

A street-sweeping program is proposed between the Fairfax County Parkway and Burke Centre Parkway, west of Roberts Parkway, to help reduce the amount of potential pollutants entering the nearby streams and storm systems. The area is approximately 430 acres and is comprised of single-family residential development. There is no existing stormwater quality treatment. There are several streams within the proposed project area.

PC9816 Buffer Restoration

This stream is located behind the residential area near Freds Oak Court and conveys runoff from industrial areas and adjacent subdivisions. The primary indicator is stream bank buffer deficiency in headwater riparian habitat. This project is proposed to replant the RPA and upland buffer area. Increasing the vegetation will provide an additional stream buffer for filtration of pollutants and will reduce runoff, increasing surface storage and infiltration.

PC9817 Street-Sweeping Program

A street-sweeping program is proposed east of Burke Centre Parkway and west of Roberts Parkway to help reduce the amount of potential pollutants entering the nearby streams and storm systems. The area is approximately 42 acres and is comprised multi-family residential development. There is no existing stormwater quality treatment. The area is directly upstream of Lake Barton.

PC9818 Street-Sweeping Program

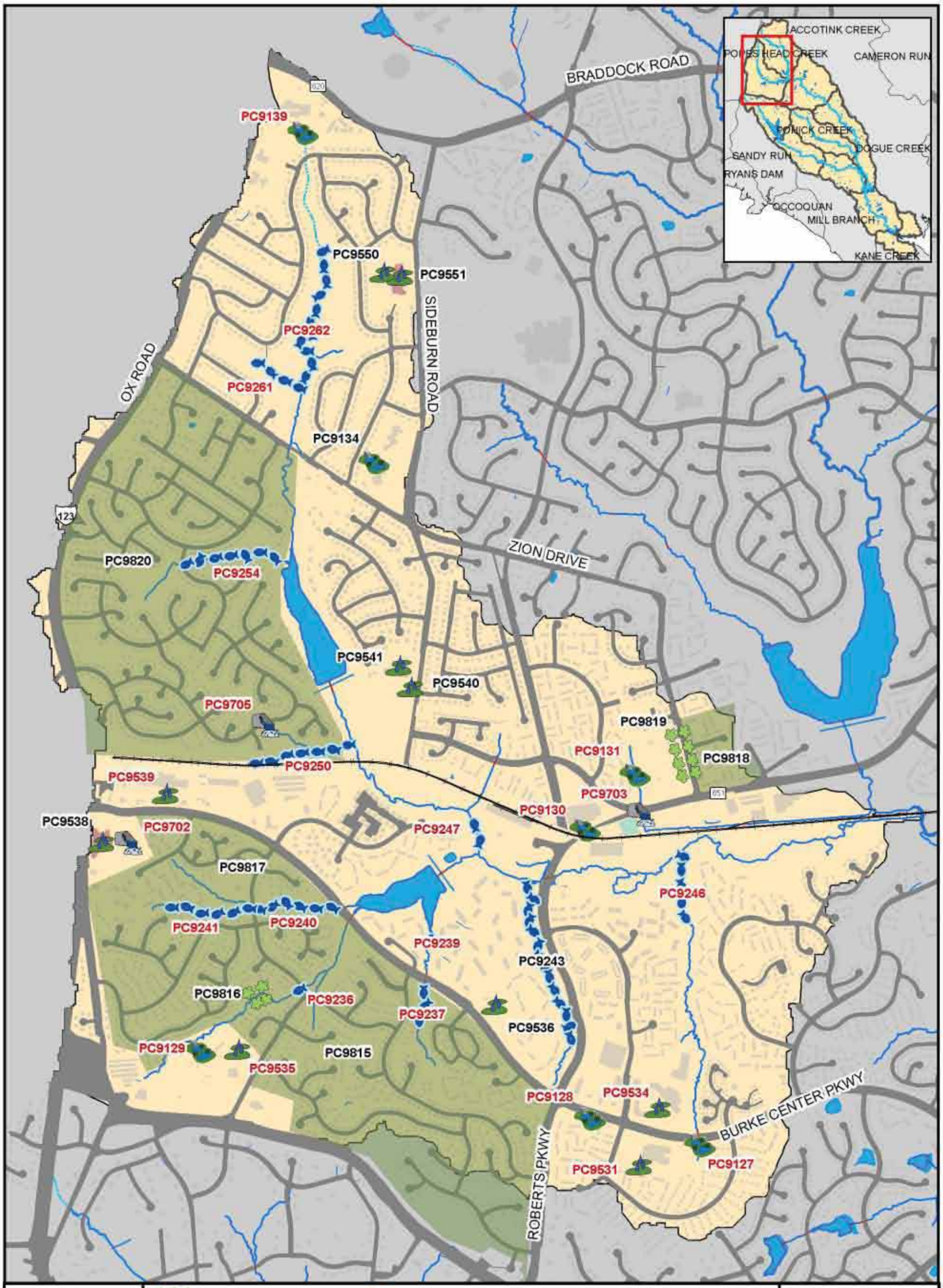
A street-sweeping program is proposed east of Zion Road to help reduce the amount of potential pollutants entering the nearby streams and storm systems. The area is approximately 20 acres and is comprised of dense residential development. There is no existing stormwater quality treatment.

PC9819 Buffer Restoration

This project is adjacent to a stream running along the side of Zion Road, flowing north to south. The stream receives direct runoff from the road. A primary indicator is stream bank buffer deficiency in headwater riparian habitat. Restoring the stream buffer by increasing vegetation would improve the water quality of the stream by reducing running and filtering the pollutants.

PC9820 Street-Sweeping Program

A street-sweeping program is proposed east of Ox Road to help reduce the amount of potential pollutants entering the nearby streams and storm systems. The area is approximately 350 acres and is comprised of single-family residential development. There is no existing stormwater quality treatment. There are streams within the project area.



Map 5.8

Pohick - Sideburn WMA Proposed Projects

Table 5-8: Project List - WMA (Pohick - Sideburn Branch)

Structural Projects[1]						
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**	**Phase**
PC9127	Stormwater Pond Retrofit	PC-SI-0004	Next to 6000 Burke Centre Pkwy., near Terre Centre Elementary School	Water quality and quantity control	Private - Residential	0-10
PC9128	Stormwater Pond Retrofit	PC-SI-0006	6000 Burke Commons Rd., Wal-Mart Supercenter	Water quality and quantity control	Private - Residential	0-10
PC9129	Stormwater Pond Retrofit	PC-SI-0008	6000 Freds Oak Rd., Fairfax Co. Wastewater collection	Water quality and quantity control	Public/Local - Fairfax County	0-10
PC9130	Stormwater Pond Retrofit	PC-SI-0001	10301 New Guinea Rd., Target Shopping center	Water quality and quantity control	Private - Commercial	0-10
PC9131	Stormwater Pond Retrofit	PC-SI-0001	Behind 10268 Colony Park Dr.	Water quality and quantity control	Private - HOA	0-10
PC9139	Stormwater Pond Retrofit	PC-SI-0016	10697 Braddock Rd., University Mall Shopping Center	Water quality and quantity control	Private - Commercial	0-10
PC9236	Stream Restoration	PC-SI-0008	Across the street from 5901 Fred's Oak Rd.	Water quality control	Private - Residential	0-10
PC9237	Stream Restoration	PC-SI-0007	Behind 10550 Reeds Landing Ct.	Water quality control	Private - Residential	0-10
PC9239	Stream Restoration	PC-SI-0007	Next to 5914 Cove Landing Rd.	Water quality and quantity control	Private - Residential	0-10
PC9240	Stream Restoration	PC-SI-0009	Near 5901 Waters Edge Landing La.	Water quality control	Private - Residential	0-10
PC9241	Stream Restoration	PC-SI-0009	Behind 10734 Burr Oak Way	Water quality control	Private - Residential	0-10
PC9246	Stream Restoration	PC-SI-0005	Behind 6001 Burke Commons Rd.	Water quality control	Private - Residential	0-10
PC9247	Stream Restoration Suite	PC-SI-0005	Adjacent to 10499 Premier Ct.	Water quality control	Private - Residential	0-10
PC9250	Stream Restoration	PC-SI-0010	Behind 10602 Goldeneye La.	Water quality control	Public/Local - FCPA, FCPS	0-10

[1] **Only 10-yr structural projects will have associated project fact sheets at the end of section 5.**

Structural Projects[1]						
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**	**Phase**
PC9254	Stream Restoration	PC-SI-0013	Behind 10757 John Turley Pl.	Water quality control	Public/Local - FCPA	0-10
PC9261	Stream Restoration	PC-SI-0015	Behind 5282 Beech Haven Ct.	Water quality control	Public/Local - FCPA	0-10
PC9262	Stream Restoration	PC-SI-0015	Behind 5214 Grinnell St.	Water quality control	Public/Local - FCPA	0-10
PC9531	BMP/LID Suite	PC-SI-0004	6000 Burke Centre Pkwy., Terra Centre Elementary School	Water quality and quantity control	Public/Local - FCPS	0-10
PC9534	BMP/LID	PC-SI-0003	6011 Burke Centre Pkwy., Giant Supermarket	Water quality control	Private - Commercial	0-10
PC9535	BMP/LID	PC-SI-0008	6000 Freds Oak Rd., FFC Wastewater Collection Division Office Bldg.	Water quality and quantity control	Public/Local - Fairfax County	0-10
PC9539	BMP/LID	PC-SI-0011	5727 Burke Center Pkwy., Burke Center Shopping Center	Water quality control	Private - Commercial	0-10
PC9702	Outfall Improvement	PC-SI-0009	5815 Ox Rd., Fairview Elementary	Water quality and quantity control	Public/Local - FCPS	0-10
PC9703	Outfall Improvement	PC-SI-0001	5637 Guinea Rd.	Water quality and quantity control	Private - Industrial	0-10
PC9705	Outfall Improvement	PC-SI-0011	Next to pool at 5601 Snowy Owl Dr.	Water quality and quantity control	Private - HOA	0-10
PC9134	Stormwater Pond Retrofit	PC-SI-0015	5222 Sideburn Rd., St. Mary's Church	Water quality and quantity control	Private - Church	11-25
PC9243	Stream Restoration	PC-SI-0005	Behind 5832 First Landing Way	Water quality control	Private - Residential	11-25
PC9536	BMP/LID Suite	PC-SI-0006	6001 Cove Landing Rd., Landings Community Center	Water quality and quantity control	Private - Residential	11-25
PC9540	BMP/LID Suite	PC-SI-0010	5240 Sideburn Rd., Bonnie Brae Elementary School	Water quality and quantity control	Public/Local - FCPS	11-25

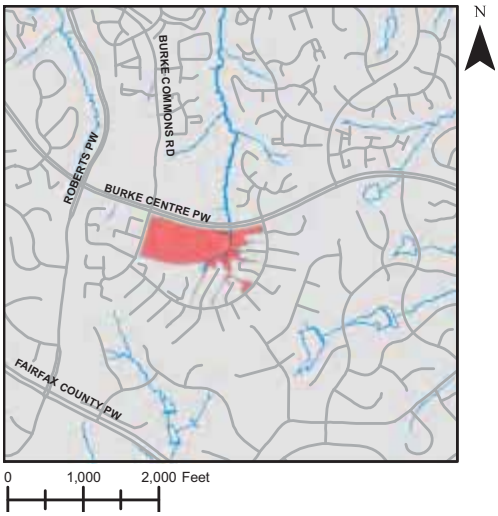
[1] **Only 10-yr structural projects will have associated project fact sheets at the end of section 5.**

Structural Projects[1]						
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**	**Phase**
PC9550	BMP/LID Suite	PC-SI-0015	5004 Sideburn Rd., Oak View Elementary School	Water quality and quantity control	Public/Local - FCPS	11-25

Non-Structural Projects[1]					
Project #	**Project Type**	**Subwatershed**	**Location**	**Watershed Benefit**	**Land Owner**
PC9538	BMP/LID	PC-SI-0009	5815 Ox Rd., Fairview Elementary School	Water quality and quantity control	Public/Local - FCPS
PC9541	BMP/LID	PC-SI-0012	5240 Sideburn Rd., Bonnie Brae Elementary School	Water quality and quantity control	Public/Local - FCPS
PC9551	BMP/LID	PC-SI-0015	5004 Sideburn Rd., Oak View Elementary School	Water quality and quantity control	Public/Local - FCPS
PC9815	Street Sweeping Program	PC-SI-0008	5907 Freds Oak Rd.	Water quality control	Public/State - VDOT
PC9816	Buffer Restoration	PC-SI-0008	Behind 10708 Freds Oak Ct.	Water quality control	Private - Residential
PC9817	Street Sweeping Program	PC-SI-0005	Subdivision off Cove Landing Rd.	Water quality control	Public/State - VDOT
PC9818	Street Sweeping Program	PC-SI-0001	5532 La Cross Ct.	Water quality control	Private - HOA
PC9819	Buffer Restoration	PC-SI-0001	South of 10125 Zion Dr.	Water quality control	Public/State - VDOT
PC9820	Street Sweeping Program	PC-SI-0011	10614 John Ayres Rd.	Water quality control	Public/State - VDOT

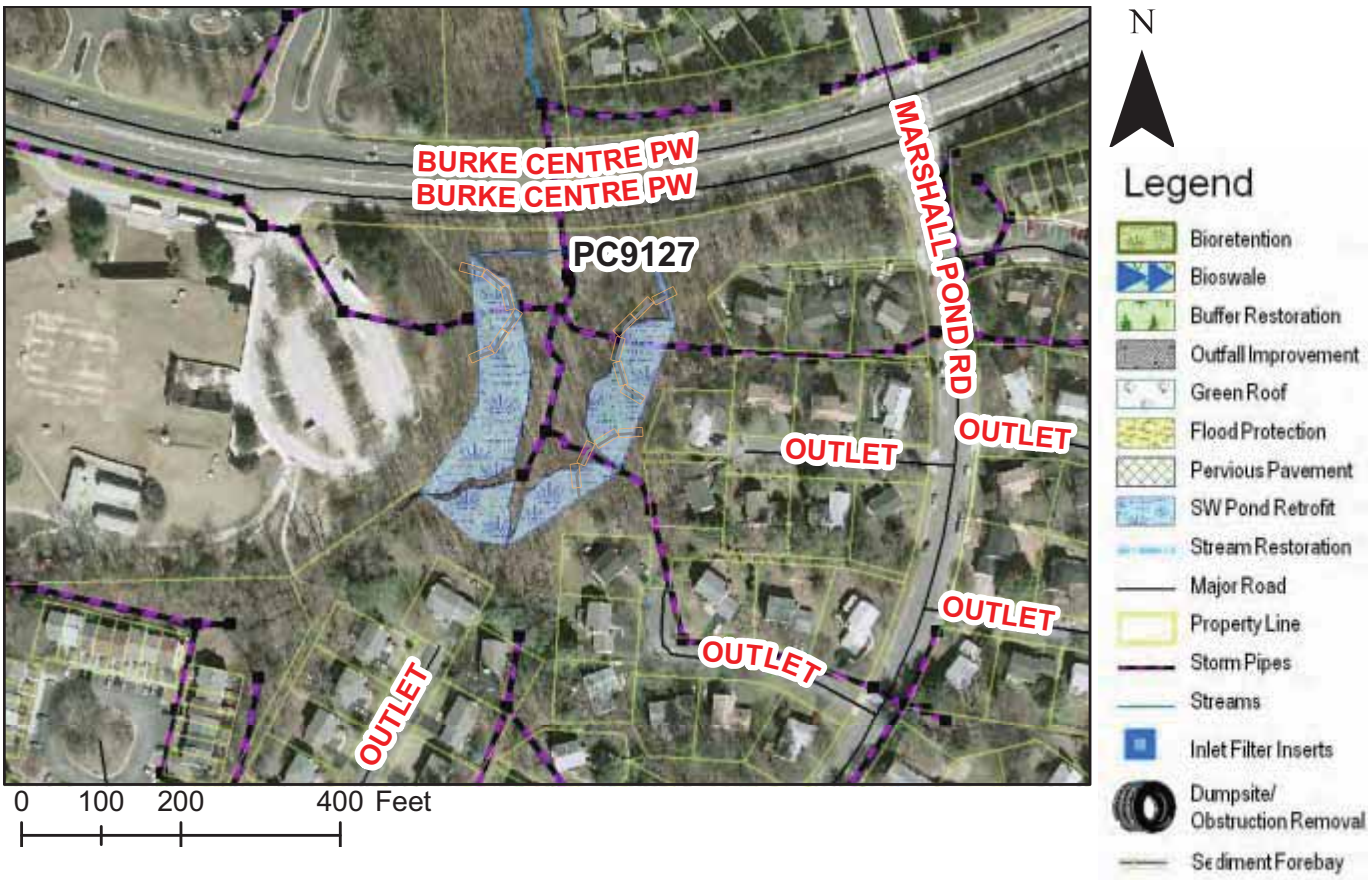
[1] **Only 10-yr structural projects will have associated project fact sheets at the end of section 5.**

PC9127 Stormwater Pond Retrofit



Address: Next to 6000 Burke Centre Pkwy, Burke, Virginia
Location: Pond near Terre Centre Elementary School
Land Owner: Private - Burke Centre Conservancy
PIN: 0774 05 E2, 0774 01 0028A
Control Type: Water quality and quantity control
Drainage Area: 57.22 acres
Receiving Waters: Tributary of Sideburn Branch

Description: Large dry pond receives runoff from a large drainage area that includes Terre Centre Elementary School to the west and a residential neighborhood to the east. The primary indicators are pollutants such as nitrogen, phosphorus and total suspended solids. Pond will be retrofitted to be an extended detention dry pond with sediment forebays at the inlet pipes. Pond outfalls to the north under Burke Centre Parkway into a stream.



Project Benefits: An estimated 11.85 lbs/year of phosphorus will be removed. The retrofit will modify the existing pond to increase pollutant removal and provide adequate downstream channel protection. The retrofit will create a better-functioning environment for gravitational settling, biological uptake and microbial activity by increasing the time the stormwater is in the pond. Vegetation will be planted to improve pond area and create a buffer.

