917 Whann Avenue

Fairfax County, Virginia

WSSI #31448.01

Major Water Quality Impact Assessment and Accessory Structure RPA Exception Request

April 1, 2022

Prepared by:

Wetland Studies and Solutions, Inc.®
a DAVEY company
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917 Whann Avenue
Fairfax County, Virginia

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INDEX TO EXHIBITS

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EXHIBIT 1:

Resource Protection Area Exception Narrative

April 1, 2022

Mr. William Hicks, P.E.
Director
Department of Public Works and Environmental Services
12055 Government Center Parkway, Suite 444
Fairfax, Virginia 22035-5504

VIA E-PLAN SUBMISSION

Re: Section 118-6-8(b) RPA Exception Request and Major Water Quality Impact Assessment
917 Whann Avenue
Tax Map: 0214 06 0013A
Fairfax County, Virginia
WSSI #31448.01

Dear Mr. Hicks:

Wetland Studies and Solutions, Inc. (WSSI) has been engaged by the Owners of the property, Mr. John Zecca and Ms. Lindsy Noble, to prepare this Resource Protection Area Exception and Water Quality Impact Assessment (WQIA) for approval of construction activities associated with the development of a single lot as required under Section 118-6-8(b) of the Fairfax County Chesapeake Bay Preservation Ordinance (Ordinance).

Pursuant to the Submission Requirements in 118-6-5 for RPA Exception Requests, please find the following (and other supporting) information contained within this report:

a) Four copies of an application form provided by the Director and completed and signed by the applicant. (Exhibit 2)
b) Four copies of a Water Quality Impact Assessment. (Exhibit 3B)
c) Fourteen copies of a plat which meets the submission requirements of Zoning Ordinance 112.1.8101.3.B. (Exhibit 13)
d) Photographs of the property showing existing structures, terrain and vegetation. (Exhibit 7)
e) Four copies of a map identifying classification of soil types, at a scale of one inch equals 500 feet, covering an area at least 500 feet beyond the perimeter of the proposed development. (Exhibit 10)
f) A statement of justification which addresses how the proposed development complies with the factors set forth in Sections 118-6-6 (a) through (f). (Exhibit 1)

I. Background

The subject of this RPAE is located at 917 Whann Avenue in McLean, Virginia. This approximately 1-acre parcel is located north of the Georgetown Pike (State Route 193) and northeast of the intersection of Sorrell Street and Whann Avenue in Fairfax County, Virginia, as depicted on Exhibit 8. The site encompasses an existing two-story brick residence (completed in 1998) and utilities, asphalt driveway, slate patio and walkways, brick retaining walls, maintained landscaping, and forested areas. The Owners purchased the subject property in July 2020 and desire

to install an in-ground swimming pool and spa with a deck on previously leveled ground within existing retaining walls, on the back side of the residence. A riprap-lined, perennial stream channel (unnamed tributary to Dead Run) crosses the back yard but will not be disturbed as a result of this project.

The boundaries of jurisdictional wetlands and other Waters of the U.S. (WOTUS) were delineated by WSSI in April 2021, indicating that the tributary is an RPA core component. The U.S. Army Corps of Engineers (COE) issued a jurisdictional determination (JD) verifying the delineated boundaries of these waters of the U.S. (JD #NAO-2021-01494) on June 10, 2021 (see Exhibit 15). The limits of the RPA used in the Exception Request and WQIA were created by buffering the surveyed limits of the unnamed tributary to Dead Run (UT Dead Run) 100 feet landward (because there is no major 100-year floodplain present on the site).

Approximately 75% of the lot (32,148 sf), including the majority of the existing residence and all of the back yard, is located within the RPA. Prior to the adoption of the 2003 Ordinance, approximately 19,125 sf were disturbed for construction. This includes approximately 9,004 sf of impervious area: the residence, driveway, patio, retaining walls, walkways, and riprap lining the UT Dead Run. About 3,180 sf of this impervious area is located within the inner 50-ft RPA buffer. Non-structural elements within the RPA include turfgrass, other maintained landscaping, and forested area in the eastern portion of the site. A flat turfgrass terrace within the inner 50 feet of the RPA buffer abuts the residence in the back yard, and is contained by brick retaining walls. Below this, a steep slope descends toward the UT Dead Run. East of the tributary lies a 15-foot-wide sanitary sewer easement with a landscaped seating area, bordered by woods.

Only the front yard and portions of the residence and driveway lie outside the RPA. Significantly smaller than the back yard, the front yard is occupied by the driveway, foundation plantings, and dense privacy landscaping to separate the residence from Whann Avenue. Further, there is a 40-ft setback, leaving only 14 feet between the BRL and the front of the house. Based on these constraints, the front yard is not a viable alternative to prevent RPA encroachment. Please refer to Exhibit 7 for Existing Site Photographs and Exhibit 4 for Existing Conditions.

The proposed layout of the lot and new structures is presented in Exhibit 5. The project includes the construction of a modestly sized in-ground swimming pool and smaller spa, pool deck and walkways, a planter, and retaining walls. Encroachment has been limited to the minimum necessary to construct the project. The proposed LOD requires encroachment of 2,377 sf (0.05 ac), all within the historically disturbed inner 50-ft RPA buffer. The existing driveway is used for construction staging and access, minimizing disturbance to the RPA. Furthermore, all construction is limited to the existing turfgrass terrace contained by retaining walls, which avoids impacting the slope to the UT Dead Run. The project will add 998 sf of impervious surface to the RPA, in compliance with the 1,000 sf cumulative increase limit for accessory structure exceptions set forth in Section 118-6-8(b) of the Ordinance. Demonstration of project compliance with each of the relevant sections of the Ordinance is presented in the remainder of this submission.

II. RPA Encroachment Statement of Justification

The following is the Statement of Justification which addresses how the development complies with the factors set forth in CBPO Sections 118-6-6 (a) through (f):

(a) The requested exception to the criteria is the minimum necessary to afford relief;

The Field-Verified RPA encompasses all land rear of the existing residence (approximately 75% of the lot in total), with a small portion of the rear of the house within the RPA. Therefore, any accessory structure on the property requires RPA encroachment. The unencumbered portion of the lot (i.e., front yard) is not suitable for the creation of a swimming pool, as it is occupied by the driveway and privacy landscaping.

The limits of clearing and grading have been located tightly to the proposed activities (i.e. no excess land is to be disturbed other than what is necessary for construction and installation of E&S controls. The plan as designed represents an increase of 998 square feet of impervious surface, which remains below the threshold for impervious surface increase in the CBPO for this type of activity.

(b) Granting the exception will not confer upon the applicant any special privileges that are denied by this part to other property owners who are subject to its provisions and who are similarly situated;

As stated in 118-6-1, exceptions to the criteria and requirements of the CBPO to permit encroachment into the RPA that do not qualify for administrative review under Article 5 may be granted by the Exception Review Committee (with a specific exception created for accessory structures of this type). All property owners similarly situated are entitled to seek relief in the same manner as the Applicant. Therefore, granting of this exception request does not confer special privileges on the Applicant.

(c) The exception is in harmony with the purpose and intent of this Chapter and is not of substantial detriment to water quality;

Situations as presented in this request are the reason that the exception in Section 118-6-8(b) (Exceptions for Accessory Structures) exists. Properties such as 917 Whann Avenue, that did not require RPAs to be designated on them at the time their principal structures were established, are allowed small accessory structures not cumulatively exceeding 1,000 sf of additional impervious area from the time of adoption of the CBPO relating to their property.

The proposed swimming pool and associated structures adhere to this limit and represent no substantial detriment to water quality due to strict adherence to erosion & sediment control regulations. Construction will take place within the limits of the existing retaining wall (within the limits of historic disturbance and in an area of maintained lawn or existing impervious surfaces), further limiting water quality impacts. The RPA resource (UT Dead Run) will not be affected as a result of the proposed activities.

Additionally, a planter box is proposed as a BMP to offset the proposed increase in impervious surface. Thus, this waiver request is in harmony with the purpose and intent of the Ordinance.

(d) The exception request is not based upon conditions or circumstances that are self-created or self-imposed;

As stated previously, around 75% of the lot is encumbered by an RPA that was not present at the time that the residence (principal structure) was constructed. The unencumbered portion of the lot is not suitable for the creation of a swimming pool, as it is occupied by the primary access driveway and privacy landscaping. Thus, the conditions and circumstances of this exception request were not self-created or self-imposed.

(e) Reasonable and appropriate conditions are imposed, as warranted, that will prevent the allowed activity from causing a degradation of water quality; and

Construction is limited to a turfgrass terrace adjacent to the existing residence, which is contained by a retaining wall. The slope to the UT Dead Run below will not be directly affected. Strict adherence to erosion and sediment controls (i.e. super silt fence, indicated in Exhibit 5) will ensure that the activity does not cause a degradation of water quality. Additionally, a vegetated riparian buffer area and BMPs (a planter box) will be established on the site, which will help to infiltrate stormwater and further prevent degradation of water quality after the project is complete.

(f) Other findings, as appropriate and required herein, are met.

N/A

III. Compliance with Criteria for Exceptions for Accessory Structures in a Resource Protection Area (Section 118-6-8(b))

Exceptions to waive any or all of the performance criteria and requirements of this Chapter for the construction of accessory structures and uses to principal structures established between July 1, 1993, and November 18, 2003, in accordance with all applicable provisions of the County Code in effect at the time of establishment, on lots that did not require RPAs to be designated on them under the provisions of this Chapter in effect at the time the principal structures were established, may be approved subject to the following conditions:

1) The accessory structure or use shall not result in the creation of 1,000 square feet or more of additional impervious area within an RPA, or the creation of additional impervious area within an RPA that exceeds two percent of the lot area up to a maximum limit of 2,500 square feet, whichever amount is greater. The maximum additional impervious area shall be applied to each lot recorded prior to November 18, 2003, in accordance with all applicable provisions of the County Code in effect at the time of recordation, and shall be a cumulative measure based on the amount of impervious area added to the particular lot after November 18, 2003, for all uses on the

lot requiring an exception or waiver. Additions to impervious area shall be allowed to such lots until the maximum additional impervious area allowed is reached on the particular lot. The cumulative limit on the maximum additional impervious area measure shall continue indefinitely, regardless of ownership of the property;

Comply: The proposed accessory structures (swimming pool and associated structures) will result in the creation of 998 sf of additional impervious area in the RPA, below the 1,000 sf cumulative accessory structure limit for principal structures established between July 1, 1993 and November 18, 2003. The principal structure, the residence on site, was completed in 1998.

2) *Where practicable, a vegetated area that will maximize water quality protection, mitigate the effects of the buffer encroachment, and is equal to the area of encroachment into the buffer area shall be established elsewhere on the lot or parcel.*

Comply: A vegetated area of 2,378 sf (exceeding the required 2,377 sf) will be established on the site to mitigate the effects of buffer encroachment. This reforestation area will be located primarily east of the UT Dead Run, extending the existing forest toward the stream while avoiding the sanitary easement where woody vegetation is prohibited. Two smaller areas west of the stream will augment existing trees and shrubs on the edge of a maintained turfgrass area. The resulting condition will be a more robust buffer than what currently exists, as the environmental benefits of native trees, shrubs, and herbaceous groundcover in a riparian buffer exceed those of turfgrass. All plantings are comprised of native species and will be planted by hand or with hand-held tools—no heavy equipment will be utilized for reforestation efforts.

IV. Conclusion

In conclusion, after considering the requirements outlined for a Major WQIA and analyzing each of the compliance criteria, it is our opinion that the proposed RPA encroachments are fully justified. We request approval of this WQIA and authorization of our request for an Exception for Accessory Structures in a Resource Protection Area based on the justifications provided herein.

Thank you for your consideration and please feel free to contact me, Sarah Hutchinson, at (703) 679-5626 (email at shutchinson@wetlands.com) or J.T. Kelley (703) 679-5652 (email at jkelley@wetlands.com).

Sincerely,

WETLAND STUDIES AND SOLUTIONS, INC.

Sarah Hutchinson
Landscape Designer

John T. Kelley, Jr., PE, CFM, LEED AP
Manager - Engineering

cc: Theodore D. Britt, Tri-Tek Engineering (via email)

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EXHIBIT 2:

Resource Protection Area Exception Application and Water Quality Impact Assessment Application

Exception # _____

APPLICATION FORM

For Resource Protection Area (RPA) Encroachment Exceptions Pursuant to Article 6 of the Chesapeake Bay Preservation Ordinance; Public Hearing Required

Part 1 – Property Information

Property Owner's Name: Mr. John Zecca, Ms. Lindsy Noble

Property Address: 917 Whann Avenue, McLean, VA 22101

Description (Lot# Subdivision): Lot 13A - Section 1, Langley Forest

Project Name: 917 Whann Avenue

Tax Map Number: 0214 06 0013A

Magisterial District: Dranesville, #6 Permit #: _____

Part 2 -Exception Type

Check One	CBPO Section	Exception Types: (Refer to CBPO for detailed list of qualifications and limitations)
	118-6-7	**Loss of buildable area** within an RPA on a lot or parcel recorded prior to November 18, 2003. The proposed construction encroaches into the seaward 50 feet of the RPA buffer.
	118-6-8(a)	**Accessory structure** within the RPA, where the principal structure was established (i.e. RUP issued) as of July 1, 1993 and the proposed construction encroaches into the 1993 RPA.
X	118-6-8**(b)**	**Accessory structure** in the RPA, where the principal structure on the lot or parcel was established (i.e. RUP issued) between July 1, 1993 and November 18, 2003 and the construction encroaches into the 2003 RPA.
	118-6-9	**General RPA Encroachment** request for encroachments into either the 1993 or 2003 RPA that do not qualify for waivers under CBPO Article 5 and do not qualify under any of the above Sections.

Part 3 –General Description of Exception Request

Acres or Square Feet	Description of Exception Request
Property Area (acres or square feet)	42,676 sf
Disturbed Area in RPA (acres or square feet)	2,377 sf
Impervious Area within RPA (acres or square feet)	998 sf
Brief Description of Project and RPA Encroachment	Construction of swimming pool/spa/deck/retaining walls

☐ Check here if a Special Exception (SE) and/or Rezoning (RZ) application has been/will be submitted. The public hearing will be conducted by the Board of Supervisors in conjunction with the SE or RZ hearing.

Exception # _____

Part 4 – Submission Checklist

Check	CBPO Section	Exception Types: (Refer to CBPO for detailed list of qualifications and limitations)
X	118-6-5(a)	Four (4) copies of this *application form,* completed and signed by the applicant.
X	118-6-5(b)	Four (4) copies of *a Water Quality Impact Assessment (WQIA).* The WQIA may be submitted with the application as a combined document.
X	118-6-5(c)	Fourteen (14) copies of *a plat* which meets the submission requirements of Zoning Ordinance Section 9-011, paragraph 2. In addition, four (4) letter size copies of the plat that is suitable for reproduction and distribution.
X	118-6-5(d)	*Photographs* of the property showing existing structures, terrain and vegetation
X	118-6-5(e)	Four (4) copies of *a map identifying classification of soil types,* at a scale of one inch equals five hundred feet (1" = 500'), covering an area at least 500 feet beyond the perimeter of the proposed development.
X	118-6-5(f)	A *statement of justification* which addresses how the proposed development complies with the factors set forth in Sections 118-6-6(a) through (f). (See Part 5 below).
X	118-6-3(c)	A List of property owners, with addresses, to be notified (minimum of 5). Include all properties abutting, immediately across the street from, and within 500 feet of the subject property (including all properties which lie in adjacent municipalities). In addition, the name and address of a Homeowners or Civic Association that is within the immediate area that will be notified.
N/A	118-6-3(d)	If the exception is associated with a RZ or SE, the notification shall be conducted concurrently with the RZ or SE notification, and the public hearing will be conducted by the Board of Supervisors. Provide a list of owners, with addresses, to be notified in accordance with Zoning Ordinance Article 18 instead of CBPO Section 118-6-3(c).
X	104-1-3(d)	Application Fees (must be paid at the time of submission of the application)
X	101-2-9 and 112-17-109	Exception request fee: $204 per lot (not to exceed $876) for individual lots; $876 for subdivisions or site plans.
X	101-2-9 and 112-17-109	WQIA fee (if submitted as a combined document): $432 for single lot, $1,652.40 for subdivision or site plan, per submission.
X	101-2-9 and 112-17-109	A public hearing is required for all exceptions under Article 6. There is an additional fee of $438 per exception request.

Exception # _____

Part 5 Statement of Justification checklist

Check	CBPO Section	Exception Types: (Refer to CBPO for detailed list of qualifications and limitations)
X	118-6-6(a)	The requested exception to the criteria is the minimum necessary to afford relief
X	118-6-6(b)	Granting the exception will not confer upon the applicant any special privileges that are denied by this part to other property owners who are subject to it provisions and who are similarly situated.
X	118-6-6(c)	The exception is in harmony with the purpose and intent of this Chapter and is not of substantial detriment to water quality.
X	118-6-6(d)	The exception request is not based upon conditions or circumstances that are self-created or self-imposed.
X	118-6-6(e)	Reasonable and appropriate conditions are imposed, as warranted, that will prevent the allowed activity from causing a degradation of water quality.
X	118-6-6(f)	Other findings, as appropriate and required for the specific exception being applied for, are met. The additional criteria are listed in CBPO Sections 118-6-7(a) through (f), CBPO Section 118-6-8(a)(l) and (2), CBPO Section 118-6-8(b)(l) and (2), or CBPO Section 118-6-9.

Part 6

All information in this application and all documents submitted in support of this request are correct to the best of my knowledge and belief.

Applicant Name: Wetland Studies and Solutions, Inc. - John T. Kelley, Jr., PE (please print)

Authorized Agent(s): Wetland Studies and Solutions, Inc.

Business Location Address: 5300 Wellington Branch Drive, #100

City: Gainesville State: VA ZIP: 20155

Telephone: 703-679-5600 Facsimile: _____

Email Address: JKelley@wetlands.com

Business Phone Number: 703-679-5652 Cell Phone Number: 703-505-0946

Signature: _____ (Owner/Agent) Agent Date: 04/01/2022

SUBMIT TO: Customer and Technical Support Center
Site and Addressing Center
12055 Government Center Parkway, Suite 230
Fairfax, Virginia 22035

Water Quality Impact Assessment Application

Site Development and Inspections Division (SDID)
Fairfax County Land Development Services
12055 Government Center Parkway, Suite 535, Fairfax, VA 22035
Phone: 703-324-1720, TTY 711
www.fairfaxcounty.gov/landdevelopment

A Water Quality Impact Assessment (WQIA) is an analysis of the impacts on water quality when a project is proposed within a Resource Protection Area (RPA). The purpose of the WQIA is to ensure protection of RPAs consistent with the goals, objectives, and requirements of the Chesapeake Bay Preservation Ordinance of Fairfax County to:

1. Identify the impacts of the proposed project on water quality;
2. Ensure that the proposed land disturbance will occur in a manner that will be least disruptive to the natural function of RPAs;
3. Propose mitigation that will address water quality protection through preserving or restoring all buffer functions including stormwater pollutant removal, erosion, and sediment and runoff control.

Per §118-3-3(a), a WQIA is required for any land disturbance, development, or redevelopment within a RPA unless exempt under Article 5 or unless waived by the Director of Land Development Services in accordance with the provisions of §118-6-5. A WQIA may also be required for development or redevelopment within a Resource Management Area (RMA) if the Director determines that such an assessment is necessary because of the unique characteristics of the site or because the intensity of the proposed development may cause significant impacts on the adjacent RPA. For the code required WQIA components, see §118-4-3.

Please print or type the following information:

Associated Plan and/or Building Permit Number (if applicable): _____

Tax Map Number: 0214 06 0013A Magisterial District: Dranesville District, #6

Property Address: 917 Whann Avenue, McLean, VA 22101

Applicant Name: Wetland Studies and Solutions, Inc. – John T. Kelley, Jr., PE ☐ Owner ☐ Developer ☐ Engineer ☑ Agent

Mailing Address: 5300 Wellington Branch Drive #100, Gainesville, VA 20155

Phone Number: 703-679-5600

Email Address: JKelley@wetlands.com

Article 6 Exception Request to be submitted following acceptance of this WQIA: ☑ Yes ☐ No

The WQIA submittal requirements are divided into "Minor" and "Major" categories. The two categories differentiate the required detail on submittals based on potential RPA impacts. The narratives, descriptions, proposed mitigation and supporting documentation will be different corresponding to the scope of the project and/or encroachment into the RPA, as further identified in the below table.

