



*NONTIDAL WETLAND MITIGATION PROJECTS
IN THE POTOMAC RIVER BASIN
OF VIRGINIA*

REQUEST FOR PROPOSALS

JUNE 21, 2019

First Round Proposal Submissions due by DECEMBER 20, 2019
(or as specified in any addenda to this RFP)

CONFIDENTIAL

Disclose and Distribute Solely to Employees of The Nature Conservancy having a need to know
and to Recipient's Employees with a need to know.

1. GENERAL ADMINISTRATIVE PROVISIONS

1.1. STATEMENT OF PURPOSE

It is the intention of The Nature Conservancy (“Conservancy” or “TNC”), to solicit Proposals for a Contractor or Contractors that can provide one or more full delivery **NONTIDAL WETLAND mitigation project(s) in the Potomac River basin** within the Commonwealth of Virginia. Those receiving this Request for Proposal (RFP) are referred to as “Contractor.”

THIS IS NOT AN ORDER.

THE NATURE CONSERVANCY is a District of Columbia, USA, non-profit corporation with its principal place of business in Arlington, Virginia, USA. TNC has offices across the U.S. and in over 30 countries around the world.

Since 1951, the Conservancy has been working with communities, businesses and individuals to protect more than 120 million acres around the world. Our mission is to conserve the lands and waters on which all life depends. Please see www.nature.org for more details on what we do and where we work.

1.2. CONSERVANCY’S PROCUREMENT PROCESS

Procurement activities will be conducted in a nondiscriminatory manner with fair treatment given to all Contractors.

1.3. CONSERVANCY’S OBLIGATIONS

Conservancy incurs no obligation or liability whatsoever by reason of issuance of this RFP or action by anyone relative thereto.

1.4. CONTRACTOR’S OBLIGATIONS

Contractor must analyze and respond to all sections of this RFP providing sufficient information to allow Conservancy to evaluate the Proposal. Contractor, by submitting its Proposal, agrees that any costs incurred by the Contractor in responding to this RFP, are to be borne by Contractor and may not be billed to Conservancy.

Contractor’s proposal must match the order in which the RFP was submitted or clearly state where the information resides. If Conservancy has any confusion or difficulty in retrieving the required information from a Contractor’s proposal, it may result in disqualification of such proposal. **Contractor may not have the ability to resubmit its proposal to Conservancy.**

Conservancy requests firm fixed pricing for Contractor’s proposal. ***If Contractor is chosen as an award winner and any additional costs are presented at the time of agreement negotiations or implementation, Conservancy has the right to rescind Contractor’s organization as the award winner.***

1.5. SUBCONTRACTING

No portion of the work shall be subcontracted without prior written consent of Conservancy. In the event that Contractor desires to subcontract some part of the work specified in the contract, Contractor shall furnish Conservancy the names, qualifications and experience of the proposed subcontractor(s). Contractor shall, however, remain fully liable and responsible for the work to be done by subcontractor(s) and shall assure compliance with all the requirements of the contract.

1.6 DISPOSITION OF PROPOSALS

All material submitted in response to this RFP will become the property of Conservancy and may be returned only at the option of Conservancy and at the expense of the Contractor. Successful and unsuccessful bidders will be notified in writing or via email. Conservancy shall not be obligated to detail any of the results of the evaluation.

1.7 CONTRACTUAL COMMITMENT OF PROPOSAL

The contents of submitted Proposals will be considered obligations of the successful Contractor. No information should be submitted that is not intended to be incorporated into the Proposal and any contract that may result from such Proposal. If there is any inconsistency between the terms herein and any of the other contract documents, the terms in the other contract documents shall prevail.

1.8 CONFIDENTIALITY

Any data, documentation or other business information furnished or disclosed to the Contractor shall be deemed the property of Conservancy and must be returned to Conservancy upon request.

1.9 DISCLOSURE STATEMENT

The Conservancy, being a non-profit organization, relies heavily on contributions from its members. In order to eliminate any conflict of interest or perceived conflict of interest, it will be necessary to require the disclosure of the names of any of Contractor’s employees that will be working, directly or indirectly, on the project, that currently hold or have ever held, a position on the Conservancy’s worldwide Board of Governors, or on a Conservancy state chapter Board of Trustees, or are or have been employed by the Conservancy. It will also be necessary to disclose what percent ownership, if any, these persons have in Contractor’s business and whether or not they have a controlling interest in Contractor’s business. If selected for this work, the Conservancy will need the names, title, type of board on which these persons served, and the years they held that board or employment position.

The above mentioned employees of the successful bidder will be required to sign the attached Conservancy Disclosure Form (Attachment G). Conservancy will evaluate all information based on its internal policies and procedures regarding conflict of interest, copies of which will be provided upon request.

2. PROPOSAL SUBMISSION AND EVALUATION

2.1 PROPOSAL SUBMISSION REQUIREMENTS

2.1.1 Contractor will send its response to this RFP via email to the address below.

Chris DuBois
Restoration Coordinator
Email: cdubois@tnc.org

2.1.2 Contractor will provide all information required as outlined in Attachment A.

2.2 PROPOSAL EVALUATION/SELECTION PROCESS

2.2.1 Contractors are to make written proposals, which present Contractor's qualifications and understanding of the work to be performed. Proposals should be as thorough and detailed as needed so that Conservancy may properly evaluate 1) the Contractor's capabilities to provide the required goods/services and 2) whether the proposed project meets the Conservancy's mitigation and conservation goals. Contractors are asked to address each evaluation criterion listed in Attachment A and to be specific in presenting their qualifications. Selection of the successful contractor will be based upon evaluation of the proposals in relation to the selection criteria, and upon in-person interviews. One or more qualified applicants may be interviewed. The Conservancy will accept multiple proposals to address the mitigation needs and may select more than one Contractor to provide the services requested in this RFP.

2.2.2 The Conservancy will determine if a project/proposal submitted through this RFP meets VARTF's mitigation requirements as well as the overall conservation goals of the Conservancy. The Conservancy reserves the right to make a site visit and request/collect any information that it deems necessary to determine the feasibility of a project. **The Conservancy reserves the right to refuse or disqualify any project/proposal that does not meet its mitigation or conservation goals.**

2.3 QUESTIONS REGARDING THE RFP

Contractor may submit written questions regarding this RFP to the Conservancy via email listed in 2.1.1 by **August 1, 2019**. Conservancy will post a summary of all questions and answers as an addendum to the RFP on the Conservancy's website on the Virginia Aquatic Resources Trust Fund page at www.nature.org/vartf. The Conservancy will use its best efforts to answer questions by **August 31, 2019**. Additional questions may be submitted by **October 1, 2019** with answers to follow by **October 31, 2019**. Contractor understands and agrees that it has a duty to inquire about and clarify any RFP questions that the Contractor does not fully understand or believes may be interpreted in more than one way. Conservancy, however, is not required to answer all questions that are not pertinent to the RFP or considered to be Conservancy's Proprietary information. Contractor also understands and agrees that it is responsible for continually checking the website for addenda to the RFP up until the last posted due date of proposals and assuring that all addenda have been reviewed and addressed as applicable in Contractor's proposal.

2.4 PROPOSAL DUE DATE

Proposals shall be delivered to Conservancy in accordance with Section 2.1 on **December 20, 2019** or as specified in addenda to this RFP to be considered for the first round review. Proposals will continue to be accepted after December 20, 2019 for second round review, with the final date to deliver proposals **June 1, 2020**. If the Conservancy decides to extend the deadline for submission of proposals, the new deadline will be specified in addenda to this RFP posted on the Conservancy's website at www.nature.org/vartf a minimum of two weeks prior to the deadline for acceptance of proposals. Contractor understands and agrees that it is responsible for continually checking the website for addenda to the RFP up until the last posted due date of proposals.

3. ATTACHMENTS

- A Proposal Submission Requirements and Selection Criteria
- B Checklist of Required Information Related to Site Selection and Mitigation Approach
- C Scope of Work for Mitigation Projects
 - Exhibit 1. VARTF Off-site Mitigation Checklist
 - Exhibit 2. Norfolk District Prospectus Checklist
 - Exhibit 3. DHR Coordination Form
 - Exhibit 4. Species Conclusion Table
 - Exhibit 5. SDP Monitoring Exhibits F and J
 - Exhibit 6. Anticipated Credit Release Schedule
- D Watershed Map
- E Contractor Questionnaire
- F The Nature Conservancy's Standard Contract for Services
- G The Nature Conservancy's Disclosure Form

ATTACHMENT A: PROPOSAL SUBMISSION REQUIREMENTS AND SELECTION CRITERIA

A.1 PURPOSE

The Conservancy is seeking suitable projects to meet the mitigation liability generated by unavoidable impacts in the Potomac River basin within the Commonwealth of Virginia for which the Virginia Aquatic Resources Trust Fund (VARTF) was utilized as the compensatory mitigation. The primary objectives are to restore, enhance and/or preserve nontidal wetland systems in this river basin. In general, wetland mitigation is comprised of activities that create, restore, enhance, or preserve wetland resources. Such activities improve wetland functions and may result in gain of wetland acreage in the case of creation and restoration.

A.1.1 Full Delivery Nontidal Wetland Mitigation Project

The scope of work requires the Contractor to provide a full delivery nontidal wetland mitigation project or projects within the Potomac River basin in Virginia that will meet or exceed the standards for compensatory mitigation in Virginia. The mitigation banking guidelines developed and provided by the Virginia Department of Environmental Quality (DEQ) and the United States Army Corps of Engineers – Norfolk District (Corps) should be used to guide the types of mitigation projects identified. Wetland mitigation may include activities such as, grading, ditch plugging, berm construction, hydraulic control structure installation, and planting of native vegetation. The following link provides general guidelines for mitigation within Virginia:

<http://www.deq.virginia.gov/Programs/Water/WetlandsStreams/Mitigation.aspx>.

A.1.2 Mitigation Bank Credits

The Conservancy will consider a lump sum purchase of mitigation credits from approved mitigation banks that service the HUCs identified in this RFP. If the Contractor is proposing to sell the Conservancy bank credits, they should provide responses to all questions and requests for information as outlined in this RFP. The Contractor shall provide documentation necessary to evaluate the bank site, including but not limited to a letter of credit availability for the amount of credits that may be satisfied by the bank, the signed MBI, current credit ledger balance from RIBITS (if RIBITS is accurate and up to date), etc. Lastly, the Contractor must show that the bank site complies with all terms of the MBI and is in good standing with the IRT.

A.1.3 Conversion of Bank Site

The Conservancy will not consider proposals that convert approved mitigation bank sites to Trust Fund projects. Approved mitigation banks with signed MBIs should not present a proposal that terminates the MBI to allow pursuit of funding the project through the Trust Fund.

A.2 PROPOSAL SUBMISSION REQUIREMENTS

Contractors are to make written proposals, which present detailed information on the proposed project(s) and Contractor's qualifications and understanding of the work to be performed. Proposals should be as thorough and detailed as needed so that Conservancy may properly evaluate the 1) Contractor's

capabilities to provide the required goods/services and 2) whether the proposed project meets the Conservancy’s mitigation and conservation goals. Proposals will be evaluated in relation to the selection criteria in Section A.3. The Contractor shall address each of the selection criteria to aid the Conservancy in its analysis and ranking of the proposal.

The Contractor shall provide a minimum of the following information in its proposal. Contractors may provide additional information if desired.

1. Detailed information on project selection and technical approach, addressing at a minimum the items in the checklist in Attachment B
2. For proposed mitigation projects, a detailed proposal and technical approach for completing all tasks described in the Scope of Work (Attachment C), as listed below.

- Task 1. Pre-Application Process
- Task 2. Prospectus Process
- Task 3. Historic Resources and/or T&E Species Surveys (if Required)
- Task 4. Surface Water Delineation
- Task 5. Topographic/Geomorphic Survey
- Task 6. Concept Plan
- Task 7. Site Development Plan Process
- Task 8. Establish Stewardship Endowment
- Task 9. Record Long-Term Site Protection
- Task 10. Credit Delivery (Preservation, RTE or Watershed Adjustment Factor, Conservation Easement, as applicable)
- Task 11. Final Mitigation Design
- Task 12. Not Applicable
- Task 13. Acquisition of Permits
- Task 14. Establish Long-Term Management Endowment
- Task 15. Establish Maintenance and Monitoring Fund
- Task 16. Implementation of Design
- Task 17. As-Built Survey and Report and Associated Credit Delivery
- Tasks 18-23. 10-Year Success Monitoring, Maintenance, and Associated Credit Delivery

3. Cost Proposal and Payment Schedule
 - a. A cost proposal shall be provided as follows (as applicable):

Credit Type	Credits Delivered	Total Cost	Cost/Credit
Non-tidal Wetland Credits			

- b. For proposed mitigation projects, the Contractor shall also provide proposed payment amounts and due dates associated with the project milestones for each project proposed, per the format in the table below. The cost proposal shall include all costs of implementing the Scope of Work in Attachment C.

Task	Project Milestone	Delivery Date (# of days from Contract Execution)	Payment Amount
1	Pre-Application Process Completed ¹		
2	Prospectus Process Completed, and IEL Received by TNC ¹		
3	Historic Resources and/or T&E Species Surveys (if Required) ¹		
4	Surface Water Delineation		
5	Topographic/Geomorphic Survey		
6	Concept Plan		
7a	Site Development Plan Approved by TNC and Submitted to IRT		
7b	Site Development Plan Signed by IRT and TNC ¹		
8	Establish Stewardship Endowment		
9	Record Long-Term Site Protection		
10	Credit Delivery (Preservation, RTE or Watershed Adjustment Factor, Conservation Easement, as applicable)		
11	Final Mitigation Design Approved by TNC and IRT		
12	Not Applicable		
13	Acquisition of Permits		
14	Establish Long-Term Management Endowment		
15	Establish Maintenance and Monitoring Fund ¹		
16a	50% Implementation of Construction		
16b	100% Implementation of Construction		
16c	Completion of Planting		
17a	As-Built Survey and Report		
17b	Credit Delivery (Construction Release)		
18a	Success Monitoring and Maintenance Year 1		
18b	Credit Delivery (Monitoring Release Year 1)		
19a	Success Monitoring and Maintenance Year 2		
19b	Credit Delivery (Monitoring Release Year 2)		
20a	Success Monitoring and Maintenance Year 3		
20b	Credit Delivery (Monitoring Release Year 3)		
21	Success Monitoring and Maintenance Year 5		
22	Success Monitoring and Maintenance Year 7		
23a	Success Monitoring and Maintenance Year 10		
23b	Credit Delivery (Final Release)		

¹The Contractor shall not proceed with tasks beyond this task until Conservancy provides written notice to proceed, which is contingent on the Corps providing approval to move forward.

The full delivery contract between the Conservancy and the Contractor will include a monetary penalty for every credit or portion of a credit that is not delivered based on the cost/credit and crediting analysis approved in the Site Development Plan.

- c. The Contractor shall specify expiration date of bid. Submitted bid pricing must be good through December 20, 2020.
- 4. Contractor Qualifications
 - a. Contractor Questionnaire (Attachment E)
 - b. Provide the following for the Contractor:
 - i. Contact information for 3 references
 - ii. Information on at least 3 wetland mitigation projects Contractor has worked on that will demonstrate the Contractor's ability to perform the tasks required in the Scope of Work in Attachment C

- iii. Information on Contractor's experience conducting mitigation projects in Virginia
 - iv. Names, qualifications, and experience of specific members of the project team
 - v. Previous experience of the Contractor and proposed subcontractors working together on similar projects
- 5. Subcontractors
 - a. Any subcontractors must be identified along with the defined work they will perform. The names, qualifications and experience of the proposed subcontractor(s) must be provided. The Conservancy will not refuse a proposal based on the use of subcontractors but does retain the right to refuse the subcontractors selected. Contractor shall remain solely responsible for all subcontracted work. Describe your rationale for using subcontractors.
 - b. Provide the following for the proposed construction firm:
 - i. Contact information for 3 references
 - ii. Information on at least 3 wetland mitigation projects construction firm has worked on that will demonstrate the construction firm's ability to perform the tasks required in the Scope of Work in Attachment C
 - iii. Information on construction firm's experience conducting mitigation projects in Virginia
 - iv. Names, qualifications, and experience of specific members of the project team
- 6. Contracting
 - a. Do you agree to use attached Conservancy contract (Attachment F)? If not:
 - i. Review attached contract and express any concerns you have regarding the terms of the Agreement using the following conventions:
 - Agreed – where the terms are acceptable as stated.
 - Modification Proposed – where Contractor is unable to accept the terms as stated but will accept a modification of the terms. Contractor must provide: (1) the reason for its inability to accept the term as stated and (2) modified language, which would be acceptable to the Contractor.
 - Not Agreed – where the term is completely unacceptable and no modification is possible. Please state the reason such term is unacceptable.
 - ii. Attach a draft copy of your contract for Conservancy review.
- 7. Signed Disclosure Form (Attachment G)

A.3 SELECTION CRITERIA

Proposals will be evaluated in relation to the selection criteria below.

Selection Criteria

- 30% - Project site selection and proposed mitigation activities (additional detail below)
- 25% - Cost (additional detail below)
- 20% - Qualification and relevant experience of the Contractor, construction firm, other subcontractors, and project team
- 20% - Technical approach for creating deliverable products
- 5% - Quality of proposal/presentation

Project Site Selection and Proposed Mitigation Activities

- Project Size
 - The project must be of adequate size to achieve the initial mitigation goals and ensure long term success with an adequate buffer. A minimum buffer of 100 feet should be included. Projects that protect buffers 200 feet or larger will be considered.

- Credits Generated and Geographic Location
 - The Conservancy is seeking mitigation projects that will deliver the following compensation credits (CC) in the following Hydrologic Unit Codes (HUCs) within the Commonwealth of Virginia, west of I-95.:

Nontidal Wetland Mitigation Projects

River Basin	Project Location (HUC)	Nontidal Wetland Credits Generated	Credit Type
Potomac	02070008 or 02070010	20 – 40	A minimum of two-thirds of the credits must come from restoration or creation

- Projects that will generate the credits stated above will be given priority in the selection process. Projects that provide more than the CC above will be considered if costs allow. Projects that provide less than the CC will be considered, but will be given a lower ranking. Contractors may submit multiple projects to address the range of credits requested.
- Map showing the areas encompassed by these HUCs is provided in Attachment D.
- TNC Priority Areas/Compensation Planning Framework
 - Projects within or immediately adjacent to priority resilient and connected landscapes identified by the Conservancy will be given preference in the selection process. Priority resilient and connected landscapes can be assessed using the Resilient Land Mapping Tool located at: <http://maps.tnc.org/resilientland>.
 - Projects that contribute to restoration or protection of complex stream networks ranked by the Conservancy as highest or high resiliency will be given preference in the selection process. Freshwater resiliency data can be downloaded at the following link: <http://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/freshwater/fwresilience/Pages/default.aspx>
 - Projects within or immediately adjacent to Conservancy aquatic and terrestrial priority areas will be given preference in the selection process. Description and mapping of priority areas can be found in “The Nature Conservancy’s Watershed Approach to Compensation Planning for the Virginia Aquatic Resources Trust Fund” – Exhibit A of the Program Instrument (www.nature.org/vartf).
- Protected Lands
 - Projects immediately adjacent to other protected lands will be given priority in the selection process.
- Natural Heritage Resources
 - Projects with Heritage Elements within or immediately adjacent to the project area will be given priority in the selection process. Any project that will directly benefit an Endangered, Threatened, and/or Sensitive species or community type will be given priority in the selection process.
- Impaired Waters
 - Projects that contribute to improved water quality for identified/designated impaired waters will be given priority in the selection process.
- Watershed Based Approach
 - Projects founded on a watershed approach will be given priority over other projects.

- Mitigation Type
 - Mitigation type (restoration, creation, enhancement, preservation) will be used in the selection process. Projects that provide restoration, creation, and enhancement opportunities are the priority. Preservation activities may be a component, but should not be the focus of the project.
- Ecological Benefits
 - Projects that have higher ecological benefit (water quality, flood storage, habitat, etc.) will be given priority in the selection process.
- Long-Term Site Protection
 - Projects that will be protected by a conservation easement will be given priority over projects protected by a deed restriction.

Cost

The budget for the project(s) should including ALL project costs, as described in the scope of work, including land protection, long-term management, maintenance, corrective action and monitoring. If appropriate, more than one project may be awarded. Contractors shall provide with their proposals a total cost and a cost/credit for each proposed project and each credit type. Projects with a lower total cost and a lower cost per credit ratio will be given priority in the selection process.

