

Appendix C – Project Fact Sheets

Capital Improvement Projects

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North Branch Watershed

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South Little Hunting Creek Watershed

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Capital Improvement Projects

Capital Improvement Project:

LH9972 Community Watershed Support Services Project (A4.2, B1.2, D3.1)

Location:

N/A

Description:

Provide technical assistance and educational outreach to watershed residents and neighborhood groups and associations.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Rain Barrel/Garden Support	1	LS	\$ 10,000.00	\$10,000.00
Tidal Shoreline Ed/Tech Assistance	1	LS	\$ 5,000.00	\$5,000.00
Community Organization Support	1	LS	\$ 10,000.00	\$10,000.00
			Base Construction Cost	N/A
			Mobilization (5%)	N/A
			Subtotal 1	N/A
			Contingency (25%)	\$6,250.00
			Subtotal 2	\$31,250.00
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	N/A
			Total Per Year	\$31,250.00
			Estimated Project Cost Per Year	\$40,000.00
			Total Estimated Project Cost	\$1,000,000.00

Capital Improvement Project:
LH9974 Conservation Acquisition Project (B2.3, B3.3)

Location:
N/A

Description:
Facilitate the acquisition of conservation easements in the watershed.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Facilitate Acq. of Cons Easemts	1	LS	\$ 30,000.00	\$30,000.00
			Base Construction Cost	N/A
			Mobilization (5%)	N/A
			Subtotal 1	N/A
			Contingency (25%)	\$7,500.00
			Subtotal 2	\$37,500.00
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	N/A
			Total Per Year	\$37,500.00
			Estimated Project Cost Per Year	\$40,000.00
			Total Estimated Project Cost	\$200,000.00

Capital Improvement Project:
LH9976 Enforcement Enhancement Project (C2.4, D1.3)

Location: N/A

Description: Perform an illicit discharge investigation in the watershed. Enhance enforcement of the county solid waste and erosion and sediment control ordinances.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Illicit Discharge Investigations	1	LS	\$ 20,000.00	\$20,000.00
Enforce SW and ESC Ordinances	1	LS	\$ 40,000.00	\$40,000.00
			Base Construction Cost	N/A
			Mobilization (5%)	N/A
			Subtotal 1	N/A
			Contingency (25%)	\$15,000.00
			Subtotal 2	\$75,000.00
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	N/A
			Total Per Year	\$75,000.00
			Estimated Project Cost Per Year	\$80,000.00
			Total Estimated Project Cost	\$1,920,000.00

Capital Improvement Project:
LH9977 Dumpsite Removal Project (D1.1)

Location:
N/A

Description:
Partner with community groups to remove trash, debris and dumpsites throughout the watershed.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clean Up Trash, Debris & Dump Sites	1	LS	\$ 30,000.00	\$30,000.00
		Base Construction Cost		N/A
		Mobilization (5%)		N/A
		Subtotal 1		N/A
		Contingency (25%)		\$7,500.00
		Subtotal 2		\$37,500.00
		Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)		N/A
		Total Per Year		\$37,500.00
		Estimated Project Cost Per Year		\$40,000.00
		Total Estimated Project Cost		\$200,000.00

Capital Improvement Project:
LH9978 Buffer Monitoring Project (B1.3)

Location:
N/A

Description:
Monitor existing and restored buffers throughout the watershed.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Monitor Exist & Restored Buffers	1	LS	\$ 10,000.00	\$10,000.00
			Base Construction Cost	N/A
			Mobilization (5%)	N/A
			Subtotal 1	N/A
			Contingency (25%)	\$2,500.00
			Subtotal 2	\$12,500.00
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	N/A
			Total Per Year	\$12,500.00
			Estimated Project Cost Per Year	\$15,000.00
			Total Estimated Project Cost	\$345,000.00

Capital Improvement Project:
LH9980 Small Watershed Grant Program (D2.1)

Location:
N/A

Description:
Create and administer a small watershed grant program for watershed organizations.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Create/Administer Program	1	LS	\$ 15,000.00	\$15,000.00
		Base Construction Cost		N/A
		Mobilization (5%)		N/A
		Subtotal 1		N/A
		Contingency (25%)		\$3,750.00
		Subtotal 2		\$18,750.00
		Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)		N/A
		Total Per Year		\$18,750.00
		Estimated Project Cost Per Year		\$20,000.00
		Total Estimated Project Cost		\$460,000.00

Capital Improvement Project:
LH9981 Street Sweeping Program (C1.2)

Location:
N/A

Description:
Hire a contractor to sweep county streets and parking areas throughout the watershed.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Contractor to Sweep Streets/Parking	1	LS	\$ 15,000.00	\$15,000.00
		Base Construction Cost		N/A
		Mobilization (5%)		N/A
		Subtotal 1		N/A
		Contingency (25%)		\$3,750.00
		Subtotal 2		\$18,750.00
		Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)		N/A
		Total Per Year		\$18,750.00
		Estimated Project Cost Per Year		\$20,000.00
		Total Estimated Project Cost		\$460,000.00

Capital Improvement Project:
LH9985 Wetlands Survey Project (B3.1)

Location:
N/A

Description:
Perform a wetlands function and values survey for the entire watershed. Delineate and assess the condition of all existing wetlands and prioritize wetlands for restoration.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Perform Wetlands Funct/Value Survey	1	LS	\$ 250,000.00	\$250,000.00
			Base Construction Cost	N/A
			Mobilization (5%)	N/A
			Subtotal 1	N/A
			Contingency (25%)	\$62,500.00
			Subtotal 2	\$312,500.00
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	N/A
			Total	\$312,500.00
			Estimated Project Cost	\$320,000.00

Capital Improvement Project:
LH9986 Fecal Coliform Source Study Project (C2.1)

Location:
N/A

Description:
Perform an investigation to identify the source(s) of fecal coliform in the watershed.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Identify Source of Fecal Coliform	1	LS	\$ 250,000.00	\$250,000.00
		Base Construction Cost		N/A
		Mobilization (5%)		N/A
		Subtotal 1		N/A
		Contingency (25%)		\$62,500.00
		Subtotal 2		\$312,500.00
		Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)		N/A
		Total		\$312,500.00
		Estimated Project Cost		\$320,000.00

Capital Improvement Project:

LH9989 Stormwater Infrastructure Condition Assessment (A3.11)

Location:

N/A

Description:

Institute an inspection protocol and perform an assessment of ditches, pipes, and outfalls within the watershed every five years, for 25 years, and make repairs as necessary.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Assess Stormwater Infrastructure	1	LS	\$ 40,000.00	\$40,000.00
			Base Construction Cost	N/A
			Mobilization (5%)	N/A
			Subtotal 1	N/A
			Contingency (25%)	\$10,000.00
			Subtotal 2	\$50,000.00
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	N/A
			Total Every 5 Years	\$50,000.00
			Estimated Project Cost Every 5 Years	\$50,000.00
			Total Estimated Project Cost	\$216,000.00

North Branch Watershed

Watershed Plan Map Number:
NB1

Capital Improvement Project:
LH9111 LID Demonstration
Projects

Tax Grid Map Number:
102-1

Location:
Sherwood Hall Library, Carl Sandberg Middle School, the Stratford Landing Elementary School, the Whitman Middle School and the Hollin Meadows Schools

Description:
Construct LID demonstration projects including bioretention facilities, porous pavement, buffer strips, and Filterra or similar types of drop inlets.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention	16	LS	\$ 7,500.00	\$120,000.00
Obscuring Exist. Pavement	5000	SY	\$ 8.00	\$40,000.00
Porous Pavement	5000	SY	\$ 15.00	\$75,000.00
Vegetated Filter Strip	25000	SY	\$ 0.70	\$17,500.00
Manufactured BMP System	16	EA	\$ 3,000.00	\$48,000.00
Base Construction Cost				\$300,500.00
Mobilization (5%)				\$15,025.00
Subtotal 1				\$315,525.00
Contingency (25%)				\$78,881.25
Subtotal 2				\$394,406.25
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$177,482.81
Total				\$571,889.06
Estimated Project Cost				\$580,000.00

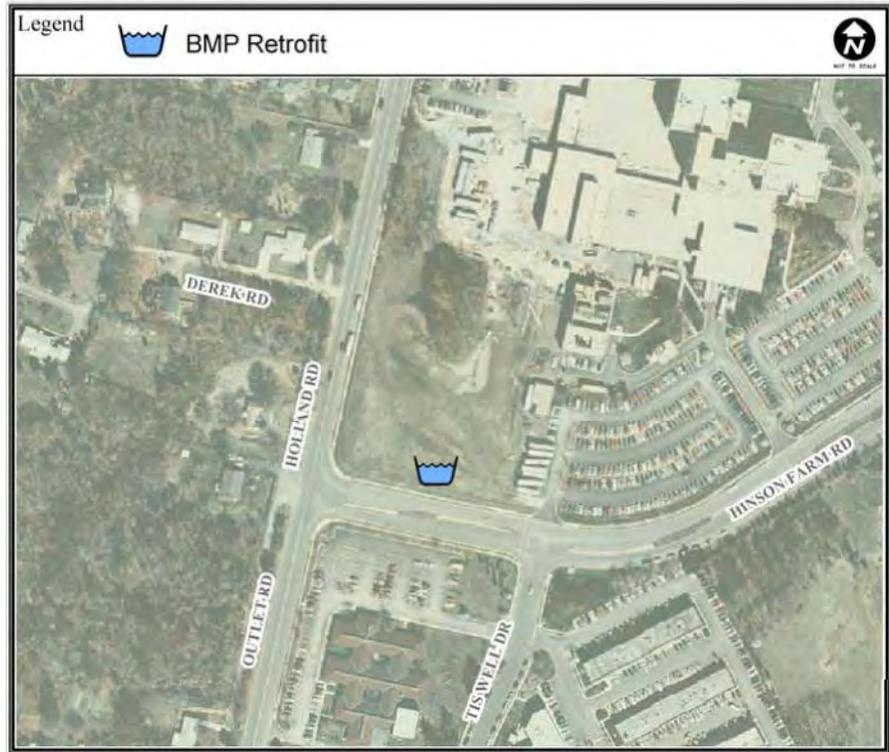
Watershed Plan Map Number:
NB2

Capital Improvement Project:
LH9125 BMP Retrofit

Tax Grid Map Number:
102-1

Location:
7920 Holland Road

Description:
Increase detention storage by 2600 cubic yards, modify and/or replace existing riser and outlet structures, add infiltration features, modify existing stormwater system to redirect additional drainage area, and provide water quality improvements to the existing facility.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	2557	CY	\$ 35.00	\$89,495.00
Exist. Stormwater Conveyance Changes	1	LS	\$ 5,000.00	\$5,000.00
Structural BMP Retrofit & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 8,949.50	\$8,949.50
Landscaping ³	1	LS	\$ 4,474.75	\$4,474.75
Base Construction Cost				\$127,919.25
Mobilization (5%)				\$6,395.96
Subtotal 1				\$134,315.21
Contingency (25%)				\$33,578.80
Subtotal 2				\$167,894.02
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$75,552.31
Total				\$243,446.32
Estimated Project Cost				\$250,000.00

¹ Includes the cost of retrofitting the existing inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

Watershed Plan Map Number:
NB4

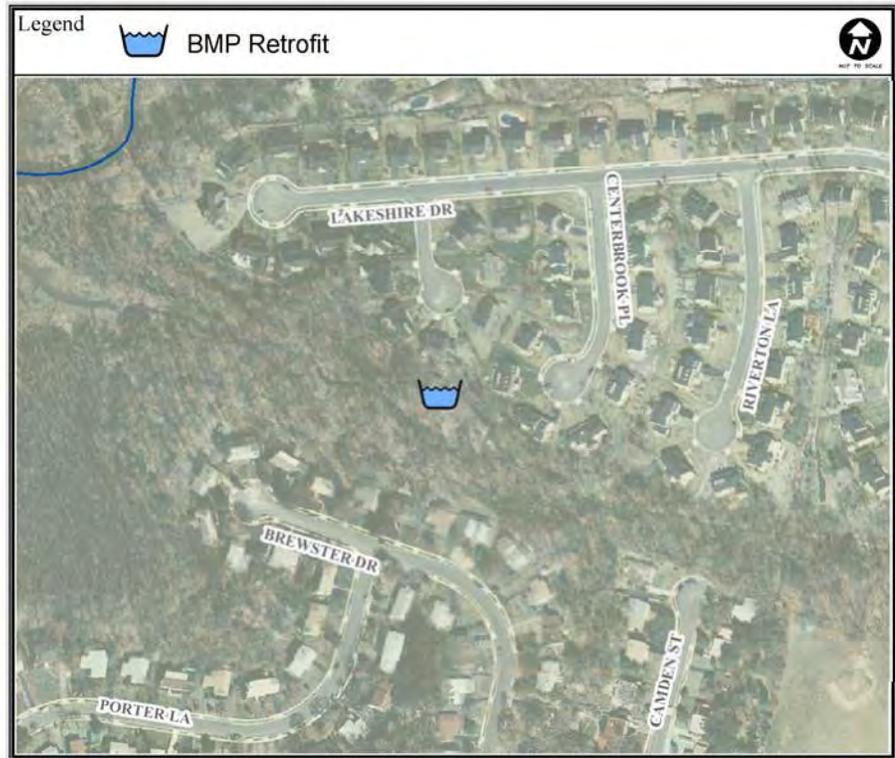
Capital Improvement Project:
LH9109 BMP Retrofit

Tax Grid Map Number:
102-3

Location:
8306 Marble Dale Court

Description

:
Increase detention storage by 550 cubic yards, modify and/or replace existing riser and outlet structures, add infiltration features, and modify existing stormwater system to redirect additional drainage area to the existing facility.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	510	CY	\$ 35.00	\$17,850.00
Exist. Stormwater Conveyance Changes	1	LS	\$ 10,000.00	\$10,000.00
Structural BMP Retrofit & Incidentals ¹	1	LS	\$ 5,000.00	\$5,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,000.00	\$3,000.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
Base Construction Cost				\$37,850.00
Mobilization (5%)				\$1,892.50
Subtotal 1				\$39,742.50
Contingency (25%)				\$9,935.63
Subtotal 2				\$49,678.13
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$22,355.16
Total				\$72,033.28
Estimated Project Cost				\$80,000.00

¹ Includes the cost of retrofitting the existing inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

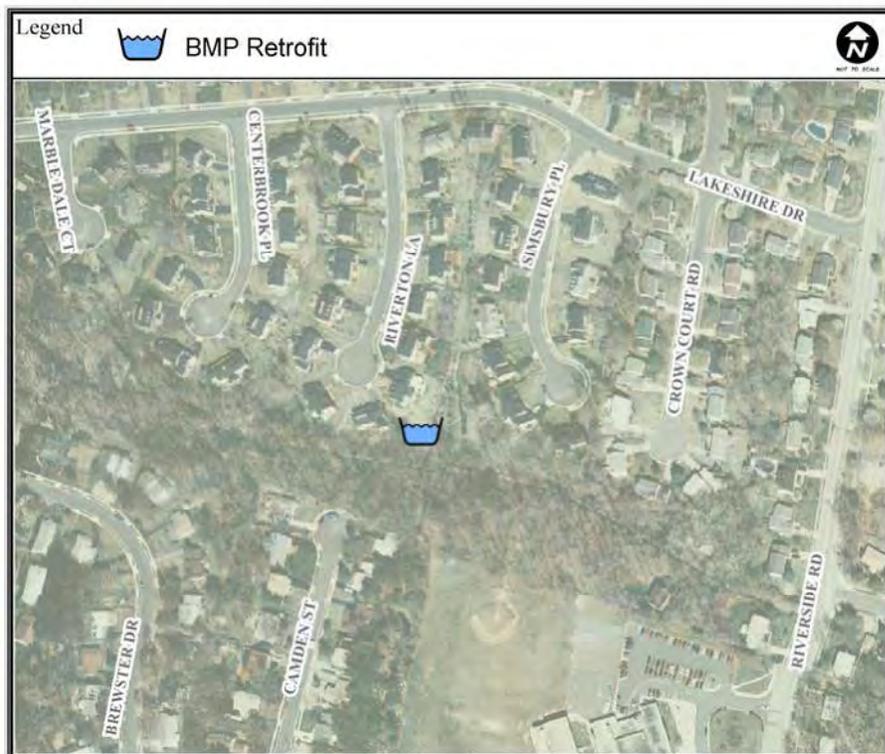
Watershed Plan Map Number:
NB5

Capital Improvement Project:
LH9110 BMP Retrofit

Tax Grid Map Number:
102-3

Location:
8313 Riverton Lane

Description:
Increase detention storage by 650 cubic yards, modify and/or replace existing riser and outlet structures, add infiltration features, modify existing stormwater system to redirect additional drainage area, and provide water quality improvements to the existing facility.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	626	CY	\$ 35.00	\$21,910.00
Exist. Stormwater Conveyance Changes	1	LS	\$ 10,000.00	\$10,000.00
Structural BMP Retrofit & Incidentals ¹	1	LS	\$ 10,000.00	\$10,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,000.00	\$3,000.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
			Base Construction Cost	\$46,910.00
			Mobilization (5%)	\$2,345.50
			Subtotal 1	\$49,255.50
			Contingency (25%)	\$12,313.88
			Subtotal 2	\$61,569.38
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$27,706.22
			Total	\$89,275.59
			Estimated Project Cost	\$90,000.00

¹ Includes the cost of retrofitting the existing inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

