



Hunters Branch Phase II / Accotink Creek Stream Restoration Grant Proposal

Stormwater Local Assistance Fund Fiscal Year 2019

Town of Vienna, Virginia - Grant Proposal for a Stream Restoration Project to the 2019 Stormwater Local Assistance Fund

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A. Background

The Town of Vienna, Virginia is located approximately fifteen miles west of Washington D.C. and called home by approximately 16,000 residents. With a geographic area of slightly over four square miles, it is one of a handful of incorporated areas within Fairfax County. The Town of Vienna was primarily developed during the 1950s and 1960s without the environmental benefits of stormwater management and water quality treatment. Further subdivision development in the 1980s increased impervious areas, enclosed tributaries, straightened streams, removed riparian buffers, and steepened stream banks to build more homes. More recently, the Town of Vienna has experienced a redevelopment boom leading to a further increase in its impervious surfaces and a further burden on the receiving watercourses. Predictably, the receiving streams and channels have experienced incision, erosion and widening in response to the increase in water quantity resulting from fifty plus years of development. Within the Town of Vienna's four plus square miles is the watershed for the Hunters Branch section of the Accotink Creek watershed and the subject of this application.

The portion of Hunters Branch impacted by this proposed project is unassessed and categorized as a 3A in the Virginia 2016 Impaired Waters – 303(d) category list; however, other downstream assessed sections are listed as type 5 (the most severe impairments). The proposed restoration section shares many of the same issues of assessed sections. Additionally, Hunters Branch flows to Accotink Creek, the Potomac River, and the Chesapeake Bay, which are all under a Total Maximum Daily Load (TMDL).

Municipal maintenance funds are only available for occasional dredging of sediment, but not for corrective action to prevent the erosion and naturally stabilize the stream. Over the years, stream bank armoring and dredging have been the standard repair method used by the Town of Vienna stream maintenance crews. Funding is tight; therefore, problems are addressed in a reactive, as opposed to a preventive, manner. This project will show local staff and residents the practical aspects of correcting the problem of stream bank erosion before sediment must be dredged from the stream. As it ages, the stabilization of the problem area will demonstrate how carefully preparing for natural restoration is cheaper in the long run with the elimination of costly dredging. This project will extend closer to the ultimate headwaters and additional action on this stream will help maintain downstream sections by reducing the sediment load.

In 2014, additional regulations in response to the continuing challenges faced by the Chesapeake Bay went into effect and the Town of Vienna, as a MS4 permittee, experienced additional requirements relating to the water quality in its streams. The Town has executed a cooperative agreement with Fairfax County to share responsibility for implementing a joint Chesapeake Bay TMDL Action Plan. As a function of these requirements and the cooperative agreement with the Fairfax County, the amount of Phosphorus, Nitrogen and Total Suspended Solids will need to be reduced. The Town, in conjunction with Fairfax County, has a role and responsibility in meeting these requirements. On July 31, 2018, the Fairfax County Board of Supervisors approved a funding agreement in the amount of \$400,000 for the design of this restoration (refer to Appendix C). It is anticipated that the Town of Vienna's Town Council will approve and execute this Design Funding Agreement at their October 15, 2018 meeting. In addition, formal correspondence with Fairfax County has indicated available construction funding for the restoration to constitute the matching funds required for the grant (refer to Appendix D).

This application also makes multiple references to Fairfax's Accotink Creek Watershed Management Plan. This plan describes the needs and requirements for the future of the watershed, and a path to meeting the requirements of the updated regulations. Further, Accotink Creek is identified as an impaired waterbody in the following categories: PCB found in fish tissue and impaired benthic communities caused by excess sediment flow, both of which are benefited by restoring the proposed stream sections.

B. Environmental Benefit

The primary aim and quantified requirement in meeting the application standards grant establishing the amount of Total Phosphorus to be removed as a result of the proposed project. This project proposes to stabilize approximately 1,800 feet of stream bank within the borders of the Town of Vienna (refer to Figure 1). The Hunters Branch section proposed for this restoration is in the Accotink Creek watershed and is close to the headwater of the stream. As a result of being situated in the headwaters, all downstream sections will benefit from stabilization and restoration that takes place in the upper reaches. The total drainage area for the proposed restoration is 1.02 square miles. A Hunters Branch Drainage Area Map is attached (refer to Appendix A).