ATTACHMENT B: CHECKLIST OF REQUIRED INFORMATION RELATED TO SITE SELECTION AND MITIGATION APPROACH

1. General Property Information
 - a. Landowner name and address, property address, tax map parcel numbers
 - b. Property and proposed mitigation site acreage
 - c. Information on any easements, liens, rights of way, reserved timber or mineral rights on the mitigation site or adjoining lands.
 - d. Maps
 - i. Provide vicinity map of property
 - ii. Provide maps showing the property boundary/mitigation site with aerial photograph and USGS topographic map
 - iii. Map showing location of encumbrances or structures within the property (roads, utilities, and associated rights-of-way, culverts or other structures, etc.)
 - iv. Provide a GIS shapefile of the property boundary/mitigation site
2. Site Location
 - a. Identify the geographic location of the mitigation site.
 - b. Identify current zoning of the mitigation site and adjacent lands.
 - c. Identify any current, planned, or foreseeable activities upstream or upgradient of the mitigation site that may adversely affect the project.
 - d. Identify any areas upstream of, upslope of, or adjacent to the mitigation site that are zoned or identified for future development in the comprehensive plan, long-range plan, or zoning overlay.
 - e. Does proposed riparian buffer protection provide greater protection than state or local requirements?
 - f. Is mitigation site consistent with local planning requirements?
 - g. Describe any eminent threats to the property
3. Existing Conditions
 - a. Describe current site conditions including land use, vegetation (extent of natives, invasives, etc.), hydrology (streams, wetlands, ponds, etc.), buffers, and soils.
 - b. Identify previous land uses of the site and adjacent properties.
 - c. Summarize the historical hydrology of the site.
 - d. Describe order(s) of streams on the mitigation site.
 - e. Describe watersheds of project streams (drainage area size, land use and maps)
 - f. Indicate whether a jurisdictional determination of “waters of the U.S.” has been made by the Corps.
 - g. Provide photographs documenting existing conditions
4. Suitability
 - a. Describe the ecological suitability of the site to achieve the objectives of the proposed mitigation site, including the physical, chemical, and biological characteristics of the site and how that site will support the planned types of aquatic resources/functions.
 - b. Natural Heritage Resources
 - i. Provide results of queries of databases maintained by Virginia Department of Conservation and Recreation–Division of Natural Heritage, Virginia Department of Game and Inland Fisheries, and U.S. Fish & Wildlife Service.
 - ii. Does the project conserve or restore habitat for one or more state or federal-listed species, including critical habitat or Threatened/Endangered Species

Waters?

- iii. Does the project conserve or restore habitat for species identified as rare by DCR- Division of Natural Heritage or Species of Greatest Conservation Need in the Virginia Wildlife Action Plan?
 - iv. Does the project conserve or restore aquatic resources or buffers areas identified by DCR- Division of Natural Heritage as rare or imperiled natural communities?
 - v. Does the project remove barriers to fish passage in areas identified by VDGIF as meriting improvement?
 - vi. Does the project conserve or restore areas designated by VDGIF as wild trout streams or Anadromous Fish Use Areas?
 - c. Is the mitigation site contiguous or connected to other aquatic areas?
 - d. Does the project abut or adjoin an existing reserve, conservation area or other protected lands, or create or contribute to a corridor linking existing reserves, conservation areas, other protected lands or large aquatic systems?
 - e. Does the project contribute to improved water quality for identified/designated impaired waters?
 - f. Does the project restore, enhance, preserve aquatic resources and/or riparian areas identified as meriting conservation in an approved watershed management plan or conservation plan?
 - g. Does the project conserve/restore the entire watershed upstream of the mitigation site?
 - h. Does the project remediate inputs of substantial amounts of sediments or remove other pollutants to downstream waters?
 - i. Does the project follow the objectives and prioritization strategy of the The Nature Conservancy's Watershed Approach to Compensation Planning Framework? Description and mapping of priority areas can be found in "The Nature Conservancy's Watershed Approach to Compensation Planning for the Virginia Aquatic Resources Trust Fund" – Exhibit A of the Program Instrument (www.nature.org/vartf).
 - j. Maps
 - i. Provide maps showing natural heritage elements, impaired waters, protected lands, TNC priorities, and aquatic resources on and in the vicinity of the property
5. Goals and Objectives
- a. Identify the objectives of the proposed mitigation site and the aquatic functions to be restored/enhanced (water quality improvement, flood storage, wildlife habitat, etc.).
 - b. Identify any regional or local benefits derived from the mitigation site.
 - c. Identify any potential threats to the mitigation site or resource type the site intends to provide and/or protect.
6. Concept Design Plan
- a. Identify the methods of proposed compensation (wetland creation/restoration, wetland enhancement, wetland preservation, buffer restoration/enhancement, buffer preservation, etc.) that will be provided.
 - b. Describe the work intended to accomplish site activities
 - c. Describe why the proposed mitigation activities are warranted and how they will achieve project goals and ecological benefits.
 - d. Identify the general need for and technical feasibility of the proposed mitigation site.
 - e. Identify an estimated amount (acres/linear footage) of each compensation type that will be provided, and width of riparian buffer that will be protected.
 - f. Provide mitigation credit analysis, including USM forms and wetland credit calculator.
 - g. Provide mapping of proposed mitigation activities

7. Proposed Service Area
 - a. Provide a map identifying the proposed service area of the mitigation site(s).
 - b. Provide a rationale for determining the limits of the proposed service area.
8. Project Limitations
 - a. T&E species
 - i. Identify any potential species surveys, time of year restrictions, or other limitations for T&E species that are likely to be required or might influence implementation or permitting of the project
 - b. Cultural resources
 - i. Provide historical resources screening focusing on Section 106 permitting restrictions (<http://www.achp.gov/106summary.html>).
 - ii. Identify potential 106 surveys or other limitations that are likely to be required or might influence permitting or implementation of the project
 - c. Site constraints
 - i. Describe any site constraints such as encumbrances or structures (roads, utilities, and associated rights-of-way, culverts or other structures), site access, etc.
9. Long-Term Protection & Management
 - a. Identify the proposed future ownership arrangements for the site.
 - b. Provide proof of the landowner's intent to participate according to the Contractor's plans for the project
 - c. Identify the proposed site protection instrument (deed restriction, conservation easement, etc.) and the likely responsible parties.
 - d. Provide proof of the conservation easement holder's intent to hold the easement, if an easement will be the site protection instrument. TNC does not plan to serve in this capacity.
 - e. Identify the proposed long-term management strategy and identify the likely Long-Term Steward that would be responsible for long-term management. TNC does not plan to serve in this capacity.
 - f. Provide proof of the Long-Term Steward's intent to serve as the Long-Term Steward
 - g. Provide a title report and copies of deeds (if any) for encumbrances on the property, such as rights-of-way associated with utilities or roads, and retained rights (mineral, timber, surface, subsurface, natural gas, water, etc.) If there are retained rights, provide a plan for extinguishing those rights.
 - h. Provide proof that any liens will be subordinated to the easement.

ATTACHMENT C: SCOPE OF WORK FOR WETLAND MITIGATION PROJECTS IN THE POTOMAC RIVER BASIN OF VIRGINIA

CONTRACTOR TASKS AND DUTIES

The purpose of this contract is to provide nontidal wetland mitigation to offset unavoidable impacts in the Potomac River basin for which the Virginia Aquatic Resources Trust Fund was utilized as the compensatory mitigation. The scope of work requires the Contractor to provide **a full delivery nontidal wetland mitigation project or projects within the Potomac River basin in Virginia** per the specifications herein that will meet or exceed the standards for compensatory mitigation in Virginia as determined by the United States Army Corps of Engineers, the Virginia Department of Environmental Quality, and the Interagency Review Team for this Project. The specific tasks to be completed by the Contractor are detailed below.

TASK 1. PRE-APPLICATION PROCESS

The Contractor will complete the required pre-application review process. The current Corps-approved pre-application review process is outlined below.

1. The Contractor shall submit the following information for pre-application review to the U.S. Army Corps of Engineers (Corps) (copying TNC). A sample completed pre-application submittal is available for download at www.nature.org/vartf.
 - a. A pre-application request form signed by the landowner.
 - b. A brief description of the site location and existing conditions, project purpose, and proposed mitigation activities
 - c. Mapping to include location map, landscape assessment map, aerial map of mitigation area, proposed mitigation activities map, and proposed geographic service area map
 - d. Existing condition photographs
2. Upon receipt of a complete pre-application request, the Corps PM will schedule a site visit and invite the Virginia Department of Environmental Quality (DEQ) and TNC to attend.
3. The Contractor shall attend the pre-application site visit with TNC, the Corps, and DEQ to review the current site conditions and proposed mitigation activities.
4. Upon completion of the site visit, the Corps PM will provide the Contractor and TNC with:
 - a. A recommendation to move forward with submittal of a draft prospectus, any applicable comments, a link to the Norfolk Page of RIBITS AND instructions for submitting the draft prospectus

OR

 - b. A recommendation to not move forward with submittal of a prospectus and any applicable comments.

[Note: This process is anticipated to take 3-6 months from submittal of the pre-application to the Corps. The Contractor shall not proceed with tasks beyond Task 1 until TNC provides written notice to proceed, which is contingent on the Corps providing approval to move forward.]

TASK 2. PROSPECTUS PROCESS

The Contractor will complete the required prospectus process. The current Corps-approved prospectus process is outlined below.

1. The Contractor shall submit the following information to the Corps (copying TNC) no less than two weeks prior to the IRT meeting. A sample completed prospectus is available for download at www.nature.org/vartf.
 - a. A completed VARTF Offsite Mitigation Checklist (see Exhibit 1 of this Scope of Work)
 - b. A completed Norfolk District Prospectus Checklist (see Exhibit 2 of this Scope of Work)
 - c. A completed Project Proposal that includes the following:
 - i. Vicinity map
 - ii. Description of the work proposed
 - iii. V-CRIS map
 - iv. Description of eminent threats to property
 - v. Potential crediting (wetland vs. stream and tidal vs. non-tidal)
 - vi. Updated VARTF watershed liability
 - vii. Description of the current property owner
 - viii. Discussion of whether the Contractor will be purchasing the land or just easements
 - ix. Brief description of current site conditions
 - x. Proposed Geographic Service Area
 - d. A proposed budget that includes the following (as applicable):
 - i. Long-term management
 - ii. Monitoring and Maintenance
 - iii. Purchase costs
 - iv. Legal expenses
 - v. Environmental Assessment Form
 - vi. Survey
 - vii. Appraisal
 - viii. Title search and insurance
 - ix. Closing fees
 - x. Stewardship startup costs
 - xi. Stewardship endowment
 - xii. Delineation cost
 - xiii. Travel cost
 - xiv. Historic/Cultural resource survey costs
 - xv. Design and construction costs
 - xvi. Other
 - e. A completed DHR coordination package that includes the following:
 - i. A vicinity map with the project boundaries clearly marked
 - ii. A V-CRIS map
 - iii. A copy of the V-CRIS printouts for all known resources
 - iv. A completed DHR coordination form (see Exhibit 3 of this Scope of Work)
 - v. A copy of any completed surveys
 - f. A completed T/E coordination package that includes the following:
 - i. A review of the USFWS IPAC system: <http://ecos.fws.gov/ipac>
 - ii. A completed Species Conclusion Table (see Exhibit 4 of this Scope of Work)
2. The Contractor shall present the prospectus at the IRT meeting.
3. If requested by the IRT, the Contractor shall attend a site visit with the IRT and TNC.
4. Upon completion of the Corps' 30 day review the Contractor will correct any deficiencies that are identified, by the IRT or TNC, in the project proposal. The Corps' 30-day review starts at the date of IRT meeting.

5. Within 15 days from the Corps' determination that the project proposal is complete, the Corps PM will move forward with a 30 public notice.
6. Upon receipt of a complete project proposal AND a complete DHR coordination package the Corps PM will initiate coordination with the DHR.
7. Within 15 days of the public notice suspense date the Corps PM will forward all comments received to the IRT, Contractor, and TNC.
8. Within 30 days of the public notice suspense date, the Corps PM will provide TNC an "Initial Evaluation Letter" (IEL). The IEL will provide TNC with one of the following:
 - a. A recommendation of approval to move forward with development of the Site Development Plan AND approval of all/portion of the proposed budget.
OR
 - b. A recommendation of approval with changes to the original proposal. (Once all outstanding issues are resolved an official decision on how to proceed will be provided by the Corps PM)
OR
 - c. A recommendation that the project not move forward.

[Note: This process is anticipated to take 6-12 months from submittal of the prospectus to the Corps. The Contractor shall not proceed with tasks beyond Task 2 until TNC provides written notice to proceed, which is contingent on the Corps providing approval to move forward.]

TASK 3. HISTORIC RESOURCES AND/OR T&E SPECIES SURVEYS (IF REQUIRED)

If required by the permitting agencies, the Contractor shall complete surveys of historic resources (Section 106) or T&E species. The Contractor shall follow the recommendations and requirements for field work and reporting provided by the Corps and other appropriate agencies (e.g., Virginia Department of Historic Resources, Virginia Department of Game and Inland Fisheries, U.S. Fish and Wildlife Service, Virginia Department of Conservation and Recreation).

[Note: The Contractor shall not proceed with tasks beyond Task 3 until Conservancy provides written notice to proceed, which is contingent on the results of the historic resources survey and the Corps providing approval to move forward.]

TASK 4. SURFACE WATER DELINEATION

The Contractor shall complete a detailed delineation of waters of the U.S. within the project area subject to jurisdiction by the Corps under Section 404 of the Clean Water Act and all surface waters subject to jurisdiction under Virginia DEQ laws and regulations, and shall obtain confirmation of the delineation from the Corps. This includes all open water, streams, wetlands, and drainage features. The Contractor shall utilize the Routine Determination Method as outlined in the 1987 *Corps of Engineers Wetland Delineation Manual* and methods described in the most recent regional supplement to the manual to identify and delineate the waters and wetlands in the project area.

The Contractor shall conduct a review of available information on aquatic features onsite, including available resources such as National Wetlands Inventory (NWI) maps, USGS topographic maps, aerial color infrared photography and soils maps. Site visits shall then be conducted to delineate and flag the boundaries of wetlands and other Waters of the U.S.

The Contractor shall provide a final surface water delineation report, including but not limited to, detailed wetland and stream boundary maps, copies of all field data sheets, a narrative describing delineation findings, and a copy of the Corps confirmation letter. The report shall also include a table

that lists the acreage of wetlands (to the nearest 0.01 acre) and stream length (to the nearest linear foot) for each wetland and stream feature. The streams shall be categorized as perennial, intermittent, or ephemeral, and wetlands shall be categorized according to wetland type (emergent, scrub-shrub, forested). The Contractor shall also provide ArcGIS shapefiles of the wetland and stream delineation boundaries.

TASK 5. TOPOGRAPHIC/GEOMORPHIC SURVEY

The Contractor shall establish survey control and datum for the project area and complete a detailed topographic survey to be used for mitigation design efforts.

The Contractor will complete the following activities within the project area:

- Establish survey control network, which will be tied to the Virginia Geodetic Survey grid system using N.A.D.1983 State Plane Coordinates and NAVD 88 elevation datum.
- Provide detailed topography along stream corridors, wetlands, fields, and any intersecting ditches, drainageways and berms within the project area.
- Field locate all trails, structures, fences, roads, utilities and associated rights-of-way that are visible within survey area.
- Field locate culverts, including inverts and dimensions (pipe size and length), pipe types, cover over pipes and depth pipes are buried (if present).
- Field locate centerline and edge of pavement extending approximately 50' each side of culvert and stream crossings.
- Field locate edges of farm roads within project area.
- Field locate all trees 10" and greater within the project area.
- Map edge of vegetation.

The Contractor shall prepare a digital file (in AutoCAD or ArcGIS format) of the site survey and a sealed copy.

TASK 6. CONCEPT PLAN

The Contractor will complete a wetland mitigation concept plan to provide a minimum of the credits described in the Contractor's proposal.

Existing Conditions Assessment

The Contractor shall conduct fieldwork to identify existing conditions within the project area, and evaluate potential wetland and buffer mitigation activities. The assessment of existing conditions shall evaluate the geomorphic, channel stability, soils, hydrology, and vegetation conditions within the project area and throughout the watershed to support the natural channel design process and the selection of appropriate wetland mitigation measures.

Information gathered as a part of this evaluation shall include:

- Wetland assessment
 - Acreage, type, and condition of existing wetlands
 - Assessment of hydric soils present/absence utilizing soil mapping and an analysis of NRCS Hydric Soil Field indicators
 - Determination of general extent of hydric soils in the project area
 - Soil characterization to determine the soil properties and characteristics and its suitability to support wetland restoration/creation activities, including soil classification and analysis (texture, color, etc.) at representative sample points in the project area. The Contractor shall

- note depth to hydric soil indicators at each sample point and include which hydric soil indicator(s) is met at each sample point using the NRCS Hydric Soil Field Indicators nomenclature.
 - Assessment of a reference wetland in the project area or vicinity. The Contractor shall conduct fieldwork to evaluate the soils, hydrology, and vegetation conditions within the reference wetland and provide data to support appropriate wetland mitigation measures provided in the design plan.
 - Representative digital photographs to document existing conditions and locations of proposed activities
- Riparian vegetation surveys to identify appropriate species for wetland and riparian buffer restoration/enhancement activities
- Potential issues related to construction access and adverse environmental impacts
- Visual observations, survey verification, and other important site conditions
- Mapping of all trails, structures, fences, roads, culverts, utilities and associated rights-of-way, and any other infrastructure.

Non-native and Invasive Species Assessment

The Contractor shall identify and map non-native and invasive species in the project area. Native status shall be determined using the *Digital Atlas of the Virginia Flora*. Invasive status shall be determined using the Virginia Department of Conservation and Recreation's *Invasive Alien Plant Species of Virginia*. Narrative descriptions of non-native and invasive species shall be provided, along with maps showing location and extent of species.

Mitigation Concept Plan

The Contractor shall utilize existing condition data, non-native and invasive species data, reference reach data, reference wetland data, and other available information to evaluate wetland mitigation alternatives and develop a mitigation concept plan that clearly depicts and describes areas and extents of potential wetland and buffer mitigation activities. The concept plan shall contain all information required for submittal with the SDP for IRT approval, and shall meet or exceed the standards for compensatory mitigation in Virginia as determined by the United States Army Corps of Engineers, the Virginia Department of Environmental Quality, and the IRT for the project.

Every effort shall be made to minimize disturbance to existing forest and wetlands. The Contractor shall be responsible for working with/around all infrastructure in the design of the project. The design shall ensure and detail stable and appropriate tie-ins with all drainages in the project area and with the portions of streams up and downstream of the project area. Buffer enhancement activities shall include removal of non-native and invasive species and enhancement with native plantings as required to meet the mitigation requirements and success criteria for compensatory mitigation in Virginia. Success criteria will be outlined in the approved SDP Exhibit I and are expected to follow the IRT-approved SDP template (see Exhibit 5 of this Scope of Work).

The Contractor shall prepare and submit an electronic version (pdf and CADD/GIS files) of the draft concept plan, which will include (as appropriate):

- Results of the existing conditions assessment
- Results of the non-native and invasive species assessment
- Narrative description of the concept plan
- Detailed plan view maps depicting the proposed mitigation activities
- Typical sections to convey design concepts

- Soils mapping
- Hydrologic information
- Stream and wetland delineation
- A management plan for non-native and invasive species control to ensure success criteria are met
- Seeding and planting plans (including vegetation community types, species to be planted and quantities by area, application rates, and planting densities by area)
- Wetland credit calculators
- Tables indicating the proposed USM and wetland credits to be generated by the project
- Other supporting concept design information, and any other information required for submittal of the concept plan with the SDP for IRT approval

The Contractor shall attend and facilitate a meeting with the Conservancy to review the draft concept plan and shall provide the Conservancy with meeting notes following the meeting. Following the meeting, the Conservancy shall review the draft concept plan and provide comments to the Contractor. Based upon comments and agreed-to-items resulting from the Conservancy's review, the Contractor shall refine the draft concept plan for final submission.

TASK 7. SITE DEVELOPMENT PLAN PROCESS

The Contractor will complete the required Site Development Plan (SDP) process, and deliver to the conservancy a final fully executed SDP document. The current Corps-approved SDP process is outlined below.

The SDP must include the concept plan, all of the items provided in the template VARTF SDP, and a final budget. The Contractor must track changes on the template VARTF SDP when creating the SDP for the subject site. The template VARTF SDP is available for download at www.nature.org/vartf.

The Contractor shall submit the SDP in electronic version (Word, pdf and CADD/GIS files as appropriate) to the Conservancy for review. The Conservancy shall review the SDP and provide comments to the Contractor. Based upon comments and agreed-to-items resulting from the Conservancy's review, the Contractor shall refine the SDP for submission to the Corps.

Following approval by the Corps that the SDP is complete, the Corps will forward the SDP to the IRT for a 35-day comment period. Following the comment period, the Corps will forward comments to the Conservancy/Contractor. The Contractor shall work with the Conservancy as needed to address comments. Once comments are addressed to the satisfaction of the Corps, the Corps will sign the SDP which authorizes the Conservancy to move forward with development of the final mitigation design.