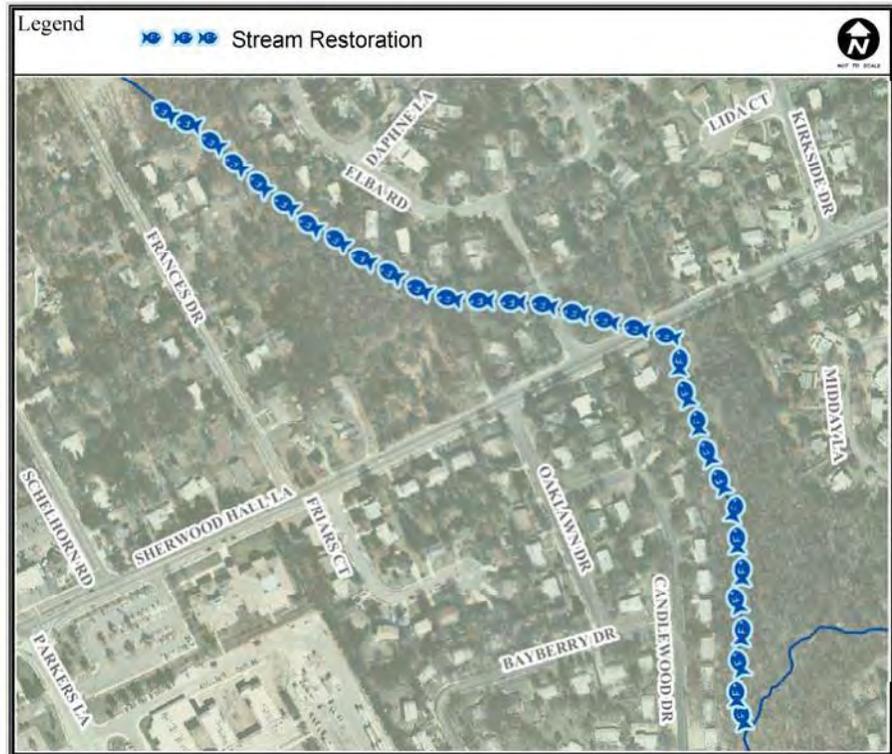
Watershed Plan Map Number:
NB7

Capital Improvement Project:
LH9227 Stream Restoration

Tax Grid Map Number:
102-1

Location:
Upstream and downstream of
Sherwood Hall Lane

Description:
Restore the stream for a distance of 1,500 feet upstream of Sherwood Hall Lane and for 1,000 feet downstream of Sherwood Hall Lane. Proposed activities include riparian vegetation planting, removal of invasive species, removal of unstable trees, channel reconfiguration and the selective placement of in-stream habitat structures, and trash/debris removal.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Stream Restoration	2500	LF	\$ 80.00	\$200,000.00
			Base Construction Cost	\$200,000.00
			Mobilization (5%)	\$10,000.00
			Subtotal 1	\$210,000.00
			Contingency (25%)	\$52,500.00
			Subtotal 2	\$262,500.00
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$118,125.00
			Total	\$380,625.00
			Estimated Project Cost	\$390,000.00

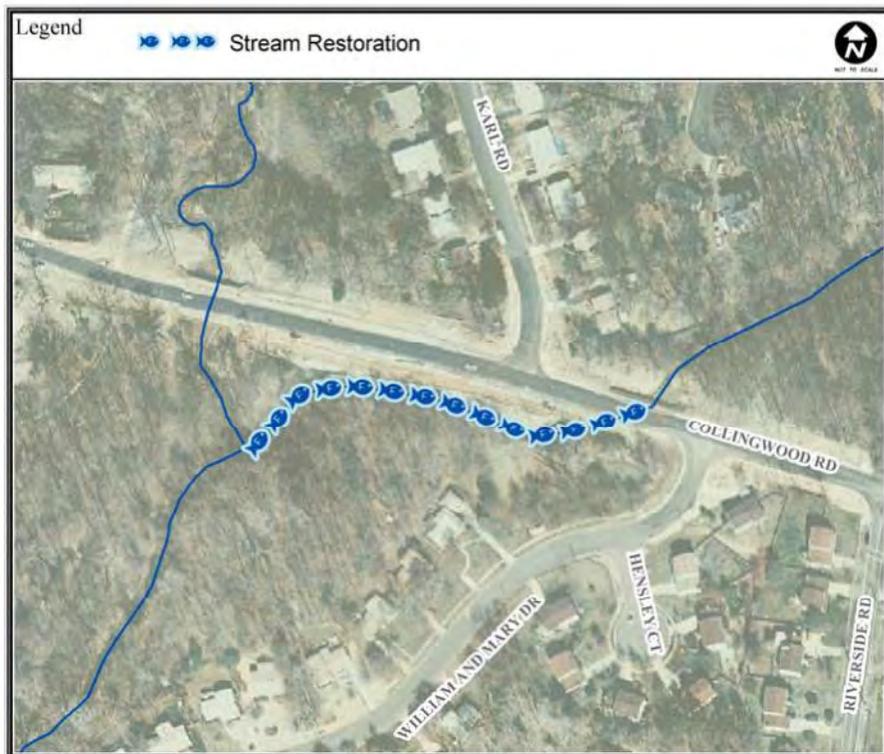
Watershed Plan Map Number:
NB8

Capital Improvement Project:
LH9270 Stream Restoration

Tax Grid Map Number:
102-1, 102-3

Location:
Downstream of Collingwood Road

Description:
Restore the stream for 700 feet downstream of the Collingwood Road crossing located east of Shenandoah Road at the Williamsburg Manor Park. Proposed activities include riparian vegetation planting, removal of invasive species, and the selective placement of in-stream habitat structures, and trash/debris removal.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Stream Restoration	700	LF	\$ 80.00	\$56,000.00
Base Construction Cost				\$56,000.00
Mobilization (5%)				\$2,800.00
Subtotal 1				\$58,800.00
Contingency (25%)				\$14,700.00
Subtotal 2				\$73,500.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$33,075.00
Total				\$106,575.00
Estimated Project Cost				\$110,000.00

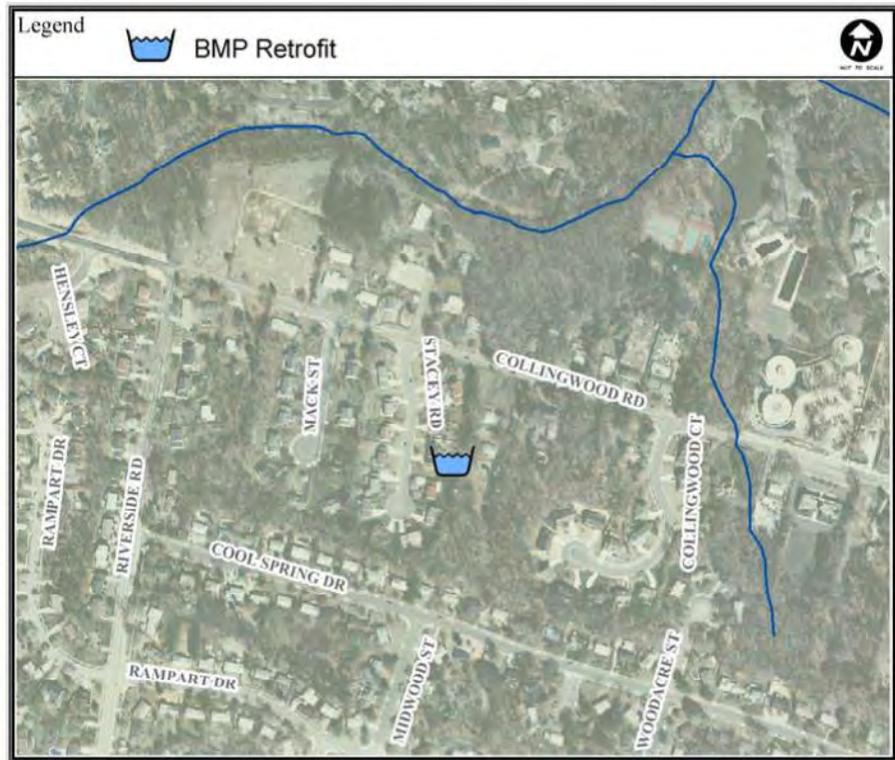
Watershed Plan Map Number:
NB9

Capital Improvement Project:
LH9115 BMP Retrofit

Tax Grid Map Number:
102-3

Location:
8225 Stacey Road

Description:
Increase detention storage by 700 cubic yards, modify and/or replace existing riser and outlet structures, add infiltration features, modify existing stormwater system to redirect additional drainage area, and provide water quality improvements to the existing facility.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	664	CY	\$ 35.00	\$23,240.00
Exist. Stormwater Conveyance Changes	1	LS	\$ 10,000.00	\$10,000.00
Structural BMP Retrofit & Incidentals ¹	1	LS	\$ 5,000.00	\$5,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,000.00	\$3,000.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
			Base Construction Cost	\$43,240.00
			Mobilization (5%)	\$2,162.00
			Subtotal 1	\$45,402.00
			Contingency (25%)	\$11,350.50
			Subtotal 2	\$56,752.50
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$25,538.63
			Total	\$82,291.13
			Estimated Project Cost	\$90,000.00

¹ Includes the cost of retrofitting the existing inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

Watershed Plan Map Number:
NB11

Capital Improvement Project:
LH9143 New BMP

Tax Grid Map Number:
93-3

Location:
Hollin Meadows Park

Description:
Construct a new 1-year extended detention BMP (volume = 2400 cubic yards; dam height = 6.0 feet) behind the 7600 block of Elba Road. The existing storm drain system would need to be modified and possibly a low flow diversion constructed, in order for this facility to function properly. This facility would reduce runoff from the surrounding residential areas.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	1675	CY	\$ 50.00	\$83,750.00
Exist. Stormwater Conveyance Changes	1	LS	\$ 5,000.00	\$5,000.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 8,375.00	\$8,375.00
Landscaping ³	1	LS	\$ 4,187.50	\$4,187.50
			Base Construction Cost	\$121,312.50
			Mobilization (5%)	\$6,065.63
			Subtotal 1	\$127,378.13
			Contingency (25%)	\$31,844.53
			Subtotal 2	\$159,222.66
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$71,650.20
			Total	\$230,872.85
			Estimated Project Cost	\$240,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

Watershed Plan Map Number:
NB12

Capital Improvement Project:
LH9142 New BMP

Tax Grid Map Number:
93-3

Location:
2500 Block of Woodlawn Trail

Description:
Construct a new 1-year extended detention BMP (volume = 1100 cubic yards; dam height = 8.5 feet) near the end of the 2500 block of Woodlawn Trail, just south of the parking area. This facility would reduce runoff from the surrounding residential areas.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	1389	CY	\$ 50.00	\$69,450.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 6,945.00	\$6,945.00
Landscaping ³	1	LS	\$ 3,472.50	\$3,472.50
			Base Construction Cost	\$99,867.50
			Mobilization (5%)	\$4,993.38
			Subtotal 1	\$104,860.88
			Contingency (25%)	\$26,215.22
			Subtotal 2	\$131,076.09
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$58,984.24
			Total	\$190,060.34
			Estimated Project Cost	\$200,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

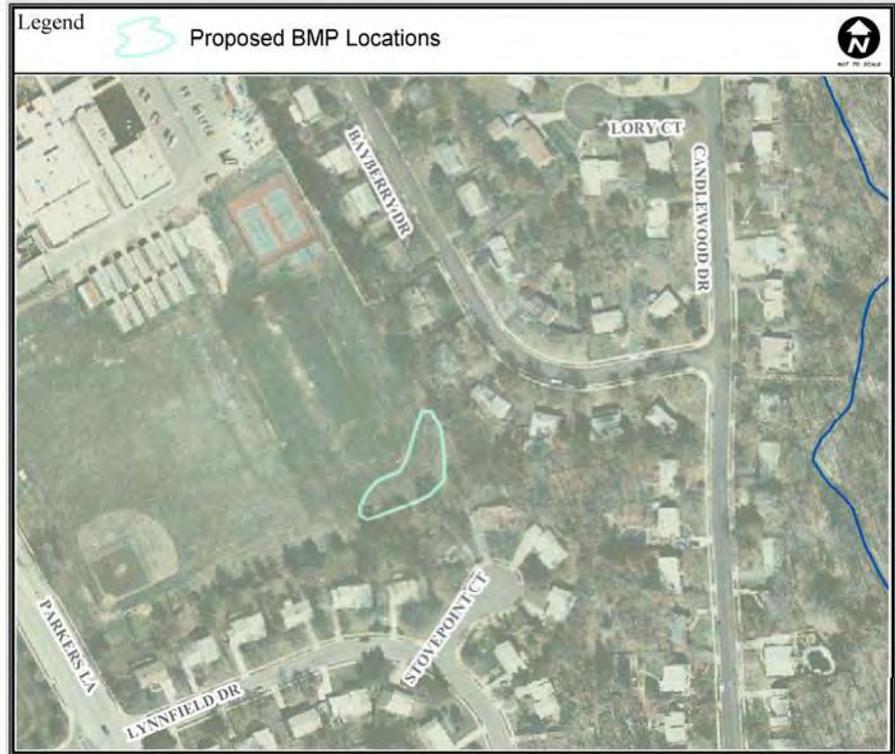
Watershed Plan Map Number:
NB13

Capital Improvement Project:
LH9126 New BMP

Tax Grid Map Number:
102-1

Location:
Whitman Middle School

Description:
Construct a new 1-year extended detention BMP (volume = 850 cubic yards; dam height = 6.0 feet) behind the Whitman Middle School. The existing storm drain system would need to be modified and possibly a low flow diversion constructed, in order for this facility to function properly. This facility would reduce runoff from the surrounding areas.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	811	CY	\$ 50.00	\$40,550.00
Exist. Stormwater Conveyance Changes	1	LS	\$ 10,000.00	\$10,000.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 4,055.00	\$4,055.00
Landscaping ³	1	LS	\$ 2,027.50	\$2,027.50
Base Construction Cost				\$76,632.50
Mobilization (5%)				\$3,831.63
Subtotal 1				\$80,464.13
Contingency (25%)				\$20,116.03
Subtotal 2				\$100,580.16
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$45,261.07
Total				\$145,841.23
Estimated Project Cost				\$150,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

Watershed Plan Map Number:
NB14

Capital Improvement Project:
LH9116 New BMP

Tax Grid Map Number:
102-4

Location:
8200 block of Fort Hunt Road

Description:
Construct a new 1-year extended detention BMP (volume = 900 cubic yards; dam height = 4.5 feet) behind the residential properties along the 8200 block of Fort Hunt Road. The existing storm drain system would need to be modified and possibly a low flow diversion constructed, in order for this facility to function properly. This facility would reduce runoff from the surrounding residential areas.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	899	CY	\$ 50.00	\$44,950.00
Exist. Stormwater Conveyance Changes	1	LS	\$ 10,000.00	\$10,000.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 4,495.00	\$4,495.00
Landscaping ³	1	LS	\$ 2,247.50	\$2,247.50
			Base Construction Cost	\$81,692.50
			Mobilization (5%)	\$4,084.63
			Subtotal 1	\$85,777.13
			Contingency (25%)	\$21,444.28
			Subtotal 2	\$107,221.41
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$48,249.63
			Total	\$155,471.04
			Estimated Project Cost	\$160,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

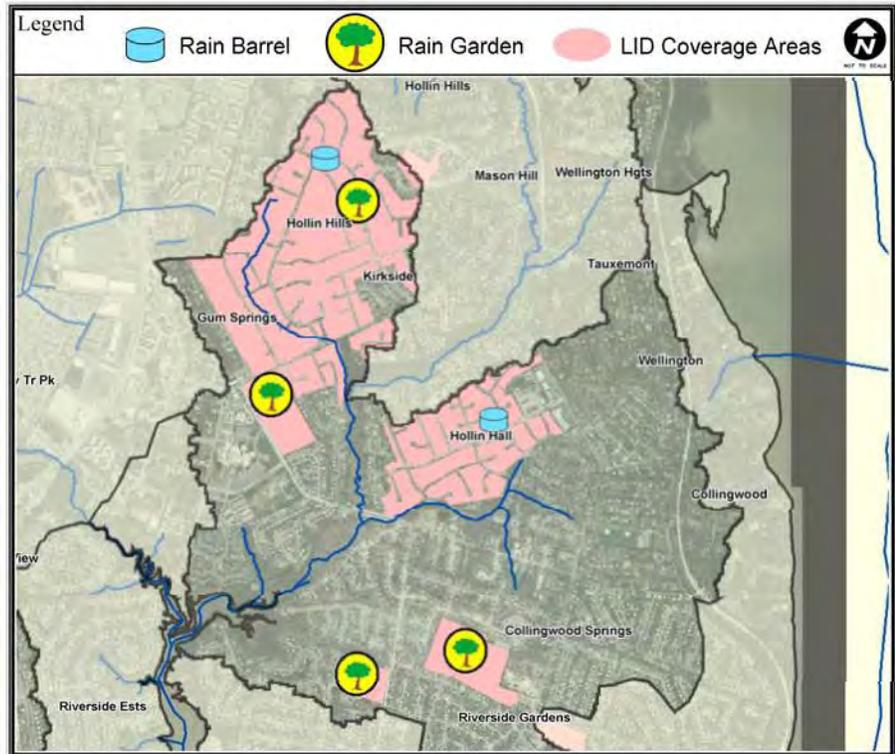
Watershed Plan Map Number:
A4.1

Capital Improvement Project:
LH9984 North Branch Residential
Rain Barrels and Rain Gardens

Tax Grid Map Number:
93-3, 102-1, 102-2

Location:
North Branch Subwatershed

Description:
Distribute rain barrels, facilitate
installation of rain gardens, and
provide educational materials
about rain barrels, cisterns, and
rain gardens.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Distribute Rain Barrels	1	LS	\$ 31,000.00	\$31,000.00
Facilitate Installation of Rain Gardens	1	LS	\$ 12,000.00	\$12,000.00
Provide Educational Materials	1	LS	\$ 5,000.00	\$5,000.00
			Base Construction Cost	N/A
			Mobilization (5%)	N/A
			Subtotal 1	N/A
			Contingency (25%)	\$12,000.00
			Subtotal 2	\$60,000.00
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	N/A
			Total	\$60,000.00
			Estimated Project Cost	\$70,000.00

North Little Hunting Creek Watershed

Watershed Plan Map Number:
NLHC1

Capital Improvement Project:
LH9139 New BMP

Tax Grid Map Number:
92-4

Location:
Between 7200 & 7300 Blocks
Richmond Highway

Description:
Construct a new 1-year extended detention BMP (volume = 3500 cubic yards; dam height = 5.0 feet) on the county-owned land located approximately between the 7200 and 7300 blocks of Richmond Highway at the northeast corner of the Richmond Highway and Lockheed Boulevard intersection. The BMP should be designed to treat the runoff from the surrounding commercial and high-density residential areas and be an attractive, landscaped amenity for the community.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	3500	CY	\$ 50.00	\$175,000.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 17,500.00	\$17,500.00
Landscaping ³	1	LS	\$ 8,750.00	\$8,750.00
			Base Construction Cost	\$221,250.00
			Mobilization (5%)	\$11,062.50
			Subtotal 1	\$232,312.50
			Contingency (25%)	\$58,078.13
			Subtotal 2	\$290,390.63
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$130,675.78
			Total	\$421,066.41
			Estimated Project Cost	\$430,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