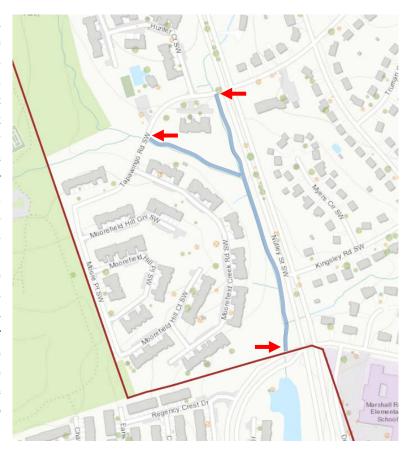


Figure 1. Location Map and Extents of Proposed Project

The erosion of stream banks causes suspended solids, which may be laden with phosphorus, to be suspended in runoff. Additionally, the restoration of stream banks provides a means of pretreatment for runoff and removal of phosphorus prior to reaching the stream. As outlined in the grant application and guidance, the interim default rate of 0.068 lbs per linear foot is credited for stream restoration projects. Approximately 1,800 linear feet of stream restored at 0.068 lbs per foot equates to **122.4 lbs of removed phosphorus per year**.

C. Statement of Need

Condition of the Stream Sections

The current condition of the stream sections have been evaluated onsite and photographed as shown in Figure 2, additional photographs are included in Appendix B. There are multiple portions of the stream that are experiencing high rates of erosion and bank stress. In addition to the site visits and photographs taken, the Fairfax Accotink Creek Watershed Plan was reviewed for insight into the phosphorus loads arising from the drainage areas. Figure 2 shows an example of the degree of incision and erosion along the banks. While walking the stream several areas of 3 feet to 5 feet high eroded banks are clearly visible. In many of these areas, existing trees have been undermined and overturned. condition of the stream appears to be a Type III, as described by Figure 3 and indicated in Figure 4, the Fairfax Accotink Creek Watershed Management Plan, Chapter 2 Stream Condition Map.

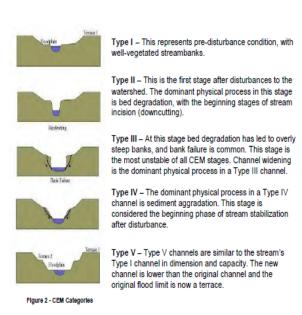
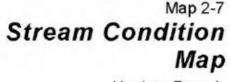


Figure 3. Stream Condition Types



Figure 2. Eroded bank (approximately 3' high)





Hunters Branch



Figure 4. Difficult Run Channel Evolution Model Map

Total Phosphorous (TP)

In reviewing the Fairfax Accotink Creek Watershed Management Plan, several items reference the condition of the stream in the Hunters Branch portion of Accotink Creek. As shown in Map 4-1, Figure 5, the Hunters Branch Section of the Accotink is rated in the worst 40% overall for priority restoration areas. Further, the Phosphorus load in the Hunters Branch region is considered very high as seen in Figure 6. This very high rating for phosphorus further supports the need for a stream restoration.

The field investigated stream condition indicates a significant need for restoration and stabilization. The watershed's plan finding that Hunters Branch is inundated with high levels of total phosphorus in conjunction with the significant drainage area, this restoration presents a prime opportunity to achieve the Total Phosphorus reduction goal of the SLAF grant.