[Note: This process is anticipated to take 12-18 months from submittal to the Corps. The Contractor shall not proceed with tasks beyond Task 7 until TNC provides written notice to proceed, which is contingent on the Corps signing the SDP.]

TASK 8. ESTABLISH STEWARDSHIP ENDOWMENT

The Contractor will be responsible for funding the Stewardship Endowment to ensure monitoring and enforcement of the real estate protection document. The Stewardship Endowment Fund monies will be placed into an endowment or other secure mechanism, in any case approved by the Corps/IRT, owned and managed by, and in the name of, the real estate protection document holder, to generate an annual return that is calculated to cover the anticipated annual expenses. Contractor may invoice for this task

following submittal to the IRT and approval by the IRT of documentation that the endowment has been established.

TASK 9. RECORDATION OF LONG-TERM SITE PROTECTION

The Contractor will record the real estate protection document in the land records of the appropriate locality. The Contractor will provide a copy of the proposed protection document and current title commitment to the Conservancy and the Corps for review, either with the SDP or prior to submittal of the SDP. The protection document and the SDP must be approved by the Conservancy and the Corps, and ***the SDP must be signed before proceeding with recordation of the protection document.*** Contractor may invoice for this task following submittal to the Conservancy of the recorded conservation easement and recording receipt.

TASK 10. CREDIT DELIVERY (PRESERVATION, RTE OR WATERSHED ADJUSTMENT FACTOR, CONSERVATION EASEMENT RELEASE, AS APPLICABLE)

The Contractor shall develop and obtain IRT approval of a credit release request for credits associated with preservation, RTE or watershed adjustment factors, or conservation easement, as applicable. The credit release request shall follow the approved SDP credit release schedule, unless otherwise agreed to by the Conservancy. The approved SDP credit release schedule is expected to follow the IRT-approved credit release schedule template (see Exhibit 6 of this Scope of Work). The Contractor shall submit the draft credit release request to the Conservancy for review prior to submittal to the IRT. **Payments for this task shall be reduced, for every credit or portion of a credit that is not delivered according to the credit release schedule in Exhibit 6 of this Scope of Work, as adjusted in the SDP approved by the IRT and included in an amendment to the Contract, or as otherwise approved by the Conservancy.**

TASK 11. FINAL MITIGATION DESIGN

After the SDP is signed, the Contractor shall address IRT and Conservancy comments and incorporate additional details to advance the concept plan to final design plans sufficient to obtain IRT approval of the final design and support all required permitting and implementation of design activities. All construction plans, technical specifications, and/or special construction specifications shall be prepared by or under the supervision of a licensed engineer.

The final mitigation design plans will include the following in addition to concept design plan information from Task 6:

- Technical specifications
- General notes and construction sequence and schedule
- Narrative description of proposed mitigation activities
- Final credit calculations and tables
- Wetland existing conditions data, reference wetland data, and design criteria
- Grading plans
- Outlet control details
- Invasive species management plans
- Planting plans, details, and proposed vegetation species lists
- Erosion and sedimentation control measures
- Ingress/egress routes

The Contractor shall submit the final design plans in electronic version (Word, pdf and CADD/GIS files as appropriate) to the Conservancy for review. The Conservancy shall review the final design plans and

provide comments to the Contractor. Based upon comments and agreed-to-items resulting from the Conservancy's review, the Contractor shall refine the final design plans for submission to the Corps.

The Corps will forward the final design plans to the IRT for review. Following the comment period, the Corps will forward comments to Conservancy/the Contractor. The Contractor shall work with Conservancy as needed to address comments. Once comments are addressed to the satisfaction of the Corps, the Corps will provide approval of the final design.

TASK 12. NOT APPLICABLE

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TASK 13. ACQUISITION OF PERMITS

The Contractor shall be responsible for acquiring all required permits and authorizations, including the Joint Permit Application (JPA), needed to implement the design. This includes filling out and signing all necessary permit applications, providing all necessary information (plans, contact info, etc.) to acquire the permits, paying all fees required to acquire the necessary permits (including any survey or other costs associated with historic resources or T&E species review), coordinating and attending any necessary site or other meetings required to secure permits or authorizations, and addressing agreed upon comments resulting from the permitting agencies' review.

The Contractor shall be responsible for complying with all conditions of all federal, state, and local permits and requirements for the duration of the project and this Contract. Any ramifications (fines, fees, delay in work, etc.) related to the violation of the requirements of the permits shall be the responsibility of the Contractor. The Contractor shall inform the Conservancy immediately of any permit issues/violations that occur on the site.

The Contractor shall notify the Conservancy of any permit conditions and/or restrictions imposed or recommended by the permitting agencies during the permitting process. The Contractor shall not proceed with discussions with the permitting agencies regarding permit conditions and/or restrictions until the Conservancy and the Contractor have agreed on a response to the agencies.

The Contractor shall submit applications for all required permits to complete the implementation of the design following execution of the final SDP and IRT approval of the final design plans for the project. The Contractor shall submit copies of all permit documents to the Conservancy following issuance of permits/authorizations.

TASK 14. ESTABLISH LONG-TERM MANAGEMENT ENDOWMENT

The Contractor will be responsible for funding the Long-Term Management Fund to implement the Long-Term Management and Maintenance Plan. The Long-Term Management Fund monies will be placed into an endowment or other secure mechanism, in any case approved by the Corps/IRT, to generate an annual return that is calculated to cover the anticipated annual expenses. The Long-Term Management Fund monies will be used and managed by the Long-Term Steward for the project site. Contractor may invoice for this task following submittal to the IRT and approval by the IRT of documentation that the endowment has been established.

TASK 15. ESTABLISH MAINTENANCE AND MONITORING FUND

The Contractor will be responsible for funding the Maintenance and Monitoring Fund and implementing corrective actions during the 10-year monitoring period as needed to ensure attainment of success criteria. The Maintenance and Monitoring Fund monies will be placed into an interest-bearing account

or other mechanism approved by TNC. The Maintenance and Monitoring Fund will be used by the Contractor to conduct maintenance and monitoring activities during the 10-year monitoring period. Contractor may invoice for this task following submittal to TNC and approval by TNC of documentation that the fund has been established.

[Note: The Contractor shall not proceed with tasks beyond Task 15 until Conservancy provides written notice to proceed, which is contingent on the Corps providing approval to proceed with implementation following easement recordation, IRT approval of final design plans, acquisition of permits, and establishment of the Stewardship Endowment, Long-Term Management Endowment, Catastrophic Event Fund, and Maintenance and Monitoring Fund.]

TASK 16. IMPLEMENTATION OF DESIGN

Construction Oversight

The Contractor shall be responsible for management of the project and for oversight of all mitigation activities and all contractors hired to implement mitigation activities. The Contractor shall retain the responsibility for the quality and completion of their work and the work of their subcontractors and for adhering to applicable regulations, permits, plans, and specifications.

The Contractor shall notify the Conservancy at least 5 calendar days prior to beginning construction and within 5 calendar days prior to the anticipated demobilization date.

The Contractor shall be responsible for ensuring all components of the design (including all grading, seeding, stabilization, erosion and sediment control measures, invasive species management, planting, and construction tasks) are implemented according to the final design plans and specifications. During the field activities, the Contractor shall use best professional judgment to implement necessary changes to the approved design or technical specifications if site conditions warrant such a change. However, the Contractor shall notify the Conservancy as soon as possible to discuss this change.

The Contractor shall submit reports at 50% and 100% completion of construction. The reports shall include adequate data to show that all components have been constructed and installed according to the final design plans and construction documents, or are within acceptable tolerances, and any changes or deviations from these documents have been approved by the Conservancy. At a minimum, the reports shall include data sheets with built elevations of wetland outlets, wetland areas, and data collected and plotted for channel cross sections located approximately every 500 feet of channel length to verify correct channel dimensions. The 50% construction complete report shall be submitted within 10 days of 50% completion of construction, and the 100% construction completion report shall be submitted within 10 days of 100% completion of construction and prior to demobilization.

Meetings shall be conducted on the site at pre-construction, 50% completion, and 100% completion with the Conservancy and the Contractor to ensure that all activities are satisfactorily planned for and completed. A person qualified in each design phase of the project shall be available when required to support the necessary visits. The 100% construction meeting shall be held prior to demobilization.

Construction

The Contractor shall implement the wetland construction activities as approved in the final design plan, and shall provide all materials and labor to complete such activities.

The Contractor shall be responsible for all coordination to locate and protect utilities present within the project corridor. The Contractor shall stakeout the location of the proposed wetlands prior to

commencing excavation operations. The Contractor shall be responsible for conducting construction activities in a manner that does not damage utilities, other structures, roads or trails, and shall repair any damages to utilities, other structures, roads or trails occasioned by such activities.

The Contractor shall apply a mix of temporary stabilizing native seed and permanent native seed to all disturbed areas. Invasive or non-native species shall not be included in any seed mix applied to the site. The Contractor shall also install erosion control matting per approved specifications on all disturbed streambanks immediately following construction. The Contractor shall restore all disturbed areas (including stockpile and staging areas) prior to demobilization. The Contractor shall be responsible for the off-site transport and disposal of all unused construction materials (e.g., rock, fill, trees, etc.) not properly used or properly disposed of on-site.

Invasive Species Management

The Contractor shall implement the invasive species management activities as approved in the final design plan, and shall provide all materials and labor to complete such activities. All herbicides used shall be safe for use in/near aquatic environments and shall be applied in a manner that is safe for the environment and consistent with product labeling. Herbicide applications shall be conducted under the appropriate weather conditions. Every precaution shall be taken to ensure that native non-target species are not harmed by spray drift or other management activities.

Planting

The Contractor shall implement the planting activities as approved in the final design plan, and shall provide all materials and labor to complete such activities. The Contractor shall order the species and quantities indicated in the approved planting plan and these materials shall be installed in accordance with the approved plan. In the case that adequate planting stock is not available, or other stock may be more suitable, suggestions for additional or alternate species shall be coordinated with the IRT. All planting materials must be handled and installed in accordance with best management practices.

TASK 17. AS-BUILT SURVEY AND REPORT AND ASSOCIATED CREDIT DELIVERY

The Contractor will be responsible for the delivery of an as-built report for mitigation activities. The as-built report will include adequate data to show that all components have been constructed, installed, managed, and/or planted according to final design plans. The as-built report shall also be used for comparison during future success monitoring. The data collection and reporting shall be consistent with the approved monitoring plan and success criteria described in the approved SDP Exhibits I, J, and K. The SDP Exhibits I, J, and K are expected to follow the IRT-approved SDP template (see Exhibit 5 of this Scope of Work).

The Contractor shall install all monitoring equipment needed to complete the as-built survey and implement the monitoring program described in the approved SDP Exhibits I, J, and K. Permanent monitoring stations shall be installed for hydrologic, vegetation, and photographic monitoring. The Contractor shall ensure that the monitoring stations are sufficient in number and location to meet the requirements of the monitoring program and enable determination of future conditions relative to the success criteria. The locations of the monitoring stations shall be determined by the Contractor.

The Contractor shall conduct pre-construction, construction, and post-construction photo monitoring to document the existing conditions, the progress of the construction, and the final site conditions. The directional orientation of the photos shall remain constant during all photo monitoring events.

Pre-Construction Photo Monitoring – Photographs shall be taken prior to commencing activities at the site to document existing site conditions.

Construction Photo Monitoring – The frequency of photographs taken during construction activities shall be at the discretion of the Contractor. However, the frequency should be sufficient to capture the milestones of the restoration activities (weekly, at a minimum).

Post-Construction Photo Monitoring – Following all site activities, photographs shall be taken to document the final wetland, buffer, and overall site conditions.

The as-built survey shall be certified by a licensed land surveyor or a licensed professional engineer. The survey shall include the following:

1. A title page indicating the Mitigation Site name, watershed, Mitigation Site phase (if applicable), monitoring year, Sponsor identification (name, address, phone number and email address), and preparer identification (name, address, phone number and email address).
2. A detailed narrative summarizing the condition of all areas of the Mitigation Site and results of the as-built survey.
3. Plan view of the wetlands and buffer areas and adjacent floodplains. Plan view shall show:
 - a. Location of all permanent monitoring stations (photographic, hydrology wells, vegetation).
 - b. Identification of limits of mitigation activities, including a breakdown of the acreages and lengths of each activity (e.g. wetland restoration, creation, enhancement, and preservation, riparian area re-establishment and preservation). Wetland type should be indicated for each wetland area.
 - c. All wetland restoration/creation features and adjacent floodplains. Design and as-built elevations should be shown.
 - d. Topographic survey elevations, including spot elevations within wetland mitigation areas and on any water control structures or diversions. Vertical survey information shall be accurate to within 0.2’.
 - e. Mitigation Site boundary.
 - f. Crossings, utilities, trails, roads, etc. if applicable.
4. Photographs (dated and labeled, including directional orientation) taken from permanent photo stations.
5. Planting area details including dates planted, species planted, total planting density, and quantity planted by species within each planting area. Show comparison of planting details to design planting plan and discuss comparison.
6. Detailed information regarding seed mixtures, including dates seeded, species seeded, areas seeded, amount of seed used per acre and method of spreading.
7. Detailed information regarding final status of road/access areas.
8. Detailed topographic survey on all constructed wetland areas sufficient to capture the micro topography of slopes and morphology of wetland areas.
9. Mitigation activity tables containing the as-built acreage/length of each mitigation activity and associated credits generated.
10. As-built wetland credit calculator
11. A narrative/discussion of the comparison and/or discrepancies from the design or from unstable conditions, in general.
12. Any additional information required to adequately characterize Mitigation Site conditions (as needed).

The Contractor shall submit the as-built report to the permitting agencies and the Conservancy within 30 calendar days of 100% completion of construction activities. The Contractor shall deliver the as-built report in electronic version and provide the Conservancy with the CADD or GIS data for the as-built.

The Contractor shall develop and obtain IRT approval of a credit release request for wetland and buffer construction activities. The credit release request shall follow the approved SDP credit release schedule, unless otherwise agreed to by the Conservancy. The approved SDP credit release schedule is expected to follow the IRT-approved credit release schedule template (see Exhibit 6 of this Scope of Work). The Contractor shall submit the draft credit release request to the Conservancy for review prior to submittal to the IRT. **Payments for this task shall be reduced, based on the crediting analysis and cost/credit approved in the Site Development Plan, for every credit or portion of a credit that is not delivered according to the credit release schedule in Exhibit 6 of this Scope of Work, as adjusted in the SDP approved by the IRT and included in an amendment to the Contract, or as otherwise approved by the Conservancy.**

TASKS 18-23. 10-YEAR SUCCESS MONITORING AND MAINTENANCE AND ASSOCIATED CREDIT DELIVERY

The Contractor will perform monitoring events on the site in years 1, 2, 3, 5, 7, and 10. Year 1 monitoring will be conducted during the first growing season after project construction and planting has been completed. The Contractor will follow the success criteria, monitoring requirements, and monitoring reporting requirements outlined in approved SDP Exhibits F and J which are expected to follow the IRT-approved SDP template (see Exhibit 5 of this Scope of Work). Note that the IRT has stated that baseline preservation monitoring for stream preservation areas can be collected during Year 1 monitoring and baseline preservation monitoring for buffer preservation areas should be collected during design/SDP development; thus a separate (“Year 0”) monitoring event to collect preservation data is not required. The Contractor will develop monitoring reports each year that present the results of the annual monitoring events, summary of corrective action completed at the site since the last monitoring event, recommendations for further corrective actions, and documentation of any coordination with the IRT in regards to the site.

The Contractor shall submit the monitoring reports to the Conservancy by **November 15th** of each monitoring year. The Conservancy shall review the monitoring report and provide comments to the Contractor. Based upon comments and agreed-to-items resulting from the Conservancy’s review, the Contractor shall refine the monitoring report for final submission. Final reports shall be submitted no later than December 15th of each monitoring year. The Contractor shall deliver the report in electronic version (pdf and CADD/GIS files).

The Contractor will be responsible for implementing all corrective actions during the 10-year monitoring period as needed to ensure attainment of success criteria.

The Contractor shall develop and obtain IRT approval of credit release requests associated with monitoring success. Following the end of the success monitoring period, the Contractor will deliver a report documenting the credits achieved through the project for presentation to the Conservancy and the IRT for final approval and release of mitigation credits. The credit release requests shall follow the approved SDP credit release schedule, unless otherwise agreed to by the Conservancy. The approved SDP credit release schedule is expected to follow the IRT-approved credit release schedule template (see Exhibit 6 of this Scope of Work). The Contractor shall submit the draft credit release request to the Conservancy for review prior to submittal to the IRT. **Payments for this task shall be reduced, based**

on the crediting analysis and cost/credit approved in the Site Development Plan, for every credit or portion of a credit that is not delivered according to the credit release schedule in Exhibit 6 of this Scope of Work, as adjusted in the SDP approved by the IRT and included in an amendment to the Contract, or as otherwise approved by the Conservancy.

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VARTF Off-Site Mitigation Location Guidelines Checklist

A. General regulatory requirements and practices:

- 1. Project within same 8 digit HUC as impact: Yes ___ No ___
- 2. Project within same physiographic province as impact: Yes ___ No ___
- 3. Project within an adjoining HUC in same river basin Yes ___ No ___
- 4. Project outside of this area Yes ___ No ___ (If “Yes” then provide documentation that no suitable sites are available in area)
- 5. Mitigation is in-kind: Yes ___ No ___

B. Evaluate & Document whether project meets the following criteria:

- 1. Wetland restoration: Yes ___ No ___
- 2. Wetland creation: Yes ___ No ___
- 3. Wetland Preservation Yes ___ No ___ Is the preservation area exemplary and/or under threat? Yes ___ No ___
- 4. Stream restoration/enhancement: Yes ___ No ___
- 5. Stream Preservation: Yes ___ No ___ Is the preservation area exemplary and/or under threat? Yes ___ No ___
- 6. Mitigation sites contiguous or connected to other aquatic areas Yes ___ No ___
- 7. Current, planned, or foreseeable activities upstream or upgradient of project that may adversely affect mitigation project: Yes ___ No ___ Uncertain ___
- 8. Is there an existing or proposed development upstream of, upslope of, or adjacent to the mitigation project? Yes ___ No ___ Uncertain ___
- 9. Are there areas upstream of, upslope of, or adjacent to the mitigation project that are zoned or identified for future development in the comprehensive plan, long-range plan, or zoning overlay? Yes ___ No ___
- 10. Does proposed riparian buffer protection provide greater protection than state or local requirements? Yes ___ No ___ Is proposed riparian buffer a minimum of 100 feet wide on each side of the channel? Yes ___ No ___
- 11. Are there any easements, liens, rights of way, reserved timber or mineral rights on project site or adjoining lands? Yes ___ No ___ If Yes, describe _____
- 12. Is mitigation site consistent with local planning requirements? Yes ___ No ___ Describe _____
- 13. Describe order(s) of streams on project site _____
- 14. Is recordation of a third party conservation easement proposed for the project? Yes ___ No ___ If No, please explain _____

C. Does the project satisfy one or more of the following criteria? If the answer is “Yes” then describe.

1. Does it abut or adjoin an existing reserve or conservation area or create or contribute to a corridor linking existing reserves, conservation areas, or large aquatic systems? Yes ___ No ___ Describe _____
2. Does it conserve or restore habitat for one or more state or federal-listed species, including critical habitat or Threatened/Endangered Species Waters? Yes ___ No ___ Describe _____
3. Does it conserve or restore habitat for species identified as rare by DCR- Division of Natural Heritage or Species of Greatest Conservation Need in the Virginia Wildlife Action Plan? Yes ___ No ___ Describe _____
4. Does it conserve or restore aquatic resources or buffers areas identified by DCR- Division of Natural Heritage as rare or imperiled natural communities? Yes ___ No ___ Describe _____
5. Does it contribute to improved water quality for identified/designated impaired waters? Yes ___ No ___ Describe _____
6. Does it remove barriers to fish passage in areas identified by VDGIF as meriting improvement? Yes ___ No ___ Describe _____
7. Does it restore, enhance, preserve aquatic resources and/or riparian areas identified as meriting conservation in an approved watershed management plan or conservation plan? Yes ___ No ___ Describe _____
8. Does it conserve/restore the entire watershed upstream of the project site? Yes ___ No ___ Describe _____
9. Does it remediate inputs of substantial amounts of sediments or remove other pollutants to downstream waters? Yes ___ No ___ Describe _____
10. Does it conserve or restore areas designated by VDGIF as wild trout streams or Anadromous Fish Use Areas? Yes ___ No ___ Describe _____
11. Does it follow the objectives and prioritization strategy of the compensation planning framework? Yes ___ No ___ Describe _____

Norfolk District Prospectus Checklist [per 33CFR 332.8(d)(2)]
October 2009

- 1) Contact information (name, address, telephone number, email address, etc.) for the Sponsor, the land owner and the agent.
- 2) Indicate whether the sponsor owns the land or is acquiring an interest in the proposed bank sites (fee simple acquisition, easement, etc).
- 3) Identify the objectives of the proposed mitigation bank.
 - a) Identify the method(s) of proposed compensation (wetland creation/restoration, stream restoration/enhancement, preservation, etc.) that will be provided.
 - b) Identify an estimated amount (acres/linear footage) of each compensation type that will be provided.
 - c) Identify the aquatic functions to be restored/enhanced (water quality improvement, flood storage, wildlife habitat, etc.).
- 4) Describe how the bank will be established.
 - a) Summarize the work intended to accomplish site activities.
 - b) Describe how the proposed work will meet identified goals and objectives.
 - c) Provide a vicinity map (USGS topographic map).
 - d) Provide a current aerial photograph identifying the area to be included within the bank limits.
 - e) Provide a conceptual development plan showing the proposed work.
- 5) Identify the proposed service area.
 - a) Provide a map identifying the proposed service area of the bank.
 - b) Provide a rationale for determining the limits of the proposed service area.
- 6) Identify the general need for and technical feasibility of the proposed mitigation bank.
 - a) Identify any watershed plans the mitigation project would accommodate.
 - b) Identify any regional or local benefits derived from the bank.
 - c) Identify any potential threats to the bank site or resource type the bank intends to provide and/or protect.
 - d) Discuss the proposed construction work required to develop the bank and its feasibility.
- 7) Describe the ecological suitability of the site to achieve the objectives of the proposed mitigation bank, including the physical, chemical, and biological characteristics of the bank site and how that site will support the planned types of aquatic resources/functions.
 - a) Summarize current site conditions including land use, vegetation, hydrology, and soils (forested, row-cropped, pasture, ditched and drained wetland, previously channelized streams, etc). Pictures are helpful.
 - b) If known, include information on rare or T/E species, historic properties, impaired waters (303(d) streams), etc.
 - c) Identify any known encumbrances (mortgages, liens, rights-of-way, servitudes, easements, etc.) on the property.