Table 1: Minor & Major WQIA Eligibility Criteria

Minor WQIA (Application and Plat Only)	Major WQIA (Application, WQIA Documents, and Technical Drawings)
A required WQIA is considered "minor" and may be satisfied by submitting this application form and required exhibits if the following criteria are met: • Land disturbance in the RPA is less than or equal to 2,500 square feet; and • No disturbance in the 50 seaward feet of the RPA buffer; and • Additional proposed impervious area in the RPA is less than 256 square feet, and total RPA impervious area is no more than 1,000 cumulative square feet since adoption of the RPA, except for minor additions which are permitted by §118-5-5. Example projects for these criteria include sheds and small accessory structures, and the removal or management of vegetation. The above list is not all inclusive. **Water-dependent uses** meeting the requirements of §118-2-1, may submit under the Minor WQIA criteria at the discretion of the Director. Upon review of the Minor WQIA application, staff may request additional information be provided as necessary to evaluate potential water quality impacts of the proposed activity, per §118-4-3(g).	A required WQIA is considered "major" and requires additional analysis beyond this application form if the following criteria apply: • Land disturbance in the RPA exceeds 2,500 square feet; or • Any disturbance in the 50 seaward feet of the RPA buffer; or • Any disturbance of wetlands or streams (core components); or • Any RPA disturbance that does not qualify for a Minor WQIA. Major WQIA criteria must address all Minor WQIA criteria **and** the additional requirements noted in LTI 20-02. Example projects for these criteria include large accessory structures such as pools and detached garages.

For all requests associated with agricultural land, further coordination may be required with the Site Development and Inspections Division (SDID), as well as the Northern Virginia Soil and Water Conservation District prior to the submission of this application.

For further information, contact an SDID Stormwater Engineer by phone at 703-324-1720, TTY 711.

Please Print or Type (use additional sheets as necessary)

a) Display the boundaries of the RPA on a house location plat, survey, or site drawing, and attach that document to this form. The RPA boundary may be taken from County record or mapping for Minor WQIA. Site-specific delineation required for Major WQIA.

b) Display on the same plat, survey, or site drawing:

- ☑ Proposed RPA encroachment area including all areas of clearing, grading, filling, excavating, and otherwise removed or damaged vegetation;
- ☑ Existing and proposed improvements including impervious surfaces, structures, utilities, and sewage disposal systems;
- ☑ Existing vegetation including trees and shrub locations, and groundcover areas to be impacted.

Describe the location and nature of the proposed encroachment into and/or impacts to the RPA, including any clearing, grading, impervious surfaces, structures, utilities, and sewage disposal systems. Include a description of any vegetation to be removed and how the proposed vegetation removal is the minimum necessary to accommodate the proposed encroachment (e.g., number, size, and type of trees or area of woods). Address how indigenous vegetation is preserved to the maximum extent practicable. Include an invasive species management plan (e.g., type of vegetation removed, preserved, and replaced, and methods proposed) if invasive species management is an objective of this application.

The location of the RPA encroachment associated with the proposed plan is depicted on the Proposed RPA Encroachment Map in Exhibit 5. The associated encroachment is approximately 2,377 sf (0.05 ac). This includes an in-ground swimming pool and spa with an associated deck, planter box, and retaining walls. In total, 998 sf (0.02 ac) of new impervious surface will be created within the RPA buffer. Turfgrass is the only vegetation that will be removed; no indigenous vegetation will be disturbed. A vegetated riparian buffer exceeding the area of encroachment will be established using exclusively native species.

Disturbed Area - In determining the disturbed area, add a minimum 10-foot-wide area perimeter to the footprint of any structure. Also, include a single access path, minimum 10-foot-width, from the disturbed area to the street or driveway. Land disturbance should be the minimum necessary to facilitate the requested encroachment.

Table 2: Total Disturbed Area

Proposed Work	Disturbed Area Within the RPA (sq. ft.)	Disturbed Area Outside of the RPA (sq. ft.)	Total Disturbed Area (sq. ft.)
Construction Access Path (minimum 10-foot width)	N/A	N/A	N/A
Structure (including work area) Include when no additional clearing and grading is associated (i.e., violations where the structure already exists)	2,377	N/A	2,377
Other Encroachments (e.g., stockpiles & storage)	N/A	N/A	N/A
Clearing & Grading (include vegetation removal, proposed structure(s) and 10-foot work perimeter)	N/A	N/A	N/A
Total actual unpermitted disturbance (if associated with a Notice of Violation)	N/A	N/A	N/A
New Drainfield (only with new home construction)	N/A	N/A	N/A
New Utility Connections (if required)	N/A	N/A	N/A
Totals	2,377	N/A	2,377

Is the total of all disturbed areas > 2,500 square feet?

- ☐ Yes (a grading plan per §104-1-2 is required)
- ☑ No (a grading plan is not required)

Is the total of all disturbed areas in the RPA > 2,500 square feet?

- ☐ Yes (meeting the Major WQIA criteria is required, in addition to this application, per LTI 20-02)
- ☑ No (this application and a plat, survey, or site drawing satisfies the Minor WQIA requirement per LTI 20-02)

c) Provide justification for the proposed encroachment into and/or impacts to the RPA.

Briefly describe why it is not practical to locate the proposed encroachment outside of the RPA (e.g., entire lot located in RPA, house has RPA on all sides, location outside of RPA would not meet minimum yard setbacks, existing utility easements constrain location, etc.). For water-dependent use applications, all non-water-dependent uses shall be located outside the RPA.

Approximately 75% of the lot (32,148 sf), including the majority of the existing residence and all of the back yard, is located within the RPA. Only the front yard lies outside the RPA. Significantly smaller than the back yard, the front yard is occupied by a driveway and dense privacy landscaping to separate the residence from Whann Avenue. These constraints prevent the installation of a swimming pool and related structures in the parcel area outside the RPA.

d) Describe the extent and nature of any proposed disturbance or disruption of wetlands. [Note: any disturbance of wetlands requires the submittal of a Major WQIA (see LTI 20-02)]. Site-specific boundary delineation by an appropriate design professional (see §118-1-9(d)) will be required if the presence of wetlands is known or suspected. One source of information is the County Potential Wetland Area Map.

No wetlands will be disturbed or disrupted on the site.

Display on the house location plat, survey, or site drawing used for Parts a) & b) above:

- ☑ Proposed buffer area plantings equal to the area of encroachment and meeting the criteria specified under §118-3-3(f) and §12-0316.4 of the Public Facilities Manual;[1]
- ☑ Best Management Practices (BMPs), if planted buffer area is not feasible (or if otherwise required) including location, size, and contributing drainage areas.[2]

[1]Describe the proposed buffer area plantings including species selection and density meeting §118-3-3(f) and §12-0316.4 of the Public Facilities Manual. For more information on plantings, see the county's Recommended Tree and Shrub Species Guide for RPAs:

Table 3: RPA Buffer Area Planting Plan (supplement with the plat, survey, or site drawing to show location)

Plant Name	Quantity	Size (Height/Caliper/Vol.)	Legend, Symbol, or Key used on plat, survey, or site drawing
(see Exhibit 6)			

Other notes as needed to describe the planting plan:

A riparian buffer planting area exceeding the proposed encroachment area is shown in Exhibit 6. The vegetation schedule in Exhibit 6B details the native overstory, understory, and shrub species selected for the 2,378 sf planting area. The densities of all trees, shrubs, shrub equivalents, and herbaceous groundcover meet the requirements specified by Table 12.13B of Article 12 of Public Facilities Manual. A total of 91 trees, shrubs, and shrub equivalents are proposed, along with 4.5 pounds of seed mix. All buffer plantings are comprised of native species and will be planted by hand or with hand-held tools—no heavy equipment will be utilized for reforestation efforts.

[2]Describe the location and type of any proposed BMPs (normally required if mitigation cannot otherwise be met via a planted buffer area) used to prevent a net increase in phosphorus load from the proposed encroachment. The Virginia Stormwater BMP Clearinghouse, and the Manufactured Treatment Devices Approved for use in Fairfax County, are the primary sources of acceptable BMP practices.

In addition to the proposed plantings, the Applicant proposes a planter box as a BMP for the project. The planter box is located adjacent to the pool deck, and will be further described in the forthcoming site plan by Tri-Tek Engineering (see Exhibit 13 for draft).

Table 3: Table of Contents for Supplemental Information

Provide the corresponding page and paragraph number for each item listed in the table below as provided in the supplemental information and attachments required by Technical Bulletin 20-02. Completion of the below table is **required for Major WQIAs**. The table is **optional for Minor WQIAs** when the information is not otherwise provided directly within the previous sections of the WQIA application.

Requirement: Display the boundaries of the RPA; §118-4-3(a)	**Page**	**Paragraph**
Show on a plat or site drawing:		
Display a site-specific RPA delineation (submitted separately if required by the Director) or;	37	
Display the RPA boundary from a previously approved, separate RPA delineation plan, providing the referenced plan number (____-RPA-___-__) or;		
If the project involves concurrent submission of an INF plan, the RPA Boundary delineation may be included on the plan, in accordance with Technical Bulletin 08-12 and incorporated in this WQIA.		
Requirement: Display and describe the location and nature of the proposed encroachment into and/or impacts to the RPA, including any clearing, grading, impervious surfaces, structures, utilities, and sewage disposal systems; §118-4-3(b)	**Page**	**Paragraph**
Show on a plat or site drawing:		
Disruptions to existing surface hydrology, including wetland and stream circulation patterns	39	
Disruptions, reductions, or increases in the supply of water to wetlands, streams, or other surface waters	39	
Location of dredge material and location of dumping for such material	39	
Percent of the site to be disturbed and cleared for the project	39	
General location and type of all significant onsite plant material. Specific location and type of all trees, shrubs, or groundcover to be removed	41	
Describe in a narrative:		
Existing topography, soils, hydrology, and geology of the site and adjacent lands;	29	
Location, type, characteristics, and condition of RPA features	29	
Impact of the proposed development to the existing topography, soils, hydrology, and geology of the site and adjacent lands	29	
Nature and extent of any fill material	29	
Duration and proposed phasing of the project	29	

All requisite wetland permits from other agencies	30	
Type of all vegetation to be removed	30	
Requirement: Provide justification for the proposed encroachment into and/or impacts to the RPA; §118-4-3(c)	**Page**	**Paragraph**
Describe in a narrative:		
Justification for proposed encroachment	30	
For an exception request, further describe how the application meets the following criteria of §118-3-2.i:		
How the requested exception is the minimum necessary to afford relief	30	
That granting the exception will not confer any special privileges denied in similar situations	30-31	
The exception request is in harmony with the purpose and intent of the CBPO and is not a substantial detriment to water quality	31	
That the exception is not based on circumstances that are self-created and self-imposed	31	
Requirement: Describe the extent and nature of any proposed disturbance or disruption of wetlands; §118-4-3(d)	**Page**	**Paragraph**
Describe in a narrative:		
Location and condition of existing wetlands	32	
Impacts to existing wetlands	32	
Description of required Wetland Permits	32	
Show on a plat or site drawing:		
Disturbance or destruction of wetlands in RPAs	39	
Requirement: Display and discuss the type and location of proposed best management practices (BMPs) to mitigate the proposed RPA encroachment and/or adverse impacts; §118-4-3(e)	**Page**	**Paragraph**
Show on a plat or site drawing:		
Calculation of percent increase in impervious surface on-site and types of surfacing materials used	39	
Calculation of pre-development and post-development pollutant loads in runoff using VRRM spreadsheet, or other method approved by the Director	72-73	
Replanting schedule and locations of replanting proportional to removed vegetation	41-42	

Erosion and sediment control measures used during construction	60	
Describe in a narrative:		
Selection of the proposed BMP and how it will be effective at preventing an increase in nonpoint source pollution	33	
Descriptions of the proposed mitigation measures for the potential hydrogeological impacts. Potential mitigation measures may include, but are not limited to: i. Proposed erosion and sediment control concepts. Concepts may include minimizing the extent of the cleared area, perimeter controls, reduction of runoff velocity and volume/rates, measures to stabilize disturbed areas, and schedule and personnel for site inspection; ii. Minimization of proposed excavation and fill	33-34	
Description of replanting plan in accordance with §118-3-3(f) and PFM, including a statement that all selected plants are indigenous species appropriate for the riparian buffer to the extent practicable	34	
Requirement: Demonstrate the extent to which the proposed activity will comply with all applicable performance criteria of §118-4-3(f)	**Page**	**Paragraph**
Describe in a narrative:		
How significant vegetation has been preserved to the maximum extent practicable	35	
If this application is for an exception, also describe compliance with the performance criteria of §118-3	24-25	
Requirement: Any other information deemed by the Director to be necessary to evaluate potential water quality impacts of the proposed activity §118-4-3(g)	**Page**	**Paragraph**
For new homes, describe in a narrative a wastewater element which:	N/A	
Includes locations of anticipated drainfield		
Provides justification for sewer line locations in CBPAs, where applicable, and describes construction techniques and standards		
Describes any proposed on-site collection and treatment systems, their treatment levels, and impacts on receiving watercourses		
Describes the potential impacts of the proposed wastewater systems, including the proposed mitigation measures for these impacts		

I hereby certify that the information provided above is true and correct to the best of my knowledge. I further certify that all wetlands permits required by law will be obtained prior to commencing land disturbing activities.

Applicant Name (Print): Wetland Studies and Solutions, Inc. – John T. Kelley, Jr., PE ☐ Owner ☐ Contractor ☑ Agent

Signature: _____ Date: 04/12/2022

☑ Check here if additional narrative sheets are provided, beyond the plat, survey, or site drawing, to supplement the above information. If more than one attachment, please list below and ensure pages are labeled as "Attachment B" "C," etc.

Attachment A: (check one) ☐ Plat ☐ Survey ☐ Site Drawing/Map

Attachment B: See sheet index

Attachment C: _____

Attachment D: _____

Attachment E: _____

Attachment F: _____

EXHIBIT 3A:

Article 3: Land Use and Performance Criteria

Article 3: Land Use and Development Performance Criteria
Compliance with General Performance Criteria (Section 118-3-2)

Each of the *General Performance Criteria* contained in the Ordinance are stated below, along with the required justification that the project meets or exceeds the criteria.

(a) No more land shall be disturbed than is necessary to provide for the proposed use, development, or redevelopment.

Comply: The proposed plan represents the minimum disturbance necessary for installing a swimming pool and associated infrastructure. All construction is limited to the existing turfgrass terrace contained by retaining walls, which avoids impacting the slope to the UT Dead Run. Proposed impervious areas have been minimized to provide the Applicant with a reasonably sized swimming pool and usable amenities.

(b) Indigenous vegetation shall be preserved to the maximum extent practicable consistent with the use, development, or redevelopment proposed.

Comply: Indigenous vegetation within the RPA buffer on the subject site will not be affected by the project. A compensatory buffer reforestation of areas totaling more than the proposed encroachment is provided. The reforestation areas will retard runoff, prevent erosion, and filter nonpoint source pollution for the on-site stream.

(c) Where the best management practices (BMPs) utilized require regular or periodic maintenance in order to continue their functions, such maintenance shall be ensured through a maintenance agreement with the owner or through some other mechanism or agreement that achieves and equivalent objective.

Comply: An on-site stormwater BMP is proposed (planter box) as described on the forthcoming site plan by Tri-Tek Engineering (see Exhibit 13 for draft). A maintenance agreement for this proposed privately-owned infrastructure will be required.

(d) Impervious cover shall be minimized consistent with the use, development, or redevelopment proposed.

Comply: As described in Exhibit 1, impervious cover has been minimized to create a reasonably sized swimming pool, a common amenity in the surrounding neighborhood. The plan results in only a minimal increase of 998 sf of impervious surface within the RPA, in compliance with the 1,000 sf cumulative increase limit for accessory structure exceptions.

(e) Any land disturbing activity that exceeds an area of 2,500 square feet shall comply with the requirements of Chapter 104 of the Fairfax County Code. The construction

of single-family dwellings, septic tanks, and drainfields shall not be exempt from this requirement.

Comply: The proposed land disturbing activity does not exceed an area of 2,500 sf. The Applicant will conduct land disturbing activities in accordance with the requirements of Chapter 104 of the Fairfax County Code, as applicable (see Exhibits 5, 13).

(f) For any development or redevelopment, stormwater runoff shall be controlled by the use of best management practices (BMPs).

Comply: The proposed site will be served by a BMP (planter box) as well as a restored riparian buffer area, in compliance with the SWM ordinance. The BMP is shown on the forthcoming site plan by Tri-Tek Engineering (see Exhibit 3B for nutrient removal information and Exhibit 13 for draft location).

(g) The Director shall require certification on all plans of development that all wetlands permits required by law will be obtained prior to commencement of land disturbing activities in any area subject to the plan of development review. No land disturbing activity on the land subject to the plan of development shall commence until all such permits have been obtained by the application and evidence of such permits has been provided to the Director.

Not Applicable: No disturbance to the unnamed tributary to Dead Run (or any other Waters of the U.S.) is proposed, thus no wetlands permit will be required.

(h) All on-site sewage disposal systems requiring a Virginia Pollutant Discharge Elimination System (VPDES) permit shall be subject to the restrictions imposed by the State Water Control Board or the Virginia Department of health.

Not Applicable: There are no on-site sewage disposal systems related to the disturbance that is the subject of this RPAE.

(i) Land upon which agricultural activities are being conducted, including but not limited to crop production, pasture, and dairy and feedlot operations, or lands otherwise defined as agricultural land by the local government, shall have a soil and water quality conservation assessment conducted that evaluates the effectiveness of existing practices pertaining to soil erosion and sediment control, nutrient management, and management of pesticides, and where necessary, results in a plan that outlines additional practices needed to ensure that water quality protection is being accomplished consistent with the Chesapeake Bay Preservation Act and this chapter.

Not Applicable: The project is not associated with agricultural activities.

Compliance with Additional Performance Criteria (Section 118-3-3)

Each of the *Additional Performance Criteria* contained in the Ordinance are stated below, along with the required justification that the project meets or exceeds the criteria.

(a) A Water Quality Impact Assessment shall be required for any proposed land disturbance within an RPA that is not exempt.

Comply: The required WQIA (as described in Section 118-4-1 of the Ordinance) is provided in Exhibit 3B.

(b) Allowable Development: Development is allowed within RPAs if it is water-dependent.

Not Applicable: This project is not water dependent.

(c) Redevelopment, outside of IDAs, is allowed within RPAs only if there is no increase in the amount of impervious area within the RPA and no further encroachment within the RPA and shall conform to the criteria set forth in this Chapter.

Not Applicable: This project is not redevelopment.

(d) Buffer area requirements.

Comply: The Applicant will reforest areas exceeding the proposed encroachments (as described below in Section f). The existing buffer was disturbed during construction of the existing on-site residence in 1998, before the establishment of the 2003 Fairfax County RPA. The disturbed area not occupied by the residence and associated structures has largely been maintained over the years as a residential back yard (sparse trees/ineffective buffer per CBPO standards).

The reforestation area will be located primarily east of the UT Dead Run, extending the existing forest toward the tributary while avoiding a sanitary sewer easement. Two smaller areas west of the UT Dead Run will augment existing trees and shrubs on the edge of a maintained turfgrass area. Please refer to the following Section f and Exhibit 6 for description and plan/schedule for proposed reforestation.

(e) Agricultural land requirements.

Not Applicable: This project does not involve agricultural lands.

(f) Buffer area establishment.

Comply: As shown in Exhibit 6, 2,378 sf of buffer will be re-planted to offset the 2,377 sf of proposed encroachment. The proposed buffer reforestation consists of all

native riparian tree/plant species in accordance with *§118-3-3(f)* at the required CBPO planting densities specified in Table 12.13B of the Fairfax County Public Facilities Manual (PFM). Plantings will be done by hand (or using hand-held tools) – no heavy equipment will be used for reforestation efforts.