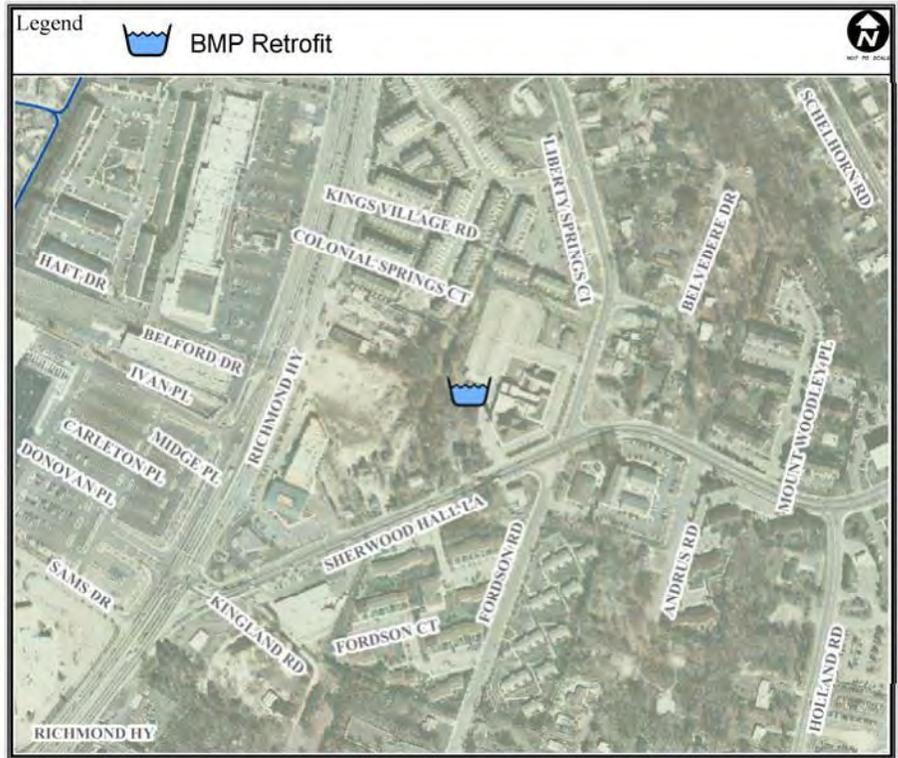
Watershed Plan Map Number:
NLHC3

Capital Improvement Project:
LH9123 BMP Retrofit

Tax Grid Map Number:
102-1

Location:
Bethlehem Baptist Church -
northwest of Sherwood Hall Lane
& Fordson Road Intersection

Description:
Increase detention storage by 400
cubic yards, modify and/or replace
existing riser and outlet structures,
add infiltration features, and
provide water quality
improvements to the existing
facility.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	379	CY	\$ 35.00	\$13,265.00
Structural BMP Retrofit & Incidentals ¹	1	LS	\$ 10,000.00	\$10,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,000.00	\$3,000.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
			Base Construction Cost	\$28,265.00
			Mobilization (5%)	\$1,413.25
			Subtotal 1	\$29,678.25
			Contingency (25%)	\$7,419.56
			Subtotal 2	\$37,097.81
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$16,694.02
			Total	\$53,791.83
			Estimated Project Cost	\$60,000.00

¹ Includes the cost of retrofitting the existing inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

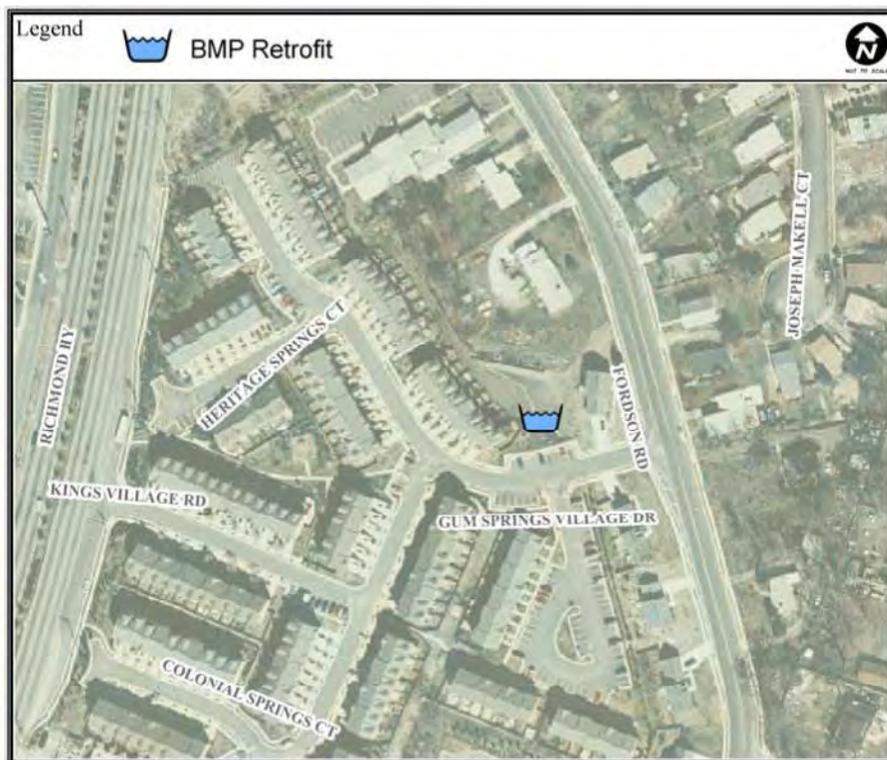
Watershed Plan Map Number:
NLHC5

Capital Improvement Project:
LH9124 BMP Retrofit

Tax Grid Map Number:
102-1

Location:
7851 Gum Springs Village Drive

Description:
Increase detention storage by 850 cubic yards, modify and/or replace existing riser and outlet structures, add infiltration features, modify existing stormwater system to redirect additional drainage area, and provide water quality improvements to the existing facility.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	827	CY	\$ 35.00	\$28,945.00
Exist. Stormwater Conveyance Changes	1	LS	\$ 10,000.00	\$10,000.00
Structural BMP Retrofit & Incidentals ¹	1	LS	\$ 10,000.00	\$10,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,000.00	\$3,000.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
			Base Construction Cost	\$53,945.00
			Mobilization (5%)	\$2,697.25
			Subtotal 1	\$56,642.25
			Contingency (25%)	\$14,160.56
			Subtotal 2	\$70,802.81
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$31,861.27
			Total	\$102,664.08
			Estimated Project Cost	\$110,000.00

¹ Includes the cost of retrofitting the existing inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

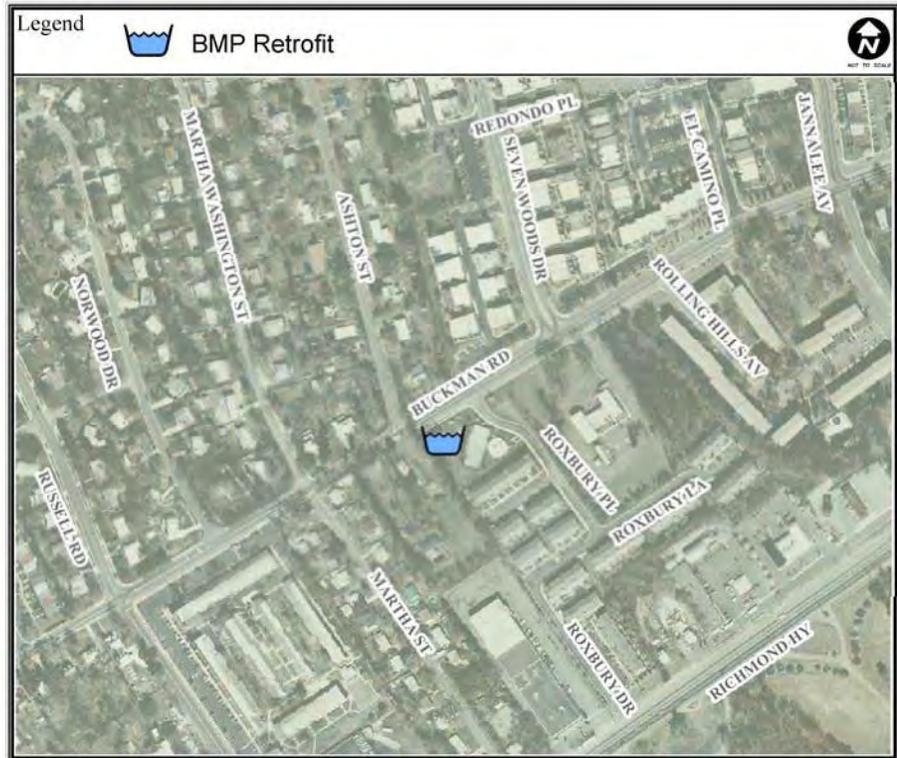
Watershed Plan Map Number:
LH9117

Capital Improvement Project:
LH9117 BMP Retrofit

Tax Grid Map Number:
101-2

Location:
3910 Buckman Road -
southeast of Buckman Road &
Roxbury Road Intersection

Description:
Increase detention storage by 450
cubic yards, modify and/or replace
existing riser and outlet structures,
add infiltration features, and
modify existing stormwater system
to redirect additional drainage area
to the existing facility.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	435	CY	\$ 35.00	\$15,225.00
Exist. Stormwater Conveyance Changes	1	LS	\$ 5,000.00	\$5,000.00
Structural BMP Retrofit & Incidentals ¹	1	LS	\$ 10,000.00	\$10,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,000.00	\$3,000.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
			Base Construction Cost	\$35,225.00
			Mobilization (5%)	\$1,761.25
			Subtotal 1	\$36,986.25
			Contingency (25%)	\$9,246.56
			Subtotal 2	\$46,232.81
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$20,804.77
			Total	\$67,037.58
			Estimated Project Cost	\$70,000.00

¹ Includes the cost of retrofitting the existing inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

Watershed Plan Map Number:
NLHC9

Capital Improvement Project:
LH9819 New Commercial LID

Tax Grid Map Number:
101-2

Location:
Mount Vernon Plaza, the Hybla Valley Plaza, the Multiplex Cinema, and the Audubon Estates Mobile Home Park

Description:
Reduce runoff with new LID techniques such as bioretention (including Filterra or similar units), porous pavement, vegetated buffer strips and disconnected roof drains. This area is likely to be redeveloped, including new buildings and a main street type layout. This could be an opportunity to collectively improve the existing storm drain system as well as have developers install BMPs as proffers.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Manufactured BMP System	44	EA	\$ 3,000.00	\$132,000.00
Porous Pavement	5000	SY	\$ 15.00	\$75,000.00
Stabilization	1	LS	\$ 10,000.00	\$10,000.00
			Base Construction Cost	\$217,000.00
			Mobilization (5%)	\$10,850.00
			Subtotal 1	\$227,850.00
			Contingency (25%)	\$56,962.50
			Subtotal 2	\$284,812.50
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$128,165.63
			Total	\$412,978.13
			Estimated Project Cost	\$420,000.00

For conceptual layout of BMPs see attached plan.

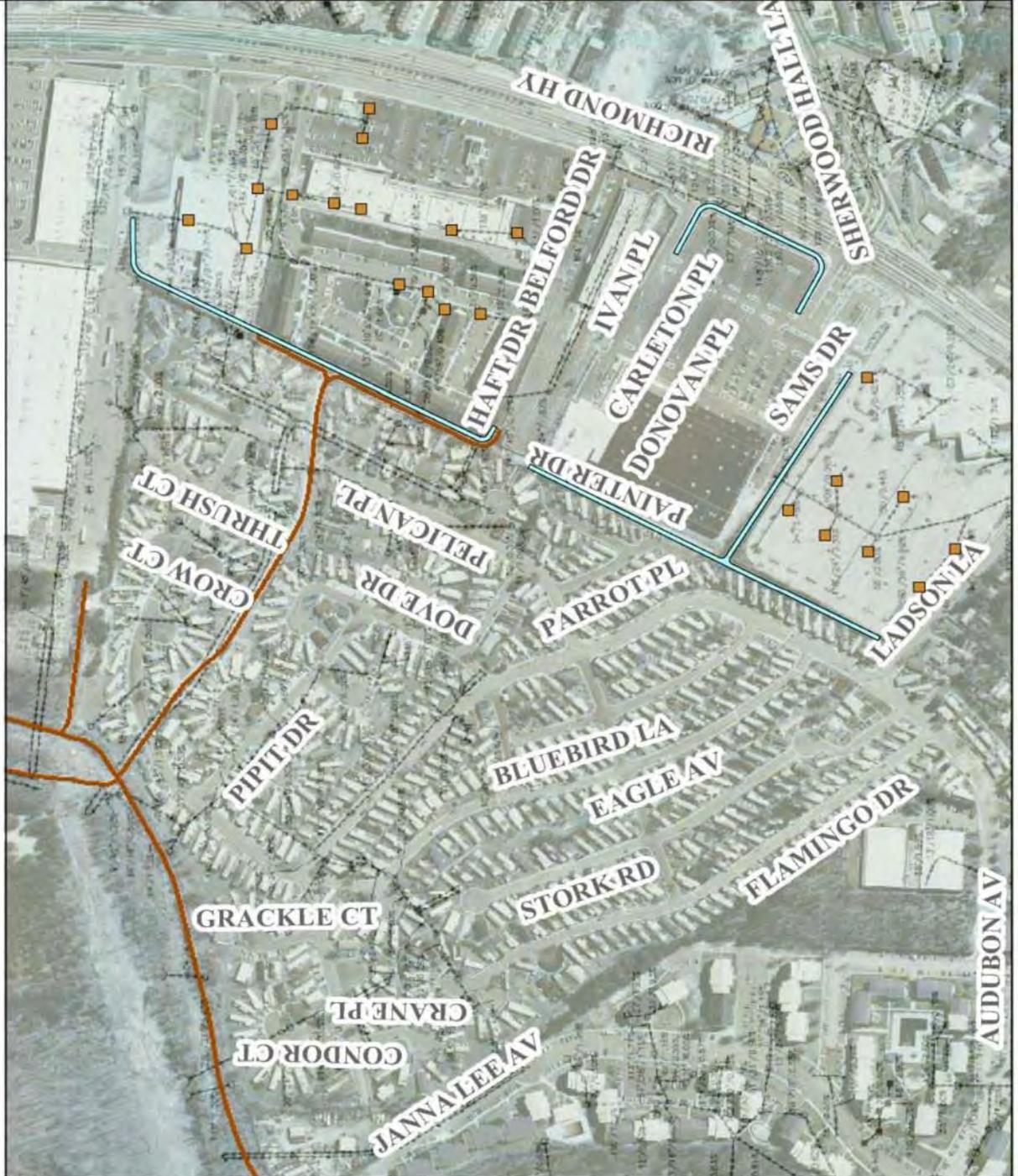
PROJECT: LH9819 NEW COMMERCIAL LID (NLHC9)
CONCEPTUAL LID PLAN



LEGEND	
	BIORETENTION
	MANUFACTURED BMPS
	GRASSED SWALE/ PERIMETER BUFFER
	POROUS PAVEMENT AREAS

SHEET PLAN 1 OF 2

PROJECT: LH9819 NEW COMMERCIAL LID (NLHC9)
CONCEPTUAL LID PLAN



LEGEND

- BIORETENTION
- MANUFACTURED BMPS
- GRASSED SWALE/
PERIMETER BUFFER
- POROUS PAVEMENT AREAS

SHEET PLAN 2 OF 2

Watershed Plan Map Number:
NLHC12

Capital Improvement Project:
LH9235 Stream Restoration

Tax Grid Map Number:
92-4, 101-2

Location:
North Mount Vernon Plaza &
Fordson Road

Description:
Restore the stream (LHLH003 and LHLH006) located north of the Mount Vernon Plaza and replace the culvert at Fordson Road near the Mount Vernon Plaza. The culvert replacement project is on County's drainage master plan project list (LH431). Proposed activities include removal/modification of culverts, channel reconfiguration, floodplain creation, riparian vegetation planting, and removal of invasive species.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Stream Restoration	3200	LF	\$ 100.00	\$320,000.00
Culvert Replacement	1	LS	\$ 100,000.00	\$100,000.00
Base Construction Cost				\$420,000.00
Mobilization (5%)				\$21,000.00
Subtotal 1				\$441,000.00
Contingency (25%)				\$110,250.00
Subtotal 2				\$551,250.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$248,062.50
Total				\$799,312.50
Estimated Project Cost				\$800,000.00