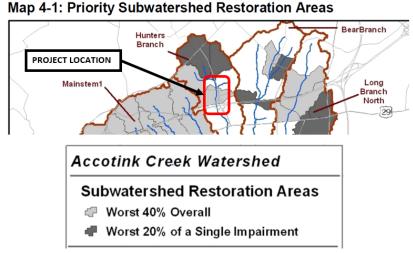


Figure 5. Accotink Watershed Management Plan - Sub-Watershed Areas - Hunters Branch

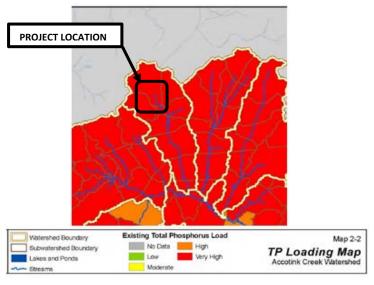


Figure 6. Accotink Watershed Management Plan Map 2-2
TP Loading

Stream Restoration Description

The goal of stream restoration is to return the stream to a stable state in which it; neither significantly erodes or fills with sediment, is connected to its floodplain and has an improved habitat condition. When a connection to the floodplain is restored, the total phosphorus discharge lessens and future erosion is prevented.

For incised urban channels, such as this one, there are several options available depending on the severity of the section and the extent of adjacent land. The most extensive restoration portions may move the stream itself, creating a new channel on a new alignment at the original floodplain elevation. Other sections could involve adjusting the cross-section, reducing bank slopes, or creating a new floodplain bench within an over-widened channel. For portions with restricted availability of adjacent land where there is limited room to increase meander width, the restoration design will use grade controls to flatten the slope of the stream and dissipate stream energy. In the small sections where it is infeasible to recreate a natural channel less extensive restoration approaches will be completed. Such measures include armoring stream banks with rock or bioengineering materials to prevent further erosion and grading to lay back oversteepened banks to create a more stable cross-section.

Maintenance

Provisions for the long-term maintenance responsibility of the restored stream, including an inspection and maintenance schedule, will be included in the project. Project documents will indicate the specific maintenance requirements for the project as well as the duration and ongoing requirements and responsibilities.

The portion of Hunters Branch impacted by this proposed project is located on private property in community open space owned by the Townes of Moorefield Community Association. The Town of Vienna has an existing easement for construction, maintenance and drainage over a large portion of the proposed restoration. The Townes of Moorefield Site Plan showing the location of this existing easement is attached in Appendix E. An additional easement will be required for a small portion of the restoration project. The Town of Vienna has reached out to The Townes of Moorefield Community Association to begin discussions on this project. The Community Association has been supportive of previous restoration projects that have required similar easements. The Town coordinated closely with the Community Association for the Hunters Branch Phase I stream restoration project completed in 2016. A letter from the Townes of Moorefield Community Association President in support of this proposed project has been included in Appendix F.

D. Grant Application Summary

I. POLLUTION REDUCTION

"Points will be based on the calculated reduction of total phosphorus (TP) as a result of the proposed project. TP is the representative pollutant for stormwater in the Commonwealth and serves as a surrogate for other pollutants of concern. The established methodology for calculating the TP reduction for stormwater management projects is outlined in Attachment A. For the purchase of non-point source nutrient credits, the number of pounds of TP proposed for purchase will be the pollutant reduction amount."

As outlined in the grant application and guidance, the interim default rate of 0.068 lbs per linear foot is credited for stream restoration projects. Approximately 1,800 linear feet of stream restored at 0.068 lbs per foot equates to **122.4 lbs of removed phosphorus per year**.

II. COST EFFECTIVENESS

"Points will be based on the projected cost of the project divided by the calculated amount of TP reduction or the proposed pounds of TP to be purchased for non-point source nutrient credits."

Project Cost as included on the Grant Application = \$\frac{1,920,000}{22.4 lbs}\$

Cost Effectiveness Ratio = \$15,687 / lb. TP

III. IMPAIRED WATER BODIES

"Points will be based on the location and impact of the proposed project in relation to priority water bodies in the state. Note: These categories (a - b) are additive.

- a. Project is directly related to the requirements of the Chesapeake Bay TMDL 60 pts.
- b. Project is directly related to requirements of a local impaired stream TMDL 40 pts.

Project is directly related to a local impaired stream without a TMDL 20 pts."

The project is directly related to the Chesapeake Bay TMDL and is within the Local Accotink TMDL.