Project Design Considerations: This pond has a highly impervious drainage area with significant runoff from closed systems. The area directly surrounding the pond is wooded. Retrofit should not require significant tree removal. The sediment forebays should account for approximately 10% of the pond area. The vegetative buffer should be 10-15' off of the top of bank. The pond is on land owned by Burke Centre Conservancy.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.9	AC	$8,500	$7,650
Grading and Excavation	4500	CY	$35	$157,500
Structural BMP Retrofit and Incidentals	1	LS	$15,000	$15,000
Embankment	100	CY	$50	$5,000
Outflow Pipe	125	LF	$125	$15,625
Rip Rap Stabilization	250	SY	$100	$25,000
Organic Compost Soil Amendment	300	CY	$40	$12,000
Plantings	1	LS	5%	$11,889
Ancillary Items	1	LS	5%	$11,889
Erosion and Sediment Control	1	LS	10%	$23,778
			Base Construction Cost	$285,330
			Mobilization (5%)	$14,267
			Subtotal 1	$299,597
			Contingency (25%)	$74,899
			Subtotal 2	$374,496
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$168,523
			Total	$543,019
			Estimated Project Cost	$550,000

PC9127_1.jpg Bird's eye view of pond 1

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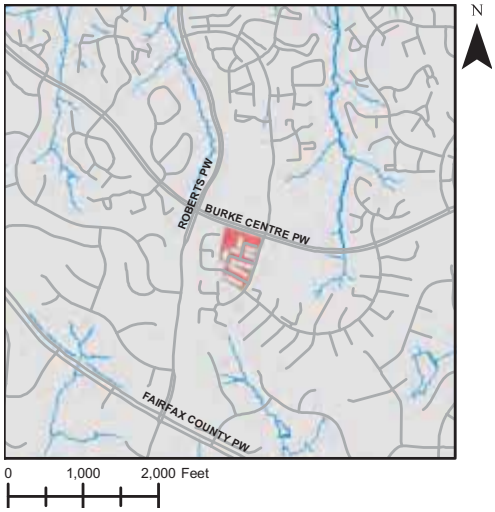
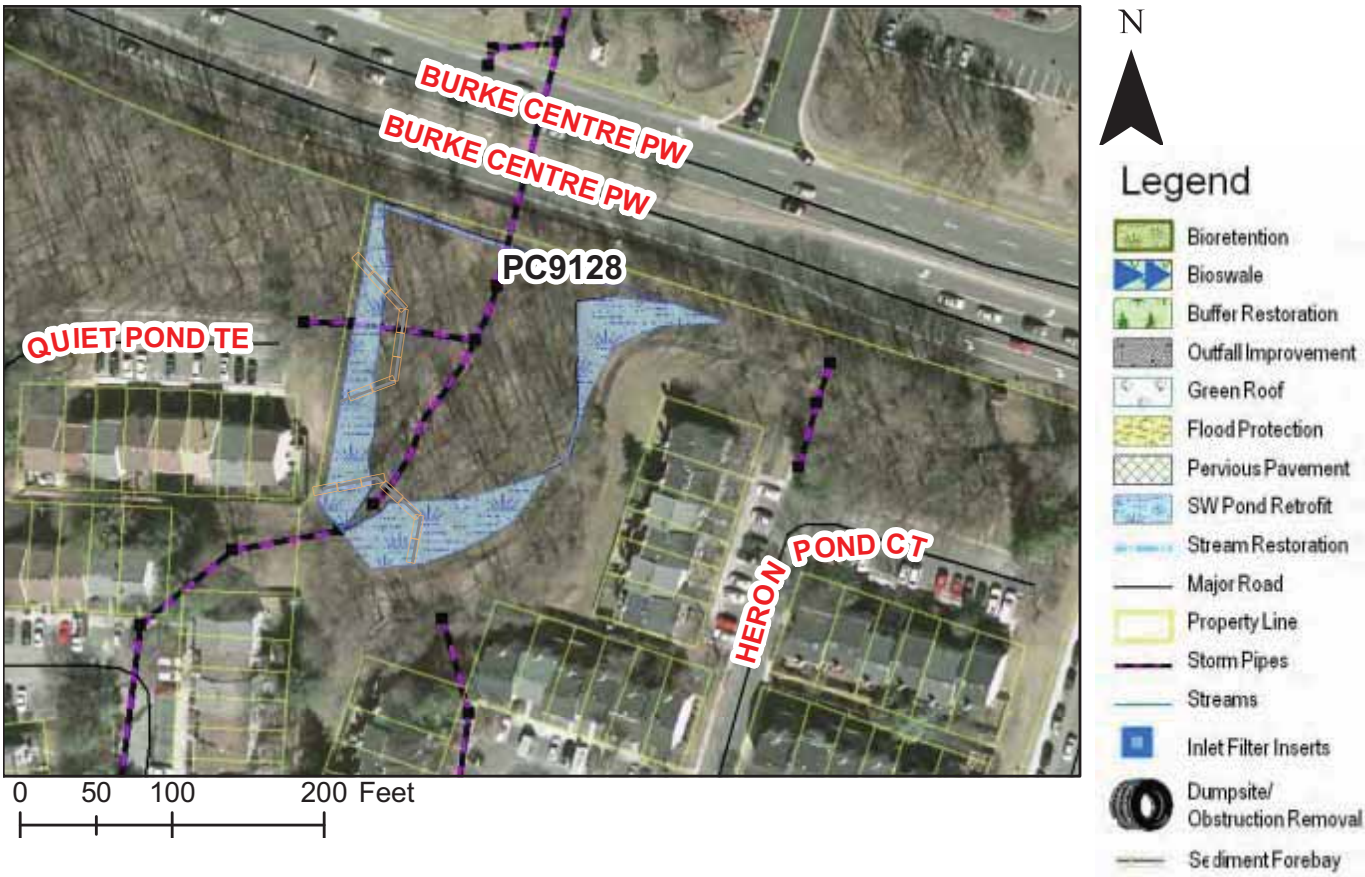
PC9128 Stormwater Pond Retrofit



Address: 6000 Burke Commons Rd., Burke, Virginia
Location: Across from Wal-Mart Supercenter 0174DP
Land Owner: Private – Burke Centre Conservancy
PIN: 0774 10 H1
Control Type: Water quality and quantity control
Drainage Area: 18.58 acres
Receiving Waters: Tributary of Sideburn Branch

Description: The project proposes to retrofit an existing pond to create an extended detention dry pond with sediment forebays. The pond receives stormwater from a closed pipe system that collects runoff from adjacent residential neighborhood. The pond outfalls across Burke Centre Parkway through the Wal-Mart parking lot storm sewer and discharges into a stream across Roberts Parkway.



Project Benefits: An estimated 5.45 lbs/year of phosphorus will be removed. Modifying the existing control structure to increase the detention time will allow for more sediment deposition and downstream channel protection. Installing the sediment forebays will reduce debris and coarse sediment in the pond and will reduce required maintenance. Area draining to pond is large and very impervious. This project will help remove more pollutants before entering streams.

Project Design Considerations: Pond is located behind existing dense residential townhouse neighborhood and across from large commercial development. Pond is on private property. According to County records, there are no onsite easements. The sediment forebays should account for approximately 10% of the pond area. The vegetative buffer should be 10-15' off of the top of bank. Efforts should be made to minimize impacts to existing mature vegetation. Paved path in wooded area near pond should not be disturbed.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.3	AC	$8,500	$2,550
Grading and Excavation	1650	CY	$35	$57,750
Structural BMP Retrofit and Incidentals	1	LS	$10,000	$10,000
Embankment	65	CY	$50	$3,250
Outflow Pipe	90	LF	$125	$11,250
Rip Rap Stabilization	100	SY	$100	$10,000
Organic Compost Soil Amendment	200	CY	$40	$8,000
Plantings	1	LS	5%	$5,140
Ancillary Items	1	LS	5%	$5,140
Erosion and Sediment Control	1	LS	10%	$10,280
			Base Construction Cost	$123,360
			Mobilization (5%)	$6,168
			Subtotal 1	$129,528
			Contingency (25%)	$32,382
			Subtotal 2	$161,910
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$72,860
			Total	$234,770
			Estimated Project Cost	$240,000

PC9128_1.jpg View of pond/wooded area

PC9128_2.jpg View of pond/wooded area

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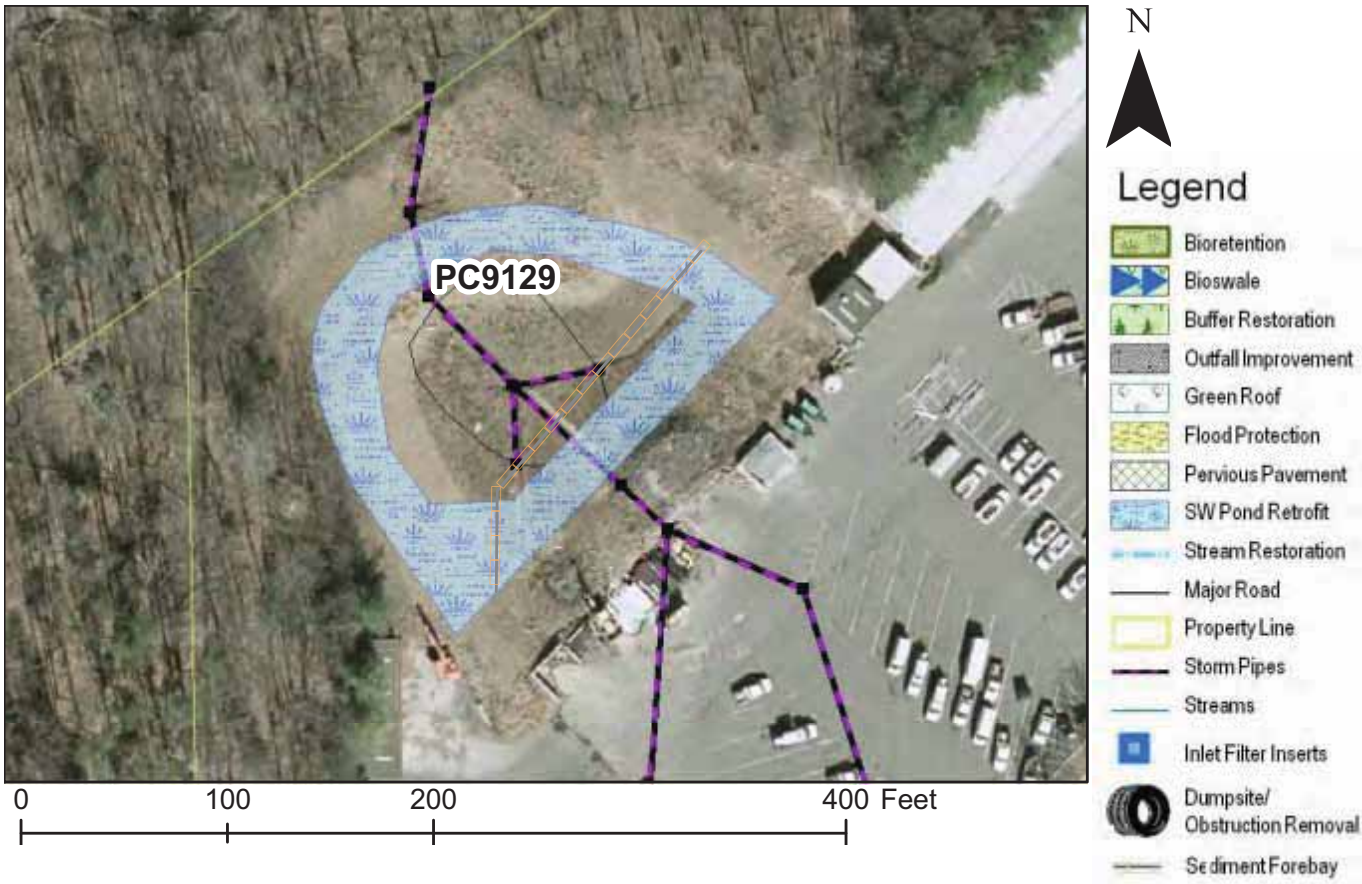
PC9129 Stormwater Pond Retrofit

Address: 6000 Freds Oak Road., Burke, Virginia
Location: Fairfax Co. Wastewater Collection
Land Owner: Public/Local – Fairfax County Government
PIN: 0773 01 0013
Control Type: Water quality and quantity control
Drainage Area: 10.67 acres
Receiving Waters: Tributary of Sideburn Branch

Description: Fairfax County Wastewater Collection Division parking lot drains from south to north. Runoff from the parking lots is piped into the pond on the north side of the site, which outfalls to an adjacent stream. This project proposes to retrofit the existing dry pond by increasing the pond's size and installing a discharge structure that will increases detention time for stormwater runoff.



Project Benefits: This pond retrofit will allow the pond to better treat stormwater runoff from more frequent smaller storms which has higher pollutant concentrations than larger storms. This project will promote particulate pollutant deposition, biological uptake of pollutants, and downstream erosion protection. The sediment forebay will provide additional treatment for the pond. The existing stormwater pond already provides stormwater quality and quantity.

Project Design Considerations: Significant impervious area is piped directly from the parking lot. Installing a sediment forebay that is 10% of the area of the pond would prevent sediment fines from entering the pond and clogging the basin floor. The existing pond has concrete pilot channels and lacks a planting plan to promote pollutant uptake and stormwater infiltration. The pond retrofit will remove the pilot channels and will include a planting plan. There appears to be room to expand the pond without impacting existing mature vegetation.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.35	AC	$8,500	$2,975
Grading and Excavation	1800	CY	$35	$63,000
Structural BMP Retrofit and Incidentals	1	LS	$15,000	$15,000
Embankment	50	CY	$50	$2,500
Outflow Pipe	120	LF	$125	$15,000
Rip Rap Stabilization	120	SY	$100	$12,000
Organic Compost Soil Amendment	275	CY	$40	$11,000
Plantings	1	LS	5%	$6,074
Ancillary Items	1	LS	5%	$6,074
Erosion and Sediment Control	1	LS	10%	$12,148
			Base Construction Cost	$145,770
			Mobilization (5%)	$7,289
			Subtotal 1	$153,059
			Contingency (25%)	$38,265
			Subtotal 2	$191,323
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$86,095
			Total	$277,419
			Estimated Project Cost	$280,000

PC9129_1.jpg Bird's Eye View of Existing Pond

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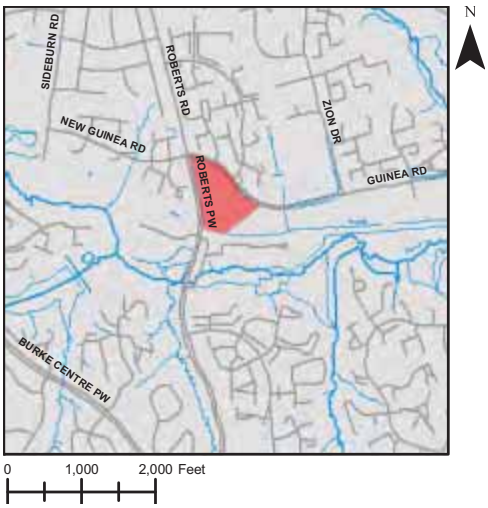
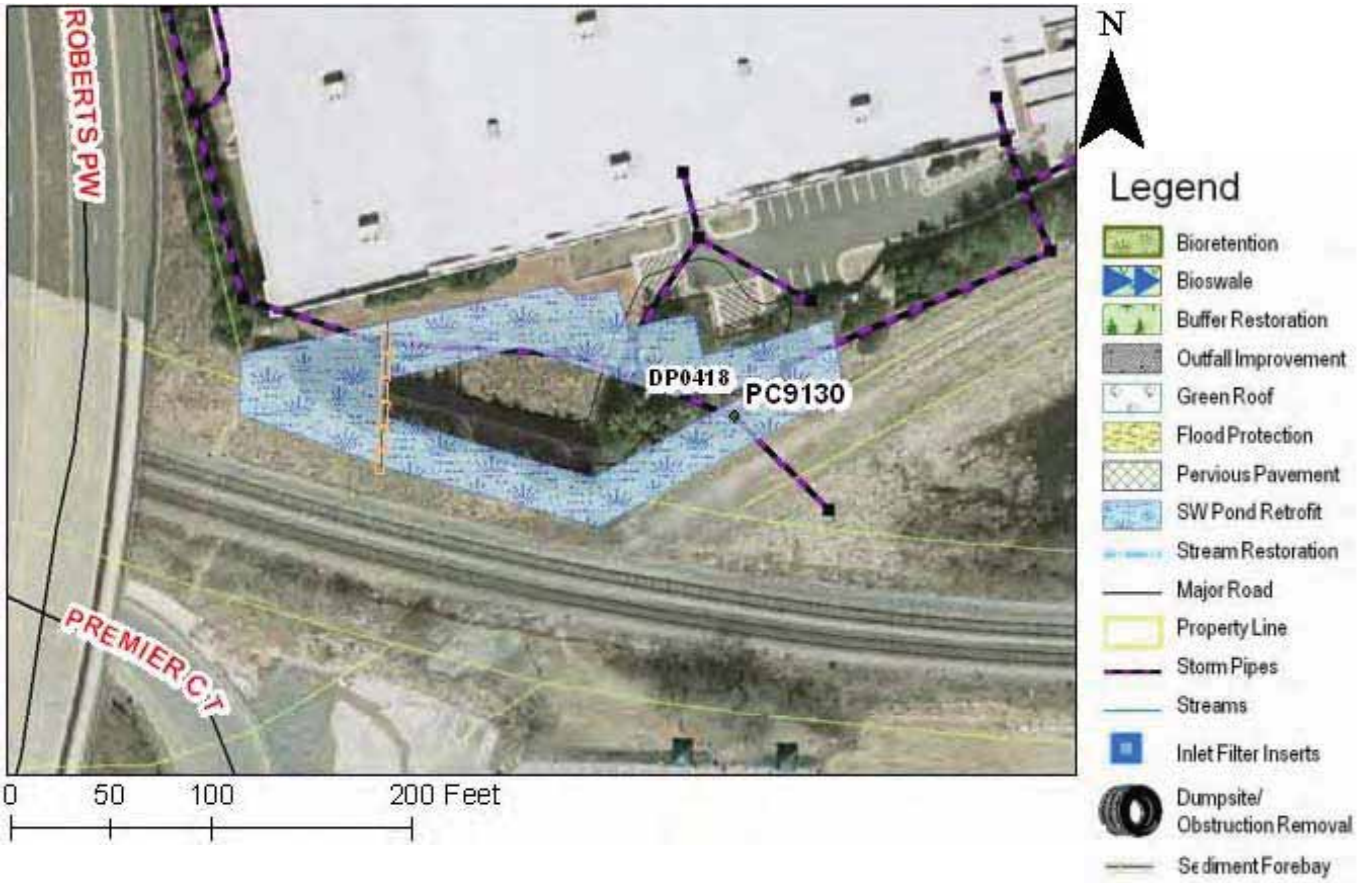
PC9130 Stormwater Pond Retrofit



Address: 10301 New Guinea Road, Fairfax, Virginia
Location: New Guinea Road Target
Land Owner: Private – Marshall Field Stores, Inc, Target Corporation
PIN: 0772 01 0013C
Control Type: Water quality and quantity control
Drainage Area: 12.24 acres
Receiving Waters: Tributary of Sideburn Branch

Description: This project proposes to retrofit an existing dry pond into an extended detention pond with a sediment forebay. The pond is located at the south side of the Target shopping center. Stormwater runoff is collected in the parking lot through storm inlets and conveyed to the existing pond for treatment. This retrofit will improve stormwater runoff quality by using a sediment forebay to pretreat runoff. The pond's detention time will be increased to allow more pollutants to settle out and break down through biological processes.