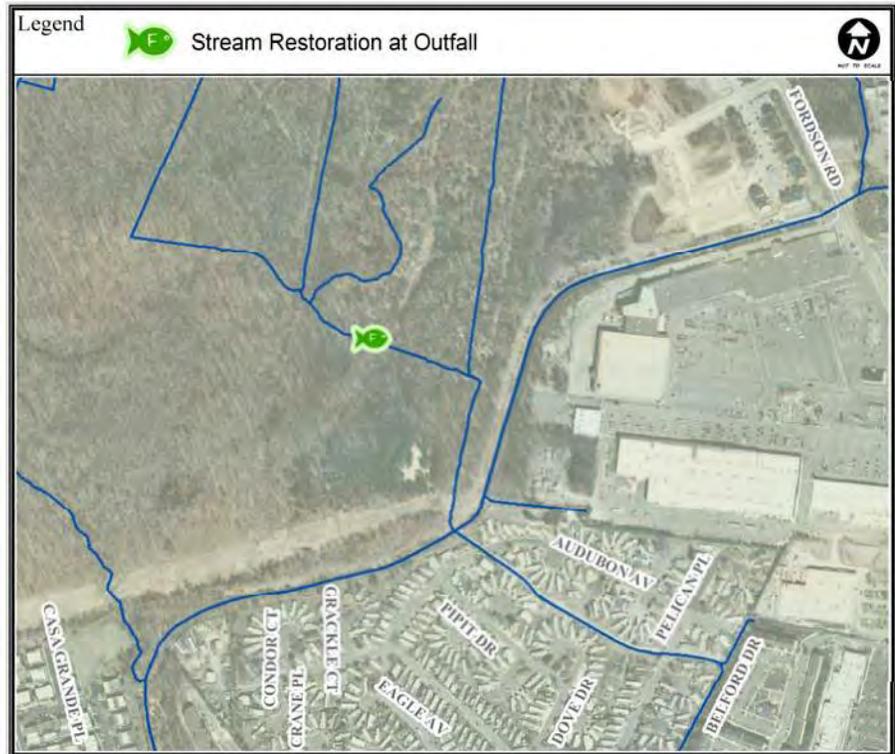
Watershed Plan Map Number:
NLHC13

Capital Improvement Project:
LH9233 Stream Restoration

Tax Grid Map Number:
92-4

Location:
South of The Grove at Huntley Meadows

Description:
Restore the stream located east of Huntley Meadows Park and south of the new subdivision, called The Grove at Huntley Meadows, to mitigate the impact from increased runoff at the culvert crossing. Proposed activities include selected placement of in-stream habitat structure, channel reconfiguration, and riparian vegetation plantings.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Stream Restoration	750	LF	\$ 100.00	\$75,000.00
Base Construction Cost				\$75,000.00
Mobilization (5%)				\$3,750.00
Subtotal 1				\$78,750.00
Contingency (25%)				\$19,687.50
Subtotal 2				\$98,437.50
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$44,296.88
Total				\$142,734.38
Estimated Project Cost				\$150,000.00

Watershed Plan Map Number:
NLHC14

Capital Improvement Project:
LH9234 Stream Restoration

Tax Grid Map Number:
92-4, 101-2

Location:
South of Beech Craft Drive

Description:
Perform stream restoration of the channel (LHLH007) located south of Beech Craft Drive and west of Fordson Road. Proposed activities include channel reconfiguration, floodplain creation, bioengineering of stream bank, selective placement of in-stream habitat structures, and removal of unstable trees.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Stream Restoration	1800	LF	\$ 100.00	\$180,000.00
Base Construction Cost				\$180,000.00
Mobilization (5%)				\$9,000.00
Subtotal 1				\$189,000.00
Contingency (25%)				\$47,250.00
Subtotal 2				\$236,250.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$106,312.50
Total				\$342,562.50
Estimated Project Cost				\$350,000.00

Watershed Plan Map Number:
NLHC15

Capital Improvement Project:
LH9218 Stream Restoration

Tax Grid Map Number:
101-2

Location:
North of Audubon Estates Mobile Home Park to 600 feet south of Richmond Highway

Description:
Perform stream restoration and add buffer vegetation to the channel (LHLH002 and part of LHLH001). Install an animal passageway underneath Richmond Highway. Proposed activities include removal/modification of culverts, riparian vegetation plantings, removal of invasive species, selected placement of in-stream habitat structures, channel reconfiguration, and trash/debris removal. Additional opportunities for restoration should be evaluated downstream, to the confluence with the main stem of Little Hunting Creek, during the preliminary evaluation and design phase of this project.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Stream Restoration	2400	LF	\$ 100.00	\$240,000.00
Riparian Buffer Restoration	4800	LF	\$ 10.00	\$48,000.00
Animal Culvert (6' x 6' RCB)	1	LS	\$ 100,000.00	\$100,000.00
Concrete Removal	1	LS	\$ 40,000.00	\$40,000.00
			Base Construction Cost	\$428,000.00
			Mobilization (5%)	\$21,400.00
			Subtotal 1	\$449,400.00
			Contingency (25%)	\$112,350.00
			Subtotal 2	\$561,750.00
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$252,787.50
			Total	\$814,537.50
			Estimated Project Cost	\$820,000.00

Watershed Plan Map Number:
NLHC16

Capital Improvement Project:
LH9138 New BMP

Tax Grid Map Number:
92-4

Location:
7000 block of Fordson Road

Description:
Construct a new 1-year extended detention BMP (volume = 850 cubic yards; dam height = 5.0 feet) on the vacant parcel behind the commercial property on the 7000 block of Fordson Road. This facility would reduce runoff from the surrounding commercial areas.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	812	CY	\$ 50.00	\$40,600.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 4,060.00	\$4,060.00
Landscaping ³	1	LS	\$ 2,030.00	\$2,030.00
			Base Construction Cost	\$66,690.00
			Mobilization (5%)	\$3,334.50
			Subtotal 1	\$70,024.50
			Contingency (25%)	\$17,506.13
			Subtotal 2	\$87,530.63
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$39,388.78
			Total	\$126,919.41
			Estimated Project Cost	\$130,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

Watershed Plan Map Number:
NLHC17

Capital Improvement Project:
LH9137 New BMP

Tax Grid Map Number:
92-4

Location:
3500 block of Lockheed Boulevard

Description:

Construct a new 1-year extended detention BMP (volume = 650 cubic yards; dam height = 5.0 feet) behind the commercial property on the 3500 block of Lockheed Boulevard. This facility may consist of a bermed construction in order to minimize tree loss, and tree removal should be limited to the embankment area. This facility would reduce runoff from the adjacent commercial areas.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	614	CY	\$ 50.00	\$30,700.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,070.00	\$3,070.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
			Base Construction Cost	\$55,770.00
			Mobilization (5%)	\$2,788.50
			Subtotal 1	\$58,558.50
			Contingency (25%)	\$14,639.63
			Subtotal 2	\$73,198.13
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$32,939.16
			Total	\$106,137.28
			Estimated Project Cost	\$110,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

Watershed Plan Map Number:
NLHC19

Capital Improvement Project:
LH9136 New BMP

Tax Grid Map Number:
92-4

Location:
7400 block of Fairchild Drive

Description:
Construct a new 1-year extended detention BMP (volume = 1550 cubic yards; dam height = 5.0 feet) at the headwaters of North Little Hunting Creek at the storm drain outfall at the end of the 7400 block of Fairchild Drive. Tree removal should only occur at the embankment area. This facility would reduce runoff from the residential properties immediately upstream.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	1545	CY	\$ 50.00	\$77,250.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 7,725.00	\$7,725.00
Landscaping ³	1	LS	\$ 3,862.50	\$3,862.50
Base Construction Cost				\$108,837.50
Mobilization (5%)				\$5,441.88
Subtotal 1				\$114,279.38
Contingency (25%)				\$28,569.84
Subtotal 2				\$142,849.22
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$64,282.15
Total				\$207,131.37
Estimated Project Cost				\$210,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

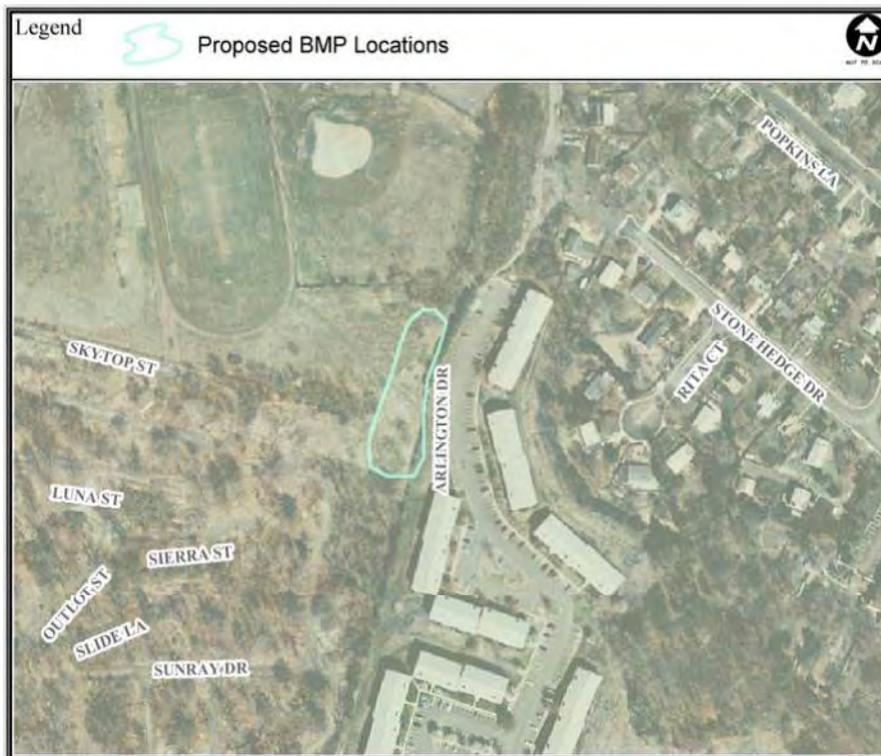
Watershed Plan Map Number:
LH9144

Capital Improvement Project:
LH9144 New BMP

Tax Grid Map Number:
93-3

Location:
2600 block of Arlington Drive

Description:
Construct a new 1-year extended detention BMP (volume = 2050 cubic yards; dam height = 6.0 feet) behind the 2600 block of Arlington Drive. The existing storm drain system would need to be modified and possibly a low flow diversion constructed, in order for this facility to function properly. This facility would reduce runoff from the surrounding residential areas.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	2021	CY	\$ 50.00	\$101,050.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 10,105.00	\$10,105.00
Landscaping ³	1	LS	\$ 5,052.50	\$5,052.50
			Base Construction Cost	\$136,207.50
			Mobilization (5%)	\$6,810.38
			Subtotal 1	\$143,017.88
			Contingency (25%)	\$35,754.47
			Subtotal 2	\$178,772.34
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$80,447.55
			Total	\$259,219.90
			Estimated Project Cost	\$260,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

Watershed Plan Map Number:
NLHC21

Capital Improvement Project:
LH9871 LID Demonstration
Projects

Tax Grid Map Number:
101-2

Location:
Bryant Adult Alternative High
School and the Hybla Valley
Elementary School

Description:
Construct LID demonstration
projects including rain gardens,
porous pavement, buffer strips and
Filterra or similar types of drop
inlets.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention	8	LS	\$ 7,500.00	\$60,000.00
Obscuring Exist. Pavement	2500	SY	\$ 8.00	\$20,000.00
Porous Pavement	2500	SY	\$ 15.00	\$37,500.00
Vegetated Filter Strip	12500	SY	\$ 0.70	\$8,750.00
Manufactured BMP System	12	EA	\$ 3,000.00	\$36,000.00
Base Construction Cost				\$126,250.00
Mobilization (5%)				\$6,312.50
Subtotal 1				\$132,562.50
Contingency (25%)				\$33,140.63
Subtotal 2				\$165,703.13
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$74,566.41
Total				\$240,269.53
Estimated Project Cost				\$250,000.00

Watershed Plan Map Number:
NLHC23

Capital Improvement Project:
LH9140 New BMP

Tax Grid Map Number:
93-3

Location:
2400 block of Windbreak Drive

Description:
Construct a new 1-year extended detention BMP (volume = 650 cubic yards; dam height = 7.0 feet) at the north end of the 2400 block of Windbreak Drive. Tree removal should only occur at the embankment area. This facility would reduce runoff from the surrounding residential properties.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	624	CY	\$ 50.00	\$31,200.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,120.00	\$3,120.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
			Base Construction Cost	\$56,320.00
			Mobilization (5%)	\$2,816.00
			Subtotal 1	\$59,136.00
			Contingency (25%)	\$14,784.00
			Subtotal 2	\$73,920.00
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$33,264.00
			Total	\$107,184.00
			Estimated Project Cost	\$110,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

Watershed Plan Map Number:
NLHC24

Capital Improvement Project:
LH9141 New BMP

Tax Grid Map Number:
93-3

Location:
Behind the high-density residential properties south of Windbreak Drive.

Description:
Construct a multi-stage bioretention system (volume = 400 cubic yards; dam height = 4.5 feet) behind the high-density residential properties south of Windbreak Drive. The bioretention areas would be constructed at each yard inlet in order to reduce runoff from the surrounding commercial properties.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	378	CY	\$ 50.00	\$18,900.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Bioretention	6	EA	\$ 7,500.00	\$45,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,000.00	\$3,000.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
			Base Construction Cost	\$88,900.00
			Mobilization (5%)	\$4,445.00
			Subtotal 1	\$93,345.00
			Contingency (25%)	\$23,336.25
			Subtotal 2	\$116,681.25
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$52,506.56
			Total	\$169,187.81
			Estimated Project Cost	\$170,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

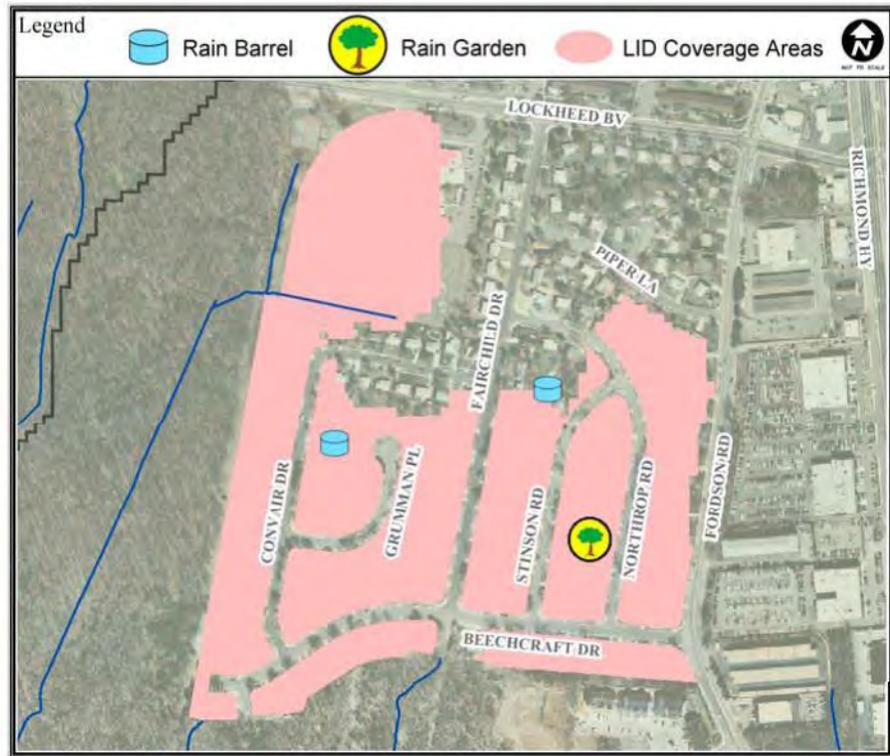
Watershed Plan Map Number:
A4.1

Capital Improvement Project:
LH9982 North Little Hunting
Creek Residential Rain Barrels and
Rain Gardens

Tax Grid Map Number:
101-2

Location:
North Little Hunting Creek
Subwatershed

Description:
Distribute rain barrels, facilitate
installation of rain gardens, and
provide educational materials
about rain barrels, cisterns, and
rain gardens.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Distribute Rain Barrels	1	LS	\$ 13,000.00	\$13,000.00
Facilitate Installation of Rain Gardens	1	LS	\$ 7,000.00	\$7,000.00
Provide Educational Materials	1	LS	\$ 5,000.00	\$5,000.00
Base Construction Cost				N/A
Mobilization (5%)				N/A
Subtotal 1				N/A
Contingency (25%)				\$6,250.00
Subtotal 2				\$31,250.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				N/A
Total				\$31,250.00
Estimated Project Cost				\$40,000.00

Potomac River Watershed

Watershed Plan Map Number:
PR2

Capital Improvement Project:
LH9706 New Wetlands

Tax Grid Map Number:
102-4, 111-1, 111-2

Location:
George Washington Memorial
Parkway near the Potomac River

Description:
Construct new wetlands in indicated areas along the George Washington Memorial Parkway near the Potomac River.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Wetlands Plantings	1	LS	\$ 100,000.00	\$100,000.00
Base Construction Cost				\$100,000.00
Mobilization (5%)				\$5,000.00
Subtotal 1				\$105,000.00
Contingency (25%)				\$26,250.00
Subtotal 2				\$131,250.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$59,062.50
Total				\$190,312.50
Estimated Project Cost				\$200,000.00

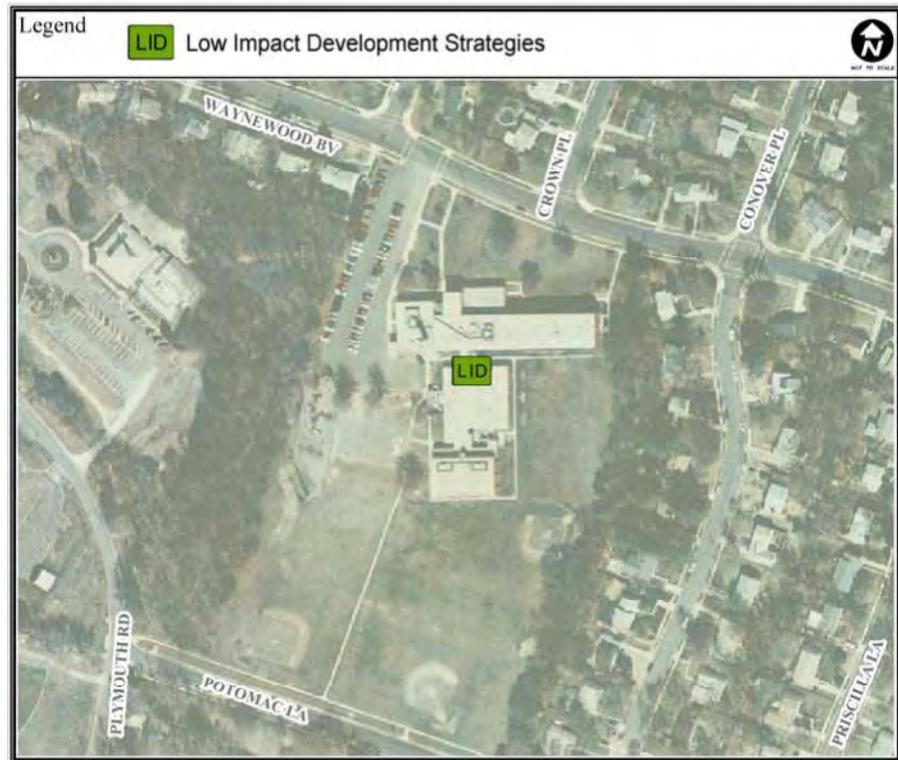
Watershed Plan Map Number:
PR3

Capital Improvement Project:
LH9812 LID Demonstration
Project

Tax Grid Map Number:
102-4

Location:
Waynewood Elementary School

Description:
Install a new bioretention facility.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention	3	LS	\$ 7,500.00	\$22,500.00
Manufactured BMP System	5	EA	\$ 3,000.00	\$15,000.00
			Base Construction Cost	\$37,500.00
			Mobilization (5%)	\$1,875.00
			Subtotal 1	\$39,375.00
			Contingency (25%)	\$9,843.75
			Subtotal 2	\$49,218.75
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$22,148.44
			Total	\$71,367.19
			Estimated Project Cost	\$80,000.00

Paul Spring Branch Watershed

Watershed Plan Map Number:
PSB1

Capital Improvement Project:
LH9855 Commercial LID
Demonstration Project

Tax Grid Map Number:
92-2

Location:
Beacon Mall

Description:
Create a demonstration project of LID technologies such as green rooftops, buffer strips, porous pavement, and bioretention areas for Beacon Mall.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention	16	EA	\$ 7,500.00	\$120,000.00
Green Rooftop Assistance	1	LS	\$ 10,000.00	\$10,000.00
Porous Pavement	5000	SY	\$ 15.00	\$75,000.00
Vegetated Filter Strip	50000	SF	\$ 0.70	\$35,000.00
Manufactured BMP System	24	EA	\$ 3,000.00	\$72,000.00
Stabilization	1	LS	\$ 5,000.00	\$5,000.00
			Base Construction Cost	\$317,000.00
			Mobilization (5%)	\$15,850.00
			Subtotal 1	\$332,850.00
			Contingency (25%)	\$83,212.50
			Subtotal 2	\$416,062.50
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$187,228.13
			Total	\$603,290.63
			Estimated Project Cost	\$610,000.00

For conceptual layout of BMPs see attached plan.