IV. FISCAL STRESS

"50 of the points for county and city applicants will be based on the latest available Commission on Local Government composite fiscal stress index. Town applicants will be assigned the points of the surrounding county. Any applicant with a project serving more than one jurisdiction (such as public service authorities or towns located in two counties) will be assigned a weighted average from the component scores. An additional 25 points

will be awarded to applicants that have established a dedicated local funding/revenue mechanism for stormwater capital projects"

The Town of Vienna has a dedicated local funding/revenue mechanism. The Stormwater Tax is collected via Fairfax County and portions thereof are then passed onto Vienna for use in implementing The Town of Vienna's responsibilities.

V. READINESS TO PROCEED

"Because it is important that grant recipients proceed quickly with their proposed projects, applicants that can proceed immediately with their proposed projects, or demonstrate an advanced state of readiness, will be given the highest points under this category.

Final design plans approved by the locality	75 pts.	
Design plans submitted and under review by the locality	70 pts.	
Preliminary / Concept engineering completed	55 pts.	
Executed engineering contract with approved task order		
and notice to proceed issued for this project	40 pts.	
Project included in current year Capital Improvement Plan	25 pts.	
Project identified in Comprehensive Stormwater Management plan,		
Watershed Management Plan, or TMDL Action Plan	15 pts.	

An additional 15 points will be awarded if all funding is in place for the local match and another 10 points will be awarded if land and easements necessary for the project have already been acquired or if land and easement acquisitions are not required."

The proposed project is in the beginning stages of coordination. Fairfax County has committed to providing the complete design funds (\$400,000) and the local matching funds for construction of this restoration (see funding agreement in Appendix C and letter of commitment from Fairfax County in Appendix D). The funding agreement and letter of commitment is based on the joint stormwater management funding plan between the Town of Vienna and Fairfax County. A letter describing this plan can be found in this SLAF application's Section J, Attachment - Section F. Please note that Hunter's Branch Phase II was scheduled for FY19 to coordinate with the SLAF Grant opportunity.

The project will be administered by the Town. Upon notice of award of the grant, the Town will immediately acquire a design engineer and begin the project. It can be expected that an engineer could be under contract within three months of the notice of grant award.

No acquisition of property is required for this project. The portion of Hunters Branch impacted by this proposed project is located on private property in community open space owned by the Townes of Moorefield Community Association. The Town of Vienna has an existing easement for construction, maintenance and drainage over a large portion of the proposed restoration. The Townes of Moorefield Site Plan showing the location of this existing easement is attached in Appendix E. An additional easement will be required for

a small portion of the restoration project. The Town of Vienna has reached out to The Townes of Moorefield Community Association to begin discussions on this project. The Community Association has been supportive of previous restoration projects that have required similar easements. The Town coordinated closely with the Community Association for the Hunters Branch Phase I stream restoration project completed in 2016. A letter from the Townes of Moorefield Community Association President in support of this proposed project has been included in Appendix F.

VI. PHASE II (SMALL) MS4

"Applicants that are regulated under the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems will receive 25 points."

The Town of Vienna is regulated under a General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer systems.

E. Closing

In closing, the Town of Vienna appreciates the opportunity to apply for grant match funds for a critical and sorely needed Stormwater management project that will benefit the State, Fairfax County, the Chesapeake Bay, and the Town, while meeting our MS4 responsibilities.

Appendix A – Hunters Branch Drainage Area Map



Hunters Branch Drainage Area Map – 1.02 square miles

Appendix B –Site Photographs





Appendix C – Design Funding Agreement with Fairfax County

HUNTER'S BRANCH PHASE II (AC82-0007) STREAM RESTORATION PROJECT FUNDING AGREEMENT

This Agreement ("Agreement") made and entered into this	day of	,
2018, by and between the BOARD OF SUPERVISORS OF FA	IRFAX COU	NTY,
VIRGINIA (the "County"), a body politic, and the TOWN OF V	IENNA (the '	'Town'')
(collectively, the "Parties").		