Project Benefits: The addition of the sediment forebay will provide for more particulate pollution deposition. The retrofit of the pond will increase the detention time of stormwater before it is released downstream. This will help protect the channel downstream of the pond. The proposed improvements to the pond will result in an estimated 4.21 lbs/year of additional phosphorus removal.

Project Design Considerations: The vegetation in the pond is dead and the pond has a lot of trash in it. The outfall pipe seems to be half full of trash and other debris. The pond limits are confined by a road on the west and south and by a building on the north. The only storage expansion availabe is to the east. The sediment forebays and regular maintenance would help with the trash and debris issues. This project would include removal of the concrete pilot channels and landscaping plan that would try to incorporate the existing vegetation. Records show the exisitng pond is in an easement.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.35	AC	$8,500	$2,975
Grading and Excavation	1300	CY	$35	$45,500
Structural BMP Retrofit and Incidentals	1	LS	$10,000	$10,000
Embankment	25	CY	$50	$1,250
Outflow Pipe	150	LF	$125	$18,750
Rip Rap Stabilization	100	SY	$100	$10,000
Organic Compost Soil Amendment	275	CY	$40	$11,000
Plantings	1	LS	5%	$4,974
Ancillary Items	1	LS	5%	$4,974
Erosion and Sediment Control	1	LS	10%	$9,948
			Base Construction Cost	$119,370
			Mobilization (5%)	$5,969
			Subtotal 1	$125,339
			Contingency (25%)	$31,335
			Subtotal 2	$156,673
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$70,503
			Total	$227,176
			Estimated Project Cost	$230,000

PC9130_1 Dry pond

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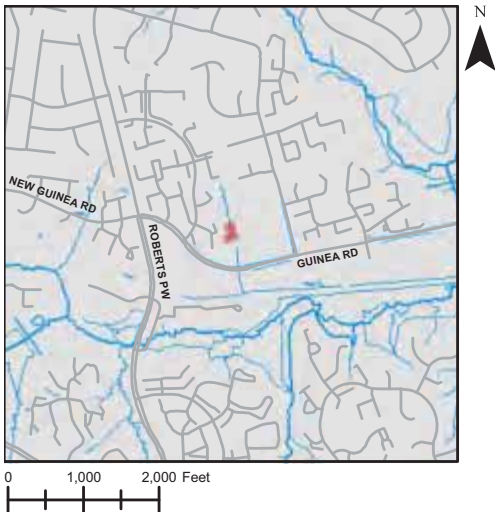
PC9131 Stormwater Pond Retrofit



Address: Behind 10268 Colony Park Drive, Fairfax, Virginia
Location: Pond near Colony Park Dr.
Land Owner: Private – Woodlynne Community Association
PIN: 0772 05 F
Control Type: Water quality and quantity control
Drainage Area: 47.26 acres
Receiving Waters: Tributary of Sideburn Branch

Description: This large dry pond behind a residential community is currently very well vegetated. This pond retrofit will modify the exisitng discharge structure to create an extended detention dry pond with sediment forebay. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. The large drainage area captures runoff from dense residential, single family residential, roadways and wooded areas.

Project Benefits: An estimated 11.44 lbs/year of phosphorus will be removed. Extending the pond detention time will help reduce downstream erosion and promote particulant pollutant settlement in the pond. The new forebay will capture a majority of the sediment in the roadway runoff to the pond, reducing major pond maintenance and improving removal of particulate pollutants.

Project Design Considerations: The pond is entirely on Woodlynne Community Association property. Records show no easements. Sediment forebay should account for approximately 10% of pond area. Due to increasing the stormwater's detention time and installing the sediment forebay the pond size will probably need to be enlarged as shown on the project area map. Area is very well vegetated. Efforts must be made to minimize impacts to mature vegetation, however some impacts will be made. The landscaping plan should allow the pond to mature into a native forest in the right places yet keep mowable turf along the embankment and all access areas.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.25	AC	$8,500	$2,125
Grading and Excavation	1200	CY	$35	$42,000
Structural BMP Retrofit and Incidentals	1	LS	$15,000	$15,000
Embankment	30	CY	$50	$1,500
Outflow Pipe	75	LF	$125	$9,375
Rip Rap Stabilization	100	SY	$100	$10,000
Organic Compost Soil Amendment	200	CY	$40	$8,000
Plantings	1	LS	5%	$4,400
Ancillary Items	1	LS	5%	$4,400
Erosion and Sediment Control	1	LS	10%	$8,800
			Base Construction Cost	$105,600
			Mobilization (5%)	$5,280
			Subtotal 1	$110,880
			Contingency (25%)	$27,720
			Subtotal 2	$138,600
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$62,370
			Total	$200,970
			Estimated Project Cost	$210,000

PC9131_1.jpg View of Well-Vegetated Pond Area

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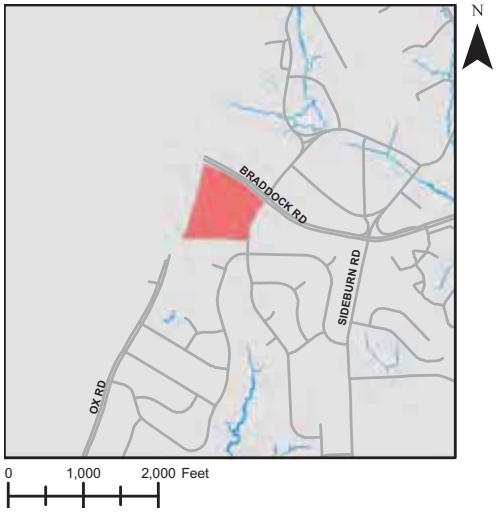
PC9139 Stormwater Pond Retrofit



Address: 10697 Braddock Rd., Fairfax, Virginia
Location: University Mall Shopping Center
Land Owner: Private – Private Owner
PIN: 0681 01 0009
Control Type: Water quality and quantity control
Drainage Area: 21.85 acres
Receiving Waters: Tributary of Sideburn Branch

Description: Existing pond receives runoff from shopping center and parking lot. The stormwater is conveyed in a closed system from north to west. Runoff is also received from a subdivision to the east. The primary indicators are pollutants including nitrogen, phosphorus and total suspended solids. The project proposes retrofitting the existing pond to create an extended detention dry pond with sediment forebays.

Project Benefits: Extending the pond's detention time will provide better channel protection and promote particulate pollutant settlement. Installing the sediment forebays will reduce debris and coarse sediment in the pond and will improve the infiltration of the pond.

Project Design Considerations: Project is on private property. Property owner same as that of the shopping center area. Records show no easements on or near the property. Pond is behind a large brick fence. A large amount of impervious area drains to the pond from shopping center buildings and parking area. Efforts should be made to minimize impacts to existing mature vegetation. The sediment forebays should account for approximately 10% of the pond area. The vegetative buffer should be 10-15' off of the top of bank.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.25	AC	$8,500	$2,125
Grading and Excavation	1500	CY	$35	$52,500
Structural BMP Retrofit and Incidentals	1	LS	$15,000	$15,000
Embankment	30	CY	$50	$1,500
Outflow Pipe	50	LF	$125	$6,250
Rip Rap Stabilization	75	SY	$100	$7,500
Organic Compost Soil Amendment	190	CY	$40	$7,600
Plantings	1	LS	5%	$4,624
Ancillary Items	1	LS	5%	$4,624
Erosion and Sediment Control	1	LS	10%	$9,248
			Base Construction Cost	$110,970
			Mobilization (5%)	$5,549
			Subtotal 1	$116,519
			Contingency (25%)	$29,130
			Subtotal 2	$145,648
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$65,542
			Total	$211,190
			Estimated Project Cost	$220,000

PC9139_1.jpg: View of existing pond area

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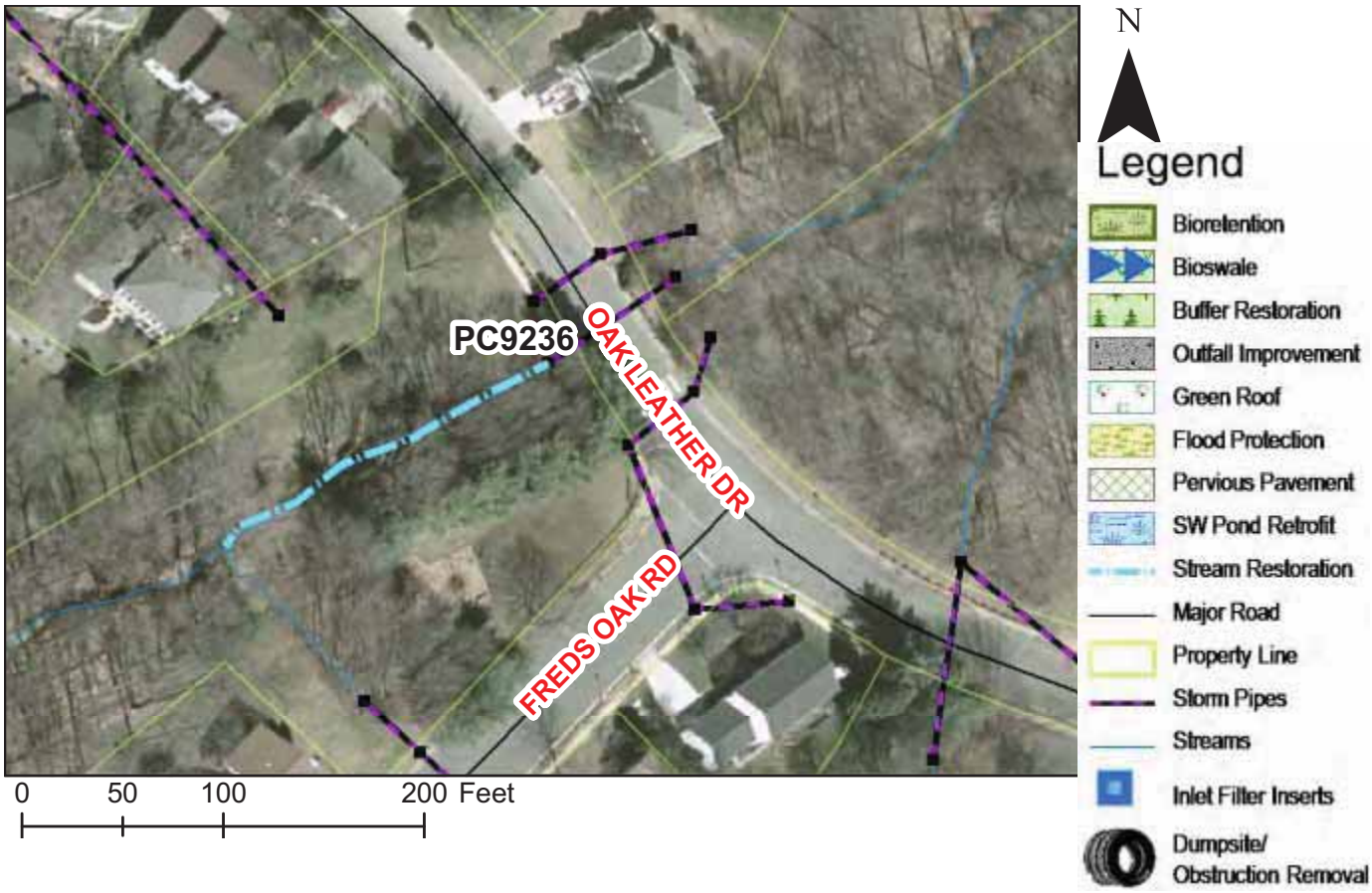
PC9236 Stream Restoration

Address: Across the street from 5901 Freds Oak Road, Burke, Virginia
Location: Stream near Freds Oak Road
Land Owner: Private- Burke Centre Conservancy
PIN: 0773 05 A
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch

Description: The stream is located behind homes in a single family residential neighborhood. It conveys stormwater from adjacent homes and streets including Oak Leather Drive, Fred's Oak Road, Fred's Oak Court and Vernon's Oak Court. The stream continues downstream of the culvert under Oak Leather Drive. This project proposes repairing bank erosion and restoring channel morphology upstream of Oak Leather Drive.



Project Benefits: An estimated 1.42 lbs/year of phosphorus will be removed by reducing the sediment load from this section of the stream. Additionally this project will improve the two stormwater discharges outfalling to the stream, which will reduce coarse sediment from the roadway and reduce erosive velocities. The stream buffer will be improved and the unwanted stream meander will be controlled.

Project Design Considerations: This section of the stream has two outfalls discharging untreated stormwater runoff from the neighborhood roads. The outfalls will be improved through stream buffer plantings, creation of sediment ponding areas, and stream stabilization. During a field visit in the spring the stream appeared to be dry (see photos). There is evidence of erosion along the banks. Due to the location in a residential neighborhood, the buffer area is greatly reduced.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	190	LF	$200	$38,000
Clear and Grub	0.22	AC	$10,000	$2,200
Plantings	0.22	AC	$25,000	$5,500
Additional Cost, First 500 LF	190	LF	$200	$38,000
Erosion and Sediment Control	1	LS	10%	$8,370
Ancillary Items	1	LS	5%	$4,185
			Base Construction Cost	$96,255
			Mobilization (5%)	$4,813
			Subtotal 1	$101,068
			Contingency (25%)	$25,267
			Subtotal 2	$126,335
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$56,851
			Total	$183,185
			Estimated Project Cost	$190,000

PC9236_1 Dry stream bed

PC9236_2 Eroded banks

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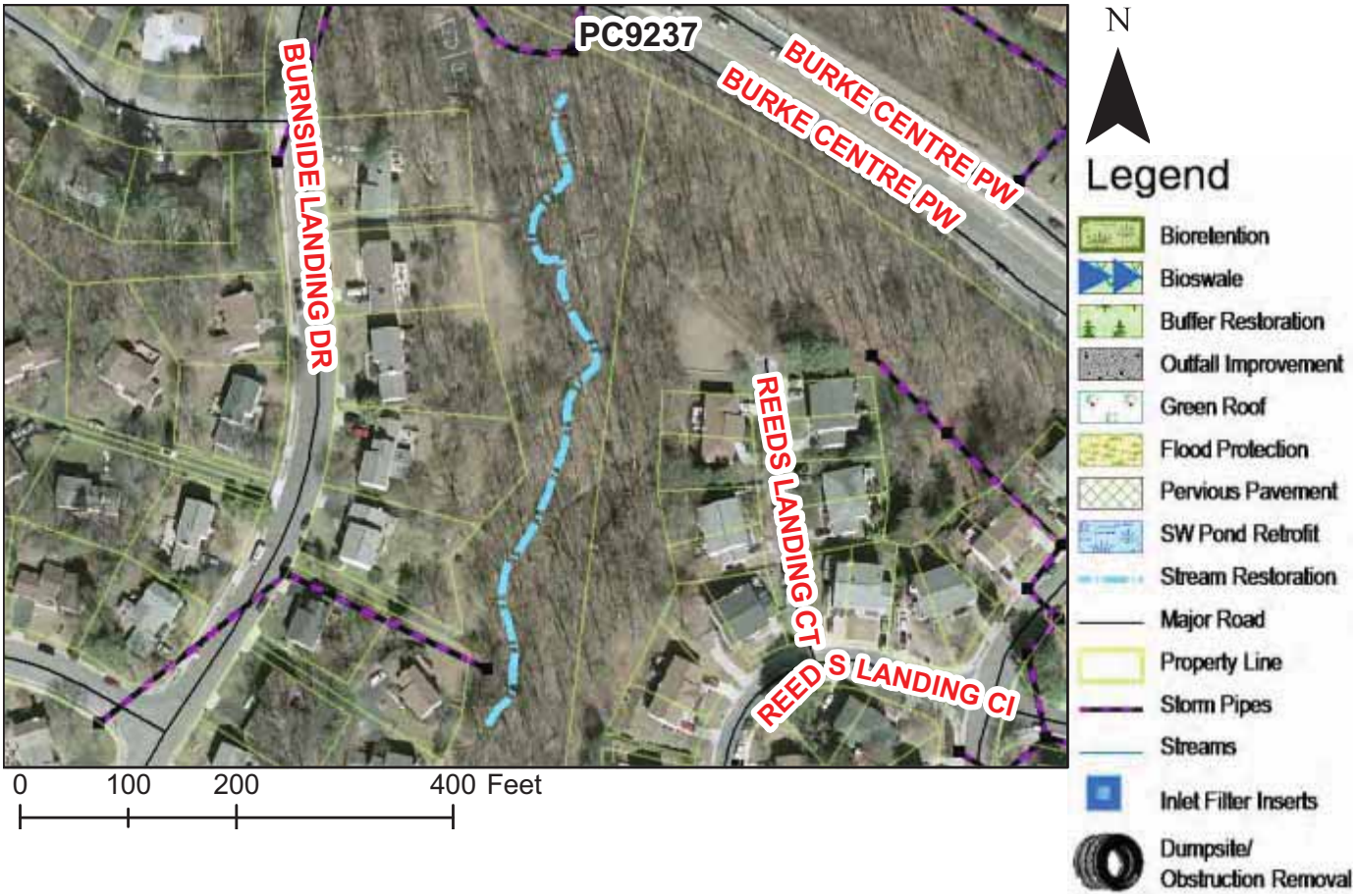
PC9237 Stream Restoration

Address: Behind 10550 Reeds Landing Ct., Burke, Virginia
Location: Stream near Reeds Landing Ct.
Land Owner: Private – Burke Centre Conservancy
PIN: 0774 07 A
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch

Description: The stream runs between Reeds Landing Court and Burnside Landing Drive. Pipes discharge directly into the stream from adjacent subdivisions. This project consists of repairing bank and bed erosion and restoring channel morphology. The primary indicator is poor channel morphology. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.



Project Benefits: An estimated 6.36 lbs/year of phosphorus will be removed. Stream stabilization will reduce sediment loads to the stream, maintain the capacity of the stream channel and control unwanted meander. Measures described above will be put in place to repair existing erosion and prevent future erosion over time.