- d) Identify previous land uses of the site and adjacent properties.
 - e) Identify current zoning and any existing and/or proposed development adjacent to the bank site.
 - f) Identify current zoning of the bank site.
 - g) Summarize the historical hydrology of the site.
 - h) Indicate whether a jurisdictional determination of “waters of the U.S.” has been made by the Corps. This will be needed to support development of an MBI and mitigation plan
 - i) Identify which of the Virginia Off-site Mitigation Location Guidelines are met by the proposal and how they were met.
- 8) Identify the proposed future ownership arrangements and long-term management strategy for the proposed mitigation bank.
- a) Identify the proposed long-term management strategy.
 - b) Identify the likely party that would be responsible for long-term management.
 - c) Identify the proposed site protection instrument that would be utilized and the likely responsible parties.
- 9) Summarize the qualifications of the sponsor to successfully complete the type of mitigation project proposed. Including information describing past actions undertaken by the sponsor that demonstrate experience in the restoration, creation, preservation, or enhancement of aquatic resources.
- 10) Assurance of sufficient water rights and/or hydrological influences on the site to support the long-term sustainability of the mitigation bank.
- a) Describe any existing hydrologic disturbances on and adjacent to the site.
 - b) Identify any temporary or long-term structural management requirements (levees, weirs, culverts, etc.) needed to assure hydrologic/vegetative restoration.
 - c) Describe generally (a water budget is not required at this point):
 - i. Water source(s) and losses (precipitation, surface runoff, groundwater, stream, tidal, etc.)
 - ii. Hydroperiod (seasonal depth, duration, and timing of inundation and/or saturation)
 - iii. Approximate contributing drainage area (map and size).
- 11) Names and mailing addresses of all adjacent property owners (APOs). If there are more than 3 APOs, mailing labels should be provided with the prospectus.

ATTACHMENT C: Exhibit 3.



**U.S. Army Corps
Of Engineers**
Norfolk District

DATE SENT:

SUSPENSE DATE: *30 days plus 3 mail days*

VDHR COORDINATION FORM

AGENCY NAME: Corps of Engineers, Regulatory Branch

PROJECT NAME:

CORPS PROJECT NUMBER:

CORPS PROJECT MANAGER:

APPLICANT'S NAME AND ADDRESS:

CONSULTANT'S NAME AND ADDRESS:

PROJECT INFORMATION

PROJECT DESCRIPTION: *Brief description of the project including dimensions/acreages. Note if the site has been previously disturbed.*

PROJECT LOCATION:

PERMIT AREA/AREA OF POTENTIAL EFFECT: *State the dimensions/acreage of the permit area, including the area of ground disturbance.*

KNOWN HISTORIC PROPERTIES:

A) ARCHAEOLOGICAL SITES:

B) ARCHITECTURAL: *(include any structures likely to be 50 years or older within view shed of permitted structures)*

CORPS EFFECT DETERMINATION: *(If enough information available)*

Initial Coordination Only (effect unknown)

No Effect

No Adverse Effect

Adverse Effect

Comments:

ENCLOSURES:

Project Vicinity Map or Quad Sheet (with location marked)

Plan view drawings with permit area marked

Printout from VDHR Virginia Cultural Resource Information System (VCRIS)

VCRIS inventory form for known historic properties

Photos of structures (if available)

Copies of previous correspondence from VDHR

ATTACHMENT C: Exhibit 4.

Species Conclusions Table

Project Name:

Date:

Species/Resource Name	Conclusion	ESA Section 7 / Eagle Act Determination	Species Info / Habitat Description	Notes / Determination
Eagles (<i>Haliaeetus leucocephalus</i>)				
Eagle Nests				
Eagle Concentration Areas				
Critical Habitat				
Other (other species not listed above or required coordination for NOAA, DCR, & VDGIF)				

ATTACHMENT C: Exhibit 5. SDP Monitoring Exhibits F and J

EXHIBIT F PERFORMANCE STANDARDS

The wetland Performance Standards should demonstrate that the wetlands that were preserved, enhanced, restored and created meet the intended objectives and functions of the Mitigation Site. The stream Performance Standards should demonstrate that the stream channels that were preserved, enhanced, and restored meet the intended objectives and functions of the Mitigation Site and attain dynamic equilibrium.

The Conservancy and IRT will use monitoring reports, visual observations, and best professional judgment to evaluate attainment of Performance Standards and in determining whether the Mitigation Site/Phase has met its goals and objectives, or whether corrective action or Adaptive Management are warranted.

All final and approved Performance Standards, and any deviation in Performance Standards, must be approved by the Chairs in consultation with the IRT prior to implementing the Performance Standards. Any decision whether or not a project meets the Performance Standards is within the sole discretion of the IRT, Chairs, applicable Board, official, or court, and shall not be subject to appeal.

All Performance Standards marked **(Required)** are required if those preservation, enhancement, restoration or creation activities apply to the Mitigation Site/Phase.

Important Note: If there is no appropriate Performance Standard listed below the Conservancy may propose a suitable Performance Standard, subject to IRT review and approval.

The following standards will be used to assess project performance:

FINANCIAL AND OTHER REPORTS

Submittal of required documentation, including monitoring and financial reports, as-built drawings, proof of escrow deposits and withdrawals in accordance with SDP Sections 18 and 25.

WETLAND, RIPARIAN BUFFER, UPLAND BUFFER PRESERVATION PERFORMANCE STANDARDS

- 1) Document compliance with the INU Management Plan as approved in the MWP.
- 2) Any preservation areas that were cleared to provide access for construction of restoration or enhancement activities must meet the Performance Standards described in Buffer areas below.

RIPARIAN OR UPLAND BUFFER PERFORMANCE STANDARDS

In all restored or enhanced Riparian and Upland Buffer areas:

FORESTED BUFFER VEGETATION

(Choose either Number 2 or Number 3 below **OR** choose Number 4)

- 1) **(Required)** A minimum of 400 woody stems of native tree species per acre (including volunteers) shall be achieved by the end of the first growing season following planting and maintained each monitoring year until shrub and/or canopy/crown coverage is at least 30%. Canopy coverage shall be at least 30% each monitoring year thereafter. The number of woody stems of native tree species per acre may vary under certain circumstances. Such deviations must be approved by the Chairs in consultation with the IRT.
- 2) The Year 5 and Year 10 reports shall contain documentation of a 10% increase per year in tree height of all established and surviving trees. This standard applies until shrub and/or canopy/crown coverage is at least 30%. Canopy coverage shall be at least 30% each monitoring year thereafter.
- 3) The Year 5 and Year 10 reports shall contain documentation that the average tree height of all established and surviving trees is at least 5 feet. This standard applies until shrub and/or canopy/crown coverage is at least 30%. Canopy coverage shall be at least 30% each monitoring year thereafter.
- 4) In the Coastal Plain or Piedmont physiographic regions, the total stem area at groundline (SAG) for all woody vegetation must be greater than or equal to:

(a) 1 st growing season	0.6 ft ² /acre
(b) 2 nd growing season	1.0 ft ² /acre
(c) 3 rd growing season	1.5 ft ² /acre
(d) 5 th growing season	3.8 ft ² /acre
(e) 7 th growing season	8.9 ft ² /acre
(f) 10 th growing season	29.1 ft ² /acre
- 5) **(Required)** Document compliance with the INU Management Plan as approved in the MWP.

SCRUB/SHRUB BUFFER VEGETATION

(All Required)

- 1) A minimum of 400 woody stems of native tree or shrub species per acre (including volunteers) shall be achieved by the end of the first Growing Season following planting and maintained each monitoring year until shrub and/or canopy/crown coverage is at least 30%. Canopy coverage shall be at least 30% each monitoring year thereafter. The number of woody stems of native tree species per acre may vary under certain circumstances. Such deviations must be approved by the Chairs in consultation with the IRT.
- 2) Native or non-invasive herbaceous plant coverage shall be at least 60% by the end of the first growing season, and at least 80% each monitoring year thereafter, until shrub and/or canopy/crown coverage is at least 30%. Canopy coverage shall be at least 30% each monitoring year thereafter.

- 3) Document compliance with the INU Management Plan as approved in the MWP.

FIELD OR GRASS BUFFER VEGETATION

(All Required)

- 1) Native or non-invasive herbaceous plant coverage shall be at least 60% by the end of the first growing season, and at least 80% each monitoring year thereafter, until shrub and/or canopy/crown coverage is at least 30%. Canopy coverage shall be at least 30% each monitoring year thereafter.
- 2) Document compliance with the INU Management Plan as approved in the MWP.

VEGETATED NONTIDAL WETLAND PERFORMANCE STANDARDS

WETLAND ENHANCEMENT

- 1) Wetland Enhancement Performance Standards are required for all wetland Enhancement areas and should be chosen from the Performance Standards for wetland Restoration/Creation areas. The Performance Standards should be based on the wetland functions that are being enhanced. *(Example: If an existing wetland lacks vegetative layers and wetland vegetation is being enhanced, choose from among the vegetation Performance Standards for wetland Restoration/Creation.)*

WETLAND RESTORATION/CREATION

1) WETLAND HYDROLOGY

- (a) The site is inundated (flooded or ponded) or the water table is ≤ 12 inches below the soil surface for ≥ 14 consecutive days during the growing season.
- (b) The overall seasonal hydroperiod (depth, degree, duration, and periodicity) is similar to that of the reference wetland or targeted wetland type.

2) WETLAND SOILS (Applies to all areas where soils have been cut or filled)

(Choose at least two (2) of the following standards specific to the soil type)

- (a) **(Required)** For coarse textured (sandy) surface soils, positive indicators of hydric soil formation must be demonstrated within 6 inches of the soil surface.
- (b) **(Required)** For fine textured soils (silts, clays, loams), positive indicators of hydric soil formation must be demonstrated within 12 inches of the soil surface.
- (c) **(Required)** The subsoil shall have a bulk-density of less than 90 lbs/cubic foot (1.45 g/cc) for clay textures, grading to less than 112 lbs/cubic foot (1.80 g/cc) for sands (prior to adding organic matter or topsoil to the site). Replaced topsoil layers should also be remediated to a similar bulk density range.

- (d) For all monitoring years after reaching the final grade piezometers or shallow wells demonstrate free water within 12 inches of the surface for 14 consecutive days during the growing season.
- (e) Redoximorphic features including, but not limited to redox concentrations, redox depletions, and reduced matrices are present.
- (f) Positive tests with reagent occur within 60 percent or more of a specific layer in at least two or three soil samples. A reaction to alpha-alpha-Diperydyl reagent must occur within a 2-inch layer of the upper 4 inches in soil that is inundated but not saturated, a 2.5-inch layer of the upper 5 inches in sandy textured soils, and a 4-inch layer of the upper 12 inches in clayey soils.
- (g) A minimum of three of five Indicator of Reduction in Soil (IRIS) tubes must have 30 percent iron removed from a zone 6 inches or more thick. The zone of removal must begin within 6 inches of the soil surface for all soil textures.

3) FORESTED WETLAND VEGETATION

*(Choose either Letter (c) or Letter (d) **OR** choose Letter (e))*

- (a) **(Required)** Wetland Vegetation Dominance: More than 50% of all dominant tree, shrub, and herbaceous plant species shall be facultative (FAC) or wetter (FACW or OBL). Wetland vegetation dominance, defined as a vegetation community where more than 50% of all dominant species are facultative (FAC) or wetter using "routine delineation methods" as described in the 1987 Corps of Engineers Wetland Delineation Manual and the most current version of the appropriate Regional Supplement to the Manual must be achieved.
- (b) **(Required)** Native stem density of at least 400 living woody stems of native tree species per acre with an indicator of FAC or wetter shall be maintained through the end of the monitoring period or until canopy coverage of tree species is at least 30%, whichever comes first. Canopy coverage shall be at least 30% each monitoring year thereafter.
- (c) The Year 5 and Year 10 reports shall contain documentation that the average tree height of all established and surviving trees has increased by not less than an average of 10% per year. This standard applies until shrub and/or canopy/crown coverage is at least 30%. Canopy coverage shall be at least 30% each monitoring year thereafter.
- (d) Year 5 and Year 10 reports shall contain documentation that the average tree height of all established and surviving trees is at least 5 feet in each plot. This standard applies until shrub and/or canopy/crown coverage is at least 30%. Canopy coverage shall be at least 30% each monitoring year thereafter.
- (e) In the Coastal Plain or Piedmont physiographic regions, the total stem area at groundline (SAG) for all woody vegetation must be greater than or equal to:

- | | |
|------------------------------------|---------------------------|
| (a) 1 st growing season | 0.6 ft ² /acre |
| (b) 2 nd growing season | 1.0 ft ² /acre |

- (c) 3rd growing season 1.5 ft²/acre
- (d) 5th growing season 3.8 ft²/acre
- (e) 7th growing season 8.9 ft²/acre
- (f) 10th growing season 29.1 ft²/acre

(f) **(Required)** Document compliance with INU Management Plan as approved in the MWP.

4) SCRUB/SHRUB WETLAND VEGETATION

(All Required)

(a) Wetland Vegetation Dominance: More than 50% of all dominant tree, shrub, and herbaceous plant species shall be facultative (FAC) or wetter (FACW or OBL). Wetland vegetation dominance, defined as a vegetation community where more than 50% of all dominant species are facultative (FAC) or wetter using "routine delineation methods" as described in the 1987 Manual and appropriate Regional Supplement to the Manual *(or insert reference to any approved Regional Supplements as they become available prior to SDP approval)* must be achieved.

(b) Native stem density of at least 400 living woody stems of native tree or shrub species per acre with an indicator of FAC or wetter shall be maintained through the end of the monitoring period

(c) Native or non-invasive herbaceous plant coverage shall be at least 60% by the end of the first growing season, and at least 80% each monitoring year thereafter, until shrub and/or canopy/crown coverage is at least 30%. Canopy coverage shall be at least 30% each monitoring year thereafter.

(d) Document compliance with INU Management Plan as approved in the MWP.

5) EMERGENT WETLAND VEGETATION

(All Required)

(a) Wetland Vegetation Dominance: More than 50% of all dominant herbaceous plant species shall be facultative (FAC) or wetter (FACW or OBL). Wetland vegetation dominance, defined as a vegetation community where more than 50% of all dominant species are facultative (FAC) or wetter using "routine delineation methods" as described in the 1987 Manual and appropriate Regional Supplement to the Manual *(or insert reference to any approved Regional Supplements as they become available prior to SDP approval)* must be achieved.

(b) Native or non-invasive herbaceous plant coverage shall be at least 60% by the end of the first growing season, and at least 80% each monitoring year thereafter. until shrub and/or canopy/crown coverage is at least 30%. Canopy coverage shall be at least 30% each monitoring year thereafter.

(c) Document compliance with INU Management Plan as approved in the MWP.

VEGETATED TIDAL SALTWATER WETLAND PERFORMANCE STANDARDS

(Performance standards for Tidal Freshwater wetland sites may differ from the items below and will be proposed at the time of the Mitigation Site's SDP submittal).

WETLAND RESTORATION/CREATION

1) WETLAND HYDROLOGY

(All Required)

- (a) Submission of an as-built survey which documents that the elevations provided in the construction plans have been achieved.
- (b) Daily inundation and drainage of the site with tidal water is required to provide the necessary tidal hydrology to promote the growth and success of the planted wetland vegetation.
- (c) Any constructed tidal channels within the tidal wetland areas shall maintain a relatively stable cross-sectional area, sufficient to provide the necessary tidal hydrology to the site. There will likely be short-term variability, with areas of accretion and erosion, until equilibrium with the tidal currents is established.

2) WETLAND SOILS

(All Required)

- (a) Presence of soil under hydric conditions.
- (b) Soil organic matter increase to be documented by:
 - (1) Surface algal mats.
 - (2) Root growth from increasing vegetation growth.

3) WETLAND VEGETATION

(All Required)

- (a) Wetland Vegetation Dominance: More than 50% of all dominant herbaceous plant species shall be facultative (FAC) or wetter (FACW or OBL). Wetland vegetation dominance, defined as a vegetation community where more than 50% of all dominant species are facultative (FAC) or wetter using "routine delineation methods" as described in the 1987 Manual and appropriate Regional Supplement to the Manual *(or insert reference to any approved Regional Supplements as they become available prior to SDP approval)* must be achieved.
- (b) Planted vegetation survival after the first full growing season shall be at least 90%.
- (c) Vegetative Cover shall be at least the following for each monitoring year:
 - (1) Year 1 10 – 20%
 - (2) Year 2 30 – 50%
 - (3) Year 3 50 – 70%
 - (4) Year 5,7,10 70 – 80%

- (d) Invasive Species
 - (1) Aerial coverage of *Phragmites australis*, shall not exceed 5% per plot.
 - (2) Document compliance with INU Management Plan as approved in the MWP.
 - (e) Natural recruitment of plant species: Colonizing species documented in sampling quadrats.
- 4) PRIMARY PRODUCTION (*All Required*)
- (a) Increasing vegetation cover.
 - (b) Increased stem height.
- 5) PRIMARY AND SECONDARY CONSUMER UTILIZATION (*All Required*)
- (a) Faunal observations from sampled quadrats.
 - (b) Document observations of additional consumers during sampling events.
- 6) HIGHER CONSUMER UTILIZATION (birds, mammals, fish, etc.) (*All Required*)
- (a) Seining of channels for fish and shellfish.
 - (b) Document observations of birds using the site.
 - (c) Document observed mammals and mammal tracks and scat.

STREAM PERFORMANCE STANDARDS

STREAM PRESERVATION AREAS (Applies to all linear footage of preserved stream channel where stream restoration/enhancement is occurring upstream and within the Mitigation Site/Phase) (*Choose at least two (2)*)

- 1) The Width / Depth Ratio Stability Rating (measured Width / Depth Ratio divided by the Year 1 Width / Depth Ratio) shall not be greater than 1.3. If the channel is incising, then the Width / Depth Ratio Stability Rating shall not be less than 0.7.
- 2) The Bank Height Ratio shall not increase by an amount greater than 0.2 of the Year 1 Bank Height Ratio.
- 3) The Entrenchment Ratio (ER) shall be appropriate for the channel type. (*Example: For restored C, DA, or E stream types, the ER shall be greater than 2.2. For restored B stream types, the ER shall be greater than 1.4. The ER may not be an appropriate measure for A stream types*).
- 4) The Bankfull stream Cross-Sectional Area shall not increase or decrease by an amount greater than 25% of the as-built stream cross-sectional area.

STREAM ENHANCEMENT OR STREAM ENHANCEMENT WITH STRUCTURES

- 1) Stream Enhancement Performance Standards are required all stream Enhancement or Enhancement with Structures areas and should be chosen from the Performance Standards for stream Restoration areas. The Performance Standards and should be based on the stream functions that are being enhanced. (*Example: If an existing stream lacks stable stream banks and stream bank enhancement is undertaken, choose from among the appropriate Performance Standards for lateral stability of stream Restoration*).