EXHIBIT 3B:

Article 4: Water Quality Impact Assessment

Major Water Quality Impact Assessment (Section 118-4)

Pursuant to Section 118-4-3, the following Water Quality Impact Assessment Components demonstrate the proposed project's overall compliance with the Ordinance:

(a) Display the boundaries of RPA;

- Please refer to Exhibits 4-6 for site drawings showing:
    - Site-specific RPA boundary delineation
    - Complete RPA boundary certification form

The "Field Verified RPA" is governed by a 100-ft buffer extending landward from the RPA core components, or the limits of the major floodplain, whichever is greater (defined in Section 118-1-6 (o) of the Chesapeake Bay Ordinance). As stated, there are no jurisdictional wetlands, or major 100-year floodplain, present on-site – thus the Field-Verified RPA is a 100-foot buffer landward of the UT Dead Run. Please refer to Exhibit 4 for the completed RPA Boundary Certification Form and applicable RPA core components/discussion.

(b) Display and describe the location and nature of the proposed encroachment into and/or impacts to the RPA, including any clearing, grading, impervious surfaces, structures, utilities, and sewage disposal systems;

- Please refer to Exhibits 5-6 for site drawings showing:
    - Proposed encroachment area including grading and clearing
    - A line indicating the extent of the work area and encompassing all clearing and grading.
    - Existing and proposed improvements including impervious surfaces, structures, utilities, and sewage disposal systems
    - Existing vegetation including trees, shrubs, and groundcover which is proposed to be impacted
    - Disruptions to existing surface hydrology, including wetland and stream circulation patterns
    - Disruptions, reductions, or increases in the supply of water to wetlands, streams, or other surface waters
    - Location of dredge material and location of dumping for such material
    - Percent of the site to be disturbed and cleared for the project
    - General location and type of all significant onsite plant material. Specific location and type of all trees, shrubs, or groundcover to be removed.

- *Nature of the proposed encroachment*

  The RPA encroachment includes the clearing and grading necessary to create a new in-ground swimming pool and spa, associated utilities, pool deck, retaining walls, and a planter bed. All activities within the RPA affect existing/maintained lawn areas or existing impervious surfaces – previously disturbed areas within the RPA.

- *Condition and type of vegetation*

  Vegetation on site consists of turfgrass and maintained landscaping adjacent to the residence, and forested area along the east, north, and south boundaries of the lot. A mixture of species (native, non-native, and non-native invasive) are present in both landscaped and unmaintained areas. Tree species on site include *Liriodendron tulipifera*, *Quercus alba*, *Acer rubrum*, *Taxodium distichum*, and *Nyssa sylvatica*. Shrub species include *Rhododendron arborescens*, *Euonymus americanus*, *Viburnum prunifolium*, *Mahonia aquifolium*, and *Viburnum dentatum*. Invasive pressure from herbaceous plants and vines is heavy, but trees and shrubs remain healthy overall.

- *Details of the requested encroachment*

  The location of the RPA encroachment associated with the new swimming pool is depicted on the Proposed RPA Encroachment Map in Exhibit 5. The associated encroachment is approximately 2,377 sf (0.05 ac), including 998 sf (0.02 ac) of new impervious surface. The encroachment area includes an in-ground swimming pool and spa, associated utilities, pool deck, retaining walls, a planter bed, and associated clearing and grading.

- *Any previously approved encroachments into the RPA*

  There are significant non-conforming land uses/structures constructed prior to the adoption of the 2003 Ordinance. Approximately 19,125 sf of current RPA was disturbed for construction (this includes approximately 9,004 sf of impervious area) – the existing residence itself, driveway, patio, retaining walls, walkways, and riprap lining the UT Dead Run are all existing non-conforming uses. Non-structural elements added within the RPA prior to adoption of the Ordinance include turfgrass and other maintained landscaping. East of the UT Dead Run lies a 15-foot-wide sanitary sewer easement, where no woody riparian buffer vegetation is allowed to grow.

- *Existing topography, soils, hydrology, and geology of the site and adjacent lands;*

  The site slopes downward from Whann Ave east toward the UT Dead Run, with a flattened terrace directly behind the residence. East of the UT Dead Run, the topography is flatter (see Exhibit 4). Slopes on site range from 0-25%. Soils include Codorus-Hatboro complex, Glenelg silt loam, Wheaton-Glenelg complex, and Wheaton-Sumerduck complex (see Exhibit 10). The UT Dead Run is the sole hydrological feature on site and connects to Dead Run near the northern terminus of Whann Ave.

- *Location, type, characteristics, and condition of RPA features*

  The sole RPA feature on site is a riprap-lined, perennial stream channel—an approximately 10-ft wide unnamed tributary to Dead Run that flows north and divides the parcel between forest/sanitary easement to the east and residence/maintained landscape to the west. There are no wetlands (contiguous or other) present on the property, nor does the stream drainage area qualify as a major floodplain (stream D.A. at the downstream property line is approximately 100 acres).

- *Impact of the proposed development to the existing topography, soils, hydrology, and geology of the site and adjacent lands.*

  The proposed development will require grading, including excavation, to construct the pool. This will occur within an existing, flat turfgrass terrace, so it will have no impact on the surrounding topography. Soils, hydrology, and geology will also remain unaffected. The proposed construction will have no impact on adjacent lands.

- *Nature and extent of any fill material*

  There is no proposed fill associated with this project. Excess materials excavated for installation of the pool will be hauled to a suitable off-site disposal area (to be determined).

- *Duration and proposed phasing of the project*

  The proposed project is anticipated to take between six and nine months to complete. No project phasing is proposed.

- *All requisite wetland permits from other agencies*

  Waters of the U.S. (including wetlands) will not be disturbed as a result of this project, thus no Clean Water Act Section 401/404 permits are required.

- *Type of all vegetation to be removed*

  Vegetation to be removed consists of only turfgrass within the LOD, where the pool and associated structures are to be constructed. No trees, shrubs, or native riparian vegetation is to be removed.

(c) Provide justification for the proposed encroachment into and/or impacts to the RPA;

The proposed project is to conduct clearing and grading necessary to create a new in-ground swimming pool and spa, associated utilities, pool deck, retaining walls, and a planter bed. Because the Field-Verified RPA encompasses all property to the rear of the existing residence, it is not possible to construct any accessory structures without RPA encroachment. As a result, the Applicant desires to utilize the specific exception for accessory structures (118-6-8(b) written specifically into the CBPO for this reason) to obtain approval.

The following responses shall serve to demonstrate that the encroachments, as proposed, are fully justified and allowed under the CBPO.

(1) The requested exception is the minimum necessary to afford relief;

As stated, the Field-Verified RPA encompasses all land rear of the existing residence (approximately 75% of the lot in total), with a small portion of the rear of the house within the RPA. Therefore, any accessory structure on the property requires RPA encroachment. The unencumbered portion of the lot (i.e., front yard) is not suitable for the creation of a swimming pool, as it is occupied by the driveway and privacy landscaping.

The limits of clearing and grading have been located tightly to the proposed activities (i.e. no excess land is to be disturbed other than what is necessary for construction and installation of E&S controls. The plan as designed represents an increase of 998 square feet of impervious surface, which remains below the threshold for impervious surface increase in the CBPO for this type of activity.

(2) That granting the exception will not confer any special privileges denied in similar situations;

As stated in 118-6-1, exceptions to the criteria and requirements of the CBPO to permit encroachment into the RPA that do not qualify for administrative review under

Article 5 may be granted by the Exception Review Committee (with a specific exception created for accessory structures of this type). All property owners similarly situated are entitled to seek relief in the same manner as the Applicant. Therefore, granting of this exception request does not confer special privileges on the Applicant.

(3) The exception request is in harmony with the purpose and intent of the CBPO and is not a substantial detriment to water quality;

Situations as presented in this request are the reason that the exception in Section 118-6-8(b) (Exceptions for Accessory Structures) exists. Properties such as 917 Whann Avenue, that did not require RPAs to be designated on them at the time their principal structures were established, are allowed small accessory structures not cumulatively exceeding 1,000 sf of additional impervious area from the time of adoption of the CBPO relating to their property.

The proposed swimming pool and associated structures adhere to this limit and represent no substantial detriment to water quality due to strict adherence to erosion & sediment control regulations. Construction will take place within the limits of the existing retaining wall (within the limits of historic disturbance and in an area of maintained lawn or existing impervious surfaces), further limiting water quality impacts. The RPA resource (UT Dead Run) will not be affected as a result of the proposed activities.

Additionally, a planter box is proposed as a BMP to offset the proposed increase in impervious surface. Thus, this waiver request is in harmony with the purpose and intent of the Ordinance.

(4) That the exception is not based on circumstances that are self-created and self-imposed;

As stated previously, around 75% of the lot is encumbered by an RPA that was not present at the time that the residence (principal structure) was constructed. The unencumbered portion of the lot is not suitable for the creation of a swimming pool, as it is occupied by the primary access driveway and privacy landscaping. Thus, the conditions and circumstances of this exception request were not self-created or self-imposed.

(5) Reasonable and appropriate conditions are imposed, as warranted, that will prevent the allowed activity from causing a degradation of water quality; and

Construction is limited to a turfgrass terrace adjacent to the existing residence, which is contained by a retaining wall. The slope to the UT Dead Run below will not be directly affected. Strict adherence to erosion and sediment controls (i.e. super silt fence, indicated in Exhibit 5) will ensure that the activity does not cause a degradation of water quality. Additionally, a vegetated riparian buffer area and BMPs (a planter box) will be established on the site, which will help to infiltrate

stormwater and further prevent degradation of water quality after the project is complete.

(6) Other findings, as appropriate and required herein, are met.

N/A

(d) Describe the extent and nature of any proposed disturbance or disruption of wetlands;

- Please refer to Exhibits 5-6 for site drawings showing:
    - Location of existing WOUS (No disturbance or destruction to WOUS – within or outside the RPA – is proposed)

- *If applicable, describe impacts to wetlands.*

  Not Applicable; Impacts to wetlands or other waters of the U.S. will not occur as a result of this project.

- *Location and condition of existing wetlands*

  Not Applicable; WSSI performed a Waters of the U.S. delineation on the property (confirmed by the U.S. Army Corps of Engineers (COE)) demonstrating that there are no jurisdictional wetlands present on-site – only the UT Dead Run discussed previously in Section B above. See Exhibit 15 for WOTUS delineation and COE JD.

- *Impacts to existing wetlands*

  Not Applicable; Impacts to existing wetlands or other waters of the U.S. will not occur as a result of this project.

- *Description of required Wetland Permits*

  Waters of the U.S. (including wetlands) will not be disturbed as a result of this project; thus no Clean Water Act Section 401/404 permits are required.

(e) Display and discuss the type and location of proposed best management practices (BMPs) to mitigate the proposed RPA encroachment and/or adverse impacts;

- Please refer to Exhibits 5, 6, and 13 for site drawings showing:

    - Replanting indigenous species in an area equal to the encroachment per 118-3-3(f) and PFM is generally sufficient mitigation for small RPA impacts.
    - Location of proposed BMPs to mitigate impact from the encroachment

- Calculation of percent increase in impervious surface on-site and types of surfacing materials used;
- Calculation of pre-development and post-development pollutant loads in runoff using VRRM spreadsheet, or other method approved by the Director;
- Replanting schedule and locations of replanting proportional to removed vegetation.
- Erosion and sediment control measures used during construction

- *Selection of the proposed BMP and how it will be effective at preventing an increase in nonpoint source pollution.*

  In addition to the proposed plantings, the Applicant proposes a planter box (urban bioretention) as a BMP, to be described in a forthcoming site plan by Tri-Tek Engineering. The planter box is located adjacent to the pool deck and alongside the house, as shown in Exhibit 13. The proposed planter box will treat 0.05 acres of impervious surface (a portion of the rear house roof and pool deck) and remove 0.05 lb/yr of TP, resulting in a net reduction in TP loading of 0.02 lb/yr.

  TP_{pre}=0.60 lb/yr

  TP_{post}=0.63 lb/yr (untreated)

  BMP Reduction=0.05 lb/yr

  Treated TP_{post}=0.58 lb/yr (Net reduction of 0.02 lb/yr TP

  (Please refer to the VRRM spreadsheet in Exhibit 16).

- *Descriptions of the proposed mitigation measures for the potential hydrogeological impacts. Potential mitigation measures may include, but are not limited to…*

  - *Proposed erosion and sediment control concepts. Concepts may include minimizing the extent of the cleared area, perimeter controls, reduction of runoff velocity and volume/rates, measures to stabilize disturbed areas, and schedule and personnel for site inspection;*

    Strict adherence to erosion and sediment controls (i.e. super silt fence, indicated in Exhibits 5 and 13) will ensure that the activity does not cause lasting hydrogeological impacts. Also, the existing driveway is used for construction staging and access, minimizing disturbance to the RPA. Furthermore, all construction is limited to the existing turfgrass terrace contained by retaining walls, which avoids impacting the slope to the UT Dead Run.

- *Minimization of proposed excavation and fill*

  Proposed excavation is limited to only what is required to install the proposed amenity structures (and located in the area of the existing turfgrass terrace contained by retaining walls or existing impervious areas. There is no proposed fill material and any excess excavated material will be hauled to a suitable off-site disposal area (to be determined).

- *Description of replanting plan in accordance with §118-3-3(f) and PFM, including a statement that all selected plants are indigenous species appropriate for the riparian buffer to the extent practicable.*

  As shown in Exhibit 6, 2,378 sf of buffer will be re-planted to offset the 2,377 sf of proposed encroachment. The proposed buffer reforestation consists of all native riparian tree/plant species in accordance with *§118-3-3(f)* at the planting densities specified in Table 12.13B of the Fairfax County Public Facilities Manual (PFM) – with the exception of planting areas west of UT Dead Run (i.e. in the maintained lawn area). The overstory/understory trees associated with this area will be placed in the planting area across/east of UT Dead Run (resulting in an increased overstory/understory density in those locations. Only shrubs and seeding will be placed west of UT Dead Run. This does not result in any reduction in overall density, and is proposed because overstory/understory trees planted in such close proximity to the pool and residence would create a future safety hazard.

  Plantings will be done by hand (or using hand-held tools) – no heavy equipment will be used for reforestation efforts.

(f) Demonstrate the extent to which the proposed activity will comply with all applicable performance criteria of of §118-4-3(f);

- *Land disturbance is the minimum necessary*

The proposed plan represents the minimum disturbance necessary for installing a swimming pool and associated infrastructure. Construction is limited to the existing turfgrass terrace contained by retaining walls or existing impervious surfaces, which avoids impacting the slope to the UT Dead Run. The limits of clearing and grading have been located tightly to the proposed activities (i.e. no excess land is to be disturbed other than what is necessary for construction and installation of E&S controls (see Exhibit 5).

- *Preservation of existing indigenous vegetation*

  Existing indigenous vegetation on site will not be impacted by the project (see Exhibit 6).
- *That impervious cover is minimized*

  Impervious cover has been minimized to create a reasonably sized swimming pool, a common amenity in the surrounding neighborhood. The plan results in only a minimal increase of 998 sf of impervious surface within the RPA, in compliance with the 1,000 sf cumulative increase limit for accessory structure exceptions (see Exhibit 5).

- *How significant vegetation has been preserved to the maximum extent practicable.*

  Aside from turfgrass, all significant vegetation lies outside the LOD and will not be affected by the project.

- *If this application is for an exception, describe compliance with the performance criteria of §118-3*

  Compliance with all applicable performance criteria in Article 3 and Article 4 is demonstrated as discussed in this exhibit and Exhibit 3A.

(g) Any other information deemed by the Director to be necessary to evaluate potential water quality impacts of the proposed activity

Not Applicable; No further information is deemed necessary.

EXHIBIT 4:

Existing RPA Encroachment Map

WQIA Plan Sheet Elements:

Per Section 118-4-3a
- Site-specific RPA boundary delineation (Exhibits 4, 5, 6)
- Complete RPA boundary certification form (Exhibit 4)

Per Section 118-4-3b
- Proposed encroachment area including grading and clearing (Exhibits 5, 6)
- Limits of disturbance indicating the extent of the work area and encompassing all clearing and grading (Exhibits 5, 6)
- Existing and proposed improvements including impervious surfaces, structures, utilities, and sewage disposal systems (Exhibits 4, 5, 6)
- Existing vegetation including trees, shrubs, and groundcover which is proposed to be impacted (Exhibits 4, 5, 6)
- Disruptions to existing surface hydrology, including wetland and stream circulation patterns (No disruptions will occur)
- Disruptions, reductions, or increases in the supply of water to wetlands, streams, or other surface waters (No disruptions will occur)
- Location of dredge material and location of dumping for such material (Off-site disposal location to be determined)
- Percent of the site to be disturbed and cleared for the project (Approximately 6% of the site will be disturbed and cleared for the project)
- General location and type of all significant onsite plant material. Specific location and type of all trees, shrubs, or groundcover to be removed. (Exhibits 4, 5, 6)

Per Section 118-4-3d
- Disturbance or destruction of wetlands in RPAs (None proposed. Exhibits 4, 5, 6.)

Per Section 118-4-3e
- Replanting indigenous species in an area equal to the encroachment per 118-3-3(f) and PFM is generally sufficient mitigation for small RPA impacts. (2,377 sf disturbance, 2,378 sf reforestation; see Exhibit 6)
- Location of proposed BMPs to mitigate impact from the encroachment (planter box; Exhibit 13)
- Calculation of percent increase in impervious surface on-site and types of surfacing materials used; (Approximately 11% impervious surface increase; travertine, concrete slab, stacked stone, as noted in Exhibit 5)
- Calculation of pre-development and post-development pollutant loads in runoff using VRRM spreadsheet, or other method approved by the Director; (Exhibit 16)
- Replanting schedule and locations of replanting proportional to removed vegetation. (Exhibit 6)
- Erosion and sediment control measures used during construction (Exhibits 5, 13)

LEGEND

- SITE BOUNDARY
- EXISTING RPA ENCROACHMENT
- EXISTING IMPERVIOUS AREAS INSIDE RPA
- EXISTING IMPERVIOUS AREAS INSIDE 50-FT SEAWARD RPA BUFFER
- JURISDICTIONAL PERENNIAL STREAM
- FIELD VERIFIED RESOURCE PROTECTION AREA BOUNDARY
- 50 FT SEAWARD RPA BUFFER
- EXISTING TREE

917 Whann Avenue RPA Boundary Location Certification

RPA Boundary Location Certification
(The following certification statement is to be placed on the plan, signed, and sealed by the licensed professional submitting the plan.)

RPA Boundary Location Certification

The lot depicted on this infill lot grading plan includes an RPA. The locations of all RPA features have been verified in the field.

Checklist of RPA features which are present:

YES	NO	
☐	☒	(1) A tidal wetland;
☐	☒	(2) A tidal shore;
☒	☐	(3) A water body with perennial flow;
☐	☒	(4) A nontidal wetland connected by surface flow and contiguous to a tidal wetland or water body with perennial flow;
		(5) A buffer area as follows:
☐	☒	(i) Any land within a major floodplain;
☒	☐	(ii) Any land within 100 feet of a feature listed in (1) through (4).

Supporting Documents:

☒ Jurisdictional determination or verification letter from the U.S. Army Corps of Engineers for all Waters of the U.S.

I hereby certify that:

Each of the individual features listed above, which together comprise the RPA, have been reviewed and the locations of the features and final RPA boundary shown on the plan are in conformance with the requirements of the Chesapeake Bay Preservation Ordinance.

Signature — Date: 4/5/2022

John T. Kelley, Jr. — Name

VA PE# 055586 — Virginia license number

20 10 0 20 40 60
SCALE: 1" = 20'

SUMMARY OF EXISTING/EXEMPT RPA ENCROACHMENT		
Encroachment Area	*SF*	*AC*
Disturbance	19,125	0.44
Impervious*	9,004	0.21

*Impervious areas are included in disturbance areas.