Project Design Considerations: Stream is on property owned by Burke Centre Conservancy. There are no easements on the property, according to County-provided GIS. Residential area is piped to stream at one location without any pre-treatment. Efforts should be taken to minimize impacts to mature vegetation and to maintain the buffer.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	680	LF	$200	$136,000
Clear and Grub	0.78	AC	$10,000	$7,800
Plantings	0.78	AC	$25,000	$19,500
Additional Cost, First 500 LF	500	LF	$200	$100,000
Erosion and Sediment Control	1	LS	10%	$26,330
Ancillary Items	1	LS	5%	$13,165
			Base Construction Cost	$302,795
			Mobilization (5%)	$15,140
			Subtotal 1	$317,935
			Contingency (25%)	$79,484
			Subtotal 2	$397,418
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$178,838
			Total	$576,257
			Estimated Project Cost	$580,000

PC9237_1.jpg View of stream

PC9237_2.jpg View of stream

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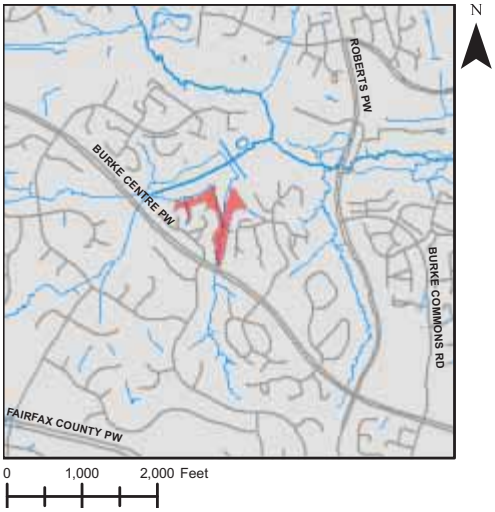
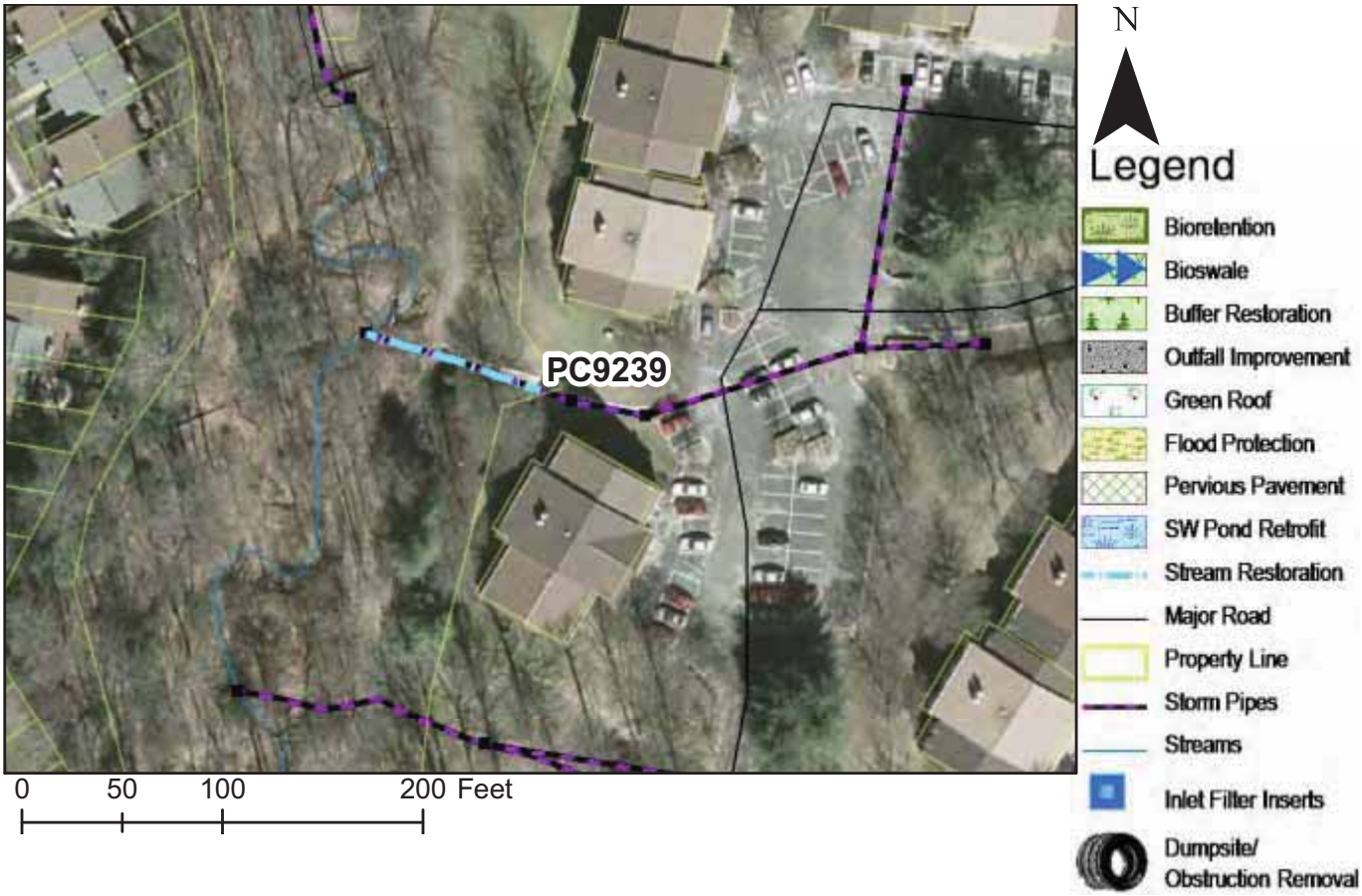
PC9239 Stream Restoration



Address: Next to 5914 Cove Landing Road, Burke, Virginia
Location: Daylight Stream near Landing Rd
Land Owner: Private - Burke Centre Conservancy
PIN: 0772 01 0044C
Control Type: Water quality and quantity control
Drainage Area: 2.05 acres
Receiving Waters: Tributary of Sideburn Branch

Description: Runoff from a residential neighborhood is collected in a closed system of pipes. Currently, a concrete channel between residential buildings conveys stormwater to a closed system that outfalls directly into the stream. This project proposes to remove a portion of the concrete channel and closed system to create a more natural channel to convey stormwater to the stream. Due to the slope, a series of check dams or step pools may be necessary to keep velocities low.



Project Benefits: An estimated 0.86 lbs/year of phosphorus will be removed. This project will retrofit a concrete channel and closed system into a natural channel, returning the water to its natural state and helping reduce runoff rates, which will help minimize stream erosion. Runoff will also travel through the buffer and reduce pollutant loads.

Project Design Considerations: Stormwater runoff flows down a concrete channel and eventually into a closed system. This project proposes that starting at the property line, the channel be retrofitted into a natural channel. A portion of the existing channel is in open space and the rest is in a wooded area. Efforts should be made to minimize impacts to existing mature vegetation. Step pools and check dams will be necessary to reduce velocities in the naturalized stream. Maintaining the existing walking path will be necessary. See project map and photos. The stream project is located on property owned by Burke Centre Conservancy. County records show no onsite easements.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	90	LF	$200	$18,000
Clear and Grub	0.1	AC	$10,000	$1,000
Plantings	0.1	AC	$25,000	$2,500
Additional Cost, First 500 LF	90	LF	$200	$18,000
Erosion and Sediment Control	1	LS	10%	$3,950
Ancillary Items	1	LS	5%	$1,975
			Base Construction Cost	$45,425
			Mobilization (5%)	$2,271
			Subtotal 1	$47,696
			Contingency (25%)	$11,924
			Subtotal 2	$59,620
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$26,829
			Total	$86,449
			Estimated Project Cost	$90,000

PC9239_1 View of concrete channel

PC9239_2 View of lower end of concrete channel where enters closed system

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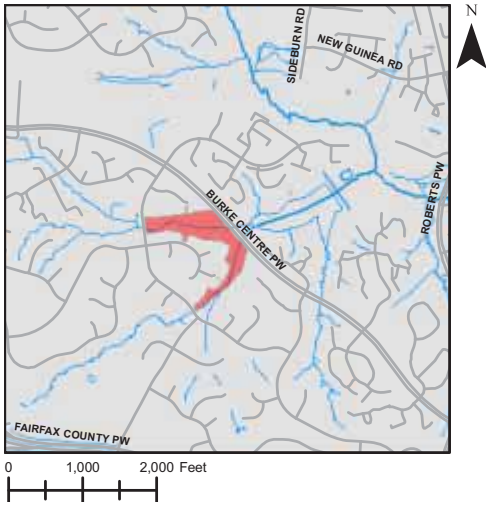
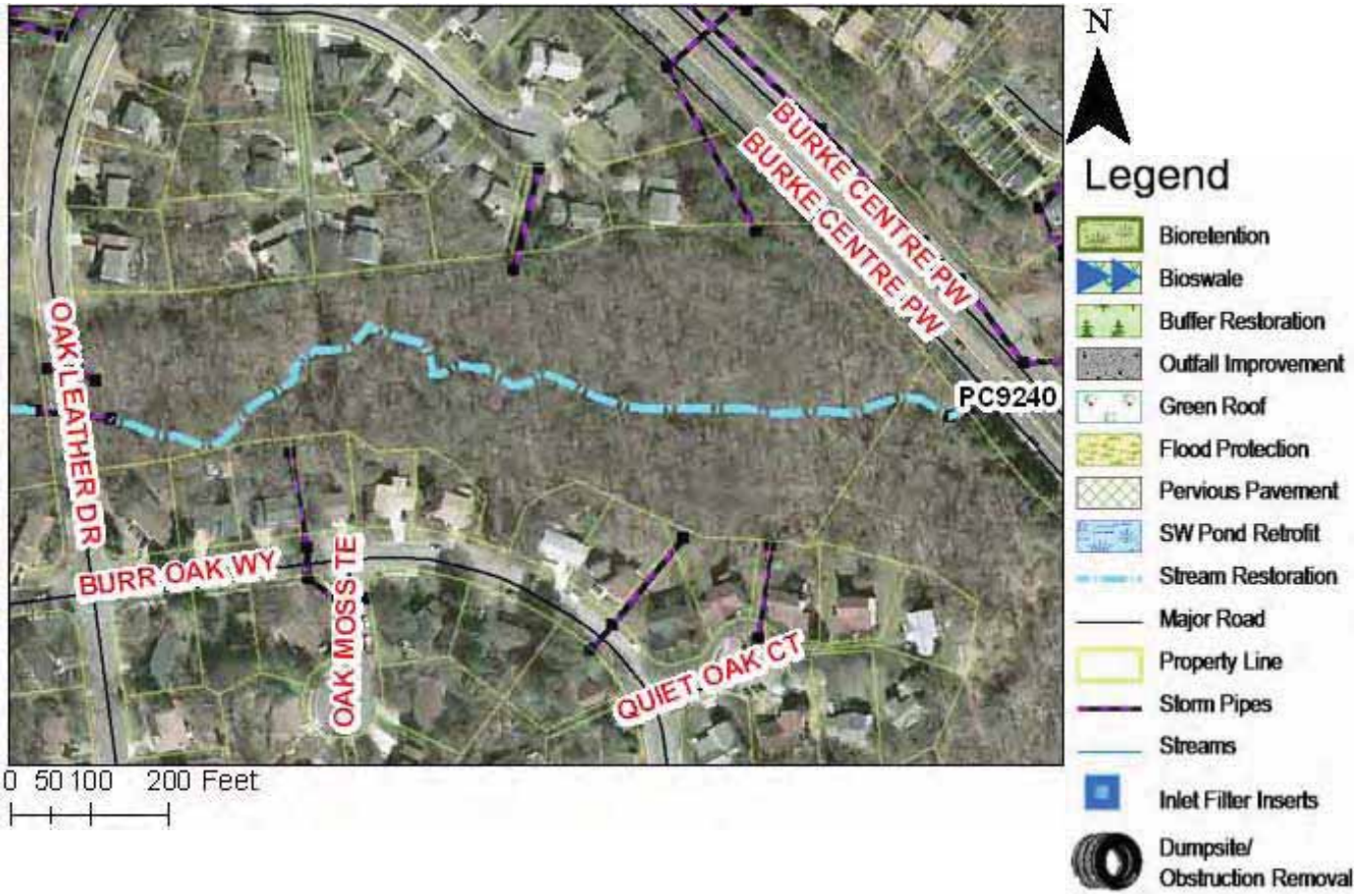
PC9240 Stream Restoration



Address: Along Burke Centre Pkwy, Near 5901 Waters Edge Landing Lane, Burke, Virginia
Location: Stream near Water Edge Landing Lane
Land Owner: Private - Burke Centre Conservancy
PIN: 0771 07 B, 0771 09 F
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch

Description: This project is located upstream of the Burke Centre Parkway culvert. The stream conveys stormwater from single family homes. The primary indicator is poor channel morphology. The purpose of the project is to restore channel morphology and to add an energy dissipation device. This will reduce sediment loads to the stream, while maintaining capacity of the stream channel and controlling unwanted meandering of the stream.



Project Benefits: Restoring 1200 feet of this stream will reduce instream sediment and result in an estimated 17.26 lbs/year of phosphorus reduction. Additionally, installing an energy dissipation basin downstream of the culvert at Oak Leather Drive will reduce erosion at the outfall.

Project Design Considerations: This stream conveys water from two culverts at Oak Leather Drive. The stream has a longitudinal slope of approximately 1.6%. Erosion will be stabilized through the use of bank shaping, toe of slope protection, erosion control fabrics, and rapid vegetation establishment. The stream receives untreated runoff from two stormwater outfalls that are not directly connected to the main stream bed. The stream has meandered close to the back property line of one of the single family homes. Bank stability should be ensured at this point to prevent any futher meander. This project is downstream of another stream restoration, PC9241. These projects should be coordinated to ensure maximum benefit.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1200	LF	$200	$240,000
Clear and Grub	1.38	AC	$10,000	$13,800
Plantings	1.38	AC	$25,000	$34,500
Additional Cost, First 500 LF	500	LF	$200	$100,000
Erosion and Sediment Control	1	LS	10%	$38,830
Ancillary Items	1	LS	5%	$19,415
			Base Construction Cost	$446,545
			Mobilization (5%)	$22,327
			Subtotal 1	$468,872
			Contingency (25%)	$117,218
			Subtotal 2	$586,090
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$263,741
			Total	$849,831
			Estimated Project Cost	$850,000

PC9240_1.jpg View of stream erosion

PC9240_2.jpg View of sediment in stream

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PC9241 Stream Restoration

Address: Behind 10734 Burr Oak Way, Burke, Virginia
Location: Stream near Burr Oak Way
Land Owner: Private –Burke Centre Conservancy (open space)
PIN: 0771 07 A
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch

Description: The stream is upstream of a culvert under Oak Leather Drive. The stream conveys runoff from neighborhood and community recreation facilities. Stream stabilization will repair bank and bed erosion and restore stream morphology. This project will also improve the five direct stormwater outfalls to the stream bed. This project will focus on insuring proper buffers from the dense residential areas.

Project Benefits: Restoring 1325 feet of this stream will reduce erosion and instream sediment resulting in an estimated 16.43 lbs/year of phosphorus reduction. Additionally, improving the five outfalls will help reduce fines from the roadway.

Project Design Considerations: The stream is located on Burke Centre Conservancy open space, but the stream runs close to the back property line of some of the single family homes and townhouses. Based on the County's GIS contours, the stream might have meandered from its original stream bed and is now closer to the houses. Measures should be implemented to ensure proper stream buffers are maintained. The five stormwater outfalls should be reviewed and improved to ensure stabile stream morphology. Possible improvements to the outfalls include installing settling basins and boulder clusters. Erosion will be stabilized through the use of bank shaping, toe of slope protection, erosion control fabrics, and rapid vegetation establishment.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1325	LF	$200	$265,000
Clear and Grub	1.52	AC	$10,000	$15,200
Plantings	1.52	AC	$25,000	$38,000
Additional Cost, First 500 LF	500	LF	$200	$100,000
Erosion and Sediment Control	1	LS	10%	$41,820
Ancillary Items	1	LS	5%	$20,910
			Base Construction Cost	$480,930
			Mobilization (5%)	$24,047
			Subtotal 1	$504,977
			Contingency (25%)	$126,244
			Subtotal 2	$631,221
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$284,049
			Total	$915,270
			Estimated Project Cost	$920,000

PC9241_1.jpg View of culvert at stream

PC9241_2.jpg View of stream

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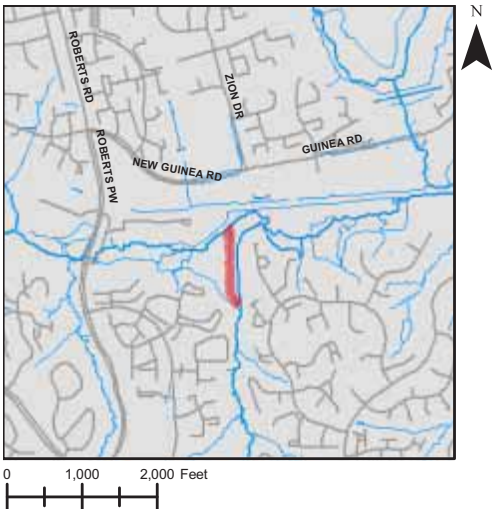
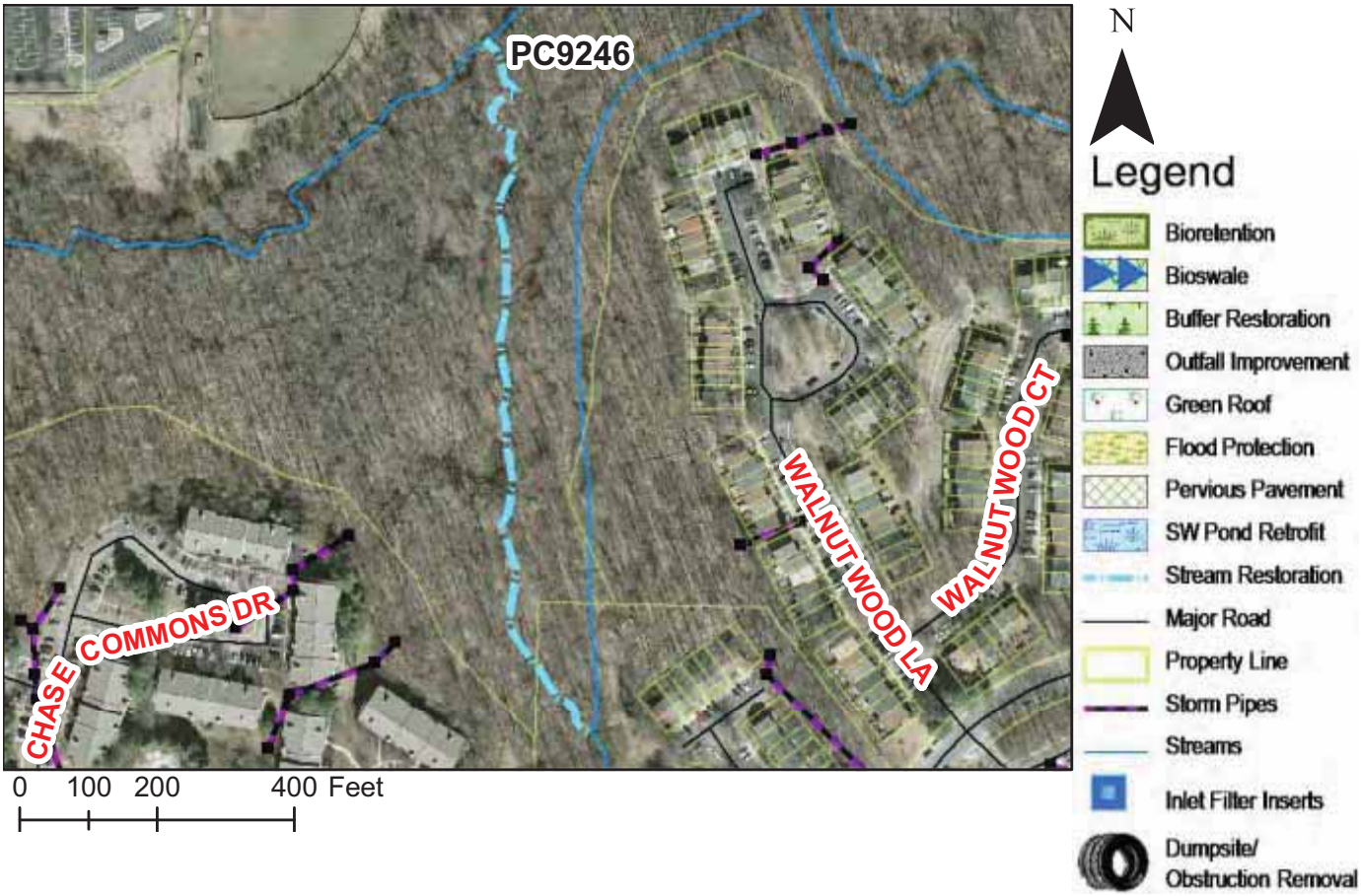
PC9246 Stream Restoration



Address: Behind 6001 Burke Commons Rd., Burke, Virginia
Location: Stream near Burke Commons Rd.
Land Owner: Private – Burke Centre Conservancy
PIN: 0772 01 0019B, 0772 09 C
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch

Description: This project proposes bank and bed erosion repair to improve poor channel morphology of a stream east of Roberts Parkway and south of the railroad tracks. Stream conveys runoff from adjacent dense residential development. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.



