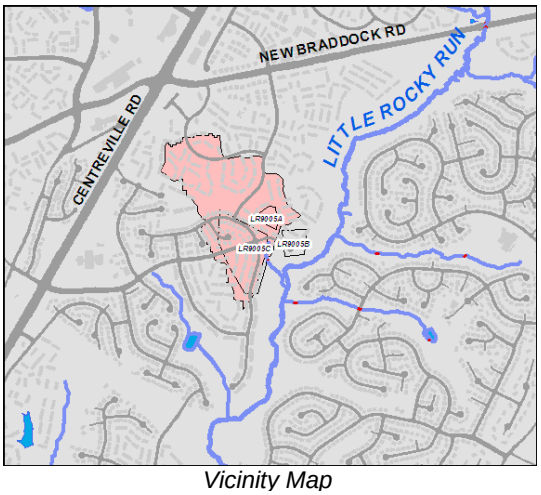
LR9005 Regional Pond Alternative Group



Vicinity Map

Address	13915 Green Trails Ct
Location	Subdivision
Landowner	Green Trails Homeowner's Association/Heritage Forest Homeowner's Association
PIN	0654 0304 K 0654 1004 A 0652 09 L
Control Type	Water quality and quantity control
Drainage Area	65 Acres
Receiving Waters	Little Rocky Run

Description: Project suite is alternative to Regional Pond R-05. LR9005A is a retrofit to existing facility 0829DP. Quality enhancements as well as storage increases are proposed. LR9005B is an LID application (3 tree box filters to replace curb drop inlets) to a small untreated portion of the subdivision. This area was not originally expected to be treated by the regional facility, but was added to the alternative suite because it is a strategic location to manage untreated runoff to obtain similar cumulative pollutant removal results as the original proposed pond. LR9005C involves treating the portion of the drainage area intended to drain to R-05 that is not treated by existing facility 0829DP for water quality. A combination of tree box filters (11) and bioretention areas (3) are proposed in order to eliminate the need for a pond at the outfall.

Project Area Map

Project Benefits: This project suite will simulate removal efficiencies of proposed Regional Pond R-05. Loading summaries can be found in Section 6 of the plan.

Project Design Considerations: LR9005A - Adding storage to existing facility (0829DP) encroaches into HOA property and is not contained within existing easement. LR9005B was not broken out separately below due to its similar nature and proximity to LR9005C. LR9005C - Bioretention areas are proposed within HOA property and outside of existing easements and in some cases are close in proximity to private property as well as existing utilities. Treatment was provided throughout subbasin to reduce footprint of treatment at the outfall (where the original regional facility was proposed).

Total Cost (9005A-9005C):

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Vegetated Swale		SY	$50.00	$0.00
Pervious Pavement		SY	$100.00	$0.00
Vegetated Roof		SY	$450.00	$0.00
Percolation/Infiltration Trench		SY	$75.00	$0.00
Bioretention Filters & Basin	275	SY	$150.00	$41,250.00
Manufactured BMP (ie:Tree Box Filter)	14	EA	$10,000.00	$140,000.00
Grading and Excavation	2500	CY	$35.00	$87,500.00
Remove Trickle Ditch	150	SY	$10.71	$1,606.50
Organic Compost Soil Amendment	320	CY	$40.00	$12,800.00
			Base Construction Cost	**$283,156.50**
			Mobilization (5%)	$14,157.83
			Plantings (5%)	$14,157.83
			Ancillary Items (5%)	$14,157.83
			Erosion & Sediment Control (10%)	$28,315.65
			Subtotal 1	**$353,945.63**
			Contingency (25%)	$88,486.41
			Subtotal 2	**$442,432.03**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$199,094.41
			Total	**$641,526.45**
			Estimated Project Cost	**$650,000.00**

Project LR9005A:

Project Area Map

Description: LR9005A is a proposed retrofit to existing facility 0829DP. Remove the existing trickle ditches. Add micropools and wetland plantings. Modify internal pond geometry – focus on extending the low flow path. Adding storage will depend on cooperation from HOA. Costs are summarized below:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Access Road		SY	$25.00	$0.00
Access Road Gate		EA	$2,500.00	$0.00
Clear and Grub		AC	$8,500.00	$0.00
Structural BMP and Incidentals		LS	$10,000 - $20,000	$0.00
New Storm Pipe		LF	$100 - $300	$0.00
Grading and Excavation	2500	CY	$35.00	$87,500.00
Embankment		CY	$50.00	$0.00
Remove Trickle Ditch	150	SY	$10.71	$1,606.50
Organic Compost Soil Amendment	250	CY	$40.00	$10,000.00
			Base Construction Cost	**$99,106.50**
			Mobilization (5%)	$4,955.33
			Plantings (5%)	$4,955.33
			Ancillary Items (5%)	$4,955.33
			Erosion & Sediment Control (10%)	$9,910.65
			Subtotal 1	**$123,883.13**
			Contingency (25%)	$30,970.78
			Subtotal 2	**$154,853.91**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$69,684.26
			Total	**$224,538.16**
			Estimated Project Cost	**$230,000.00**

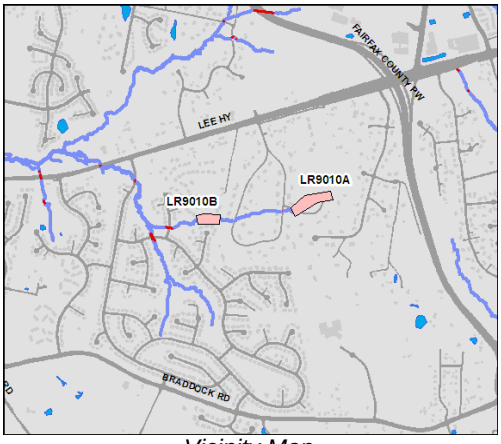
Projects LR9005B and LR9005C:

Project Area Map

Description: LR9005B proposes three tree box filters as shown in the Project Area Map. It's been combined with LR9005C due to its similar nature and proximity with the larger subproject. LR9005C treats all of the area that drains to the proposed regional facility that is not treated by existing 0829DP. The HOA is on record saying that a pond is not a viable solution, so LID measures are proposed throughout the subbasin. Treatment is still proposed at the outfall, but only a bioretention area that can be constructed with minimal impact to mature trees. The existing StormNet data is inaccurate in this area.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Vegetated Swale		SY	$50.00	$0.00
Pervious Pavement		SY	$100.00	$0.00
Vegetated Roof		SY	$450.00	$0.00
Percolation/Infiltration Trench		SY	$75.00	$0.00
Bioretention Filters & Basin	275	SY	$150.00	$41,250.00
Manufactured BMP (ie:Tree Box Filter)	14	EA	$10,000.00	$140,000.00
Organic Compost Soil Amendment	70	CY	$40.00	$2,800.00
			Base Construction Cost	**$184,050.00**
			Mobilization (5%)	$9,202.50
			Plantings (5%)	$9,202.50
			Ancillary Items (5%)	$9,202.50
			Erosion & Sediment Control (10%)	$18,405.00
			Subtotal 1	**$230,062.50**
			Contingency (25%)	$57,515.63
			Subtotal 2	**$287,578.13**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$129,410.16
			Total	**$416,988.28**
			Estimated Project Cost	**$420,000.00**

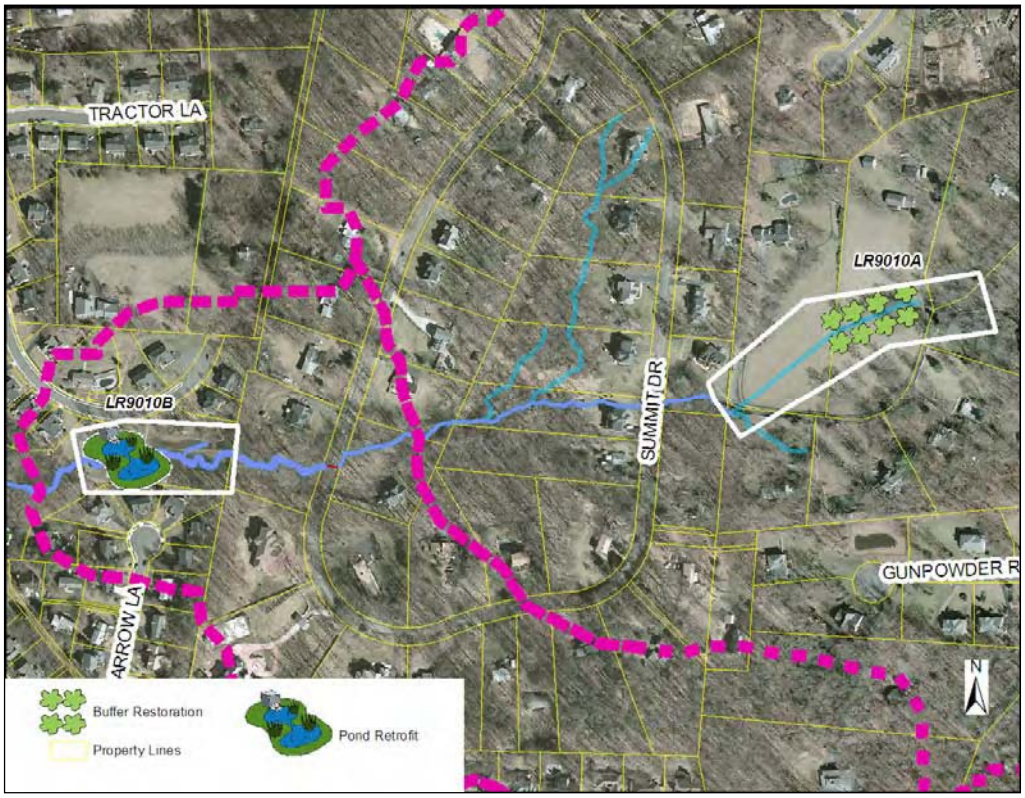
LR9010 Regional Pond Alternative Group



Vicinity Map

Address	5378 Harrow Lane
Location	Subdivision
Landowner	Hampton Woods II Homeowner's Association Ellsworth Steven K Smith Arthur Jr (Heirs of)
PIN	0554 13 A 0554 05 0001 0554 05 0002
Control Type	Water quality and quantity control
Drainage Area	162 acres
Receiving Waters	Unnamed Tributary to Willow Springs Branch

Description: This project suite is an alternative to constructing Regional Pond R-10. LR9010A is a buffer restoration project that resides on private property. Just downstream of the proposed buffer restoration, the stream is piped for approximately 350 feet and would benefit from being daylighted, but it also resides on private property. LR9010B is a retrofit of existing stormwater pond 1452DP which proposes removing existing trickle ditches, increasing storage capacity, adding micropools and wetland plantings and altering pond geometry.