WITNESSETH:

WHEREAS, the Town has requested funds to design and implement the Hunter's Branch Phase II (AC82-007) Stream Restoration Project (the "Project"), which will be located within the boundaries of the Town and will restore a portion of the body of water known as Hunter's Branch and

WHEREAS, the location of the Project is located between Longitude 38.88625N and Latitude 77.26973W and 38.88310N and 77.26831W, and is more specifically shown on the Fairfax County Real Property Identification Map as Tax Map Numbers; 48-2((22)) parcel A; and

WHEREAS, the Project is within the Chesapeake Bay, Potomac River, and Accotink Creek watersheds;

WHEREAS, the Town is part of the County's Stormwater Service District and the County, Town, and the Town of Herndon have entered into an agreement known as the "Cooperative Agreement Between the Fairfax County Board of Supervisors, the Town of Vienna, and Town of Herndon to Share Certain Stormwater Service District Fees and Responsibility for Related Projects" (the "Cooperative Agreement") to share funds and responsibility to maintain, operate, and improve stormwater systems to meet the Chesapeake Bay Total Maximum Daily Load ("TMDL") and other water quality goals. Cooperative Agreement is attached hereto as Attachment 1 and is incorporated herein by reference; and

WHEREAS, under the Cooperative Agreement, annually, the County pays the Town a percentage of the Stormwater Service District Fees that are collected from residents of the Town (the "Paid Vienna Revenues"); and

WHEREAS, the Town and County agree that under the Cooperative Agreement, Stormwater Service District funds can be used for the Project because the Project meets the water quality objectives of each locality and their respective Chesapeake Bay TMDL obligations; and

WHEREAS, the Project is estimated to cost one million, nine hundred and twenty thousand dollars (\$1,920,000) (the "Total Project Cost"); and

WHEREAS, that County intends to fund the design and construction of the Project from its Stormwater Budget; and

WHEREAS, the Town intends to dedicate Town staff expertise and time for the purpose of supporting, developing, and implementing the Project.

NOW, THEREFORE, in consideration of the foregoing recitals, which are incorporated herein as if restated as binding provisions of this agreement, the mutual promises contained herein, and other good and valuable consideration, the receipt and sufficiency of all of which are hereby acknowledged, the parties hereto further agree as follows:

- 1. Upon execution of this Agreement, the County will grant to the Town funds in the amount of four hundred thousand dollars (\$400,000) (the "Design Funds") in Fiscal Year 2019 for the design of the Project, to be paid with monies from the County's Stream and Water Quality Improvement Project (fund I/O 2G25-029-001) of the Stormwater Budget (fund 400-C40100, Stormwater Services).
- 2. Upon completion of the design of the Project, the County will grant to the Town an additional one million five hundred twenty thousand dollars (\$1,520,000) for the construction of the Project, as designed (the "Construction Funds"), except that if those funds are unavailable in the Stormwater Budget at the time of completion, they will be paid at such time as they become available. The Design Funds plus the Construction Funds are hereinafter referred to as the "County Contribution." Completion of the design of the Project occurs when the Town informs the County that all construction documents are completed and approved, and all permits for the construction have been obtained.

- 3. The County Contribution will not be charged against the PAID VIENNA REVENUES as set forth in the Cooperative Agreement, but rather, are a separate grant to the Town from the County.
- 4. The Town will dedicate Town staff expertise and time for the purpose of supporting, developing, and implementing the Project.
- 5. The Town will expend the County Contribution solely for the purpose of supporting the design and construction of the Project, and not for the cost of any feasibility study or acquisition of any land or easements necessary for the completion of the Project.
- 6. The Town will provide to the County a copy of the final site plan (the "Plan") for the Project.
- 7. The Town will acquire, at its sole expense, any and all land or easements, or other interests in real property, if any, that are necessary to complete the Project.
- 8. The Town, at its sole expense, will administer the design and construction contracts, obtain approval of all plans, and obtain all permits necessary for the completion of the Project.
- 9. The Town will notify the County if the Town, at any time, modifies the scope of the Project, which is generally described herein above. If the scope of the Project's design, in the sole judgment of the County, significantly deviates from the design scope described in the Plan, the Town must, within 30 days after notification by the County of such deviation, reimburse to the County the amount of the Total Contribution.
- 10. The Town must retain all invoices and all records of payments for any and all services rendered for the design, construction, and any related expenses for completion of the Project, and copies of any such invoices and records of payments shall be provided to the County upon request within three business days after such a request.
- 11. If at any time the Town abandons or otherwise ceases the Project for any reason, the Town must immediately return any amount of the County Contribution not expended in accordance with this agreement and all invoices and records of payments. "Abandon," as used herein, includes, but is not limited to, the failure to initiate or the termination of the design or construction before the Project's completion.