Project Benefits: An estimated 13.61 lbs/year of phosphorus will be removed. Stream restoration will reduce sediment loads while maintaining capacity and controlling unwanted meander. Measures listed above will be put in place to repair existing erosion and prevent future erosion over time.

Project Design Considerations: Project located in wooded area behind houses. Throughout length of stream restoration, there are several footbridges crossing the water. Per a site visit, it was evident that some erosion control was in place. The bed of the stream is covered in large stones. There are several areas of significant sediment deposition. Efforts should be taken to minimize impacts to mature vegetation.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	300	LF	$200	$60,000
Clear and Grub	0.34	AC	$10,000	$3,400
Plantings	0.34	AC	$25,000	$8,500
Additional Cost, First 500 LF	300	LF	$200	$60,000
Erosion and Sediment Control	1	LS	10%	$13,190
Ancillary Items	1	LS	5%	$6,595
			Base Construction Cost	$151,685
			Mobilization (5%)	$7,584
			Subtotal 1	$159,269
			Contingency (25%)	$39,817
			Subtotal 2	$199,087
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$89,589
			Total	$288,676
			Estimated Project Cost	$290,000

PC9246_1.jpg: View of stream

PC9246_2.jpg: View of streambed

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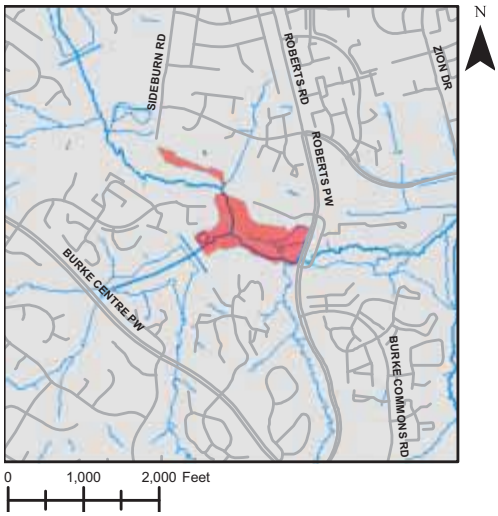
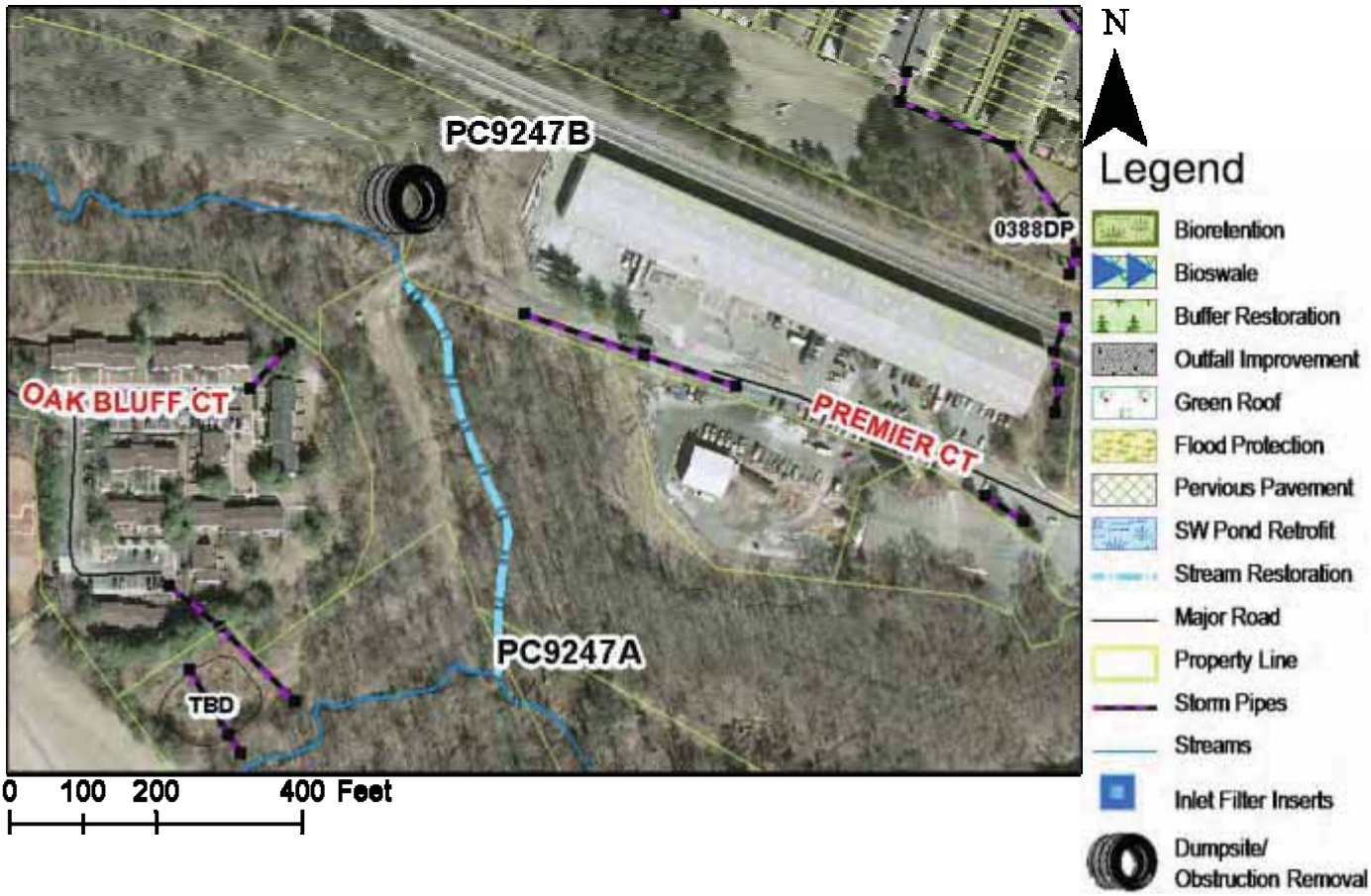
PC9247 Stream Restoration Suite



Address: Behind 5800 Cove Landing Road, Burke, Virginia
Location: Stream near Cove Landing Road
Land Owner: Private - Burke Centre Conservancy
PIN: 0772 01 0061C, 0772 01 0062, 0772 01 0062, 0772 01 0058B
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch

Description: Subproject A is a stream restoration and will repair bed and bank erosion in the stream southwest of Premier Court at the VRE Station. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment. Subproject B is an obstruction removal southeast of Ships Curve Lane. Primary indicators are flood complaints which have been field verified. This project proposes the removal of obstructions blocking the stream channel to restore natural conditions.



Project Benefits: Stabilizing 575 feet of this stream will reduce erosion and instream sediment, resulting in an estimated reduction of 7.90 Lbs/Yr of phosphorus removal. The proposed measures will repair the erosion that has occurred over time and help minimize and prevent future erosion. The obstruction removal will help restore the function of the stream by removing existing unnatural impediments.

Project Design Considerations: Stream is accesible by a non-paved road. Stream is in a heavily wooded area and measures should be taken to minimize impacts to trees . Obstructions apprear to be relatively small in size. Records show no stormwater easements. Project is located on private land owned by Burke Centre Conservancy. This suite of projects is located upstream of another stream restoration project, PC9243. Coordination of these project might result in additional benefits.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Subproject A	Stream Stabilization Behind Cove Landing Road			
Construct New Channel	575	LF	$200	$115,000
Clear and Grub	0.66	AC	$10,000	$6,600
Plantings	0.66	AC	$25,000	$16,500
Additional Cost, First 500 LF	500	LF	$200	$100,000
Erosion and Sediment Control	1	LS	10%	$23,810
Ancillary Items	1	LS	5%	$11,905
Subproject B	Dumpsite Removal near VRE Burke Centre Sta.			
Dumpsite Removal	1	LS	$5,250	$5,250
			Base Construction Cost	$279,065
			Mobilization (5%)	$13,953
			Subtotal 1	$293,018
			Contingency (25%)	$73,255
			Subtotal 2	$366,273
	Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)			$164,823
			Total	$531,096
			Estimated Project Cost	$540,000

PC9247_1 View of stream near obstruction

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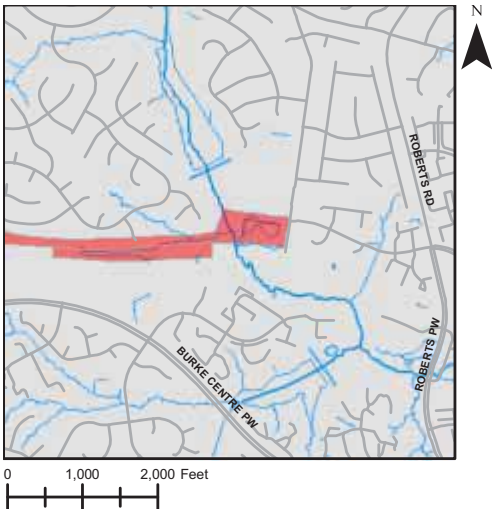
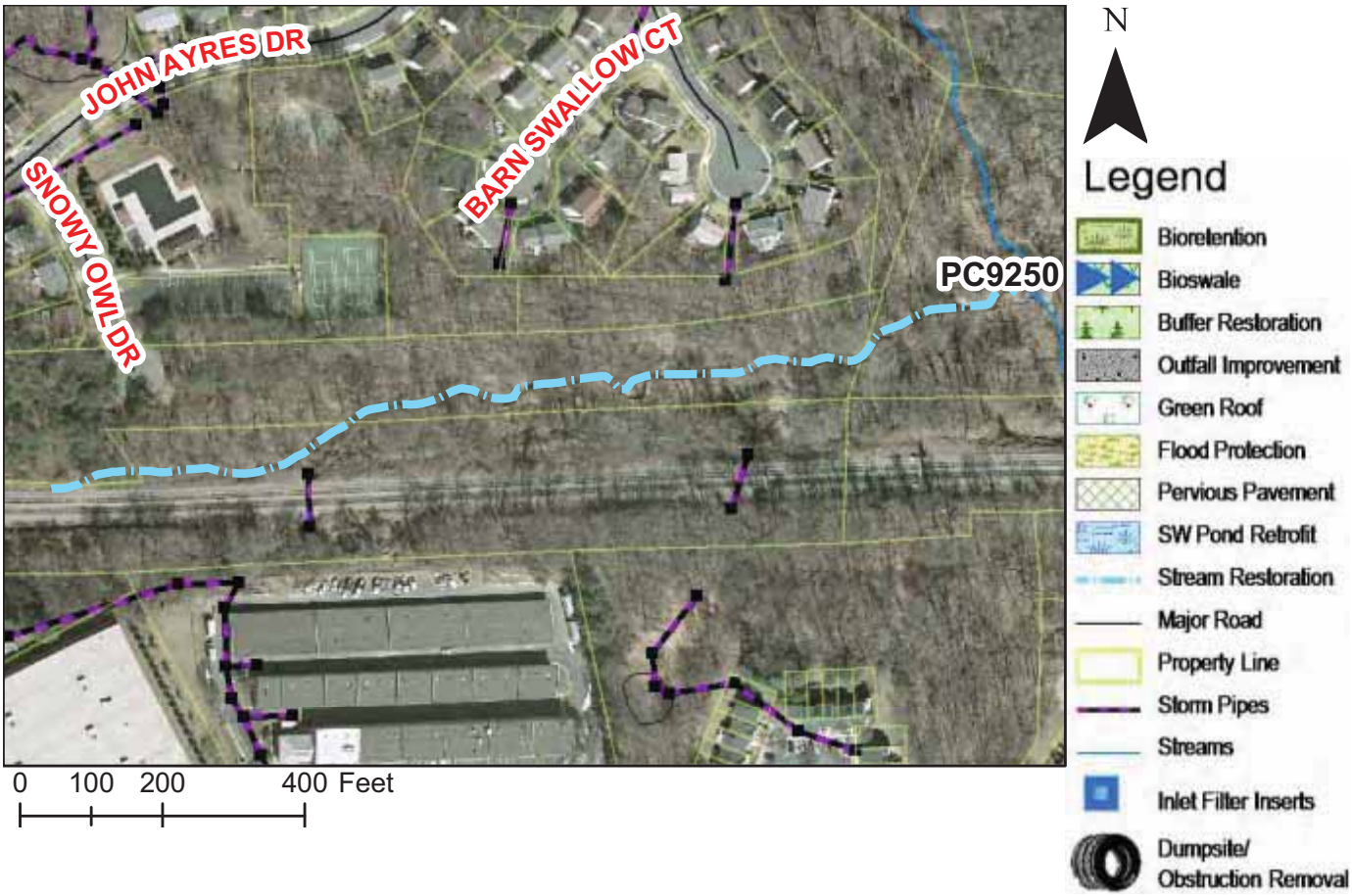
PC9250 Stream Restoration



Address: Behind 10602 Goldeneye Lane, Fairfax, Virginia
Location: Stream near Goldeneye Lane
Land Owner: Public/Local – Fairfax County Park Authority, Fairfax County Government, Southern Railway
PIN: 0772 01 0001, 0771 12 A, 0771 01 0058
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch

Description: The stream is south of Golden Eye Lane and north of the railroad tracks. The stream receives runoff from adjacent neighborhoods. This project proposes to repair bank and bed erosion and restore channel morphology. The primary indicator is poor channel morphology. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.



Project Benefits: An estimated 53.10 lbs/year of phosphorus will be removed. This will reduce the sediment loads to the stream while maintaining capacity and controlling the meandering. Measures described above will be put in place to repair existing erosion and prevent future erosion over time.

Project Design Considerations: Stream is on property owned by Fairfax County Park Athority, Fairfax County Government and Southern Railway. The stream runs parallel to railroad tracks. Efforts should be made to minimize impacts to mature vegetation. Coordination with Southern Railway will be necessary to ensure there will be no impacts to the tracks.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1470	LF	$200	$294,000
Clear and Grub	1.7	AC	$10,000	$17,000
Plantings	1.7	AC	$25,000	$42,500
Additional Cost, First 500 LF	500	LF	$200	$100,000
Erosion and Sediment Control	1	LS	10%	$45,350
Ancillary Items	1	LS	5%	$22,675
			Base Construction Cost	$521,525
			Mobilization (5%)	$26,076
			Subtotal 1	$547,601
			Contingency (25%)	$136,900
			Subtotal 2	$684,502
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$308,026
			Total	$992,527
			Estimated Project Cost	$1,000,000

PC9250_1.jpg Bird's eye view of stream

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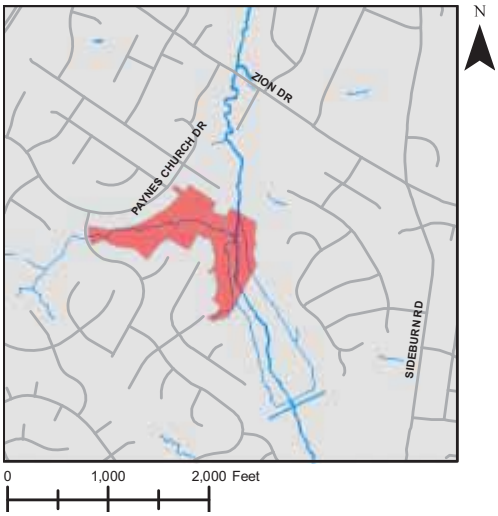
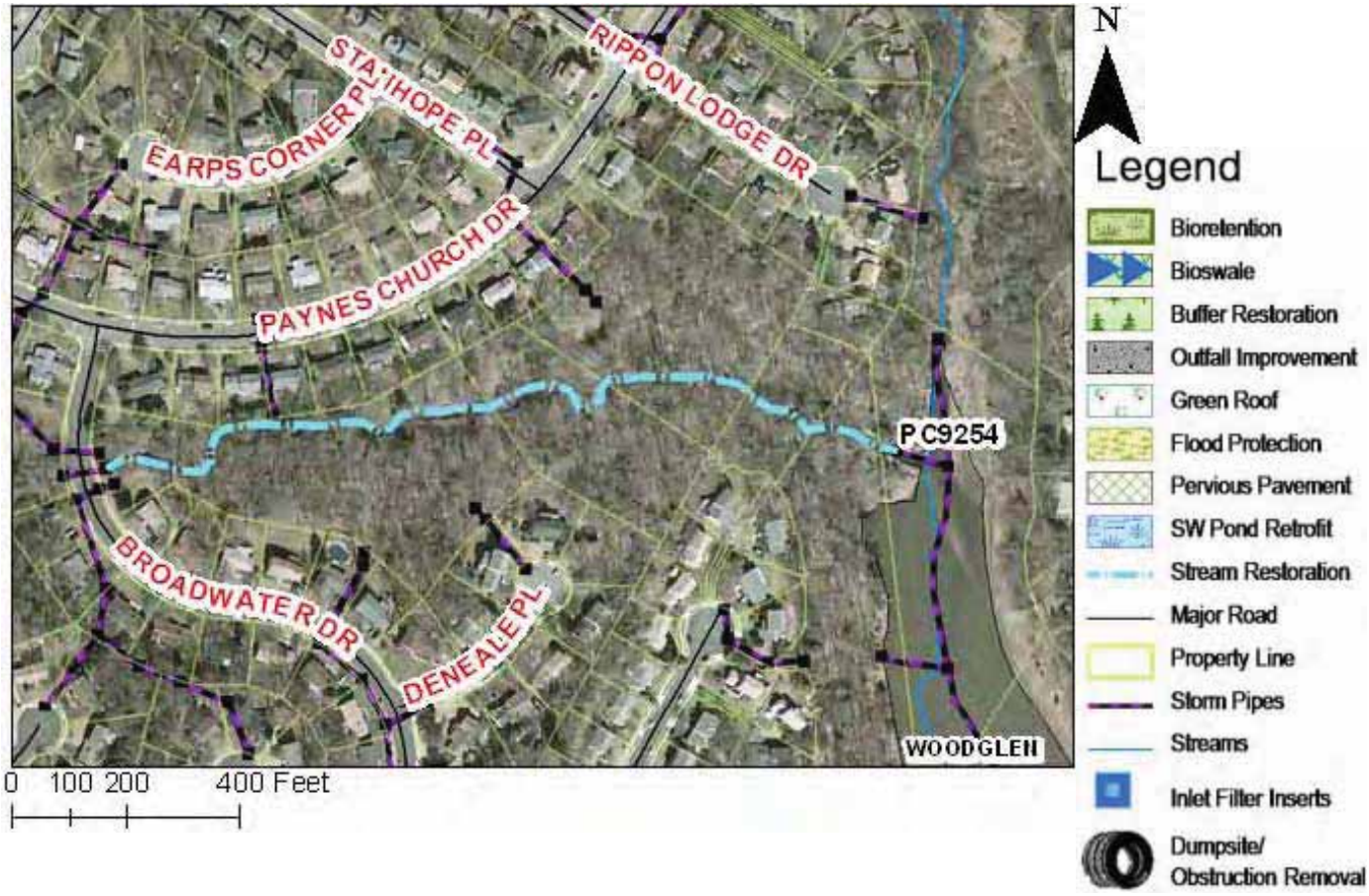
PC9254 Stream Restoration



Address: Behind 10757 John Turley Place, Fairfax, Virginia
Location: Stream near John Turley Place
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0683 01 0035F, 0683 05 A2, 0683 01 0035B, 0683 05 A, 0683 05 B, 0683 05 C
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch

Description: The project consists of restoration of a stream that discharges into Woodglen Pond. The primary indicator is poor channel morphology. This project proposes restoring the stream by repairing bank and bed erosion and restoring channel morphology. This will reduce sediment loads to the stream while maintaining capacity of the stream channel and controlling unwanted meander of the stream. Erosion will be stabilized through the use of bank shaping, toe of slope protection, erosion control fabric, and rapid vegetation establishment.