Project Area Map

Project Benefits: Project suite will partially simulate pollutant removal of proposed Regional Pond R-10. Loading summaries can be found in Section 6 of the plan. The drainage area consists primarily of private property and the retrofit of the downstream facility is the most practical option. While this suite doesn't achieve the same results as the hypothetical regional, it will still positively impact water quality issues, as described in the individual project components below.

Project Design Considerations: LR9010A - Main obstacle is that the proposed buffer restoration is on private property. The downstream reach that is piped is currently a mowed lawn for recreational purposes possibly horse riding. There is no existing easement but the site is accessible through Chronical Drive. There are no permitting/sequencing issues. LR9010B - This facility (R-19) is downstream of proposed regional facility R-10. The drainage area primarily consists of low density residential areas. Proposed grading limits are restricted by property boundaries. The available storage volume without acquiring land is small. There are no sequencing/ access issues. A wetland permit may be needed.

Total Cost (9010A & 9010B):

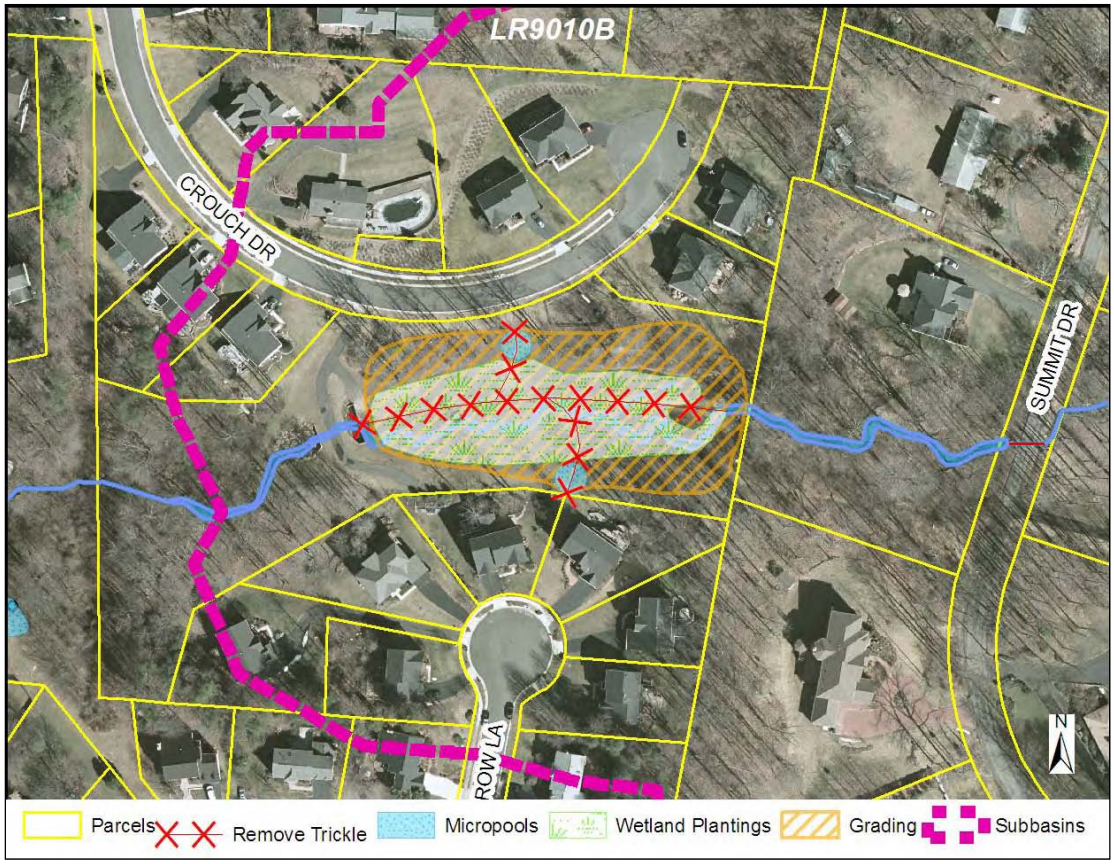
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.5	AC	$8,500.00	$4,250.00
Grading and Excavation	2500	CY	$35.00	$87,500.00
Structural BMP Retrofit and Incidentals		LS	$10,000 - $20,000	$0.00
Embankment		CY	$50.00	$0.00
Outflow Pipe		LF	$125.00	$0.00
Rip Rap Stabilization		SY	$100.00	$0.00
Organic Compost Soil Amendment	900	CY	$40.00	$36,000.00
Remove Trickle Ditch	335	SY	$10.71	$3,587.85
Plantings	1	AC	$25,000.00	$25,000.00
			Base Construction Cost	**$156,337.85**
			Mobilization (5%)	$7,816.89
			Ancillary Items (5%)	$7,816.89
			Erosion & Sediment Control (10%)	$15,633.79
			Subtotal 1	**$187,605.42**
			Contingency (25%)	$46,901.36
			Subtotal 2	**$234,506.78**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$105,528.05
			Total	**$340,034.82**
			Estimated Project Cost	**$350,000.00**

Project LR9010A:

Description: LR9010A is a proposed buffer restoration. There is insufficient riparian buffer for a 260' reach upstream of Chronical Drive.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Plantings	1	AC	$25,000.00	$25,000.00
Organic Compost Soil Amendment	600	CY	$40.00	$24,000.00
			Base Construction Cost	**$49,000.00**
			Mobilization (5%)	$2,450.00
			Ancillary Items (5%)	$2,450.00
			Invasive Plant Eradication (10%)	$4,900.00
			Erosion & Sediment Control (10%)	$4,900.00
			Subtotal 1	**$63,700.00**
			Contingency (25%)	$15,925.00
			Subtotal 2	**$79,625.00**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$35,831.25
			Total	**$115,456.25**
			Estimated Project Cost	**$120,000.00**

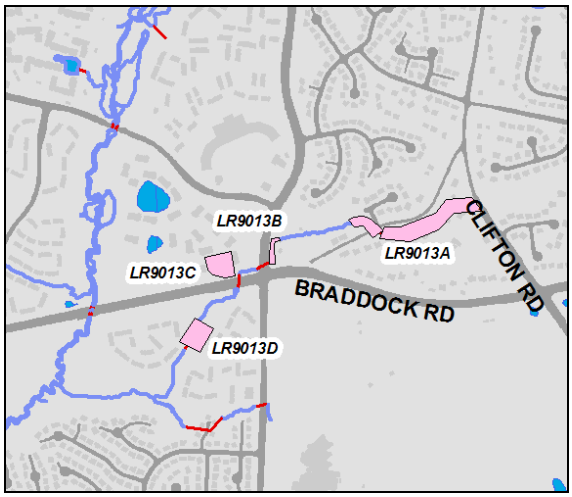
Project LR9010B:



Description: LR9010B is a retrofit to existing facility R-19. Remove the existing trickle ditches. Add micropools and wetland plantings. Modify internal pond geometry – focus on extending the low flow path.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.5	AC	$8,500.00	$4,250.00
Grading and Excavation	2500	CY	$35.00	$87,500.00
Structural BMP Retrofit and Incidentals		LS	$10,000 - $20,000	$0.00
Embankment		CY	$50.00	$0.00
Outflow Pipe		LF	$125.00	$0.00
Rip Rap Stabilization		SY	$100.00	$0.00
Organic Compost Soil Amendment	300	CY	$40.00	$12,000.00
Remove Trickle Ditch	335	SY	$10.71	$3,587.85
			Base Construction Cost	**$107,337.85**
			Mobilization (5%)	$5,366.89
			Ancillary Items (5%)	$5,366.89
			Erosion & Sediment Control (10%)	$10,733.79
			Subtotal 1	**$128,805.42**
			Contingency (25%)	$32,201.36
			Subtotal 2	**$161,006.78**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$72,453.05
			Total	**$233,459.82**
			Estimated Project Cost	**$240,000.00**

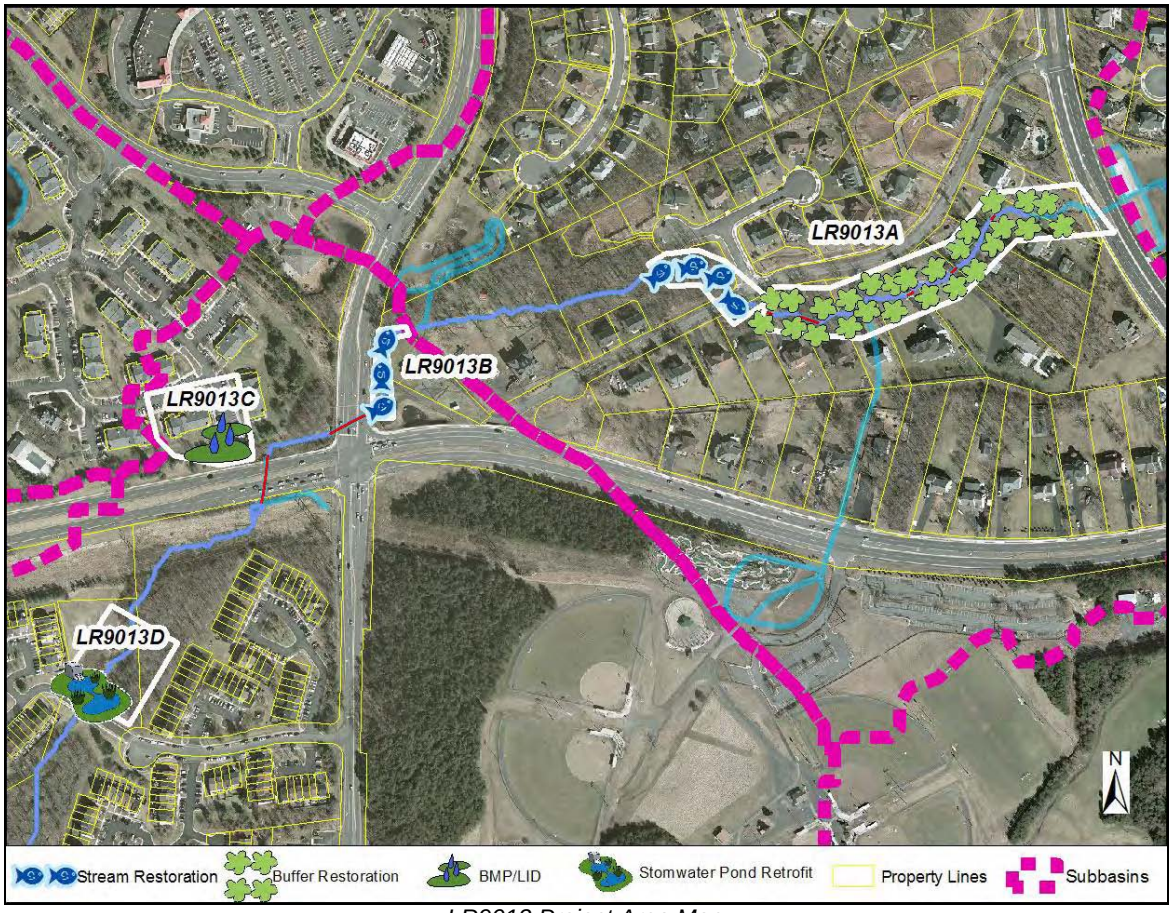
LR9013 Regional Pond Alternative Group



Vicinity Map

Address	13400 Braddock Rd
Location	Subdivision
Landowner	Clifton Pines II HOA VDOT Little Rocky Run HOA The Ponds at Centreville Multiple private landowners
PIN	Multiple PINs
Control Type	Water quality and quantity control
Drainage Area	185 acres
Receiving Waters	Unnamed tributary to Little Rocky Run