STREAM RESTORATION

1) FLOODPLAIN CONNECTIVITY

(Choose one (1))

- (a) The reach-averaged Bank Height Ratio (average of the calculated Bank Height Ratios for all riffle cross-sections within a given reach) shall not increase by an amount greater than 0.2 of the as-built Bank Height Ratio.
- (b) The reach-averaged Entrenchment Ratio (average of the calculated Entrenchment Ratios for all riffle cross-sections within a given reach) shall not decrease by an amount greater than 0.5 from the as-built Entrenchment Ratio, or the Entrenchment Ratio (ER) shall be appropriate for the channel type and/or design approach. (*Examples: For restored C, DA, or E stream types, the ER shall be greater than 2.2. For restored B stream types, the ER shall be greater than 1.4. The ER may not be an appropriate measure for A stream types.*)

2) LATERAL STABILITY/BANK MIGRATION

(Choose four (4))

- (a) (**Required**) The Total Score of Bank Erodibility Hazard Index (BEHI) for a reach shall be equal to or less than the previous year's Total Score, and shall have a Total Score of "Moderate" by monitoring Year 3. For C or E stream types, a Total Score of "Low" or better shall be achieved by monitoring Year 5, and maintained at "Low" or better throughout the remainder of the monitoring period. For B stream type channels, a Total Score of "Moderate" or better shall be maintained throughout the remainder of the monitoring period.
- (b) The reach-averaged Width / Depth Ratio Stability Rating (average of the calculated Width / Depth Ratio Stability Ratings for all riffle cross-sections within a given reach = Width / Depth Ratio divided by the as-built Width / Depth Ratio) shall not be less than 0.7 or greater than 1.3, or each measured Width / Depth Ratio shall remain within the design conditions.
- (c) The Bankfull stream Cross-Sectional Area shall not increase or decrease by an amount greater than 25% of the as-built stream cross-sectional area.
- (d) The reach-averaged Meander Width Ratio (Meander or Belt Width divided by

the Bankfull Width) for a perennial stream in an alluvial valley (C or E stream types) shall be equal to or greater than 3.5, or each measured Meander Width shall remain within the range represented in the design conditions.

(e) The sinuosity of the stream shall not increase or decrease by an amount greater than 0.1 of the approved as-built sinuosity, or the sinuosity of the stream shall remain within the range represented in the design conditions.

(f) The reach-averaged Radius of Curvature / Bankfull Width Ratio (average of the calculated Radius of Curvature Width Ratios for the reach) does not increase or decrease by an amount greater than 0.2 of the as-built condition, or each measured Radius of Curvature shall remain within the range represented in the design conditions.

(g) **(Required)** The numbers of live stakes and woody stems of native tree and shrub species providing bank stabilization from the top of bank to the toe of slope shall be at least 1 living stem per 50 square feet per stream edge along the bank by the end of the first growing season following planting and maintained each monitoring year until canopy coverage is 30% for any identified reach. Canopy coverage shall be at least 30% each monitoring year thereafter.

(h) Native or non-invasive herbaceous plant coverage shall be at least 60% by the end of the first growing season, 80% by the end of the second growing season, and maintained each monitoring year thereafter until canopy coverage is at least 30%. Canopy coverage shall be at least 30% each monitoring year thereafter.

(i) Bare ground coverage shall be no more than 40% by the end of the first growing season, 20% by the end of the second growing season, and maintained each monitoring year thereafter, until canopy coverage is at least 30%. Canopy coverage shall be at least 30% each monitoring year thereafter.

3) VERTICAL STABILITY/BED FORM DIVERSITY (Choose two (2))

(a) (For perennial streams only) The reach-averaged Pool-to-pool Spacing Ratio is appropriate for the stream and valley type [*Example: The Pool-to-pool Spacing Ratio shall be 4 - 5 in C and E stream types or 2 - 4 in B stream types*], or each measured Pool-to-pool Spacing shall remain within the range represented in the design conditions.

(b) The reach-averaged Max Pool Depth Ratio (Bankfull Max Pool Depth divided by the Bankfull Mean Riffle Depth) shall remain within the typical values for the stream type [*Example: The Max Pool Depth Ratio shall be greater than 1.5 in gravel bed C and E stream types, and all B stream types. The Max Pool Depth Ratio shall be greater than 1.2 in sand bed C and E stream types*], or each measured Max Pool Depth shall remain within the range represented in the design conditions.

(c) The average riffle slope of the reach shall not increase or decrease by an amount greater than 0.1 of the approved as-built slope, or the slope of the reach shall remain

within the range represented in the design conditions.

- (d) The average bankfull slope of the reach shall not increase or decrease by an amount greater than 0.1 of the approved as-built slope, or the slope of the reach shall remain within the range represented in the design conditions.
- (e) (Constructed riffles only) The D50 size particle remains within its approved as-built size class (silt, sand, gravel, cobble, or boulder), or the D50 size particle remains within its design size class (silt, sand, gravel, cobble, or boulder).

4) STRUCTURE STABILITY (All Required)

- (a) Absence of collapsed structure or repositioned header rocks.
- (b) Absence of under cutting, washing around, or erosion of the bank or streambed associated with any instream structure that could lead to a collapsed structure or repositioned head rock.
- (c) Maintenance of pool depth immediately downstream of the structure (where appropriate), including absence of excessive scour or deposition in pool immediately downstream of the structure.
- (d) All structures are exposed, unless they are specified as buried rock or log sill structures.

5) AQUATIC HABITAT (All Required)

- (a) (For perennial streams only) Habitat Assessment – The Total Score of the Habitat Assessment for each reach shall be 100 or greater at Year 1, and each monitoring year thereafter the Total Score shall be equal to or greater than the previous Year's Total Score.

REFERENCES for Performance Standards, Monitoring, and Reporting:

Barbour, M.T., J. Gerritsen, B.D. Synder, and J.B. Stribling. 1999. *Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates, and Fish, Second Edition*. EPA 841-B-99-002. U.S. Environmental Protection Agency; Office of Water; Washington, D.C.

Daniels, W.L. (2018). *Review Comments on Proposed Mitigation Banking Instrument Template*. Memorandum, Virginia Tech-College of Agriculture and Life Sciences, Blacksburg, VA.

Daniels, W.L., Perry, J.E., Whittecar, R.G., Fajardo, G., Bergschneider, c., and DesPres, A. 2005. Effects of Soil Amendments and Other Practices upon the Success of the Virginia Department of Transportation's Non-Tidal Wetland Mitigation Efforts. Virginia Research Council. Charlottesville, Virginia. VTRC 05-CR25-(see pp 55-56).

Davis, Sandra L., Richard R. Starr, and Christopher K. Eng. 2014. *Rapid Stream Restoration Monitoring Protocol*. CBFO-S14-01. U.S. Fish and Wildlife Service; Coastal Program – Stream Habitat Assessment and Restoration, Chesapeake Bay Field Office, Annapolis, MD.

DeBerry, Douglas A. (2018). *Vegetation Sampling on Compensatory Mitigation Sites, Literature Review*. Unpublished manuscript, College of William & Mary, Williamsburg, VA.

DeBerry, Douglas A. (2018). *Vegetation Sampling Protocol: Adapted for Use on Compensatory Mitigation Sites in Virginia*. Unpublished manuscript, College of William & Mary, Williamsburg, VA.

DEQ. 2008. *Biological Monitoring Program Quality Assurance Project Plan for Wadeable Streams and Rivers*. Version 1. Prepared by Biological Monitoring Program, Office of Water Quality Monitoring and Assessment Programs, Virginia Department of Environmental Quality. Richmond, VA.

http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityMonitoring/BiologicalMonitoring/B_ioMonQAPP_13Aug2008.pdf

DEQ. 2010. *Standard Operating Procedures Manual for the Department of Environmental Quality Office of Water Quality Monitoring and Assessment Program*. Prepared by Office of Water Quality Monitoring and Assessment Programs, Virginia Department of Environmental Quality. Richmond, VA. <http://www.deq.virginia.gov/Portals/0/DEQ/Water/Guidance/wqmsop.pdf>

FISRWG (10/1998). *Stream Corridor Restoration: Principles, Processes, and Practices*. By the Federal Interagency Stream Restoration Working Group (FISRWG - 15 Federal agencies of the US gov't). GPO Item No. 0120-A; SuDocs No. A 57.6/2:EN 3/PT.653. ISBN-0-934213-59-3.

Harman, W., R. Starr, M. Carter, K. Tweedy, M. Clemmons, K. Suggs, C. Miller. 2012. *A Function-Based Framework for Stream Assessment and Restoration Projects*. US Environmental Protection Agency, Office of Wetlands, Oceans, and Watersheds, Washington, DC EPA 843-K-12-006.

Hudson III, Herman W., Perry, James E. 2018. *Development of Woody Ecological Performance Standards for Created/Restored Forested Wetlands-Final Report*.

National Technical Committee for Hydric Soils (NTCHS). 2015. *Hydric Soils Technical Note 11: Hydric Soils Technical Standard and Data Submission Requirements for Field Indicators of Hydric Soils*. Washington, DC: United States Department of Agriculture (USDA), NRCS.

Rosgen, Dave. 1996. *Applied River Morphology*. Pagosa Springs, CO: Wildland Hydrology.

U.S. Army Corps of Engineers. 2005. *Technical Standard for Water-Table Monitoring of Potential Wetland Sites*. WRAP Technical Notes Collections (ERDC TN-WRAP-05-2). U.S. Army Engineer Research and Development Center, Vicksburg, MS.

Wolman, Gordon M. 1954. *A Method for Sampling Coarse Riverbed Material*. Transactions, American Geophysical Union, Volume 35-6. U.S. Geological Survey, Washington, D.C.

EXHIBIT J MONITORING AND REPORTING REQUIREMENTS

AS-BUILT MONITORING AND REPORTING

An as-built report shall be submitted to the IRT within 90 days of completion of mitigation activities for the Mitigation Site/Phase depicted in the FMWP. The as-built report shall include comparisons of the design plan to the as-built plan, using the following components:

- 1) Plan view maps of the constructed wetlands, streams, and adjacent buffers that depict the Mitigation Site/Phase Boundaries, as-built topography, all mitigation activities (including buffer activities), and the locations of all monitoring stations (photo stations, anticipated vegetation sampling plots, wetland monitoring wells or iris tubes, soil boring locations, stream gages, precipitation gauges, cross-sections, longitudinal profiles, pattern and bank vegetation monitoring stations, chemical and biological monitoring stations, etc.).
- 2) As-built longitudinal profiles of stream reaches taken from permanent locations, and overlaid with and compared to design longitudinal profiles.
- 3) As-built cross-sections of stream reaches taken at locations, and overlaid with and compared to design cross-sections.
- 4) Photographs of the completed construction taken at permanent photo stations.
- 5) Summary stream geomorphologic data presented in a side by side comparison of the design, reference, and as-built channels.
- 6) Planting composition, locations, and densities.
- 7) Revised credit totals for the entire Mitigation Site, the Phase for which the as-built is submitted, and individual mitigation activities, in the same format as in the Credit and Debit Procedures (Exhibit G). Explain any differences in credits totals from design to as-built plans.

GENERAL MITIGATION MONITORING GUIDELINES

Monitoring activities will follow the timing and guidelines set forth in the Monitoring Requirements section of the Program Instrument, and according to the following monitoring schedules, requirements, and reporting requirements. General conditions on monitoring and reporting include the following:

- For any year in which planting was conducted, monitoring of vegetation shall take place at least 6 months following planting.
- Monitoring of all vegetation shall be conducted during the growing season.
- After Year 2, physical monitoring of stream condition (e.g. Longitudinal profiles, cross-sections, pattern monitoring) may be conducted outside of the growing season.
- If all Performance Standards have not been met in the 10th monitoring year, then a monitoring report may be required for each consecutive year until two sequential annual reports indicate that all criteria have been successfully satisfied.
- For stream chemical and biological monitoring, the monitoring event shall occur consistently in either spring or fall of each monitoring year. Spring sampling shall be conducted between March 1 and May 31. Fall sampling shall be conducted between September 1 and November 30.

MITIGATION MONITORING AND REPORTING

All monitoring reports, other than the as-built report, will include the following general items, in addition to all monitoring and reporting requirements in this Exhibit that are relevant to the Mitigation Site/Phase being monitored:

- Title page, including, where applicable, the Mitigation Site name, Phase, monitoring year(s), requested actions (credit release, adaptive management, etc.), Conservancy identification (name, address, phone number, and email address), Report preparer identification (name, address, phone number, and email address).
- Vicinity Map of the Mitigation Site, including latitude and longitude at the entrance of the site.
- A Section with all Performance Standards and monitoring requirements for the Mitigation Site/Phase.
- Complete maintenance summary for the Mitigation Site/Phase since construction, including any adaptive management or corrective action (e.g. supplemental planting, structure repair, invasive treatment, etc.).
- A map or drawing, based on the as-built drawings of the Mitigation Site/Phase, that depicts topography, all mitigation activities, and the locations of all monitoring stations (permanent photo stations, vegetation sampling plots, wetland monitoring wells or iris tubes, soil boring locations, stream gauges, precipitation gauges, cross-sections, longitudinal profiles, pattern monitoring stations, etc.).
- Overall Performance Standard table for the Mitigation Site/Phase, showing each plot, cell, or area and whether that area met Performance Standards during the current monitoring year and each previous monitoring year.
- Beginning at Year 3, a detailed narrative discussing the objectives of the Mitigation Site/Phase as described in the Mitigation Work Plan (Exhibit E), and the degree to which the Mitigation Site/Phase meets those objectives.
- A revised summary map and table depicting the total mitigation credits within the Mitigation Site/Phase and the areas where Credits have been released.
- Corrective action plan, if necessary, including the current deficiencies or issues within the Mitigation Site/Phase, proposed adaptive management, corrective actions, or maintenance activities, and an estimated schedule for completion.
- The following certification statement: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

CREDIT RELEASE TABLE (EXCEL spreadsheet available)

In the columns for Year and Type of Release(s), please specify initial, construction, Year 1, etc. for all activities for which the Conservancy is requesting credit. The percentage of released mitigation credit for each activity is tracked in the right hand column. Each monitoring year, the release will be based off the amount of successful credits that are eligible to be released, not a multiplier of the two numbers as in previous credit release schedules.

Table 1. Credit Release Table

<u>Mitigation Activity (Example)</u>	<u>Credit Total (for Mitigation Site)</u>	<u>(Year): (Type of Release(s) from Credit Release Schedule)</u>	<u>(Year): (Type of Release(s) from Credit Release Schedule)</u>	<u>(Year): (Type of Release(s) from Credit Release Schedule)</u>	<u>Percentage of Released Mitigation Credits by Activity</u>
PHASE I					
Restoration					
Enhancement					
Preservation					
Buffer Rest					
Buffer Enh					
Buffer Pres					
Adjustment Factors					
PHASE II					
Restoration					
Enhancement					
Preservation					
Buffer Rest					
Buffer Enh					
Buffer Pres					
Adjustment Factors					
<u>Total</u>		<i>(Should match RIBITS)</i>	<i>(Should match RIBITS)</i>	<i>(Should match RIBITS)</i>	

LEDGER AND FINANCIAL REPORTING

Please see Section 25 of the SDP for information on submitting ledger and Financial Assurance and Long-Term Management Funding Reports.

PRESERVATION MONITORING AND REPORTING

In Wetland Preservation Areas, Riparian Buffer Preservation Areas, and Upland Buffer Preservation areas, monitoring and reporting will be driven by the Performance Standards, and shall include the following:

1) VEGETATION

- a) Monitoring: Methodology necessary to demonstrate compliance with the approved INU treatment plan.
- b) Reporting: Reporting necessary to demonstrate compliance with the approved INU treatment plan. At a minimum, preservation areas should be included on an updated INU species Inventory Map for the Mitigation Site/Phase that shows the current location and extent of INU species onsite, and takes into account any changes in INU species populations, such as treatment that was performed in the past year.

2) VISUAL OBSERVATIONS

- a) Monitoring: Visual observations of the preservation areas shall include any changes in the buffer condition and photographic documentation of the preservation areas, if they have changed.
- b) Reporting: Visual observations shall be provided with each monitoring report through written discussion of the condition of preservation areas, any changes to the buffer, and photographic documentation, as necessary to further describe the buffer condition.

RIPARIAN OR UPLAND BUFFER MONITORING AND REPORTING

In all Restored or Enhanced Riparian and Upland Buffer areas, monitoring and reporting will be driven by the Performance Standards and INU Management Plan, and will include the following:

1) VEGETATION

a) Monitoring

- (1) Forested or scrub/shrub (i.e. woody) monitoring plots – Riparian and/or upland buffers shall be stratified into relatively homogeneous sample areas. These sample areas may correspond to planting zones, Phases, proposed habitat, cover/community type, or other characterizations. These sample areas do not have to be contiguous. Appropriate methods shall be used to randomly locate woody plots within sample areas (transects with random number generators, GIS randomization methods, etc.). Plots shall be re-established in new random locations each year.

Woody plots shall be circular in dimension and measure 1076 ft² (100 m²), which is equivalent to a circle with a radius of 18.5 ft (5.6 m). This plot size equates to 0.025 or 1/40th of an acre, which provides a multiplier of 40x for stem density conversion to per acre values.

At a minimum, the total area covered by woody plots shall be at least 2% of the sample area (*see Table 2 below*). However, additional plots will be required if the number of plots is determined to not be adequate. Sampling adequacy can be determined using a variety of methods (e.g. Species-area curves leveling off, variance stabilization, etc.) and shall be included in all monitoring reports. Conversely, after 3 years of sampling, if sampling adequacy analysis indicates oversampling, the number of plots may be reduced.

Table 2. Minimum Number of Woody Sampling Plots (based on 2% of total sample area)

Sample Area (ac.)	Number of Plots	Sample Area (ac.)	Number of Plots
1-5	4*	28	23
6	5	29	23
7	6	30	24

8	6	31	25
9	7	32	26
10	8	33	27
11	9	34	28
12	10	35	28
13	11	36	29
14	11	37	30
15	12	38	31
16	13	39	32
17	14	40	32
18	15	41	33
19	15	42	34
20	16	43	35
21	17	44	36
22	18	45	36
23	19	46	37
24	19	47	38
25	20	48	39
26	21	49	40
27	22	50+	add 1 plot per 2ac.

* Note: For sample areas 1-5 acres in size four (4) plots are recommended to ensure the number of plots is adequate.

The woody vegetation data collected shall include identification of all live woody stems found in the sampling plot by scientific and common name with corresponding wetland indicator status, native status, stem count, dominant species, stem diameter at groundline (see below), stem height, overall canopy coverage, or others, as required by the Performance Standards.

The stem diameter at groundline (SDG) of all individual woody vegetation (any height or diameter) including trees and shrubs should be measured to the nearest 0.1 inch. If significant swelling or malformation is present, the SDG should be measured directly above where the stem returns to normal taper. For multi-stemmed vegetation, the SDG for each individual stem should be measured and combined following conversion to stem area at groundline (SAG). This effectively forms a single stem for each individual. Total SAG shall be presented as ft²/acre for each plot and average SAG with measures of variance (e.g. standard deviation) shall be presented for each sample area.

- (2) Herbaceous monitoring plots - Plots shall be located on a stratified random basis within Riparian and Upland Buffers (as described above). Herbaceous vegetation sampling plots shall be square sampling frames with inside dimensions of 3.3x3.3 ft (1x1 m), which is equivalent to an area of 10.8 ft² (1 m²). (or equivalent sized circles).

A minimum of 5 herbaceous plots per acre is required. However, additional plots will be required if the number of plots is determined to not be adequate. Sampling

adequacy can be determined using a variety of methods (e.g. Species-area curves leveling off, variance stabilization, etc.) and shall be included in all monitoring reports. Conversely, after 3 years of sampling, if sampling adequacy analysis indicates oversampling, the number of plots may be reduced.

The vegetation data collected shall include identification of all herbaceous species found in the sampling plot by scientific and common name with corresponding estimate of absolute percent cover (including bare ground and/or open water), indicator status, native status, or others, as required by the Performance Standards. For estimating herbaceous species cover, it is recommended that cover classes be used, taking the midpoints of the classes for data analysis. The following cover classes are recommended (midpoints in parentheses, rounded to nearest whole integer):

Class 1:	0-1% (1%)
Class 2:	1-5% (3%)
Class 3:	5-25% (15%)
Class 4:	25-50% (38%)
Class 5:	50-75% (63%)
Class 6:	75-95% (85%)
Class 7:	95-100% (98%)

b) Reporting

The monitoring report shall include raw and summary vegetation data. The raw data can be submitted as a supplementary Excel file and should include all vegetation data from all plots. The summary data shall present the vegetation data summarized (e.g. averages, variance, totals, etc.) for each strata (homogenous sample area described above) preferably in table form. These summary tables shall include comparisons of summarized data to all applicable Performance Standards. For Riparian and Upland Buffer areas these summary tables may include the following data (depending on the approved SDP Performance Standards and INU Management Plan); woody stem density (stems/acre), canopy coverage (percentage), woody vegetation height (feet), change in tree height (percentage/year), SAG (ft²/acre), herbaceous plant cover (absolute percentage), and location and cover of INU species.