LEGEND	
	BIORETENTION
	MANUFACTURED BMPS
	GRASSED SWALE/ PERIMETER BUFFER
	POROUS PAVEMENT AREAS

PROJECT: LH9855 COMMERCIAL LID DEMONSTRATION PROJECT (PSB1)
CONCEPTUAL LID PLAN



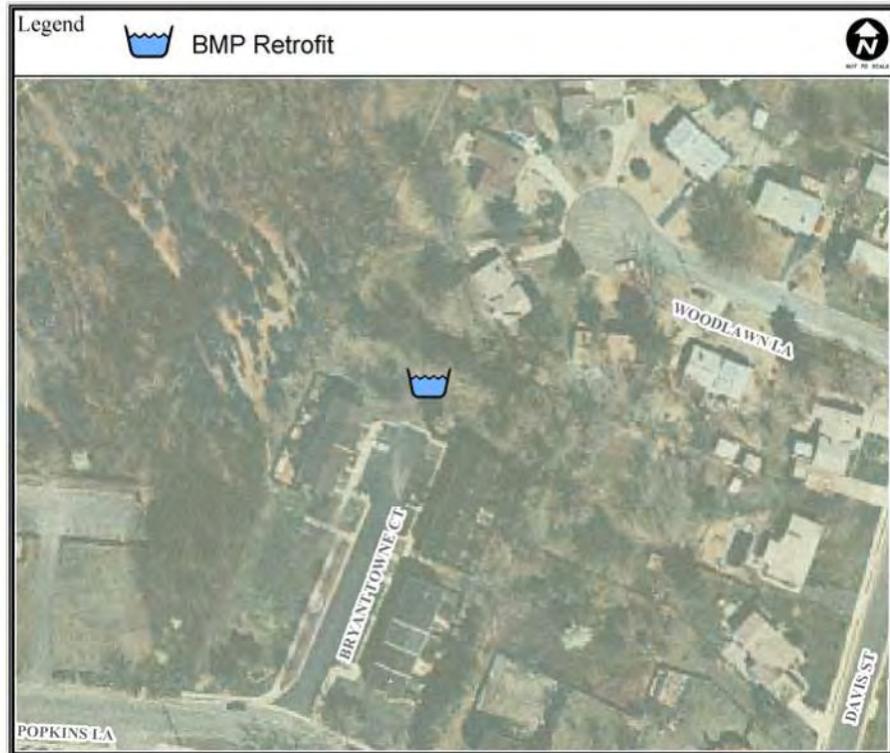
Watershed Plan Map Number:
PSB3

Capital Improvement Project:
LH9159 BMP Retrofit

Tax Grid Map Number:
93-1

Location:
7001 Bryant Towne Court

Description:
Increase detention storage by 100 cubic yards, modify and/or replace existing riser and outlet structures, add infiltration features, modify existing stormwater system to redirect additional drainage area, and provide water quality improvements to the existing facility.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	77	CY	\$ 35.00	\$2,695.00
Structural BMP Retrofit & Incidentals ¹	1	LS	\$ 15,000.00	\$15,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,000.00	\$3,000.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
			Base Construction Cost	\$22,695.00
			Mobilization (5%)	\$1,134.75
			Subtotal 1	\$23,829.75
			Contingency (25%)	\$5,957.44
			Subtotal 2	\$29,787.19
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$13,404.23
			Total	\$43,191.42
			Estimated Project Cost	\$50,000.00

¹ Includes the cost of retrofitting the existing inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

Watershed Plan Map Number:
PSB4

Capital Improvement Project:
LH9132 BMP Retrofit

Tax Grid Map Number:
102-2

Location:
7628 Essex Manor Place

Description:
Increase detention storage by 700 cubic yards, modify and/or replace existing riser and outlet structures, add infiltration features, modify existing stormwater system to redirect additional drainage area, and provide water quality improvements to the existing facility.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	660	CY	\$ 35.00	\$23,100.00
Exist. Stormwater Conveyance Changes	1	LS	\$ 15,000.00	\$15,000.00
Structural BMP Retrofit & Incidentals ¹	1	LS	\$ 10,000.00	\$10,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,000.00	\$3,000.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
			Base Construction Cost	\$53,100.00
			Mobilization (5%)	\$2,655.00
			Subtotal 1	\$55,755.00
			Contingency (25%)	\$13,938.75
			Subtotal 2	\$69,693.75
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$31,362.19
			Total	\$101,055.94
			Estimated Project Cost	\$110,000.00

¹ Includes the cost of retrofitting the existing inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

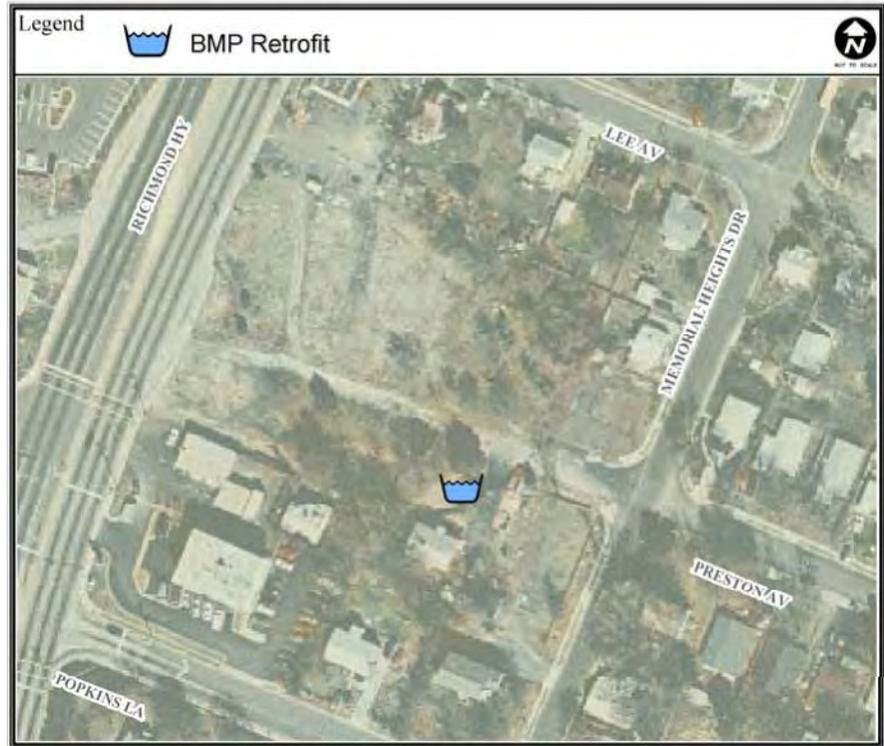
Watershed Plan Map Number:
PSB5

Capital Improvement Project:
LH9157 BMP Retrofit

Tax Grid Map Number:
93-1

Location:
Intersection of Memorial Heights
and Preston Avenue

Description:
Increase detention storage by 100
cubic yards, modify and/or replace
existing riser and outlet structures,
add infiltration features, and
provide water quality
improvements to the existing
facility.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	84	CY	\$ 35.00	\$2,940.00
Structural BMP Retrofit & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,000.00	\$3,000.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
			Base Construction Cost	\$27,940.00
			Mobilization (5%)	\$1,397.00
			Subtotal 1	\$29,337.00
			Contingency (25%)	\$7,334.25
			Subtotal 2	\$36,671.25
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$16,502.06
			Total	\$53,173.31
			Estimated Project Cost	\$60,000.00

¹ Includes the cost of retrofitting the existing inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

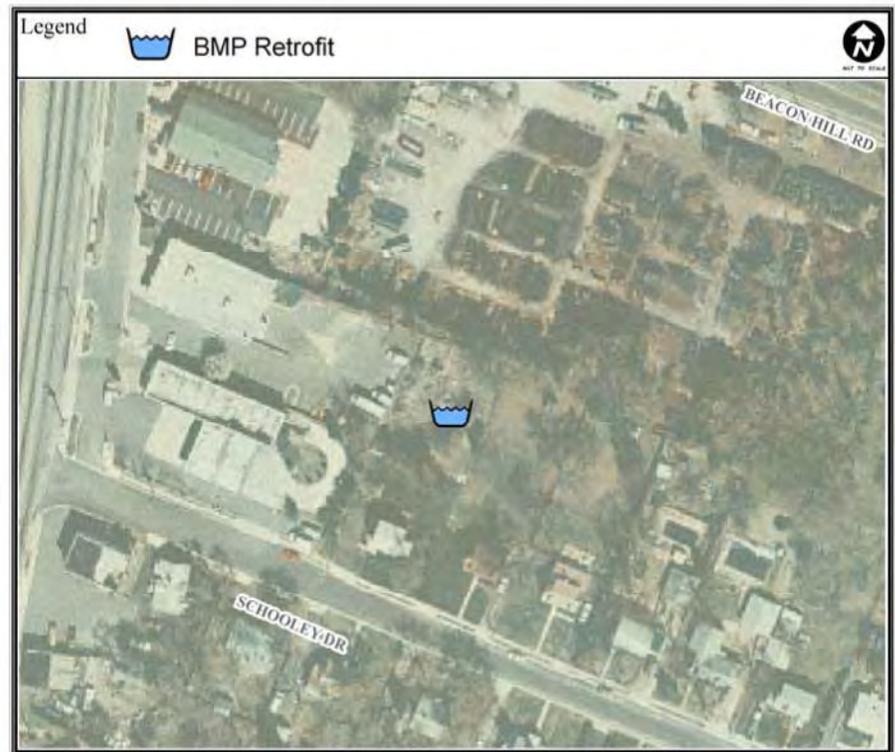
vWatershed Plan Map Number:
PSB6

Capital Improvement Project:
LH9158 BMP Retrofit

Tax Grid Map Number:
93-1

Location:
6733 Richmond Highway.

Description:
Increase detention storage by 150 cubic yards, modify and/or replace existing riser and outlet structures, add infiltration features, modify existing stormwater system to redirect additional drainage area, and provide water quality improvements to the existing facility.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	118	CY	\$ 35.00	\$4,130.00
Exist. Stormwater Conveyance Changes	1	LS	\$ 20,000.00	\$20,000.00
Structural BMP Retrofit & Incidentals ¹	1	LS	\$ 5,000.00	\$5,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,000.00	\$3,000.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
			Base Construction Cost	\$34,130.00
			Mobilization (5%)	\$1,706.50
			Subtotal 1	\$35,836.50
			Contingency (25%)	\$8,959.13
			Subtotal 2	\$44,795.63
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$20,158.03
			Total	\$64,953.66
			Estimated Project Cost	\$70,000.00

¹ Includes the cost of retrofitting the existing inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

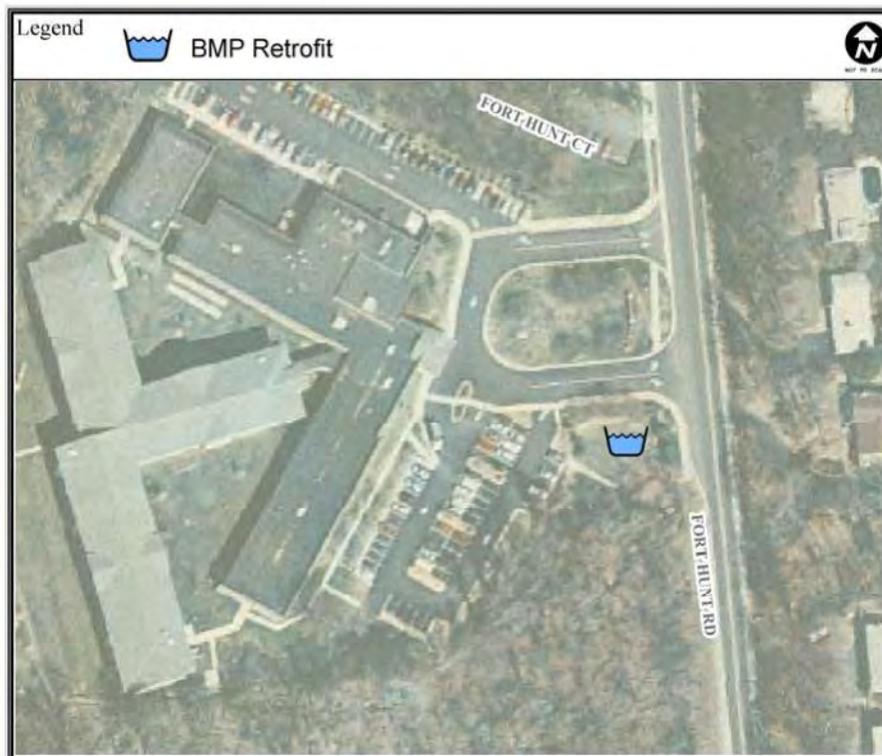
Watershed Plan Map Number:
PSB7

Capital Improvement Project:
LH9152 BMP Retrofit

Tax Grid Map Number:
93-4

Location:
7116 Fort Hunt Road

Description:
Increase detention storage by 950 cubic yards, modify and/or replace existing riser and outlet structures, add infiltration features, modify existing stormwater system to redirect additional drainage area, and provide water quality improvements to the existing facility.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	905	CY	\$ 35.00	\$31,675.00
Exist. Stormwater Conveyance Changes	1	LS	\$ 10,000.00	\$10,000.00
Structural BMP Retrofit & Incidentals ¹	1	LS	\$ 10,000.00	\$10,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,167.50	\$3,167.50
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
			Base Construction Cost	\$56,842.50
			Mobilization (5%)	\$2,842.13
			Subtotal 1	\$59,684.63
			Contingency (25%)	\$14,921.16
			Subtotal 2	\$74,605.78
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$33,572.60
			Total	\$108,178.38
			Estimated Project Cost	\$110,000.00

¹ Includes the cost of retrofitting the existing inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

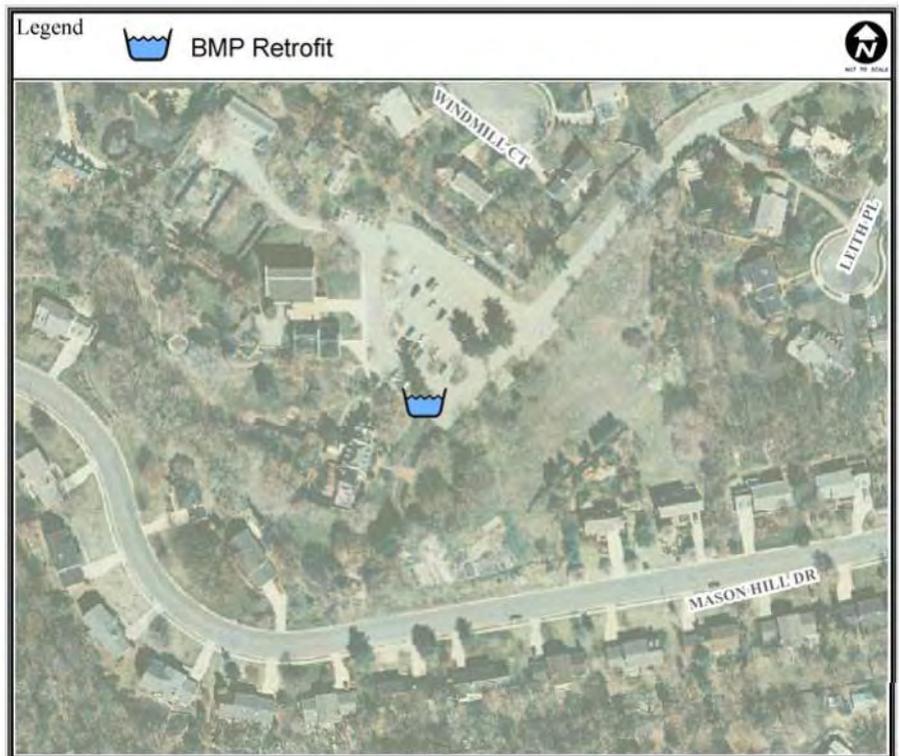
Watershed Plan Map Number:
PSB8

Capital Improvement Project:
LH9145 BMP Retrofit

Tax Grid Map Number:
93-3

Location:
Mount Vernon Unitarian Church-
1909 Windmill Lane, north of
Mason Hill Drive and south of
Windmill Lane and Windmill
Court.