Description: The LR9013 Regional Pond Alternative Group is a replacement for regional pond R-13. It consists of a stream and buffer restoration (LR9013A), a second stream restoration (LR9013B), a new BMP (LR9013C), and a pond retrofit (LR9013D).



LR9013 Project Area Map

Project Benefits: Project suite will simulate removal efficiencies from inactive Regional Pond R-13. Loading summaries can be found in Section 6 of the Watershed Management Plan.

Design Considerations: LR9013A: The stream restoration portion of LR9013A is located within a floodplain and stormwater easement on Clifton Pines II HOA property, but most of the buffer restoration is not located within an easement. The County will need to coordinate with landowners to restore the riparian buffer. LR9013B: Steep side slopes make access to the project site difficult, and must be accounted for in the restoration design, along with the narrow site footprint. LR9013B is partially located on private property (within a storm drainage easement), and is also partially located on VDOT property. LR9013C: LR9013C is not located within an existing easement. The site can be accessed from Orchard Dr. LR9013D: LR9013D is located on Little Rocky Run HOA property, within an existing stormwater management easement. The designer must be cautious about expanding either the pond footprint or the floodplain – there appears to be ample room for increased detention, but the pond is still surrounded by houses.

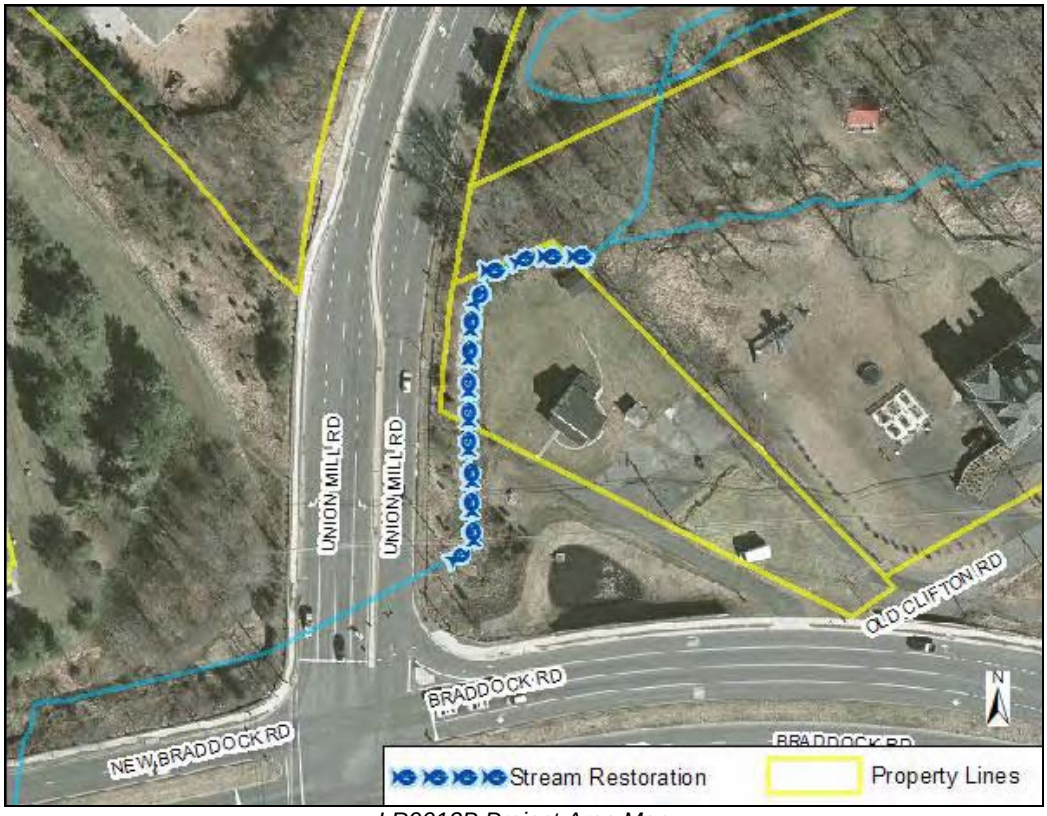
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	480	LF	$200.00	$96,000.00
Add'l Cost, first 500 LF	480	LF	$200.00	$96,000.00
Bioretention Filters & Basin	220	SY	$150.00	$33,000.00
Clear and Grub	0.3	AC	$10,000.00	$3,000.00
Grading and Excavation	1400	CY	$35.00	$49,000.00
Organic Compost Soil Amendment	370	CY	$40.00	$14,800.00
Plantings	1	AC	$25,000.00	$25,000.00
Structural BMP Retrofit and Incidentals	1	LS	$10,000 - $20,000	$15,000.00
Vegetated Swale	90	SY	$50.00	$4,500.00
			Base Construction Cost	**$336,300.00**
			Mobilization (5%)	$16,815.00
			Ancillary Items (5%)	$16,815.00
			Erosion & Sediment Control (10%)	$33,630.00
			Subtotal 1	**$403,560.00**
			Contingency (25%)	$100,890.00
			Subtotal 2	**$504,450.00**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$227,002.50
			Total	**$731,452.50**
			Estimated Project Cost	**$740,000.00**

LR9013A Project Area Map

LR9013A Description: LR9013A will reduce pollutant loading, restore eroded areas and prevent future erosion, and create important riparian habitat for native wildlife. It will also provide the opportunity to educate property owners about the importance of preserving stream buffers.

LR9013A Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.2	AC	$10,000.00	$2,000.00
Construct New Channel	250	LF	$200.00	$50,000.00
Add'l Cost, first 500 LF	250	LF	$200.00	$50,000.00
Plantings	1	AC	$25,000.00	$25,000.00
			Base Construction Cost	**$127,000.00**
			Mobilization (5%)	$6,350.00
			Ancillary Items (5%)	$6,350.00
			Erosion & Sediment Control (10%)	$12,700.00
			Subtotal 1	**$152,400.00**
			Contingency (25%)	$38,100.00
			Subtotal 2	**$190,500.00**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$85,725.00
			Total	**$276,225.00**
			Estimated Project Cost	**$280,000.00**

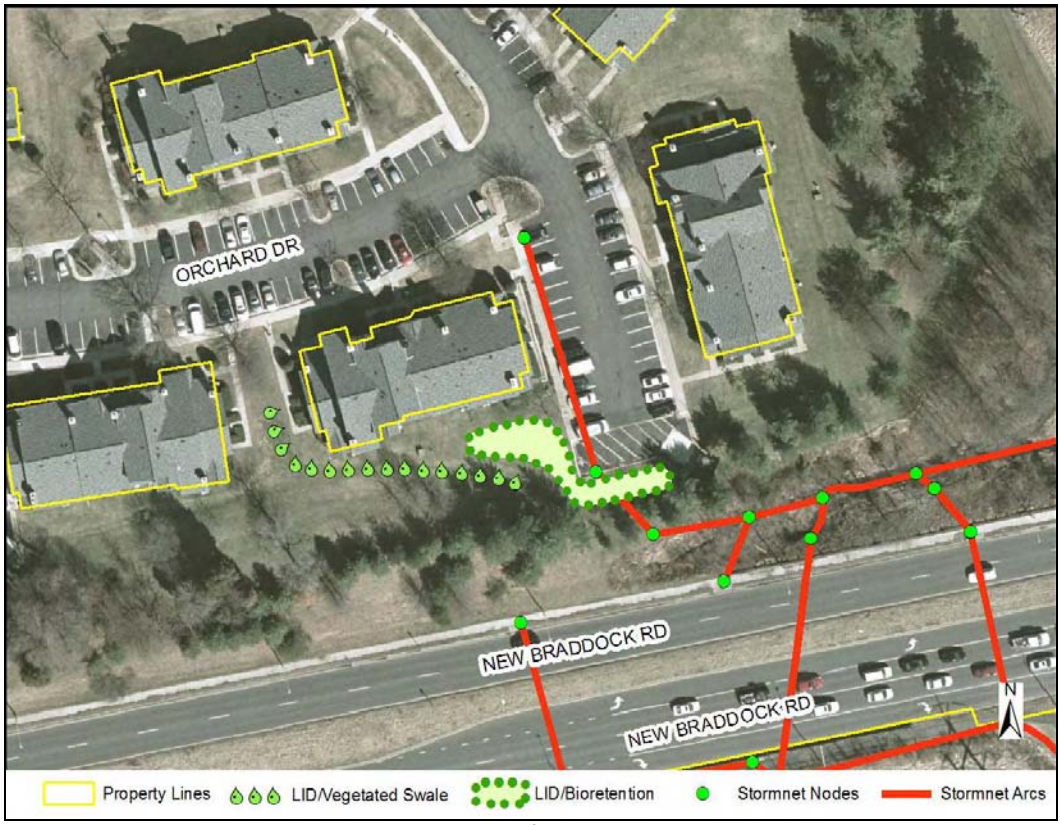


LR9013B Project Area Map

LR9013B Description: LR9013B will reduce pollutant loading, provide higher-quality habitat for native wildlife, and reduce the potential for future erosion problems.