Project Benefits: Restoring 1570 feet of this stream will reduce erosion and instream sediment resulting in an estimated 76.34 lbs/year of phosphorus reduction. This project will stabilize banks and reestablish the streambed away from the single family homes.

Project Design Considerations: This stream restoration is bordered on the upstream end by a culvert under Broadwater Drive and two stormwater system outfalls. Going east, the stream has meandered too close to the back property line of houses near another stormwater outfall. This outfall should be improved to include a settling basin and the stream channel should be directed farther south. The other three stormwater outfall connections should be improved to ensure a stable connection to the stream.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1570	LF	$200	$314,000
Clear and Grub	1.8	AC	$10,000	$18,000
Plantings	1.8	AC	$25,000	$45,000
Additional Cost, First 500 LF	500	LF	$200	$100,000
Erosion and Sediment Control	1	LS	10%	$47,700
Ancillary Items	1	LS	5%	$23,850
			Base Construction Cost	$548,550
			Mobilization (5%)	$27,428
			Subtotal 1	$575,978
			Contingency (25%)	$143,994
			Subtotal 2	$719,972
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$323,987
			Total	$1,043,959
			Estimated Project Cost	$1,050,000

PC9254_1.jpg View of stream

PC9254_2.jpg View of stream erosion

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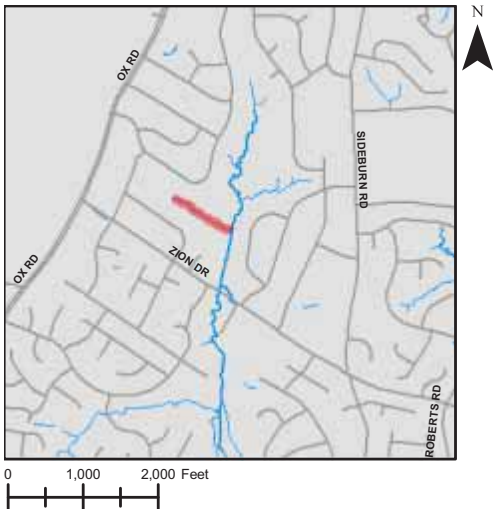
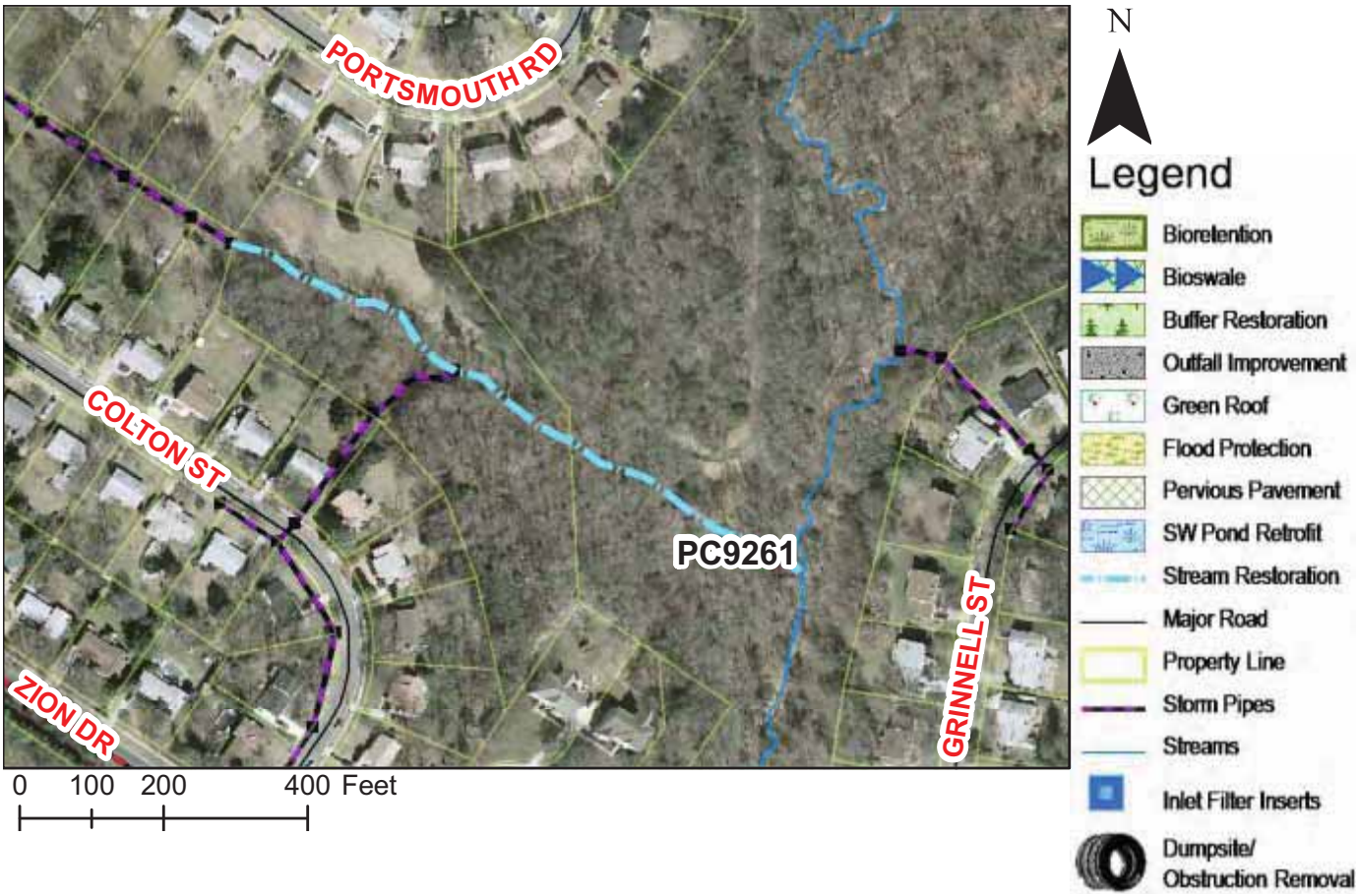
PC9261 Stream Restoration



Address: Behind 5214 Grinnell Street, Fairfax, Virginia
Location: Stream near Grinnell St. (northwest reach)
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0683 0408 A, 0683 0407 B
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch

Description: This project proposes restoration of a stream running parallel to Colton Street. The project consists of repairing bank and bed erosion and restoring channel morphology. The primary indicator is poor channel morphology. Stream conveys runoff from adjacent residential development. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.



Project Benefits: An estimated 4.74 lbs/year of phosphorus will be removed. Stream stabilization would reduce sediment loads to the stream while maintaining capacity and controlling unwanted meander. Measures will be put in place to repair existing erosion and prevent future erosion over time.

Project Design Considerations: Section of stream to be restored is entirely on property owned by Fairfax County Park Authoriy. Residential area is piped into stream without any pre-treatment. Efforts should be taken to minimize impacts to mature vegetation and to maintain the buffer.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	940	LF	$200	$188,000
Clear and Grub	1.08	AC	$10,000	$10,800
Plantings	1.08	AC	$25,000	$27,000
Additional Cost, First 500 LF	500	LF	$200	$100,000
Erosion and Sediment Control	1	LS	10%	$32,580
Ancillary Items	1	LS	5%	$16,290
			Base Construction Cost	$374,670
			Mobilization (5%)	$18,734
			Subtotal 1	$393,404
			Contingency (25%)	$98,351
			Subtotal 2	$491,754
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$221,289
			Total	$713,044
			Estimated Project Cost	$720,000

PC9261_1 View of erosion in stream

PC9261_2 View of stream

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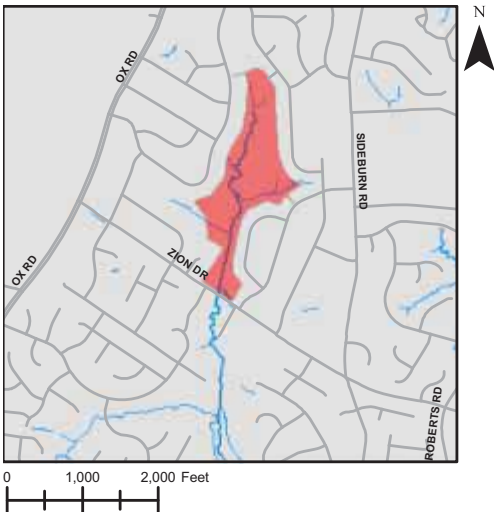
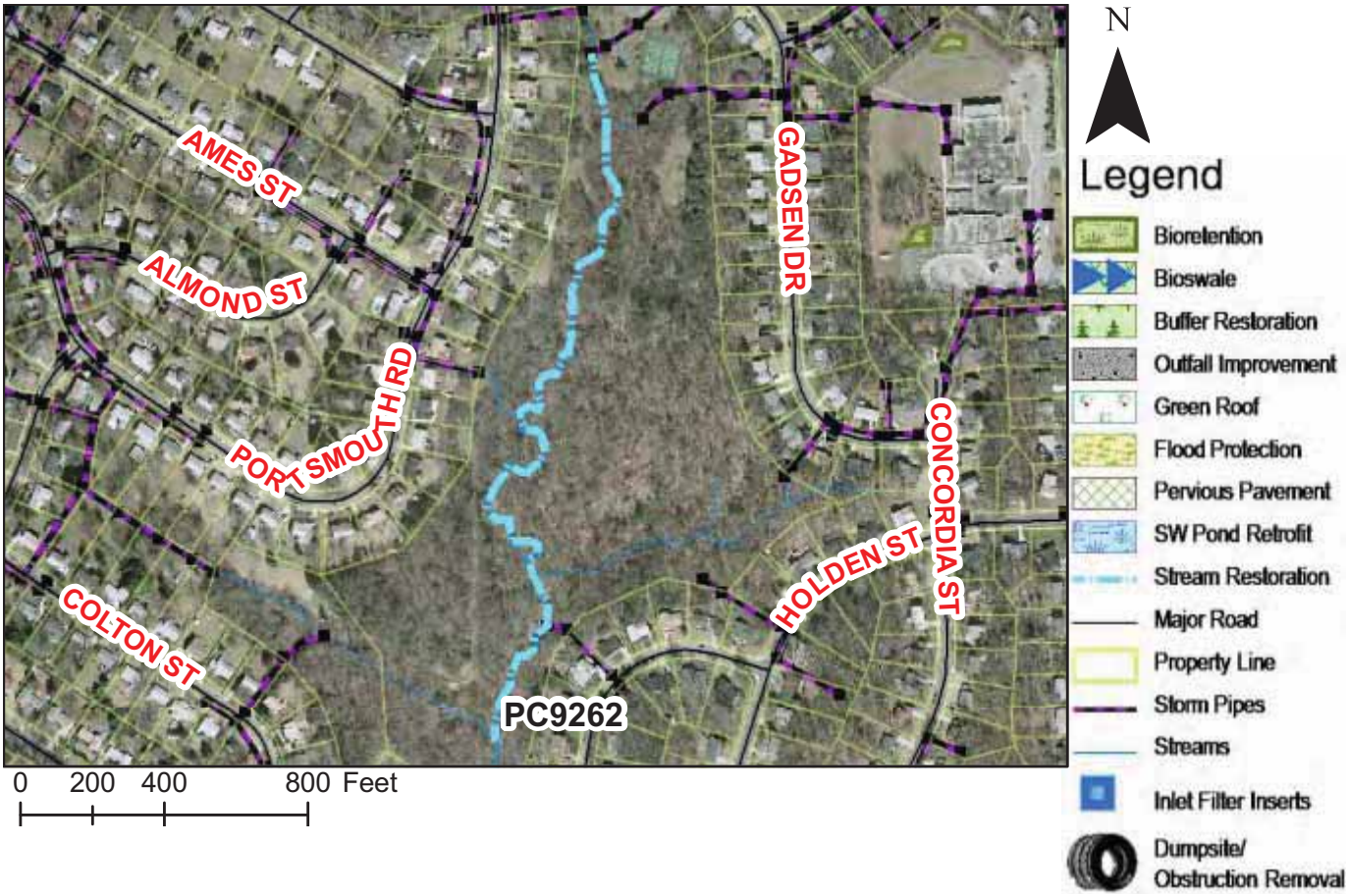
PC9262 Stream Restoration



Address: Behind 5214 Grinnell Street, Fairfax, Virginia
Location: Stream near Grinnell Street (northeast reach)
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0683 0407 B
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch

Description: The stream is east of Portsmouth Road and west of Gadsen Drive and flows to the south. The stream collects runoff from adjacent residential neighborhoods and a school to the north, east and west. This project proposes the repair and restoration of bank and bed erosion, some of which is severe. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics and rapid vegetation establishment.



Project Benefits: An estimated 57.14 lbs/year of phosphorus will be removed. The stream stabilization will reduce sediment loads to the stream and maintain the capacity of the stream channel to control unwanted meander. Restoration will reduce erosion over time and improve the overall condition of the stream and buffers. Stream also runs very close to adjacent residential neighborhoods and erosion could eventually have impacts on homes.

Project Design Considerations: Residential area outfalls through a closed system without any treatment. Runoff may be entering stream areas at a high velocity causing erosion. Some outfalls daylight close to the stream without very much buffer. The entire area of restoration is on property owned by Fairfax County Park Authority.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	2470	LF	$200	$494,000
Clear and Grub	2.84	AC	$10,000	$28,400
Plantings	2.84	AC	$25,000	$71,000
Additional Cost, First 500 LF	500	LF	$200	$100,000
Erosion and Sediment Control	1	LS	10%	$69,340
Ancillary Items	1	LS	5%	$34,670
			Base Construction Cost	$797,410
			Mobilization (5%)	$39,871
			Subtotal 1	$837,281
			Contingency (25%)	$209,320
			Subtotal 2	$1,046,601
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$470,970
			Total	$1,517,571
			Estimated Project Cost	$1,520,000

PC9262_1 View of stream at culvert

PC9262_2 View of erosion in stream

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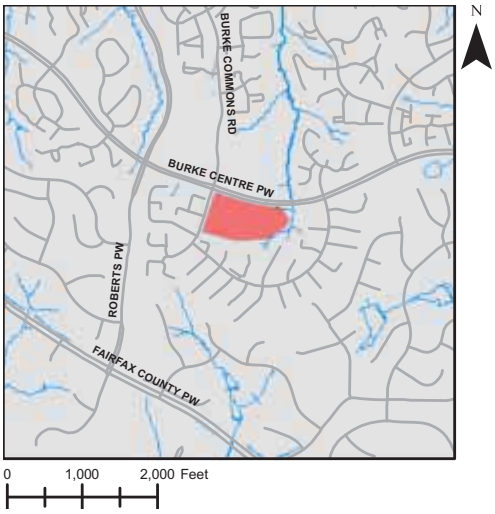
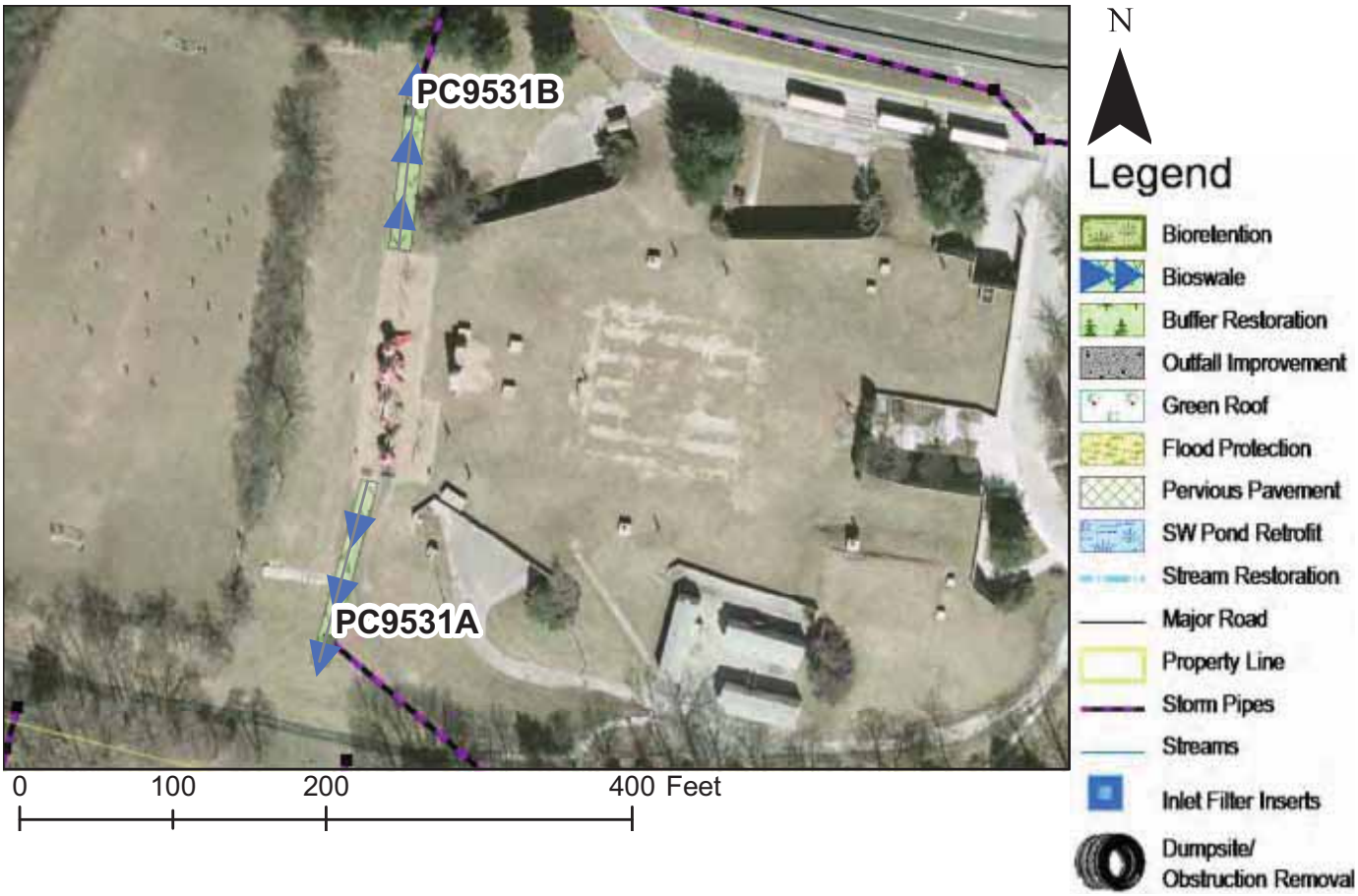
PC9531 BMP/ LID Suite



Address: 6000 Burke Centre Parkway, Burke, Virginia
Location: Terra Centre Elementary School
Land Owner: Public/Local – School Board of Fairfax County
PIN: 0774 01 0028A
Control Type: Water quality and quantity control
Drainage Area: 2.72 acres
Receiving Waters: Tributary of Sideburn Branch

Description: This suite of projects proposes creating bioswales near the back of a green roof at Terra Centre Elementary School. The bioswales will have a filter layer of sand to promote infiltration to native soils or to perforated underdrain. Primary indicators are pollutants including nitrogen, phosphorus and total suspended solids. Runoff will enter a closed system and outfall directly into a nearby stormwater facility.