Notes:
1. Historic/prior encroachment estimated from aerial imagery.
2. Impervious tabulations provided by Tri Tek Engineering.
3. All existing site development completed prior to Fairfax County RPA establishment in 2003.

NOTES:

1. Topography/boundary information, existing conditions, and proposed development plan was provided in digital (AutoCAD) format by Tri-Tek Engineering. The contour interval (C.I.) is two-foot. This information is based in the VCS NAD 83 horizontal coordinate system and referenced to the NGVD 29 vertical datum.

2. The boundaries of jurisdictional wetlands and other Waters of the U.S. on the site were delineated by WSSI. A Jurisdictional Determination (JD) (#NAO-2021-01494) was issued by the U.S. Army Corps of Engineers on June 10, 2021.

3. The Field-Verified RPA delineated in this plan was prepared by WSSI using site-specific analysis and the surveyed top of streambank by Tri-Tek Engineering. (See RPA Boundary Certification Form on this sheet). Since the only RPA core component present on-site is the perennial stream (i.e. there are no wetlands or 100-year major floodplain), the Field-Verified RPA is a 100-foot buffer measured from the surveyed top of perennial streambank.

4. There is no existing 100-year major floodplain on site (drainage area of unnamed tributary to Dead Run is approximately 100 acres).

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Exhibit 4:
Existing RPA Encroachment

917 Whann Avenue
Fairfax County, Virginia

COMMONWEALTH OF VIRGINIA — JOHN T. KELLEY, JR. — No. 055586 — PROFESSIONAL ENGINEER — 04/01/2022

REVISIONS				
No.	Date	Description	Rev. By	App. By

DATE: APRIL 2022 | SCALE: 1" = 20' | C.I.: 2

Horizontal Datum: VCS NAD 83
Vertical Datum: NGVD 29
Boundary and Topo Source: Tri-Tek Engineering

Design	Draft	Approved
SEH	SEH	JTK

Sheet # 1 of 1

Computer File Name: WQIA-RPAE Exhibit.dwg

EXHIBIT 5:

Proposed RPA Encroachment Map

WQIA Plan Sheet Elements:

Per Section 118-4-3a
- Site-specific RPA boundary delineation (Exhibits 4, 5, 6)
- Complete RPA boundary certification form (Exhibit 4)

Per Section 118-4-3b
- Proposed encroachment area including grading and clearing (Exhibits 5, 6)
- Limits of disturbance indicating the extent of the work area and encompassing all clearing and grading (Exhibits 5, 6)
- Existing and proposed improvements including impervious surfaces, structures, utilities, and sewage disposal systems (Exhibits 4, 5, 6)
- Existing vegetation including trees, shrubs, and groundcover which is proposed to be impacted (Exhibits 4, 5, 6)
- Disruptions to existing surface hydrology, including wetland and stream circulation patterns (No disruptions will occur)
- Disruptions, reductions, or increases in the supply of water to wetlands, streams, or other surface waters (No disruptions will occur)
- Location of dredge material and location of dumping for such material (Off-site disposal location to be determined)
- Percent of the site to be disturbed and cleared for the project (Approximately 6% of the site will be disturbed and cleared for the project)
- General location and type of all significant onsite plant material. Specific location and type of all trees, shrubs, or groundcover to be removed. (Exhibits 4, 5, 6)

Per Section 118-4-3d
- Disturbance or destruction of wetlands in RPAs (None proposed. Exhibits 4, 5, 6,)

Per Section 118-4-3e
- Replanting indigenous species in an area equal to the encroachment per 118-3-3(f) and PFM is generally sufficient mitigation for small RPA impacts. (2,377 sf disturbance, 2,378 sf reforestation; see Exhibit 6)
- Location of proposed BMPs to mitigate impact from the encroachment (planter box; Exhibit 13)
- Calculation of percent increase in impervious surface on-site and types of surfacing materials used; (Approximately 11% impervious surface increase; travertine, concrete slab, stacked stone, as noted in Exhibit 5)
- Calculation of pre-development and post-development pollutant loads in runoff using VRRM spreadsheet, or other method approved by the Director; (Exhibit 16)
- Replanting schedule and locations of replanting proportional to removed vegetation. (Exhibit 6)
- Erosion and sediment control measures used during construction (Exhibits 5, 13)

NOTES:

1. Topography/boundary information, existing conditions, and proposed development plan was provided in digital (AutoCAD) format by Tri-Tek Engineering. The contour interval (C.I.) is two-foot. This information is based in the VCS NAD 83 horizontal coordinate system and referenced to the NGVD 29 vertical datum.

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4. There is no existing 100-year major floodplain on site (drainage area of unnamed tributary to Dead Run is approximately 100 acres).

LEGEND

- SITE BOUNDARY
- LOD — PROPOSED RPA ENCROACHMENT
- PROPOSED IMPERVIOUS AREAS INSIDE RPA
- PROPOSED IMPERVIOUS AREAS INSIDE 50-FT SEAWARD RPA BUFFER
- JURISDICTIONAL PERENNIAL STREAM
- FIELD VERIFIED RESOURCE PROTECTION AREA BOUNDARY
- 50-FT SEAWARD RPA BUFFER
- EXISTING TREE

SUMMARY OF PROPOSED RPA ENCROACHMENT		
Encroachment Area	*SF*	*AC*
Proposed Disturbance*	2,377	0.05
Proposed New Impervious**	996	0.02
Existing/Exempt Impervious	9,004	0.21
Total Site Impervious	**10,002**	**0.23**
Percent Impervious Increase	**11%**	

**Proposed disturbance is entirely within prior historic disturbance footprint.*
***Impervious areas are included in disturbance areas.*

Notes:
1. Historic/prior encroachment estimated from aerial imagery.
2. Impervious tabulations provided by Tri-Tek Engineering.
3. All existing site development completed prior to Fairfax County RPA establishment in 2003.

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Exhibit 5:
Proposed RPA Encroachment

917 Whann Avenue
Fairfax County, Virginia

COMMONWEALTH OF VIRGINIA
JOHN T. KELLEY, JR
Lic. No. 035786
04/01/2022
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: APRIL 2022 | SCALE: 1" = 20' | C.I.: 2'

Horizontal Datum: VCS NAD 83
Vertical Datum: NGVD 29
Boundary and Topo Source:
Tri-Tek Engineering

Design	Draft	Approved
SEH	SEH	JTK

Sheet #
1 of 1

Computer File Name:
WQIA-RPAE_Exhibits.dwg

EXHIBIT 6:

Proposed Riparian Buffer Plantings

WQIA Plan Sheet Elements:

Per Section 118-4-3a
- Site-specific RPA boundary delineation (Exhibits 4, 5, 6)
- Complete RPA boundary certification form (Exhibit 4)

Per Section 118-4-3b
- Proposed encroachment area including grading and clearing (Exhibits 5, 6)
- Limits of disturbance indicating the extent of the work area and encompassing all clearing and grading (Exhibits 5, 6)
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- Disruptions, reductions, or increases in the supply of water to wetlands, streams, or other surface waters (No disruptions will occur)
- Location of dredge material and location of dumping for such material (Off-site disposal location to be determined)
- Percent of the site to be disturbed and cleared for the project (Approximately 6% of the site will be disturbed and cleared for the project)
- General location and type of all significant onsite plant material. Specific location and type of all trees, shrubs, or groundcover to be removed. (Exhibits 4, 5, 6)

Per Section 118-4-3d
- Disturbance or destruction of wetlands in RPAs (None proposed. Exhibits 4, 5, 6,)

Per Section 118-4-3e
- Replanting indigenous species in an area equal to the encroachment per 118-3-3(f) and PFM is generally sufficient mitigation for small RPA impacts. (2,377 sf disturbance, 2,378 sf reforestation; see Exhibit 6)
- Location of proposed BMPs to mitigate impact from the encroachment (planter box; Exhibit 13)
- Calculation of percent increase in impervious surface on-site and types of surfacing materials used; (Approximately 11% impervious surface increase; travertine, concrete slab, stacked stone, as noted in Exhibit 5)
- Calculation of pre-development and post-development pollutant loads in runoff using VRRM spreadsheet, or other method approved by the Director; (Exhibit 16)
- Replanting schedule and locations of replanting proportional to removed vegetation. (Exhibit 6)
- Erosion and sediment control measures used during construction (Exhibits 5, 13)

NOTES:

1. Topography/boundary information, existing conditions, and proposed development plan was provided in digital (AutoCAD) format by Tri-Tek Engineering. The contour interval (C.I.) is two-foot. This information is based in the VCS NAD 83 horizontal coordinate system and referenced to the NGVD 29 vertical datum.

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3. The Field-Verified RPA delineated in this plan was prepared by WSSI using site-specific analysis and the surveyed top of streambank by Tri-Tek Engineering. (See RPA Boundary Certification Form on Sheet 1 of 1 in Exhibit 4). Since the only RPA core component present on-site is the perennial stream (i.e. there are no wetlands or 100-year major floodplain), the Field-Verified RPA is a 100-foot buffer measured from the surveyed top of perennial streambank.

4. There is no existing 100-year major floodplain on site (drainage area of unnamed tributary to Dead Run is approximately 100 acres).

LEGEND

- SITE BOUNDARY
- PROPOSED RIPARIAN PLANTING AREA (2,378 SF / 0.05 AC)
- JURISDICTIONAL PERENNIAL STREAM
- FIELD VERIFIED RESOURCE PROTECTION AREA BOUNDARY
- 50-FT SEAWARD RPA BUFFER
- EXISTING TREE

PLANTING LOCATION NOTE:

Overstory and understory trees planted in this location represent a safety hazard to the residence and pool. Only shrubs and seeding will be planted. The balance of required reforestation based on CBPO densities will the added to the back buffer across the stream.

NOTE: SEE EXHIBIT 6B FOR PLANTING SCHEDULE

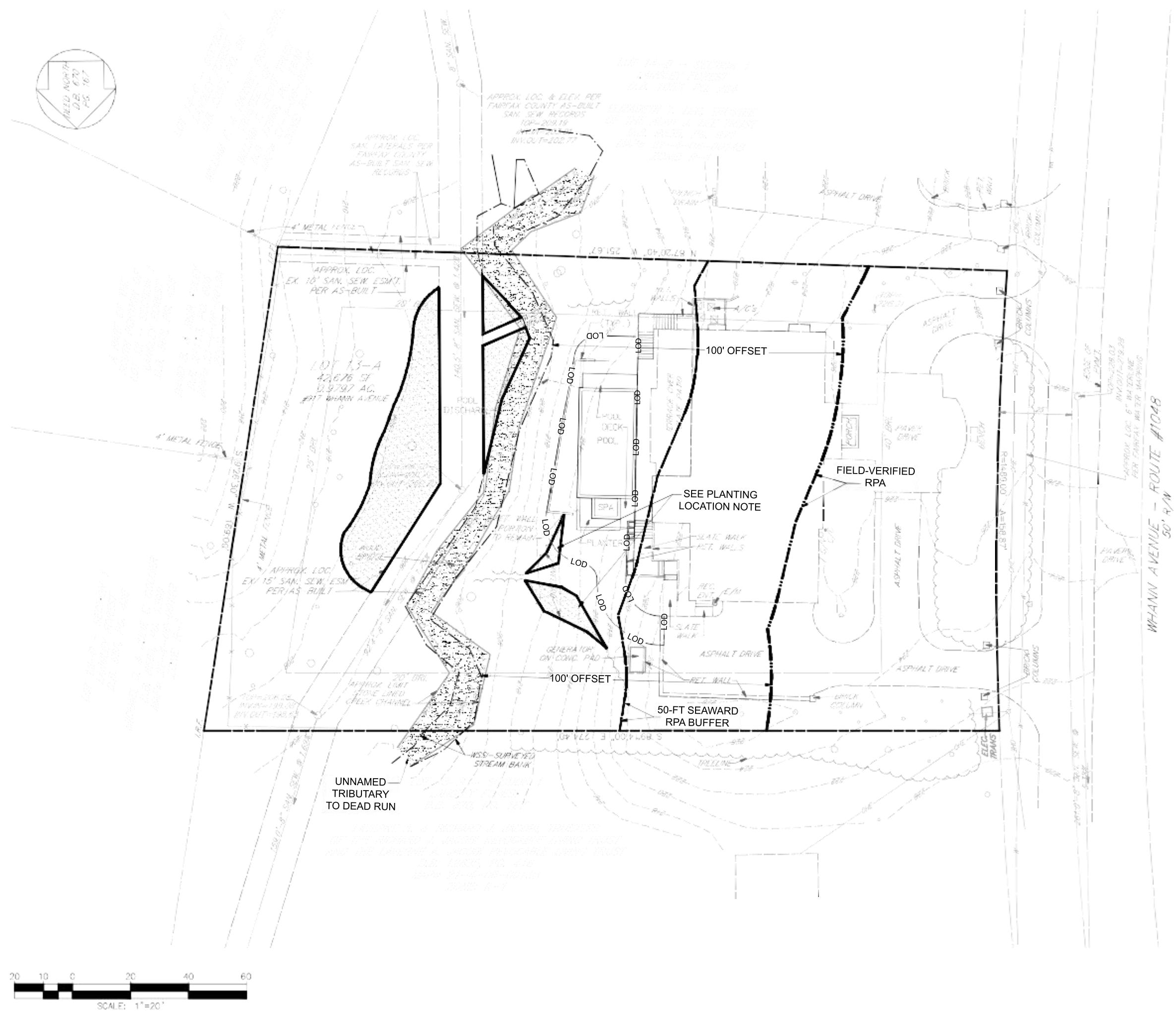

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Exhibit 6A:
Proposed Riparian Planting Area

917 Whann Avenue
Fairfax County, Virginia

COMMONWEALTH OF VIRGINIA
JOHN T. KELLEY, JR
Lic. No. 035786
04/01/2022
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: APRIL 2022 SCALE: 1" = 20' C.I.:2

Horizontal Datum: VCS NAD 83
Vertical Datum: NGVD 29
Boundary and Topo Source: Tri-Tek Engineering

Design	Draft	Approved
SEH	SEH	JTK

Sheet #
1 of 1

Computer File Name:
WQIA-RPAE_Exhibits.dwg

NOTE: SEE EXHIBIT 6A FOR PLANTING AREA

917 WHANN AVENUE RIPARIAN FOREST PLANTING SCHEDULE

PLANTING SCHEDULE

CONTAINER PLANTING ZONE		SPECIES[1]	INDICATOR STATUS (AGCP)	PLANT SPACING[4]	SIZE, RATE[2] PLANTS PER ACRE 1-GALLON	QUART
RIPARIAN FOREST	OVERSTORY LAYER	QUERCUS FALCATA (SOUTHERN RED OAK)	FACU	1-GAL - 14' O.C.	218	0
		QUERCUS ALBA (WHITE OAK)	FACU			
		QUERCUS MARILANDICA (BLACKJACK OAK)	UPL			
		QUERCUS PHELLOS (WILLOW OAK)	FACW			
		QUERCUS RUBRA (NORTHERN RED OAK)	FACU			
		ULMUS AMERICANA (AMERICAN ELM)	FACW			
		NYSSA SYLVATICA (BLACK GUM)	FAC			
		PLATANUS OCCIDENTALIS (AMERICAN SYCAMORE)	FACW			
		CARYA CORDIFORMIS (BITTERNUT HICKORY)	FAC			
		% OF PLANTING ZONE PER STOCK SIZE			100%	0%
		OVERSTORY SUBTOTALS PER STOCK SIZE			11	0
	UNDERSTORY LAYER	ACER RUBRUM (RED MAPLE)	FAC	1-GAL - 10' O.C.	435	0
		AMELANCHIER ARBOREA (COMMON SERVICEBERRY)	FAC			
		ASIMINA TRILOBA (PAWPAW)	FAC			
		CERCIS CANADENSIS (EASTERN REDBUD)	UPL			
		SASSAFRAS ALBIDUM (SASSAFRAS)	FACU			
		DIOSPYROS VIRGINIANA (COMMON PERSIMMON)	FAC			
		% OF PLANTING ZONE PER STOCK SIZE			100%	0%
		UNDERSTORY SUBTOTALS PER STOCK SIZE			22	0
	SHRUB LAYER – SHRUBS	CORYLUS AMERICANA (AMERICAN HAZELNUT)	FACU	1-GAL - 8' O.C.	491	
		LINDERA BENZOIN (NORTHERN SPICEBUSH)	FACW			
		VIBURNUM DENTATUM (SOUTHERN ARROWWOOD)	FAC			
		VACCINIUM FUSCATUM (BLACK HIGHBUSH BLUEBERRY)	FACW			
		VIBURNUM PRUNIFOLIUM (BLACKHAW)	FACU			
		HAMAMELIS VIRGINIANA (AMERICAN WITCHHAZEL)	FACU			
		ILEX VERTICILLATA (COMMON WINTERBERRY)[7]	FACW			
		% OF PLANTING ZONE PER STOCK SIZE			75%	
		SHRUB SUBTOTAL			25	
	SHRUB LAYER – SHRUB EQUIVALENTS	OSMUNDASTRUM CINNAMOMEUM (CINNAMON FERN)	FACW	QUART - 4' O.C.		654
		ONOCLEA SENSIBILIS (SENSITIVE FERN)	FACW			
		OSMUNDA REGALIS (ROYAL FERN)	M			
		POLYSTICHUM ACROSTICHOIDES (CHRISTMAS FERN)	FACU			
		% OF PLANTING ZONE PER STOCK SIZE				25%
		SHRUB EQUIVALENT SUBTOTAL				33
RIPARIAN FOREST QUANTITY SUBTOTALS					58	33

PLANTING QUANTITIES[2]

PLANTING AREA	REFORESTATION AREA
AREA (SF):	2,378
AREA (AC):	0.05
Overstory layer	
1.5" CALIPER	0
3/4" CALIPER	0
1-GALLON	11
TUBELINGS	0
BARE ROOT	0
Understory layer	
1.5" CALIPER	
3/4" CALIPER	0
1-GALLON	22
TUBELINGS	0
BARE ROOT	0
Shrubs	
1-GALLON	25
Shrub equivalents	
QUARTS	33
Riparian forest quantity subtotals	91

PLANTING NOTES:

1) It is expected and preferred that all species listed in each zone are planted. Substitutions for selected plant species based upon availability shall be requested in writing to engineer, documenting the lack of availability.
2) Plant stock sizes and quantities are based on stock sizes and rates listed in Table 12.13B of Article 12 of the PFM.
3) In the Overstory Layer, oaks shall be planted at a ratio of 2:1, oaks to non-oaks.
4) The planted trees and shrubs shall be randomly spaced and species mixed throughout the designated planting areas.
5) Hickory trees shall only be planted as bare root stock.
6) Bare roots shall be planted in clusters of 5-10. Each cluster shall be wrapped in min. 4' tall welded wire fencing with a gate. Do not plant individual bare roots.
7) No more than 50% of proposed Ilex verticillata shrubs shall be male.