LR9013B Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.1	AC	$10,000.00	$1,000.00
Construct New Channel	230	LF	$200.00	$46,000.00
Add'l Cost, first 500 LF	230	LF	$200.00	$46,000.00
Plantings	0.1	AC	$25,000.00	$2,500.00
			Base Construction Cost	**$95,500.00**
			Mobilization (5%)	$4,775.00
			Ancillary Items (5%)	$4,775.00
			Erosion & Sediment Control (10%)	$9,550.00
			Subtotal 1	**$114,600.00**
			Contingency (25%)	$28,650.00
			Subtotal 2	**$143,250.00**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$64,462.50
			Total	**$207,712.50**
			Estimated Project Cost	**$210,000.00**



LR9013C Project Area Map

LR9013C Description: Project LR9013C will provide new water quality treatment for previously untreated stormwater runoff.

LR9013C Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Vegetated Swale	90	SY	$50.00	$4,500.00
Pervious Pavement		SY	$100.00	$0.00
Vegetated Roof		SY	$450.00	$0.00
Percolation/Infiltration Trench		SY	$75.00	$0.00
Bioretention Filters & Basin	220	SY	$150.00	$33,000.00
Manufactured BMP (ie:Tree Box Filter)	0	EA	$10,000.00	$0.00
Organic Compost Soil Amendment	20	CY	$40.00	$800.00
			Base Construction Cost	**$38,300.00**
			Mobilization (5%)	$1,915.00
			Plantings (5%)	$1,915.00
			Ancillary Items (5%)	$1,915.00
			Erosion & Sediment Control (10%)	$3,830.00
			Subtotal 1	**$47,875.00**
			Contingency (25%)	$11,968.75
			Subtotal 2	**$59,843.75**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$26,929.69
			Total	**$86,773.44**
			Estimated Project Cost	**$90,000.00**

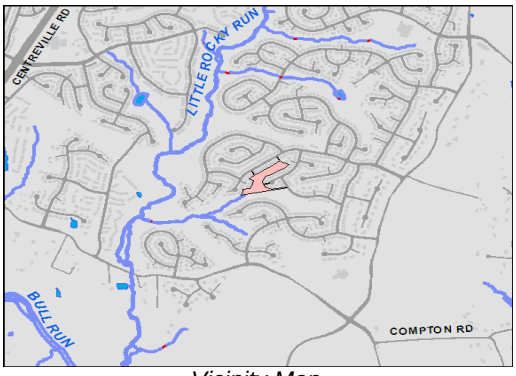
LR9013D Project Area Map

LR9013D Description: Project LR9013D will essentially upgrade an existing pond to a new regional facility. It will eliminate a large amount of phosphorus pollution and will increase storage volume and decrease peak flow. It will also create higher-quality wetland habitat for native wildlife.

LR9013D Costs:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub		AC	$8,500.00	$0.00
Grading and Excavation	1400	CY	$35.00	$49,000.00
Structural BMP Retrofit and Incidentals	1	LS	$10,000 - $20,000	$15,000.00
Embankment		CY	$50.00	$0.00
Outflow Pipe		LF	$125.00	$0.00
Rip Rap Stabilization		SY	$100.00	$0.00
Organic Compost Soil Amendment	350	CY	$40.00	$14,000.00
Remove Trickle Ditch		SY	$10.71	$0.00
			Base Construction Cost	**$78,000.00**
			Mobilization (5%)	$3,900.00
			Plantings (5%)	$3,900.00
			Ancillary Items (5%)	$3,900.00
			Erosion & Sediment Control (10%)	$7,800.00
			Subtotal 1	**$97,500.00**
			Contingency (25%)	$24,375.00
			Subtotal 2	**$121,875.00**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$54,843.75
			Total	**$176,718.75**
			Estimated Project Cost	**$180,000.00**

LR9100 Stormwater Pond Retrofit



Vicinity Map

Address	13943 Stonefield Dr
Location	Subdivision
Landowner	Little Rocky Run Homeowner's Association
PIN	0654 02 H1
Control Type	Water quality control
Drainage Area	75 Acres
Receiving Waters	Unnamed Tributary to Little Rocky Run

Description: Project LR9100 involves the retrofit of an existing pond to include wetland plantings and alter the existing pond geometry to extend the flow path. The project will also include removal of existing trickle ditches and the addition of micropools.

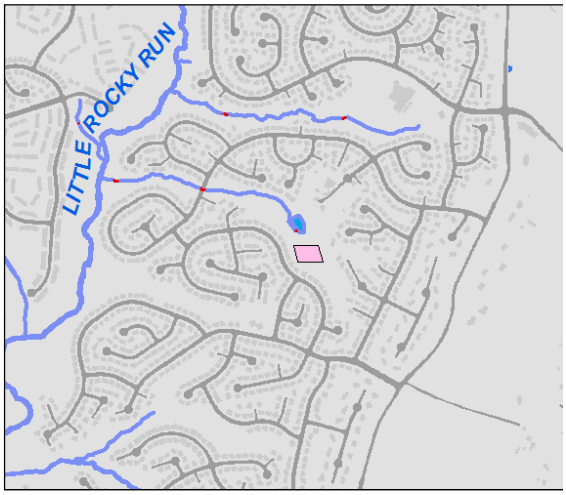
Project Area Map

Project Benefits: An estimated 5.5 lbs/yr of phosphorus will be removed. Nutrient uptake, gravitational settling and sediment trapping improved along with pond aesthetics. Wetland plantings can replicate ecosystems for a variety of wildlife (insects, birds, amphibians, etc.).

Project Design Considerations: Permitting and access issues are minimal for this existing facility. Stream/Buffer Restoration LR9200 is downstream of this project, but because only quality measures have been proposed, sequencing is not critical. This project can be considered independent from other proposed sites.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Access Road		SY	$25.00	$0.00
Access Road Gate		EA	$2,500.00	$0.00
Clear and Grub	0.05	AC	$8,500.00	$425.00
Structural BMP and Incidentals		LS	$10,000 - $20,000	$0.00
New Storm Pipe		LF	$100 - $300	$0.00
Grading and Excavation	933	CY	$35.00	$32,655.00
Embankment		CY	$50.00	$0.00
Organic Compost Soil Amendment	233	CY	$40.00	$9,320.00
Remove Trickle Ditch	25	SY	$10.71	$267.75
			Base Construction Cost	**$42,667.75**
			Mobilization (5%)	$2,133.39
			Plantings (5%)	$2,133.39
			Ancillary Items (5%)	$2,133.39
			Erosion & Sediment Control (10%)	$4,266.78
			Subtotal 1	**$53,334.69**
			Contingency (25%)	$13,333.67
			Subtotal 2	**$66,668.36**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$30,000.76
			Total	**$96,669.12**
			Estimated Project Cost	**$100,000.00**

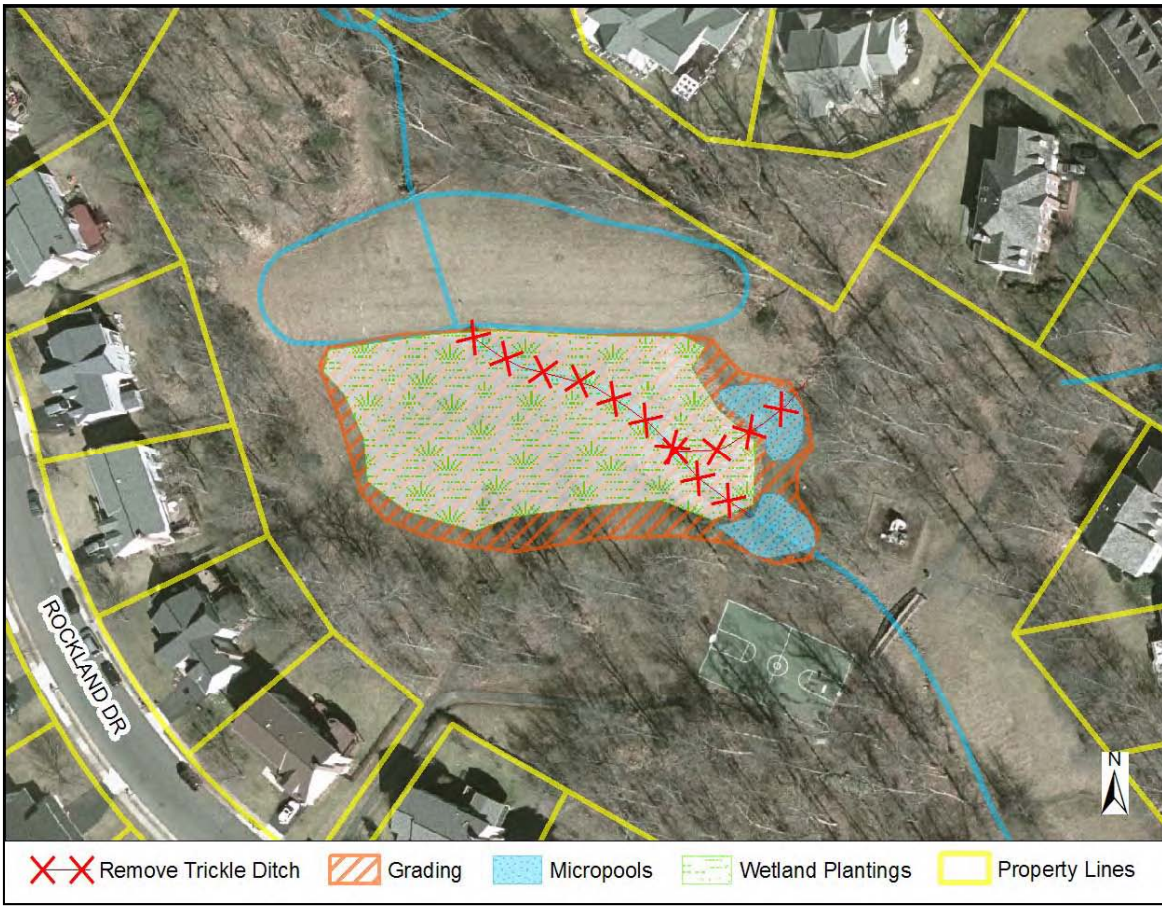
LR9102 Stormwater Pond Retrofit



Vicinity Map

Address	6579 Rockland Dr
Location	Subdivision
Landowner	Little Rocky Run HOA
PIN	0654 02 A
Control Type	Water quality control
Drainage Area	57 acres
Receiving Waters	Unnamed tributary to Little Rocky Run

Description: Project LR9102 is a retrofit of an existing stormwater pond. LR9102 will remove existing trickle ditches, increase storage capacity and lower peak flows, and will add micropools and wetland plantings.