Project Benefits: An estimated 1.01 lbs/year of phosphorus will be removed. The bioswales will reduce the pollutant loads and runoff into the system. The bioswales will capture the sheet flow and create an ideal environment for filtration, biological uptake and microbial activity, providing both pollutant removal and groundwater recharge.

Project Design Considerations: The bioswales would provide a good educational opportunity and would promote stewardship. Caution should be taken to not impact the student-grown garden near the vicinity of the project. Coordination and sequencing of these projects should be considered to allow sharing of mobilization fees and staging areas.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Subproject A	Bioretention at Terra Centre Elementary School (South)			
Bioretention Filters and Basins	150	SY	$150	$22,500
Subproject B	Bioretention at Terra Centre Elementary School (North)			
Bioretention Filters and Basins	175	SY	$150	$26,250
Common Items				
Plantings	1	LS	5%	$2,438
Ancillary Items	1	LS	5%	$2,438
Erosion and Sediment Control	1	LS	10%	$4,875
			Base Construction Cost	$58,500
			Mobilization (5%)	$2,925
			Subtotal 1	$61,425
			Contingency (25%)	$15,356
			Subtotal 2	$76,781
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$34,552
			Total	$111,333
			Estimated Project Cost	$120,000

PC9531_1.jpg View in direction of subproject B

PC9531_2.jpg View in direction of subproject A

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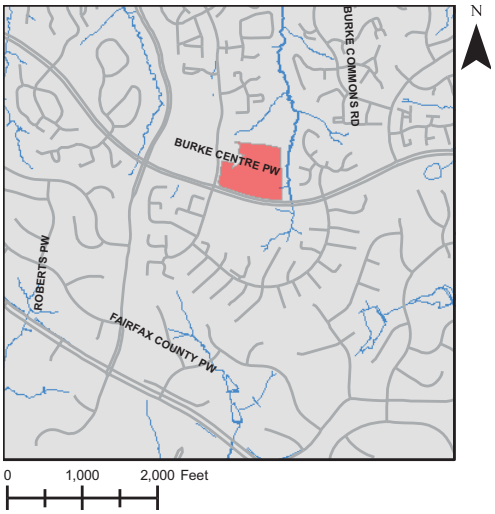
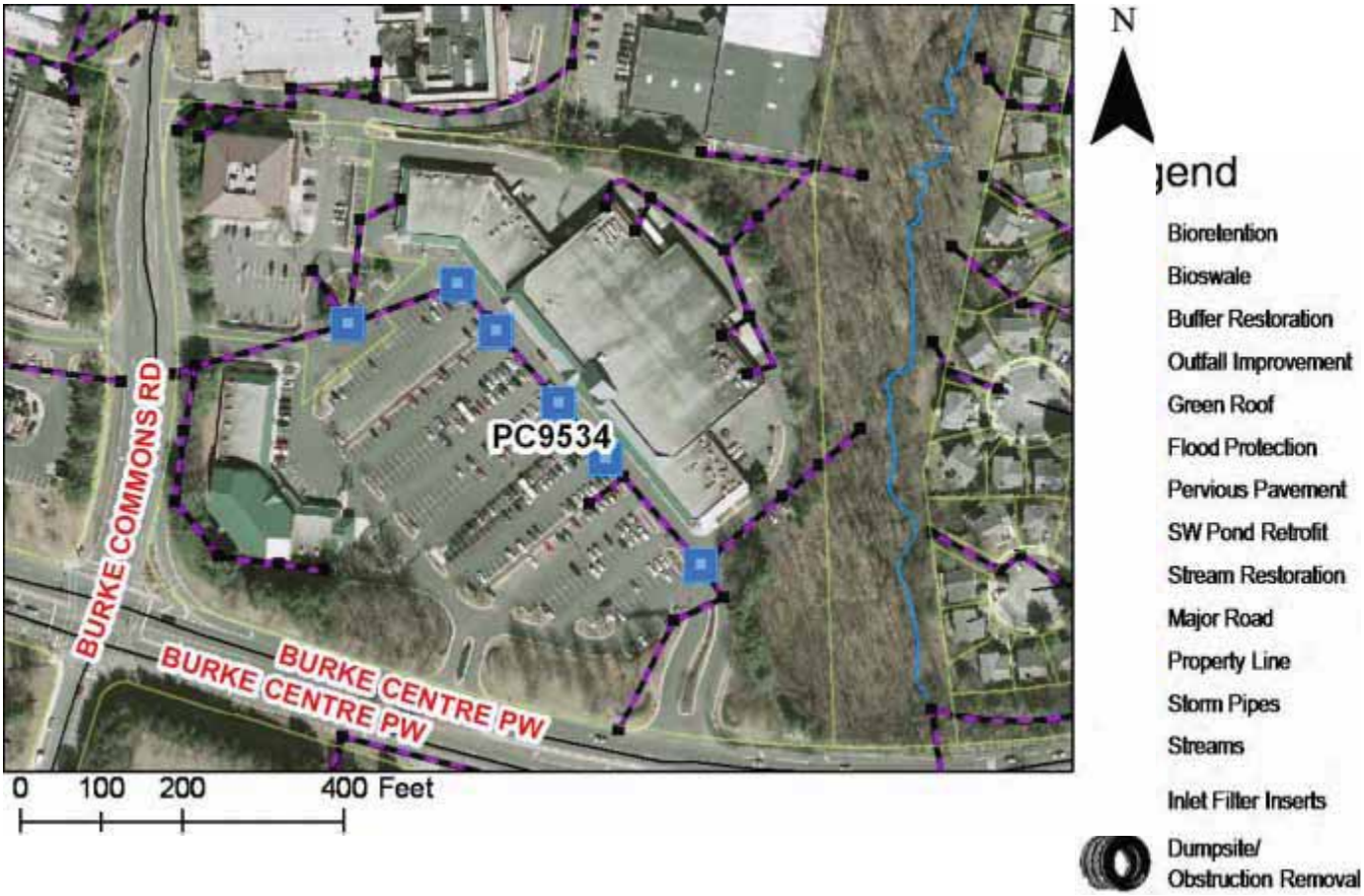
PC9534 BMP/LID



Address: 6011 Burke Centre Parkway, Burke, Virginia
Location: Giant Supermarket
Land Owner: Private – Burke Town Center
PIN: 0774 19 0004E
Control Type: Water quality control
Drainage Area: 6.78 acres
Receiving Waters: Tributary of Sideburn Branch

Description: This BMP/ LID project will consist of inlet inserts being placed in the existing inlets to provide pollutant removal. Runoff from the parking lot at Giant Grocery Store is collected in a closed pipe system and discharged to the stream behind the building to the east. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. Depending on the existing inlet, the inserts will either be in the form of a basket or a cartridge. This method is ideal due to the high imperviousness and space constraints on the site.



Project Benefits: An estimated 3.52 lbs/year of phosphorus will be removed. This retrofit is beneficial, since this site currently has no stormwater treatment before outfalling into the adjacent stream. The inlet inserts will provide some pollutant removal of hydrocarbons, nitrogen and phosphorus before stormwater leaves site and will not use any additional space.

Project Design Considerations: Site is private property and County records show no existing storm drainage easements. Additional maintenance for cleaning/ replacing the filter inserts will have to be coordinated between the County and the shopping center. The shopping center's stormwater construction documents will have to be reviewed to ensure that the inserts will not cause any adverse effects. The inserts will need to be placed to insure that any clogged filters will not cause adverse flooding.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Manufactured BMP	6	LS	$10,000	$60,000
Plantings	1	LS	5%	$2,500
Ancillary Items	1	LS	5%	$2,500
Erosion and Sediment Control	1	LS	10%	$5,000
			Base Construction Cost	$70,000
			Mobilization (5%)	$3,500
			Subtotal 1	$73,500
			Contingency (25%)	$18,375
			Subtotal 2	$91,875
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$41,344
			Total	$133,219
			Estimated Project Cost	$140,000

PC9534_1.jpg Birds eye view of parking area

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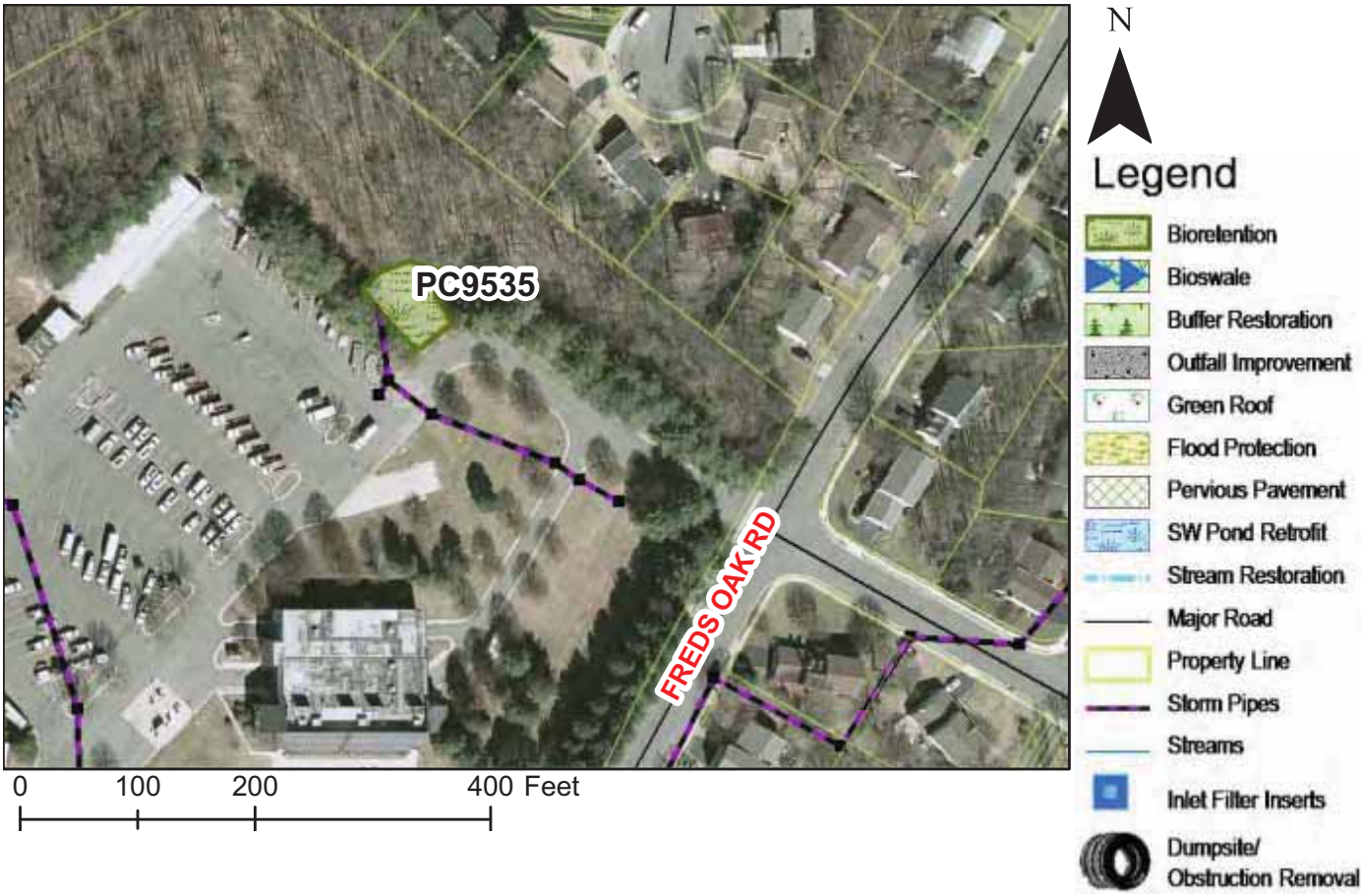
PC9535 BMP/LID

Address: 6000 Fred's Oak Rd., Burke, Virginia
Location: FFC Wastewater Collection Division Office Bldg.
Land Owner: Public/Local – Fairfax County
PIN: 0773 01 0013
Control Type: Water quality and quantity control
Drainage Area: 3.09 acres
Receiving Waters: Tributary of Sideburn Branch

Description: A series of curb inlets collect runoff from the Fairfax County Wastewater Collection Division parking lot, which is conveyed in a closed system. Majority of the site outfalls into a pond on the north side of the site. However, a portion of the runoff is untreated. The primary indicators are pollutants, including phosphorus, nitrogen and total suspended solids. This project proposes a biorentetion area at the northeast side of the parking lot. A filter layer made of 18-48" of sand is placed below a mulch layer. During a storm, the runoff ponds 6-9", rapidly filters to an underdrain, and outfalls into wooded area or infiltrates into the native soil.



Project Benefits: An estimated 0.60 lbs/year of phosphorus will be removed. The proposed bioretention area will reduce runoff rates and treat runoff before discharging into woods. Bioretention will capture sheet flow and create an ideal environment for filtration, biological uptake and microbial activity. The bioretention areas will promote infiltration and decrease runoff volume from the site.

Project Design Considerations: The bioretention area is on Fairfax County property. Efforts should be made to minimize impacts to mature vegetation. Area should have enough space to construct bioretention area without having significant impacts. Pond retrofit (PC9129) proposed on site to treat remainder of site. Drainage area to proposed bioretention is currently untreated.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Filters and Basins	375	SY	$150	$56,250
Plantings	1	LS	5%	$2,813
Ancillary Items	1	LS	5%	$2,813
Erosion and Sediment Control	1	LS	10%	$5,625
			Base Construction Cost	$67,500
			Mobilization (5%)	$3,375
			Subtotal 1	$70,875
			Contingency (25%)	$17,719
			Subtotal 2	$88,594
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$39,867
			Total	$128,461
			Estimated Project Cost	$130,000

PC9535_1.jpg View of bioretention area

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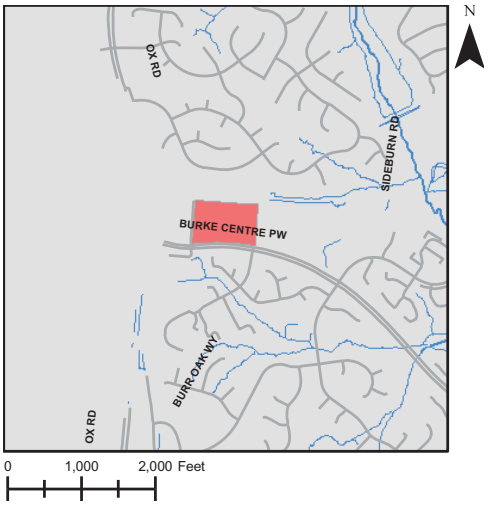
PC9539 BMP/LID



Address: 5727 Burke Center Parkway, Burke, Virginia
Location: Burke Center Shopping Center
Land Owner: Private – Steuart Burke Centre Shopping Center LLC
PIN: 0771 01 0063
Control Type: Water quality control
Drainage Area: 9.72 acres
Receiving Waters: Tributary of Sideburn Branch

Description: This project is located at the shopping center near the intersection of Burke Centre Parkway and Oak Green Way. The storm system collects runoff from the shopping center and outfalls to stream along railroad tracks. A portion of the parking lot is conveyed in a closed system in the adjacent shopping center to the east and west and the remaining is conveyed by a closed system to a stream to the south. This project proposes incorporating BMP inlet inserts or manufactured BMP filtration systems to provide pollutant removal before outfalling into stream.

Project Benefits: An estimated 5.39 lbs/year of phosphorus will be removed. Currently, all trash, parking lot debris, and hydrocarbons flow directly into the surrounding waterways. Any stormwater treatment that can be implemented for this high traffic shopping center would be beneficial.