2) PHOTOGRAPHS

Visual observations shall be documented and provided with each monitoring report with the following:

a) Monitoring

Either ground level photographs will be taken facing north, south, east, and west, from stations located adjacent to each vegetation plot or one color aerial photograph (8" x 10" or larger) depicting the entire site will be taken. An aerial photograph should be taken after site construction (including planting) and again in the 5th and 10th monitoring years. Existing aerial images (if current) may be substituted (i.e. Google Earth images or state aerial images). One aerial photograph may be used for the whole Mitigation Site/Phase, including any riparian, upland, or wetland mitigation areas.

b) Reporting

For the current monitoring year, either the ground level photographs or the color aerial photograph (if applicable) will be provided with the report.

**NON-TIDAL WETLAND RESTORATION/CREATION/ENHANCEMENT AREAS
MONITORING AND REPORTING**

In non-tidal Restored, Created, or Enhanced wetland areas, monitoring and reporting will be driven by the Performance Standards, INU Management Plan, and may include the following:

1) GROWING SEASON DOCUMENTATION

This documentation is necessary ONLY if you wish to extend the growing season beyond that which is an approximation using air temperature data from (WETs) tables (NRCS National Water and Climate Center).

a) Monitoring

- (1) Growing Season – The methods of determining the beginning of the growing season of a Mitigation Site/Phase will follow the definition found in the applicable Regional Supplement to the Delineation Manual. However, dated photographs of two or more different non-evergreen vascular plants growing within the Mitigation Site/Phase AND from an adjacent forested site are required.
- (2) Soil Temperature – Soil temperatures are to be measured from within the Mitigation Site/Phase limits. Daily soil temperature data collected by data loggers are preferred but information from soil thermometers may be acceptable (the thermometer used must be calibrated with proof of calibration provided). Soil temperature data should be collected at least two times a week starting in January to provide information in support of the establishment of the start of the growing season.
- (3) Soil temperature and plant data must be collected at locations approved by the IRT. For Mitigation Site/Phases proposed as forested wetlands, soil temperature and plant growth data must be collected in a similarly situated (hydrogeomorphically) adjacent reference wetland area, as well as on the Mitigation Site/Phase.
- (4) The Mitigation Site/Phase must be monitored each year to determine the growing season. Prior year's data expires after it is submitted to the IRT and cannot be used for future years.

b) Reporting

- (1) The location (shown on map), species, and indicators of biological activity will be provided.
- (2) The raw soil temperature data, collection location (shown on map), equipment used, calibration information, and dates collected will be provided.

2) HYDROLOGY

a) Monitoring

- (1) The number and location of monitoring wells or other soil saturation measurement devices shall be sufficient to demonstrate that the Performance Standards for wetland hydrology are met for the proposed wetland type. Proposed monitoring well number and location shall be included on the overall proposed monitoring map in the as-built report. A minimum of 3 monitoring wells will be required for each Mitigation Site/Phase. For a Mitigation Site/Phase less than 20 acres, a minimum of 1 monitoring well per 2 acres will be required. For a Mitigation Site/Phase greater than 20 acres, a minimum of 1 monitoring well per 5 acres will be required.
- (2) Specific details on the soil saturation measurement device and location or groundwater monitoring wells shall be provided in the Final Mitigation Work Plan for IRT approval, acting through the Chair(s) as described in Exhibit E.
- (3) The depth of water and the hydroperiod will be measured to demonstrate that the appropriate hydrogeomorphic standards have been met and they are similar to the target wetland type or reference wetland.
- (4) During the first two years, at least six months of water level data will be obtained, with timing sufficient to confirm (a) the length and depth of near –surface saturation and/or ponding and (b) the overall depth of the dry season water level draw-down.

b) Reporting

Water level data will be submitted in each monitoring report in tabular and graph format for the current monitoring year. A hydrograph for the current monitoring year will be created and submitted. The Conservancy will provide a comparison of the current monitoring year's hydrograph with a hydrograph for the wetland type that is being restored or created. Daily precipitation data for the monitoring period with a comparison to historical average precipitation data will be provided in tabular and graphic form.

3) SOILS

(For Created or Restored wetlands)

a) Monitoring

A complete soil morphologic profile and description shall be documented immediately post- construction and at the 3rd, 7th, and 10th year following construction to document changes in overall soil morphology, particularly the development of redoximorphic features over time (such as a reduction in matrix chroma or development of redox depletions and/or concentrations), to demonstrate that soils at the site are progressing towards hydric soil conditions. Soil profiles shall be described at a distance of 10 feet from each monitoring well.

b) Reporting

Describe the soil profile, including a table with the following for each soil profile:

horizon, depth, color, texture, horizon, matrix color, redoximorphic feature type, abundance, location, and colors, and any documented field indicators per current NRCS guidance.

4) VEGETATION

a) Monitoring

- (1) Forested or scrub/shrub (i.e. woody) monitoring plots – Created, restored or enhanced wetlands shall be stratified into relatively homogeneous sample areas. These sample areas may correspond to planting zones, Phases, proposed habitat, cover/community type, or other characterizations. These sample areas do not have to be contiguous. Appropriate methods shall be used to randomly locate woody plots within sample areas (transects with random number generators, GIS randomization methods, etc.). Plots shall be re-established in new random locations each year.

Woody plots shall be circular in dimension and measure 1076 ft² (100 m²), which is equivalent to a circle with a radius of 18.5 ft (5.6 m). This plot size equates to 0.025 or 1/40th of an acre, which provides a multiplier of 40x for stem density conversion to per acre values.

At a minimum, the total area covered by woody plots shall be at least 2% of the sample area (*see Table 2 above*). However, additional plots will be required if the number of plots is determined to not be adequate. Sampling adequacy can be determined using a variety of methods (e.g. Species-area curves leveling off, variance stabilization, etc.) and shall be included in all monitoring reports. Conversely, after 3 years of sampling, if sampling adequacy analysis indicates oversampling, the number of plots may be reduced.

The woody vegetation data collected shall include identification of all live woody stems found in the sampling plot by scientific and common name with corresponding wetland indicator status, native status, stem count, stem diameter at groundline (see below), stem height, overall canopy coverage, aerial coverage by each species (using cover classes below), or others, as required by the Performance Standards.

The stem diameter at groundline (SDG) of all individual woody vegetation (any height or diameter) including trees and shrubs should be measured to the nearest 0.1 inch. If significant swelling or malformation is present, the SDG should be measured directly above where the stem returns to normal taper. For multi-stemmed vegetation, the SDG for each individual stem should be measured and combined following conversion to stem area at groundline (SAG). This effectively forms a single stem for each individual. Total SAG shall be presented as ft²/acre for each plot and average SAG with measures of variance (e.g. standard deviation) shall be presented for each sample area.

- (2) Herbaceous monitoring plots - Plots shall be located on a stratified random basis within Riparian and Upland Buffer areas (as described above). Herbaceous vegetation sampling plots shall be square sampling frames with inside dimensions of 3.3x3.3 ft (1x1 m), which is equivalent to an area of 10.8 ft² (1 m²) (or equivalent sized

circles).

A minimum of 5 herbaceous plots per acre is required. However, additional plots will be required if the number of plots is determined to not be adequate. Sampling adequacy can be determined using a variety of methods (e.g. Species-area curves leveling off, variance stabilization, etc.) and shall be all included in monitoring reports. Conversely, after 3 years of sampling, if sampling adequacy analysis indicates oversampling, the number of plots may be reduced.

The vegetation data collected shall include identification of all herbaceous species found in the sampling plot by scientific and common name with corresponding estimate of absolute percent cover (including bare ground and/or open water), indicator status, native status, or others, as required by the Performance Standards. For estimating herbaceous species cover, it is recommended that cover classes be used, taking the midpoints of the classes for data analysis. The following cover classes are recommended (midpoints in parentheses, rounded to nearest whole integer):

Class 1:	0-1% (1%)
Class 2:	1-5% (3%)
Class 3:	5-25% (15%)
Class 4:	25-50% (38%)
Class 5:	50-75% (63%)
Class 6:	75-95% (85%)
Class 7:	95-100% (98%)

b) Reporting

The monitoring report shall include raw and summary vegetation data. The raw data can be submitted as a supplementary Excel file and should include all vegetation data from all plots. The summary data shall present the vegetation data summarized (e.g. averages, variance, totals, etc.) for each strata (homogenous sample area described above) preferably in table form. These summary tables shall include comparisons of summarized data to all applicable Performance Standards. For Created, Restored or Enhanced wetland areas these summary tables may include the following data (depending on the approved SDP Performance Standards and INU Management

Plan); hydrophytic vegetation dominance test (as defined in the Corps' 1987 Wetland Delineation Manual and subsequent Regional Supplements), prevalence index (as defined in the Corps' 1987 Wetland Delineation Manual and subsequent Regional Supplements), stem density (stems/acre), canopy cover by all woody species (percentage), woody vegetation height (feet), change in tree height (percentage/year), SAG (ft²/acre), herbaceous plant cover (absolute percentage), and location and cover of INU species.

5) PHOTOGRAPHS

Visual observations shall be documented and provided with each monitoring report with the following:

a) Monitoring

Either ground level photographs will be taken facing north, south, east, and west, from stations located adjacent to each vegetation plot or one color aerial photograph (8" x 10" or larger) depicting the entire site will be taken. An aerial photograph should be taken after site construction (including planting) and again in the 5th and 10th monitoring years. Existing aerial images (if current) may be substituted (i.e. Google Earth images or state aerial images). One aerial photograph may be used for the whole Mitigation Site or Phase, including any riparian, upland, or wetland mitigation areas.

b) Reporting

For the current monitoring year, either the ground level photographs or the color aerial photograph (if applicable) will be provided with the report.

STREAM MONITORING AND REPORTING

1) BANKFULL EVENT DOCUMENTATION

For stream Enhancement or Restoration activities, stream gauge data and documentation of any bankfull events on the Mitigation Site/Phase will be provided, as recorded by onsite stream gauge(s) and/or onsite or nearby precipitation data.

2) CROSS-SECTIONS

Where Performance Standards indicate that channel dimension will be measured and analyzed (Width/Depth Ratio, Bank Height Ratio, Entrenchment Ratio, Cross-Sectional Area, or others), the following shall occur:

a) Monitoring

Permanent cross-sections shall be established to ensure that the same locations are used each monitoring year. A minimum of one cross-section in appropriate stream preservation reaches (see Performance Standards), and one cross-section per 1000 linear feet in enhancement and restoration reaches will be required. In enhancement or restoration reaches, cross-sections should include at least 1 riffle and 1 pool cross-section on each reach, and a proportionate amount of riffle and pool cross-sections on each reach. Total number required will vary depending on project length and complexity. Additional cross-sections may be required to show areas where aggradation, degradation, erosion, and mid-channel bars have developed. Cross-sectional measurements shall include

streambanks, streambed, water surface, bankfull, and adjacent floodplain. The bankfull elevation in the channel shall be measured at the as-built monitoring, and the as-built bankfull shall be used as the bankfull elevation in each subsequent monitoring event. When calculating the Entrenchment Ratio, the floodplain may be measured separate from the cross-section during field data collection. Ground level photographs will be taken annually during November or December of the current monitoring year at all cross-sections. These photographs will be taken facing upstream at the cross-section, downstream at the cross-section, and left bank and right bank, showing the riparian buffer

area and stream bank.

b) Reporting

Cross-section reporting shall include a graph of the current monitoring year's cross-section, with the cross sections for all previous monitoring years overlain. Callouts on the graph shall be appropriate for the Performance Standards, and may include bankfull elevation, bankfull width, bankfull depth, floodprone elevation, floodprone depth, top of bank location and elevation, or others, as appropriate. A table of the appropriate Performance Standard parameters will be provided, showing all individual cross-section calculations and a reach-averaged calculation, and comparing the as-built to the current year's monitoring data. Ground level photographs shall be provided with each monitoring report, according to the monitoring requirements.

3) LONGITUDINAL PROFILE

Where Performance Standards indicate that channel bed form or vertical stability parameters will be measured and analyzed (Pool-to-pool spacing, max pool depth, slope, riffle slope, or others), the following shall occur:

a) Monitoring

A surveyed longitudinal profile will be conducted of the reach in the thalweg of the channel, from 20 feet upstream of the start of the reach to 20 feet downstream of the end of the reach (unless property boundaries, stream confluences, or other constraints are present). Longitudinal profile measurements should include the locations, depths, and slopes of riffles, runs, pools, and glides, and representative water surface elevation and bankfull surface elevation lines.

b) Reporting

Longitudinal profile reporting shall include a graph of the current monitoring year's profile, with the profiles for all previous monitoring years overlain. Callouts on the graph shall be appropriate for the Performance Standards, and may include bankfull elevation, water surface elevation, locations of facets, or others, as appropriate. Pool-to-pool spacing is measured from the top of pool to top of pool. Max pool depth is the pool depth measured from the reach bankfull elevation to the thalweg in the deepest part of the pool. Channel bed slope shall be measured from the top of a riffle to the top of another riffle over a channel length of at least 10 bankfull widths. Riffle slope is measured from the top of riffle to the bottom of the same riffle (top of run). A table of the appropriate Performance Standard parameters will be provided in each monitoring report, showing all individual profile calculations and a reach-averaged calculation, and comparing the as-built to the current year's monitoring data for each parameter.

4) PATTERN

Where Performance Standards indicate that lateral stability or bank migration parameters will be measured and analyzed (Meander Width Ratio, Sinuosity, Radius of Curvature, Bank Erodibility Hazard Index (BEHI), or others), the following shall occur:

a) Monitoring

Permanent pattern monitoring stations shall be established to ensure that the same locations are used each monitoring year. A minimum of three pattern monitoring stations shall be established to measure Meander Width Ratio, Radius of Curvature, or BEHI. A minimum of one pattern monitoring station shall be established to measure sinuosity. Total number of monitoring stations required will vary depending on project length and complexity. Sinuosity shall be assessed along a stream reach that is a minimum of 10 bankfull widths in length. When BEHI is conducted, all individual BEHI metrics shall be measured at each permanent station in the field during each monitoring event.

b) Reporting

Pattern reporting shall include a table of the appropriate Performance Standard parameters, showing all individual pattern measurements and a reach-averaged calculation or ratio (if applicable), and comparing the as-built to the current year's monitoring data for each parameter. BEHI reporting shall include providing the current monitoring year's BEHI worksheet, and a table of the total BEHI score for each monitoring year from as-built to the current year.

5) STREAM BANK VEGETATION

Where Performance Standards indicate that stream bank vegetation will be measured and analyzed (Livestakes, Herbaceous Coverage, Bare Ground Coverage, or others), the following shall occur:

a) Monitoring

Stream bank vegetation plots (50 square feet in size or larger) shall be located on each bank representative permanent cross-section or pattern monitoring stations.

b) Reporting

Stream vegetation reporting may include a table of the results of the vegetation surveys, including per plot reporting of the species and number of livestakes or woody stems, extrapolated number livestakes per 50 square feet, estimated herbaceous coverage, and/or estimated bare ground coverage.

6) MATERIALS

Where Performance Standards indicate that stream bed materials will be measured and analyzed (D50 particle size, or others), the following shall occur:

a) Monitoring

Conduct the Wolman pebble count technique within a representative amount of constructed riffles within a reach. Pebble counts may be associated with representative permanent cross-section or pattern monitoring stations, or set up within the longitudinal profile at independent monitoring stations.

b) Reporting

Materials reporting shall include a table of the representative D50 of the constructed riffle pebble count for each reach during each monitoring year, and the size class represented by the as-built and current monitoring year D50.

7) STRUCTURES

Where Performance Standards indicate that structure stability will be evaluated and analyzed, the following shall occur:

a) Monitoring

Ground level photographs, documenting the structural integrity and function of each instream structure, will be taken looking upstream at the structure, showing at a minimum the instream structure at the thalweg (or location of buried sill), the upstream and downstream channel, and the immediately adjacent stream banks to bankfull elevation, where possible.

b) Reporting

Ground level photographs shall be provided with each monitoring report, documenting structure conditions during the current monitoring year. The report shall note any structural failures or issues, as listed in the Performance Standards.

8) AQUATIC HABITAT

Where Performance Standards indicate that aquatic habitat will be evaluated and analyzed, the following shall occur:

a) Monitoring

A habitat assessment shall be conducted at either each benthic macroinvertebrate monitoring station (as outlined below), or at a minimum one representative monitoring station per reach. Procedures and forms for habitat assessment can be located in DEQ's *Biological Monitoring Program Quality Assurance Project Plan for Wadeable Streams and Rivers* (DEQ, 2008) Appendix B (iii) or EPA's *Rapid Bioassessment Protocol for Use in Streams and Wadeable Rivers* (Barbour et. al, 1999) Chapter 5.

b) Reporting

Habitat reporting shall include providing the current monitoring year's Habitat Assessment worksheet for each reach. A table shall be provided in the monitoring report that shows the habitat assessment total score for all monitoring years for each reach.

9) CHEMICAL AND BIOLOGICAL MONITORING

The objective of benthic macroinvertebrate sampling is to allow for comparison between sites involving stream channel restoration activities; to identify issues that may need to be addressed in restoration design; to determine realistic expectations for the post-restoration aquatic community; and to inform future stream restoration designs and efforts. The following monitoring and reporting shall occur during every monitoring year within stream restoration reaches onsite:

a) Monitoring

- (1) Monitoring events shall occur consistently in either spring or fall of each monitoring year. Spring sampling shall be conducted between March 1 and May 31. Fall sampling shall be conducted between September 1 and November 30. Water chemistry and benthic samples shall be collected simultaneously at each of the monitoring locations. The number and location of monitoring stations shall be determined and approved by the IRT on a site-specific basis, and shall remain consistent throughout the monitoring period. Surveys of other biota (e.g. fish, waterfowl, amphibians, etc.) may occur on a case-by-case basis, especially in the case of potential or confirmed presence of rare, threatened, or endangered species.
- (2) Scientific Collection permits for conducting benthic sampling shall be obtained from Virginia Department of Game and Inland Fisheries (information available at <http://www.dgif.virginia.gov/permits/guide.asp>). All field sampling as well as laboratory sample processing shall be performed by or under supervision of an aquatic biologist. As required by the collection permit, all sampling data shall be submitted to VDGIF using their annual reporting protocol, in addition to the reporting requirements within this SDP.
- (3) Chemistry – Temperature, total dissolved oxygen, pH, and conductivity shall be collected at each designated monitoring location site using a multi-probe meter. Detailed information on testing, inspection, and maintenance requirements of all multi-probe meters for measurement of stream physicochemical parameters can be found in Section IV of the *Standard Operating Procedures Manual for the Department of Environmental Quality Office of Water Quality Monitoring and Assessment Program* (DEQ, 2010).
- (4) Biological – A quantitative survey for benthic macroinvertebrates shall be conducted at permanent monitoring locations. Benthic macroinvertebrates shall be identified at least to the genus level. Detailed procedures and methods for biological monitoring, field methods, laboratory methods, and quality assurance can be found in *Biological Monitoring Program Quality Assurance Project Plan for Wadeable Streams and Rivers* (DEQ, 2008). This document shall serve as the basis for the field monitoring and laboratory data collection methods. Two sampling procedures are presented:
 - (a) Single Habitat is used for streams in which riffles or riffle/pool complexes with appropriate substrate (cobble) are available for sampling and are large enough so that at least 1m² of the substrate can be sampled.
 - (b) Multiple Habitat is used in cases where no or few riffles are present, the riffles in the reach are too small and/or too few to sample 1m² of substrate. Multi-habitat sampling is most commonly performed in, but not limited to, low gradient or coastal plain streams.

b) Reporting

- (1) Benthic Macroinvertebrate reporting shall include a table showing the VSCI or CPMI total score for all monitoring years for each reach.
 - (a) For non-coastal streams, use the resulting benthic macroinvertebrate data to calculate the Stream Condition Index for Virginia Non-Coastal Streams (VSCI).

This Stream Condition Index for Virginia Non-Coastal Streams (September 2003) is found at <http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityMonitoring/BiologicalMonitoring/vsci.pdf>. An Access database used to calculate VSCI and CPMI can be provided upon request.

- (b) For coastal streams, use the resulting data to generate a Coastal Plain Macroinvertebrate Index (December 2013) found at <http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityMonitoring/ProbabilisticMonitoring/vcpmi.pdf>. An Access database used to calculate VSCI and CPMI can be provided upon request.

ATTACHMENT C: Exhibit 6.

CREDIT RELEASE SCHEDULES

Credit releases are dependent upon construction and performance of the Mitigation Site. Upon submittal of all appropriate documentation by the Conservancy and subsequent approval by the IRT, the Chairs will provide in writing any release of Credits to the Conservancy in accordance with the following schedules.