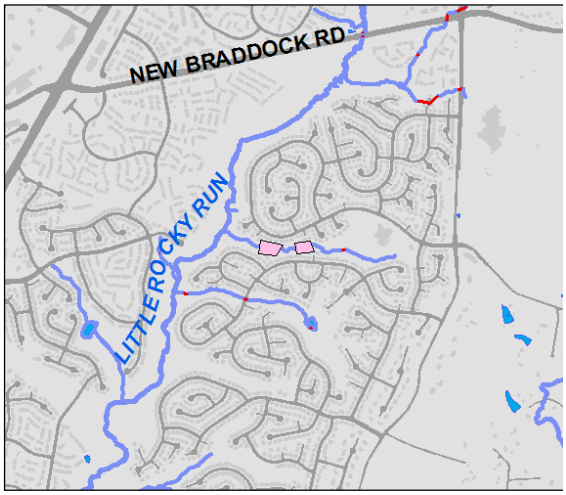
Project Area Map

Project Benefits: LR9102 will eliminate approximately 3 lbs/yr of phosphorus pollution, and will increase storage volume and decrease peak flow. It will also create higher-quality wetland habitat for native wildlife.

Project Design Considerations: LR9102 is located upstream of stream restoration project LR9202. Since LR9102 will reduce peak flow, these projects should be coordinated and sequenced so as not to overdesign LR9202. LR9102 is located on Little Rocky Run HOA property, within a stormwater management easement.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Access Road		SY	$25.00	$0.00
Access Road Gate		EA	$2,500.00	$0.00
Clear and Grub	0.75	AC	$8,500.00	$6,375.00
Structural BMP and Incidentals	1	LS	$10,000 - $20,000	$15,000.00
New Storm Pipe		LF	$100 - $300	$0.00
Grading and Excavation	1750	CY	$35.00	$61,250.00
Embankment		CY	$50.00	$0.00
Organic Compost Soil Amendment	290	CY	$40.00	$11,600.00
			Base Construction Cost	**$94,225.00**
			Mobilization (5%)	$4,711.25
			Plantings (5%)	$4,711.25
			Ancillary Items (5%)	$4,711.25
			Erosion & Sediment Control (10%)	$9,422.50
			Subtotal 1	**$117,781.25**
			Contingency (25%)	$29,445.31
			Subtotal 2	**$147,226.56**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$66,251.95
			Total	**$213,478.52**
			Estimated Project Cost	**$220,000.00**

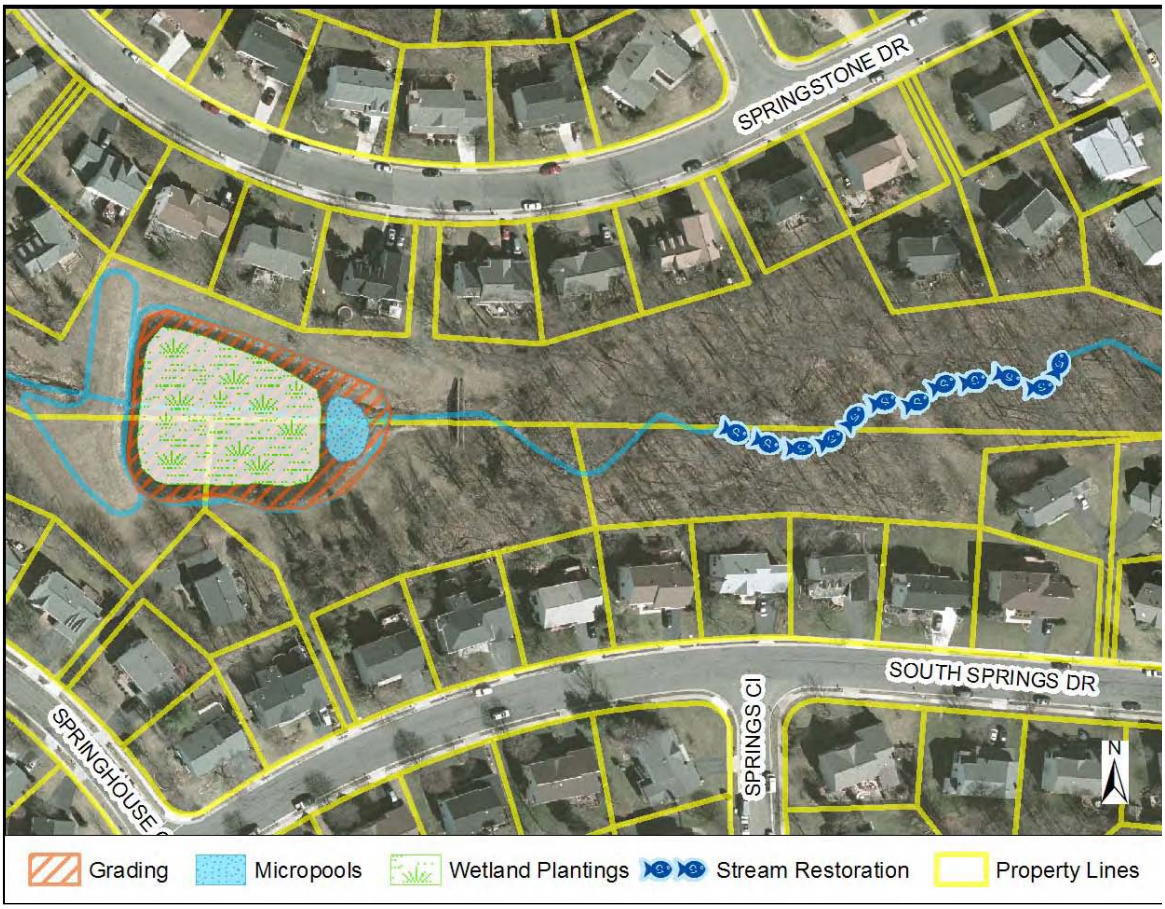
LR9103 Stormwater Pond Retrofit



Vicinity Map

Address	13815 Springstone Dr
Location	Subdivision
Landowner	Little Rocky Run HOA
PIN	0652 07 E 0654 04 L 0654 04 O 0654 04 P
Control Type	Water quality control
Drainage Area	147 acres
Receiving Waters	Little Rocky Run

Description: The LR9103 project area suffers from channel erosion and a clogged pond riser structure. LR9103 will restore the stream to a more stable, natural state to prevent future erosion and promote habitat health and diversity. The pond retrofit includes clearing the riser structure, constructing micropools and adding wetland plantings.



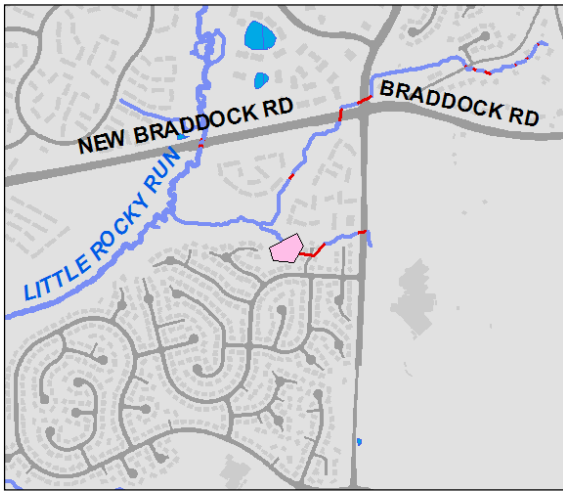
Project Area Map

Project Benefits: With new micropools and wetland plantings, project LR9103 will prevent approximately 2.5 pounds of phosphorus and 11 pounds of nitrogen per year from reaching Little Rocky Run, and also will restore approximately 340 linear feet of stream channel. Higher quality habitat for fish and wildlife will also be provided.

Project Design Considerations: Projects LR9511 and LR9514 are both located along Springstone Dr. Coordination and sequencing of these projects should be considered. LR9103 is accessible from Springstone Dr, and is located on Little Rocky Run HOA property within floodplain and stormwater management easements. As with any stream restoration, there are significant environmental permitting requirements for this project. Impacts to trees will be inevitable, but the long-term environmental benefits of the LR9103 stream restoration project will outweigh the short-term environmental costs.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Access Road		SY	$25.00	$0.00
Access Road Gate	1	EA	$2,500.00	$2,500.00
Clear and Grub	1	AC	$8,500.00	$8,500.00
Structural BMP and Incidentals		LS	$10,000 - $20,000	$0.00
New Storm Pipe		LF	$100 - $300	$0.00
Grading and Excavation	1025	CY	$35.00	$35,875.00
Embankment		CY	$50.00	$0.00
Organic Compost Soil Amendment	512.5	CY	$40.00	$20,500.00
Construct New Channel	340	LF	$200.00	$68,000.00
Add'l Cost, first 500 LF	340	LF	$200.00	$68,000.00
Plantings	0.5	AC	$25,000.00	$12,500.00
			Base Construction Cost	**$215,875.00**
			Mobilization (5%)	$10,793.75
			Plantings (5%)	$10,793.75
			Ancillary Items (5%)	$10,793.75
			Erosion & Sediment Control (10%)	$21,587.50
			Subtotal 1	**$269,843.75**
			Contingency (25%)	$67,460.94
			Subtotal 2	**$337,304.69**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$151,787.11
			Total	**$489,091.80**
			Estimated Project Cost	**$490,000.00**

LR9106 Stormwater Pond Retrofit



Vicinity Map

Address	13534 Union Village Circle
Location	Subdivision
Landowner	Little Rocky Run HOA
PIN	0661 04 B1
Control Type	Water quality control
Drainage Area	103 acres
Receiving Waters	Unnamed tributary to Little Rocky Run

Description: Project LR9106 will retrofit an existing stormwater pond to provide improved water quality control. Existing concrete trickle ditches will be removed in combination with constructing new micropools and adding wetland plantings.