917 WHANN AVENUE RIPARIAN FOREST SEEDING SCHEDULE

SPECIES GROUP		SPECIES	SEEDING RATE (LBS/AC)[1]	TOTAL MIN. LBS/AC
E&S CONTROL COVER CROP		LOLIUM PERENNE spp. MULTIFLORUM (ANNUAL RYEGRASS)	50	60
		CHAMAECRISTATA FASCICULATA (PARTRIDGE PEA)	10	
RESTORATION SEED MIX	GRASS MIX	ELYMUS VIRGINICUS (VIRGINIA WILD RYE)	6	24
		DICHANTHELIUM CLANDESTINUM (DEER TONGUE GRASS)	6	
		COLEATAENIA ANCEPS (BEAKED PANICGRASS)	6	
		PANICUM DICHOTOMIFLORUM (FALL PANICGRASS)	6	
	SEDGE MIX	CAREX SQUARROSA (SQUARROSE SEDGE)	0.5	2
		CAREX PENSYLVANICA (PENNSYLVANIA SEDGE)	0.5	
		CAREX VULPINOIDEA (FOX SEDGE)	0.5	
		JUNCUS TENUIS (PATH RUSH)	0.5	
	HERBACEOUS WORKHORSES	VERBESINA ALTERNIFOLIA (WINGSTEM)	0.1	0.7
		EUPATORIUM PERFOLIATUM (BONESET)	0.1	
		VERNONIA NOVEBORACENSIS (NY IRONWEED)	0.1	
		RUDBECKIA FULGIDA (BLACK-EYED SUSAN)	0.1	
		SOLIDAGO SPECIOSA (SHOWY GOLDENROD)	0.1	
		AGRIMONIA PARVIFLORIA (HARVEST LICE)	0.1	
		BIDENS FRONDOSA (BEGGAR TICKS)	0.1	
	LEGUMES	SENNA HEBECARPA (WILD SENNA)	3	3
	SITE SPECIFIC	EUPATORIUM PURPUREUM (SWEET JOE-PYE WEED)	0.15	0.6
		PENSTEMON DIGITALIS (FOXGLOVE BEARDTONGUE)	0.15	
		CONOCLINUM COELESTINUM (BLUE MISTFLOWER)	0.15	
		SYMPHOTRICHUM PILOSUM (HAIRY WHITE OLDFIELD ASTER)	0.15	
		TOTAL SEEDING RATE (LBS/AC)		90.3
		TOTAL AREA TO BE SEEDED (AC)		0.05
		TOTAL SEED REQUIRED (LBS)		4.5

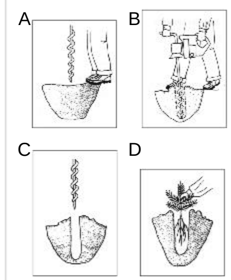
[1] *All seeding rates are expressed in pounds of pure live seed (PLS).*

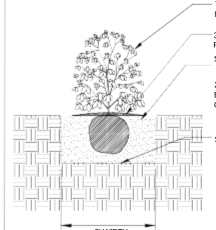
917 WHANN AVENUE WQIA SUMMARY TABLE

PLANTING ZONE	ZONE AREA (AC)	SPECIES GROUP		1-GALLON	TUBELINGS OR QUARTS	REQ. MET?
RIPARIAN BUFFER	0.05	OVERSTORY	TOTAL REQUIRED PLANTINGS	11	0	YES
			TOTAL PROPOSED OVERSTORY PLANTINGS	11	0	
		UNDERSTORY	TOTAL REQUIRED PLANTINGS	22	0	
			TOTAL PROPOSED UNDERSTORY PLANTINGS	22	0	
		SHRUB	TOTAL REQUIRED PLANTINGS	25	33	
			TOTAL PROPOSED SHRUB & SHRUB EQ. PLANTINGS	25	33	

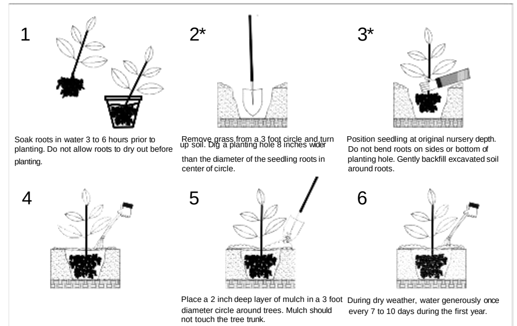
Density requirements per Virginia Riparian Buffers Modification and Mitigation Guidance Manual.

*Steps #2 and #3 of the Planting Tree Seedlings detail may be substituded with the following steps using a 4-inch or greater diameter auger.





CONTAINER SHRUB PLANTING DETAIL
NOT TO SCALE



PLANTING TREE SEEDLINGS AND SAPLINGS

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Phone: 703-679-5600 • Fax: 703-679-5601
www.wetlandstudies.com

Exhibit 6B:
Proposed Riparian Planting Schedule, Notes & Details

917 Whann Avenue
Fairfax County, Virginia

COMMONWEALTH OF VIRGINIA — JOHN T. KELLEY, JR — Lic. No. 035766 — 04/01/2022 — PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: APRIL 2022 | SCALE: N/A | C.I.: N/A

Horizontal Datum:
Vertical Datum:
Boundary and Topo Source:

Design	Draft	Approved
SEH	SEH	JTK

Sheet #
1 of 1

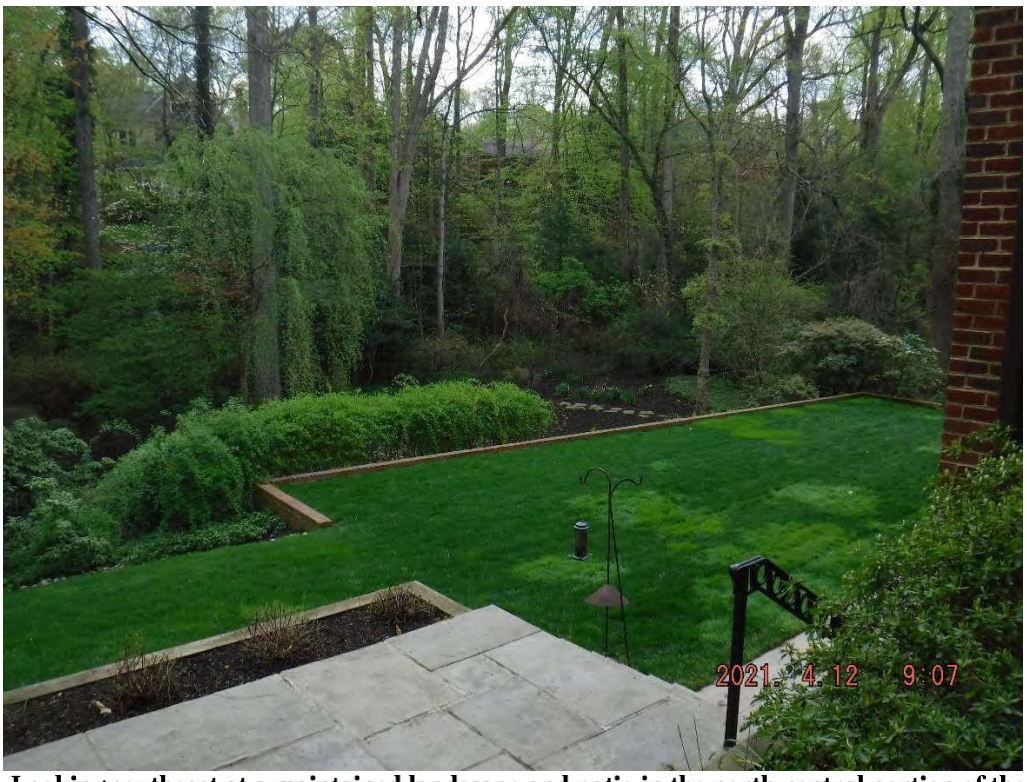
Computer File Name:
WQIA-RPAE_Exhibits.dwg

EXHIBIT 7:

Existing Site Photographs

EXHIBIT 7
SITE PHOTOGRAPHS
917 WHANN AVEUNE
WSSI #31448.01

1. **Looking southwest at a maintained landscape and existing driveway in the western portion of the site.**



2. **Looking southeast at a maintained landscape and patio in the north-central portion of the site.**

EXHIBIT 7
SITE PHOTOGRAPHS
917 WHANN AVEUNE
WSSI #31448.01

3. Looking south at Data Point #1, which characterizes a forested upland in the northeastern portion of the site.

4. Looking north at a maintained landscape in the east-central portion of the site.

EXHIBIT 7
SITE PHOTOGRAPHS
917 WHANN AVEUNE
WSSI #31448.01

5. **Looking upstream (north) at a perennial stream and Resouce Protection Area core component in the central portion of the site.**

6. **Looking downstream (south) at a perennial stream in the central portion of the site.**

EXHIBIT 7
SITE PHOTOGRAPHS
917 WHANN AVEUNE
WSSI #31448.01

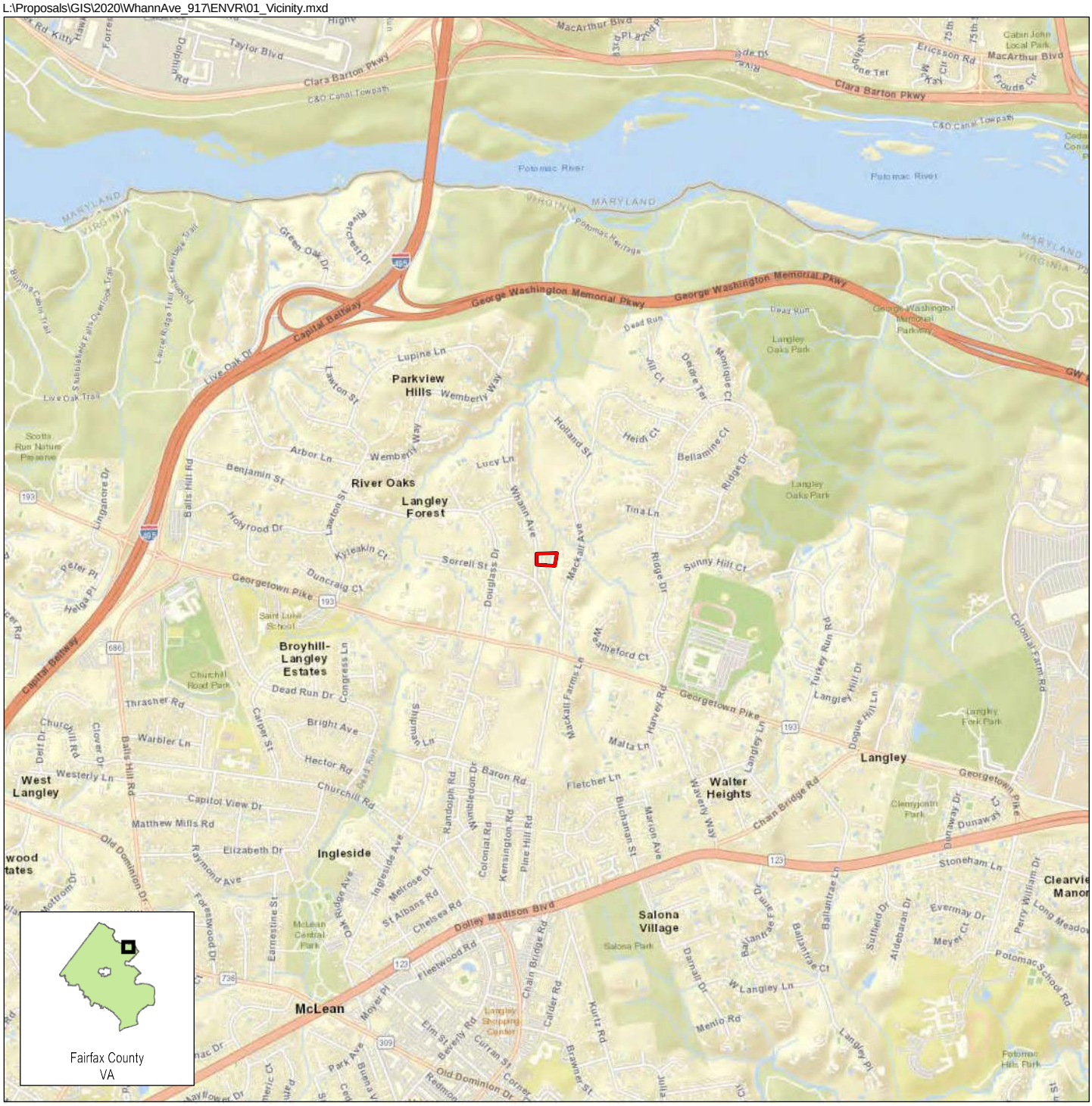
7. Looking west at Data Point #2, which characterizes a forested upland located in the southeastern portion of the site.

8. Looking south at a maintained landscape in the southern portion of the site.

EXHIBIT 8:

Vicinity Map

L:\Proposals\GIS\2020\WhannAve_917\ENVR\01_Vicinity.mxd



Vicinity Map
917 Whann Aveune

N

0 2,000
Feet
Original Scale:
1 " = 2,000 '

Source: World Street Map - ESRI

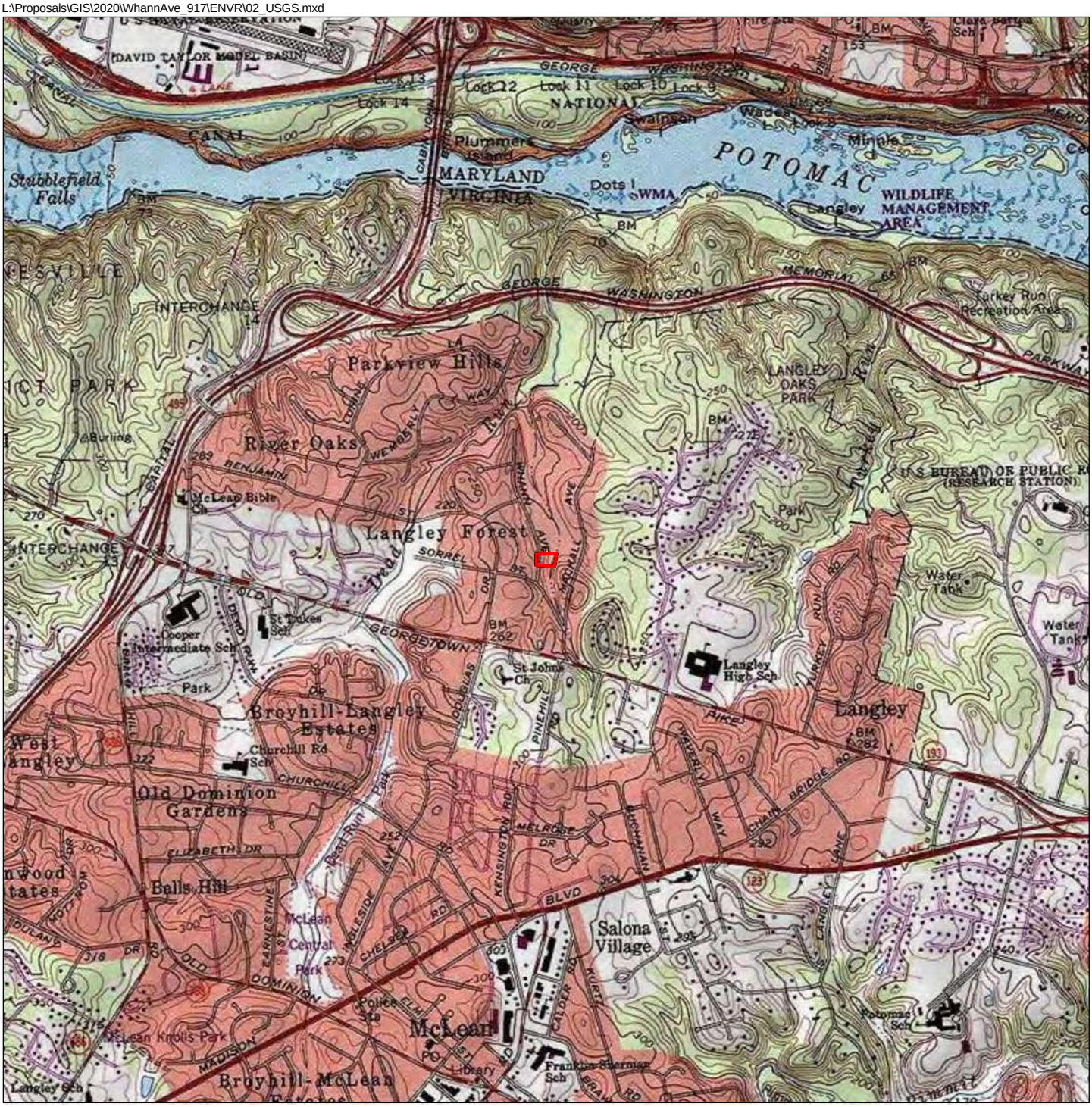
Wetland Studies and Solutions, Inc.
a DAVEY company

Exhibit 8

EXHIBIT 9:

USGS Quadrangle Map

L:\Proposals\GIS\2020\WhannAve_917\ENVR\02_USGS.mxd



Site

USGS 7.5' Quadrangle Map
917 Whann Aveune

N

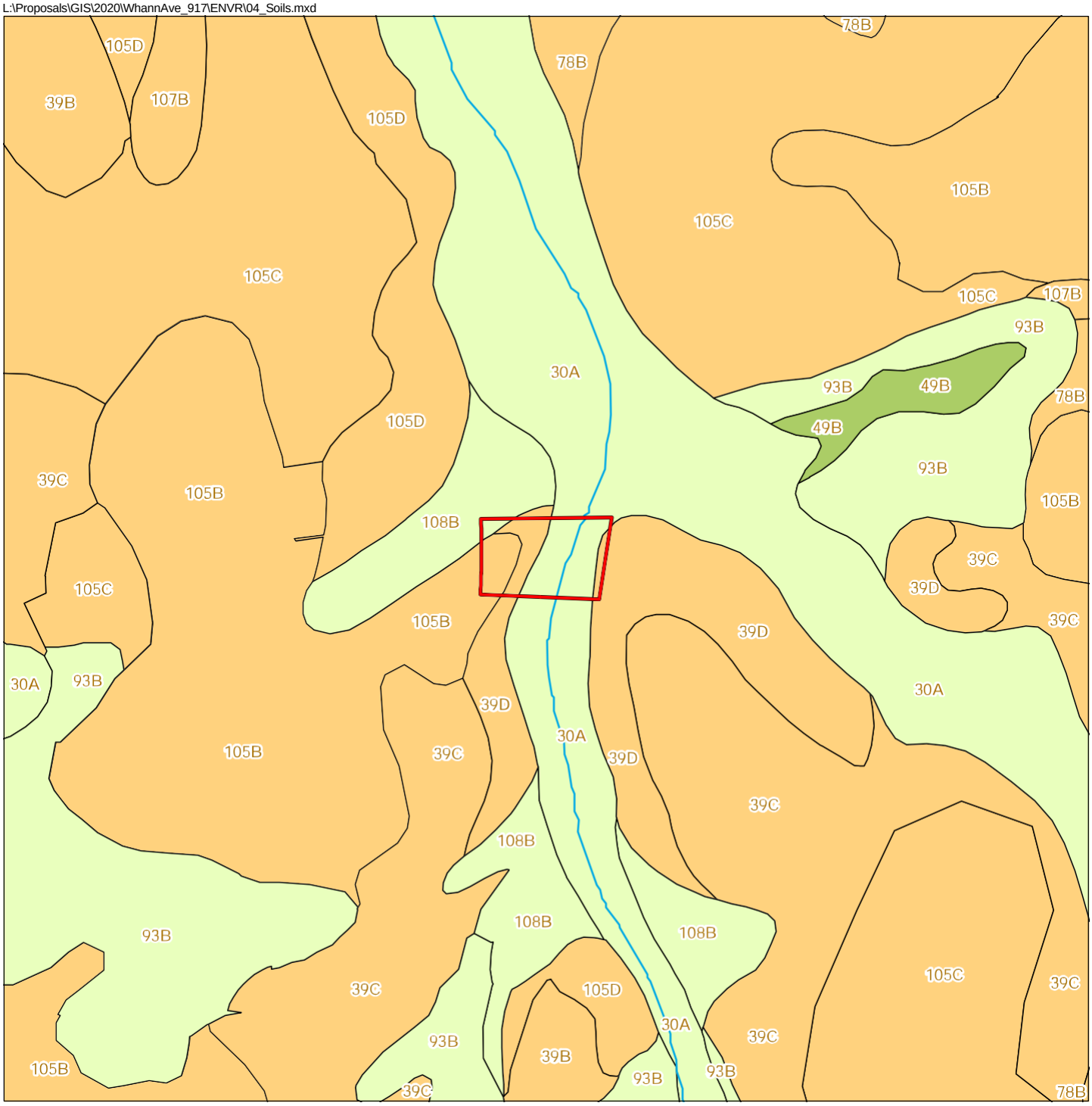
0 2,000
Feet
Original Scale:
1 " = 2,000 '

Falls Church, MD VA 1997
Latitude: 38°57'14"N
Longitude: 77°10'27"W
Hydrologic Unit Code (HUC): 020700081005
HUC12 Name: Nichols Run-Potomac River
COE Region: Eastern Mountains and Piedmont

EXHIBIT 10:

Soils Map

L:\Proposals\GIS\2020\WhannAve_917\ENVR\04_Soils.mxd



Site
Hydric Soil
Soil with Hydric Inclusion
Non-Hydric Soil
Water

Soils Map
917 Whann Aveune

N

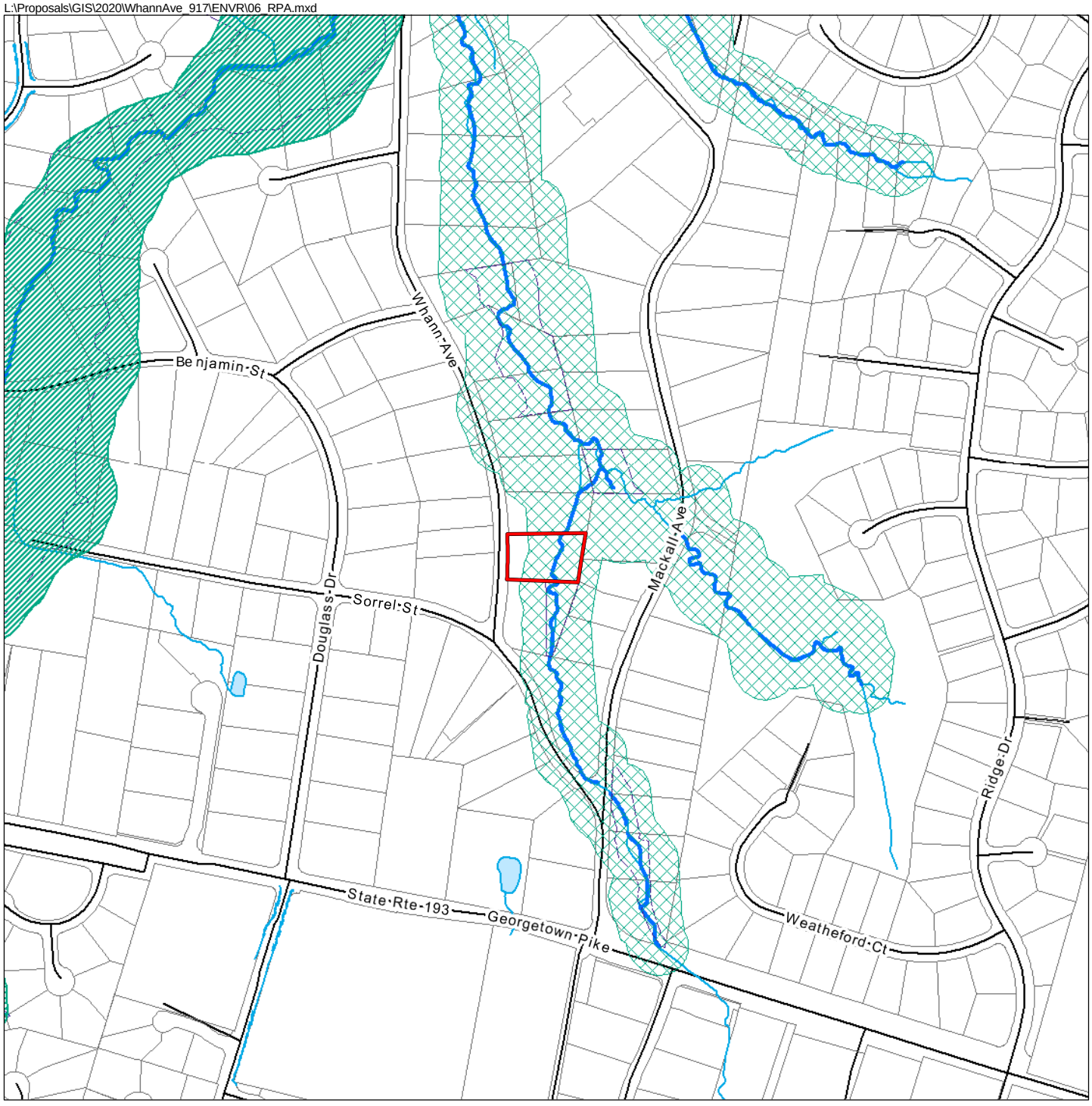
0 300
Feet
Original Scale:
1 " = 300 '

Major Land Resource Area: Northern Piedmont, 148
Land Resource Region: Northern Atlantic Slope Diversified Farming Region, S
Source: Fairfax County Digital Data, 2018

EXHIBIT 11:

Fairfax County Resource Protection Area Map

L:\Proposals\GIS\2020\WhannAve_917\ENVR\06_RPA.mxd



Site

Resource Protection Areas (RPA)

- 1993 RPA
- 2003 RPA
- 2003 and 2005 Revisions to RPA
- Fairfax County Floodplains
- Fairfax County Perennial Streams

Source: Fairfax County Digital Data

Resource Protection Area Map
917 Whann Aveune

N

0 500
Feet
Original Scale:
1 " = 500 '

Wetland Studies and Solutions, Inc.
a DAVEY company

Exhibit ***11***

EXHIBIT 12:

FEMA Digital Flood Insurance Rate Map

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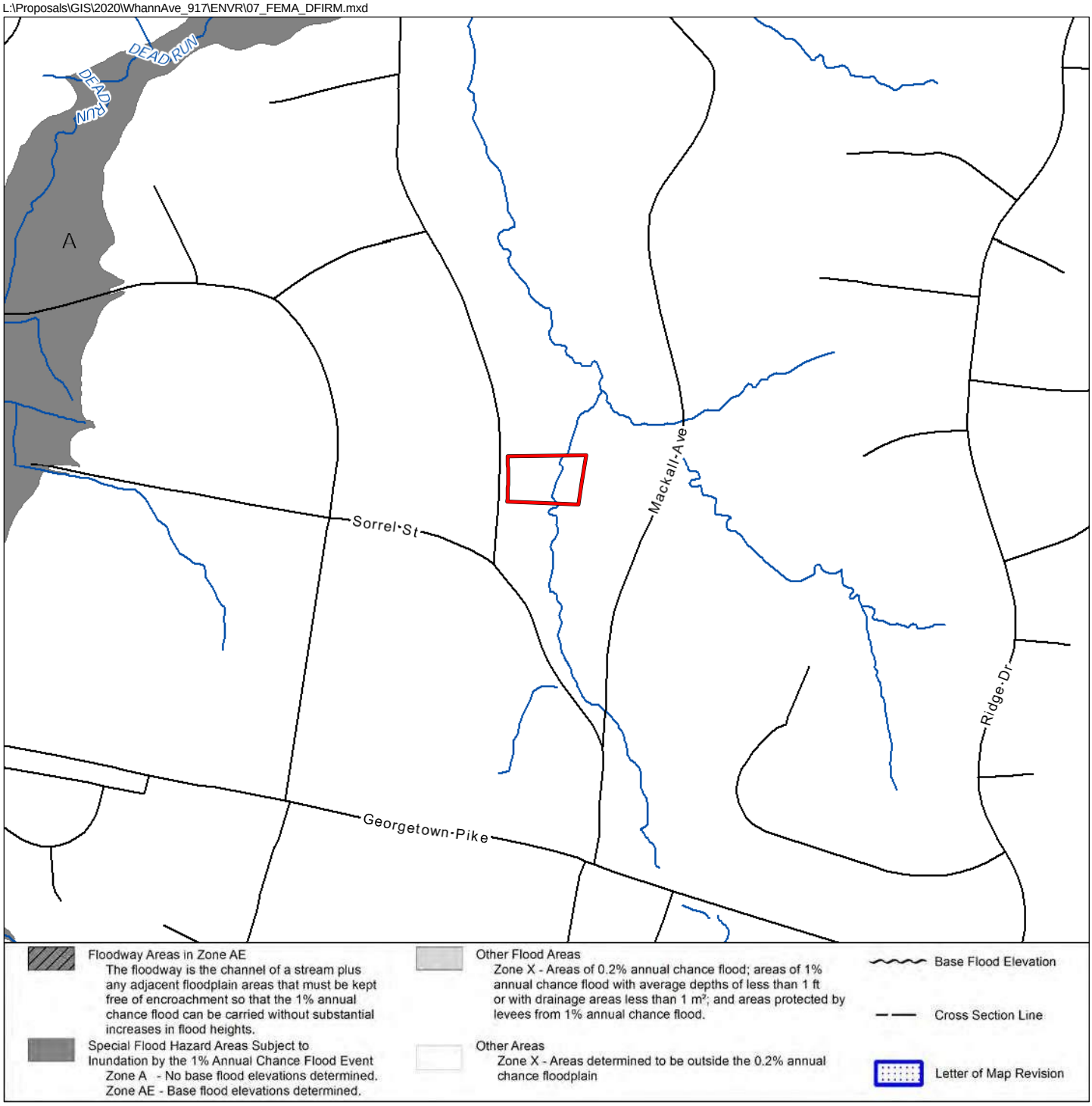

Site

FEMA Digital Flood Insurance Rate Map
917 Whann Aveune

N

0 500
Feet
Original Scale:
1 " = 500 '

Panel: 51059C0160E, Effective: 09/17/2010

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Site

FEMA Digital Flood Insurance Rate Map
917 Whann Aveune

N

0 500
Feet

Original Scale:
1 " = 500 '

FIRM Panel: 51059C0160E, Effective: 09/17/2010
FEMA Source: National Flood Hazard Layer (NFHL)
Aerial Source: National Agriculture Imagery Program (NAIP)

EXHIBIT 13:

Proposed Conditions Plat

NOTES:

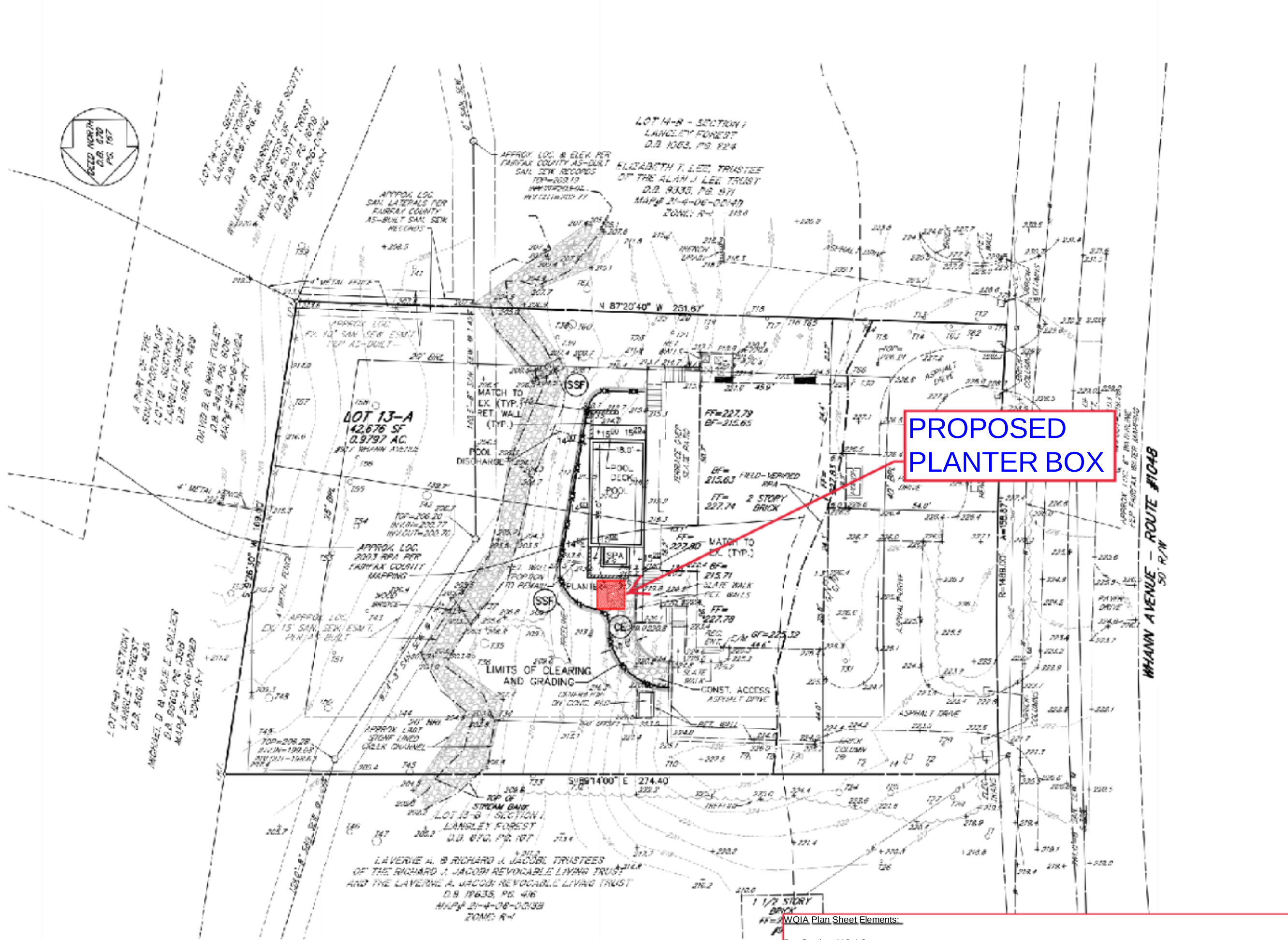
1. TREES SHALL BE REMOVED AS SHOWN ON THE DEMOLITION PLAN.
2. EXISTING WATER CONNECTION SHALL SERVE NEW POOL AND SHALL BE CONNECTED UNDER A SEPARATE PLUMBING PERMIT.
3. OFFSITE TREES ALONG THE PROPERTY LINE SHALL BE PRESERVED IN ACCORDANCE WITH PFM 12-0503 AND 12-0504 AND ADJACENT NEIGHBORS SHALL BE INFORMED PRIOR TO GRADING.
4. ALL RETAINING WALLS ABOVE 3' HIGH REQUIRE A SEPARATE PERMIT.
5. SLOPE FROM FOUNDATION WALLS WITHIN FIRST 10' SHALL BE MINIMUM OF 5% (6" OF FALL).
6. ALL EXISTING IMPERVIOUS AREAS WITHIN THE RPA WERE INSTALLED PRIOR TO 2003 FAIRFAX COUNTY RPA DELINEATION.

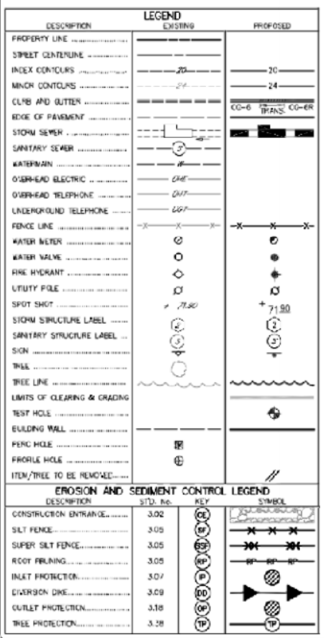
TREE TABLE

T1	10" TREE, NEEDLE	T34	14" TREE
T2	10" TREE, NEEDLE	T35	36" X2 TREE
T3	13" TREE, NEEDLE	T36	13" TREE
T4	10" TREE, NEEDLE	T37	13" TREE
T5	10" TREE, NEEDLE	T38	30" TREE
T6	10" TREE, NEEDLE	T39	14" TREE
T7	10" TREE, NEEDLE	T40	15" TREE
T8	10" TREE, NEEDLE	T41	16" TREE
T9	18" TREE, NEEDLE	T42	36" TREE
T10	10" TREE, NEEDLE	T43	15" TREE
T11	13" TREE, NEEDLE	T44	30" TREE
T12	14" TREE, NEEDLE	T45	28" TREE
T13	12" TREE, NEEDLE	T46	22" TREE
T14	13" TREE, NEEDLE	T47	37" TREE
T15	12" TREE, NEEDLE	T48	33" TREE
T16	10" TREE, NEEDLE	T49	15" TREE
T17	13" TREE, NEEDLE	T50	30" TREE
T18	14" TREE, NEEDLE	T51	14" TREE
T19	12" TREE, NEEDLE	T52	26" TREE
T20	13" TREE, NEEDLE	T53	20" TREE
T21	12" TREE, NEEDLE	T54	21" TREE
T22	13" TREE, NEEDLE	T55	20" TREE
T23	12" TREE, NEEDLE	T56	14" TREE
T24	20" TREE	T57	23" TREE
T25	25" TREE	T58	31" TREE
T26	10" TREE	T59	26" TREE
T27	10" TREE	T60	34" TREE
T28	10" TREE	T61	30" TREE
T29	11" TREE	T62	6" X4 TREE
T30	11" TREE	T63	12" TREE
T31	16" TREE	T64	20" TREE
T32	15" TREE	T65	17" TREE
T33	20" TREE	T66	12" X2 TREE

LEGEND

ELECTRIC METER
MAIL BOX
AIR CONDITIONER
PHONE POLE
GUY WIRE
POWER POLE
CLEAN OUT
GAS METER
SANITARY MANHOLE
STORM INLET GRATE
FENCE
OVERHEAD ELECTRIC
WATERLINE
TREELINE





IMPERVIOUS AREA CALCULATION - 917 WHANN AVENUE				
FEATURE	EXISTING (SF)	PROPOSED (SF)	EXISTING (AC)	PROPOSED (AC)
BUILDINGS/SHEDS	4,619	0	0.11	0.00
DRIVEWAY/ROLLED CURB	5,353	0	0.12	0.00
PORCH/PATIO/AREAWAY	1,551	0	0.04	0.00
RETAINING WALLS	217	44	0.00	0.00
WALKS	76	0	0.00	0.00
POOL/POOL DECK	0	974	0.00	0.02
RIPRAP	2,045	0	0.05	0.00
TOTAL	13,861	1,018	0.32	0.02

	SF	ACRES
BUILDING TOTAL	0	0.00
OTHER FEATURES (LESS DRIVE)	1,018	0.02
EX. IMP. TO REMAIN	13,841	0.32
TOTAL PROP. IMPERVIOUS	14,859	0.34
LOD (TOTAL)	2,377	0.05
LOD (OFFSITE)	0	0.00
IMPERVIOUS INCREASE	998	0.02
TOTAL LOT AREA	42,676	0.98
IMPERVIOUS ALLOWED (18%)	7,682	0.18
OVER/UNDER 18%	-7,177	-0.16
% IMPERVIOUS	34.82%	N/A

EX. IMPERVIOUS IN FIELD-DELINEATED RPA*		
FEATURE	SF	AC
BUILDINGS/SHEDS	4,122	0.09
DRIVEWAY/ROLLED CURB	1,054	0.02
PORCH/PATIO/AREAWAY	1,485	0.03
RETAINING WALLS	192	0.00
WALKS	76	0.00
POOL/POOL DECK	0	0.00
RIPRAP	2,045	0.05
TOTAL	8,904	0.21

PROP. IMPERVIOUS IN FIELD-DELINEATED RPA		
FEATURE	SF	AC
BUILDINGS/SHEDS	4,122	0.09
DRIVEWAY/ROLLED CURB	1,054	0.02
PORCH/PATIO/AREAWAY	1,485	0.03
RETAINING WALLS	215	0.00
WALKS	76	0.00
POOL/POOL DECK	978	0.02
RIPRAP	2,045	0.05
TOTAL	10,002	0.23

SITE-SPECIFIC RPA AREA:	32,146	0.74

*SEE NOTE #6, THIS SHEET

WQIA Plan Sheet Elements:

Per Section 118-4-3a
-Site-specific RPA boundary delineation (Exhibits 4, 5, 6)
-Complete RPA boundary certification form (Exhibit 4)

Per Section 118-4-3b
-Proposed encroachment area including grading and clearing (Exhibits 5, 6)
-Limits of disturbance indicating the extent of the work area and encompassing all clearing and grading (Exhibits 5, 6)
-Existing and proposed improvements including impervious surfaces, structures, utilities, and sewage disposal systems (Exhibits 4, 5, 6)
-Existing vegetation including trees, shrubs, and groundcover which is proposed to be impacted (Exhibits 4, 5, 6)
-Disruptions to existing surface hydrology, including wetland and stream circulation patterns (No disruptions will occur)
-Disruptions, reductions, or increases in the supply of water to wetlands, streams, or other surface waters (No disruptions will occur)
-Location of dredge material and location of dumping for such material (Off-site disposal location to be determined)
-Percent of the site to be disturbed and cleared for the project (Approximately 6% of the site will be disturbed and cleared for the project)
-General location and type of all significant onsite plant material. Specific location and type of all trees, shrubs, or groundcover to be removed. (Exhibits 4, 5, 6,)

Per Section 118-4-3d
-Disturbance or destruction of wetlands in RPAs (None proposed. Exhibits 4, 5, 6).