Description:
Increase detention storage by 400
cubic yards, modify and/or replace
existing riser and outlet structures,
add infiltration features, and
provide water quality
improvements to the existing
facility.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	366	CY	\$ 35.00	\$12,810.00
Structural BMP Retrofit & Incidentals ¹	1	LS	\$ 10,000.00	\$10,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,000.00	\$3,000.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
			Base Construction Cost	\$27,810.00
			Mobilization (5%)	\$1,390.50
			Subtotal 1	\$29,200.50
			Contingency (25%)	\$7,300.13
			Subtotal 2	\$36,500.63
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$16,425.28
			Total	\$52,925.91
			Estimated Project Cost	\$60,000.00

¹ Includes the cost of retrofitting the existing inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

Watershed Plan Map Number:
PSB9

Capital Improvement Project:
LH9748 New Wetlands

Tax Grid Map Number:
93-1

Location:
Paul Spring Branch

Description:
Construct new wetlands in the indicated areas.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Wetlands Plantings	1	LS	\$ 120,000.00	\$120,000.00

Base Construction Cost	\$120,000.00
Mobilization (5%)	\$6,000.00
Subtotal 1	\$126,000.00

Contingency (25%)	\$31,500.00
Subtotal 2	\$157,500.00

Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$70,875.00
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Total	\$228,375.00
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Estimated Project Cost	\$230,000.00
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Watershed Plan Map Number:
PSB12

Capital Improvement Project:
LH9360 Buffer Restoration

Tax Grid Map Number:
93-1

Location:
Schooley Drive, Memorial Street
and East Side Drive.

Description:
Restore the buffer vegetation
(average width = 25 feet)
at homes located adjacent to the stream
near Schooley Drive, Memorial Street,
and East Side Drive.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Riparian Buffer Restoration	700	LF	\$ 10.00	\$7,000.00
Base Construction Cost				\$7,000.00
Mobilization (5%)				\$350.00
Subtotal 1				\$7,350.00
Contingency (25%)				\$1,837.50
Subtotal 2				\$9,187.50
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$4,134.38
Total				\$13,321.88
Estimated Project Cost				\$20,000.00

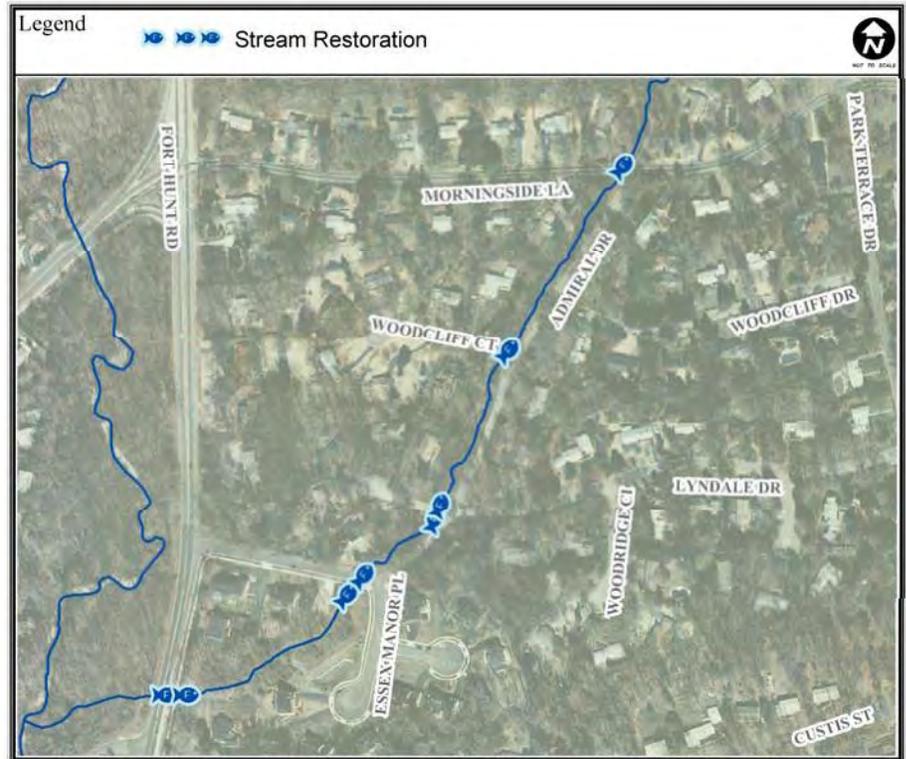
Watershed Plan Map Number:
PSB13

Capital Improvement Project:
LH9230 Stream Restoration

Tax Grid Map Number:
93-4, 102-2

Location:
Morningside Lane, Woodcliff Drive & Lyndale Drive, Admiral & Fort Hunt Road.

Description:
Perform stream restoration in conjunction with the culvert replacements at Morningside Lane, Woodcliff Drive, Lyndale Drive, Admiral Road, and Fort Hunt Road. Proposed activities include removal/modification of culverts, channel reconfiguration, riparian vegetation plantings, and removal of invasive species. This incorporates former projects LH244, LH245 and LH442.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Stream Restoration	1900	LF	\$ 100.00	\$190,000.00
Morningside Ln. Culv. Replacement	1	LS	\$ 170,000.00	\$170,000.00
Woodcliff Dr. Culv. Replacement	1	LS	\$ 195,000.00	\$195,000.00
Lyndale Dr. Culv. Replacement	1	LS	\$ 160,000.00	\$160,000.00
Admiral Rd. Culv. Replacement	1	LS	\$ 200,000.00	\$200,000.00
Fort Hunt Rd. Culv. Replacement	1	LS	\$ 365,000.00	\$365,000.00
Base Construction Cost				\$715,000.00
Mobilization (5%)				\$35,750.00
Subtotal 1				\$750,750.00
Contingency (25%)				\$187,687.50
Subtotal 2				\$938,437.50
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$422,296.88
Total				\$1,360,734.38
Estimated Project Cost				\$1,370,000.00

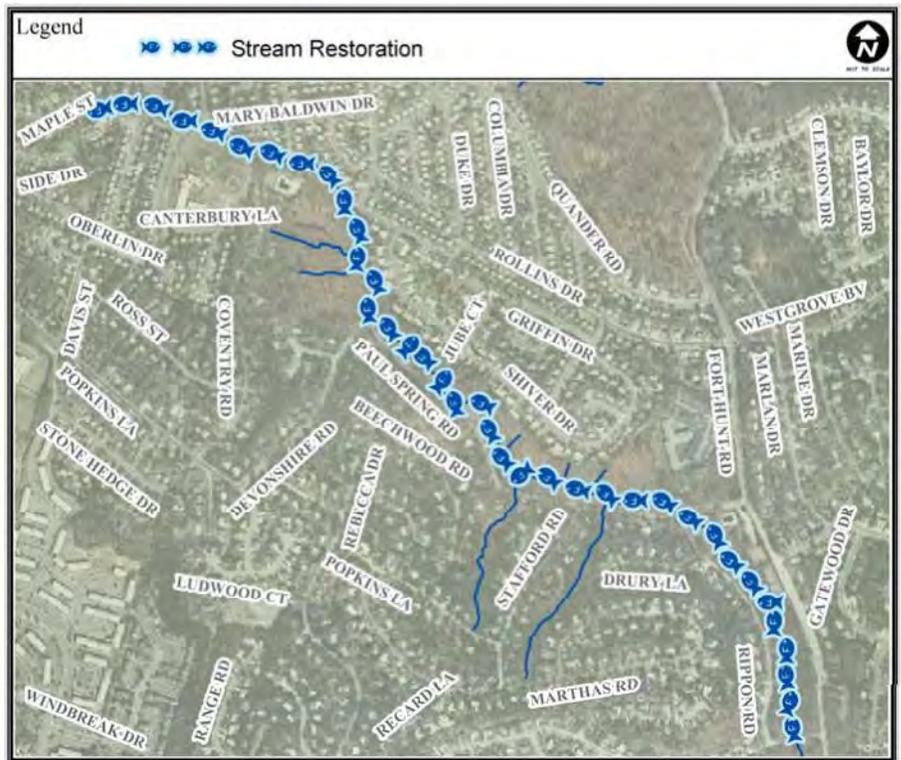
Watershed Plan Map Number:
PSB15

Capital Improvement Project:
LH9264 Stream Restoration

Tax Grid Map Number:
93-1, 93-3, 93-4

Location:
Paul Spring Branch from Mary Baldwin Drive to Mason Hill Drive

Description:
Perform stream restoration and bank stabilization in phases in conjunction with culvert replacements at Mary Baldwin Drive and Paul Spring Road along Paul Spring Branch and culvert improvements at Stafford Road from the headwaters to Mason Hill Drive. Proposed activities include riparian vegetative plantings, removal of invasive species, removal of unstable trees, selective placement of in-stream habitat structures, bioengineering of stream bank, channel reconfiguration, floodplain creation, and trash/debris removal. This incorporates former project LH451 and LH252.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Stream Restoration	8000	LF	\$ 100.00	\$800,000.00
Mary Baldwin Dr. Culv. Replacement	1	LS	\$ 300,000.00	\$300,000.00
Paul Spring Rd. Culv. Replacement	1	LS	\$ 275,000.00	\$275,000.00
Base Construction Cost				\$1,375,000.00
Mobilization (5%)				\$68,750.00
Subtotal 1				\$1,443,750.00
Contingency (25%)				\$360,937.50
Subtotal 2				\$1,804,687.50
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$812,109.38
Total				\$2,616,796.88
Estimated Project Cost				\$2,620,000.00

Watershed Plan Map Number:
PSB16

Capital Improvement Project:
LH9263 Stream Stabilization

Tax Grid Map Number:
93-1

Location:
Mary Baldwin Drive

Description:
Restore stream by performing bank stabilization to mitigate the impact from increased runoff at the two four-foot diameter corrugated metal pipes crossing Mary Baldwin Drive. Proposed activities include channel reconfiguration and the selective placement of in-stream habitat structures, riparian vegetative plantings, and removal of invasive species.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Streambank Stabilization	500	LF	\$ 100.00	\$50,000.00
Base Construction Cost				\$50,000.00
Mobilization (5%)				\$2,500.00
Subtotal 1				\$52,500.00
Contingency (25%)				\$13,125.00
Subtotal 2				\$65,625.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$29,531.25
Total				\$95,156.25
Estimated Project Cost				\$100,000.00

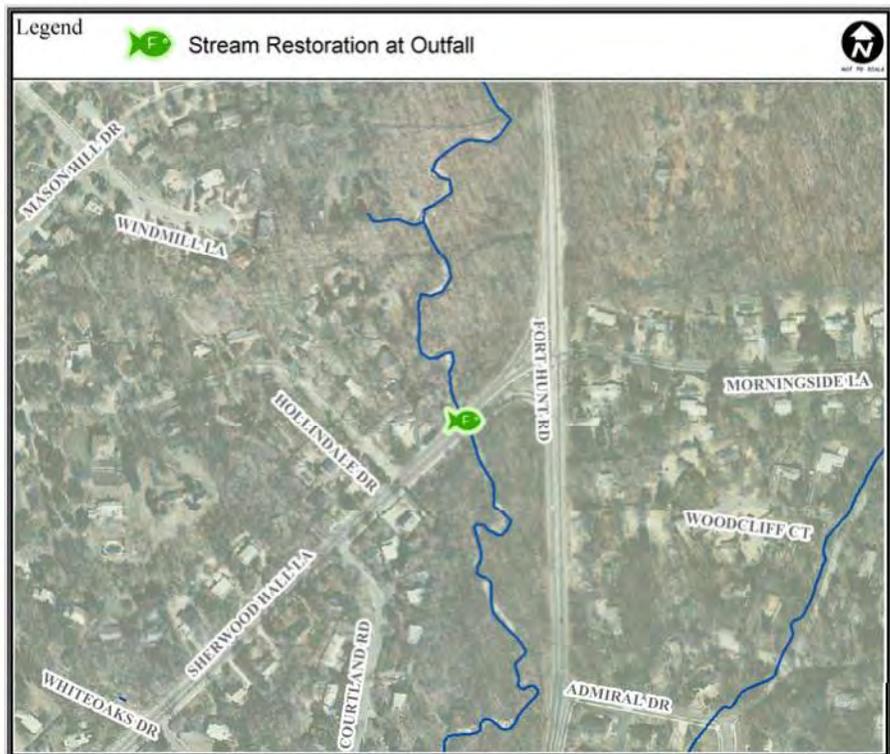
Watershed Plan Map Number:
PSB17

Capital Improvement Project:
LH9249 Stream Stabilization

Tax Grid Map Number:
93-4

Location:
Sherwood Hall Lane

Description:
Restore stream by performing bank stabilization to mitigate four-foot-high bank erosion located adjacent to the four 10-foot by six-foot concrete box culverts at Sherwood Hall Lane. Proposed activities include channel reconfiguration and the selective placement of in-stream habitat structures, riparian vegetative plantings, and removal of invasive species.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Streambank Stabilization	200	LF	\$ 100.00	\$20,000.00

Base Construction Cost	\$20,000.00
Mobilization (5%)	\$1,000.00
Subtotal 1	\$21,000.00
Contingency (25%)	\$5,250.00
Subtotal 2	\$26,250.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$11,812.50
Total	\$38,062.50
Estimated Project Cost	\$40,000.00

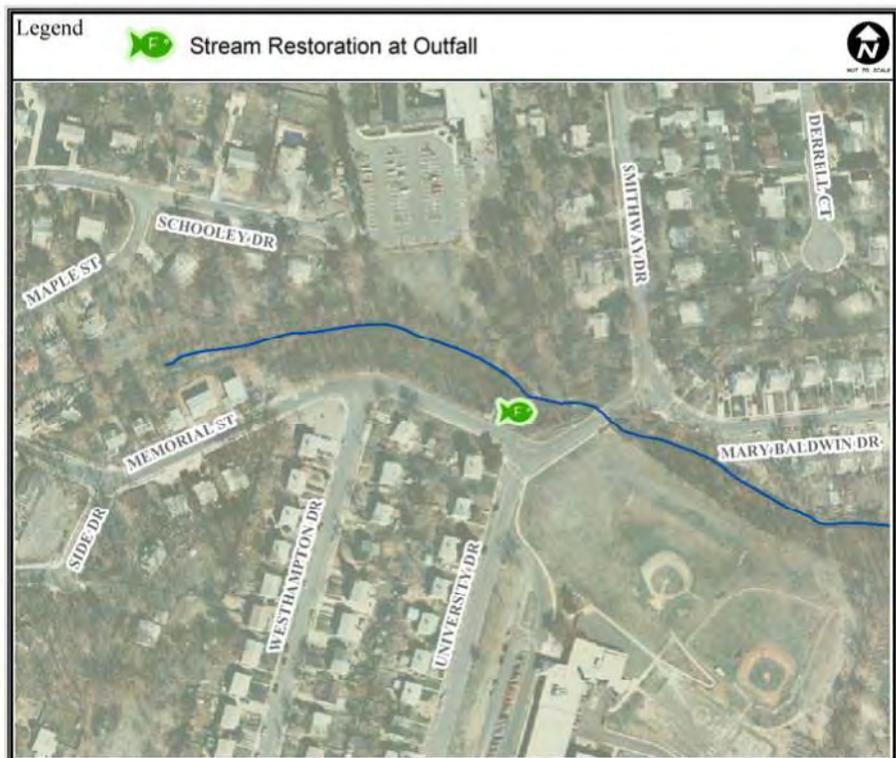
Watershed Plan Map Number:
PSB19

Capital Improvement Project:
LH9262 Stream Stabilization

Tax Grid Map Number:
93-1

Location:
University Drive

Description:
Restore stream by performing bank stabilization to mitigate severe erosion from increased runoff at the pipe outfall at University Drive. Proposed activities include channel reconfiguration and the selective placement of in-stream habitat structures, riparian vegetative plantings, and removal of invasive species.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Streambank Stabilization	500	LF	\$ 100.00	\$50,000.00
Base Construction Cost				\$50,000.00
Mobilization (5%)				\$2,500.00
Subtotal 1				\$52,500.00
Contingency (25%)				\$13,125.00
Subtotal 2				\$65,625.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$29,531.25
Total				\$95,156.25
Estimated Project Cost				\$100,000.00

Watershed Plan Map Number:
PSB20

Capital Improvement Project:
LH9269 Stream Stabilization

Tax Grid Map Number:
93-1

Location:
Devonshire Road

Description:
Restore stream by performing bank stabilization to mitigate moderate erosion from increased runoff at the pipe outfall at Devonshire Road. Proposed activities include channel reconfiguration and the selective placement of in-stream habitat structures, riparian vegetative plantings, and removal of invasive species.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Streambank Stabilization	500	LF	\$ 100.00	\$50,000.00

Base Construction Cost	\$50,000.00
Mobilization (5%)	\$2,500.00
Subtotal 1	\$52,500.00
Contingency (25%)	\$13,125.00
Subtotal 2	\$65,625.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$29,531.25
Total	\$95,156.25
Estimated Project Cost	\$100,000.00