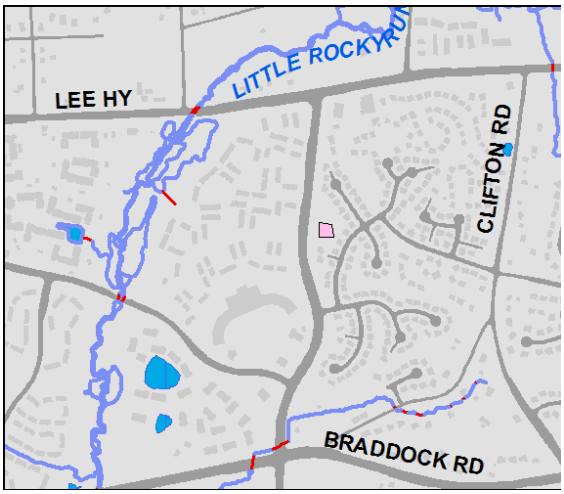
Project Area Map

Project Benefits: Pond retrofit LR9106 will remove approximately 4 lb/yr of phosphorus. Nutrient uptake, sediment trapping, pond aesthetics, and wildlife habitat will be improved.

Project Design Considerations: New BMP/LID LR9515 is located approximately 700 ft west of LR9106. Coordination of LR9106 and LR9515 should be considered. Permitting factors should be minimal. The pond is located near several houses, and care should be taken not to disturb adjacent private property.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Access Road		SY	$25.00	$0.00
Access Road Gate		EA	$2,500.00	$0.00
Clear and Grub	1	AC	$8,500.00	$8,500.00
Structural BMP and Incidentals		LS	$10,000 - $20,000	$0.00
New Storm Pipe		LF	$100 - $300	$0.00
Grading and Excavation	1670	CY	$35.00	$58,450.00
Embankment		CY	$50.00	$0.00
Organic Compost Soil Amendment	420	CY	$40.00	$16,800.00
Remove Trickle Ditch	250	SY	$10.71	$2,677.50
			Base Construction Cost	**$83,750.00**
			Mobilization (5%)	$4,187.50
			Plantings (5%)	$4,187.50
			Ancillary Items (5%)	$4,187.50
			Erosion & Sediment Control (10%)	$8,375.00
			Subtotal 1	**$104,687.50**
			Contingency (25%)	$26,171.88
			Subtotal 2	**$130,859.38**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$58,886.72
			Total	**$189,746.09**
			Estimated Project Cost	**$190,000.00**

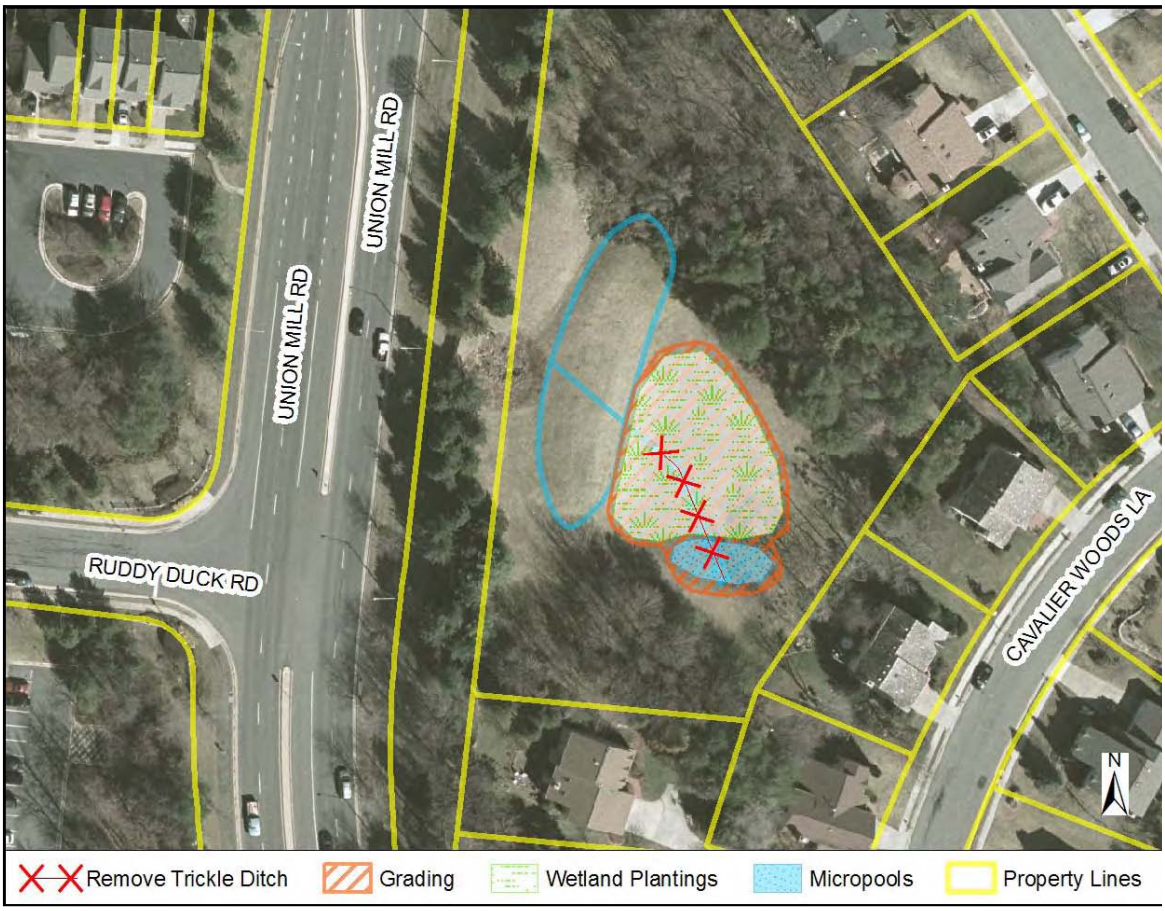
LR9109 Stormwater Pond Retrofit



Vicinity Map

Address	5604 Cavalier Woods La
Location	Subdivision
Landowner	Cavalier Woods HOA
PIN	0553 05 A
Control Type	Water quality control
Drainage Area	10 acres
Receiving Waters	Unnamed tributary to Little Rocky Run

Description: Project LR9109 is a retrofit of the existing stormwater pond shown below. The existing trickle ditch will be removed in combination with constructing micropools and adding wetland plantings.



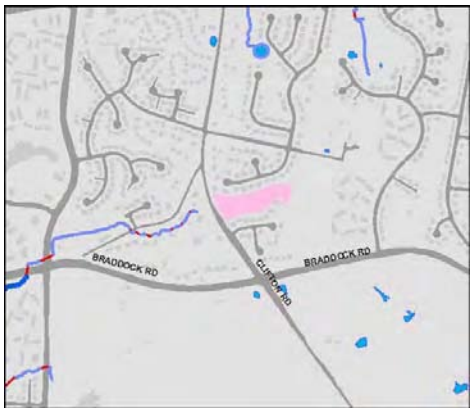
Project Area Map

Project Benefits: Stormwater pond retrofit LR9109 will eliminate approximately 1 lb/yr of phosphorus pollution as well as providing critical habitat for birds and other wildlife.

Project Design Considerations: The stormwater pond, which can be accessed from Cavalier Woods Drive, is located on Cavalier Woods HOA property, within a storm drainage easement.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Access Road		SY	$25.00	$0.00
Access Road Gate		EA	$2,500.00	$0.00
Clear and Grub	0.2	AC	$8,500.00	$1,700.00
Structural BMP and Incidentals		LS	$10,000 - $20,000	$0.00
New Storm Pipe		LF	$100 - $300	$0.00
Grading and Excavation	300	CY	$35.00	$10,500.00
Embankment		CY	$50.00	$0.00
Organic Compost Soil Amendment	75	CY	$40.00	$3,000.00
			Base Construction Cost	**$15,200.00**
			Mobilization (5%)	$760.00
			Plantings (5%)	$760.00
			Ancillary Items (5%)	$760.00
			Erosion & Sediment Control (10%)	$1,520.00
			Subtotal 1	**$19,000.00**
			Contingency (25%)	$4,750.00
			Subtotal 2	**$23,750.00**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$10,687.50
			Total	**$34,437.50**
			Estimated Project Cost	**$40,000.00**

LR9110 Stormwater Pond Retrofit



Vicinity Map

Address	13214 Kilby Landing Ct
Location	Subdivision
Landowner	Clifton Manor Homeowners Association, Inc.
PIN	0661 12 A
Control Type	Water quality and quantity control
Drainage Area	82 Acres
Receiving Waters	Unnamed Tributary to Little Rocky Run

Description: Project LR9110 includes the retrofit of an existing facility to include wetland plantings and micropools, removal of trickle ditches and modification of the pond geometry to extend the low flow path.

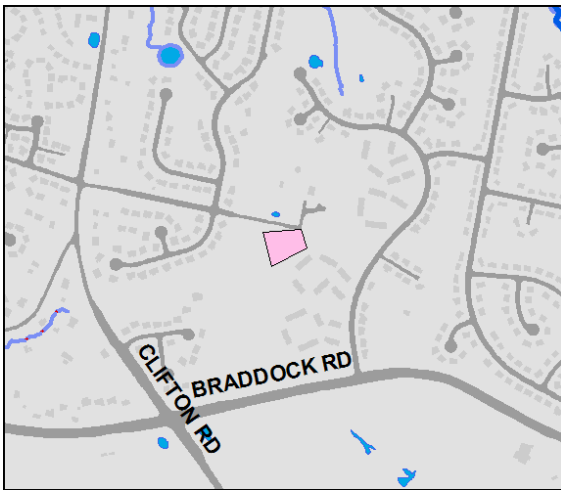
Project Area Map

Project Benefits: An estimated 8.0lbs/yr of phosphorus will be removed. Nutrient uptake, gravitational settling and sediment trapping will be improved along with pond aesthetics. Wetland plantings can replicate ecosystems for a variety of wildlife (insects, birds, amphibians, etc.).