- 12. The County, in its sole discretion, may agree to pay cost overruns that exceed the Total Project Cost, including construction costs that exceed the current estimate, change orders and/or related costs that arise during construction of the Project, but only to the extent that funds are available in the County's Stream and Water Quality Improvement Project (fund I/O 2G25-029-001) of the Stormwater Budget (fund 400-C40100, Stormwater Services) and are not more than 10% of the estimated Project Cost.
- 13. The Town must complete the Project not later than four years after this agreement is executed.
- 14. The Project is subject to the Cooperative Agreement, and, as such, the total pollutant load reduction credits for the Project will be apportioned among the parties as established pursuant to the terms of the Cooperative Agreement or any amendments or attachments thereto.
- 15. This agreement can only be modified in writing and signed by both parties.

[Signatures appear on following page]

TOWN OF VIENNA, Virginia

	Ву	: Laurie A. Di Ro Mayor	occo
STATE OF VIRGINIA COUNTY OF FAIRFAX		wit	
The foregoing Agre	ement was ac	cknowledged bef	ore me by Mayor Laurie A.
DiRocco of the Town of Vi	enna, this	day of	2018, on behalf
of the Town of Vienna.			
			Notary Public
	My comm	ission expires:	
	Notary Re	gistration Numb	er:

BOARD OF SUPERVISORS OF FAIRFAX COUNTY, VIRGINIA

	By:				
	Bryan J. Hill, County Executive				
	Fairfax County, Virginia				
STATE OF VIRGINIA					
STATE OF VIRGINIA	: to-wit				
COUNTY OF FAIRFAX	·				
	•				
The females Assess	want was a slow availed and hafe on marker Down I. 11:11. Country				
The foregoing Agreer	nent was acknowledged before me by Bryan J. Hill, County				
Executive of Fairfax County,	Virginia, on behalf of the Board of Supervisors of Fairfax				
County, Virginia this day of 2018.					
	_ 445 61 2010.				
	Notary Public				
	rotary rubile				
	My commission expires:				
Notary Registration Number:					

Appendix D – Letter from Fairfax County



County of Fairfax, Virginia

To protect and enrich the quality of life for the people, neighborhoods and diverse communities of Fairfax County

September 28, 2018

Michael J. Gallagher, PE Director of Public Works Town of Vienna 127 Center Street S. Vienna, VA 22180

Reference: Hunter's Branch Phase 2 Stream Restoration Project; Stormwater Local Assistance

Fund (SLAF) Grant

Dear Mr. Gallagher:

In conjunction with our letter dated March 30, 2018, and as we have discussed, we will take the necessary steps to obtain approval to fund the local share for the Hunter's Branch Phase 2 Stream Restoration Project. This will provide the local match of SLAF grant funds, if awarded, to the town.

This is in accordance with Paragraph 25 of the Cooperative Agreement between Fairfax County Board of Supervisors, the Town of Vienna, and the Town of Herndon to Share Certain Stormwater Service District Fees and Responsibility for Related Projects. The nutrient and sediment removal credits will be shared, in accordance with Paragraph 27 of the Agreement.

This is an exciting project and we will provide any support we can.

Should you have any questions, I can be reached at 703-324-5732 or email randybartlett@fairfaxcounty.gov.