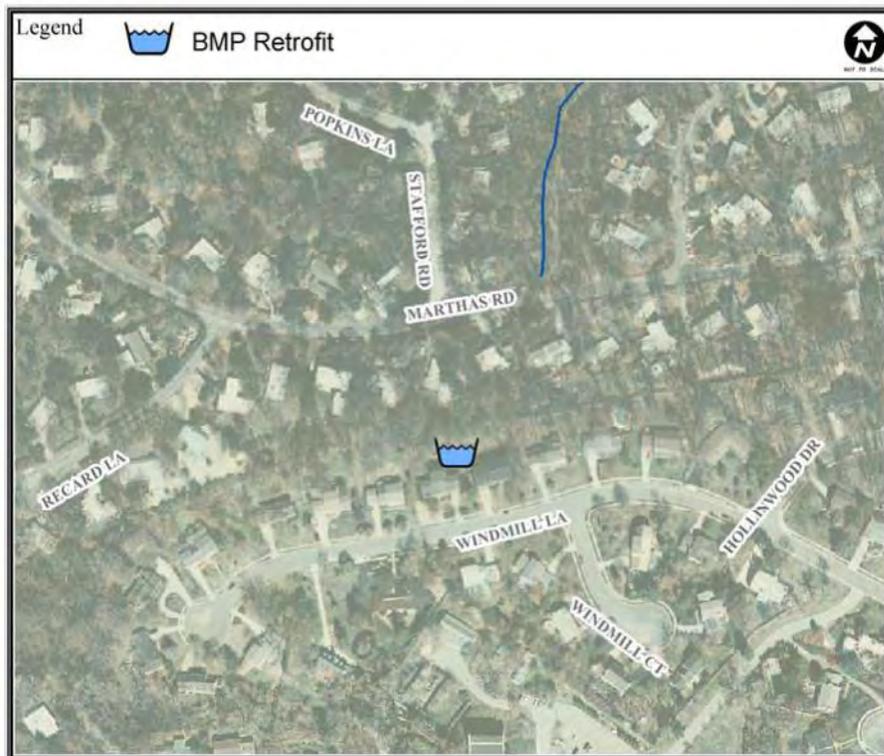
Watershed Plan Map Number:
PSB23

Capital Improvement Project:
LH9146 BMP Retrofit

Tax Grid Map Number:
93-3

Location:
2004 Windmill Lane

Description:
Increase detention storage by 450 cubic yards, modify and/or replace existing riser and outlet structures, add infiltration features, modify existing stormwater system to redirect additional drainage area, and provide water quality improvements to the existing facility. This project should also include the investigation of localized ponding in the vicinity of the BMP and surrounding properties.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	422	CY	\$ 35.00	\$14,770.00
Exist. Stormwater Conveyance Changes	1	LS	\$ 10,000.00	\$10,000.00
Structural BMP Retrofit & Incidentals ¹	1	LS	\$ 10,000.00	\$10,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,000.00	\$3,000.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
			Base Construction Cost	\$39,770.00
			Mobilization (5%)	\$1,988.50
			Subtotal 1	\$41,758.50
			Contingency (25%)	\$10,439.63
			Subtotal 2	\$52,198.13
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$23,489.16
			Total	\$75,687.28
			Estimated Project Cost	\$80,000.00

¹ Includes the cost of retrofitting the existing inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

Watershed Plan Map Number:
PSB24

Capital Improvement Project:
LH9153 New BMP

Tax Grid Map Number:
92-2

Location:
Lenclair Street and 6700 Tower Road

Description:
Construct a new 1-year extended detention BMP (volume = 1700 cubic yards; dam height = 5.0 feet) at the intersection of Lenclair Street and 6700 Tower Road. The new facility would consist of dual basins on either side of Tower Road, with an equalizer pipe, which would reduce runoff from the property and associated parking areas to the north.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	1666	CY	\$ 50.00	\$83,300.00
Structural Improvements & Incidentals ¹	1	LS	\$ 30,000.00	\$30,000.00
Erosion and Sediment Control ²	1	LS	\$ 8,330.00	\$8,330.00
Landscaping ³	1	LS	\$ 4,165.00	\$4,165.00
			Base Construction Cost	\$125,795.00
			Mobilization (5%)	\$6,289.75
			Subtotal 1	\$132,084.75
			Contingency (25%)	\$33,021.19
			Subtotal 2	\$165,105.94
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$74,297.67
			Total	\$239,403.61
			Estimated Project Cost	\$240,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping

Watershed Plan Map Number:
PSB25

Capital Improvement Project:
LH9154 New BMP

Tax Grid Map Number:
92-2

Location:
3300 and 3400 blocks of Groveton Street and Clayborne Avenue

Description:
Construct a multi-stage bioretention system (volume = 1050 cubic yards; dam height = 6.0 feet) behind the residential properties between the 3300 and 3400 blocks of Groveton Street and Clayborne Avenue. The bioretention areas would be constructed at each yard inlet in order to reduce runoff from the surrounding residential properties.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	1010	CY	\$ 50.00	\$50,500.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Bioretention	6	EA	\$ 7,500.00	\$45,000.00
Erosion and Sediment Control ²	1	LS	\$ 5,050.00	\$5,050.00
Landscaping ³	1	LS	\$ 2,525.00	\$2,525.00
			Base Construction Cost	\$123,075.00
			Mobilization (5%)	\$6,153.75
			Subtotal 1	\$129,228.75
			Contingency (25%)	\$32,307.19
			Subtotal 2	\$161,535.94
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$72,691.17
			Total	\$234,227.11
			Estimated Project Cost	\$240,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping

Watershed Plan Map Number:
PSB26

Capital Improvement Project:
LH9165 New BMP

Tax Grid Map Number:
93-1

Location:
Lutheran Church on the 2500
block of Beacon Hill Road

Description:
Construct a new 1-year extended
detention BMP (volume = 1200
cubic yards; dam height = 5.0 feet)
south of the Lutheran Church on
the 2500 block of Beacon Hill
Road. This facility would reduce
runoff from the surrounding
residential properties and the
adjacent commercial property.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	1003	CY	\$ 50.00	\$50,150.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 5,015.00	\$5,015.00
Landscaping ³	1	LS	\$ 2,507.50	\$2,507.50
Base Construction Cost				\$77,672.50
Mobilization (5%)				\$3,883.63
Subtotal 1				\$81,556.13
Contingency (25%)				\$20,389.03
Subtotal 2				\$101,945.16
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$45,875.32
Total				\$147,820.48
Estimated Project Cost				\$150,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

Watershed Plan Map Number:
PSB27

Capital Improvement Project:
LH9166 New BMP

Tax Grid Map Number:
93-1

Location:
2500 Mary Baldwin Drive

Description:
Construct a new 1-year extended detention BMP (volume = 1750 cubic yards; dam height = 7.0 feet) near the headwaters of Paul Spring Branch at the downstream end of the culvert crossing at 2500 Mary Baldwin Drive. The facility would detain low flows by means of a diversion and reduce runoff from the surrounding residential properties.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	518	CY	\$ 50.00	\$25,900.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,000.00	\$3,000.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
Base Construction Cost				\$50,900.00
Mobilization (5%)				\$2,545.00
Subtotal 1				\$53,445.00
Contingency (25%)				\$13,361.25
Subtotal 2				\$66,806.25
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$30,062.81
Total				\$96,869.06
Estimated Project Cost				\$100,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping

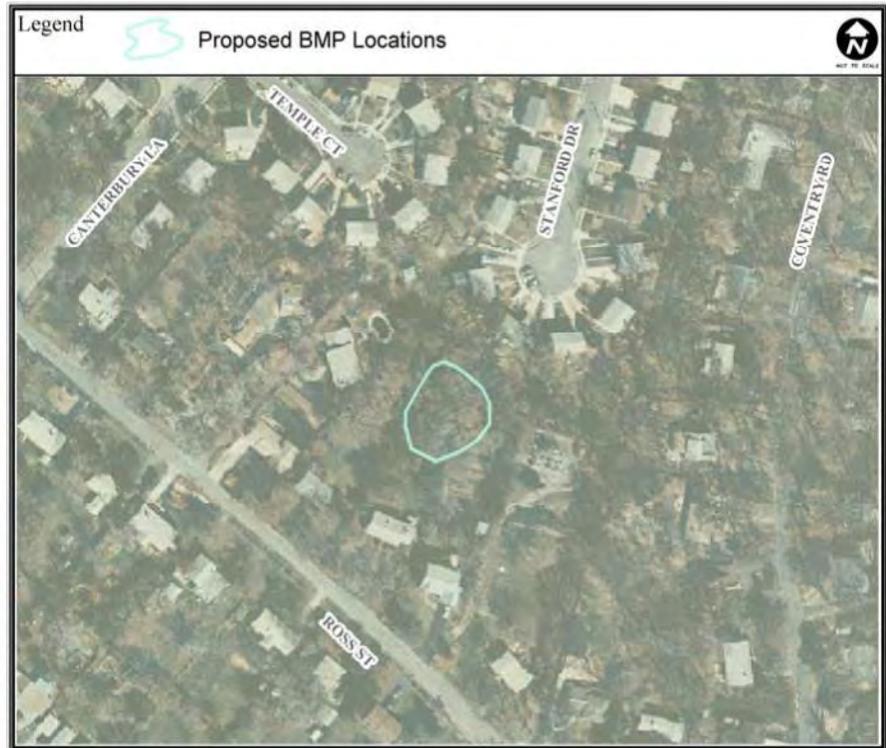
Watershed Plan Map Number:
PSB28

Capital Improvement Project:
LH9167 New BMP

Tax Grid Map Number:
93-1

Location:
2500 block of Ross Street

Description:
Construct a new 1-year extended detention BMP (volume = 650 cubic yards; dam height = 5.5 feet) behind the residential properties along the 2500 block of Ross Street. This facility should be laid out and constructed to minimize disturbance of the existing trees. This facility would reduce runoff from the surrounding residential areas.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	150	CY	\$ 50.00	\$7,500.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,000.00	\$3,000.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
			Base Construction Cost	\$32,500.00
			Mobilization (5%)	\$1,625.00
			Subtotal 1	\$34,125.00
			Contingency (25%)	\$8,531.25
			Subtotal 2	\$42,656.25
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$19,195.31
			Total	\$61,851.56
			Estimated Project Cost	\$70,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

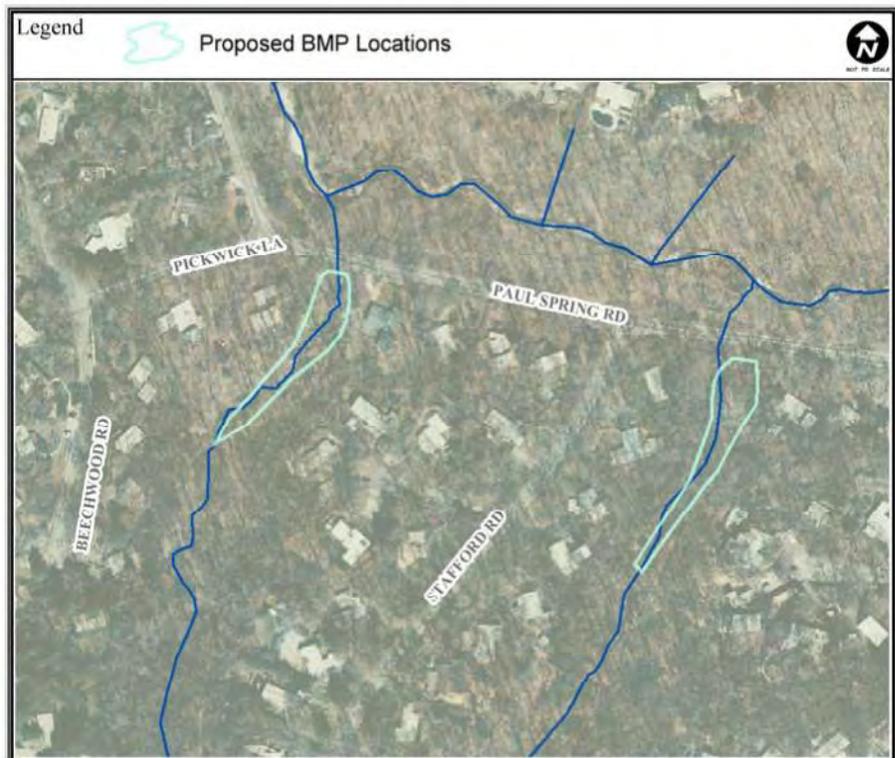
Watershed Plan Map Number:
PSB29

Capital Improvement Project:
LH9147 New BMP

Tax Grid Map Number:
93-3

Location:
1900 and 2000 blocks of Paul Spring Road

Description:
Construct two new 1-year extended detention BMPs (volume = 2900 cubic yards; dam height = 7.0 feet) at the upstream ends of the culverts along the 1900 and 200 blocks of Paul Spring Road. The entrance of the existing culverts could be modified with a weir wall, in lieu of a more traditional riser structure. These facilities would reduce runoff from the surrounding residential properties. The existing culvert at the intersection of Stafford Road and Paul Spring Road should be evaluated for adequacy during the preliminary engineering phase for this project.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	2027	CY	\$ 50.00	\$101,350.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 10,135.00	\$10,135.00
Landscaping ³	1	LS	\$ 5,067.50	\$5,067.50
Base Construction Cost				\$136,552.50
Mobilization (5%)				\$6,827.63
Subtotal 1				\$143,380.13
Contingency (25%)				\$35,845.03
Subtotal 2				\$179,225.16
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$80,651.32
Total				\$259,876.48
Estimated Project Cost				\$260,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

Watershed Plan Map Number:
PSB30

Capital Improvement Project:
LH9150 New BMP

Tax Grid Map Number:
93-4

Location:
1200 block of Belle Vista Drive

Description:
Construct a new 1-year extended detention BMP (volume = 1400 cubic yards; dam height = 9.5 feet) in the available open area at the headwaters of the unnamed tributary to Paul Spring Branch, south of the 1200 block of Belle Vista Drive. Tree removal should only occur at the embankment area. This facility would reduce discharges from the residential areas to the north, before that enter the unnamed tributary.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	1384	CY	\$ 50.00	\$69,200.00
Structural Improvements & Incidentals ¹	1	LS	\$ 30,000.00	\$30,000.00
Erosion and Sediment Control ²	1	LS	\$ 6,920.00	\$6,920.00
Landscaping ³	1	LS	\$ 3,460.00	\$3,460.00
			Base Construction Cost	\$109,580.00
			Mobilization (5%)	\$5,479.00
			Subtotal 1	\$115,059.00
			Contingency (25%)	\$28,764.75
			Subtotal 2	\$143,823.75
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$64,720.69
			Total	\$208,544.44
			Estimated Project Cost	\$210,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

Watershed Plan Map Number:
PSB31

Capital Improvement Project:
LH9168 New BMP

Tax Grid Map Number:
93-1

Location:
2300 Block of Beacon Hill Road

Description:
Construct a new 1-year extended detention stormwater management facility (volume = 850 cubic yards; dam height = 4.5 feet) in the open space behind the 2300 block of Beacon Hill Road. The existing storm drain system would need to be modified and possibly a low flow diversion constructed, in order for this facility to function properly. This facility would reduce runoff from the surrounding residential areas.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	807	CY	\$ 50.00	\$40,350.00
Exist. Stormwater Conveyance Changes	1	LS	\$ 5,000.00	\$5,000.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 4,035.00	\$4,035.00
Landscaping ³	1	LS	\$ 2,017.50	\$2,017.50
			Base Construction Cost	\$71,402.50
			Mobilization (5%)	\$3,570.13
			Subtotal 1	\$74,972.63
			Contingency (25%)	\$18,743.16
			Subtotal 2	\$93,715.78
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$42,172.10
			Total	\$135,887.88
			Estimated Project Cost	\$140,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

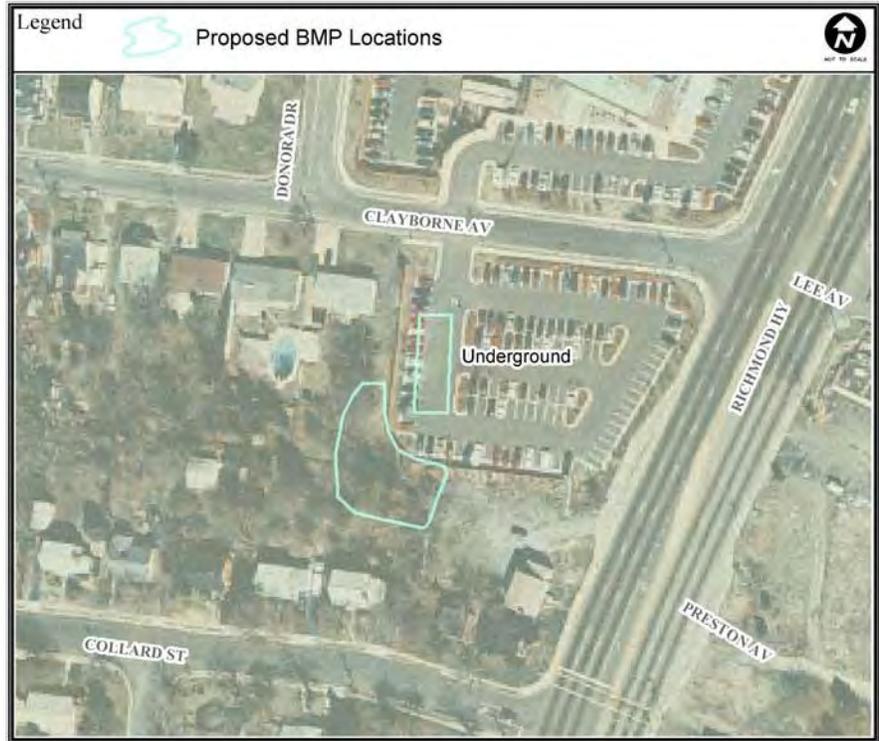
Watershed Plan Map Number:
PSB32

Capital Improvement Project:
LH9156 New BMP

Tax Grid Map Number:
92-2

Location:
Jemal/Metrocall building at 6910
Richmond Highway

Description:
Construct a new 1-year extended detention BMP (volume = 1000 cubic yards; dam height = 9.5 feet) and an underground storage facility (volume = 600 cubic yards; depth = 10 feet) south of the Jemal/Metrocall building at 6910 Richmond Highway and install porous pavement along the parking lot perimeter. The facilities would reduce runoff from the surrounding residential areas and adjacent commercial property.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	1588	CY	\$ 50.00	\$79,400.00
Pavement Patch for Parking Lot	350	SY	\$ 20.00	\$7,000.00
Obscuring Exist. Pavement	1000	SY	\$ 8.00	\$8,000.00
Porous Pavement	1000	SY	\$ 15.00	\$15,000.00
StormTrap Underground Storage Facility	1	LS	\$ 150,000.00	\$150,000.00
Exist. Stormwater Conveyance Changes	1	LS	\$ 20,000.00	\$20,000.00
Structural Improvements & Incidentals ¹	1	LS	\$ 20,000.00	\$20,000.00
Erosion and Sediment Control ²	1	LS	\$ 7,940.00	\$7,940.00
Landscaping ³	1	LS	\$ 3,970.00	\$3,970.00
Base Construction Cost				\$311,310.00
Mobilization (5%)				\$15,565.50
Subtotal 1				\$326,875.50
Contingency (25%)				\$81,718.88
Subtotal 2				\$408,594.38
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$183,867.47
Total				\$592,461.84
Estimated Project Cost				\$600,000.00