Project Design Considerations: No increase in storage volume has been proposed, but pond geometry changes can be made without affecting storage volumes. Emergency spillway directs the flow across Clifton Road. There is no room to expand the foot print without tree impacts. The project is furthest upstream of a series of projects along this tributary to Little Rocky Run. The proposed measures benefit water quality only and therefore sequencing/coordination with neighboring projects is not critical.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub		AC	$8,500.00	$0.00
Grading and Excavation	1150	CY	$35.00	$40,250.00
Structural BMP Retrofit and Incidentals		LS	$10,000 - $20,000	$0.00
Embankment		CY	$50.00	$0.00
Outflow Pipe		LF	$125.00	$0.00
Rip Rap Stabilization		SY	$100.00	$0.00
Organic Compost Soil Amendment	290	CY	$40.00	$11,600.00
Remove Trickle Ditch	270	SY	$10.71	$2,891.70
			Base Construction Cost	**$54,741.70**
			Mobilization (5%)	$2,737.09
			Ancillary Items (5%)	$2,737.09
			Erosion & Sediment Control (10%)	$5,474.17
			Subtotal 1	**$65,690.04**
			Contingency (25%)	$16,422.51
			Subtotal 2	**$82,112.55**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$36,950.65
			Total	**$119,063.20**
			Estimated Project Cost	**$120,000.00**

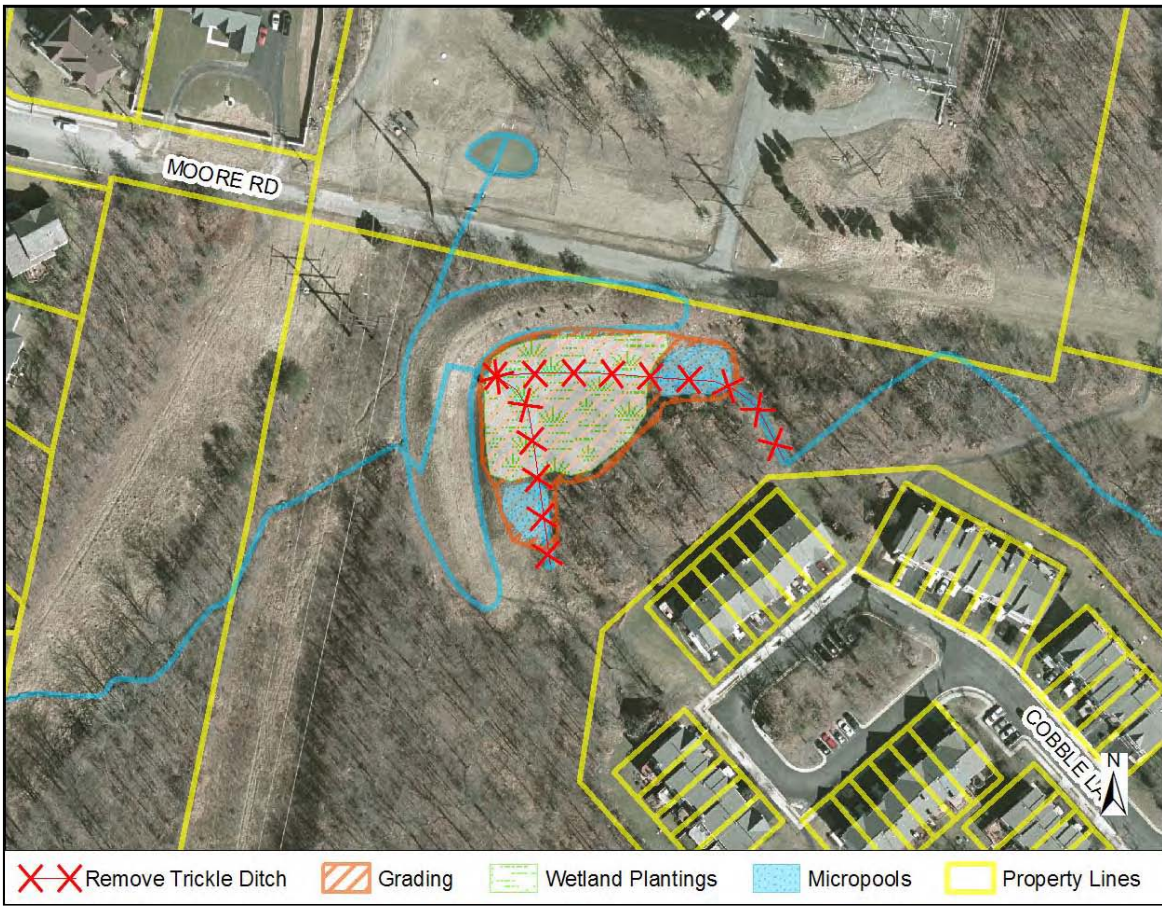
LR9111 Stormwater Pond Retrofit



Vicinity Map

Address	13022 Cobble La
Location	Subdivision
Landowner	Hayden Village Community Association
PIN	0661 10 A
Control Type	Water quality control
Drainage Area	25 acres
Receiving Waters	Unnamed tributary to Little Rocky Run

Description: Project LR9111 will retrofit an existing stormwater pond to provide improved water quality control. Existing concrete trickle ditches will be removed in combination with constructing new micropools and adding wetland plantings.



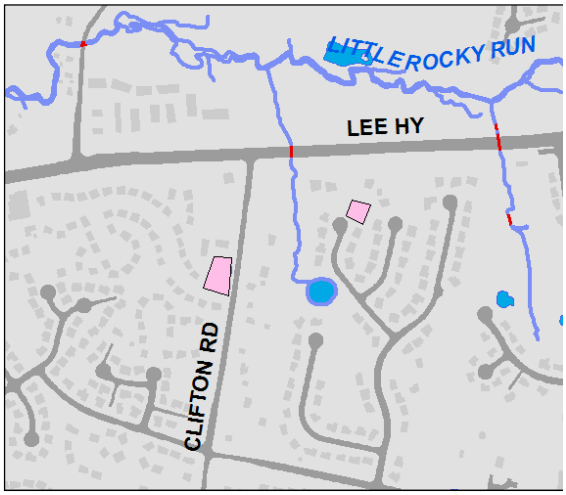
Project Area Map

Project Benefits: Pond retrofit LR9111 will remove approximately 1 lb/yr of phosphorus. Nutrient uptake, sediment trapping, pond aesthetics and wildlife habitat will be improved.

Project Design Considerations: Spatial constraints for pond retrofit LR9111 should be considered, but are not anticipated to be severe enough to limit the project scope. Overhead lines located approximately 100 feet west of the project site should be avoided.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Access Road		SY	$25.00	$0.00
Access Road Gate		EA	$2,500.00	$0.00
Clear and Grub	0.5	AC	$8,500.00	$4,250.00
Structural BMP and Incidentals		LS	$10,000 - $20,000	$0.00
New Storm Pipe		LF	$100 - $300	$0.00
Grading and Excavation	800	CY	$35.00	$28,000.00
Embankment		CY	$50.00	$0.00
Organic Compost Soil Amendment	200	CY	$40.00	$8,000.00
Remove Trickle Ditch	100	SY	$10.71	$1,071.00
			Base Construction Cost	**$40,250.00**
			Mobilization (5%)	$2,012.50
			Plantings (5%)	$2,012.50
			Ancillary Items (5%)	$2,012.50
			Erosion & Sediment Control (10%)	$4,025.00
			Subtotal 1	**$50,312.50**
			Contingency (25%)	$12,578.13
			Subtotal 2	**$62,890.63**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$28,300.78
			Total	**$91,191.41**
			Estimated Project Cost	**$100,000.00**

LR9114 Stormwater Pond Retrofit



Vicinity Map

Address	13114 Blue Willow Pl 5574 Clifton Crest Way
Location	Subdivision
Landowner	Clifton Farm HOA Clifton Crest HOA
PIN	0553 06 C 0553 16 B
Control Type	Water quality control
Drainage Area	13 acres
Receiving Waters	Unnamed tributary to Little Rocky Run

Description: Project LR9114 will retrofit two existing stormwater ponds to provide improved water quality control. Existing concrete trickle ditches will be removed in combination with constructing new micropools and adding wetland plantings.

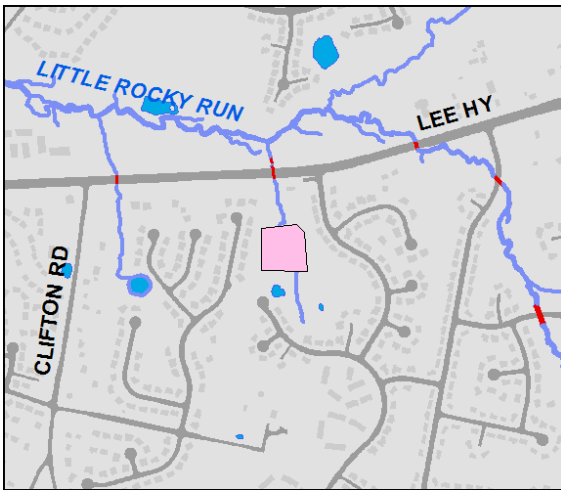
Project Area Map

Project Benefits: Pond retrofit suite LR9114 will remove approximately 1 lb/yr of phosphorus. Nutrient uptake, sediment trapping, pond aesthetics and wildlife habitat will be improved.

Project Design Considerations: LR9114A is located on Clifton Crest HOA property and LR9114B is located on Clifton Farm HOA property. Both are located within stormwater management easements. As space is somewhat limited at both pond retrofit locations, care should be taken to limit increases in ponded area.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Access Road		SY	$25.00	$0.00
Access Road Gate		EA	$2,500.00	$0.00
Clear and Grub		AC	$8,500.00	$0.00
Structural BMP and Incidentals		LS	$10,000 - $20,000	$0.00
New Storm Pipe		LF	$100 - $300	$0.00
Grading and Excavation	500	CY	$35.00	$17,500.00
Embankment		CY	$50.00	$0.00
Organic Compost Soil Amendment	125	CY	$40.00	$5,000.00
Remove Trickle Ditch	100	SY	$10.71	$1,071.00
			Base Construction Cost	**$23,571.00**
			Mobilization (5%)	$1,178.55
			Plantings (5%)	$1,178.55
			Ancillary Items (5%)	$1,178.55
			Erosion & Sediment Control (10%)	$2,357.10
			Subtotal 1	**$29,463.75**
			Contingency (25%)	$7,365.94
			Subtotal 2	**$36,829.69**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$16,573.36
			Total	**$53,403.05**
			Estimated Project Cost	**$60,000.00**