INITIAL CREDIT RELEASE SCHEDULE

Preservation Credits (up to 50%) may be available for Debiting for each Phase of the Mitigation Site for which Initial Release is requested upon implementation of the following:

- a. Approval of this SDP;
- b. Approval of the CMWP for each Phase or Site of the Mitigation Site for which Initial Release is requested as described in Exhibit E;
- c. Approval of Mitigation Site Final Budget and Maintenance and Monitoring funding;
- d. Payment into VARTF Endowment for Long-Term Management;
- e. Securing the Property interests necessary for the entire Mitigation Site limits (e.g. fee simple acquisition, acquisition of a mitigation easement, or otherwise securing appropriate property interest);
- f. Submittal of a copy of the approved and recorded Site Protection Instrument that protects the Mitigation Site in perpetuity, including the plat graphic.
- g. Approval of the LTMP;
- h. All of the above documents and all associated exhibits submitted electronically to the Chairs and uploaded to RIBITS; and
- i. Submittal of Shape files, KML/KMZ files of the Mitigation Site limits and the Geographic Service Area

Credits may be released by the Chairs, in consultation with the IRT, as noted in the schedules below on the following schedule. One Credit release may occur per monitoring and reporting season (Credit releases may not be combined).

The IRT may withhold Credits based on field conditions.

Wetland Credit Release Schedule

- a. Construction Release (as-built):
25% upon completion and approval of all initial physical and biological improvements made pursuant to the FMWP and IRT approval of the as-built report.
- b. Second Release:
60% (up to 85% cumulative) upon meeting all Performance Standards in Exhibit F applicable for the year in which monitoring is occurring.
- c. Third Release:
15% (up to 100% cumulative) upon meeting all Year 5 Performance Standards in Exhibit F.

Wetland and Stream Preservation, Buffer Preservation, Watershed and T&E Preservation AF Credit Release Schedule

- a. Initial Release:
50% upon completion of the initial release requirements listed above
- b. Second Release:
50% (100% cumulative) upon meeting all Performance Standards in Exhibit F.

Livestock Exclusion AF Credit Release Schedule

- a. Initial Release:
100% upon completion of the initial release requirements listed above and evidence has been provided that livestock have been excluded from the site (i.e. livestock removed and/or fences installed)

Threatened and Endangered Species Adjustment Factor Credit Release Schedule

- a. Associated with Stream Preservation – See Stream Buffer Preservation Release Schedule above
- b. Associated with Stream Restoration/Enhancement – See Stream Restoration/Enhancement Release Schedule below

Stream Buffer Enhancement/Restoration/Re-establishment Credit Release Schedule

- a. Construction Release (as-built):
25% upon completion and approval of all initial physical and biological improvements made pursuant to the FMWP and IRT approval of the as-built report. IRT may withhold credit based on field conditions.
- b. Second Release:

60% of total credits (up to 85% cumulative) upon meeting all Performance Standards applicable for the year in which monitoring is occurring in Exhibit F.

- c. Third Release:
15% of total credits (up to 100% cumulative) upon meeting all Year 5 Performance Standards in Exhibit F.

Stream Restoration/Enhancement/T&E AF Associated with R/E Credit Release Schedule

- a. Construction Release (as-built):
25% upon completion and approval of all initial physical and biological improvements made pursuant to the FMWP and IRT approval of the as-built report.
- b. Second Release:
10-20% of total Credits (up to 45% cumulative) upon the occurrence of a bankfull event, and all Performance Standards in Exhibit F are met.
- c. Third Release:
10-20% of total Credits (up to 65% cumulative) upon the occurrence of a bankfull event, and all Performance Standards in Exhibit F are met.
- d. Fourth Release:
10-20% of total Credits (up to 85% cumulative) upon the occurrence of a bankfull event, and all Performance Standards in Exhibit F are met.
- e. Fifth Release:
Up to 15% of total Credits (100% cumulative) upon the occurrence of a bankfull event, and all Performance Standards in Exhibit F are met.
- f. No additional credits will be released after Year 4 until a bankfull event occurs. For each additional monitoring year, no more than 20% of total Credits will be released not to exceed the remaining available Credits if a bankfull event occurs that year, the channel is stable, and all Performance Standards in Exhibit F are met.

If at any time, the number of Credits Debited exceeds the number meeting all Performance Standards then the Conservancy shall voluntarily cease Credit sales and notify the IRT. This may occur at any time during the year.

CREDIT RELEASE SCHEDULES

Typical Wetland Credit Release Schedule

Release Activity	Percentage of Credits to be Released	Requirements
Construction	25%	<ul style="list-style-type: none"> • Approval of as-built by IRT •
2nd Release	60%	<ul style="list-style-type: none"> • Meeting Performance Standards for year monitored •
3rd Release	15%	<ul style="list-style-type: none"> • Meeting Year 5 Performance Standards •

Typical Wetland and Stream Preservation, Buffer Preservation, Watershed, and T&E Preservation AF Credit Release Schedule

Release Activity	Percentage of Credits to be Released	Requirements
Initial Release	50%	<ul style="list-style-type: none"> • Completion of initial release requirements
2nd Release	50%	<ul style="list-style-type: none"> • Meeting Performance Standards •

Typical Livestock Exclusion AF Credit Release Schedule

Release Activity	Percentage of Credits to be Released	Requirements
Initial Release	100%	<ul style="list-style-type: none"> • Completion of initial release requirements • Livestock excluded

Typical Stream Buffer Enhancement/Restoration/Re-establishment Credit Release Schedule

Release Activity	Percentage of Potential Credits Released	Requirements
Construction	25%	<ul style="list-style-type: none"> • Approval of as-built by IRT
2nd release	60%	<ul style="list-style-type: none"> • Meeting Performance Standards •
3rd Release	15%	<ul style="list-style-type: none"> • Meeting Year 5 Performance Standards •

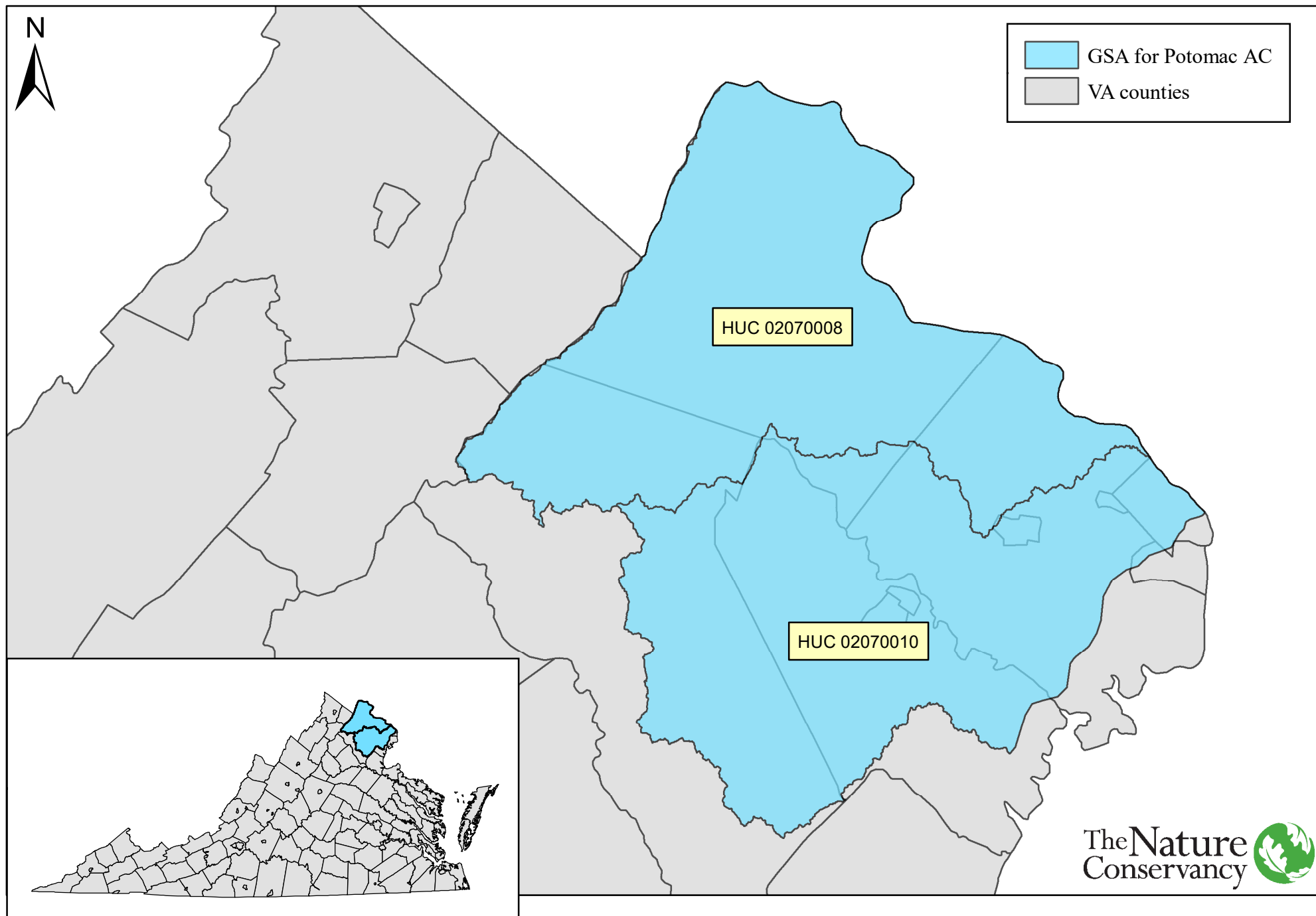
**Typical Stream Credit Release Schedule
Stream Restoration/Enhancement and T&E AF Associated with R/E**

Release Activity	Percentage of Credits Meeting all PS Eligible for Release	Requirements
Construction	25%	<ul style="list-style-type: none"> • Approval of as-built by IRT
2nd Release	10-20%**	<ul style="list-style-type: none"> • Meeting Performance Standards • Upon the occurrence of a bankfull event •
3rd Release	10-20%**	<ul style="list-style-type: none"> • Meeting Performance Standards • Upon the occurrence of a bankfull event
4th Release	10-20%**	<ul style="list-style-type: none"> • Meeting Performance Standards • Upon the occurrence of a bankfull event •
5th Release	minimum 15%	<ul style="list-style-type: none"> • Meeting Performance Standards • Upon the occurrence of a bankfull event •

** 10% if no bankfull event, 20% if bankfull & channel is stable

ATTACHMENT D: WATERSHED MAP

Potomac River Basin in Virginia Geographic Service Area



ATTACHMENT E: CONTRACTOR QUESTIONNAIRE

Please answer each of the following questions in the space provided. If additional space is required, please continue on a separate sheet and attach it to this form.

General Information:

Company Name: _____

Company Address: _____

Contact Name: _____

Phone & Email: _____

Years in Business: _____

Contractor Information:

Please indicate if you have done business with TNC in the past and provide contact information below.

Statement of Qualifications:

Please provide a statement of qualifications below. This statement of qualifications must include information pertaining to the attached scope of work.

Employee Information

Number of Employees: _____

Service Information

Are there any geographical areas that your company is not able to serve?

_____ YES _____ NO

If yes, please list.

Minority and Women - Owned Business Enterprise

Please indicate below if your firm is at least 51% minority or women owned, controlled and operated. Identify the % of minority or women ownership.

Legal

If your firm is bonded, please indicate type:

Performance Bond _____ YES _____ NO

Labor & Material Payment Bond _____ YES _____ NO

Are there any judgments, suits or claims pending against your firm?

_____ YES _____ NO

If yes, please explain:

Has your firm operated under a different name? (Please provide)

**ATTACHMENT F:
THE NATURE CONSERVANCY’S STANDARD CONTRACT FOR
SERVICES**



CONTRACT NUMBER:		
ACCOUNTING INFORMATION		
Project Name:		
Project Number:		
Source of funds:	U.S. Government	<input type="checkbox"/>
	State Government	<input type="checkbox"/>
	Private	<input checked="" type="checkbox"/>
	Private as Gov't Match	<input type="checkbox"/>

CONTRACT FOR SERVICES

This Contract is entered into by and between **The Nature Conservancy**, a non-profit corporation (“**Conservancy**”), through the following U.S. office:

Conservancy Business Unit:	The Nature Conservancy in Virginia – Charlottesville Field Office
Contact:	
Address:	
Telephone:	
Email Address:	

and the following person or entity (“**Contractor**”):

Name of Contractor:	
Contact:	
Address:	
Telephone:	
Email Address:	

1. SERVICES. Contractor agrees to perform the services described in **Exhibit A**, including any deliverables cited (collectively, the “Services”), in accordance with any exhibits or attachments to this Contract, all of which are incorporated by reference into this Contract. Unless otherwise noted, in the event of a conflict between the terms of **Exhibit A** and any other terms of this Contract, including any other Exhibit, such other terms of this Contract will control. Contractor must obtain the landowner’s permission before entering upon land to perform the Services. The parties acknowledge that none of the Services are to be performed or delivered outside of the United States. Contractor represents that it is qualified and willing to perform the Services as an independent contractor for a Virginia Aquatic Resources Trust Fund site located in the Commonwealth of Virginia (the “Project”).

2. PAYMENTS. Conservancy will compensate Contractor for the Services as follows:

RFP for VARTF Mitigation Projects – Potomac Nontidal Wetlands

6/21/2019

(a) **Contract Fee.** For all of the Services, Conservancy will pay Contractor a fixed fee (the “Contract Fee”) of \$_____ (_____ Dollars) in accordance with the following pricing and schedule, but subject to reduction as provided below for failure to deliver the requisite quantity of mitigation credits. Invoices will not be submitted until Conservancy has verified successful completion of tasks involved in each invoice in accordance with the terms of this Contract. Contractor shall notify Conservancy in writing upon completion of each milestone described below, and Conservancy shall verify completion of such milestone within ten (10) business days after such notification or within the timeframe otherwise indicated in this Contract. Any tasks that exceed or are outside the Services as described on **Exhibit A** must be submitted in writing to Conservancy for Conservancy’s written approval before the task is performed if an increase in the Contract Fee is associated with such task. No claim for an adjustment from the payment amount specified in this Contract will be valid without such written authorization. Conservancy shall have the right at all times to inspect the work, all materials and workmanship; to reject any defects in any of the above; and/or to require that any such defects be corrected. The order in which tasks are to be completed shall not be changed without the prior written consent of Conservancy. Time is of the essence with this Contract.

Full Delivery Cost/Credit

Credits Delivered	Total Cost	Cost/Credit

In consideration of the Contract Fee, Contractor shall deliver to Conservancy a total of _____ (_____) [Unified Stream Methodology (USM) stream, non-tidal wetland, or tidal wetland, as applicable] mitigation credits generated by the Project as determined by the United States Army Corps of Engineers (Corps). A reduction in the total number of credits expected from this Contract may be warranted following completion of Task 7 based on the Site Development Plan (SDP) approved by the Interagency Review Team (IRT), however the cost per credit may not be modified. A reduction of not more than five percent (5%) in anticipated credits at this stage will not be considered a failure to perform by Contractor. If a reduction in the total number of credits expected from this Contract occurs based on the SDP, the Contract will be amended to reflect the new credit amount and reduced total Contract Fee (determined by reducing the Contract Fee by the product of the difference between _____ and the anticipated number of approved credits in the SDP, multiplied by \$_____). An increase in the credits at Task 7 will not be considered a modification of the Contract and no change in the Contract Fee will be required.

Contractor shall release credits according to the credit release schedule in the SDP approved by the IRT. The anticipated credit release schedule, based on IRT-approved guidelines for VARTF projects, is provided in **Exhibit B**. Adjustments to the credit release schedule may be warranted following completion of Task 7 based on the SDP approved by the IRT, in which case the Contract will be amended to reflect the new credit release schedule. Payments for Tasks 10, 12, 17-20, and 23 shall be reduced at the above cost/credit for every credit or portion of a credit that is not delivered according to the credit release schedule below, as adjusted in the SDP approved by the IRT and included in an amendment to the Contract, or as otherwise approved by the Conservancy.

Full Delivery Payment Milestones

Task	Project Milestone	Target Date	Payment Amount
1	Pre-Application Process Completed ¹		
2	Prospectus Process Completed, and IEL Received by TNC ¹		
3	Historic Resources and/or T&E Species Surveys (if Required) ¹		
4	Surface Water Delineation		
5	Topographic/Geomorphic Survey		
6	Concept Plan		
7a	Site Development Plan Approved by TNC and Submitted to IRT		
7b	Site Development Plan Signed by IRT and TNC ¹		
8	Establish Stewardship Endowment		
9	Record Long-Term Site Protection		
10	Credit Delivery (Preservation, RTE or Watershed Adjustment Factor, Conservation Easement, as applicable)		
11	Final Mitigation Design Approved by TNC and IRT		
12	Not Applicable		
13	Acquisition of Permits		
14	Establish Long-Term Management Endowment		
15	Establish Maintenance and Monitoring Fund ¹		
16a	50% Implementation of Construction		
16b	100% Implementation of Construction		
16c	Completion of Planting		
17a	As-Built Survey and Report		
17b	Credit Delivery (Construction Release)		
18a	Success Monitoring and Maintenance Year 1		
18b	Credit Delivery (Monitoring Release Year 1)		
19a	Success Monitoring and Maintenance Year 2		
19b	Credit Delivery (Monitoring Release Year 2)		
20a	Success Monitoring and Maintenance Year 3		
20b	Credit Delivery (Monitoring Release Year 3)		
21	Success Monitoring and Maintenance Year 5		
22	Success Monitoring and Maintenance Year 7		
23a	Success Monitoring and Maintenance Year 10		
23b	Credit Delivery (Final Release)		

¹The Contractor shall not proceed with tasks beyond this task until Conservancy provides written notice to proceed, which is contingent on the Corps providing approval to move forward.

(b) No Expense Reimbursement. Unless explicitly stated otherwise in this Contract, Contractor will not be reimbursed for any expenses it incurs in performing the Services.

(c) Invoices and Payments. Requests for payment of the Contract Fee and any authorized reimbursements must be submitted to Conservancy in the form of an invoice summarizing the work performed and reimbursable expenses incurred during the invoice period. Any expenses authorized for reimbursement by Conservancy must be: (i) substantiated by proper and adequate documentation (such

as receipts), if requested by Conservancy; (ii) reasonable in amount; and (iii) related to and in furtherance of the Contract purposes. Invoices will be subject to review and approval by Conservancy, and Conservancy may deny payment of requests received more than sixty (60) days after the final deadline for completion of the Services. Conservancy will make all payments by check, subject to Conservancy's receipt from the Contractor of a properly completed IRS Form W-9. Prior to making any and all payments due hereunder, Conservancy, in its sole discretion, may require Contractor to provide to Conservancy receipts and mechanics' and materialmen's lien waivers covering the value of all labor, services and materials for which payment is requested.

(d) Withholding by Conservancy. Contractor shall provide Conservancy with a list of all subcontractors and laborers working on the Project, as well as all suppliers of material or equipment for the Project (whether purchased or rented), and shall update such list promptly in the event of any changes, no later than one business day after the change. Conservancy, on the basis of reasonable and verifiable evidence, may withhold from any payment otherwise due to Contractor under this Contract such amounts as may be necessary for protection against loss caused by defective work not remedied, reasonable evidence that the work cannot be completed for the then remaining unpaid portion of the Contract Fee, damages and/or delays caused by Contractor, and for any legitimate set-off Conservancy may have (including, but not limited to, any which may result from any notice of mechanic's lien that Conservancy or the current landowner may receive with respect to the Project). If any claim of lien or other demand for payment or security therefor is made or filed with Conservancy or as to the Project by any person claiming that Contractor or any subcontractor or supplier, or any other person claiming under any of them, has failed to perform its contractual obligations or to make payment for any labor, materials, equipment or other item furnished or obligation incurred in connection with the Project, or if at any time there shall be evidence of such nonperformance or nonpayment of any claim of lien or other demand for which, if established, Conservancy, the landowner and/or the property on which the Project is located might become liable, then Conservancy shall have the right to retain from any payment then due or thereafter to become due under this Contract or to be reimbursed to Contractor an amount sufficient to: (1) satisfy, discharge and defend against any such claim of lien or other demand, or any action or proceeding thereon which may be brought to judgment or award; (2) make good any such nonpayment, nonperformance, damage, failure or default; and/or (3) compensate Conservancy and/or the current landowner for and indemnify both of them against any and all loss, liability, damage, cost and expense (including attorneys' and consultant's fees and costs) which may be sustained or incurred in connection therewith. If appropriate, Conservancy may also elect to make any given payment due under this Contract jointly to Contractor and any person or entity which may make any such claim of lien or other demand.

(e) Release. Should any subcontractor, supplier or other person make, record or file, or maintain any action on or respecting a claim of mechanic's lien, equitable lien, payment of performance bond, or another lien, relating to the Project, Contractor shall immediately and at its own expense procure, furnish and record appropriate statutory release bonds which will extinguish or expunge such claim or lien.