Per Section 118-4-3e
- Replanting indigenous species in an area equal to the encroachment per 118-3-3(f) and PFM is generally sufficient mitigation for small RPA impacts. (2,377 sf disturbance, 2,378 sf reforestation; see Exhibit 6)
-Location of proposed BMPs to mitigate impact from the encroachment (planter box; Exhibit 13)
-Calculation of percent increase in impervious surface on-site and types of surfacing materials used; (Approximately 11% impervious surface increase; travertine, concrete slab, stacked stone, as noted in Exhibit 5)
-Calculation of pre-development and post-development pollutant loads in runoff using VRRM spreadsheet, or other method approved by the Director; (Exhibit 16)
-Replanting schedule and locations of replanting proportional to removed vegetation. (Exhibit 6)
-Erosion and sediment control measures used during construction (Exhibits 5, 13)

TRI-TEK Engineering
CIVIL
ENVIRONMENTAL
LAND PLANNING
SURVEYING
690 Center Street
Suite 300
Herndon, Virginia 20170
V: (703) 481-5900
F: (703) 481-5901
info@tritekinc.com

THEODORE D. BRITT
Lic. No. 028693
PROFESSIONAL ENGINEER

917 WHANN AVENUE

LANGLEY FOREST
LOT 13A - SECTION 1

DRANESVILLE ELECTION DISTRICT
FAIRFAX COUNTY, VIRGINIA

GRADING PLAN

REVISION | DATE

PM: TDB SCALE: 1"=20'
PE: — DATE: 08.30.21
CD: — SHEET: 1 OF 1

F-3360

EXHIBIT 14:

Adjacent Property Owners Map

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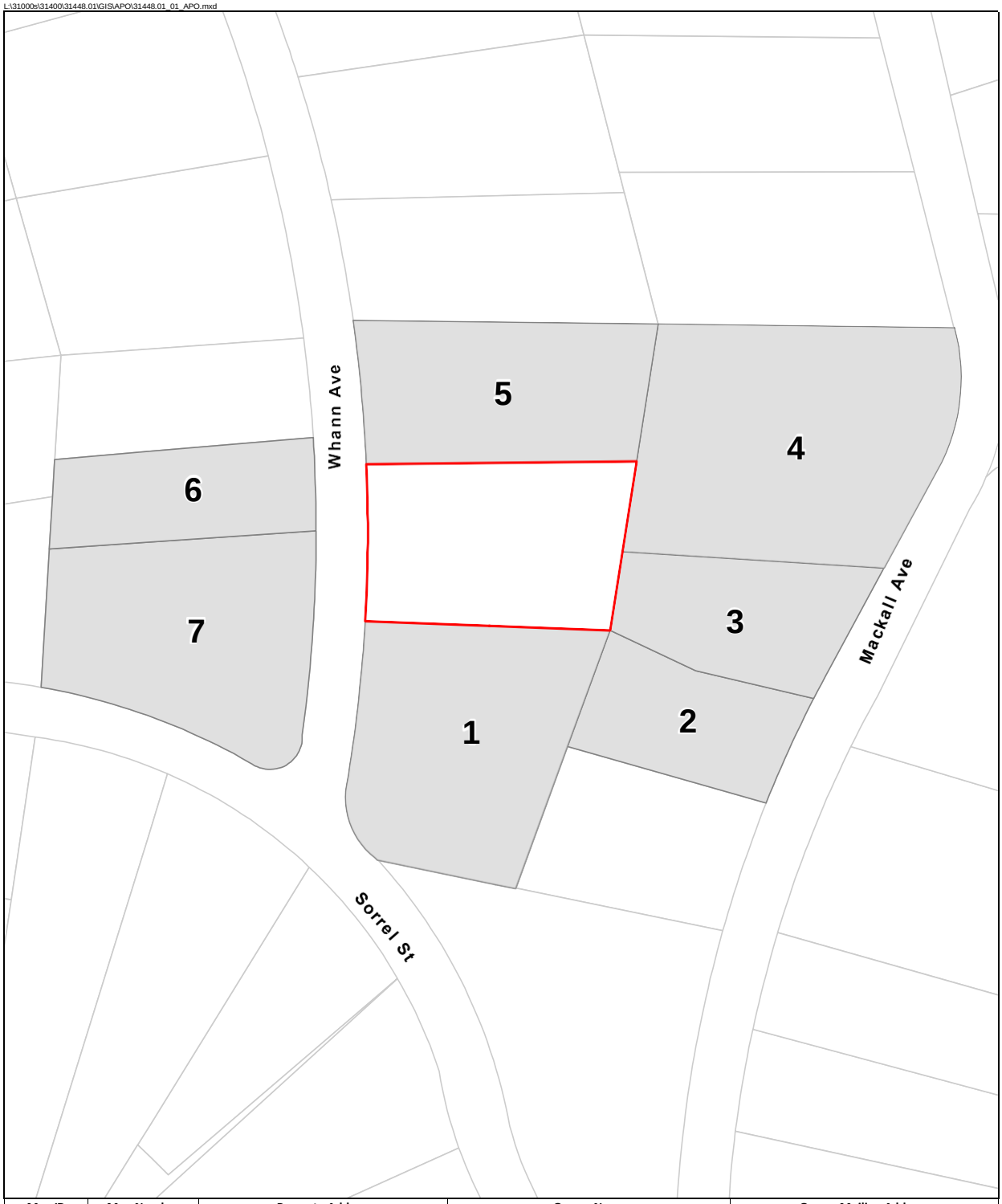


Map ID	Map Number	Property Address	Owner Name	Owner Mailing Address
1	0214 06 0014B	921 WHANN AVE MCLEAN VA 22101	LEE ELIZABETH T TR	921 WHANN AVE, MCLEAN, VA 22101
2	0214 06 0014C	918 MACKALL AVE MCLEAN VA 22101	SCOTT WILLIAM F TR	?918 MACKALL AVE MCLEAN VA 22101
3	0214 06 0012A	916 MACKALL AVE MCLEAN VA 22101	FOLEY DAVID B	36 COTTON XING W SAVANNAH GA 31411
4	0214 06 0012B	908 MACKALL AVE MCLEAN VA 22101	COLLIER MICHAEL D, COLLIER JULIE E	908 MACKALL AVE MCLEAN VA 22101
5	0214 06 0013B	913 WHANN AVE MCLEAN VA 22101	JACOBI LAVERNE A TR, JACOBI RICHARD J TR	8560 GEORGETOWN PIKE MCLEAN VA 22102
6	0214 06 0022B2	914 WHANN AVE MCLEAN VA 22101	ROMANSKY GAIL TR	PO BOX 338 CARTHAGE TN 37030
7	0214 06 0022A	6700 SORREL ST MCLEAN VA 22101	NGUYEN-VO MYHOA HY TR	6700 SORREL ST MCLEAN VA 22101

Project Area
Adjacent Property Owner

Adjacent Property Owners Map
917 Whann Avenue
WSSI #31448.01

N
0 100
Feet
Original Scale: 1 " = 100 '

Source: Fairfax County Digital Data

EXHIBIT 15:

WOTUS Delineation and US Army Corps of Engineers Jurisdictional Determination

April 22, 2021

VIA EMAIL: zecca_john@yahoo.com

Mr. John Zecca
917 Whann Avenue
McLean, Virginia 22101

Re: Waters of the U.S. (Including Wetlands) Delineation
and Resource Protection Area Evaluation
917 Whann Avenue (±1 acre)
Fairfax County, Virginia
WSSI #31448.01

Dear Mr. Zecca:

On April 12, 2021, Wetland Studies and Solutions, Inc. (WSSI) conducted a site visit to 917 Whann Avenue to determine the boundaries of jurisdictional wetlands and other waters of the U.S. (i.e., a stream) on and within 100-feet of the above-referenced site for the purpose of determining the extent and location of Resource Protection Area (RPA) on the site. In WSSI's opinion, a jurisdictional water of the U.S. (i.e., a perennial stream) is present within the site, based on our observations, as described below.

The site is located north of Georgetown Pike (State Route 193) and northeast of intersection of Sorrell Street and Whann Avenue in Fairfax County, Virginia. Refer to Exhibit 1 for a vicinity map that depicts the approximate boundaries of the site and its general location. The site consists primarily of maintained landscaping with a residential dwelling, driveway, and a perennial stream.

Based on WSSI's field work, the limits of the field-verified RPA boundary on the site relatively consistent with the County-mapped RPA boundary depicted on Attachment I and on the Fairfax County RPA map (Exhibit 5). In accordance with Section 118-1-7(b) of the Fairfax County Chesapeake Bay Preservation Ordinance[1], perennial waterbodies (i.e., the unnamed, perennial stream) and all wetlands that are contiguous and connected by surface flow to the perennial stream are components of the RPA, and the limits of the field-verified RPA extend 100 feet landward of these features or to the limits of the 100-year major floodplain or the Federal Emergency Management Area (FEMA) mapped 100-year floodplain, whichever is greater. Major floodplain is not present on this property; therefore, the RPA is limited to the 100-foot buffer.

[1] *Fairfax County Code of Ordinances, As amended by the Board of Supervisors (BOS) on July 7, 2003, effective November 18, 2003 and as amended through May 21, 2007.*

The field-verified RPA boundary, based on WSSI's delineation, survey and RPA evaluation for 917 Whann Avenue is depicted on Attachment I. Enclosed are the following exhibits:

- Exhibit 1: Vicinity Map
- Exhibit 2: Falls Church, MD VA 1997 USGS Quadrangle Map
- Exhibit 3: Digital National Wetlands Inventory Map (updated October 2020)
- Exhibit 4: Fairfax County Digital Data Soils Map
- Exhibit 5: Fairfax County RPA Map
- Exhibit 6: FEMA Flood Insurance Rate Map, Panel: 51059C0160E; Effective: 09/17/2010
- Exhibit 7: Spring 2009 Natural Color Imagery from Virginia Base Mapping Program (VBMP)
- Exhibit 8: Spring 2017 Near Color Infrared Imagery from VBMP
- Exhibit 9: Spring 2019 Natural Color Imagery from Fairfax County Digital Data
- Exhibit 10: Routine Wetland Determination Data Forms
- Exhibit 11: Site Photographs
- Attachment I: Waters of the U.S. (Including Wetlands) Delineation and RPA Evaluation Map

Limitations

This study is based on examination of the vegetation, soils, and hydrology and available reference documents. Field indicators can change with variations in hydrology and other factors. Therefore, our conclusions may vary significantly from future observation by others. This report assesses the potential for wetlands at the site at the time of our review and does not address conditions at a given time in the future.

Our review and report have been prepared in accordance with generally accepted guidelines for the conduct of a survey for potential wetlands. Conclusions presented herein are based upon our review of available information, the results of our field studies, and/or professional judgement. We make no other warranties, either expressed or implied, and our report is not a recommendation to buy, sell or develop the property.

We offer no opinion and do not purport to opine on the possible application of various building codes, zoning ordinances, other land use or platting regulations, environmental or health laws and other similar statutes, laws, ordinances, code and regulations affecting the possible use and occupancy of the Property for the purpose for which it is being used, except as specifically provided above.

The foregoing opinions are based on applicable laws, ordinances, and regulations in effect as of the date hereof and should not be construed to be an opinion as to the matters set out herein should such laws, ordinances or regulations be modified, repealed or amended.

Any reuse or modification of any of this document (whether hard copies or electronic transmittals) prepared by WSSI without written verification or adaptation by WSSI will be at the sole risk of the individual or entity utilizing said document and such use is without the authorization of WSSI. WSSI shall have no legal liability resulting from any and all claims, damages, losses, and expenses, including attorney's fees arising out of the unauthorized reuse or modification of this document. Client shall indemnify WSSI from any claims arising out of unauthorized use or modification of the document whether hard copy or electronic.

This report does not constitute a jurisdictional determination of waters of the U.S. since such determinations must be verified by the U.S. Army Corps of Engineers or the Natural Resources Conservation Service (as applicable) and are subject to review by the U.S. Environmental Protection Agency. This report does not constitute a stream characterization determination.

Sincerely,

WETLAND STUDIES AND SOLUTIONS, INC.

Jennifer M. Favela, PWS[2]
Project Environmental Scientist

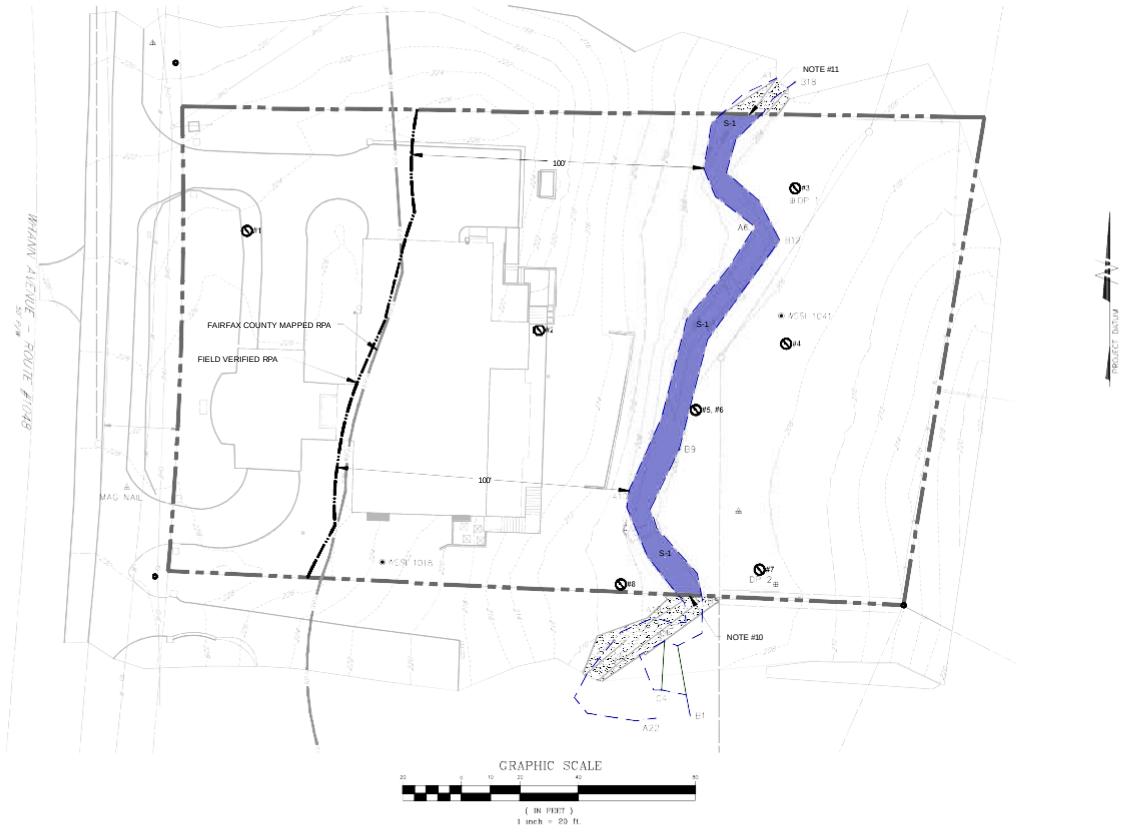
Benjamin N. Rosner, PWS, PWD, CE [3]
Manager – Environmental Science

Enclosures

L:\31000s\31400\31448.01\Admin\05-ENVR\Report\1-Letter Report.docx

[2] *Professional Wetland Scientist #3033, Society of Wetlands Scientists Certification Program, Inc.*

[3] *Professional Wetland Scientist #1766, Society of Wetland Scientists Certification Program, Inc.; Virginia Certified Professional Wetland Delineator #3402-000080; Certified Ecologist, Ecological Society of America.*



LEGEND

- SITE BOUNDARY
- PERENNIAL STREAM (PER WSSI'S OBSERVATIONS)
- PALUSTRINE FORESTED WETLAND AREAS
- FAIRFAX COUNTY MAPPED RESOURCE PROTECTION AREA BOUNDARY
- FIELD VERIFIED RESOURCE PROTECTION AREA BOUNDARY
- SITE PHOTOGRAPHS
- D6 + WETLAND FLAGGING POINT/NUMBER (pink-glo)
- DP2 ⊕ DATA POINT LOCATION/NUMBER (orange and pink-glo) (SURVEYED)
- IRON PIPE FOUND
- TRAVERSE STATION (WSSI)
- FLY POINT (WSSI)
- NAIL FOUND

SUMMARY OF JURISDICTIONAL RESOURCES WITHIN THE 917 WHANN AVENUE SITE*

	JURISDICTIONAL WOTUS			
AQUATIC RESOURCE	COWARDIN CLASSIFICATION	AREA (SQUARE FEET)	AREA (ACRE)	LINEAR FEET OF STREAMBED
S-1	R3	1,640	0.04	190
TOTAL JURISDICTIONAL WOTUS ON SITE		1,640	0.04	190

* These numbers are based on the surveyed locations of the delineated WOTUS boundaries within the site boundary.

COWARDIN CLASSIFICATION

R3	RIVERINE UPPER PERENNIAL
PFO	PALUSTRINE FORESTED WETLAND

WATERS OF THE U.S. DELINEATION AND SURVEY NOTES:

1. This map has been oriented to project coordinates, by field location of monumentation shown on drawings provided by Tri-Tek Engineering, Inc. Wetlands and other Waters of the U.S. (i.e., a stream) flags, data points, and the monumentation shown were located in the field using RTN GPS and conventional survey methods. Accuracy of field locations of wetlands meets or exceeds the standards set by the U. S. Army Corps of Engineers (COE) Memo CENAO-CO-R, dated September 30, 1998. Field locations were completed on April 12, 2021

2. The base map, including boundary, topography and physical improvements was provided to Wetland Studies and Solutions, Inc. (WSSI) on April 14, 2021 by Tri-Tek Engineers, Inc. and is used with their permission.

3. The boundary line information shown hereon is for information purposes only and does not constitute a boundary survey by WSSI. Monumentation, including traverse stations and fly points, shown on this drawing should be used to orient wetland locations to any future boundary, topographic, or location survey.

4. The Virginia Coordinate System of 1983, North Zone, grid coordinates were established for reference by WSSI, using a Real Time Network (RTN). Those values (displayed below) do not coincide with their location in this drawing.

	WSSI 1018	WSSI 1041
N:	7033110.44	N: 7033196.73
E:	11859883.23	E: 11860018.26

5. Periodic flag numbers are shown depicting the survey-located boundary of wetlands and other waters of the U.S. (i.e., a stream). Wetlands and Waters of the U.S. flags are pink-glo in color. Data points are flagged with orange-glo and pink-glo flagging tied together.

6. Topography and boundary information obtained in digital format from Tri-Tek Engineering, Inc. was used as a base for this Attachment.

7. This delineation was performed pursuant to the "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1 (1987 Manual) and subsequent guidance and modification by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* dated April 2012.

8. The Routine On-Site Wetland Determination Method for sites less than 5 acres was used.

9. Field work was performed on April 12, 2021 by Jennifer M. Favela, PWS.

10. This water of the U.S. (i.e., a stream) originates off-site, upslope.

11. This water of the U.S. (i.e., a stream) continues off-site, downslope.

12. The term "Perennial" used on this Attachment classifies and describes the flow regime character of streams, is based on WSSI's field observations, and is only provided for state and local regulatory purposes. The flow regimes of streams are not verified by the COE; however, the geographic limits of these streams are all subject to COE jurisdiction, and the COE's approval of this delineation represents only the approval of the geographic limits of waters of the U.S.