Project Design Considerations: The storm inlets appear to be catch basins in sag conditions. The four inlets chosen are at the farthest upstream ends of the storm system. The storm system needs to be examined to determine whether there is hydraulic head available to make cartridge filters work or if less effective basket filters will need to be used. The records show no existing storm easements. The installation and maintenance of these inserts will need to be coordinated with the shopping center. The inserts will receive runoff from a large amount of untreated impervious area, so maintenance will be more important than normal.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Manufactured BMP	5	LS	$10,000	$50,000
Plantings	1	LS	5%	$2,500
Ancillary Items	1	LS	5%	$2,500
Erosion and Sediment Control	1	LS	10%	$5,000
			Base Construction Cost	$60,000
			Mobilization (5%)	$3,000
			Subtotal 1	$63,000
			Contingency (25%)	$15,750
			Subtotal 2	$78,750
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$35,438
			Total	$114,188
			Estimated Project Cost	$120,000

PC953_1.jpg View of shopping center parking lot

PC9539_2 Bird's eye view of shopping center parking lot

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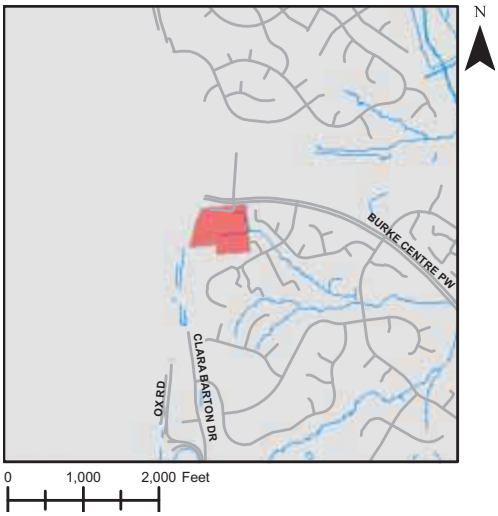
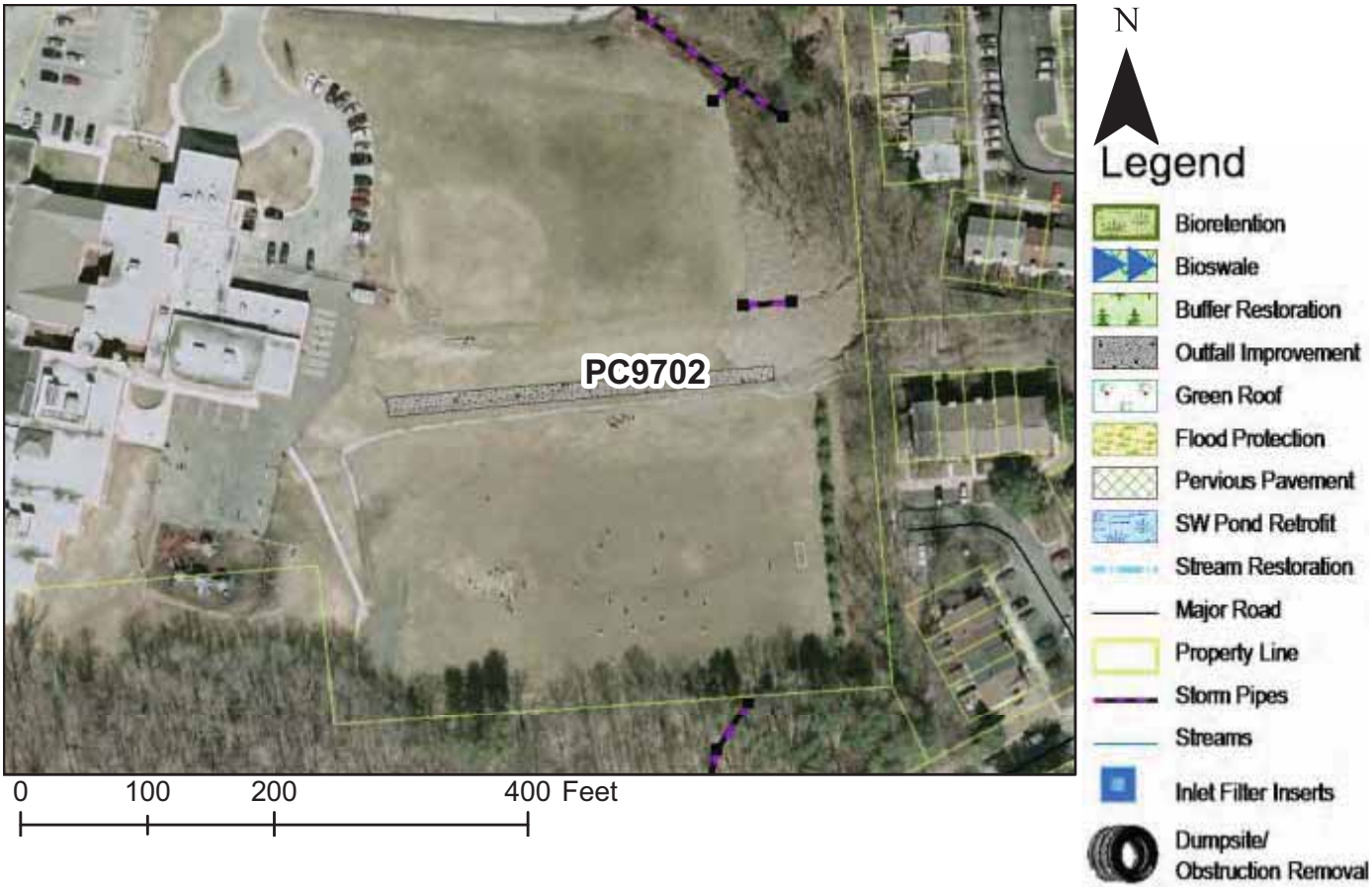
PC9702 Outfall Improvement



Address: 5815 Ox Road, Fairfax Station, Virginia
Location: Fairview Elementary School
Land Owner: Public/Local – School Board of Fairfax County
PIN: 0771 01 0046
Control Type: Water quality and quantity control
Drainage Area: 1.32 acres
Receiving Waters: Tributary of Sideburn Branch

Description: Swale reconstruction is proposed in the fields behind Fairview Elementary School. An exisitng grass swale discharges into the stream adjacent to the school. The swale is located between two playing fields. The project proposes adding energy dissipation devices to the swale, such as check dams and increased planting, to decrease velocities, increase infiltration, and improve stormwater quality.



Project Benefits: The proposed project will reduce erosive velocities in the swale. Decreasing velocities in the swale will promote infiltration and pollutant removal before discharge. This will also increase groundwater recharge and downstream channel protection. The swale is between fields at a school and excessive erosion could have negative impacts to the fields.

Project Design Considerations: The drainage area of the swale is the adjacent fields. The Watershed Advisory Group (WAG) supports these low cost projects that will improve water quality and educate students. Swale needs to be retrofitted in such a way as to minimize potential impacts after contruction. Due to its location, the outfall improvement will have a substantial amount of traffic. In order to insure the project will function properly, foot traffic should be directed to cross at stabilized check dams, and directed away from infiltration areas.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Percolation/Infiltration Trench	450	SY	$75	$33,750
Plantings	1	LS	5%	$1,688
Ancillary Items	1	LS	5%	$1,688
Erosion and Sediment Control	1	LS	10%	$3,375
			Base Construction Cost	$40,500
			Mobilization (5%)	$2,025
			Subtotal 1	$42,525
			Contingency (25%)	$10,631
			Subtotal 2	$53,156
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$23,920
			Total	$77,077
			Estimated Project Cost	$80,000

PC9702_1.jpg View of existing swale

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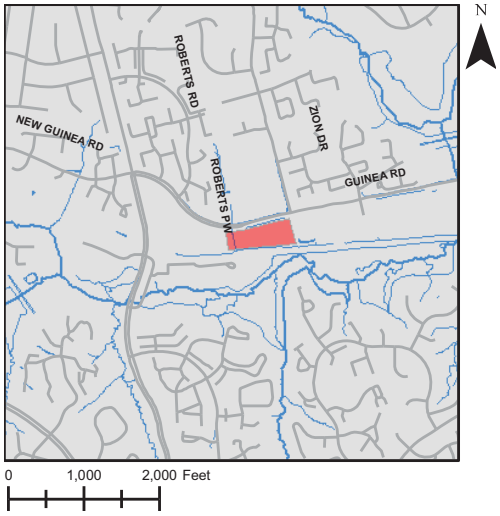
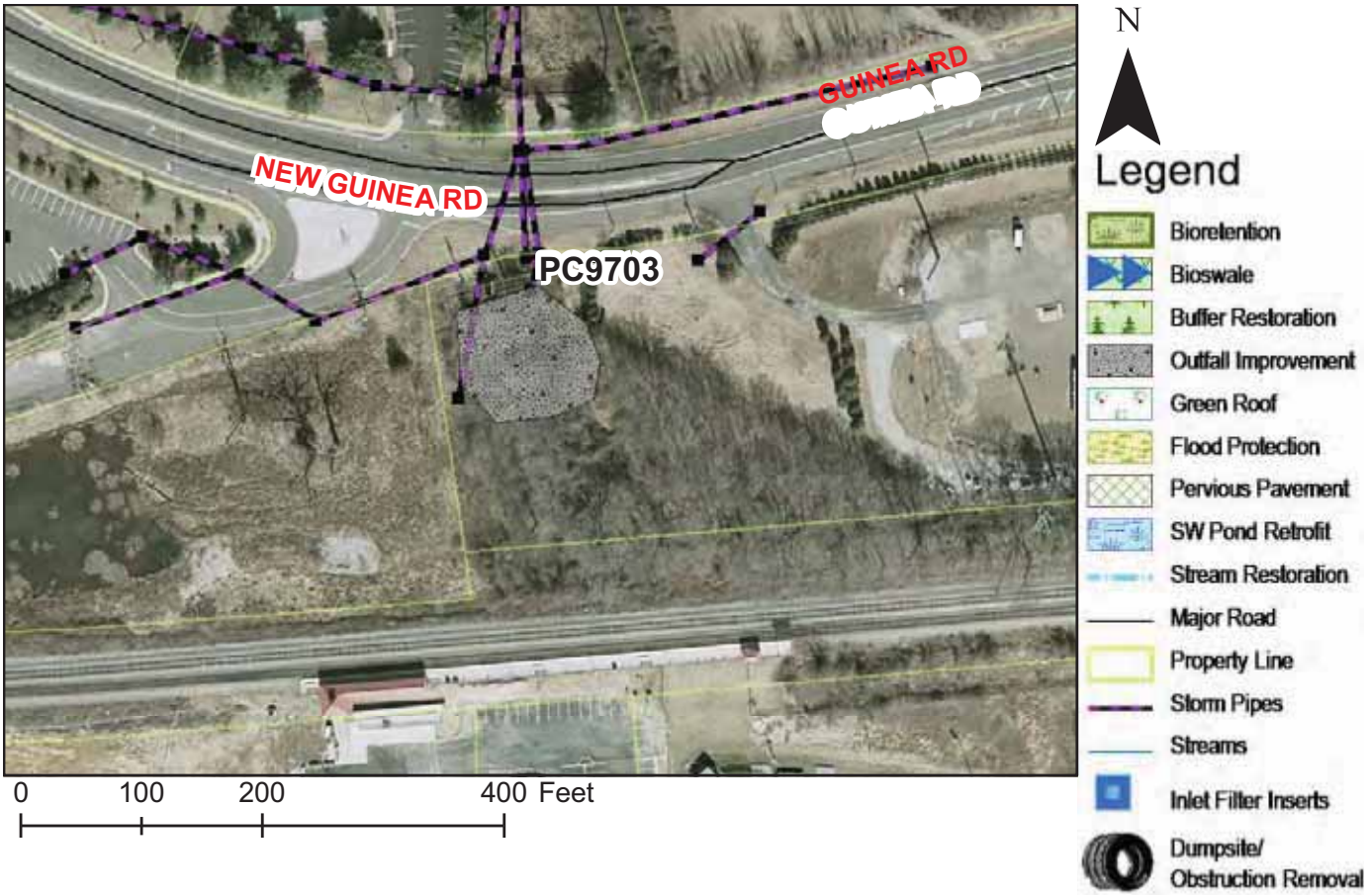
PC9703 Outfall Improvement



Address: 5637 Guinea Road, Fairfax, Virginia
Location: Outfall Near Power Company Facility
Land Owner: Private - Electric & Power Co., VA
PIN: 0772 01 0034
Control Type: Water quality and quantity control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch

Description: This project proposes improving the outfall located in open space east of a shopping center and west of the power company facility along Guinea Road. The project proposes to construct an energy dissipation device at the outfall. This project will help address the existing erosion problem in the downstream channel. This outfall conveys discharge from dry pond 0175DP and the roadway drainage system for New Quinea Rd.



Project Benefits: This project will improve the outfall area by lowering velocities of the stormwater and therefore decrease erosion. The modifications to the outfall will also allow for more pollutant removal. Water volumes and velocities will be reduced before the water discharges to the wooded area and ultimately into a stream.

Project Design Considerations: The project map shows three pipes near this area. Additional survey information will be necessary to clarify these pipes' flow directions. Records show that the two eastern pipe ends are located in a small storm drain easement. This easement will need to be enlarged for the project. The area proposed for the outfall improvement area is currently very well vegetated. Efforts should be made to minimize impacts to mature existing vegetation when possible. Larger flows from larger storms would discharge to the existing outfall, but the area would be improved to include a settling basin.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	1.05	AC	$8,500	$8,925
Grading and Excavation	1000	CY	$35	$35,000
Plantings	1	LS	5%	$2,196
Ancillary Items	1	LS	5%	$2,196
Erosion and Sediment Control	1	LS	10%	$4,393
			Base Construction Cost	$52,710
			Mobilization (5%)	$2,636
			Subtotal 1	$55,346
			Contingency (25%)	$13,836
			Subtotal 2	$69,182
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$31,132
			Total	$100,314
			Estimated Project Cost	$110,000

PC9703_1.jpg View of outfall area

PC9703_2.jpg View of outfall area

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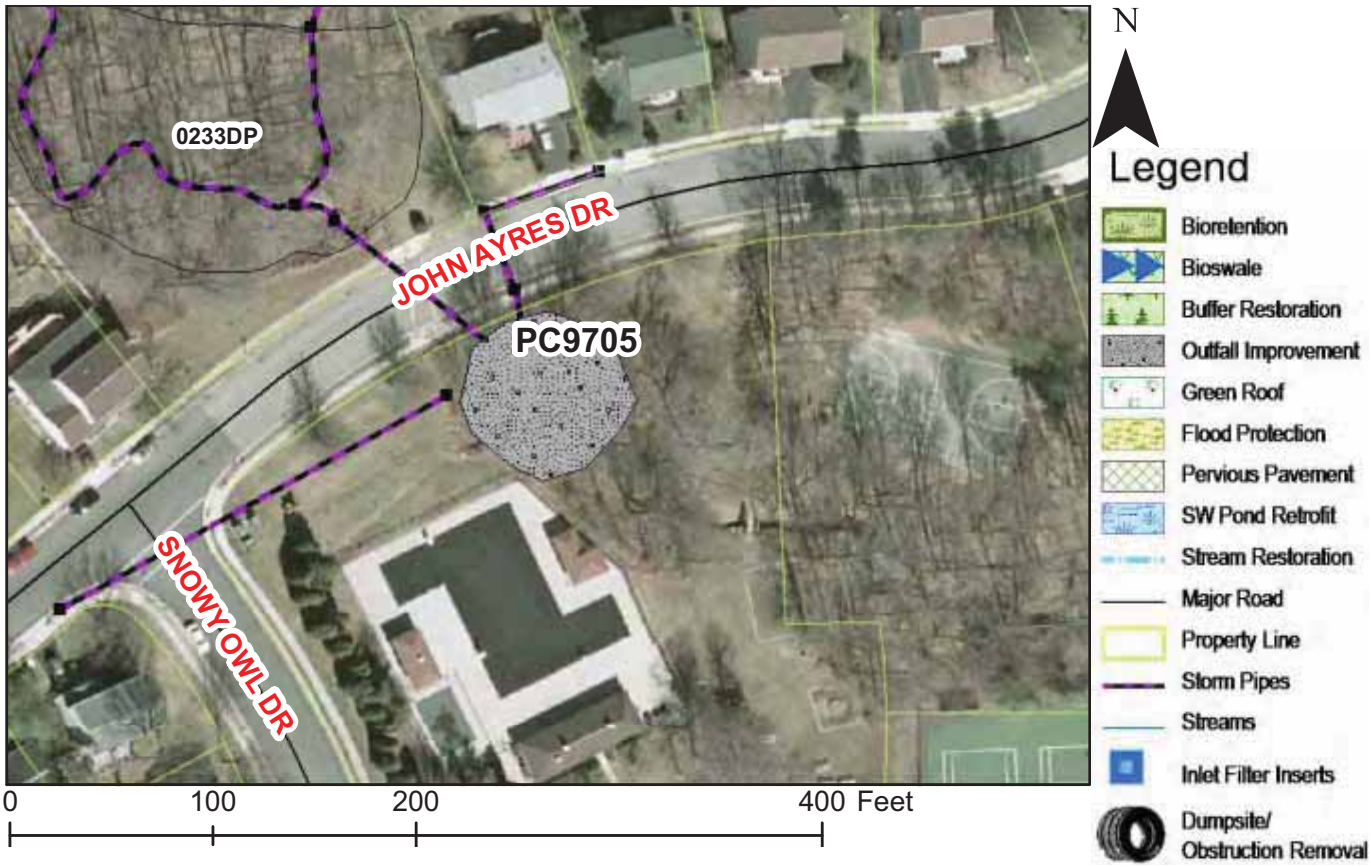
PC9705 Outfall Improvement

Address: Next to pool at 5601 Snowy Owl Drive, Fairfax, Virginia
Location: Outfall near Snowy Owl Dr.
Land Owner: Private Fairfax Club Estates Homeowners Association
PIN: 0771 12 G
Control Type: Water quality and quantity control
Drainage Area: N/A
Receiving Waters: Sideburn Branch

Description: This project proposes a new storage and treatment area below the outfall from pond 0233DP and the closed system along John Ayres Dr. A sediment basin will be created inline with the stream to help dissipate erosive velocities. Plants with good nutrient uptake will be installed to reduce pollutant loading from the untreated stormwater runoff. Primary indicators are stream bank buffer deficiency in headwater riparian habitat.



Project Benefits: The new storage and treatment area will reduce the velocity of runoff directly discharging from the two roadway storm pipes. Detaining this runoff will help minimize erosion. The settling basin will decrease the debris and sediment contributed to the stream by the untreated runoff from the closed stormwater collection system.

Project Design Considerations: Project is near existing club house. Records show no existing stormwater easement. Project would occur on the Fairfax Club Estates open space. This area receives flow from three stormwater pipes. Two of the stormwater pipes drain areas that have no prior stormwater quality or quantity management. Since project is next to the Fairfax Club Estates clubhouse, this area is highly visible and this project would encourage the public to participate in watershed stewardship. Stewardship is one of the County's watershed planning final objectives.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.1	AC	$8,500	$850
Grading and Excavation	875	CY	$35	$30,625
Plantings	1	LS	5%	$1,574
Ancillary Items	1	LS	5%	$1,574
Erosion and Sediment Control	1	LS	10%	$3,148
			Base Construction Cost	$37,770
			Mobilization (5%)	$1,889
			Subtotal 1	$39,659
			Contingency (25%)	$9,915
			Subtotal 2	$49,573
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$22,308
			Total	$71,881
			Estimated Project Cost	$80,000

PC9705_1.jpg Bird's Eye View of Outfall Improvement Area looking south

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