(f) Effect of Payment. Conservancy's acceptance of and/or payment for the completed work performed by Contractor, and payment therefor by Conservancy, shall not relieve Contractor of its obligation to Conservancy, which obligation is hereby acknowledged, to complete the work in accordance with the highest standards of Contractor's profession or craft and to the satisfaction of Conservancy, and to discharge any and all liens for the benefit of subcontractors for the work covered by this Contract, which have attached or may subsequently attach to the property on which the work has been performed or to any interest of Conservancy therein.

3. CONTRACT COMMENCEMENT AND EXPIRATION. Unless otherwise indicated in **Exhibit A**, Contractor must begin performing the Services promptly after this Contract has been signed by both parties and must complete all of the Services no later than _____ or, as to specific tasks, such earlier date(s) as may be specified in **Exhibit A** (provided that no work may commence before the later signature date below). Any deadline(s) set forth in **Exhibit A** may be extended only with Conservancy's prior written consent. This Contract will expire automatically once all the Services have been completed and final payment by Conservancy has been made. Upon such expiration, the parties will have no further rights or obligations under this Contract, except as otherwise provided in **Exhibit A**.

4. PERFORMANCE OF WORK. Contractor represents that it is qualified and willing to perform the Services in accordance with the highest standards of Contractor's profession or craft. Contractor is qualified and willing to perform the Services as an independent contractor in accordance with the highest standards of Contractor's profession or craft and to the satisfaction of Conservancy. Contractor shall retain the responsibility for the quality and completion of the Services and the work of any subcontractors and for adhering to applicable regulations, permits, plans, and specifications. Contractor shall not be paid for any work found by Conservancy to be unsatisfactory. Contractor shall at all times provide protection from weather conditions so as to maintain all work, materials, apparatus and fixtures free from damage. At the end of a day's work, Contractor shall protect all work likely to be damaged and shall secure the premises. Any work damaged by failure to provide protection as required above shall be replaced with new work at Contractor's expense.

5. LIABILITY; INDEMNIFICATION; INSURANCE. Contractor acknowledges and agrees that it is performing the Services entirely at its own risk, and agrees to indemnify, defend, and hold Conservancy and its directors, officers, employees and agents harmless from and against any and all liabilities, demands, damages, claims, losses, costs, or expenses, including reasonable attorneys' fees, to the extent that they arise out of or result, directly or indirectly, from the negligence, misconduct, breach of warranty, representation, or covenant, or any act or omission by Contractor or any of its employees or agents (including any permitted subcontractors) in performing the Services. Contractor's indemnity and defense obligations under this Contract will survive for a period of three (3) years after the expiration or earlier termination of this Contract with respect to any matters that occurred, or rights that accrued, prior to such expiration or earlier termination. Contractor must also carry, throughout the term of this Contract, one or more insurance policies providing: (a) workers' compensation insurance, as and to the extent required by applicable law; (b) commercial liability insurance written on an occurrence basis, with a liability limit of at least \$2,000,000 per occurrence; (c) motor vehicle liability insurance, covering all owned and non-owned vehicles used in performing the Services, with a liability limit of at least \$1,000,000 per occurrence; and (d) if Contractor is providing consulting services, professional liability insurance written on an occurrence basis. Contractor's policy(ies) must be primary insurance to any other valid and collectible insurance available to Conservancy with respect to any claim arising out Contractor's performance of the Services. Contractor must have Conservancy named as an additional insured on Contractor's commercial liability insurance policy on a primary, non-contributory basis and provide Conservancy with evidence that the required coverage is in effect before any work under the Contract commences. The Contractor shall also obtain and maintain, or cause the construction subcontractor to obtain and maintain, a payment and performance bond in the amount of \$_____ covering the cost of project construction. The bond, issued to the Contractor or the construction subcontractor by an insurer or indemnity company licensed to do business in Virginia and reasonably satisfactory to Conservancy and the landowner, shall be obtained and provided to

Conservancy prior to the start of Task 16 – Implementation of Construction and Planting and maintained until completion of Task 17 – As-Built Survey and Report and Credit Delivery.

6. TERMINATION; REMEDIES. Conservancy may terminate this Contract at any time, in its sole discretion, upon two (2) weeks' written notice to Contractor. Should this occur, Contractor must cease all work immediately upon receipt of the termination notice and Conservancy will pay Contractor for the Services that have been satisfactorily completed, as determined by Conservancy, as of the termination date. In addition, if Contractor defaults in the performance of any duty, obligation, or covenant under this Contract, whether for circumstances within or beyond Contractor's control, or if Conservancy determines at any time that the Services cannot be performed in accordance with applicable law and/or Conservancy's policies and standard operating procedures, then Conservancy may immediately terminate this Contract by notice to Contractor. Should termination occur as a result of Contractor's default, Conservancy may, without limiting any other remedies available to it under applicable law, recover damages from Contractor resulting from Contractor's default and may offset any amounts payable to Contractor against such damages. Conservancy will pay to Contractor any remaining balance of such payable amounts.

7. INDEPENDENT CONTRACTOR. The parties intend this Contract to create an independent contractor-client relationship and Contractor is solely responsible for the conduct and control of the Services and fulfilling its duties and obligations under this Contract. Contractor is not an agent or employee of Conservancy, and no joint venture or principal-agent relationship exists. Contractor and its employees, if applicable, are not entitled to any of the benefits that Conservancy provides for its employees. Neither Conservancy nor Contractor will have any right, power, or authority by virtue of this Contract to create any obligation, express or implied, on behalf of the other.

8. ASSIGNMENT; SUBCONTRACT. Contractor shall not make a complete assignment of this Contract, nor shall Contractor assign design services under this Contract or subcontract any portion of the design services, without Conservancy's prior written consent, which may be withheld in Conservancy's sole discretion. Contractor may subcontract services under this Contract other than design services, and prior to commencement of any such subcontracted work shall provide Conservancy with a list of all subcontractors to be used on the Project, and shall update such list promptly with any changes thereto.

9. INTELLECTUAL PROPERTY RIGHTS.

(a) Works Made for Hire. With the exception of works unrelated to this Project that are original to or otherwise owned by Contractor prior to the commencement date of this Contract, all right, title, and interest, including copyright, in any reports, studies, photographs, software (including programming codes), drawings, designs, writings, or other works or documents produced in performing the Services, along with all related drafts, versions, and other material created as part of the Services (collectively the "Works"), are "works made for hire" as defined under the copyright laws of the United States. To the extent that any of the Works are not works made for hire, Contractor, through this Contract, unconditionally assigns to Conservancy and its successors and assigns all right, title, and interest, including copyright and other intellectual property rights, in and to the Works in all media (whether now known or later developed) throughout the world in perpetuity. Contractor further assigns to Conservancy all rights in any supporting data and material used in creating the Works, if and to the extent that the copyright is not held by others. Contractor also grants to Conservancy a worldwide, non-exclusive, royalty-free, perpetual license to use any works created or otherwise owned by Contractor

prior to the commencement date of this Contract that are used to produce, or are otherwise incorporated into, the Works.

(b) Delivery of Works and Other Documentation. Upon request from Conservancy, Contractor must deliver to Conservancy (i) all tangible copies (including digital copies) of the Works or any portion of the Works, supporting data, or material not previously delivered to Conservancy, and (ii) any further documentation of Conservancy's ownership of the Works as provided under this Contract as may be requested by Conservancy.

(c) Authorized Use by Contractor. Conservancy acknowledges that all underlying intellectual property rights belonging exclusively to Contractor prior to the execution of this Contract (the "Underlying Intellectual Property") and used or supplied under this Contract in connection with the Project shall remain the property of Contractor and nothing contained in this Contract shall affect the rights of Contractor in its Underlying Intellectual Property. Additionally, the ideas, concepts, knowledge or techniques relating to the Project or developed during the course of this Contract by Contractor may be used at any time by Contractor without involvement of Conservancy at the sole risk of Contractor and Contractor agrees to release Conservancy from all claims, causes of action, suits, demands and damages, arising from or relating to the use of such ideas, concepts, knowledge of techniques relating to the Project.

Contractor may use the Works, supporting data and material only with Conservancy's prior written consent, and any such use must include an acknowledgment that the Works, supporting data, and material used are the property of Conservancy. Unless otherwise provided in this Contract, to the extent that any portion of the Works consists of research reports or studies, Contractor may use, publish or distribute that portion of the Works in academic papers and scientific or academic journals, with or without co-authors, provided that Contractor acknowledges that funding for such research reports or studies was provided by Conservancy.

(d) Warranty. Contractor warrants to Conservancy and covenants that (i) the Works will be original to Contractor alone and will not infringe the intellectual property rights of others, and (ii) to the extent that the Works contain any intellectual property owned by others, Contractor has been authorized, by license or otherwise, to assign to Conservancy the rights described in this Contract.

10. USE OF CONSERVANCY NAME AND LOGO. Contractor shall not use Conservancy's name, logo, or other intellectual property in any manner, whether in conjunction with the Services or otherwise, except (a) to the extent reasonably necessary in order to perform the Services; (b) in order to deliver invoices or other notices to Conservancy; and (c) if and to the extent otherwise explicitly stated in this Contract.

11. CONFIDENTIAL INFORMATION. In performing the Services, Contractor might have access to materials, data, strategies, trade secrets, proprietary information, systems, or other information relating to Conservancy and its programs that are intended for internal use only. Contractor must not, without Conservancy's prior written consent, use, publish, or divulge any such information to any person, firm, or corporation, or use it in any advertising or promotion regarding Contractor or Contractor's services, unless required to do so by law or by a court of competent jurisdiction or if such information becomes part of the public domain. Contractor must return to Conservancy promptly upon completion of the Services any and all Conservancy confidential information Contractor has in its possession.

12. TAXES. Contractor is responsible for filing and paying its own taxes and for complying with the requirements of any applicable tax laws. Conservancy will not withhold or pay on behalf of Contractor or any of its employees any U.S. Federal, state, or local income tax or payroll tax of any kind.

13. COMPLIANCE WITH LAWS. Contractor represents, warrants, and agrees as follows, wherever applicable to the performance of the Services: (a) Contractor can lawfully work in the United States; (b) Contractor will obtain, at its own expense (except to the extent otherwise explicitly stated in this Contract) any permits or licenses required to perform the Services; and (c) Contractor will comply with all statutes, laws, ordinances, rules, regulations, court orders, and other governmental requirements of the United States, the Commonwealth of Virginia, and any other U.S. jurisdiction(s) in which Contractor is organized or authorized to do business. Contractor must not take any actions that might cause Conservancy to be in violation of any such laws.

14. COMPLIANCE WITH ANTI-TERRORISM LAWS. Contractor must not use any funds received under this Contract in violation of any applicable antiterrorist financing and asset control laws, regulations, rules and executive orders, including the USA Patriot Act of 2001 and Executive Order 13224.

15. CERTIFICATION FOR CONFLICT OF INTEREST DETERMINATION. Contractor represents that to the best of its knowledge the information it has provided on Conservancy's Disclosure Form, now or up to two years prior to the commencement date of this Contract, is true and correct.

16. GOVERNING LAW; FORUM. This Contract and claims relating to this Contract, whether based on contract, tort, or other law, will be interpreted, construed and governed by the laws of the Commonwealth of Virginia (excluding such state's choice of law principles, if any), and such other U.S. laws as are applicable. In the event of any litigation over the interpretation or application of any of the terms or provisions of this Contract, the parties agree that litigation will be conducted in the Commonwealth of Virginia.

17. BINDING EFFECT; AMENDMENTS. This Contract will become binding when signed by both parties. This Contract supersedes all prior or contemporaneous communications and negotiations, both oral and written, and constitutes the entire agreement between the parties relating to the activities described in this Contract. No amendment will be effective except in writing signed by both parties.

18. SEVERABILITY; NO WAIVER. If any provision of this Contract is found to be invalid by a court of competent jurisdiction, the other provisions will not be affected by that finding. No delay in exercising any right or remedy under this Contract will constitute a waiver of that right or remedy or of any other right or remedy under this Contract or under applicable law.

19. NOTICES. Any formal notice, request, or demand made by one of the parties pursuant to this Contract (each, a "Notice") must be in writing and given to the respective named contact above by at least one of the following delivery methods, unless another form of delivery is explicitly required elsewhere in this Contract: (a) in person, (b) certified mail (return receipt requested, postage prepaid), (c) nationally recognized next day delivery service, or (d) electronic mail ("email"). A Notice will be deemed given: (1) immediately, if delivered in person; (2) if sent by certified mail, on the earlier to occur of: (i) the date of first attempted delivery; or (ii) the third business day after being deposited in the mail; (3) if sent by next day delivery service, on the following business day; and (4) if sent by email, on the date it is transmitted, unless the transmission is completed on a non-business day or after 5:00 p.m. in

the recipient's time zone, in either of which cases it will be deemed given on the next following business day.

20. COUNTERPARTS; FACSIMILE SIGNATURES. This Contract may be executed in one or more counterparts, each of which will be deemed an original and all of which, taken together, constitute the complete Contract. Facsimile or scanned signatures on this Contract and any related documents, and digital or electronic signatures where authorized under applicable law, will be fully binding for all purposes under this Contract, although any documents that are to be recorded must be executed by both parties with original signatures (and delivered promptly to the party responsible for recording).

IN WITNESS WHEREOF, the Contractor and Conservancy have executed this Contract, effective as of the last date written below.

The Nature Conservancy

By:

(signature)

Print Name:

Title:

Date:

By:

(signature)

Print Name:

Title:

Date:

Exhibit A
Description of the Services

SEE RFP SCOPE OF WORK

Exhibit B
Anticipated Credit Release Schedule

SEE RFP SCOPE OF WORK

ATTACHMENT G:

The Nature Conservancy

CONFLICT OF INTEREST DISCLOSURE FORM

It is the policy of The Nature Conservancy (“TNC”) to identify actual, potential or perceived conflicts of interest in any situation in which TNC has a significant business interest. To assist TNC in complying with this policy, we request that all individuals and/or organizations that will be involved in a proposed transaction with TNC complete this form.

TRANSACTION *(TNC staff complete transaction section)*

For **Real Estate transactions**, describe the property, its size and the type of deal (e.g., purchase or sale, gift, fee, easement, or other).

For **all other transactions**, describe the type of agreement (e.g., service contract, grant from TNC to grantee, etc.).

Total dollar value of transaction: \$ _____

[For cashless barter transactions, provide the value of the benefits being provided each party.]

STEP 1: ORGANIZATION TYPE

Please check the box to indicate the type of party for which this form is being completed, list all individuals and/or organizations that will be involved in this transaction. An “organization” includes a for profit corporation, partnership, trust, estate, joint venture, limited liability corporation, professional corporation or unincorporated entity of any kind, a foundation, public board, commission, and a 501(c)(3) or other charitable organization.

- Individuals (list all, then complete Section 1):** _____
- For Profit Organizations (list all, then complete Section 2):** _____
- Not for Profit Organizations (list all, then complete Section 3):** _____

STEP 2: QUESTIONS

Complete the applicable section of questions below. Individuals complete Section 1. For Profit Organizations complete Section 2. Not for Profit Organizations complete Section 3. **Note:** Please refer to the attached list of TNC key employees and current and prior members of TNC’s Board of Directors when completing the rest of this form.

Section 1. INDIVIDUALS: Please check all that apply and attach an explanation for any “Yes” answers.

	Yes	No
a. Are you now, or have you been at any time since July 1, 2013, a TNC “key employee” or a member of the TNC Board of Directors as identified on the attached list?		
b. Are you now or have you been in the last 12 months a TNC employee (other than a key employee), a Chapter Trustee or member of a Country Program Advisory Council ?		
c. Have you contributed to TNC U.S. \$5 million or more during the current fiscal year (July 1 – June 30), or U.S. \$25 million or more, cumulatively, in the current fiscal year and the prior four fiscal years?		
d. To your knowledge, are you a Family Member of any individual identified in paragraph a, b or c above? (For these purposes, the term “Family Member” includes the individual’s spouse, ancestors, brothers and sisters (whether whole or half-blood), children (whether natural or adopted), grandchildren, great-grandchildren, and spouses of brothers, sisters, children, grandchildren, and great-grandchildren; and any person with whom the covered person shares living quarters under circumstances that closely resemble a marital relationship or who is financially dependent upon the covered person.)		

Section 2. FOR PROFIT ORGANIZATIONS:

Please check all that apply and attach an explanation for any “Yes” answers.

	Yes	No
a. Has the organization made total aggregate contributions to TNC (i) U.S. 5 million or more during the current fiscal year (July 1 – June 30), or (ii) U.S. \$25 million or more, cumulatively, during the current fiscal year and the prior four fiscal years?		
b. Now or at the time of the proposed transaction, does or will any Substantial Contributor (as defined in 1.c.); TNC employee (includes former TNC employee who left within the last 12 months); member of TNC’s Board of Directors or key employees (see list attached); or TNC Chapter Trustee or Advisory Council member (includes former ones who served within the last 12 months) , individually or collectively with other such persons (including Family Members of such persons; see Section 1(d) above for definition of Family Members), own more than 35% of the stock or value of the organization (directly or indirectly), or have the legal or <i>de facto</i> power to exercise a controlling influence over the organization’s management or policies , e.g., as an officer, key management employee, board member or partner?		
c. Now, or at the time of the proposed transaction, have or will any members of TNC’s current Executive Team or Board of Directors (see attached list) serve as: <ul style="list-style-type: none"> • an officer, director, trustee, key employee, or partner; or • if the entity is a limited liability corporation, a member; or • if the entity is a professional corporation, a shareholder? 		

Section 3. NOT FOR PROFIT ORGANIZATIONS

Please check all that apply and attach an explanation for any “Yes” Answers.

	Yes	No
a. Now or at the time of the proposed transaction, have or will any Substantial Contributor (as defined in 1.c.); TNC employee (includes former TNC employee who left within the last 12 months); member of TNC’s Board of Directors or key employees (see list attached); Chapter Trustee or Advisory Council member (includes former ones who served within the last 12 months) , or Family Members of any of these, individually or collectively, have the ability to control management of the entity? See Section 1(d) above for definition of Family Members.		

STEP 3: COMMENTS

Please explain any “Yes” answers checked above.

Individuals who in the current fiscal year (FY19) are or during the preceding five fiscal years have been a Conservancy “key employee” or a member of the Board of Directors:

Key Employees

Justin Adams
 Kacky Andrews
 James Asp
 David Banks
 Charles Bedford
 Giulio Boccaletti
 Matt Brown
 Mark Burget
 Maria Damanaki
 Andrea Erickson-Quiroz
 Santiago Gowland
 Sherri Hammons
 Wisla Heneghan
 Jack Hurd
 Joe Keenan
 Marianne Kleiberg
 Richard Loomis
 Joyce Ma
 Brian McPeek
 Pascal Mittermaier
 Hugh Possingham
 Glenn Prickett
 Aurelio Ramos
 Lynn Scarlett
 Heather Tallis
 Mark Tercek
 Michael Tetreault
 Marc Touitou
 Peter Wheeler
 Leonard Williams
 Heather Wishik
 Heather Zichal

Other/Former Key Employees

Karen Berky
 Rebecca Bowen
 John Cook
 Mario D’Amico
 Addison Dana
 William Ginn
 Lynne Hale
 Steve Howell
 Peter Kareiva
 Michelle Lakly
 Robert McKim
 Catherine Nardone

Lois Quam
 Geof Rochester
 Angela Sosdian
 Michael Sweeney
 Philip Tabas
 Janine Wilkin

Current Board of Directors (FY ‘19)

Shona L. Brown
 Laurence Fink
 William Frist
 Joseph H. Gleberman
 Harry Hagey
 Margaret Hamburg
 Sally Jewell
 Nancy Knowlton
 Andrew Liveris
 Jack Ma
 Claudia Madrazo
 Craig McCaw
 Ana M. Parma
 Douglas Petno
 Vincent Ryan
 Brenda Shapiro
 Mark Tercek
 Thomas J. Tierney
 Moses Tsang
 Frances A. Ulmer
 Margaret C. Whitman
 Ying Wu

Prior Board Members (FYs ‘14-’18)

Teresa Beck
 David Blood
 Gretchen C. Daily
 Steven A. Denning
 Jeremy Grantham
 Frank E. Loy
 Jane Lubchenco
 Thomas J. Meredith
 Thomas Middleton
 James C. Morgan
 Stephen Polasky
 Roberto Hernández Ramirez
 Muneer A. Satter
 Rajiv Shah
 P. Roy Vagelos

STEP 4: SIGNATURES

The undersigned certifies that the information in the disclosure form is true and correct to the best of his/her knowledge.

Signatures for For Profit or Not for Profit Organizations:

Name of Organization: _____
 Signature: _____
 Printed name of person: _____
 Title: _____
 Date: _____

Signatures for Individuals:

Signature: _____
 Printed name: _____
 Date: _____
 Signature: _____
 Printed name: _____