Sincerely,

Randolph W. Bartlett

Deputy Director, Department of Public Works and Environmental Services

Stormwater and Wastewater Management

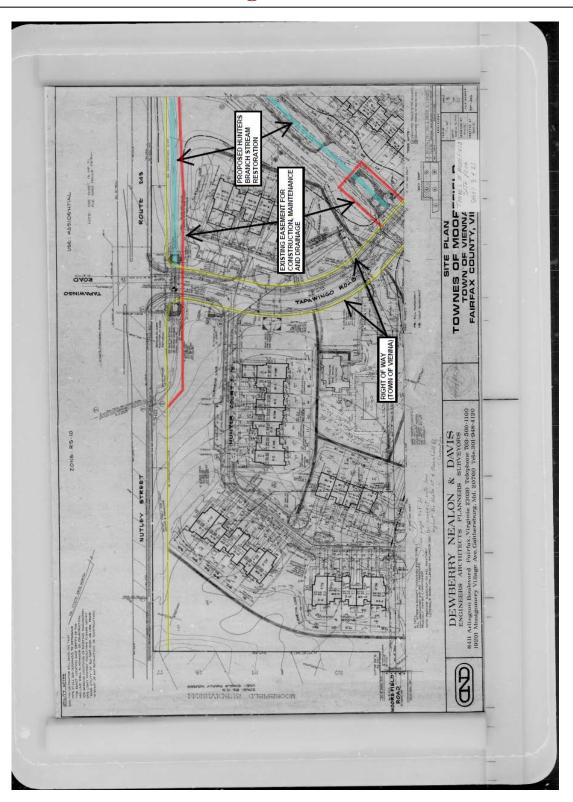
Department of Public Works and Environmental Services Stormwater Planning Division 12000 Government Center Parkway, Suite 449

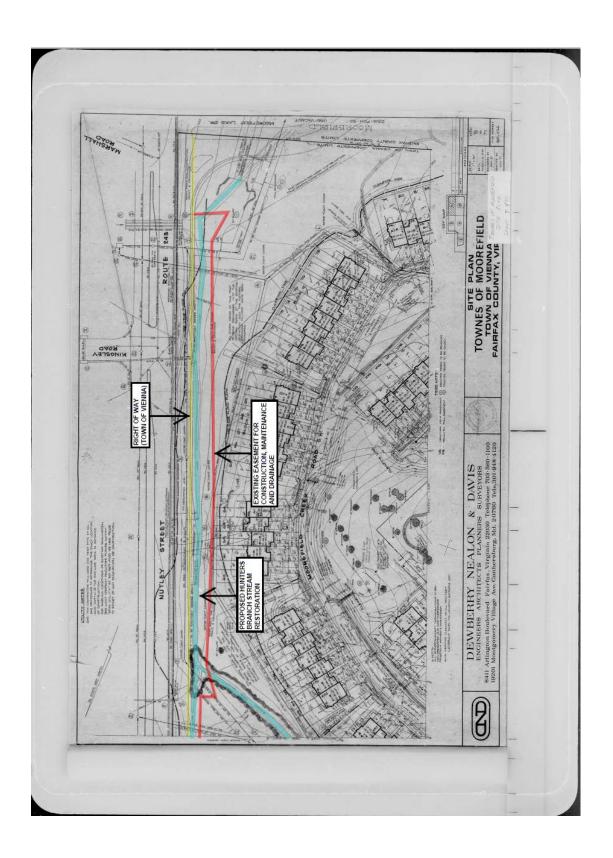
Fairfax, VA 22035-0052 Phone: 703-324-5500, TTY 711, Fax: 703-802-5955

www.fairfaxcounty.gov/publicworks



Appendix E – Townes of Moorefield Site Plan and Existing Easements





Appendix F – Townes of Moorefield Support Letter

From: Mary Mahin
To: Horner, Christine

Cc: POA Management; Alex Bates
Subject: Hunter"s Branch Phase II Restoration
Date: Friday, October 5, 2018 5:31:09 PM

Dear Ms. Horner.

This is to express my support for the Hunter's Branch Phase II Restoration Project by the Town of Vienna.

As you are aware, Phase I of the Restoration Project benefited the Townes of Moorefield. It improved the water quality of the stream, stabilized the stream banks, ,facilitated the flow of water through our community, and improved the overall quality of our environment.

The proposed Phase II Restoration area abuts our property line than runs parallel to Nutley Street. We would hope to benefit from the same improvements if Phase II is to move forward. In addition to concerns about water flow and erosion, there is also significant overgrowth of invasive plants along the stream banks. We would hope that this problem would also be addressed if the project moves forward.

If there is anything else I can do to demonstrate support for this Project please let me know.

Thank you.

Mary Anne Mahin President Townes of Moorefield Community Association