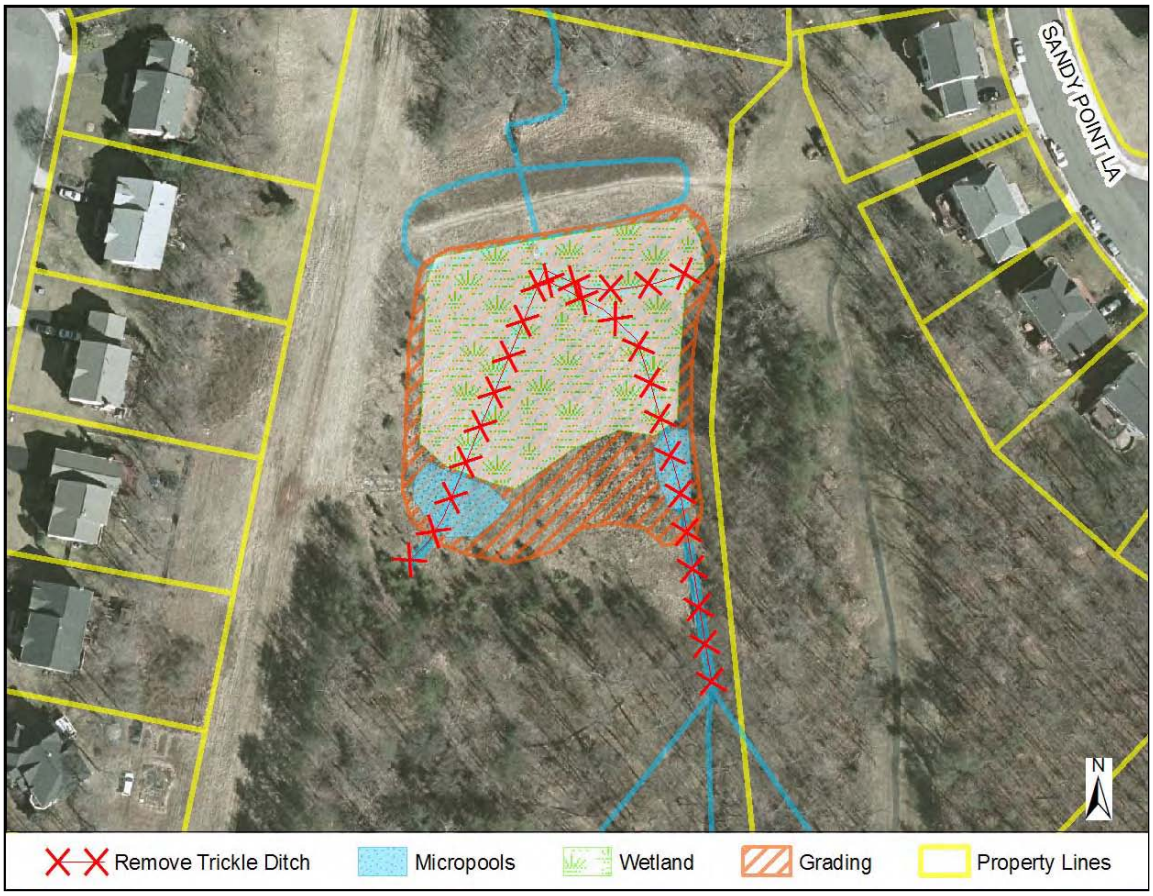
LR9115 Stormwater Pond Retrofit



Vicinity Map

Address	5403 Willow Valley Rd
Location	Subdivision
Landowner	Hayden Village Community Association
PIN	0553 08 L 0553 08 D1
Control Type	Water quality and quantity control
Drainage Area	39 acres
Receiving Waters	Unnamed tributary to Little Rocky Run

Description: Project LR9115 is a retrofit of an existing stormwater pond. Storage volume will be increased, existing trickle ditches will be removed and micropools and wetland plantings will be added.



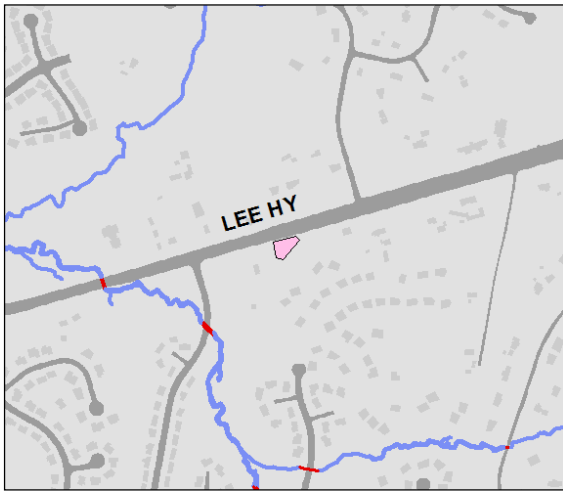
Project Area Map

Project Benefits: LR9115 will eliminate approximately 2 lb/yr of phosphorus pollution, and will increase storage volume and decrease peak flow. It will also create higher-quality wetland habitat for native wildlife.

Project Design Considerations: Pond retrofit LR9115 is located on Hayden Village Community Association property within a storm drainage easement. Sufficient space is available to increase the ponded area. The project site can be easily accessed from Sandy Point Lane. Some impacts to mature trees may occur.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Access Road		SY	$25.00	$0.00
Access Road Gate		EA	$2,500.00	$0.00
Clear and Grub	1	AC	$8,500.00	$8,500.00
Structural BMP and Incidentals	1	LS	$10,000 - $20,000	$15,000.00
New Storm Pipe		LF	$100 - $300	$0.00
Grading and Excavation	2420	CY	$35.00	$84,700.00
Embankment		CY	$50.00	$0.00
Organic Compost Soil Amendment	400	CY	$40.00	$16,000.00
			Base Construction Cost	**$124,200.00**
			Mobilization (5%)	$6,210.00
			Plantings (5%)	$6,210.00
			Ancillary Items (5%)	$6,210.00
			Erosion & Sediment Control (10%)	$12,420.00
			Subtotal 1	**$155,250.00**
			Contingency (25%)	$38,812.50
			Subtotal 2	**$194,062.50**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$87,328.13
			Total	**$281,390.63**
			Estimated Project Cost	**$290,000.00**

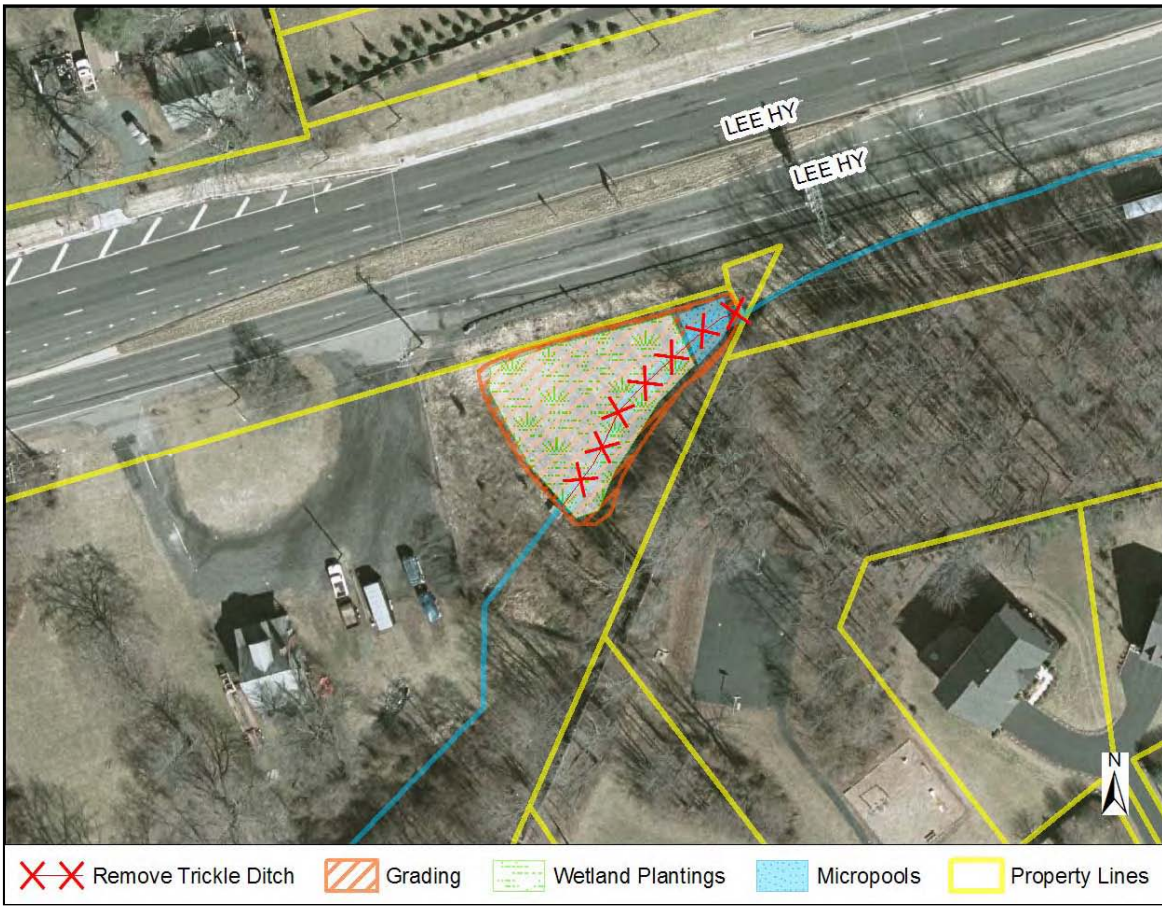
LR9117 Stormwater Pond Retrofit



Vicinity Map

Address	12837 Lee Hwy
Location	Highway
Landowner	Herring W W LLLP
PIN	0554 01 0037
Control Type	Water quality control
Drainage Area	29 acres
Receiving Waters	Unnamed tributary to Willow Spring Branch

Description: Project LR9117 will retrofit an existing stormwater pond to provide improved water quality control. Existing concrete trickle ditches will be removed in combination with constructing new micropools and adding wetland plantings.



Project Area Map

Project Benefits: Pond retrofit LR9117 will remove approximately 5 lb/yr of phosphorus. Nutrient uptake, sediment trapping, pond aesthetics and wildlife habitat will be improved.

Project Design Considerations: Due to space constraints, the footprint of the pond cannot be significantly increased. LR9117 is located on private property within a storm drainage and detention pond easement.

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Access Road		SY	$25.00	$0.00
Access Road Gate		EA	$2,500.00	$0.00
Clear and Grub	0.2	AC	$8,500.00	$1,700.00
Structural BMP and Incidentals		LS	$10,000 - $20,000	$0.00
New Storm Pipe		LF	$100 - $300	$0.00
Grading and Excavation	280	CY	$35.00	$9,800.00
Embankment		CY	$50.00	$0.00
Organic Compost Soil Amendment	70	CY	$40.00	$2,800.00
			Base Construction Cost	**$14,300.00**
			Mobilization (5%)	$715.00
			Plantings (5%)	$715.00
			Ancillary Items (5%)	$715.00
			Erosion & Sediment Control (10%)	$1,430.00
			Subtotal 1	**$17,875.00**
			Contingency (25%)	$4,468.75
			Subtotal 2	**$22,343.75**
			Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)	$10,054.69
			Total	**$32,398.44**
			Estimated Project Cost	**$40,000.00**