¹ Includes the cost of installing the inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

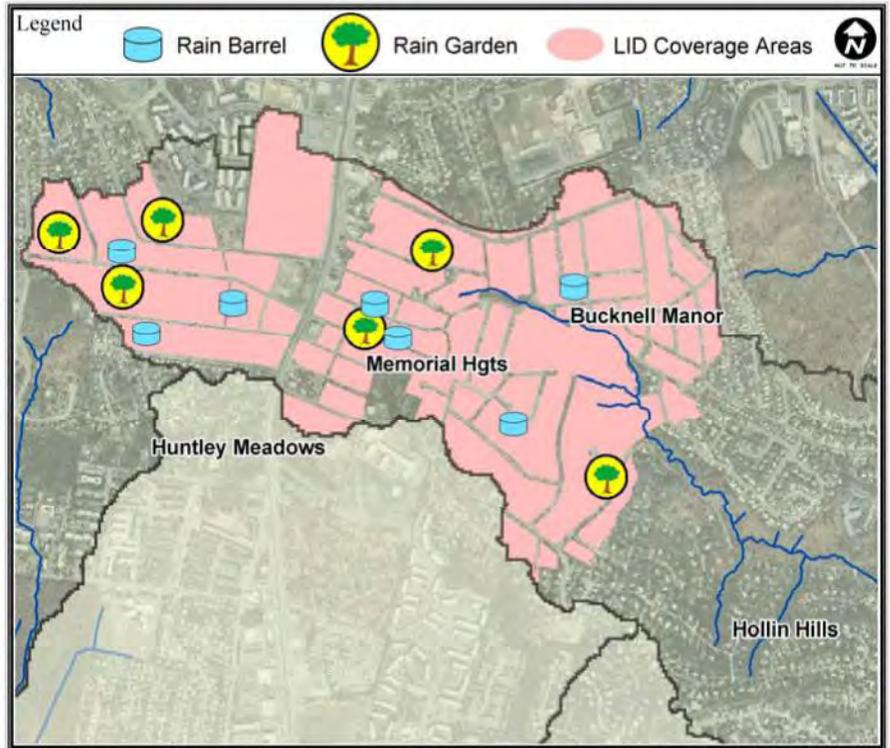
Watershed Plan Map Number:
A4.1

Capital Improvement Project:
LH9983 Paul Spring Branch
Residential Rain Barrel and Rain
Gardens

Tax Grid Map Number:
92-2, 93-1, 93-3

Location:
Paul Spring Branch Subwatershed

Description:
Distribute rain barrels, facilitate
installation of rain gardens, and
provide educational materials
about rain barrels, cisterns, and
rain gardens.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Distribute Rain Barrels	1	LS	\$ 28,000.00	\$28,000.00
Facilitate Installation of Rain Gardens	1	LS	\$ 12,000.00	\$12,000.00
Provide Educational Materials	1	LS	\$ 5,000.00	\$5,000.00
Base Construction Cost				N/A
Mobilization (5%)				N/A
Subtotal 1				N/A
Contingency (25%)				\$11,250.00
Subtotal 2				\$56,250.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				N/A
Total				\$56,250.00
Estimated Project Cost				\$60,000.00

South Little Hunting Creek Watershed

Watershed Plan Map Number:
SLHC3

Capital Improvement Project:
LH9804 New LID

Tax Grid Map Number:
111-1

Location:
Fort Hunt Elementary School

Description:
Create rain gardens with student volunteers and install manufactured BMPs.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Rain Garden	5000	SF	\$ 25.00	\$125,000.00
Manufactured BMP System	5	EA	\$ 3,000.00	\$15,000.00
			Base Construction Cost	\$140,000.00
			Mobilization (5%)	\$7,000.00
			Subtotal 1	\$147,000.00
			Contingency (25%)	\$36,750.00
			Subtotal 2	\$183,750.00
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$82,687.50
			Total	\$266,437.50
			Estimated Project Cost	\$270,000.00

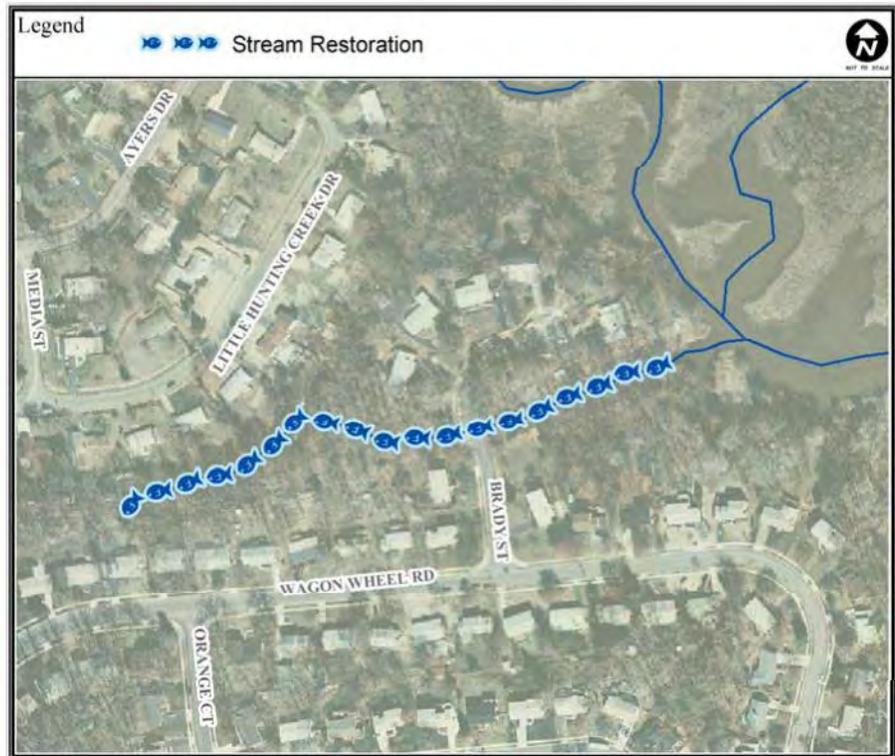
Watershed Plan Map Number:
SLHC4

Capital Improvement Project:
LH9207 Stream Restoration

Tax Grid Map Number:
101-4

Location:
Tributary (LHLH011) located near
Brady Street

Description:
Perform stream restoration
activities including riparian
vegetation plantings, removal of
invasive species, selected
placement of in-stream habitat
structures, and trash /debris
removal.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Stream Restoration	1000	LF	\$ 100.00	\$100,000.00

Base Construction Cost	\$100,000.00
Mobilization (5%)	\$5,000.00
Subtotal 1	\$105,000.00

Contingency (25%)	\$26,250.00
Subtotal 2	\$131,250.00

Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$59,062.50
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Total	\$190,312.50
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Estimated Project Cost	\$200,000.00
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Watershed Plan Map Number:
SLHC5

Capital Improvement Project:
LH9204 Stream Restoration

Tax Grid Map Number:
110-2

Location:
South Branch near Fort Hunt Park
and the Fort Hunt Elementary
School

Description:
Perform stream restoration for
South Branch near Fort Hunt Park
and the Fort Hunt Elementary
School. Acquire conservation
easements for the private land
located adjacent to the stream.
Proposed activities include channel
reconfiguration, selective
placement of in-stream habitat
structures, riparian vegetation
planting, and removal of invasive
species.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Stream Restoration	2900	LF	\$ 100.00	\$290,000.00

Base Construction Cost	\$290,000.00
Mobilization (5%)	\$14,500.00
Subtotal 1	\$304,500.00

Contingency (25%)	\$76,125.00
Subtotal 2	\$380,625.00

Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$171,281.25
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Total	\$551,906.25
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Estimated Project Cost	\$560,000.00
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Watershed Plan Map Number:
SLHC6

Capital Improvement Project:
LH9301 Buffer Restoration

Tax Grid Map Number:
110-2

Location:
Wessynton Subdivision

Description:
Establish approximately 10-30 feet of additional buffer vegetation along the top of bank of the paved channel in the Wessynton Subdivision.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Riparian Buffer Restoration	1000	LF	\$ 10.00	\$10,000.00

Base Construction Cost	\$10,000.00
Mobilization (5%)	\$500.00
Subtotal 1	\$10,500.00
Contingency (25%)	\$2,625.00
Subtotal 2	\$13,125.00
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$5,906.25
Total	\$19,031.25
Estimated Project Cost	\$20,000.00

Watershed Plan Map Number:
SLHC7

Capital Improvement Project:
LH9305 Buffer Restoration

Tax Grid Map Number:
111-1

Location:
Southern portion of South Branch
between Linton Lane and Vernon
View Drive

Description:
Restore the buffer (average width
= 25 feet) adjacent to the paved
channels located along the south
branch of South Branch between
Linton Lane and Vernon View
Drive and acquire conservation
easements for the land adjacent to
the stream.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Riparian Buffer Restoration	1800	LF	\$ 10.00	\$18,000.00

Base Construction Cost	\$18,000.00
Mobilization (5%)	\$900.00
Subtotal 1	\$18,900.00

Contingency (25%)	\$4,725.00
Subtotal 2	\$23,625.00

Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$10,631.25
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Total	\$34,256.25
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Estimated Project Cost	\$40,000.00
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Watershed Plan Map Number:
SLHC8

Capital Improvement Project:
LH9302 Stream Stabilization

Tax Grid Map Number:
111-1

Location:
Between Linton Lane and Vernon
View Drive

Description:
Mitigate the effects of the paved
channels by placing riprap in the
bottom of the channel to slow flow
velocities.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioengineered Stream Stabilization	1500	LF	\$ 50.00	\$75,000.00
Base Construction Cost				\$75,000.00
Mobilization (5%)				\$3,750.00
Subtotal 1				\$78,750.00
Contingency (25%)				\$19,687.50
Subtotal 2				\$98,437.50
Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)				\$44,296.88
Total				\$142,734.38
Estimated Project Cost				\$150,000.00

Watershed Plan Map Number:
SLHC9

Capital Improvement Project:
LH9203 Stream Restoration

Tax Grid Map Number:
110-2, 111-1

Location:
South of George Washington Memorial Parkway on the west side of South Little Hunting Creek

Description:
Restore the stream located south of George Washington Memorial Parkway on the west side of South Little Hunting Creek. Coordinate this work with the National Park Service. Proposed activities include selective placement of in-stream habitat structures, riparian vegetation planting, and removal of invasive species.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Stream Restoration	1200	LF	\$ 100.00	\$120,000.00

Base Construction Cost	\$120,000.00
Mobilization (5%)	\$6,000.00
Subtotal 1	\$126,000.00

Contingency (25%)	\$31,500.00
Subtotal 2	\$157,500.00

Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$70,875.00
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Total	\$228,375.00
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Estimated Project Cost	\$230,000.00
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Watershed Plan Map Number:
SLHC11

Capital Improvement Project:
LH9708 New Wetlands

Tax Grid Map Number:
101-4

Location:
Martin Luther King Jr. Park

Description:
Restore and construct new wetlands in the indicated area.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Wetlands Plantings	1	LS	\$ 200,000.00	\$200,000.00
			Base Construction Cost	\$200,000.00
			Mobilization (5%)	\$10,000.00
			Subtotal 1	\$210,000.00
			Contingency (25%)	\$52,500.00
			Subtotal 2	\$262,500.00
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$118,125.00
			Total	\$380,625.00
			Estimated Project Cost	\$390,000.00

Watershed Plan Map Number:
SLHC16

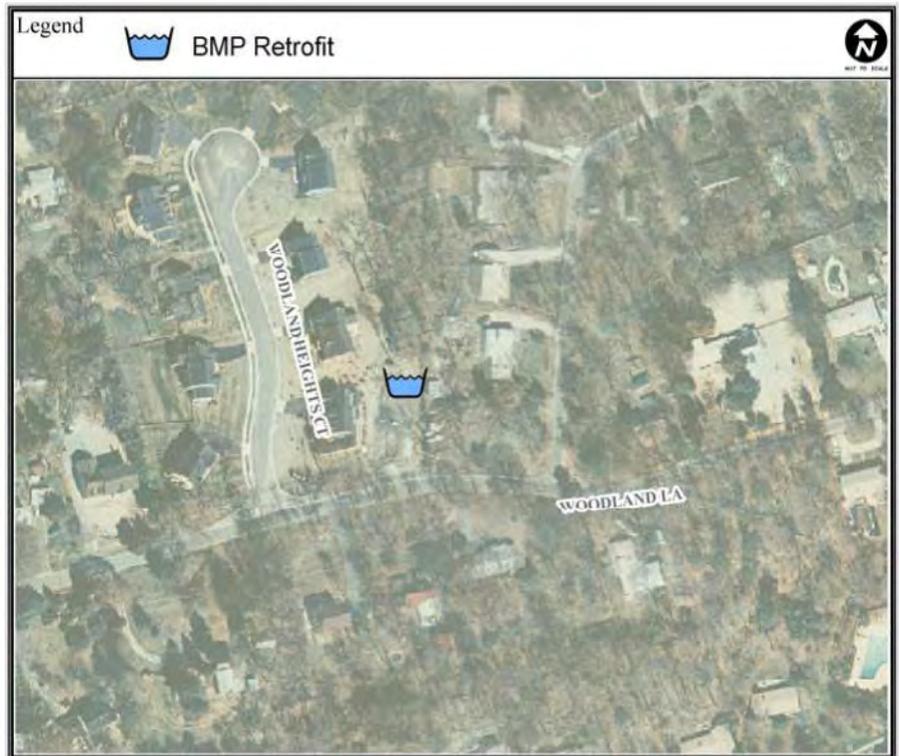
Capital Improvement Project:
LH9100 BMP Retrofit

Tax Grid Map Number:
110-2

Location:
3301 Woodland Lane

Description

:
Increase detention storage by 250 cubic yards, modify and/or replace existing riser and outlet structures, add infiltration features, and modify existing stormwater system to redirect additional drainage area to the existing facility.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Excavation	236	CY	\$ 35.00	\$8,260.00
Exist. Stormwater Conveyance Changes	1	LS	\$ 10,000.00	\$10,000.00
Structural BMP Retrofit & Incidentals ¹	1	LS	\$ 5,000.00	\$5,000.00
Erosion and Sediment Control ²	1	LS	\$ 3,000.00	\$3,000.00
Landscaping ³	1	LS	\$ 2,000.00	\$2,000.00
			Base Construction Cost	\$28,260.00
			Mobilization (5%)	\$1,413.00
			Subtotal 1	\$29,673.00
			Contingency (25%)	\$7,418.25
			Subtotal 2	\$37,091.25
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$16,691.06
			Total	\$53,782.31
			Estimated Project Cost	\$60,000.00

¹ Includes the cost of retrofitting the existing inlet/outlet structures and incidental improvements.

² Includes the installation cost of all required ESC items and siltation control excavation.

³ Includes the cost of clearing, grubbing, stabilization, replacing existing landscaping and installation of new landscaping.

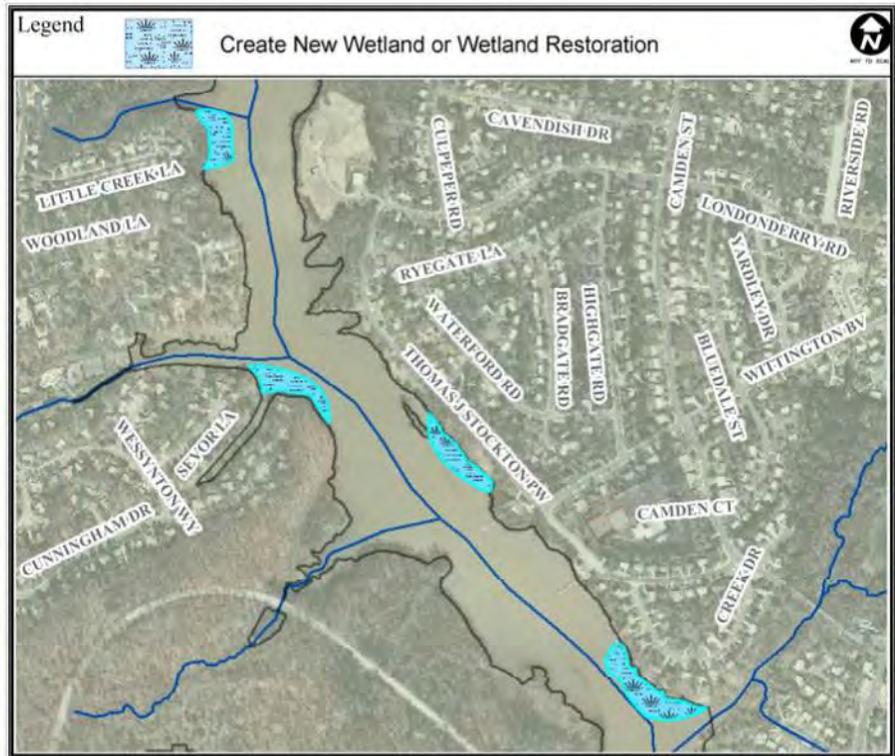
Watershed Plan Map Number:
SLHC17

Capital Improvement Project:
LH9790 New Wetlands

Tax Grid Map Number:
102-3, 111-1

Location:
Main stem portion of Little
Hunting Creek

Description:
Construct new wetlands in the
indicated area.



ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Grading and Wetlands Plantings	1	LS	\$ 120,000.00	\$120,000.00
			Base Construction Cost	\$120,000.00
			Mobilization (5%)	\$6,000.00
			Subtotal 1	\$126,000.00
			Contingency (25%)	\$31,500.00
			Subtotal 2	\$157,500.00
			Engineering Design, Surveys, Land Acquisition, Utility Relocations, and Permits (45%)	\$70,875.00
			Total	\$228,375.00
			Estimated Project Cost	\$230,000.00