13. The limits of the Resource Protection Area (RPA) depicted on this Attachment are based on the surveyed location of the perennial water body and jurisdictional wetland that are RPA core components. The RPA extends 100 feet landward of the RPA core components or to the limits of the major floodplain, whichever is greater. Major floodplain is not present on this property; therefore, the RPA is limited to the 100-foot buffer.

14. The remainder of this site is designated as a Resource Management Area (RMA), as are all areas of the County not included as an RPA.

Wetland Studies and Solutions, Inc.
5300 Wellington Branch Drive, Suite 100
Gainesville, VA 20155
Phone: 703-679-5600 • Fax: 703-679-5601
www.wetlandsinc.com

ATTACHMENT I:
WATERS OF THE U.S. (INCLUDING WETLANDS) DELINEATION AND RESOURCE PROTECTION AREA EVALUATION MAP

Prepared For: Mr. John Zecca

917 Whann Avenue
Fairfax County, Virginia

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: April 21, 2021
SCALE: 1" = 20'
C.I.: 2'

Horizontal Datum: NAD 83 (2011)
Vertical Datum: NGVD 29
Boundary and Topo Source: Tri-Tek Engineering, Inc. Tri-Tek Engineering, Inc.

Design	Draft	Approved
JMF	JMF	BNR

Sheet #
1 of 1

Computer File Name:

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

June 10, 2021

NOTIFICATION OF APPROVED JURISDICTIONAL DETERMINATION

Northern Virginia Regulatory Section
NAO-2021-01494

Requestor: Mr. John Zecca
Address: 917 Whann Avenue
McLean, Virginia 22101

Agent/Consultant: Wetland Studies and Solutions, Inc.
Address: 5300 Wellington branch Drive, Suite 100
Gainesville, Virginia 20155

PROPERTY/PROJECT/EVALUATION AREA INFORMATION

Size (acres): 1-acre
Town/County: Fairfax County
Nearest Waterway: Nichols Run
Latitude: 38.9539
USGS HUC: 02070008
Longitude: -77.1741
Location Description: North of Georgetown Pike (State Route 193) and northeast of the intersection of Sorrell Street and Whann Avenue at 917 Whann Avenue in Fairfax County, Virginia.

Jurisdictional Wetlands (acres):

Jurisdictional Streams (linear feet): 190 linear feet

A. DETERMINATION

On June 1, 2021, the U.S. Army Corps of Engineers (Corps) received your request for an approved jurisdictional determination for the above-described area. Based upon an office (desktop) evaluation, 33 CFR 329 - Definition of Navigable Waters of the United States, and 33 CFR 328 - Definition of Waters of the United States and federal regulations of navigable waters, the Corps determines:

☒ There are waters of the U.S. within the above-described area, which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). These waters exhibit an ordinary high water mark (or high tide line) and are part of the tributary system to Navigable Waters of the U.S.

☒ The Corps verifies this delineation of waters of the U.S. **depicted on the map,** copy attached, entitled "917 Whann Avenue," dated April 21, 2021, and conducted by Wetland Studies and Solutions, Inc.

Please be aware that you may be required to obtain a Corps permit for any discharge of dredged and/or fill material, either temporary or permanent, into a water of the U.S. In addition, you may be required to obtain a Corps permit for certain activities occurring within, under, or over a navigable water of the U.S. subject to the Section 10 of the Rivers and Harbors Act. Furthermore, you may be required to obtain state and local authorizations, including a Virginia Water Protection Permit from the Virginia Department of Environmental Quality (DEQ), a permit from the Virginia Marine Resources Commission (VMRC), and/or a permit from your local wetlands board. Any discharge of dredged of fill material into waters not subject to Corps jurisdiction (excluded waters) will not require a Corps permit but may require a DEQ permit.

This determination is not confirming the Cowardin classifications of these waters or the limits/jurisdictional status of any waters mapped outside the above-described area.

The delineation included herein has been conducted to identify the location and extent of the water boundaries and the jurisdictional status of the waters for purposes of the CWA and RHA for the above-described area identified in this request.

This delineation and jurisdictional determination may not be valid for the Wetland Conservation Provisions of the Food Security Act of 1985, as amended. Therefore, if you or your tenant are US Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should discuss the applicability of a certified wetland determination with the local USDA service center, prior to starting work.

B. ADMINISTRATIVE APPEALS INFORMATION

This notification constitutes an approved jurisdictional determination for the above-described area. If you object to this determination, you may request an administrative appeal under the Corps regulations (33 CFR Part 331). Please find the enclosed Notification of Appeal Options and Process (NAP) and Request for Appeal (RFA). If you request to appeal this determination, you must submit a completed RFA to the following address:

Attn: Ms. Naomi J. Handell, Regulatory Program Manager
United States Army Corps of Engineers
CENAD-PD-OR
Fort Hamilton Military Community
301 General Lee Avenue
Brooklyn, New York 11252-6700

The Corps will determine whether the RFA is complete and meets the criteria for appeal under 33 CFR 331.5. The RFA must be received at the above address within 60 days of the NAP, and by August 10, 2021. The Corps will not accept incomplete or late RFAs. You do not need to submit an RFA if you do not object to the approved jurisdictional determination.

C. EXPIRATION DATE

This approved jurisdictional determination is valid for five years from the date of this notification unless new information warrants revision prior to the expiration date.

If you have any questions regarding this notification, please contact Theresita Augustine via telephone at (757) 201-7194 or via email at Theresita.M.Crockett-Augustine@usace.army.mil.

Theresita Crockett-Augustine
Environmental Scientist
Norfolk District Regulatory Branch

Enclosures

cc:
Wetland Studies and Solutions, Inc. (Jennifer M. Favela)

EXHIBIT 16:

VRRM Spreadsheet

DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

○ 2011 BMP Standards and Specifications ◉ 2013 Draft BMP Standards and Specifications

Project Name: 3360 - 917 WHANN AVENUE
Date: 4/1/2022
Linear Development Project? No

CLEAR ALL

data input cells
constant values
calculation cells
final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 0.06

Maximum reduction required: 10%
The site's net increase in impervious cover (acres) is: 0.022910927
Post-Development TP Load Reduction for Site (lb/yr): 0.08

Check:
BMP Design Specifications List: 2013 Draft Stds & Specs
Linear project? No
Land cover areas entered correctly? ✓
Total disturbed area entered? ✓

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed forest/open space				0.30	0.30
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed				0.23	0.23
Impervious Cover (acres)				0.21	0.21
					0.74

Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land				0.35	0.35 *
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed				0.16	0.16
Impervious Cover (acres)				0.23	0.23
Area Check	OK.	OK.	OK.	OK.	0.74

** Forest/Open Space areas must be protected in accordance with the Virginia Runoff Reduction Method*

Constants

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
Pj (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

LAND COVER SUMMARY -- PRE-REDEVELOPMENT

Land Cover Summary-Pre Pre-ReDevelopment	Listed	Adjusted[1]
Forest/Open Space Cover (acres)	0.30	0.30
Weighted Rv(forest)	0.05	0.05
% Forest	40%	42%
Managed Turf Cover (acres)	0.23	0.21
Weighted Rv(turf)	0.25	0.25
% Managed Turf	32%	29%
Impervious Cover (acres)	0.21	0.21
Rv(impervious)	0.95	0.95
% Impervious	28%	29%
Total Site Area (acres)	**0.74**	**0.72**
Site Rv	**0.36**	**0.37**

Treatment Volume and Nutrient Load

Pre-ReDevelopment Treatment Volume (acre-ft)	0.0225	0.0220
Pre-ReDevelopment Treatment Volume (cubic feet)	980	959
Pre-ReDevelopment TP Load (lb/yr)	**0.62**	**0.60**
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	0.83	0.84
Baseline TP Load (lb/yr) (0.41 lbs/acre/yr applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		*0.29*

[1] *Adjusted Land Cover Summary:*
Pre ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

Adjusted total acreage is consistent with Post-ReDevelopment acreage (minus acreage of new impervious cover).

Column I shows load reduction requriement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year).

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary-Post (Final) Post ReDev. & New Impervious	
Forest/Open Space Cover (acres)	0.35
Weighted Rv(forest)	0.05
% Forest	48%
Managed Turf Cover (acres)	0.16
Weighted Rv (turf)	0.25
% Managed Turf	21%
Impervious Cover (acres)	0.23
Rv(impervious)	0.95
% Impervious	31%
Final Site Area (acres)	**0.74**
Final Post Dev Site Rv	**0.37**

Land Cover Summary-Post Post-ReDevelopment	
Forest/Open Space Cover (acres)	0.35
Weighted Rv(forest)	0.05
% Forest	49%
Managed Turf Cover (acres)	0.16
Weighted Rv (turf)	0.25
% Managed Turf	22%
ReDev. Impervious Cover (acres)	0.21
Rv(impervious)	0.95
% Impervious	29%
Total ReDev. Site Area (acres)	**0.72**
ReDev Site Rv	**0.35**

Land Cover Summary-Post Post-Development New Impervious	
New Impervious Cover (acres)	0.02
Rv(impervious)	0.95

Treatment Volume and Nutrient Load

Final Post-Development Treatment Volume (acre-ft)	0.0229	**Post-ReDevelopment Treatment Volume (acre-ft)** 0.0211	**Post-Development Treatment Volume (acre-ft)** 0.0018
Final Post-Development Treatment Volume (cubic feet)	998	**Post-ReDevelopment Treatment Volume (cubic feet)** 919	**Post-Development Treatment Volume (cubic feet)** 79
Final Post-Development TP Load (lb/yr)	**0.63**	**Post-ReDevelopment Load (TP) (lb/yr)*** **0.58**	**Post-Development TP Load (lb/yr)** **0.05**
Final Post-Development TP Load per acre (lb/acre/yr)	0.85	Post-ReDevelopment TP Load per acre (lb/acre/yr) 0.81	
		Max. Reduction Required (Below Pre-ReDevelopment Load) 10%	
		TP Load Reduction Required for Redeveloped Area (lb/yr) **0.04**	**TP Load Reduction Required for New Impervious Area (lb/yr)** **0.04**

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr) **0.08**

Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr)	4.40	Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	4.49

Drainage Area A

Drainage Area A Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Re
Forest/Open Space (acres)				0.35	0.35	0.25
Managed Turf (acres)				0.16	0.16	0.25
Impervious Cover (acres)				#####	#####	#####
			Total	0.74		

CLEAR BMP AREAS

Total Phosphorus Available for Removal in D.A. A (lb/yr) 0.59
Post Development Treatment Volume in D.A. A (ft³) 934

Stormwater Best Management Practices (RR = Runoff Reduction)

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft³)	Runoff Reduction (ft³)	Remaining Runoff Volume (ft³)	Total BMP Treatment Volume (ft³)	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
1. Vegetated Roof (RR)													
1.a. Vegetated Roof #1 (Spec #5)	45				0	0	0	0		0.00	0.00	0.00	
1.b. Vegetated Roof #2 (Spec #5)	60				0	0	0	0		0.00	0.00	0.00	
2. Rooftop Disconnection (RR)													
2.a. Simple Disconnection to A/B Soils (Spec #1)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.b. Simple Disconnection to C/D Soils (Spec #1)	25			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.c. To Soil Amended Filter Path as per specifications (existing C/D soils) (Spec #4)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.d. To Dry Well or French Drain #1, Micro-Infiltration #1 (Spec #6)	50			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.e. To Dry Well or French Drain #2, Micro-Infiltration #2 (Spec #6)	90			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.f. To Rain Gardens #1, Micro-Bioretention #1 (Spec #8)	40			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.g. To Rain Gardens #2, Microbioretention #2 (Spec #8)	80			0	0	0	0	50	0.00	0.00	0.00	0.00	
2.h. To Rainwater Harvesting (Spec #6)	0			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.i. To Stormwater Planter, Urban Bioretention (Spec #9, Appendix A)	40			0	0	0	0	25	0.00	0.00	0.00	0.00	
3. Permeable Pavement (RR)													
3.a. Permeable Pavement #1 (Spec #7)	45			0	0	0	0	25	0.00	0.00	0.00	0.00	
3.b. Permeable Pavement #2 (Spec #7)	75				0	0	0	25		0.00	0.00	0.00	
4. Grass Channel (RR)													
4.a. Grass Channel A/B Soils (Spec #3)	20			0	0	0	0	15	0.00	0.00	0.00	0.00	
4.b. Grass Channel C/D Soils (Spec #3)	10			0	0	0	0	15	0.00	0.00	0.00	0.00	
4.c. Grass Channel with Compost Amended Soils as per specs (see Spec #4)	20			0	0	0	0	15	0.00	0.00	0.00	0.00	
5. Dry Swale (RR)													
5.a. Dry Swale #1 (Spec #10)	40			0	0	0	0	20	0.00	0.00	0.00	0.00	
5.b. Dry Swale #2 (Spec #10)	60			0	0	0	0	40	0.00	0.00	0.00	0.00	
6. Bioretention (RR)													
6.a. Bioretention #1 or Micro-Bioretention #1 or Urban Bioretention (Spec #8)	40		0.05	0	62	98	155	25	0.00	0.10	0.05	0.04	
6.b. Bioretention #2 or Micro-Bioretention #2 (Spec #8)	80			0	0	0	0	50	0.00	0.00	0.00	0.00	
7. Infiltration (RR)													
7.a. Infiltration #1 (Spec #8)	50			0	0	0	0	25	0.00	0.00	0.00	0.00	
7.b. Infiltration #2 (Spec #8)	90			0	0	0	0	25	0.00	0.00	0.00	0.00	
8. Extended Detention Pond (RR)													
8.a. ED #1 (Spec #15)	0			0	0	0	0	15	0.00	0.00	0.00	0.00	
8.b. ED #2 (Spec #15)	15			0	0	0	0	15	0.00	0.00	0.00	0.00	
9. Sheetflow to Filter/Open Space (RR)													
9.a. Sheetflow to Conservation Area, A/B Soils (Spec #2)	75			0	0	0	0	0	0.00	0.00	0.00	0.00	
9.b. Sheetflow to Conservation Area, C/D Soils (Spec #2)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
9.c. Sheetflow to Vegetated Filter Strip, A Soils or Compost Amended B/C/D Soils (Spec #2 & #4)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	

-Select from dropdown lists-

Practice	Nitrogen Removal Efficiency (%)	Nitrogen Load from Upstream Practices (lb)	Untreated Nitrogen Load to Practice (lb)	Nitrogen Removed By Practice (lb)	Remaining Nitrogen Load (lb)
1. Vegetated Roof (RR)					
	0		0.00	0.00	0.00
	0		0.00	0.00	0.00
2. Rooftop Disconnection (RR)					
	0	0.00	0.00	0.00	0.00
	0	0.00	0.00	0.00	0.00
	0	0.00	0.00	0.00	0.00
	15	0.00	0.00	0.00	0.00
	15	0.00	0.00	0.00	0.00
	40	0.00	0.00	0.00	0.00
	60	0.00	0.00	0.00	0.00
	0	0.00	0.00	0.00	0.00
	40	0.00	0.00	0.00	0.00
3. Permeable Pavement (RR)					
	25	0.00	0.00	0.00	0.00
	25		0.00	0.00	0.00
4. Grass Channel (RR)					
	20	0.00	0.00	0.00	0.00
	20	0.00	0.00	0.00	0.00
	20	0.00	0.00	0.00	0.00
5. Dry Swale (RR)					
	25	0.00	0.00	0.00	0.00
	35	0.00	0.00	0.00	0.00
6. Bioretention (RR)					
	40	0.00	0.70	0.45	0.25
	60	0.00	0.00	0.00	0.00
7. Infiltration (RR)					
	15	0.00	0.00	0.00	0.00
	15	0.00	0.00	0.00	0.00
8. Extended Detention Pond (RR)					
	10	0.00	0.00	0.00	0.00
	10	0.00	0.00	0.00	0.00
9. Sheetflow to Filter/Open Space (RR)					
	0	0.00	0.00	0.00	0.00
	0	0.00	0.00	0.00	0.00
	0	0.00	0.00	0.00	0.00

TOTAL IMPERVIOUS COVER TREATED (ac) 0.05 AREA CHECK: OK
TOTAL MANAGED TURF AREA TREATED (ac) 0.00 AREA CHECK: OK
TOTAL RUNOFF REDUCTION IN D.A. A (ft³) 62

TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. A (lb/yr) 0.59
TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.05
TOTAL PHOSPHORUS REMAINING AFTER APPLYING RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.53

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

TOTAL RUNOFF REDUCTION IN D.A. A (ft³) 62
NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.45

SEE WATER QUALITY COMPLIANCE TAB FOR SITE CALCULATIONS (Information Only)

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft³)	Runoff Reduction (ft³)	Remaining Runoff Volume (ft³)	Total BMP Treatment Volume (ft³)	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
10. Wet Swale (no RR)													
10.a. Wet Swale #1 (Spec #11)	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
10.b. Wet Swale #2 (Spec #11)	0			0	0	0	0	40	0.00	0.00	0.00	0.00	
11. Filtering Practices (no RR)													
11.a Filtering Practice #1 (Spec #12)	0			0	0	0	0	40	0.00	0.00	0.00	0.00	
11.b. Filtering Practice#2 (Spec #12)	0			0	0	0	0	65	0.00	0.00	0.00	0.00	
12. Constructed Wetland (no RR)													
12.a.Constructed Wetland #1 (Spec #13)	0			0	0	0	0	50	0.00	0.00	0.00	0.00	
12.b. Constructed Wetland #2 (Spec #13)	0			0	0	0	0	75	0.00	0.00	0.00	0.00	
13. Wet Ponds (no RR)													
13.a. Wet Pond #1 (Spec #14)	0			0	0	0	0	50	0.00	0.00	0.00	0.00	
13.b. Wet Pond #1 (Coastal Plain) (Spec #14)	0			0	0	0	0	45	0.00	0.00	0.00	0.00	
13.c. Wet Pond #2 (Spec #14)	0			0	0	0	0	75	0.00	0.00	0.00	0.00	
13.d. Wet Pond #2 (Coastal Plain) (Spec #14)	0			0	0	0	0	65	0.00	0.00	0.00	0.00	
14. Manufactured Treatment Devices (no RR)													
14.a. Manufactured Treatment Device-Hydrodynamic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
14.b. Manufactured Treatment Device-Filtering	0			0	0	0	0	40	0.00	0.00	0.00	0.00	
14.c. Manufactured Treatment Device-Generic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	

Practice	Nitrogen Removal Efficiency (%)	Nitrogen Load from Upstream Practices (lb)	Untreated Nitrogen Load to Practice (lb)	Nitrogen Removed By Practice (lb)	Remaining Nitrogen Load (lb)
10. Wet Swale (Coastal Plain) (no RR)					
	25	0.00	0.00	0.00	0.00
	35	0.00	0.00	0.00	0.00
11. Filtering Practices (no RR)					
	30	0.00	0.00	0.00	0.00
	45	0.00	0.00	0.00	0.00
12. Constructed Wetland (no RR)					
	25	0.00	0.00	0.00	0.00
	35	0.00	0.00	0.00	0.00
13. Wet Ponds (no RR)					
	30	0.00	0.00	0.00	0.00
	20	0.00	0.00	0.00	0.00
	40	0.00	0.00	0.00	0.00
	30	0.00	0.00	0.00	0.00
14. Manufactured BMP (no RR)					
	0	0.00	0.00	0.00	0.00
	0	0.00	0.00	0.00	0.00
	0	0.00	0.00	0.00	0.00

TOTAL IMPERVIOUS COVER TREATED (ac) 0.05 AREA CHECK: OK
TOTAL MANAGED TURF AREA TREATED (ac) 0.00 AREA CHECK: OK

TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr) 0.08

TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. A (lb/yr) 0.59
TOTAL PHOSPHORUS REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.00
TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.05
TOTAL PHOSPHORUS LOAD REDUCTION ACHIEVED IN D.A. A (lb/yr) 0.05
TOTAL PHOSPHORUS REMAINING AFTER APPLYING BMP LOAD REDUCTIONS IN D.A. A (lb/yr) 0.53

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.45
NITROGEN REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.00
TOTAL NITROGEN REMOVED IN D.A. A (lb/yr) 0.45